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The decision-making orientations of state government budget analysts: Rational or intuitive thinkers?

Willoughby, Katherine Getzen, D.P.A.

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THE DECISION MAKING ORIENTATIONS OF STATE GOVERNMENT BUDGET ANALYSTS: RATIONAL OR INTUITIVE THINKERS?

by

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B.S., Duke University, 1980

M.P.A., North Carolina State University, 1984

A Dissertation Submitted to the Graduate Faculty

of The University of Georgia in Partial Fulfillment

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KATHERINE GETZEN WILLOUGHBY
The Decision Making Orientations of State Government Budget Analysts: Rational or Intuitive Thinkers?
(Under the direction of THOMAS P. LAUTH)

This dissertation examines the spending behavior of budget analysts employed in the central budget offices of ten state governments in the Southern region of the United States. The subjects of this study have primary responsibility for the review of state agency budget requests for the purpose of making spending recommendations to the governor. This research measures the recommendation strategies of these budgeters based on their consideration of 40 hypothetical state agency budget requests. Information about the fiscal, organizational, and technical aspects of the states and offices, and personal characteristics of the analysts, was collected also.

Analyses focus on individual and group characteristics of analysts' decision strategies. Social judgment theory serves as the foundation for analyses of analysts' spending behavior. Multiple regression provides for arithmetic and graphic representation of individuals' recommendation policies. Factor and cluster analyses are used to group analysts according to judgment orientation. Discriminant analysis is used to differentiate analysts, as grouped, according to predictor variables related to their fiscal, organizational, technical, and personal environments.

Results indicate that the spending policies of analysts can be modeled effectively using regression. Primarily,

these budgeters exhibit decision strategies that are unique. Nevertheless, while spending policies among analysts are personal, patterns of behavior do emerge. Analysts can be grouped into policy type, depending upon their interpretation of budget cues.

Concerning public budgeting behavior, results show that strictly incremental behavior is rare, particularly in fiscally stressed climates. Gubernatorial direction serves as the greatest influence on analysts' spending policies. Also, a majority of subjects consider objective measures of performance, along with the governor's agenda, when recommending spending plans.

Finally, results confirm that older analysts from more comfortable environments, fiscally and technically, can be expected to utilize one type of cue predominantly when making spending recommendations. Alternatively, younger analysts, in less fiscally stable environments, can be expected to utilize a mix of cues when making such recommendations. The mixed-value orientation of the majority of these budgeters substantiates the role of rational decision aides in the public budgeting process at the state level.

INDEX WORDS: Budgetary Behavior, Decision Making, Incrementalism, Judgment Analysis, Rational Decision Aides, Social Judgment Theory, State Government Budgeting

For
Dan Hall Willoughby, Jr.

and Dedicated to
Dr. Thomas P. Lauth

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INTRODUCTION

This dissertation examines an important form of state government budget behavior, the decision making orientations of central budget office analysts. The research method employed takes advantage of analysts' spending recommendations regarding hypothetical agency budget requests to determine the relative importance to these budgeters of certain criteria in shaping budgetary outcomes at the state level. One hundred and thirty one analysts from the central budget offices of ten Southern states participated in this research project which required direct administration of a questionnaire. The survey instrument included a decision making exercise which asked for analysts' judgments regarding 40 hypothetical state agency budget requests. Each request was represented by seven cues or criteria which have been consistently referred to by public budgeters as important when making spending decisions. Participants were also asked questions about their job title, work background, education and personal characteristics. Additional information concerning office organization, purpose, and technical sophistication, and fiscal climate of the government was collected for each state budget office as well.

RESEARCH PURPOSES

Descriptive Versus Prescriptive Research

There are several purposes for conducting this research. First, it is an effort to contribute to the public budgeting literature through descriptive rather than prescriptive means. Rather than consider rules necessary to promote better methods of allocating scarce resources, the results of this study provide analytical illustration of actual budgetary behavior. In this case, social judgment theory serves as the foundation necessary to "capture" or model the organizing principles of certain vital budgeters. The decision making exercise included in the questionnaire is a simulation which engages the active participation of budgetary experts in a familiar decision making task. This behavioral approach represents a movement from pure description of past actions to direct analysis of the information processing activity of budgeters.

Such an approach to understanding public budgeting behavior diverts markedly from traditional research characterized by expenditure determinant studies, surveys of the personal and professional aspects of budget players, or case studies involving a specific budgetary situation (see LeLoup, 1978 for a review of this literature). In particular, the incrementalist-rationalist debate has been fueled by studies which focus on yearly appropriation changes and their relationship to past budgetary behavior.

The adequacy of such research is questionable. For instance, data availability is often problematic, as is accommodation to analysis when the variable of interest is termed "budgetary behavior" (Kamlet and Mowery, 1980 and 1984; Tucker, 1982). Additionally, Schick (1983) points out that the routines implicit in incremental theory are disrupted in an age of fiscal instability. Likewise, LeLoup (1978) suggests that the incrementalist perspective has so overshadowed research about budgetary process and outcome, that it has been detrimental to our understanding of the way that decisions are made about spending the public's money. He laments that continued use of yearly appropriation changes, and/or final appropriations as the dependent variable overly simplifies a truly intricate process.

Padgett's (1980) analysis of federal budgetary data seems to confirm notions that budgetary behavior is a more complex endeavor than described traditionally. In this study, he emphasizes the role of informed judgment to budgetary decision making; that is, such activity is not just a sequential evaluation of known alternatives. Rather, "[public budgeting] is much more responsive to political, bureaucratic, and technical dynamics, on a routine even if constrained basis, than the theory of process incrementalism would lead one to believe" (Padgett, 1980: 370).

Bretschneider, et al. (1988) concur with these scholars that the concept of incrementalism is too restrictive an

explanation of budgetary decision making. They promote the application of controlled experimental design to the study of such behavior in order to comprehend public budgeters' methods of information processing fully. While these authors acknowledge that engaging budgeters in decision making simulations may simplify an otherwise complex endeavor, they note that results can provide "useful insights" about the types of information actually used by decision makers concerning budgetary matters (Bretschneider, et al., 1988: 309). This dissertation will serve as an example of the type of research demanded above in order to understand the spending behavior of state level budgeters.

Rational Versus Incremental Aids to Decision Making

The incrementalist-rationalist debate suggests a second purpose of this study -- to distinguish between different types of information used by public budgeters when making spending decisions. While a great deal of literature exists concerning the importance of productivity improvement in the public sector, very little research directly assesses the usefulness of analytical measures to those responsible for making decisions about the allocation of public funds (Lauth, 1987a). Traditionally, reformers have promoted rational methods of decision making, including the use of efficiency measures, as a means to improve budgetary decision making. Nevertheless, research indicates that such

factors are often overshadowed by the political considerations of budget players (Anton, 1966; Davis, et al., 1966). In fact, Klay (1987) finds that the characteristics of the budgetary process provide disincentives concerning the use of rational measures by public budgeters. Specifically, he cites type of funding, environmental conditions, nonexistent reward systems, and inadequate integration of the development and use of such measures as reasons why public budgeters turn to traditional and political cues when making spending decisions.

The model employed in this study, and the method of analysis chosen, allows for the mathematical distinction among rational and intuitive criteria regarding their use by state government budget analysts. Rather than ask these budgeters which factors they take into consideration when making spending decisions, this research provides a measure of the influence of certain types of information on these public employees when involved in a given decision making situation.

Specifically, social judgment analysis describes "quantitatively, the relations between someone's judgment and the information or cues used to make that judgment" (Stewart, 1988: 41). Reliance on social judgment theory necessitates the use of the software package, Policy PC, from Executive Decision Services, Incorporated of Albany, New York. This program provides for the random generation

of the 40 hypothetical budget requests as well as subsequent analyses of participants' decisions concerning such requests.

The decision making orientations or judgment policies of the analysts are able to be modelled mathematically using multiple regression -- a procedure available using Policy PC. Predicted spending policy serves as the dependent variable in each equation, while the criteria or cues defined in the hypothetical budget requests represent the independent variables. The cues reflect certain rational, quasi-rational, and intuitive factors which public budgeters have referred to consistently as important when making spending decisions. Standardized beta weights calculated from each regression coefficient indicate the relative influence of each cue to the analyst when reviewing agency budget requests.

Therefore, results of the regression analyses illustrate the importance of objective, incremental, and political information to an analyst engaged in budget review activity. Distinctions between root and branch methods of decision making then are illustrated as different cognitive styles. The regression equation produced for each analyst serves as a mathematical model of the individual's information processing pattern. Should differences exist among analysts regarding their cue "dependence" and interpretation, the models will reflect such distinctions.

These mathematical equations reflect what Bretschneider, et al. (1988) term "feeling" versus "sensing" cognitive styles (intuitive versus rational, respectively), depending upon which cues are most heavily weighted.

Grouping analysts according to cue weightings is conducted using the statistical software package, SPSS-X, and specifically the factor and cluster procedures. Discriminant analysis is then used to determine differences between analysts as categorized across other independent factors such as analysts' personal characteristics, the organizational and technical aspects of their office, and the fiscal climate of their state government.

The Role of the Budget Analyst in State Government Budget Process

The third purpose of this project is to investigate the decision making practices of an important, but rarely studied, public employee. Attention to the development of the role played by the analyst in state government budget process supports the need for such an investigation.

Especially during the latter half of the 20th century, gubernatorial budget powers have been so enhanced as to provide a substantial advantage in terms of influence to those employed in the central budget offices of state governments (Abney and Lauth, 1989: 830-831). Polivka and Osterholt (1985) point out that governors draw much of their strength from their budget powers and, in turn, their budget

staff. Abney and Lauth (1989: 829) emphasize the role of the central budget office in contributing to the budgetary influence of the governor by noting that,

> [g]ubernatorial budget powers are strong when there is a central budget office under the immediate direction of the governor, the head of the executive budget office is appointed by the governor, and the governor has sole responsibility for submitting a proposed budget to the legislature.

By virtue of their position as budget office staff, state government budget analysts have become increasingly powerful players in the money game (see also, Bromiley and Crecine, 1980; and, Lee, 1981).[1]

The budget itself provides chief executive officers with "the most important single resource for the development and implementation of policy" (Polivka and Osterholt, 1985: 92). Because governors do not carry as much weight in the execution of programs, they must influence state policy at the developmental stage. The predominant role of the governor and his or her budget staff at this stage in the

---

[1]The 1966 Annual Institute for Budget Examiners, sponsored by the National Association of State Budget Officers, in defining the role of the state budget office hints at the healthy influence of budget staff on gubernatorial decisions. It was noted that while there was no disagreement that budget staff fulfill a financial planning and control function for the governor, "the budget office must meet the managerial as well as the fiscal needs of the governor; budgeteers must also be analysts, planners, coordinators, and advisors -- in a way, alter ego for the governor" (Hurd, 1967: 6).

budget process is evidenced by Duncombe and Kinney (1986: 116) in their survey of state government budget officials from five Western states. According to one executive budget analyst,

> he followed the progress of the appropriations of his assigned agencies through the legislature and was surprised at how few changes the legislature really made in the executive budget.

Such a scenario is typical of the early stages of budget process at the state level. Essentially, budget staff assist the governor in establishing a policy agenda for state government process each fiscal year. Then, one of the budget analyst's most important roles becomes ensuring the primacy of such an agenda (Polivka and Osterholt, 1985: 102; see also, Benda and Levine, 1986).[2]

In fact, the governor, his budget staff, and the existence of the executive budget together form an "arsenal" considered vital to agency budget success, as measured by level of appropriation. This trio was listed as a major

---

[2]The predominant influence of the governor at the policy development stage is alluded to by state agency administrators in a study by Hebert, et al. (1983: 256) whereby "[i]t was hypothesized that agency heads who are more deeply involved in policy development...would be under stronger gubernatorial influence since the governor, as chief executive, has particular policy responsibility." The correlation between gubernatorial influence and time spent on policy development on the part of the agency administrator ($r = .12$) was found to be significant.

Abney and Lauth's (1983) study of state administrative behavior also substantiates administrators' assessment of the budgetary power of the governor.

factor in garnering appropriations by 48 percent of the state budget officials interviewed by Duncombe and Kinney (1986: 117). Additionally, the authors point out that "very few respondents" categorized the influence of the three elements of the arsenal separately. That is, participants in their survey did not distinguish the governor from budget staff or the existence of the executive budget in terms of influencing agency appropriations from year to year. Such results are indicative of the very real power enjoyed by budget staff in conjunction with their chief executive officer concerning development and subsequent passage of the budget.

Hale's (1977) research lends credence to such claims about the importance of executive budget staff to gubernatorial leadership and policy direction. In his study of the leadership styles of Governors Russell W. Peterson and Sherman W. Tribbitt, both of Delaware (elected into office in 1968 and 1972, respectively), Hale (1977: 178) acknowledges that the executive budget office serves as "the governor's primary agency for reviewing budget requests."

Hale found that responsiveness on the part of the budget office can both accommodate and interfere with gubernatorial direction. He (1977: 188) notes that,

> [b]udget offices may be too responsive for the governor's own good. When [Delaware's] chief executive emphasized spending restraints, budget examiners eschewed programmatic review. Where [another]

> governor valued innovation, budget analysts relaxed management controls.

These results not only recognize the influential role of budget staff in state budget process, but also illustrate the sometimes independent nature of such staff in the face of executive direction. That is, budget analysts can sometimes interpret gubernatorial policy direction to their own advantage. Such work suggests that analysts who staff state budget offices may not always fit into the traditional classification of budget cutter or "guardian" (Elling, 1983; Meltsner and Wildavsky, 1970).

It seems strange then, that despite such a strong role in determining budgetary outcome, executive budget staff, and especially budget analysts, remain largely ignored in research pertaining to state government in particular, and to the field of public budgeting in general (Cope, 1987; Gosling, 1987; Pfeffer and Salancik, 1974a and 1974b). Specifically, public budgeting literature has been remiss in terms of investigating the decision making patterns of these powerful budget players.

For instance, while research on the national level successfully illustrates the changing role and influence of budget examiners employed in the Office of Management and Budget (see Johnson, 1984, 1988, and 1989), none exists concerning the decision making practices of those in similar

positions at any level of government. As one analyst from the present study commented,

> It is surprising that so little research has focused on [state government] budget analysts, considering how powerful they really are in determining final appropriations. Analysts in this state are very powerful employees concerning budgetary matters.[3]

Perhaps the unelected status of this employee, and/or the visibility of the position vis-a-vis the state budget office director have contributed to the dearth of information regarding the decision practices of such an important player in state government budget process.

RESEARCH QUESTIONS

The general purposes of this dissertation influenced the choice of research method and unit of analysis. Specific questions to be answered by the project include: 1) Do analysts differ in the weights they apply across the seven cues which represent state agency budget requests?; 2) Do analysts differ in the manner in which they consider such cues?; and 3) Do analysts of similar decision making orientation vary across other independent variables, including, fiscal climate of the state, strength and technical sophistication of the budget office, and personal

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[3]Interview with state government budget analyst, Monday, September 12, 1988 at 2:00 p.m.

characteristics of the analyst? Application of social judgment theory in conjunction with the software packages, Policy PC and SPSS-X provides the means to answer these questions.

DATA SOURCE

Group administration of the survey instrument facilitated the collection of data used in this study. The researcher visited the central budget office of each participating state government in the fall of 1988 to administer the questionnaire to all eligible analysts. The state governments included in this survey represent the Southern region of the United States, including: Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia.

To be considered eligible for inclusion in this research project, an analyst must have been employed by the budget office through one budget cycle, or for at least one full year. Also, analysts were only included if their primary responsibility was the review of state government agency and department budget requests prior to submission to the governor. Ineligible analysts included those employed less than one year with their budget office, or those involved strictly in capital outlay, special policy analyses and evaluation, management review, econometrics, or specially requested data gathering and statistical analyses.

Of the 211 total analyst positions in these Southern states, 152 were eligible to participate in the project. The completion rate for this research effort was 86 percent, with 131 analysts completing the survey instrument. Analysts' participation in this research project was completely voluntary and with the approval of each state budget office director.

A typical visit to a budget office included a one- to two-hour session with eligible analysts to introduce the survey instrument, its purpose, and provide instructions for completion of the decision making exercise. Additionally, an interview was usually granted by the budget office director, or an assistant director to complete questionnaires concerning the fiscal, organizational, and technical aspects of office and government.

CHAPTER CONTENTS

This dissertation is presented in six chapters. An explanation of the contents of each is provided below.

CHAPTER ONE: An understanding of human judgment and decision making is presented in Chapter One. An outline of three models of budgetary decision making in the public arena is presented. Particular attention is given to the decision context of the state government budget analyst about which subsequent analyses are concerned.

CHAPTER TWO: The theoretical foundation for the methodology used is presented in Chapter Two. Hypotheses are stated and the application of social judgment theory to this particular topic is addressed.

CHAPTER THREE: Simulation development and cue definition are presented in Chapter Three. This chapter considers questionnaire generation, survey technique, and data collection strategy as well.

CHAPTER FOUR: Analyses of data are presented in Chapter Four. Descriptive information regarding individual and group characteristics and decision profiles is provided. Inferential techniques considered include, multiple regression with quadratic terms, and factor and cluster analyses.

CHAPTER FIVE: Discriminant analysis distinguishing four typologies of analysts according to other independent variables is explained in Chapter Five. The independent variables are operationalized at the beginning of the chapter, followed by model development and presentation of results from the discriminant procedure.

CHAPTER SIX: The concluding chapter presents the historical development of research concerning budget behavior which incorporates a behavioral perspective with an empirical approach. The contributions of this dissertation to the literature are outlined. A future research agenda is suggested.

CHAPTER 1
HUMAN JUDGMENT PROCESS: The Decision Orientation of the State Government Budget Analyst

INTRODUCTION

This research investigates the decision making behavior of state government budget analysts responsible for the development of state agency spending plans. As noted in the Introduction, past research concerning public budgetary behavior has concentrated on what is easily measureable, regardless of the inadequacies of the defined variables. This study, however, focuses on the behavior itself. That is, this project required the active participation of state government budget analysts involved in the review of state agency budget requests prior to recommendation to the governor. Results from analyses of analysts' decisions concerning a routine and familiar task will indicate the factors which these employees consider most important when developing spending plans for their governor.

Chapter One presents the theoretical development of human judgment. Traditional models of decision making applicable to state government budgeters are also reviewed in this chapter. Aspects from these paradigms are incorporated into the research model to illustrate the

decision making behavior of the state government budget analyst as precisely and accurately as possible.

HUMAN JUDGMENT AND DECISION MAKING

Our understanding of human cognitive process remains inadequate as long as we are unable to predict individual or group choice in a given situation. Development of a predictive equation of such human behavior is alluring because it implies the ability to determine outcomes, or future events. Specifically, information about the decision making practices of public officials suggests the ability to influence public policy. The following section investigates traditional and modern considerations of the human judgment process. Subsequent sections relate such concepts to the decision making context of the state government budget analyst. From this information, a model of behavior concerning the judgment policy of the analyst is developed and presented.

Human Information Processing

Judgment is defined as the ability to make a decision or form an opinion by discerning and evaluating; a rough guess or estimation, and; an assertion of something believed (Webster's II Dictionary, 1984: 657). These definitions suggest three distinct activities; the first implying a rational or mechanistic choice process; the second, less

rational action; and the third, a process rather far removed from the first two. Similarly, our understanding of human judgment and choice has followed a pattern from structured to amorphous interpretation of such behavior.

In the field of psychology, early considerations of individual decision making relied on normative models of behavior requiring "indirect comparisons" of individual judgments with analytically derived theorems or equations (Hammond, et al., 1987: 753). The economic assumptions which underlie rational choice theory offer concise rules of behavior and provide some explanation for its initial appeal (Wright, 1984).

For instance, the Bayesian approach is a mathematical model of utility theory which illustrates human decision making as a process of choice based on explicit probabilities and payoffs. The foundations of this theory are that human decision making is a rational process of choice and a maximizing endeavor. The individual seeks to maximize expected value or utility. Feedback and learning from feedback are inherent aspects of this model; feedback supplies the individual with information as to whether he has reached or surpassed "equilibrium" (technically, where marginal cost equals marginal benefit) (Cyert, et al., 1956; Hogarth and Reder, 1986; Simon, 1957 and 1986). Accordingly, decision making is deliberative behavior toward optimality. Reaching optimality can mean maximizing

benefits or minimizing costs (Einhorn and Hogarth, 1981: 55).

The machine metaphor of human decision making has been criticized as far too simplistic an explanation of judgment process. As Golembiewski (1977: 18) states, "[r]eality does not always divide so neatly." The clean, clear prescriptives of this model prove inadequate when anomolies of choice present themselves. "Rationality should lead us always to choose the mathematically optimal alternative to achieve a goal" though the fact remains that "other alternatives are often chosen" (Kaplan and Schwartz, 1977: xvii). Essentially, the economic assumptions of perfect knowledge and known preferences are often unmet in a given decision making situation.

Thus, dissatisfaction with the unrealistic nature of such normative models led to numerous descriptive studies of human cognitive process which attempt to address issues of uncertainty, intuition, and the environment. Termed "process-oriented approaches to decision making," such research employs more sophisticated techniques that are representative of a behavioral approach (Wright, 1984: 101; see also, Einhorn and Hogarth, 1981; Hammond, et al., 1987, and; Slovic, et al., 1977).

This body of research illuminates the contextual influences on and covert nature of human judgment and decision making which normative paradigms ignore. Current

theory illustrates decision making as a complex and integrative (and not necessarily sequential) process which occurs in an environment of conflict and ambiguity (Einhorn and Hogarth, 1986). The process can be both internal and inconsistent. Decisions are rarely predictable, even to those making them (Rohrbaugh and Wehr, 1978: 522).

Sage (1987) points out, however, that even though human judgment is a difficult activity to model precisely, there is certain structure and consistency to the process. "Humans use potentially definable and identifiable judgmental guidelines, perspectives, and rules that are more or less appropriate, depending upon their applicability to the task at hand" (Sage, 1987: 921). Sage adds that the development of models illustrative of judgment structure is both important and possible, particularly as related to the cognitive activity of experts involved in a specific and familiar decision task.[1]

Understanding human judgment becomes an effort to discern an individual's dependence on analytical versus intuitive thought process in a particular judgment

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[1]Tolcott, et al. (1989) discuss the fact that analytical models of expert judgment often outperform actual judgment in terms of reducing error in a specific decision task. However, these authors acknowledge that the anomolies of human choice behavior are difficult to understand and therefore model precisely.

context.[2] Hammond, et al. (1987: 754) advance the importance of such discovery in their research which directly compares the usefulness of analytical versus intuitive cognition to an expert involved in a specific decision making task:

> Direct comparison of the efficacy of intuitive and analytical cognition by experts...is important because such experts frequently must choose between these modes of cognition. The choice is made difficult by contrasting and contradictory folk beliefs about each. For example, good intuition is often said to be the mark of a true expert, yet intuition is often despised as mere guesswork hiding behind analytical laziness. Good analytical ability is often praised as high competence, yet often dismissed as nothing more than slavish "going by the book."

These authors argue that comparison of cognitive styles across individuals "under carefully specified conditions" is the best means to determine "which mode is 'appropriate' for which condition" (Hammond, et al., 1987: 654).

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[2]Determining the viability of research concerned with the distinction between cognitive styles is considered difficult because of the "uncomfortableness" in dealing with a concept like intuition which is almost impossible to operationalize (Hammond, et al., 1987: 755). Agor (1985: 359) suggests that, "[i]ntuitive decisions come from a capacity to integrate information coming from both the left and right sides of the brain. It is a product of both factual and feeling cues, unclouded by deep personal ego involvement in the issue at hand." Intuitive thinking is often considered "less structured" or less rational than analytical thought process. For a more complete understanding of the concept of intuition, see von Winterfeldt and Edwards (1986).

Recent research which considers this comparison is enlightening. In his study of executive uses of intuition when making important management decisions, Agor (1985) found that it is not the misuse of analysis, but the nonuse of intuition that led to "faulty decisions." He (1985: 364) notes,

> What emerges from executive responses suggests that they indeed make errors in their decisions. But these errors do not appear to be caused by following their intuition. Rather, faulty decisions appear instead to often be caused by **failing** to follow their intuition.

Agor (1985) suggests that although analytical thought process is a more lucid concept, such thinking does not necessarily lead to better results.

Hammond, et al. (1987) substantiate this point in their research concerning the judgments of 21 expert highway engineers. These scholars found that analytical cognition does not necessarily provide a "ceiling for performance," and, in fact, that the employment of such cognitive style is certainly not error-free. Specifically, they found that,

> 1) intuitive and quasi-rational cognition can perform as well as, and often better than, analytical cognition by the same person; and
>
> 2) "analytical cognition is more likely than intuitive cognition to produce extreme errors" (Hammond, et al., 1987: 766).

Such results empirically challenge the notion that the use of analysis always leads to the most unbiased and correct decision (Hammond, et al., 1987: 766). This research is interesting to those concerned with public budgetary process; a process which is continually "reformed" in order to promote rationally rather than intuitively derived spending decisions.

Modern theory about human judgment, therefore, reflects a systems approach which recognizes the possible use of analytical and intuitive cues across a variety of decision making environments. Application of such theory to a budgetary context in the public sector is specially relevant. The proposed model not only suggests the most important factors that budget analysts take into consideration when making allocation decisions, but also provides a measure of their relative importance to the decision maker. Results indicate the usefulness of analytical versus intuitive criteria to the analyst when making certain spending decisions.

The next section represents a more precise consideration of the judgment context of the state government budget analyst. The peculiar nature of the state setting is discussed, followed by a review of traditional models of decision making as related to public budgeting. Several specific variables which influence the analyst's decision environment are then defined. Finally, research

questions, general hypotheses, and mode of analysis are addressed.

THE STATE GOVERNMENT SETTING

Decision making implies action within a specific task environment as well as evidence of a certain "willingness" on the part of the individual to make a choice (Bromiley, 1981; Straussman, 1979). As this study concerns the state government setting, the process of resource allocation, and the behavior of the state government budget analyst, it therefore considers individual action in a particular context. Current understanding of the special aspects of this context and their influence on the role of the analyst is presented below.

The External Environment

The problems facing state government officials include old ones greatly magnified, and new ones just surfacing. Dramatic demographic shifts, a volatile international market, changing relationships with federal and local levels of government, and heightened public awareness regarding taxing and spending issues are but a few of the factors which increasingly burden these public decision makers (Mitchell and Feiock, 1988).[3]

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[3]Significant population movement across states and regions affects those losing and those gaining residents. States experiencing population decline witness shrinking tax

The state level of government in America provides an interesting focus for research regarding budgetary decision making for several reasons. First, current state officials find themselves in an unusual predicament. Generally, state government finances have stablized (Colby, 1988: 13). Having weathered the storm of recession in the 1970s and early 1980s, governors and state legislators are successfully balancing their budgets. However, remaining "in the black" comes at the expense of end of year fund balances, rainy day funds, and bond indebtedness. That is, state officials have not provided any savings or cushion against future economic crises. Not surprisingly, state government decision makers remain ill at ease (Colby, 1988).[4]

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bases; those gaining in population applaud the new revenue potential, though dread the increased costs associated with the new and/or expanded public services and programs newcomers expect. Also, the effects of boom-bust economies further stress states -- particularly when dealing with residents who chose not to migrate. For instance, in Alaska, a suicide epidemic, resulting from a continually declining economy, necessitated the establishement of a $900,000 grant fund by the state in order to foster local suicide prevention programs. Governor Steve Cowper laments, "Restoring hope in rural Alaska will require careful listening...and creative thinking and focused action after that" (Ahern, 1988: 16).

[4]Former Virginia Governor Charles Robb suggests that the financial squeeze on state governments today is federally intiated. He speculates that the future does not offer much relief to state officials. Specifically, state governments should expect to take on more responsibility in the area of domestic services and programs previously provided and/or funded by the national government. Also, state officials can look forward to less federal funding overall (which Robb claims will be "completely shut off") though more federal

Second, regardless of the overall financial status of state governments, the diverse environments involved cannot be discounted. This level of government is not as homogeneous as either the federal or local levels. Rather, "in the states the situation is indeterminant. In some states conditions are more like those of the federal government; in others they resemble the municipal scene" (Wildavsky, 1986: 219). State governments reflect the particular characteristics of their environment, which differ in terms of land mass, climate, agriculture, and industry, as well as population and social culture. These variables greatly influence the governmental structure and the power afforded each branch. Such diversity naturally influences public spending behavior at the state level (Gray, 1983: 3-26).

The State Government Budget Cycle: The Institutional Setting

From an internal perspective, the "segmented" quality of the state government budget process involves a distinct cycle of decisions and defines the behavior of budget players. Considered an "executive-driven" process greatly influenced by the legal constraint of a balanced budget requirement and limits on deficit financing, a model of

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regulation (The Book of the States, 1986-87: 1-2; see also, Rebovich, 1985). This theme is addressed in an empirical study of state government growth by Mitchell and Feiock (1988).

state government budgeting is actually composed of several submodels. The process is comprised of three segments: the department request, the chief executive officer's recommendations (recommended total budget), and the legislative appropriation (Abney and Lauth, 1986; Crecine, 1967; Gray, et al., 1983; Polivka and Osterholt, 1985).

State government budgetary process reflects specific, expected role behavior among budget actors. Each of these submodels involves a distinct set of players characterized by particular routines and responses. In this case, role behavior is understood as the "recurring actions of an individual appropriately interrelated with repetitive activities of others so as to yield a predictable outcome" (Katz and Kahn, 1978: 189). This study considers the role of the budget analyst as a bridge between the first two submodels; that is, the decision making orientation of the analyst when reviewing and preparing departmental and agency budget requests for the governor.

MODELS OF DECISION MAKING IN A BUDGETARY CONTEXT

As suggested earlier, research comparing the use of analytical and intuitive cognition by experts should find a comfortable home in the field of public budgeting. Such process involves certain experts taking advantage of both types of cognition across a variety of environments. In fact, the different criteria used by budget officials at any

level of government when making allocation decisions fall within several decision making paradigms of public budgeting and administration which reflect the models of human judgment discussed previously. Most relevant to the behavior of the state government budget analyst are: 1) the rational or bureaucratic model; 2) the incremental or coalition model; and 3) the power or political model (Hills and Mahoney, 1978; Meltsner and Wildavsky, 1970; Pfeffer and Salancik, 1974a and 1974b). The first approach exemplifies normative theory of human behavior as mechanistic. Decisions are based on universalistic criteria (objective data). Goals are clearly articulated; alternative actions to reach goals and the consequences of alternatives are known. Decision making is a deliberative, sequential process toward efficiency (Pfiffner, 1960).

However, as Caiden (1985: 489) suggests regarding the public budgeting arena, "[c]hoice among alternatives often arises intuitively or is negotiated, rather than made in any technical way." Incrementalism thus provides a second model within which the analyst's decision making can be understood. This approach recognizes the limitations of the human brain, as well as the lack of information concerning means and ends. In fact, according to Plant (1986: 80), the complexity of government problems "outstrips" human intellectual capacity.

This model acknowledges that many decisions in the public sector involve value judgments. Where there is disagreement over values, simplifying heuristics are used to reduce conflict and reach a decision. Present policies are those which have been agreed upon in the past and therefore serve as a good starting point when making decisions about the future. In budgetary matters, decisions center around changes to the current appropriation or the base. Deliberations regarding changes to the base simplify budgetary decision making and minimize conflict between budget actors (Kamlet and Mowery, 1980). The result of bargaining among decision makers (partisan mutual adjustment) is marginal change in the base (current policy or appropriation) (Cyert and March, 1963; Lindblom, 1959).

The third approach accepts certain aspects of the second model yet emphasizes the role of power in directing decisions (Baldridge, 1971). This approach also recognizes the existence of bargaining strategies when conflicts among values present themselves. However, it emphasizes that "what decisions will be made is to be found in examining who has power to apply in a particular decision context" (Pfeffer and Salancik, 1974b: 136). Further, regarding resource allocation in the organization, subunit power plays a strong role in determining final budget outcomes (Perrow, 1979). The criteria which are important in making decisions within this framework are particularistic rather than

universalistic; the final decision reflects the biases of the most powerful decision maker.

The Analyst's Decision Criteria

These perspectives illuminate different criteria upon which the analyst bases decisions regarding departmental requests. In the analyst's world, the separate criteria can be operationalized as follows: Universalistic criteria can include performance data in the form of workload and efficiency measures of department output (an input/output ratio). Incremental or "heuristic" criteria can include measures of change in the status quo (for example, percent change from current appropriation and/or a measure of "fair share" applied to each department). Particularistic criteria can be measured in terms of influence relationships; specifically, the reputation of the department head (trustworthiness of expressed needs compared to actual spending), department interests compared to gubernatorial and legislative agendas, and level and type of public support for department programs and services.

Incrementalism, the Analyst, and the Use of Criteria

Traditionally, state budgetary process has been conceptualized by the incremental model; earmarked revenues, uncontrollable expenditures, a balanced budget requirement, and debt limits necessitate adherence to precedent which

facilitates agreement on spending decisions within a particular time frame (Howard, 1973; Sharkansky, 1968). In this setting, the governor favors the role of administrative manager and the budget process serves as his or her "most institutionalized, persistent and readily available management tool" (Howard, 1979: 134). The analyst is usually portrayed as a budget conserver in contrast to department heads who are portrayed as budget claimers (Meltsner and Wildavsky, 1970). While agency administrators pursue a growth strategy which involves protecting their base (appropriations for current programs) and garnering a "fair share" of any budget surplus, the chief executive officer (and also his staff) pursues a conservative strategy of balancing the budget by bringing requested spending in line with expected revenues (Elling, 1983).

In developing spending plans, the analyst considers the current request in relation to actual spending (or adherence to the base) (Meltsner and Wildavsky, 1970: 335). While universalistic and particularistic criteria come into play in formulating a request, the heuristic criteria are most helpful to the analyst and promote continued incrementalism -- the resulting spending decisions provide for marginal growth in annual appropriations.

OTHER FACTORS

In the state government setting, however, several variables can influence the analyst's dependence on certain criteria when making decisions about the budget. Especially noteworthy are fiscal climate, organizational and technical aspects, and personal characteristics. An explanation of each of these factors and their influence on the decision behavior of the analyst follows.

Fiscal Climate

Increasingly, the incremental model of budgeting is being questioned as incongruencies between expected and observed behavior surface.[5] For instance, Schick (1988) and Tarschys (1986) explain modern public budgeting as a decremental and adaptive rather than incremental process. These authors recognize that as fiscal resources dry up, relationships and behaviors of decision makers change (see also, Straussman, 1979).

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[5]It has been pointed out that the base itself remains conceptually unclear (Boseman and Straussman, 1982; Lauth, 1987b). The base means different things to different players in the budget process; at the state level, it may be inconsistently defined throughout the separate submodels of budget process. Further, "the base concept is especially likely to vary during periods of fiscal austerity" (Boseman and Straussman, 1982: 514). Thus, it is difficult to rely on incrementalism as an explanation of budget behavior when the cornerstone of the theory is not operationalized (Lauth, 1987b; see also, Tucker, 1981: 644-645).

Similarly, in his comparative study of budgetary process, Wildavsky (1986) explains that modern state government budgeting is plagued by one of two syndromes -- either a surplus or shortfall. He illustrates that changes in budgetary process at the state level vary markedly depending upon the existence of either syndrome. Presence of a surplus necessitates questions about where to spend the overage; presence of a shortfall necessitates questions about where to cut and which potential revenue sources to tap (Wildavsky, 1986: 229).

Duncombe and Kinney's 1986 study of state level budgeters substantiates the model of changing behavior in periods of financial shortfall. They found the most frequently mentioned factor affecting appropriations on the part of the state budget officials in their survey to be "revenue availability" or "fiscal condition of the state" or a similar phrase. They (1986: 115-116) cite that,

> For an agency budget officer, the overall revenue situation is a reality of life. In good fiscal times you can strive for new or expanded programs; when times are hard you **fight** to maintain existing programs.

Their results indicate that competition for funds becomes more heated as fiscal resources become scarce (see also, Kettl, 1989).

Certainly continued fiscal stress at the state level changes budget roles; that is, claimants become conservers

(Schick, 1988). A scarcity of resources requires greater scrutiny of spending patterns. The base no longer remains sacred and the control function of budgeting is enhanced.[6]

In such a setting, the role of the central budget office (and so that of the analyst) is strengthened.[7] Strategies for determining budget requests require clearer prioritization of accounts, increased monitoring of spending patterns, and greater attention to revenue and expenditure estimates (Chapman, 1982; MacManus and Grothe, 1989). Traditional, heuristic criteria become less valuable. Rather, in such circumstances, objective measures of performance become a more necessary component of the budget document and "can help make cuts more defensible to the public at large" (MacManus, 1984). Results from this

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[6]Lauth (1987b) explores the budget base in the state of Georgia and finds that it can come under fire in times of economic growth and expansion as well.

[7]Clynch (1986) argues that periods of fiscal stress in Mississippi only enhance the strength of the base while limiting the role of analysts in spending decisions. "The budget process in Mississippi limits the flexibility of budget reviewers, particularly in a tight money situation. Clearly the notion that the 'base' is sacred applies to Mississippi" (Clynch, 1986: 52).

The hybrid nature of Mississippi's budget process offers some explanation for such behavior. Procedural changes over the past few years have strengthened the budgetary powers of the governor of this state. Nevertheless, these changes "seem to have only marginally shifted decision making power away from the legislative leadership [who have traditionally enjoyed the power of budget development]" (Clynch, 1986: 55). It remains unclear whether changes in budget process instituted at the behest of the state judicial branch will result in a more executive-centered system commonly found in the states.

research will indicate whether analysts take greater advantage of universalistic and/or particularistic criteria when making spending recommendations, depending upon the fiscal climate of their state.

Organizational and Technical Aspects

Consideration of the fiscal health of state governments leads directly into discussion of the influence of the organizational setting on the analyst's decision making orientation. Certainly, the resources available to and climate of a state government affect those employed by it. Concerning the state budget office specifically, its placement within the organization greatly influences the role it plays in budgetary decision making (Howard, 1979; Polivka and Osterholt, 1985; Stone, 1985).

Stone (1985) suggests that regardless of physical location in the organization, being listed on the governor's office roster, or otherwise stipulated as a member of the "executive management team" provides strength to the office or officer so designated. Nevertheless, regarding the location of the budget office, he emphasizes that the crucial nature of the budget to the functioning of the governor usually warrants strategic placement of such staff [within the executive office] to afford easy access throughout the budget process. Similarly, Polivka and Osterholt (1985: 92) point out that moving the Office of

Budget and Planning out of the Department of Administration and into the Executive Office of the Governor in 1979 was a direct effort to enhance gubernatorial leadership and power in the state of Florida. Essentially, where the budget office is located within the organization influences the role budget analysts will play - the farther the office is, organizationally, from that of the governor, the less influential the staff is expected to be.[8]

Internal aspects of the budget office influence the decision making patterns of budgeters as well. In a study of state budget analysts in Iowa, Minnesota, and Wisconsin, Gosling (1987) found that the orientation of the budget office, and particularly of the budget director (whether focused on financial management and control, or management and policy analysis functions), influenced analysts' decision making and job concept.[9] Organizational focus

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[8]The central budget office in state government is usually located within one of the following (Stone, 1985):

a) the governor's office
b) as an independent office (not within any other department or agency)
c) a department of administration
d) a department of finance
e) a department of administration and finance

[9]In a national survey of state budget directors, Ramsey and Hackbart (1979) found that budget reform often results from the persuasive capabilities of the budget director alone. "In states with influential budget directors, the push for budget innovation may come directly from the budget office....[In many states] innovation has been a function of the budget director" (Ramsey and Hackbart, 1979: 69). From a general standpoint, Conant's 1989 empirical study of the

served as a factor in defining the job of the analyst, influenced his view of the job and its responsibilities, and provided patterns for future staff recruitment and selection. Specifically, analysts coming into an office with a management and policy analysis focus garnered a more political orientation in that they were exposed to more (political) players involved with resource allocation decisions (Gosling, 1987).

Staff size may influence the decision making orientations of analysts by contributing to the overall strength of the central budget office. From data compiled from two surveys of state budget offices conducted in 1974-

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relationship between leadership and organizational change indicates that leadership often serves as an explanation for organizational change at the state level. Specifically related to budgetary decisions in the state of New Jersey, he found that the leadership of department heads "played major intervening or independent roles" in securing state dollars. Conant (1989: 7) cites that,

> [T]he level of state resources appropriated to the [Department of Human Services] grew rapidly during the tenure of [Commissioner] George Albanese (1982-1985). Resource expansion was a key objective for Albanese, and he was adept at developing gubernatorial and legislative support for his budget requests. Economic factors...undoubtedly played a significant role here, too. But improving economic conditions certainly did not guarantee the kind of resource growth that Albanese was able to secure.

Conant's study successfully illustrates the powerful role of leadership in effecting change in, and ultimately the output of, public organizations.

1975 and 1979-1980, Lee (1981) found staff size to be the best single predictor of centralization of spending decisions. He adds that "[c]haracteristics about the budget office professional staff provide a better indication [than general state characteristics] of what level of central control is likely to be maintained" (Lee, 1981: 79).

Another aspect of the internal, organizational environment which influences decision making and decision makers concerns information availability and use. Several studies illustrate increased use of more advanced management practices and productivity analyses by local governments in the United States (Cope, 1987; Grizzle, 1987; Poister and McGowan, 1984). Poister and Streib (1989) point out that public officials turn to certain management tools to strengthen control and accountability, improve decision making, enhance organizational performance, and promote professionalism. At the state level, Botner's (1985) survey of state budget directors yields similar results. That is, "state governments are making extensive use of sophisticated budgeting and management tools" in order to achieve the four goals outlined above (Botner, 1985: 616).

States have made the greatest gains in the development and use of systems which account for spending in programmatic terms along with enhancement of automatic data processing capabilities (Botner, 1985 and 1987; Lee, 1981; Ramsey and Hackbart, 1979 and 1982). "Such changes have

resulted in adjustments in budgetary emphasis (movement from control to planning function, output effectiveness assessment, and so forth)" (Ramsey and Hackbart, 1982: 15). Additionally, Ramsey and Hackbart (1979) found that the accounting and information system is considered of major importance as an inducement to budget innovation by over half of the state government budget directors they surveyed. This was the fourth most popular response -- with the governor, the budget director, and deficit funds ranking first, second, and third, respectively.

Cope (1987) notes that performance data and analyses have been integrated into local government budget practice effectively and can improve overall productivity. Yet, it remains unclear whether such analyses improves productivity on the micro-level (Stevens and Lee, 1981).[10] In other words, data do not exist concerning budget analysts' use of

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[10]This study concerns budgetary decisions on the micro-level as understood by Skok (1980). In a two-year study of the budget process in Pennsylvania, Skok analyzed the distributive and redistributive nature of budgetary decision making. He found that at the micro- and lower level macro-stages, budgetary decision making is distributive. "[E]ach program subcategory is analyzed independently on its own merits according to a battery of routine criteria (past performance, indicators of need, evaluation studies, formula mandates, prior-year appropriations, salary projections, and the like)" (Skok, 1980: 457-458). However, as the budget process progresses, decisions begin to involve redistributive versus distributive issues. Skok (1980: 458) suggests that rational analysis is most influential at the micro-level stages of budgetary decision making "where questions of funding source and/or tradeoffs among program subcategories is not of primary importance."

specific performance measures and productivity data when developing budget requests, or if this information leads to "better," more productive spending decisions (Lauth, 1987a). As Grizzle, (1987: 34) suggests, such technical data may be most useful "when decisions are not already foreclosed by politics."

Personal Characteristics

Level of education and training of employees also influence budgetary decision making at the state level. Primarily, they are factors in the recruitment and selection of analysts by particular budget offices. State governments of specific size and resource require a certain level of expertise of their budget officials. State budget offices employ candidates who will work well within their organization and who hold the skills necessary to understand and utilize the information generated by the budget office as well as the other agencies and departments (Poister and McGowan, 1984: 222; see also, Gosling, 1987). For instance, Ramsey and Hackbart (1979: 67) found that budget directors listed staff capabilities as the primary impediment to budget innovation in states where change occurred.

Likewise, job experience influences the decision making orientation of the budget analyst. Meltsner and Wildavsky (1970), in their case study of budget behavior in the city of Oakland, witness distinctions in the review strategies of

analysts according to length of time on the job. Experienced analysts (those that have been on the job for more than two years), having a greater sense of their role in the budget process, often exhibit "nurturing" behavior. As they become more familiar with the programs and services provided by the departments whose budgets they analyze year after year, they become advocates of department objectives. Such analysts are concerned with developing an understanding relationship with their departments and discovering "what will fly" with their governor regarding specific budget requests (Meltsner and Wildavsky, 1970: 336). Inexperienced analysts, on the other hand, tend to adhere to (incremental) "rules of thumb" when reviewing budgets of departments with which they have developed little rapport.

HYPOTHESES AND METHOD OF ANALYSIS

Hypotheses

State government budgeting involves a blend of analytical, traditional, and political criteria utilized by a myriad of public officials when making spending decisions. Among other things, the budget represents "a commitment to a particular point of view" (Millett, 1967: 121). This research investigates the point of view of an important, yet unfamiliar, public servant in budgetary process; unfamiliar due to the unelected status of this employee position. Specifically, this study examines the criteria state

government budget analysts consider when making allocation decisions involving public funds.

As pointed out earlier, criteria related to state budgetary decisions can include: 1) rational, technical measures of performance; 2) traditionally depended on rules of thumb, and/or 3) political factors regarding relationships among certain public "power brokers." The interest here lies with the decisions of state budget analysts when reviewing agency budget requests for recommendation to their governor. Such decisions can be based upon objective or rational measures of program efficiency; simplifying heuristics such as current budget compared to agency request; or intuitive feelings as to who best to satisfy in terms of program trade-offs. In much the same way that Abney and Lauth (1988) consider the balance between parochialism and rational decision making in state legislatures, this research considers the balance between intuitive and analytical cognitive processes in an executive branch budgeter.

Results will indicate the value that analysts place on the different criteria suggested above when reviewing state agency and department budget requests. Analyses of data gathered from a questionnaire administered to 131 budget analysts in the central budget offices of ten Southern states will answer the following questions:

1) Which criteria are most important to analysts when they review agency budget requests on behalf of the governor?

2) Are individual analysts consistent in their dependence on certain criteria when reviewing these requests?

3) Do analysts fall into separate groups according to their budgetary judgments?

4) If analysts can be grouped into separate decision making orientations based upon their judgments, are there significant differences between such groups across other variables like, fiscal climate of the state, organizational setting, purpose, and technical sophistication of the budget office, and personal characteristics of analysts?

The method of analysis chosen is expected to provide adequate modeling of analysts' spending policies or orientations, due to the specific decision making context of interest. Given the analyst's role in state government budget process, it is expected that gubernatorial policy direction will greatly influence analysts' judgment policy. Likewise, heuristic criteria, specifically, level of request compared to current budget, is also expected to be weighed heavily by analysts when making spending recommendations to their governor.

Additionally, it is expected that the usefulness of certain criteria to analysts will vary depending upon personal characteristics, particularly, age, number of years served as an analyst, and level of education achieved. The organizational location of the budget office and primary

purpose served by such, the technical capabilities afforded analysts, and the fiscal climate of the state also will influence the spending policies of analysts. The hypothesis posited is that universalistic criteria will be of greater influence to analysts making spending recommendations to their governor when they are younger, better educated, in budget offices located outside of the governor's office, and where the computer facilities offer a modern and comprehensive system. A second hypothesis suggests that analysts from fiscally stressed states will be more likely to take advantage of universalistic and particularistic, rather than heuristic criteria.

Method of Analysis

The method of analysis employed in this study takes advantage of social judgment theory. This theory, with its psychological foundation, implies a different approach than the traditional social, economic, and political perspectives of past studies regarding budgetary decision making. Social judgment theory assumes less exact, though more relevant, measurement of recognized variables than has been evident in the more common expenditure determinant studies and surveys of the personal and professional characteristics, routines, and tools of government budget players.[11]

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[11]Deference to this method of analysis suggests reliance on a common sense approach more than an interest in statistical significance alone. As Slovic and Lichtenstein

Past research indicates that social judgment analysis has been applied successfully in the public arena, though not concerning state budgetary decision making, per se. The method has been useful in modeling individual and group decision making practices -- for example, regarding the priority-setting of citizen groups and public policy makers, the evaluation of research by editorial board members in the field of public administration, and most recently to capture the decision policies of arbitrators experienced in mediating wage disputes (Adelman, et al., 1975; Dell'Omo, 1990; Grizzle, 1985b; Hammond, et al., 1987; Stewart and Gelberd, 1976; Whorton, et al., 1988-89).

Similarly, the procedure has been used to model the spending decision strategies of individuals. For example, Stahl and Zimmerer (1984) simulated the acquisition decisions of executives employed by 42 private firms from data generated from a hypothetical decision making exercise. They conclude that "simulating strategic decisions via behavioral decision theory is a promising methodological approach" (Stahl and Zimmerer, 1984: 381).

(1973: 91) note, "correlational research, with its emphasis on predictability, may be quite useful for certain applied work but less adequate for theoretical endeavors which require sharper hypotheses and tests of fit." Nevertheless, the proposed research is characteristic of the "third route" of discovery mentioned by Simon (1958: 61) meaning "the study of important matters scientifically." Undoubtedly, this investigation will be a "steep and rocky journey" as well.

A more recent example of the analysis of expert judgment regarding hypothetical decision scenarios in a budgetary context is exhibited in the work of Bretschneider, et al. (1988). Their experiment required subjects (graduate students in business or public administration at Syracuse University) to provide a "maximum expenditure ceiling" for a hypothetical city. Subjects were given specific policy roles and information concerning the past accuracy of revenue forecasts in addition to revenue, expenditure, and demographic information about the city (Bretschneider, et al., 1988: 312). Results from their study confirm that budgetary role greatly influences the decisions of budgeters (in this case, students making spending decisions). Additionally, they were able to illustrate the usefulness of certain types of information on the part of subjects. Their results indicate the usefulness of objective data to the subjects when making spending decisions. This experiment provides an interesting model of the information process structure of future public and private employees.

Dependence on social judgment theory in this investigation will build on these past applications and provide further evidence of the usefulness of this method in modeling an individual's spending policy or judgment. In this case, "the goal of judgment analysis in the context of social judgment theory is to derive a useful description of the judgment process and not necessarily to reproduce

faithfully all the properties of the process itself" (Stewart, 1988: 58). Additionally, the collection of data by group administration of the questionnaire and application of social judgment analysis provides another test of the reliability and validity of such an approach (Whorton, et al., 1988-89).

VALUE CHOICE AND PUBLIC POLICY

This dissertation probes what is most important to state government budget analysts when making decisions about how to spend public money. Social judgment analysis provides the means of discovering the structure of the decision process of these government experts, as well as the consistency with which they adhere to it. Results supply greater insight into state government budgetary process and should improve the prediction and explanation of budget outcomes at that level. The substance of this research is relevant to several disciplines in addition to public budgeting theory, including: behavioral decision theory, organization theory, public policy science, and public management and administration.

Ultimately, this study focuses on human values and the implications of value choice on American government at all levels. In this case, the values of interest are represented by the specific criteria comprising a decision making exercise. Such criteria can be characterized on a

continuum from analytical to intuitive aides to decision making. That is, criteria such as technical measures of performance like workload and efficiency can be defined as analytical or rational, whereas criteria such as gubernatorial or legislative policy direction require more intuitive application on the part of the decision maker.

Harmon and Mayer's (1986: 312-313) suggestion regarding value orientations in the organization clarifies this point:

> Different decision rules embody different forms of meaning and thus different value orientations. Enactments of particular decision rules have social and political implications for how relations among workers and between workers and clients are structured and conducted.

In this case, the usefulness of particular criteria to a powerful budgeter in the state government setting has implications regarding democratic theory -- depending upon which criteria are most useful to the budgeter in the judgment context (Anderson, 1988).

Therefore, the focus of this investigation answers a call for research by Abney and Lauth (1986) regarding the relationship between values and public policy decision making. These authors note that "the role of rational values in state government decision making [remains] largely unexamined" (Abney and Lauth, 1986: 106). Certainly, in the area of budgetary decision making, there has been a persistent movement to enhance rational practices of

allocation in an effort to suppress incremental, and/or political methods of spending. The implication is that traditional (incremental and political) and not analytical interest on the part of public budgeters lends itself to inequitable public policy. As noted earlier, modern theory concerning human judgment would question such an implication. This dissertation provides a mathematical interpretation of the information processing structure of the state level budget analyst in order to determine the decision making orientation or "value adherence" of this particular public servant.

CHAPTER 2
THEORETICAL FOUNDATIONS:
Adapting Brunswik's Lens Model

INTRODUCTION

Underlying human judgment theory is the notion that cognitive process is structured. Rossi and Nock (1982) point out that such structure implies at least three things: 1) that there are a limited number of cues that are considered in any one decision making context; 2) that there is some agreement in judgment structure among similar people involved in similar decision making tasks; and 3) that individuals are consistent in their judgments. These authors (1982: 16) emphasize that a most critical question for social scientists to address is "how best to uncover the structures that underlie [human] judgments." This research is just such an attempt to uncover the judgment structures of vital, state-level budgeters.

The previous chapter outlined the decision making context of state government budget analysts involved in a familiar budgetary task -- that of reviewing agency budget requests to recommend spending plans to the governor. This context was described in terms of decision cues and the financial, organizational, technical, and personal factors related to an analyst's working environment. This chapter

considers the method by which such decision making process can be quantitatively represented. Social judgment theory, which serves as the foundation for the research model in this case, will be reviewed. The research model linking analysts' budgetary decisions with final spending policies is then presented. The use of prototypes, task and cue definition, and simulation development will be outlined as well. The concluding section will suggest hypotheses regarding expected relationships between analysts' consideration of decision cues and their overall judgment orientations.

THE RESEARCH METHOD

Theory

The method used to conduct this research involves social judgment theory. This theory provides a decompositional and integrative approach to the study of decision making. A decompositional approach is different from traditional, compositional methods of analysis. Rather than have subjects rate criteria and then sum the criteria to obtain an overall rating or policy judgment, social judgment analysis requires the inference of the relative importance of criteria from an overall rating provided by the subject (Grizzle, 1985b). The approach is integrative because it requires subjects to perceive multiple cues and discern their importance when making a decision or judgment.

The father of social judgment theory, Egon Brunswik, sought a means of analyzing human judgments which could decifer the idiosyncrasies of such a process. He (1956) conceptualized the relationship between the organism and the environment in terms of a "lens model." This model represents the "probabilistic functionalism" of human decision process; that is, the use of cues by subjects is structured, yet irregular. Ultimately, Brunswik sought movement in psychological research from traditional laboratory experimentation to observation of the individual-environment interchange in the natural setting (Tyler, 1981). Therefore, social judgment theory provides a descriptive rather than normative approach to the study of cognitive process.[1]

Social judgment theory recognizes the complex nature of the environment as well as the confusing relationship between it and individual judgment. Brunswik's lens model

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[1]In organizational theory, a similar movement from deductive to inductive reasoning and research takes place. Work of this flavor reflects the behavioralist perspective which requires a scientific approach to the study of organizations and individuals in organizations. This "new" perspective "assumes that truth lies in the objective study of the observable behavior of organisms, rather than in speculation about the motives of individuals or presumptions about their individual or collective purposes" (Harmon and Mayer, 1986: 124). This movement in reasoning signified a desire on the part of scholars to build a model of organization behavior based upon direct and objective observation. It was assumed then that human behavior could be measured and a causal sequence of behavior established (see Cyert, et al., 1956; March and Simon, 1958; Merton, 1967; and Simon, 1957).

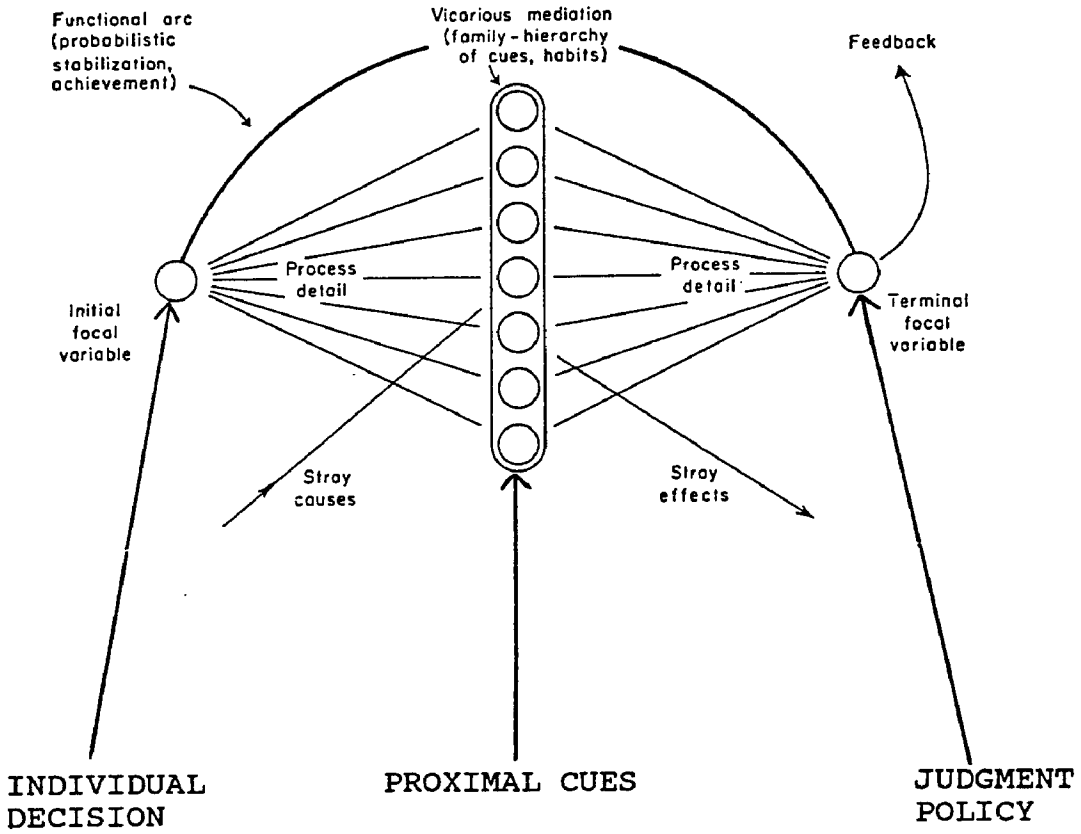
illustrates this relationship, the "behavioral episode," in terms of a distal state (goal), proximal cues, and individual judgment. The relationship of individual judgment to a final goal is influenced by proximal cues. Figure 2.1 illustrates Brunswik's lens model and the relationship of cues to judgment orientation.

According to this model, there exists a "zone of ambiguity" between individual judgment and distal state. The behavioral episode (or judgment) is a probabilistic process of adapting to the environment. The use of cues is functional; not all cues are needed, and some are more dependable than others to a particular individual in a specific decision task (Hammond, et al., 1977). The zone of ambiguity can be defined by several measures: 1) the weight or importance placed on each cue by the individual; 2) the form of the functional relationship between each proximal cue and the distal state; and 3) the organizing principle of the individual.

This first measure represents the individual's dependence upon particular cues in a given decision making situation. When multiple cues are involved, some will have a greater influence on the decision maker than others. An individual's judgment process serves as a sieve, filtering out irrelevant or useless information and retaining that which is most helpful in making the decision. The second measure, the functional relationship between each cue and an

FIGURE 2.1

THE LENS MODEL



reprint of Figure 3. The Lens Model: Composite picture of the functional unit of behavior, from The Conceptual Framework of Psychology by Egon Brunswik (1952) by permission of the University of Chicago Press.

individual's judgment policy, represents the manner in which cues are considered by the subject. Function forms can be linear or curvilinear. A positive, linear relationship would indicate the more of the criterion (cue), the better; a negative, linear relationship would indicate the less of the criterion, the better. A U-shaped, curvilinear relationship would indicate that small and large amounts of the criterion are valued by the subject, while moderate amounts are not. An inverted U-shaped, curvilinear relationship would indicate that up to a point (moderate), the more of the criterion the better. Any amount of the criterion over that moderate amount, however, is not as valued by the subject and, from that point on, less of the criterion is better (Adelman, et al., 1975: 141).

The third measure representing the decision process is the organizing principle. This is the individual's integration of the cues to reach the distal state (a subject's overall judgment orientation or "cognitive style") (Hammond, et al., 1977). The organizing principle can be represented in an additive or patterned sequence.

Predictive Models of Human Judgment

Hammond, et al. (1980: 74) emphasize that perfect predictive models of human judgment are an impossibility for several reasons: 1) proximal cues are less than perfectly related to variables which reflect the environmental context

of the decision task; 2) functional relationships concerning the use of cues by individuals can be of many forms, and; 3) the organizing principles of individuals can take advantage of a variety of forms (additive or pattern). Nevertheless, as pointed out by Sage (1987) in Chapter One, the structure and consistency of the decision process, particularly on the part of experts involved in a familiar task, facilitates the development of adequate models of judgment behavior.

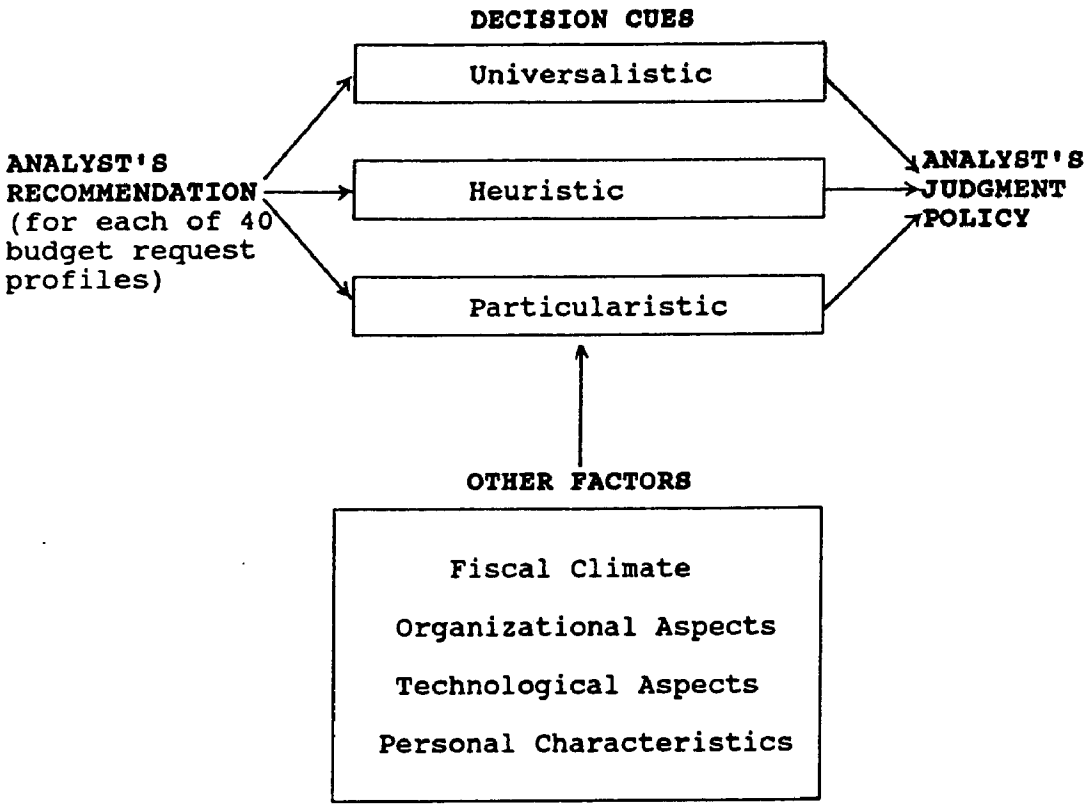
The theoretical foundation for this research project assumes that the mathematical equations produced representing the judgment policies of state government budget analysts will serve as good analytical models of the cognitive styles of such budgeters. Certainly, the implication is not that recommendation policies can be predetermined, error-free, from such equations. Rather, it is hoped that insight into the cognitive structures of these budget experts can improve our knowledge of public spending behavior at the state level.

Application

Using the lens model interpretation of human judgment process and considering the decision cues relevant to analysts' budgetary decisions in this study, the research model represented in Figure 2.2 was developed. In this study, the lens model is transformed. Individual judgment is an analyst's recommendation regarding each of 40

FIGURE 2.2

THE RESEARCH MODEL:
Adapting Brunswik's Lens Model



hypothetical state agency budget request profiles. Proximal cues are the criteria traditionally depended upon by these budgeters when making judgments regarding specific budget requests. Distal state is the analyst's overall judgment policy or decision making orientation which will reflect individual dependence on and usefulness of cues. An analyst's organizing principle can be analytically represented by a multiple regression equation:

$$\hat{Y} = b_1 X_1 + b_2 X_2 \ldots + b_n X_n + c$$

where, $\hat{Y}$ = predicted judgment policy
b_{1-n} = weight and functional direction of each cue
X_{1-n} = datum for each cue
c = a constant value
(Adelman, et al., 1975; Rohrbaugh and Wehr, 1978).

According to the model in Figure 2.2, the independent variables include the decision cues, along with fiscal climate, organizational and technical aspects, and personal characteristics. Judgment policy is dependent upon an analyst's particular weighting of the specified criteria in his or her fiscal, organizational, technical, and personal setting. The dependent variable is the analyst's decision making orientation or recommendation policy.

Task Definition: Subject Specification and Profile Development

The first step in preparation for the analysis of human judgment is the specification and quantitative development of the decision task. In this case, the empirical purpose of the research requires development of a simulation whereby subjects respond to predetermined decision tasks (Hammond, et al., 1980). These decision tasks or profiles must be understood by those making the judgments; at the very least, an appropriate and familiar task must be provided to the subjects of interest (Stewart, 1988: 43).

Brunner, et al. (1987: 368) find that the use of profiles or "prototypes" of decision tasks can "facilitate communication and the cognitive process" of subjects. In a study concerned with the utilization of data by policy makers, these scholars (1987: 377) found that "case-wise [prototypical] presentation [of information] is associated with better utilization, assimilation, recall, and recognition of the...data..., compared to the variable-wise presentation of the same data." They also determined that plausible representations of the decision task which integrate cues in a familiar way can help activate the appropriate "mental images" in subjects who then invoke certain judgment "rules" typical of their cognitive style. This particular method of presenting information to decision makers focuses subjects on the decision task and allows for both quantitative and qualitative insight into the data

utilization of subjects. Further, such method is particularly amenable to the study of expert decision making, where the decision task can be easily defined and is completely familiar to the subject (Tolcott, et al., 1989).

The subjects of this research are indeed experts involved in a familiar and routine decision task. This project surveys the spending judgments of state government budget analysts whose primary responsibility is the review of state agency and department budget requests prior to submission to the governor. The decision task of interest for these specialists therefore is the review of state agency budget requests in preparation for the development of the governor's budget document. A simulation requiring analysts' spending recommendations concerning hypothetical state agency budget requests was subsequently developed by defining both the "surface" and "depth" data comprising the decision task.

Cue Definition and Scoring

Surface data refer to the information given to the decision maker as represented (usually quantitatively) in the decision task. It is that information made readily and concretely available to the decision maker (Hammond, et al., 1980: 194). For instance, the research model suggests that analysts depend on certain criteria when making decisions about departmental requests. These criteria have been

operationalized and scored to provide a quantitative representation of state agency budget requests to the analysts for their consideration. These cues have been developed from the literature regarding public budgeting and decision making, and the role of the budget analyst in state government budget process as presented in the preceding chapter. Table 2.1 defines the suggested cues of relevance to the budget analyst when reviewing agency and department budget requests.

These seven cues represent the criteria considered most important to the budget analyst when reviewing agency budget requests for recommendation to the governor. Specifically, this list includes those cues consistently referred to by public budget officers as important when making spending decisions (see, for instance, Duncombe and Kinney, 1986, and Chapter One). Stewart (1988: 43-44) points out that dependence upon subjects' stated use of criteria in any particular decision task is more likely to include unimportant cues than to exclude important ones. In this case, the inclusion of rational, incremental, and political factors in the development of hypothetical agency budget requests undoubtedly addresses the most critical variables considered by analysts involved in reviewing such spending plans.

Nevertheless, the list is not exhaustive. A decision was made to keep the number of cues reasonable (eight or

TABLE 2.1

CRITERIA RELEVANT TO STATE GOVERNMENT BUDGET ANALYSTS WHEN REVIEWING STATE AGENCY BUDGET REQUESTS FOR FISCAL YEAR 3

UNIVERSALISTIC/RATIONAL CRITERIA:

WORKLOAD: the degree of increase or decrease in the volume of work or number of clients served by the agency from FY1 through FY2

-10 = significant decrease in volume of work or number of clients served from FY1 through FY2
0 = no change in workload
+10 = significant increase in volume of work or number of clients served from FY1 through FY2

EFFICIENCY: the degree to which workload measures indicate increased or decreased efficiency of agency performance from FY1 through FY2

-10 = significant decrease in efficiency of agency performance from FY1 through FY2
0 = no change in efficiency
+10 = significant increase in efficiency of agency performance from FY1 through FY2

HEURISTIC/TRADITIONAL CRITERIA:

ACQUISITIVENESS: the degree to which this request reflects an increase over the agency's current budget

0 = request equals agency's current budget
+10 = request is a significant increase over agency's current budget

PARTICULARISTIC/POLITICAL CRITERIA:

GOVERNOR'S AGENDA: the degree of importance that this agency's policy goals and objectives are to the governor's fiscal and policy agenda for FY3

-10 = agency's goals and objectives are high on the governor's agenda--governor is seeking cuts in this agency's budget
0 = agency's goals and objectives are not on the governor's agenda--governor is seeking no change in this agency's budget
+10 = agency's goals and objectives are high on the governor's agenda--governor is seeking to increase this agency's budget

LEGISLATURE: the degree of importance that this agency's policy goals and objectives are to the agenda of important members of the state legislature

-10 = agency's goals and objectives are high on the agenda of important legislators--legislators are seeking cuts in this agency's budget
0 = agency's goals and objectives are not on the agenda of important legislators--legislators are seeking no change in this agency's budget
+10 = agency's goals and objectives are high on the agenda of important legislators--legislators are seeking to increase this agency's budget

AGENCY HEAD REPUTATION: the degree of trustworthiness of the agency director in terms of past requests compared to actual spending practices

-10 = agency head has reputation for padding requests
0 = agency head is new to position--submitting budget for the first time
+10 = agency head has reputation as fully trustworthy in terms of equating requests with true spending needs

SUPPORT: the degree to which client groups and consitutuents outside of state government are interested in the agency's programs and services

-10 = public support is active and negative
0 = public support is nonexistent
+10 = public support is active and positive

below), as recommended when using social judgment analysis (Policy PC 2.0 Reference Manual, 1986). Hammond, et al. (1980: 197) also indicated that the cognitive limitations of the human brain prevent individuals from dealing "simultaneously and effectively with large numbers of items of information." Similarly, Rossi and Nock (1982) emphasize that there are only a limited number of cues which can be considered by an individual in any one decision context (see also, Miller, 1956). Analyses requesting subjects' consideration of hypothetical decision tasks generally limit the number of cues to between five and eight. The use of seven cues in this instance falls within the suggested range.

Once the cues have been defined, their scoring becomes important in light of subsequent analyses which assume the interval level of measurement. As Table 2.1 indicates, every cue except ACQUISITIVENESS is scored on a scale from minus ten to plus ten in each hypothetical budget request profile presented in the decision making simulation. ACQUISITIVENESS is scored from zero (request equals agency's current budget) to plus ten (request represents significant increase over agency's current budget), as it is rare that agency administrators request less than current year funding. All other cues can be scored numerically in a positive, negative, or neutral manner to represent realistic and possible characteristics of state agency budget

requests. Presented together, though separately scored, the seven cues represent examples of such requests.

For each budget request profile, analysts provided their judgment in the form of strength of recommendation to the governor concerning inclusion of each request in the total budget package for fiscal year three. Analysts indicated their recommendation on a scale from 1, very weak recommendation for inclusion, to 20, very strong recommendation for inclusion. Analysts wrote the number indicating the strength of their recommendation for inclusion directly below each profile. The simulation provided 40 budget request profiles. The method of analysis necessitated that analysts provide a recommendation for all 40 profiles, leaving none blank.

Task definition, cue scoring, and judgment values were prepared for the purposes of this research by using the Policy PC software package from Executive Decision Services, Incorporated of Albany, New York. Cues were defined in name and the appropriate range of values for each was stipulated. Also, judgment values (1 through 20) were defined. All of the decision task information was saved into a file named, STATE, using Policy PC.

Generation of Budget Request Profiles

The environmentalist perspective of social judgment theory accepts that intercorrelations may exist among cues

representative of a decision task. Technically, cues should be scored and combined in such a way as to reflect the true decision task. However, when correlations are unknown, or when possible combinations of differently scored cues are limitless, random generation of profiles provides for an orthogonal design. Such a design lends itself to better statistical estimates as provided by final regression equations (Stewart, 1988).

Policy PC was used to access the file, STATE, in order to generate randomly the requested number of cases to be judged in the simulation and provide for an orthogonal design. A seed number was chosen from the random number table provided in Babbie (1983: 496-497) and input into the program to begin the random generation of profiles. Forty hypothetical agency budget requests were provided, each with seven scored cues. Review of the profiles indicated that each could represent an agency's budget request; that is, each profile was determined to be a realistic reflection of a possible request. Example profiles are illustrated in Figure 2.3.

The profiles in Figure 2.3 illustrate two budget requests which vary according to the seven defined criteria. In the first case, the request comes from an agency that has increased its volume of work moderately (in terms of service provided or number of clients served); also, the agency has substantially increased its efficiency of operation. The

FIGURE 2.3

HYPOTHETICAL STATE AGENCY BUDGET REQUESTS:
Examples of those included in the decision making simulation presented to analysts participating in the 1988 State Government Budget Analysts Project

```
BUDGET REQUEST #1        (-max)      (min)       (+max)
                          -10 . . . . 0 . . . . . +10

WORKLOAD                                XXXXXX          ( +5)
EFFICIENCY                              XXXXXXXXXXX     (+10)
ACQUISITIVENESS                         XXXXXXXXXXX     (+10)
GOVERNOR'S AGENDA                       X               (  0)
LEGISLATURE'S AGENDA                    XXX             ( +2)
AGENCY HEAD REPUTATION                  XXXXXXXXXXX     (+10)
PUBLIC SUPPORT                          XXXXXXXXX       ( +8)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST #2        (-max)      (min)       (+max)
                          -10 . . . . 0 . . . . . +10

WORKLOAD                          XXXXXXX               ( -6)
EFFICIENCY                              X               (  0)
ACQUISITIVENESS                         XXXXXXXX        ( +7)
GOVERNOR'S AGENDA                       XXXXXXXXX       ( +8)
LEGISLATURE'S AGENDA                    XXX             ( +2)
AGENCY HEAD REPUTATION             XXXXXX               ( -5)
PUBLIC SUPPORT                          X               (  0)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____
```

agency director is asking for a significant increase over the agency's current budget. The agency's policy goals and objectives are not part of the governor's policy agenda, and are only slightly more important to the most significant decision makers in the state legislature. In this case, the agency head has a good reputation as being trustworthy regarding matching budget requests with actual needs. Finally, this agency generates positive public support for its programs and/or services.

Compared to the first profile, the second budget request indicates a decrease in workload on the part of the agency from FY1 through FY2. However, no change has been made regarding efficiency of operation. As in the first case, this agency's director is asking for an increase over current budget (though not as large an increase as represented in the first budget request profile). This agency's policy goals and objectives are high on the governor's agenda (the governor is seeking to increase this agency's budget), though such objectives are less significant to important members of the legislature. The agency's director has a reputation for padding budget requests, and no public support, positive or negative, exists regarding the agency's programs and/or services.

To account for analysts' different application of criteria across different agency and department type, analysts were requested to consider that these requests come

from similar agencies that only vary across the criteria stipulated. Thus, in all respects except for their scores on the criteria provided, the agencies represented by the budget request profiles are essentially the same.

Just as the number of cues had to be kept reasonable, so too did the number of profiles. Stewart (1988: 48) suggests 30 as the minimum number of cases required to achieve a standard error of the beta weight for the first cue as low as .10 when correlations among all cues are zero, the number of cues is from six to eight, and assuming that the multiple correlation coefficient between cues and an individual's judgment policy is .90. Likewise, the Policy PC 2.0 Reference Manual (1986: II-2) suggests 15 cases for three uncorrelated cues assuming the possibility of nonlinear relationships concerning an individual's use of cues. Guidelines suggest adding five cases for every additional cue used to represent the decision task. Generally, more cases must be included in a simulation as the number of cues increases and as the possibility of nonlinear relationships regarding subjects' use of cues exists.

The 40 profiles provided in the present simulation exceed Stewart's recommendation by ten, and the Policy PC 2.0 Reference Manual's recommendation by five. This number was determined reasonable for both statistical and practical purposes. Standard error estimates could be kept reasonably

low and subjects could complete the decision exercise within a realistic time frame; that is, between 45 minutes and an hour.

The Analyst's Organizing Principle

Considering again the organizing principle of an analyst, a multiple regression equation incorporates the cues relevant to the decision task of this expert. The equation is further modified by adding squared terms in order to account for curvilinear relationships which may exist between any cue and an analyst's spending policy. The model thus becomes:

$$\hat{Y} = b_{11}X_1 + b_{12}X_1^2 + b_{21}X_2 + b_{22}X_2^2 \ldots + b_{71}X_7 + b_{72}X_7^2 + c$$

where, $\hat{Y}$ = an analyst's predicted recommendation policy
$b_{11\text{-}17}$ = regression coefficients for the value of cues, WORKLOAD to SUPPORT, respectively
$b_{12\text{-}72}$ = regression coefficients for the square of the value of cues, WORKLOAD to SUPPORT, respectively
$X_{1\text{-}7}$ = the scored cues, WORKLOAD to SUPPORT, respectively
$X_{1\text{-}7}^2$ = the square of the scored cues, WORKLOAD to SUPPORT, respectively
c = a constant value

THE ENVIRONMENTAL CONTEXT: Depth Variables

As the research model indicates, analysts' spending policies are also influenced by certain other external and

personal factors, namely, fiscal condition of the state government, organizational aspects and technical sophistication of government operation and, specifically, the central budget office, and educational, work-related, and personal characteristics of the analyst. These factors are referred to as depth data. Unlike surface data (cues), these data are inferred aspects of the decision task. Such factors are assumed aspects of the decision task and provide the backdrop against which the subject makes his or her judgments. Depth variables flavor the decision context yet are not quantitatively defined and presented to subject in the same manner as surface cues (Hammond, et al., 1980).

Each of these variables could have been considered as a surface cue, scored accordingly, and incorporated in the budget request profiles. However, the limitations to cue number outlined earlier necessitated delineation of such variables as environmental factors that contribute to the decision making context and could influence a particular analyst's judgments, as noted in Chapter One.

In order that the subjects would consider these factors while completing the simulation, they were instructed to assume the revenue situation of their state government at the time of administration of the survey instrument. As well, they were instructed to assume that they were making the recommendations in their present position within their

budget office, given the technical and computer capabilities afforded to them at that time.

Administration of the questionnaire tended to coincide with the early stages of each state government budget cycle, in that the governor had issued a statement to analysts regarding his priorities as well as the revenue picture for the upcoming fiscal year. Also, most offices were visited following the date when gubernatorial budget guidelines regarding spending plans had been sent to agencies. In fact, visits often coincided with the period when analysts receive such plans for initial review. Table 2.2 provides a list of the states included in the survey, the dates of the researcher's visit, as well as information concerning budget cycle.

Collecting Depth Data

The data concerning depth variables was collected in addition to the behavioral information obtained from participating analysts. The simulation included a second section which requested personal information concerning present job title, position, salary, past work experience, educational level, sex, and age. Separate questionnaires were developed regarding the information concerning organizational setting and purpose, technological sophistication (computer facilities and systems), and fiscal climate of the state government.

TABLE 2.2

SITE VISITS AND BUDGET CYCLES
OF THE STATES PARTICIPATING IN THE
STATE GOVERNMENT BUDGET ANALYSTS PROJECT[2]

STATE	1988 DATE OF VISIT	BUDGET GUIDELINES TO AGENCIES	REQUESTS SENT TO GOVERNOR	HEARINGS BEGIN	FISCAL YEAR BEGINS
Alabama	Dec. 5	July/Aug.	Oct./Nov.	Dec.	Oct. 1
Florida	Sept. 12	July/Aug.	Oct./Nov.	---	July 1
Georgia	Sept. 1	June	Sept.	Oct.	July 1
Kentucky	Oct. 31	July	Oct.	Dec.	July 1
Louisiana	Sept. 16	Oct.	Dec.	Jan.	July 1
Mississippi	Sept. 15	June	Aug.	Sept.	July 1
North Carolina	Sept. 8	June	Sept.	Oct.	July 1
South Carolina	Sept. 26	July	Aug.	Aug.	July 1
Tennessee	Sept. 22	Aug.	Oct.	Nov.	July 1
Virginia	Sept. 6	May	Sept.	Oct.	July 1

[2]Information concerning budget guidelines, requests, hearings, and the beginning of the fiscal year obtained from Table A, Budget Calendar in Howard (1987: 1).

Questionnaires regarding organizational setting and purpose were completed by budget office directors, or their immediate deputies. Information concerning the computer facilities of the office and the technological sophistication of the system (or systems) was collected from directors of data management or computer operations for the state. Financial data regarding actual (1988) and expected (1989) revenues, expenditures, and debt was collected from financial officers within each budget office. Similar data was collected from the fourth annual state financial report produced by City and State (1989: 11-34).

The development of measures allowing for comparison of analysts across these variables is explained in the following chapter which addresses the sample, questionnaire development, variable definition and measurement, administration of the survey instrument, and completion rate.

HYPOTHESES

Different weightings of criteria across separate budget requests should indicate distinct patterns of dependence -- analysts consistently relying more heavily on universalistic criteria when making spending decisions can be termed bureaucratic, rational, or analytical in orientation; heavier reliance on heuristic criteria implies a traditional or incremental orientation, and; greatest reliance on

particularistic criteria suggests a political or power orientation. It is expected that analysts' heavy reliance on just a few of the seven cues provided in each request profile will contribute to the researcher's ability to label analysts as either bureaucratic, traditional, or political. In this case, such distinctive judgment policies represent different cognitive styles.

It is expected that individual analysts will be consistent in their weighting of criteria across separate budget requests and that they will be able to be grouped according to their decision making orientations. Based upon the knowledge of the role of the budget analyst vis-a-vis the governor, it is also expected that the majority of analysts will manifest a political orientation -- that is, that they will weigh particularistic criteria, specifically, gubernatorial direction, most heavily when making spending recommendations. Specific hypotheses which take advantage of traditional budget theory and the influence of fiscal climate, organizational and technical aspects, and personal characteristics of the analyst are proposed below:

1) The political cue, gubernatorial direction, will be most heavily weighed by analysts from budget offices located physically and organizationally closest to the governor's office.

2) Heuristic criteria will be most heavily weighed by analysts in states which are fiscally sound, and by analysts in less sophisticated budget offices in terms of informational and technical capabilities.

3) Universalistic criteria will be most heavily weighed by analysts in states which are fiscally stressed, by analysts in sophisticated budget offices in terms of informational and technical capabilities, and by analysts who are younger in age, and more highly educated.

As suggested above, analysts' recommendation policies will be influenced by depth as well as surface variables. Orientations will reflect analysts' use of specific cues in their particular fiscal, organizational, technical, and personal settings.

CONCLUSION

This chapter has outlined the theoretical foundation which supports the type of analysis utilized in this project. The behavioral perspective should provide a fairly accurate illustration of human judgment in a budgetary context. Specifically, results should indicate the usefulness of certain types of information to state government budget analysts when reviewing agency budget requests prior to making recommendations to their chief executive officer. Ultimately, the results of this research should indicate the degree to which rational decision tools have been integrated into the spending process at the state government level, as well as the situations in which these tools prove most useful.

CHAPTER 3
RESEARCH METHODOLOGY

INTRODUCTION

The previous chapters outlined the decision task and context of interest as related to the state government budget analyst. Also, the theoretical foundations for the research model and method of analyzing the information processing structures of these budgeters was presented. Now, movement is required from strict conceptualization of the research effort to its operationalization. This chapter serves that purpose. Specifically, Chapter Three considers the definition and measurement of variables through questionnaire development, population specification and sampling, survey administration format, and completion rate of the project. The following sections address these topics, moving from explanation of the simulation presented to survey participants to consideration of the questionnaires developed to gather information concerning the depth variables mentioned in Chapter Two. The final section presents the completion rate by state for each of the participating budget offices and considers the advantages and disadvantages of group administration of the survey instrument.

QUESTIONNAIRE DEVELOPMENT

The Simulation

The primary purpose of this research is to portray mathematically the cognitive styles of state government budget analysts involved in a specific and familiar decision making task. Taking advantage of the literature regarding traditional behavior of these public employees engaged in such a process and incorporating social judgment theory to conceptualize the decision scenario, hypothetical profiles were developed which model, as precisely as possible, the decision task faced by these analysts. The development of such profiles was presented in Chapter Two. The next step toward completion of the simulation to be administered to subjects involved combining these 40 profiles into a reasonable and realistic survey instrument.

The decision making exercise eventually submitted to the subjects was comprised of several sections. The eight-page questionnaire included an introductory section which explained the purpose of the research and the means by which information would be collected. Analysts were then presented with an example agency budget request profile after which the seven criteria comprising the profile were defined as noted in Table 2.1, Chapter Two. The example was also described in a written paragraph. Analysts were asked to provide a numerical recommendation to their governor regarding inclusion of each request in the total budget

package for the hypothetical fiscal year three. The scale from 1 to 20 signifying possible recommendations was defined. Finally, analysts were reminded to provide recommendations for all 40 profiles, leaving none blank. The estimated time needed to complete this section, approximately 30 to 40 minutes, was indicated as well.

The second part of the instructions explained the next section of the questionnaire -- that related to the personal characteristics of each analyst. At the time of the administration of the survey instrument, analysts were also asked to write the division of their budget office in which they were employed at the bottom of the eighth and final page of the questionnaire.

A note at the end of the instructions alerts participants that the research was being carried out under the direction of the University of Georgia's Institutional Review Board in Athens, Georgia. Appropriate addresses and telephone numbers of the Coordinator of Human Subjects Research at the University of Georgia, and the researcher herself, were presented in this section for the benefit of each participant.

The fourth page of the questionnaire provided three example profiles which were reviewed verbally by the researcher with participants at the time of the administration of the simulation. The next seven pages comprise the actual simulation. The first of these pages

portrays four profiles, with the succeeding six pages portraying six profiles each. The eighth page of the questionnaire includes the section concerning personal characteristics. This section is made up of "closed-ended" questions usually requiring the respondent to check the appropriate category. Ten questions are included in this section; six are related to analysts' job title, tenure, income, and past employment; one question considers educational achievement; and the final three questions ask analysts their sex, age, and whether they would like to receive a copy of project results. The questions in this section were included to substantiate the organizational status of participants concerning their job title and position, as well as to garner relevant background information related to their educational and past work experiences. Analyses will consider comparisons of analysts' judgment policies across these variables, namely subjects' sex, age, educational background, and job tenure.

Appendix A provides a copy of the questionnaire as presented to participating analysts. Great care went into the design and layout of the simulation in order to promote clarity and brevity yet retain relevancy and the statistical necessity of gathering an individual's recommendations concerning a certain number of profiles. The somewhat unusual format of the simulation required extremely lucid presentation of profiles in easy sequence. Therefore, the

hypothetical requests were numbered consecutively from 1 to 40 and displayed from the top of the page to the bottom, moving from the left to right columns. No more than six profiles could be included on one 8 and 1/2 by 11 inch page without becoming crowded and seeming cumbersome. Ultimately, the validity and reliability of the simulation itself rests with profile development and number, as observed in Chapter Two. The validity and reliability of the second section of the questionnaire concerning personal characteristics is more easily defended as these questions relate to objective data descriptive of each subject (Babbie, 1973: 131-156).

MEASURING DEPTH VARIABLES

The questionnaire presented to analysts gathered information concerning their decision making behavior as well as their professional, educational, and personal lives. In the interest of time, accuracy, and "reasonableness", additional information concerning the depth variables was collected separately. Specifically, three different questionnaires were developed to gather information related to the fiscal climate of each state government, the organizational setting and mission of each budget office, and the technological capabilities afforded to each analyst. The following sections explain the development of each of these questionnaires.

Fiscal Climate

Fiscal data were collected from each budget office and integrated with that provided by the annual state financial report produced by City and State (1989: 11-34). The one page format for the information collected in each state is the same as that included in this annual report and serves to substantiate the figures provided therein. Each of these sources provides fiscal data related to actual (1988) and estimated (1989) expenditures and revenues, long-term debt, and bond ratings. Demographic information for each state was also collected. As noted in Chapter Two, the information included in this questionnaire was usually completed by the chief financial officer within the budget office, or the finance director of the state government or his or her deputy or assistant. Appendix B provides a copy of this questionnaire.

It is expected that the revenue situation of the ten states included in this survey will vary somewhat although the homogeneity of the region as related to overall fiscal climate is acknowledged. Also, it is expected that such climate will tend to be revenue-poor relative to states in other regions. For instance, Kincaid (1989) compares the fiscal capacities of the 50 states and finds that the Southeastern region ranks lowest among regions nationwide

concerning the representative revenue system,[1] per capita income, total taxable resources, and gross state product. Further, taking advantage of ACIR's representative tax system concerning both tax capacity and effort, Kincaid (1989: 12) finds that eight of the ten Southern states included in this project fell into the low capacity/low effort category, while only two states (Florida and Virginia) fell into the high capacity/low effort category.

In order to analyze differences among analysts' cognitive styles according to even slight distinctions in the financial condition of their state government, three measures will be consulted from the data collected regarding fiscal climate. These measures include: estimated general fund revenues per capita (1989), estimated long-term debt per capita (1989), and bond rating for each state. The first figure provides a relative measure of the revenue situation expected in fiscal year 1989 in each participating state government and allows for comparability of analysts' decision making behavior across different revenue situations. Consideration of the other two variables further defines the historical financial situation of each state government and also provides for comparison among the

---

[1]The representative revenue system (RRS) is a measure developed by the United States Advisory Commission on Intergovernmental Relations (ACIR) that considers a "state's capacity to collect tax as well as 'non-tax' revenues, such as user fees" (Kincaid, 1989: 10).

decision making patterns of analysts working in varying financial climates.

Initial consideration of these measures using the figures reported in City and State's 1989 annual report on the 50 states indicates that 1989 estimated general fund revenues per capita range from $1,542 (Georgia) to $676 (Mississippi); 1989 estimated long-term debt per capita ranges from $861 (Louisiana) to $32 (Virginia), and; bond ratings range from Aaa (best quality, extremely strong capacity to pay principle and interest) to Baa1 (Moody's rating only). These figures suggest that distinctions do exist concerning the financial condition of individual states within the region and that the revenue situation, at least for (estimated) 1989, differed among them.

Budget Office Strength: Organizational Setting and Mission

Information concerning organizational setting, budget format, and agency mission was gathered by using a second questionnaire submitted to the budget office director, a deputy, or appointed supervisor or manager from within each state budget office. Many of the questions in this survey instrument are modelled on those presented to state government budget officers in an earlier survey conducted by Abney and Lauth (1982).[2]

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[2]The State Budget Project Questionnaire developed by Thomas P. Lauth and Glenn Abney in 1982 surveyed members of the executive budget office staff of the 50 states by mail as

The first and second questions included in this questionnaire consider the organizational location and size of each budget office. The third question concerns budget format (traditional line-item, performance, program, or other). The fourth through the eighth questions gather information related to the primary function of the budget office, informational requests made to agencies by the budget office, and scope of control afforded to the budget office. The final question, "Does your state legislature receive agency budget requests at the same time that they are received by the governor's office?", was included in order to determine the nature of the relationship between the executive budget office and the legislature. This question assesses the strength and autonomy of the budget office vis-a-vis the legislative body. Appendix C includes a copy of this questionnaire.

Analyses will consider distinctions in recommendation policies among analysts from budget offices of different organizational location, director appointment, office size, budget format, and primary function. Location provides an indication of the proximity of the state budget office to the governor's office. It is expected that closer organizational proximity of the two offices will influence

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to their budget format, the informational requirements of their format, and the primary mission and task of their office. This survey realized a 96 percent response rate. Forty-eight of fifty state government budget officers responded and only six declined to identify their state.

analysts' reliance on decision criteria, particularly that concerning gubernatorial direction. Of the ten state government budget offices included in this survey, four are located within the governor's office, four within another department (either administration and/or finance), and two serve as independent offices, not located within any other department.

The method of appointment of the budget office director also defines gubernatorial power (Abney and Lauth, 1989: 830). That is, offices with directors appointed by the governor are recognized as having a strong allegiance to the chief executive officer. Allegiance diminishes as the appointment of the director becomes less a function of gubernatorial discretion. Categories of appointment established for this variable include, directors appointed by the governor alone; those appointed by the governor with consent of one or both houses of the legislature; those appointed by a department head with approval of the governor; and those appointed by a department or division head alone. Of the ten states visited, six have budget office directors appointed by the governor alone; one state has a director appointed by the governor with consent of one house of the legislature; one state has a director appointed by a department head with gubernatorial approval; and two states have directors appointed by department heads.

Likewise, as Chapter One suggested, it is expected that office size, budget format, and primary mission of budget office will flavor analysts' dependence on certain criteria when involved in reviewing agency budget requests. Initial examination of these variables indicates that budget offices can be grouped according to such characteristics. Concerning size, four offices can be considered large (over 50 employees), four are of medium size (from 25 to 50 employees), and two are relatively small operations (employing under 25 persons). A relative measure of office size is developed for the purposes of this research in order to account for size of total state government employment. Development of this measure is explained in detail in Chapter Five.

Inspection of budget format finds almost equal division among the states, with five utilizing the traditional, line-item format, four taking advantage of the program format, and one using a modified zero-base budgeting approach. For this variable, state budget offices will be grouped into one of two categories, either traditional, line-item, or program and other.[3]

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[3]The informational requirements of the three types of budget format referred to warrant the grouping specified. The line-item format, with its strict control function, focuses attention on the cost of individual items of expenditure only. Program budgets and the zero-based format, however, incorporate narrative material and provide for the evaluative review of the effectiveness of public programs and/or activities. The informational needs of the latter two formats are significantly different from traditional, line-item

Less differentiation exists among budget offices when the primary function or mission is considered. That is, results from question four of this questionnaire underscore the control function of the typical state budget office. Seventy percent of the budget offices in this survey acknowledge control of agency expenditures as their primary mission. Twenty percent ranked "serving as policy and planning staff to the governor" as their primary mission, and only one budget office ranked "evaluating the efficiency of agency performance" as their primary mission. Analysts' decision making orientations will be examined and compared according to three categories of mission, be it primarily control, efficiency, or policy development.

Results from questions one through four from this questionnaire are utilized in subsequent analyses presented in Chapter Five. Assessment of budget office strength is determined by the development of an interval level composite score which takes into account the information concerning the five variables outlined above. The remaining questions from this questionnaire serve to "materialize" the functional focus, informational needs, and scope of control of each budget office for descriptive purposes only.

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budgeting. Such distinctions justify the two categories suggested (see, Lauber, 1969; Schick, 1971 and 1966; and Wanat, 1978).

Technological Sophistication

Level of data processing sophistication and the management information systems afforded employees in a work environment greatly affect the capabilities of such staff (Elam and Thomas 1989). And, as pointed out in Chapter One, the internal resources, particularly those involving information availability and its use, can greatly influence the focus, if not the productivity, of the state government budget analyst. In this case, information is sought concerning the capabilities afforded to budget analysts over and above traditional (mainframe) facilities used primarily for accounting and budget preparation. For instance, Klay and Yu (1988: 196) point out that the use of personal (micro-) computers allows for the decentralization of work in a budget office and, coupled with appropriate software and peripherals, can enhance an analyst's capacity for conducting analyses related to policy development and planning. Concerning this project, it is expected that provision of and access to microcomputers as well as the capabilities listed above should influence the focus of an analyst (from control to policy and planning orientation) and, in turn, would affect their dependence on the decision cues represented in the simulation.

A third questionnaire to gather this information was developed. Because of the technical nature of such information, it was appropriate to develop a survey

instrument which could be completed by the manager of data processing within each state budget office, or that person responsible for the management of information systems in the state. This instrument takes advantage of the format used by Botner (1987: 101) in a nationwide survey of state government central budget offices. His survey instrument included questions originally conceived by the Governmental Finance Research Center relating to local government finance activities. Specifically, Botner's (1987: 101) table regarding the type of data processing support provided by function was reproduced with a few modifications, along with the addition of several questions related to peripheral, software, and networking capacities. One column was added to Botner's table for state budget officers to check whether certain functions are routinely carried out by their analysts. Subsequent columns request information concerning the use of micro- and mainframe computers, or their combined use, in the conduct of these various budget functions. Appendix D provides a copy of this questionnaire.

The first question reiterates the scope of analysts' prescribed activities as well as noting the type of data processing support (microcomputer and mainframe capacities) offered to analysts to carry out such functions. The second through fourth questions consider the number of microcomputers in the budget office, and type of peripherals and software packages available for use. Questions five

through eight regard networking of the budget office information system(s) (internally with microcomputers and externally with the state's automatic data processing (ADP) service office). Networking capacity with other state agencies and departments is also addressed. Finally, this section asks about the organizational location of the ADP service office. Question nine (parts a and b) seeks information concerning the provision and accessibility of microcomputers to analysts. The last question asks for a list of future accessories and capabilities expected to be implemented.

Questions three, four, and nine are utilized for analyses presented in Chapter Five. The first part of a score measuring technological sophistication of the budget office takes advantage of question nine, parts a and b. Part a asks, "Is each budget analyst provided with a microcomputer upon entry in the budget office?"; part b asks, "If not, how many microcomputers are accessible to budget analysts on a daily basis?" State budget offices could be coded based on the information provided in answer to these questions. Offices where no microcomputer access is afforded to analysts receive no points for this variable, those affording limited access to microcomputers receive 25 points, and those affording complete access (answering "yes" to part a) receive 50 points. Initial results from such coding indicate two levels of access -- half of the offices

offer limited access to analysts and half afford complete access to microcomputers for their analysts.

A similar method of distinguishing state budget offices according to peripheral and software availability was developed by taking advantage of questions three and four of this questionnaire. Question three provides a checklist of peripherals available in each budget office, including printers, plotters, graphics, hard disks, and modems. Question four provides a checklist of available software packages, including those related to wordprocessing, financial analyses, data storage and management, and statistical and decision analyses. State budget offices are ranked according to the number of peripherals and software packages made available to analysts. In this case, the budget office with the largest number of peripherals and software capabilities receives 100 percent of 50 points possible. The score of every other office is determined by dividing the number of capabilities from the largest office into the number for the office of interest, and then multiplying by 50. Resulting scores for all offices indicate the relative capabilities of the offices. Scores for this second part of the composite variable measuring technological sophistication range from 50 (most comprehensive package of software and peripheral accessories) to 11.4 (least comprehensive package). This number is added to the score measuring access to

microcomputers to provide an interval level score assessing the technological capability of each budget office. Like the variable measuring budget office strength, a detailed consideration of the development of this measure is provided in Chapter Five.

POPULATION AND SAMPLE

Any research effort requires strict definition of the population considered from which a sample is usually drawn. In this project, the subject of interest is the state government budget analyst. More specifically, potential subjects of this study are defined as budget office staff members whose primary responsibility is the review of state government agency and department budget requests prior to submission to the governor. Also, such analysts must have been employed by their budget office through one budget cycle, or for at least one full year. Ineligible analysts included those employed less than one year with their budget office, or those involved strictly in capital outlay, special policy analyses and evaluation, management review, econometrics, or specially requested data gathering and statistical analyses. For instance, in the case of the state of Virginia, Howard (1987: 11) recognizes 63 technical/analyst positions within the executive budget office, of which at least 22 are listed as planning, policy and evalution staff. Employees in these positions do not

necessarily have a primary review function and, therefore, are not considered eligible for participation in this project.

Once the subject of interest is properly delineated, selection of a sample is then possible. Ideally, the total population of eligible state government budget analysts would be included in this research project. Potentially, responses could be received from close to 1,000 analysts.[4] In this case, however, several factors necessitated use of a non-probability sample which substantially diminished the number of possible responses to less than 200.

Primarily, the somewhat unusual nature of the survey instrument -- a simulation -- required that the researcher be present physically during administration of the questionnaire. This allowed the researcher to explain the research effort and to offer assistance and clarification throughout its completion by survey participants. While the simulation format has been successfully adapted to the mailed survey technique (see, Whorton, et al., 1988-89), the complexity of the profiles used in this instance, both in number and possible values of cues, and the recommendation possibilities, initially could confuse even the most adept budget analyst. It was considered that the

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[4]Nationwide, there are 1,206 members of state budget office personnel classified as "technical/analyst", although it is unclear just how many of these positions are primarily responsible for the budget review function (Howard, 1987: 11).

response rate would be higher and data gathered more accurate if the researcher could be on hand for explanation and clarification purposes during administration of the simulation.

A second reason for using a non-probability sample regarded the sheer amount of information to be collected. In addition to the simulation, three questionnaires were developed to collect information from other specialists within each state budget office. Such information gathering could be more easily and accurately accommodated with one office visit, rather than through multiple telephone interviews and/or mail transactions.

Finally, and no less important, the time considerations and financial resources available to the researcher greatly restricted the sample by region of the United States, and, therefore, influenced the number of possible participants. Only eligible analysts from the Southern region of the United States were included in this project. This allowed for travel across contiguous states and facilitated the gathering of data in a timely and economically feasible manner. Ten states were included in the sample -- Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia.

Table 3.1 provides a list of the states included in the survey. Also represented are the number of analysts employed in each budget office, the number eligible to

TABLE 3.1

COMPLETION RATE BY STATE FOR BUDGET ANALYSTS SURVEY

STATE	TOTAL NUMBER OF ANALYST POSITIONS	# ELIGIBLE	# COMPLETING QUESTIONNAIRE	%
ALABAMA(a)	9	9	9	100
FLORIDA(b)	38	28	23	82
GEORGIA	39	19	18	95
KENTUCKY(c)	14	14	14	100
LOUISIANA(d)	21	18	15	83
MISSISSIPPI	7	6	6	100
NORTH CAROLINA	13	12	8	67
SOUTH CAROLINA(e)	13	10	10	100
TENNESSEE(f)	22	6	6	100
VIRGINIA	35	30	22	73
TOTAL	211	152	131	86%

a
Questionnaires completed include that of the Deputy Budget Officer who also serves as an analyst.

b
Questionnaires completed include those of Division Directors.

c
Questionnaires completed include those of two Deputy Directors.

d
Questionnaires completed include those of State Budget Managers from each division within the state budget office.

e
Questionnaires completed include that of the Director of Budget Development.

f
Questionnaires completed include those of Division Directors. Tennessee underwent great turnover and expansion of their state budget office in 1988. This accounts for the fact that over two-thirds of the analysts employed at the time of the administration of the questionnaire had not been through one complete budget cycle, or had been employed in the budget office as an analyst for less than one year.

participate in the project -- given the parameters outlined earlier -- and the completion rate by state. The reasons for drop-off from the number eligible to the number completing the questionnaire include absence of analysts due to sickness, vacation, required attendance at agency hearings or other meetings, or prior commitments which conflicted with the administration of the simulation by the researcher. Nevertheless, Table 3.1 indicates that a good completion rate, both overall (86 percent) and by state (none less than 67 percent), was realized. In fact, half of the states provided 100 percent response from eligible analysts. The 131 analysts completing the simulation serve as the total sample for all analyses to be performed.

ADMINISTRATION OF THE RESEARCH PROJECT

Administration of this project occurred in stages. Initially, a letter was sent to the budget director in each of the ten state budget offices from the head of the Political Science Department at the University of Georgia, introducing the researcher, explaining the nature and purpose of the study, and requesting the participation of eligible budget analysts. Appendix E provides a copy of this introductory letter. A week following the mailing of this letter, the researcher contacted each budget director by telephone to inquire if the letter had been received, to obtain verbal commitment to the project, and to schedule

meetings with analysts concerning the simulation, and with appropriate personnel regarding the information concerning depth variables. All interviews were scheduled and completed in the fall of 1988 under the purview of the Institutional Review Board at the University of Georgia.

Upon visiting each budget office, an initial meeting was held with the budget office director, a deputy, or an appointed member of the staff. Usually, the questionnaire concerning organizational setting was completed during this meeting.[5] If time permitted, additional topics could be addressed, including the history of the budget office, analyst recruitment, and gubernatorial and legislative relations. Such meetings lasted anywhere from 30 to 90 minutes. After this, group administration of the simulation to analysts was accommodated.[6]

The researcher maintained a written agenda for administration of the simulation in order to provide the same information and sequencing to all analysts included in

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[5]In one case, the initial meeting was too brief to complete all questions regarding organizational setting. However, this budget officer later completed the form and returned it to the researcher by mail.

[6]One office visit coincided with analysts' budget meetings with agency personnel. Therefore, individual administration of the questionnaire was necessary. Administration in this state occurred over a period of two days. Also, two budget office directors requested group administration of the simulation by division. Over a period of one or two days, the researcher met with analysts from each division of the budget office and administered the questionnaire.

the project. Each session began with an introduction of the researcher who then thanked analysts for participating in the project. Next, the researcher conveyed the nature and purpose of the research. The text of this information follows:

> This research project seeks to gain an understanding of the way state government budget analysts make decisions regarding agency budget requests. Prior research has substantiated the vital importance of the state budget office to the spending behavior of a state and the influence such an office has on the final revenue-expenditure equation for each fiscal year. However, most research has concentrated on the characteristics of state budget offices, regarding their primary task and mission, or on the personal characteristics of the staff, and particularly that of the budget office director. Studies which have considered the analyst position generally have been of a descriptive nature in terms of determining what is most important to analysts when making decisions about agency requests in preparation for submission to the governor. This research seeks to expand on this body of knowledge in a new way. In this case, the questionnaire allows analysts to make decisions about agency budget requests. Specifically, this simulation requires the active participation of analysts in a familiar decision task.

The relevance of the project was also explained to analysts. It was noted that information concerning the decision behavior of state-level budgeters could improve state budget practice during a critical time for state governments, particularly those in the Southern region of the United States. Analysts were reminded that increased

demand for services due to heavy migration into the area, coupled with dwindling fiscal resouces from the federal level promises to further burden state government capacities (Bowman and Kearney, 1986). Given this scenario, knowledge about how state dollars are presently budgeted can assist and even improve future allocation decisions.

The next part of the researcher's oral presentation concerned the procedure for completing the simulation. At this point, the questionnaire, along with a memo, were presented to each analyst. The memo provided written documentation related to the project, described research protocol, explained the voluntary nature of participation, and reassured participants that participation imposed no personal or professional risk to the individual. The memo provided the researcher's address and telephone number for future reference and again included the note regarding oversight by the Institutional Review Board of the University of Georgia. Appendix F provides a copy of this memo.

Instructions for completing the simulation were then relayed to analysts verbally. The example hypothetical profiles were explained and questions from participants fielded. In addition, several points were emphasized. Primarily, analysts were reminded that there was no right or wrong answer concerning their recommendations. A recommendation of one (1) is just as "right" as a

recommendation of twenty (20). That is, recommendations are purely subjective. Analysts were reminded to make a decision about every profile and to leave none blank. Also, they were told that the order of the seven criteria as presented in each profile was always the same. Initial development of criteria presentation was completely arbitrary and in no way implies the importance to be ascribed to particular cues. Analysts were told that they could go back and change a recommendation at any time, as long as they returned a completed questionnaire with one recommendation per request. The second part of the questionnaire was reviewed with participants and an amount of time expected to complete both sections was suggested. Analysts were allowed to provide written comments regarding the nature of the project and the format of the research on a separate sheet of paper attached to each questionnaire. Finally, after all questions were answered, subjects began the simulation. Most were able to complete the entire questionnaire within one hour. Several completed the questionnaire in about 30 minutes, and a few took up 90 minutes to provide recommendations for all 40 profiles.

On two occasions, analysts returned questionnaires with one recommendation missing. As the researcher scanned the questionnaires immediately upon return, these analysts were able to be "tracked down" quickly and asked for their

missing recommendation. In this way, no incomplete questionnaires were used for analyses purposes.

Advantages and Disadvantages of Group Administration Format

In conducting survey research the investigator often must weigh sample size against administration format in order to develop a study of sufficient size to be both valid and reasonable (Babbie, 1973). In this case, a larger sample size was sacrificed for the sake of better information. Certainly, the disadvantages of group administration include a smaller sample size than could have been realized with a nation-wide mail survey (Fowler, 1984: 70-72). Additionally, the cost of travel and accommodations to ten state governments precluded extension of the project to any other state budget offices outside the Southeastern region of the United States.

Nevertheless, the advantages of using this format far outweigh the disadvantages. Most importantly, group administration of the simulation provided an increased cooperation rate with the budget offices contacted. Also, the visibility of the researcher in the budget office at the time of administration of the survey legitimized the project. This procedure allowed the researcher the chance to explain the study and simulation format to participants as well as to clarify directions for completion. In this way, analysts understood the task requested of them

completely. Finally, site visits enhanced the researcher's gathering of information related to the depth variables and, in many instances, allowed for elaboration on the part of agency personnel in matters related to selected topics. Ultimately, group administration of the simulation and site visits to each budget office contributed to improving the quality of the information received by the researcher (Fowler, 1984: 70-72).

CONCLUSION

This chapter has provided an explanation of simulation development and research procedure. The instruments necessary to gather information related to the revenue situation of the participating state governments, the organizational setting, mission, and technical sophistication of each budget office, and the personal characteristics of the subjects were also reviewed. The advantages of the group administration format used to collect the data were recognized and justified, given the completion rate of the project. While the number of variables considered in this project is extensive, every effort was made to provide for their ease of interpretation, as well as maintain the validity and reliability of such measures.

Chapter Four begins the description and analyses of the data. The personal characteristics of the 131 subjects will

be described, along with the fiscal, organizational, and technical aspects of each state government budget office. Analyses will move from individual to group consideration. The sequencing and rationale for analytical procedures will, of course, be included in this chapter.

CHAPTER 4
IDIOGRAPHIC AND NOMOTHETIC INTERPRETATION OF ANALYSTS' SPENDING ORIENTATIONS: Analyses and Results

INTRODUCTION

This chapter presents the results of the simulation. It will describe the socio-demographic makeup of the 131 participating analysts, considering their job title, tenure, past work experience, educational background, income, sex, and age. Such information provides a profile of the typical budget analyst and indicates the degree of professionalism to be expected of those in such a position. Also, written comments received from the analysts concerning survey strategy, administration procedure, and simulation format and content will be considered. These comments serve as important feedback regarding the face validity of the decision task submitted to subjects as well as regarding the relevance of the research project in general. Initial analyses of subjects' budgetary judgments will focus on individual and group weightings of the seven criteria comprising the hypothetical budget request profiles. Both graphic and arithmetic representation of the influence of these criteria will be provided.

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE ANALYSTS

One hundred and thirty-one state government budget analysts from the central budget offices of the ten Southern states included in this project completed the simulation. As mentioned in Chapter Three, the administration format of the project produced an 86 percent completion rate, indicative of a good sample of eligible analysts. Table 4.1 provides a synopsis of the information collected regarding the personal characteristics of the subjects.[1]

Generally, results indicate a sophisticated and homogeneous group of individuals in terms of educational and work backgrounds. The commitment of these public servants to state government employment and to their work concerning state government budgetary process is evidenced by results concerning job tenure and previous employment. The typical analyst has been employed in state government for a decade and most come into the analyst position from another agency in state government.

Seventy-six percent of those included in the survey listed their job title as Senior Budget Analyst, Senior Governmental Analyst, Budget Analyst, Governmental Analyst, or Budget and Policy Analyst. Also included in this category of employee are three subjects who listed their position as Accountant, yet stipulated a primary activity of

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[1]These descriptive data were generated using the frequencies procedure of the SPSS-X program.

TABLE 4.1

PERSONAL CHARACTERISTICS OF
STATE GOVERNMENT BUDGET ANALYSTS

TITLE [a]	#	%	MEAN # YRS IN PRESENT POSITION	MEAN # YRS AS ANALYST	MEAN # YRS EMPLOYED IN STATE GOVT.	% FEMALE
A	6	5	5.33	7.83	15.67	0
B	22	17	3.38	6.03	12.21	27
C	30	23	3.58	4.07	11.09	33
D	70	53	4.74	----	9.00	39
E	1	<1	1.00	1.00	6.00	0
F	1	<1	4.00	17.00	21.00	0
MISSING	1	<1	----	----	----	--
TOTAL:	131	101% [b]	OVERALL AVG:4.32	5.60	10.44	33%

PREVIOUS EMPLOYMENT	#	%
In another agency in this state government	65	50
In a municipal agency in this state	3	2
In a budget office in another state government	1	<1
In an agency in another state government	1	<1
In a municipal agency in another state	2	1
In a federal agency	4	3
In the private sector	22	17
Other, please specify	33	25
TOTAL:	131	100%

HIGHEST LEVEL OF EDUCATION ACHIEVED	#	%
High School Graduate	1	<1
Some College	1	<1
College Graduate	41	31
Some Graduate Work Beyond College	16	12
Master's Degree	63	48
Doctoral or Professional Degree	7	5
Other, please specify	2	2
TOTAL:	131	100%

DECLARED MAJOR IN COLLEGE	#	%
Public Administration	26	24
Business Administration	23	21
Accounting/Finance/Management	22	20
Other, please specify	39	35
TOTAL:	110	100%

GRADUATE DEGREE CONCENTRATION	#	%
Master's of Public Administration	28	44
Master's of Business Administration	11	17
Master's of Urban Planning	10	16
Other, please specify	14	22
TOTAL:	63	99%

ANNUAL INCOME	#	%
<=$30,000	29	23
> $30,000 to $35,000	20	16
> $35,000 to $40,000	26	20
> $40,000 to $45,000	31	24
> $45,000	23	18
Missing	2	--
TOTAL:	131	101%

AGE	#	%
20 to 29 years old	11	8
30 to 39 years old	70	54
40 to 49 years old	34	26
50 years and older	15	12
Missing	1	--
TOTAL:	131	100%

SEX	#	%
Male	87	67
Female	43	33
Missing	1	--
TOTAL	131	100%

[a] Title letters correspond to the following state budget office positions:
- A = Assistant Director/Deputy Director
- B = Coordinator/Division Chief/Supervisor
- C = Senior Budget/Governmental Analyst
- D = Budget/Budget and Policy/Governmental Analyst
  Three subjects using the title "Accountant" are also included in this category.
- E = Special Projects Manager
- F = Senior Advisor

[b] Total percentages may not equal 100 due to rounding.

the position as budget review. Others in the survey included six Assistant or Deputy Directors, 22 titled Coordinator, Division Chief, or Supervisor, one Special Projects Manager, and one Senior Advisor. All subjects not presently employed in the analyst position served as a state government budget analyst at some point in their public service career. Also, most of those in the latter, upper-level positions served as an analyst in their particular budget office sometime prior to promotion.

Approximately 73 percent of the analysts have served five years or less in their present position. Eighteen percent have served from six to ten years, and 11 percent have been in their present position for over ten years. Average tenure as an analyst for those presently in the position is approximately 4.7 years, while those employed in higher level positions served from 4 to 7.8 years, on average, as an analyst, (see Table 4.1).[2] Though relatively new to their present position, most of those

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[2]Two subjects indicated at the time of administration of the survey that they had less than one year of experience in their position as budget analyst. Case number 18 had served as a governmental analyst for six months and case number 79 indicated service as a budget analyst of less than one year. Both subjects, however, indicated relatively long tenure as state government employees (15 and 5 years, respectively), having been employed in another agency in their state government previous to becoming an analyst. Unlike one potential subject who had just been hired as an analyst from outside of state government and was excluded from the survey, it was deemed appropriate to include these two cases in the sample. These analysts acknowledged complete familiarity with both the budget cycle and process in their state government as well as the duties of the analyst position.

surveyed indicated a long tenure in the public service, with average service in state government at about ten years (10.44). The shortest tenure indicated was one year, the longest, 28 years.

Exactly half of the participants in this study indicated previous employment as another agency within their own state government. Twenty-five percent checked the "other" category for this question, specifying that they accepted their present position from a variety of circumstances. These included: from another position within their budget office, from college or graduate school, from institutions of learning (secondary and higher), from an agency within county government, from the military, or from the private, non-profit sector. Seventeen percent moved from the private sector into public service. Of those remaining, four came from a federal agency or department, three came from municipal agencies in their own state, two came from municipal agencies in another state, and one came from a state agency in another state. Only one person transferred from one state budget office into another one.

A well-educated group, 98 percent of those surveyed hold college degrees. Twelve percent have done some graduate work after college, while 48 percent hold master's degrees. Seven of those answering the questionnaire hold doctoral degrees or indicated receipt of a professional degree such as that for the CPA (certified public

accountant) or the CLU (charter life underwriter). Two analysts indicated their status as ABD by checking the "other" category.

Of those specifying a major in college, 45 percent indicate a public or business administration background and 20 percent indicate an accounting, finance, or management background. The next single most popular majors include political science (nine respondents) and urban planning (eight respondents). Other majors listed include, biology, business education, divinity, economics, education administration or policy, english, geography, marine science, math, psychology, research methods, and sociology.

A concentration in public administration is most popular with subjects completing a graduate degree. Forty-four percent (28) of those holding a master's degree concentrated in public administration or affairs. Seventeen percent (11) hold MBA degrees while 16 percent (10) hold graduate degrees in urban planning. The remaining 22 percent of those with the master's degree concentrated in areas including, but not limited to, economics, financial management, political science, and sociology.

Regarding the gender makeup of this sample, two thirds (87) of the participants are men. As Table 4.1 suggests, women are making slow progress concerning employment in terms of securing mid- to upper-level state government positions in the South, at least in the budgeting arena.

The highest levels of employment in the budget offices considered in this survey do not find any women, or find relatively fewer than in the lower-level analyst positions. This does not take into consideration any positions above that of Assistant or Deputy Director.[3] Nor do the results indicate the number of women employed in upper-level positions who may not have served as an analyst and, therefore, not participated in the research project.

Average compensation for the analyst and upper-level budget office positions is good, given the region of United States considered. Annual incomes range from less than $15,000 to over $45,000. Mean annual income for those in the budget and/or governmental analyst position range from $30,000 to $35,000. The mean annual income for those in the higher level positions (including Senior Budget or Governmental Analyst, Coordinator, Division Chief, Supervisor, and Assistant or Deputy Director) range from $40,000 to $45,000. Almost one fifth (18 percent) of those surveyed receive an annual salary above $45,000.

In order to complete the profile of the typical state government budget analyst, an analysis of age in years is conducted. The average age of this sample of employees is 39 years; the youngest being 24 years old, the eldest being 64 years old. The age groups indicated in Table 4.1

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[3]Of the ten state government budget offices visited in 1988, two employed female Directors.

represent a predominate number of middle-aged employees, with relatively few "youngsters" (those under 30 years old), who comprise eight percent of the sample, or "seniors" (those over 60 years old), who comprise only four percent of the sample.

Investigation of the socio-demographic characteristics of the subjects of this research project attests to the homogeneity of the group. The typical state government analyst (at least from the Southern region of the United States) can be expected to be a professional in terms of educational background and work experience. One would expect to find the analyst position filled by a middle-aged male with an advanced degree, probably in public or business administration, who has been employed in his position for about five years, in state government for about ten years, and who is realizing an annual income of about $33,000 or more.

Because of the homogeneity of the sample, personal characteristics cannot be expected to provide a great deal of information concerning the explanation of analysts' cognitive styles. That is, distinctions in decision making orientations may not be able to be attributable to differences among analysts concerning age, sex, educational level, and work background. Nevertheless, of the information concerning personal characteristics, analyses across groups will consider gender, age, job tenure, and

educational differences. Concerning educational differences, the two categories included are those with a college degree and/or some graduate work versus those with a graduate and/or professional degree. Such analyses will be addressed in Chapter Five.

FEEDBACK CONCERNING SIMULATION FORMAT AND ADMINISTRATION

Upon administration of the the simulation, the researcher solicited feedback from subjects about the project. Each subject was offered the opportunity to submit written comments and criticisms regarding the format of the simulation as well as its relevancy to their duties during the review process. Approximately 21 percent (28) of the analysts representing seven of the ten states took the additional time necessary to express their thoughts. These comments provide vital insight concerning the validity of the research design by addressing how closely the budget request profiles included in the simulation resemble actual decision tasks required of the analysts.

As mentioned earlier, most subjects had little trouble understanding the decision task and were able to complete the simulation within one hour. Most were extremely receptive to the idea of contributing to research aimed at clarifying state government budget analyst decision behavior. While most comments concerned the enumeration and definition of the criteria used to comprise the profiles,

some did consider the research project as a whole. The following comment provides such an example:

> This [simulation] doesn't allow for showing the creative ways an analyst may go in and find funds -- especially if the agency head is known for padding a budget. Also, I found it very difficult to take political concerns into account by looking at X's. You really can't tell if this is a "hot potato" or a "nice to do."

Another analyst alluded to the difficulty involved in making such recommendations at one point in time, when all criteria are so clearly defined:

> When budget recommendations are made, all factors are not necessarily known, i.e. public support, legislative agenda, etc. Many times these are known just following the [governor's] budget address.

Also, two analysts pointed out the importance of personal bias in making budgetary decisions:

> In making recommendations, a budget analyst's personal perspectives play a role. This survey does not allow for those factors.
>
> Have you considered the analysts own biases and value systems? Or does your analysis have some way of detecting this?

Of course, this is precisely what the research seeks to accomplish -- consideration of analysts' use of particular criteria, given certain personal and situational circumstances. Consideration of the weight that these analysts place on different criteria serves as a proxy

measure of the value that such employees place on analytical or rational versus intuitive factors when making budgetary recommendations. Nevertheless, these comments reinforce the notion that analysts do bring their "personal history," biases, and/or values into play when making spending decisions.

Perhaps the most helpful comments received from analysts regard profile development and criteria definition. Most noted that the request scenarios lacked completion. For instance,

> Good budget decisions are not restricted to the information presented in this survey. For instance, these profiles do not consider the cost effectiveness of the proposal. Nor do they consider the impact of "What happens if you do not fund the request?" Finally, the profiles do not consider the flexibility of the current budget.
>
> A few more criteria are used in the judgment call or recommendation: impact of the the issue, agency base dollars, supporting documentation, sources of funding, and total dollars available.
>
> Other criteria need to be considered, e.g.: 1) the impact if not funded (is this a life or death situation?), 2) the quality of the submission, 3) the dollar magnitude of requests related to the availability of funds, and 4) effectiveness.

Several of the above comments underscore the importance of the revenue climate to spending decisions. Some analysts requested further clarification of such climate in the profiles:

> One of the most, if not the most, important criteria in reviewing an agency's budget request is the revenue environment. If state revenues are estimated to be low, or if other circumstances result in an environment of "little money available" that will greatly affect my recommendation. The revenue situation can not be separated from an agency's budget request.
>
> All [of my] recommendations assume very limited dollars available for appropriation.

Likewise, previous comments regarding the realism of the profiles considered the lack of acknowledgement concerning program effectiveness. Several analysts focused primarily on this issue:

> Why were measures of program effectiveness in achieving goals and results not included? While these are more difficult to generate, where available they may mean more to the evaluation process than workload or efficiency measures.
>
> The one criteria that is not included but which is a primary factor in a state such as ours which has little relative control over agencies is agency competence, or in large agencies, the competence within respective program divisions of the agency.
>
> Effectiveness should be included as a criteria. It is important to know whether [the agency] is resolving the problem or taking advantage of the opportunity [to spend money].

Several factors contributed to both revenue environment and program effectiveness being excluded as scored criteria in the budget request profiles. Concerning revenue climate, it was deemed more consistent if analysts were instructed to

complete the simulation assuming the revenue situation in their state government at the time of administration of the questionnaire. As Duncombe and Kinney (1986) point out, revenue availability is most often considered as an "uncontrollable" variable in that within a state government such availability does not vary across the different agency budget requests reviewed by an analyst. Also, as addressed in Chapter Two, Table 2.2, most visits to administer the simulation followed the period when guidelines had been issued to agencies regarding budget development and request format, and after the gubernatorial address to analysts concerning the revenue situation for the upcoming fiscal year. At the very least, all participants were exposed to a revenue estimate for the new fiscal year upon which they could base their spending recommendations. In this way, fiscal climate serves as an independent variable which may explain distinctions among analysts' decision making orientations. The influence of this variable on analysts' judgment policies will be addressed in Chapter Five.

Several reasons contributed to omitting program effectiveness as a scored cue as well. First, while such information is extremely relevant to long-term program viability, specific measures related to program effectiveness have not been mentioned as frequently as efficiency measures as important to budgeters concerned with yearly spending decisions (Cope, 1987; Duncombe and Kinney,

1986; Grizzle, 1987; O'Toole and Marshall, 1987). The decision task considered in the simulation was comprised of the most frequently cited factors relevant to reviewing agency spending requests by state-level budgeters.

Second, the difficulty in operationalizing effectiveness in the same manner as the other cues contributed to leaving this factor undefined in each budget request profile (Brown and Pyers, 1988; Elam and Thomas, 1989; Premchand, 1987). Third, while eight or nine cues could have described each profile more distinctly for analysts, seven cues were considered the maximum number which reasonably could be interpreted by the subjects (Hammond, et al., 1980: 197; see also, Miller, 1956; Stewart, 1988; Svenson, 1979; Wright, 1984: 114). And finally, as noted in Chapter Three, the number of cues determines the number of profiles which must be judged in order to account for a certain standard error of results. The time constraints and cognitive capacities of the subjects involved necessarily limited the number of profiles to be judged and, therefore, influenced the determination of the number and type of cues included in each.

It is acknowledged that only a few of many factors were included in the simulation, thereby directing participants attention to the scored criteria, to the exclusion of others. However, it should be emphasized that omittance of certain criteria in the decision task in no way diminishes

the importance or relevance of such information to state government budgeters. For instance, as Abney and Lauth (1989) note, governors tend to rely more heavily on the effectiveness of an agency's programs and activities rather than the efficiency with which it carries out its duties. "Despite the reformers' interest in bringing about greater efficiency in government administration, it appears that governors are more interested in results than in process -- although clearly they are somewhat concerned about both" (Abney and Lauth, 1989: 838).[4] Similarly, Botner (1989) finds an increasing emphasis on both the performance and productivity of governments, the measurement of which can occur through the use of more sophisticated information systems. And, along the same lines, consideration of fiscal climate as an independent variable both recognizes and underscores its importance to subjects' recommendation behavior.

According to the written feedback, the most confusing cues for analysts to understand, as defined in the simulation, were WORKLOAD and EFFICIENCY. Comments concerning these two cues were relatively consistent and

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[4]The authors emphasize that the demonstration of need for agency programs and/or services (effectiveness) does positively influence budget success, however, it is most important that an agency's activites be "in harmony" with the chief executive's agenda (Abney and Lauth, 1989: 838). Thus, agency budget success often does not reflect the influence of effectiveness or efficiency measures.

alluded to the necessity for a stricter interpretation of each.

> I don't understand your term "efficiency". Do you mean cost-minimization? The relationship between workload and efficiency was unclear, and needs better explanation.
>
> An area of concern I have with the criteria lies with the workload variable. To me, there is a very distinct difference between 1) increasing or decreasing the volume of work, and 2) increasing or decreasing the number of clients that may or may not be served. I would base my decision on those two variables differently.
>
> The definition of the workload criteria is confusing. An increase in volume of work may be negative, while an increase in number of clients served may be positive. An increase in the number of clients served does not necessarily correlate to an increase in workload.
>
> The WORKLOAD criteria shouldn't combine agency workload with clients served. This presents a dichotomy.

While most analysts seemed comfortable with the consideration of these cues as defined in the simulation, the comments above do note the existence of several types of workload considerations and suggest the necessity of distinguishing such types in order to define the decision task more clearly. As defined in this project, WORKLOAD was concerned with either number of clients served, or volume of work, in order to account for different types of agency programs and/or services (for instance, to account for the client/service orientation of many programs offered

by agencies within a Department of Human Resources versus the strictly operational orientation of those within a Department of Administration). Additionally, as noted in Section I of the instructions for completing the simulation, analysts were advised that the agencies represented by each profile only vary across the criteria presented and do not differ on other attributes. Perhaps confusion could have been avoided for these analysts if WORKLOAD had been defined as a measure of volume of work or number of clients served, without leaving open the possibility of one or the other.

These comments, however, do lend credence to Connelly and Tompkins' (1989: 297) suggestion that development and maintenance of performance measures -- particularly workload measures -- on the part of state government budgeters at least may "raise the level of rational discourse in the budgetary process." While their case study results suggest that performance measures rarely come into play during gubernatorial review of agency budget requests, they promote the existence of such measures as important to future state government spending decisions. In this case, the analysts' comments show their very real consideration of performance measures and emphasize the need for precise definition in order to facilitate the decision process.

The ACQUISITIVE cue, representing acquisitiveness, did not seem as confusing to analysts as some of the other factors mentioned. Nevertheless, two comments concerning

this criterion are enlightening regarding cue interpretation and profile development:

> I suggest that acquisitiveness sometimes be expressed as a negative -- that may be more realistic. Sometimes agencies that have decreased workload and increased efficiency ask for less. It is rare, but it happens.
>
> Acquisitiveness within itself does not imply greed or empire building. If a program is proven to be money well spent, I do not view significant percentage increases as inherently evil.

Seemingly, the political cues provided the least amount of confusion to the subjects, assuming that lack of written comments concerning these variables implies complete understanding. Most comments mentioning a political factor simply provided an analyst's consideration of the influence of the cue. For instance, one analyst explained his/her interpretation of public support, claiming that:

> [Positive] public support does not convince me that a request automatically should be supported with enthusiasm. A bad and inefficient program may have strong [positive] public support and vice versa.

And finally, a few analysts were concerned about the relationships among the different criteria as presented in the profiles or among certain cues with other, related factors:

> There are numerous instances in which the Governor's support is greatly different from public support. This might be more closely aligned in reality.
>
> The influence of a request being high on the governor's agenda (in my opinion) is related to the strength or weakness of the governor within a particular state. In a dominant legislative state, the governor would have less impact.
>
> The questionnaire required each "profile" to be evaluated as a whole. In reality, if I feel that the workload, efficiency, Governor's agenda, etc. are all on the positive side, yet the acquisitiveness is too high, then I would recommend a smaller budget increase. With this instrument, I am compelled to make a "weaker" recommendation because of the high level of acquisitiveness in some instances.

Generally, the written comments from the analysts center on three issues related to the relevancy of the simulation. Certainly, the point is well taken concerning the unrealistic nature of making a decision at one point in time and given "perfect knowledge." As subjects' comments concede, often information related to spending decisions is either imperfect, incomplete, or lacking. And relatedly, decisions are often made in a fluid environment -- the information concerning some factors is known, for others is unknown, and for still others, may be in the process of becoming known (Milter and Rohrbaugh, 1985: 178; see also, Hammond, et al., 1980; Kaplan and Schwartz, 1977). Finally, it is noteworthy that some analysts communicated the very

real role of personal values and biases in flavoring final decisions -- even those based on supposedly objective data.

Nevertheless, even though the information provided in the profiles was "perfect" in the sense that each variable (cue) was numerically defined or scored, such information, considered collectively, was not necessarily unrealistic. As Hammond, et al. (1980: 186) point out, "[t]he SJT approach emphasizes the concept of representative design; that is, that the cue level combinations to which the judge responds should be representative of those in the 'real world'...." While the profiles were randomly generated, and promote an orthogonal design, the range of scores for each cue was delineated initially to reflect possible combinations of information representative of actual state agency budget requests.

It is doubtful that pretesting the instrument could have fostered changes in the simulation instrument that would accommodate these individuals' requests. While pretesting could have flushed out some of the issues which surfaced in the written comments, many undoubtedly would have remained unaddressed. More importantly, it would have been difficult to gather preliminary input from potential subjects without influencing their subsequent judgments concerning the budget request profiles.

Instead, a model for the simulation was presented to a committee of six academicians whose expertise ranged from

state budgetary practice and public budgeting theory to research methodology and social judgment analysis. These committee members questioned each factor and its definition and suggested additional variables which might have been or were included in the budget request profiles. The final simulation presented to the research subjects, represents an agreed upon format which resembles, as closely as possible, a familiar and necessary decision task of the state government budget analyst. In light of the nature of the comments, both written and verbal, the development of realistic decision scenarios can be considered successful. The research instrument itself is assessed as both valid and reliable. Its strength lies in the specificity of the task. In this instance, validity and reliability are enhanced through development of an instrument pertaining to a particular decision task with which subjects are considered expert (Daneke and Kolbus-Edwards, 1979: 423).

ANALYSTS' JUDGMENT ORIENTATIONS: Idiographic and Nomothetic Interpretation

Tyler (1981: 8) suggests that regarding social science research, it is just as important to denote the individuality or uniqueness of human activity as it is to determine and relate shared traits. Using Tyler's suggestion, this section is constructed to provide both the quantitative and qualitative distinctions and similarities among the cognitive styles of state government budget

analysts. Specifically, analyses presented below will reflect, arithmetically and graphically, subjects' decision making behavior as represented by their recommendations regarding each of the 40 budget request profiles included in the simulation. Analyses are conducted in stages, moving from consideration of individual differences (idiographic interpretation of judgments) to group similarities (nomothetic interpretation) in decision behavior.

ANALYTICAL TECHNIQUES

As mentioned above, the data collected were analyzed on both an individual and group level. The statistical procedures involved are listed below:

1) A multiple correlation coefficient or predictability score (multiple R), calculated for each analyst, provides a measure of the comparability of an analyst's predicted judgment policy with his or her actual budgetary recommendations. The coefficient of a multiple correlation "indicates the correlation between all independent variables taken together with the dependent variable" (Nachmias and Nachmias, 1976: 236). In other words, multiple R provides an indication of both the fit of the model to an analyst's actual behavior, and the consistency with which the analyst makes recommendations. Policy PC is used to generate predictability scores for each analyst.

2) Multiple regression provides the predictive equation for the spending policy of each analyst. Partial regression coefficients for each independent variable (cue) and its square are determined at this stage, along with standard errors and T-ratios. The partial regression coefficients for each cue are standardized to indicate the relative influence of each cue to each analyst. Standardized coefficients, or beta weights, provide a measure of the percentage of variability in an analyst's judgment policy that can be explained by each cue. "Relative weights for each cue are computed by dividing the beta weight for each cue by the sum of the beta weights for all cues" (Hammond, et al., 1980: 217). The relative weights for all seven cues used to represent the agency budget request profiles sum to 100 in the final model produced for each analyst. Also, at this stage, the T-ratios are consulted to determine the statistical significance of each cue (Agresti and Agresti, 1979). Policy PC is used to generate a second degree polynomial equation representing predicted judgment for each of the 131 subjects.

3) Function forms provide graphic illustration of the "idealized functional relationships" between cue values and each analyst's judgments (Policy PC 2.0 Reference Manual, 1986: III-7). These graphs illustrate the manner in which

an analyst takes advantage of particular cues and are interpreted in conjunction with relative weights. Corresponding to the development of function forms, the T-ratios for the squared cues are consulted to determine if the quadratic term is warranted; that is, if a curvilinear functional relationship exists and is statistically significant. Policy PC is used to generate function forms for each analyst.

4) The Principal Components method of factoring with Varimax Rotation is used for parsimony -- to reduce from 40 the number of judgments used to group analysts according to specific decision making orientations (Agresti and Agresti, 1979: 504-508; Kim and Mueller, 1978; Rummel, 1970; SPSS-X User's Guide, 1988: 480-499). Prior to conducting the factor procedure, analysts' original recommendations for each of the 40 profiles are converted to standard scores "in order to eliminate response set differences" and to foster an appropriate data matrix necessary for the cluster procedure which follows (Rohrbaugh and Wehr, 1978: 526). The factor procedure of SPSS-X allowed for the completion of this step.

5) Cluster analysis of the factor scores calculated for each analyst is conducted to determine the existence of groups of analysts distinguished according to particular

decision making orientations or patterns. The Ward method of clustering is used. Mean weights are then calculated for each group (Everitt, 1980; SPSS-X User's Guide, 1988: 404-417). The cluster and frequencies procedures of SPSS-X are used to produce this information.

6) Mean recommendations for analysts in each group are calculated using a frequencies procedure. These average recommendations are subjected to regression analyses using Policy PC to generate arithmetic and graphic profiles of the decision making orientations of the analysts by group (Rohrbaugh and Wehr, 1978; Whorton, et al., 1988-89).

RESULTS

Individual Cognitive Styles

Results from this project are promising both in terms of the providing an interesting contribution to the literature regarding public budgetary behavior, specifically at the state government level, as well as application of method in future research. As noted above, analyses of analysts' judgments began with the determination of predictability scores. The multiple correlation coefficient provides an indication of the "goodness of fit" of the mathematical model as well as a measure of the consistency with which analysts made their spending recommendations. Predictability scores fall between zero and one; the

predictive qualities of the arithmethic model improving as multiple R approaches one. (Agresti and Agresti, 1979). Scores from .70 to .90 are common in judgment research, with those above .80 considered "good" (Stewart, 1988: 41-74). The predictability scores for all subjects completing the simulation are represented in Figure 4.1. The results in Figure 4.1 suggest that the second degree polynomial equation used in this instance serves as a good, and many times excellent, predictor of an analyst's spending policy. The mean predictability score for all analysts in this study is .88 with a standard deviation of .058. Approximately 70 percent of subjects' scores fall at .86 or above. This signifies that: 1) the mathematical model used to represent analysts' spending orientations is quite good, and; 2) analysts generally were consistent in their judgments across the 40 request profiles.

Examination of weights and function forms provides a more detailed analysis of the decision making behavior of the subjects. Beginning with weights, Table 4.2 represents the standardized beta weights of the budgetary cues for eight analysts, each utilizing one of the seven factors most heavily when making spending recommendations to their governor. This table illustrates several possibilities regarding subjects decision making orientations. Further, the results suggest that each of the factors represented in

FIGURE 4.1

PREDICTABILITY SCORES FOR
131 STATE GOVERNMENT BUDGET ANALYSTS

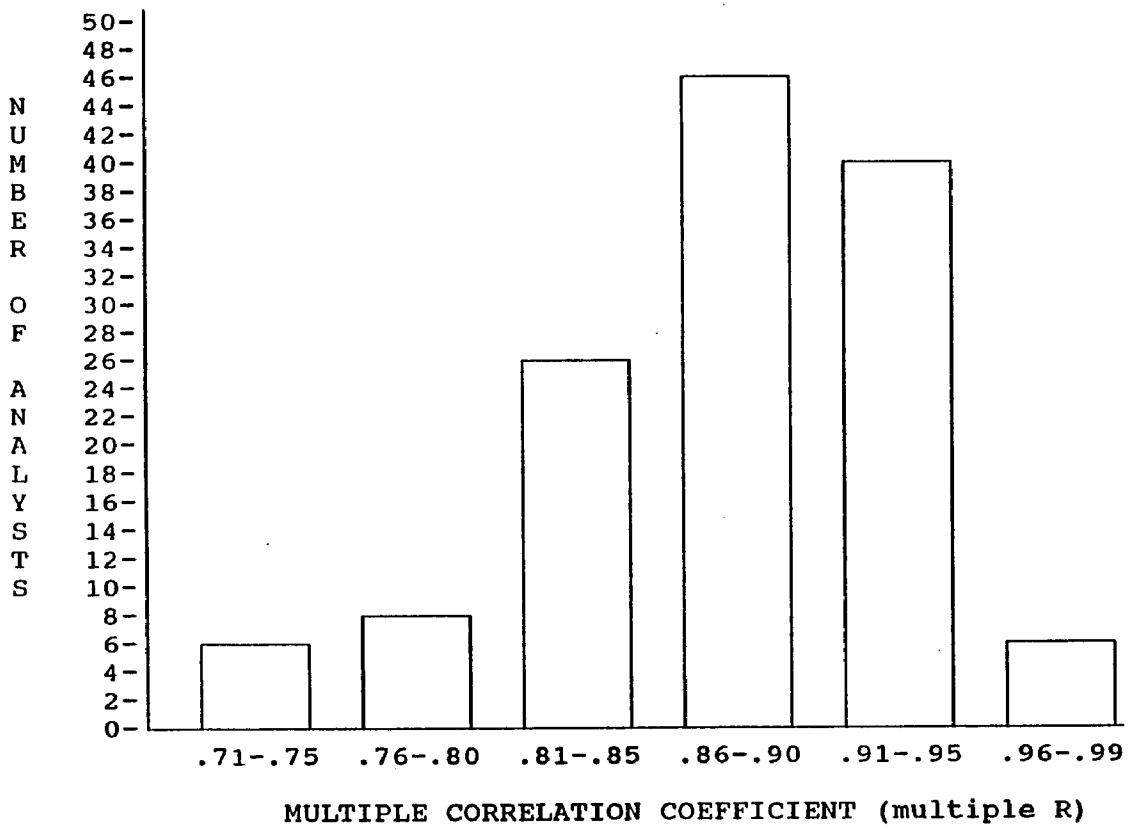

TABLE 4.2

WEIGHTS OF BUDGETARY CUES BY ANALYST[a]

CUE #[b]	1	2	3	4	5	6	7	multiple R[c]
CASE #								
104	**52**	19	13	4	3	5	3	.94
100	25	**46**	5	1	3	13	6	.95
39	21	5	**44**	14	9	4	4	.94
31	6	3	2	**59**	8	12	10	.98
20	2	8	2	27	**29**	3	28	.97
83	20	9	12	10	4	**42**	2	.88
43	10	16	5	26	7	4	**32**	.94
96	22	19	7	4	5	12	**32**	.88

a
Weights corresponding to each cue were calculated for every analyst using multiple regression. The weights for CASE #104 are found directly under the cue numbers beside that case. The information on that line (52, 19, 13, 4, 3, 5, 3) indicates the percent of variability in that analyst's judgment policy that can be explained by each cue. For CASE #104, the cue, WORKLOAD, accounts for 52 percent of the variability in that analyst's judgment policy. Weights are beta weights, standardized to sum to 100 (more or less, due to rounding) (Whorton, et al., 1988-89: 47).

b
Cue numbers correspond to the following criteria as scored in the hypothetical budget requests presented to subjects as the decision task:

1-WORKLOAD, 2-EFFICIENCY, 3-ACQUISITIVENESS, 4-GOVERNOR'S AGENDA, 5-LEGISLATURE, 6-AGENCY HEAD REPUTATION, 7-PUBLIC SUPPORT.

c
Multiple R is the predictability score.

the hypothetical budget requests may be considered as solely important to an analyst when making spending recommendations.

Distinctiveness of decision making patterns becomes more apparent when the weights are considered in conjunction with function forms. For instance, Figure 4.2 illustrates the weights and function forms for three analysts, all of whom take greatest advantage of one or more political cues. The predictability score for each analyst is printed below the function forms for each subject. Weights are found in the lower right corner of the function forms. These graphs illustrate the manner in which the analyst utilizes each cue. The Y-axis (vertical) represents an analyst's recommendations for each of the 40 profiles, scored on a scale from 1 to 20. The X-axis (horizontal) represents the scores applied to specific cues within each profile, on a scale from -10 to +10.[5]

Case number 31 provides an instance where an analyst depends almost completely upon gubernatorial direction when making spending recommendations. That is, the weight of 59 for GOVSAGENDA suggests that 59 percent of the variability in this analyst's judgments can be explained by his or her consideration of this cue. Examination of the quadratic equation produced by Policy PC which corresponds to this

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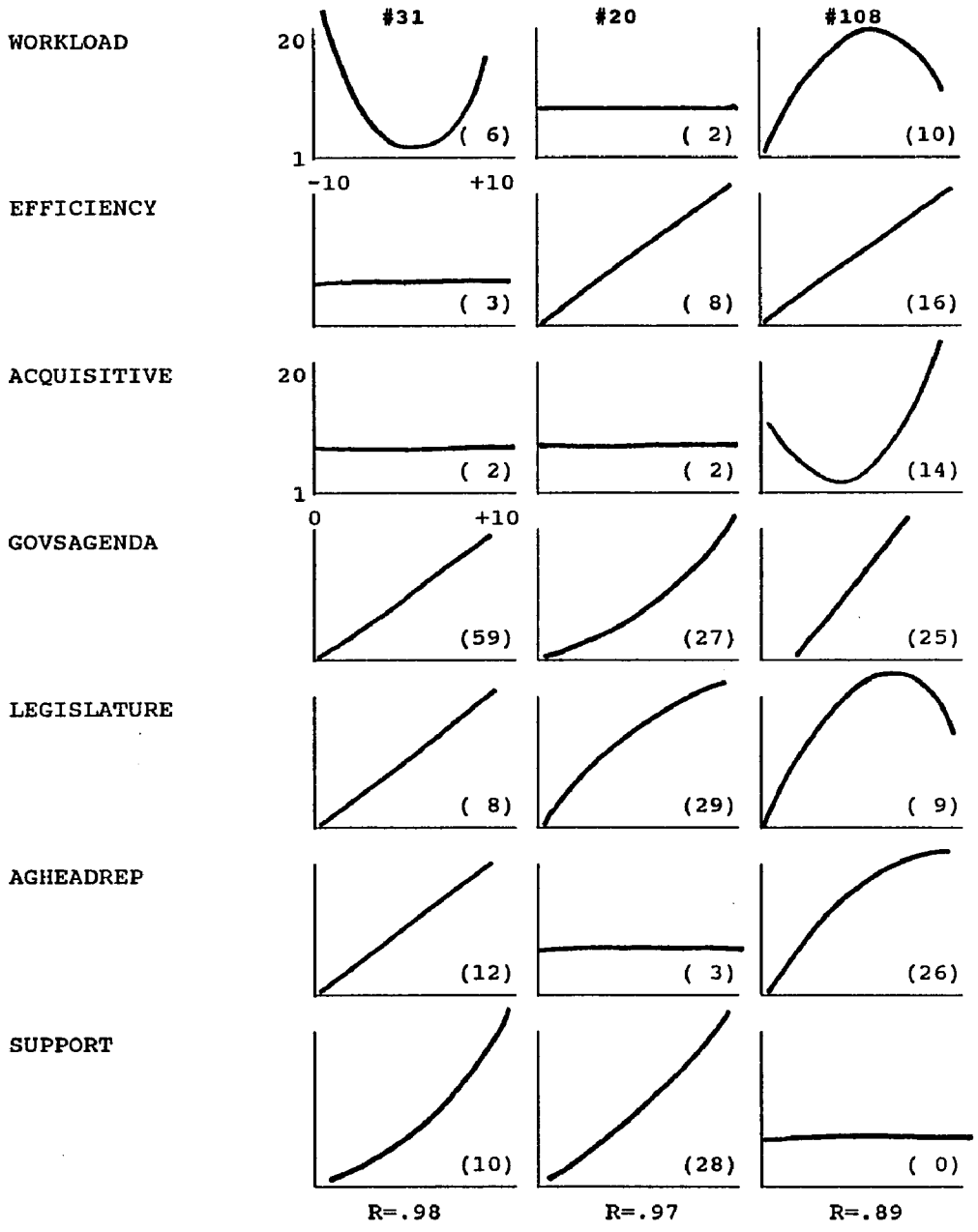
[5]Except for ACQUISITIVE, which is scored from 0 to +10, as explained in Chapter Two.

FIGURE 4.2

JUDGMENT POLICIES FOR THREE SELECTED RESPONDENTS



analyst's judgment policy is illustrated in Table 4.3 and provides further insight.

In Table 4.3 note that the T-ratio for the partial regression coefficient for the cue, GOVSAGENDA, is +20.91; with a sample size of 40, the significance level (p-value) is less than .005. In this case, the other three political cues, LEGISLATURE, AGHEADREP, and SUPPORT, are also found to be statistically significant ($p < .005$), although they are not relied upon as heavily as GOVSAGENDA. Consideration of this analyst's predictability score (.98) attests to the consistency with which he or she made recommendations based on the interpretation of the political factors alone and helps explain why cues other than GOVSAGENDA are statistically significant.

Case number 20 represents an analyst who takes advantage of several political cues in a more balanced manner than the previous subject (see Table 4.2). This analyst weighs gubernatorial and legislative direction as well as public support almost equally when making spending recommendations (weights of 27, 29, and 28, respectively). Again, consideration of the T-ratios corresponding to each cue indicates that these three factors, along with EFFICIENCY, are statistically significant.

Like case number 31, case number 20 takes advantage of the political cues in a positive, linear fashion. That is, none of the T-ratios corresponding to the quadratic

TABLE 4.3

REGRESSION ANALYSIS FOR CASE NUMBER 31

		B	STD ERROR	T-RATIO
CONSTANT		-6.352	+1.521	-4.176
WORKLOAD		-0.014	+0.044	-0.326
EFFICIENCY		+0.036	+0.038	+0.932
ACQUISITIVE		+0.029	+0.068	+0.439
GOVSAGENDA		+0.815	+0.039	+20.911*
LEGISLATURE		+0.114	+0.039	+2.961*
AGHEADREP		+0.166	+0.042	+3.976*
SUPPORT		+0.145	+0.041	+3.525*
WORKLOAD	quadratic	+0.013	+0.008	+1.719
EFFICIENCY	quadratic	+0.002	+0.006	+0.376
ACQUISITIVE	quadratic	+0.007	+0.025	+0.282
GOVSAGENDA	quadratic	+0.015	+0.008	+1.949
LEGISLATURE	quadratic	-0.002	+0.007	-0.291
AGHEADREP	quadratic	+0.003	+0.008	+0.406
SUPPORT	quadratic	+0.009	+0.007	+1.289

*p < .005

R = .98

expressions of the cues for either case number 31 or 20 are statistically significant at or below the .01 level. This suggests that the linear model concerning the use of these cues by the subjects is adequate and appropriate.[6]

Case number 108 illustrates the function forms for an analyst who takes greatest advantage of both agency head reputation and gubernatorial direction (weights of 26 and 25, respectively), although EFFICIENCY and ACQUISITIVE are found to be statistically significant as well. The slightly curvilinear fashion in which this analyst utilizes both GOVSAGENDA and AGHEADREP is substantiated through consideration of the T-ratios corresponding to the quadratic term for each cue (+1.95 and -1.69, respectively). Both are significant at the .05 level.

While the use of political cues on the part of analysts is generally in a positive, linear fashion, those taking greater advantage of the heuristic cue, ACQUISITIVE, illustrate very different patterns of influence. Figure 4.3 represents the weights and function forms for three analysts

---

[6]Consideration of the significance and sign of the quadratic terms corresponds to the function forms and indicates whether the curvilinear formula is warranted. If the T-ratio corresponding to a quadratic term is significant, it implies that a curvilinear relationship exists between the cue value and the analyst's judgment policy. The sign of the partial regression coefficient of the quadratic term determines whether the function form is convex (bowl-shaped; positive sign) or concave (mound-shaped; negative sign) (Agresti and Agresti, 1979: 364-371).

who consider acquisitiveness of the request rather heavily when making spending recommendations to their governor.

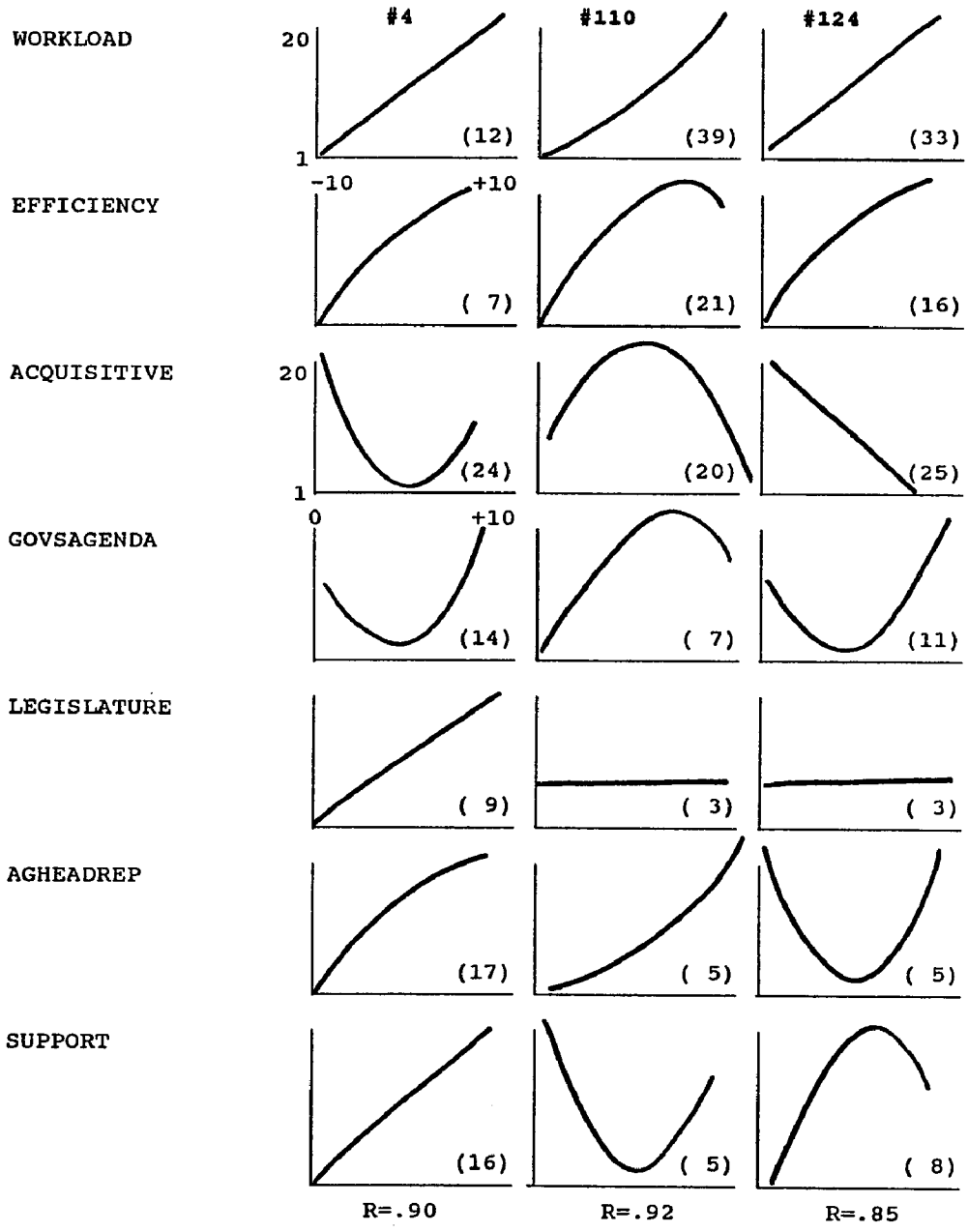
Case numbers 4 and 110 take advantage of this cue in a curvilinear fashion, though in opposite manners. For case number 4, requests above current budget result in weaker recommendations for inclusion in the total budget package to a point, afterwhich rather large requests compared to current budget are considered positively and result in a stronger recommendation for inclusion in the total budget package. The curvilinear relationship is substantiated by a T-ratio for the quadratic term for ACQUISITIVE of +3.55 ($p < .005$). The positive sign in front of the partial regression coefficient for this term implies the convex shape illustrated by the function form.

Case number 110, however, views some increase from current budget positively, yet after a certain point, very large requests are treated negatively, resulting in weaker recommendations for inclusion in the total budget package. Again, consideration of the quadratic term for ACQUISITIVE provides statistical confirmation of the curvilinear relationship exhibited in the function form. The T-ratio for this term is -2.89 ($p < .005$); the negative sign in front of the partial regression coefficient for the quadratic term implies a concave, or mound shape.

Unlike the previous two subjects, case number 124 takes advantage of ACQUISITIVE in a negative, linear fashion,

FIGURE 4.3

JUDGMENT POLICIES FOR THREE SELECTED RESPONDENTS



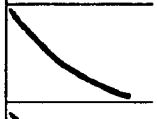
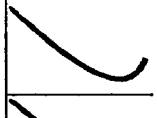
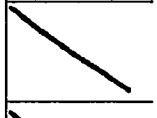
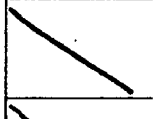
conferring weaker recommendations as requests increase compared to current budget. It is interesting to note that all subjects whose budgetary judgments are predominantly explained by their consideration of ACQUISITIVE (weight of 30 or greater for this cue) interpret this factor negatively. That is, like case number 124, they confer weaker recommendations as requests increase compared to current budget (See Table 4.4).

The results discussed thus far indicate the complexity and uniqueness of information processing exhibited on the part of state government budget analysts engaged in a necessary and familiar decision task. Specific examination of the weights in Table 4.2, along with the function forms in Figures 4.2 and 4.3, also illustrate clear distinctions across analysts concerning the usefulness of certain cues when making spending decisions. For instance, whereas those analysts represented in Figure 4.2 exhibit political orientations, those in Figure 4.3 exhibit traditional, or traditional/bureaucratic orientations. Case numbers 110 and 124, in particular, weigh the cues WORKLOAD, EFFICIENCY, and ACQUISITIVE most heavily, while affording the political cues very little weight when making their spending recommendations.

The data illustrated in Figures 4.2 and 4.3 and in Table 4.3 are available for all 131 analysts and provide a wealth of information concerning individual use of the

TABLE 4.4

WEIGHTS OF BUDGETARY CUES BY ANALYST: Interpretation of Acquisitiveness[a]

CASE #	FUNCTION FORM FOR ACQUISITIVENESS	CUE #[b] 1	2	3	4	5	6	7	multiple R[c]
7		11	23	**30**	13	7	12	4	.80
33		29	5	**42**	9	6	3	5	.92
39		21	5	**44**	14	9	4	4	.94
41		24	6	**40**	10	6	8	4	.75
53		22	18	**32**	9	6	6	8	.80
109		9	10	**30**	19	11	13	8	.93

[a] Weights corresponding to each cue were calculated for every analyst using multiple regression. Interpretation is the same as in Table 4.2.

[b] Cue numbers correspond to those presented in Table 4.2.

[c] Multiple R is the predictability score.

factors related to budgetary decisions as represented in the simulation. For purposes of this project, a small percentage of subjects' judgment policies are considered in detail in order to highlight the distinctiveness of several cognitive styles. Alternatively, following Tyler's (1981) suggestion, the next section attempts to illustrate the similarity of decision making orientations among subjects. Specifically, cue weightings of the sample and an average judgment policy will be presented, followed by analyses which will take advantage of the factor and cluster procedures of SPSS-X in order to determine if analysts can be grouped according to their cue weightings.

DECISION MAKING ORIENTATIONS BY GROUP

The Entire Sample as a Group

This section examines analysts' judgment policies by group, first considering the characteristics of the entire sample, followed by the determination of clusters of policies distinguished by their within group similarity and between group differences.

The frequency distribution of the weights applied to the seven criteria by the 131 subjects provides a picture of the importance of each cue to analysts when making budgetary recommendations. This information is provided in Table 4.5. Looking at the modal categories for each cue, note that gubernatorial direction is most influential to these

TABLE 4.5

FREQUENCY DISTRIBUTION OF THE WEIGHTS
ON THE SEVEN CRITERIA FOR THE
131 BUDGET ANALYSTS' JUDGMENTS

CUE #:[a]	1	2	3	4	5	6	7
WEIGHT:							
0-9	34	22	63	11	64	47	85
10-19	56	69	52	37	56	74	37
20-29	29	31	10	48	11	9	7
30-39	10	7	3	28	0	0	2
40-49	1	2	3	4	0	1	0
50-59	1	0	0	3	0	0	0
MEAN:	16.0	16.8	11.4	23.8	11.0	12.0	9.1
STANDARD DEVIATION:	9.2	7.9	8.0	10.6	6.1	6.0	6.0

[a] Cue numbers correspond to the following as defined in Table 2.1 and as represented in Figure 2.2:

1-WORKLOAD, 2-EFFICIENCY, 3-ACQUISITIVENESS, 4-GOVERNOR'S AGENDA, 5-LEGISLATURE, 6-AGENCY HEAD REPUTATION, 7-PUBLIC SUPPORT.

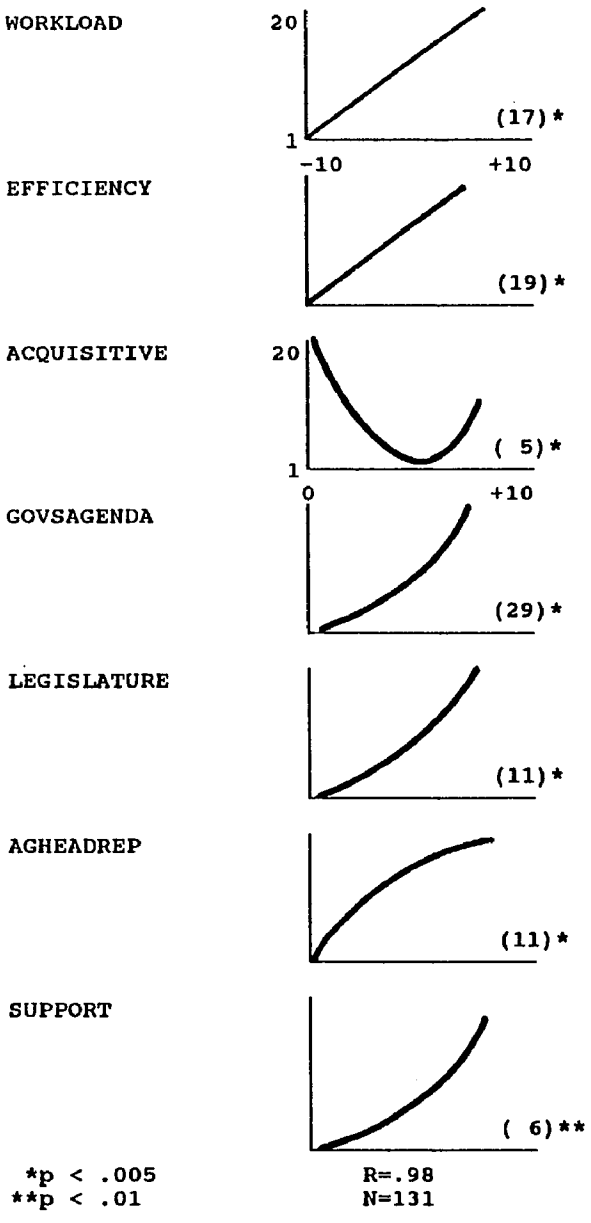
budgeters, followed by EFFICIENCY, WORKLOAD, and AGHEADREP. The least weighted cues are ACQUISITIVE, LEGISLATURE, and SUPPORT, with public support providing the least amount of influence (overall) to those in the sample.

These results are interesting in that they underscore the importance of the governor's influence on central budget staff, yet substantiate the role of rational decision tools to analysts involved in making spending recommendations. For instance, 63 percent of the analysts ascribe a weight of 20 or more to GOVSAGENDA. Nevertheless, at least ten percent or more of the variability in analysts' judgment policies can be explained by the workload variable for close to three quarters (74 percent) of the sample. Similarly, at least ten percent or more of the variability in judgment policies can be explained by analysts' consideration of EFFICIENCY for approximately 83 percent of the sample. And, both GOVSAGENDA and WORKLOAD generate weights in the highest category of 50 or greater. From this information, it is concluded that while gubernatorial influence over analysts' spending orientations exists and is strong, these budgeters also take healthy advantage of several other variables, specifically, efficiency and workload measures, along with agency head reputation.

Figure 4.4 provides an overall judgment policy for the sample. This information was developed by obtaining mean recommendations for each hypothetical budget profile for the

FIGURE 4.4

AVERAGE JUDGMENT POLICY FOR THE SAMPLE



*p < .005
**p < .01

R=.98
N=131

entire sample, then subjecting the 40 average recommendations to the regression procedure using Policy PC. The weights, all statistically significant ($p < .005$), are located in the bottom right of the function forms. The function forms represent the manner in which the cues are utilized by the sample, on average.

The weights produced in Figure 4.4 coincide with the means provided in Table 4.5. Again, GOVSAGENDA serves as the most heavily weighted cue for analysts, followed by EFFICIENCY and WORKLOAD. As the function forms illustrate, on average, all cues except ACQUISITIVE, are utilized by analysts in a positive, linear or perhaps, slightly curvilinear fashion (for instance, see AGHEADREP). The function form for ACQUISITIVE reflects analysts' traditional consideration of this cue. That is, analysts tend to consider requests above current budget negatively, to a point, after which rather large requests compared to current budget are considered positively and result in stronger recommendations for inclusion of such requests in the total budget package. This behavior coincides with the suggestion that public administrators who ask for substantial increases over current budget usually fair better than those who ask for only incremental increases (LeLoup and Moreland, 1978: 234; and Sharkansky, 1968).

DISTINCTIONS AMONG CLUSTERS

This section considers the distinctions among analysts' judgment policies by cluster. This involves a two-step process. First, factoring produces an analysis of the similarities among observations; that is, among the recommendations by the subjects for each of the 40 budget request profiles. Second, cluster analysis considers the similarities among cases; that is, among the decision making orientations of the 131 analysts. Table 4.6 represents a partially completed raw data matrix of subjects' budgetary recommendations. This table helps distinguish between the factor and cluster methods.

The body of this table lists analysts' actual recommendations regarding the profiles included in the simulation. While factoring provides for column-wise comparison, clustering provides for row-wise comparisons (Rummel, 1970: 192; see also, Goddard and Kirby, 1976). Both methods of analysis involve discovering patterns of variation among the variables of interest. The steps necessary to conduct each type of analysis will be explained below and followed by a presentation of results.

Factor Analysis

Rummel (1970: 25) states that factor analysis highlights the "concurrence and concomitance of phenomena." Essentially, this procedure is utilized to determine

TABLE 4.6

STATE GOVERNMENT BUDGET ANALYSTS' RECOMMENDATIONS BY PROFILE[a]

	ANALYSTS' RECOMMENDATIONS FOR BUDGET REQUEST PROFILE: #1	#2	#3 ... #40
CASE NUMBER:			
Analyst #1	9	12	14 ... 3
Analyst #2	1	2	2 ... 1
Analyst #3	5	8	2 ... 2
.	.	.	. ... .
.	.	.	. ... .
.	.	.	. ... .
Analyst #131	1	2	1 ... 6

[a] Recommendations for each profile ranged from 1-very weak recommendation for inclusion of agency budget request in total budget package to 20-very strong recommendation for inclusion of agency budget request in total budget package.

underlying dimensions or factors which can then explain a set of data (Norusis, 1986: B-42). The purposes of conducting factor analysis are either exploratory or confirmatory; exploratory analysis involves an inductive process of reducing the amount of information necessary to explain phenomena, while confirmatory analysis involves a deductive process of testing hypotheses concerning the relationships among variables. In this instance, factor analysis is used for exploratory purposes "to achieve economy of description through data reduction" (Goddard and Kirby, 1976: 14). The objective in using factor analysis is to reduce from 40 the number of variables upon which analysts' judgment policies will be measured. Resulting factor scores will then be used in the clustering procedure to determine if analysts' judgment policies can be grouped (Gorsuch, 1983; Rummel, 1970).

The first step in conducting factor analysis involves development of a correlation matrix for all variables to be included in the model. Initially, standard scores are calculated for all original recommendations and these scores are then factored. This step insures the development of a standardized data matrix which is necessary for the cluster procedure (Romesburg, 1984: 78-92). In this research, the matrix represents the correlations among the recommendations provided by the subjects for each of the 40 budget request profiles.

At this point, three measures are used to assess the appropriateness of using the factor model. First, the Bartlett Test of Sphericity indicates whether to reject or not reject the null hypothesis that the population correlation matrix is an identity (where all diagonals equal one, and all off-diagonals equal zero) (Norusis, 1986). If this measure is large, with a very small significance level, the null hypothesis can be rejected and the factor model is an appropriate one to use. The Bartlett Test of Sphericity for this data equals 3877.78 ($p = .0000$) and therefore implies the appropriateness of using the factor model in this instance.

A second indicator that the factor model is an appropriate one to use concerns partial correlation coefficients. These coefficients "are estimates of the correlations between unique factors and should approach zero when factor assumptions are met" (Norusis, 1986: B-44). The anti-image correlation matrix provides the negative of the partial correlation coefficients and if the proportion of low correlations is high, use of the factor model is appropriate. In this case, only 18 or 1.2 percent of the off-diagonal elements of the anti-image correlation matrix are greater than 0.09. Again, use of the factor model is promoted.

Finally, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy provides an index which compares observed

correlation coefficients to partial correlation coefficients. Kaiser (1974) suggests that KMOs of .90 or above are "marvelous", and those .80 or above are meritorious, indicating that factoring is appropriate. The KMO for the data from this project equals .873, again indicative that factoring is an appropriate data reduction approach (Norusis, 1986).

The second step concerning the use of factor analysis involves extraction to determine the number of factors necessary to adequately describe the raw data. The Principal Components method of extraction is used to produce a new set of variables or dimensions which are orthogonal or independent of one another. Results from this extraction method produce a first component which accounts for the greatest amount of variance in the sample, a second dimension which accounts for any variance not accounted for by the first component, a third dimension which accounts for any further variance, and so on (Rummel, 1970). In addition, the Principal Components method of extraction provides for exact and not estimated factor scores. Determination of exact factor scores is important when further analyses will take advantage of such data (Norusis, 1986: B-61).

The step following extraction involves determination of the number of factors to be used in subsequent analyses. Several thresholds can be considered when determining the

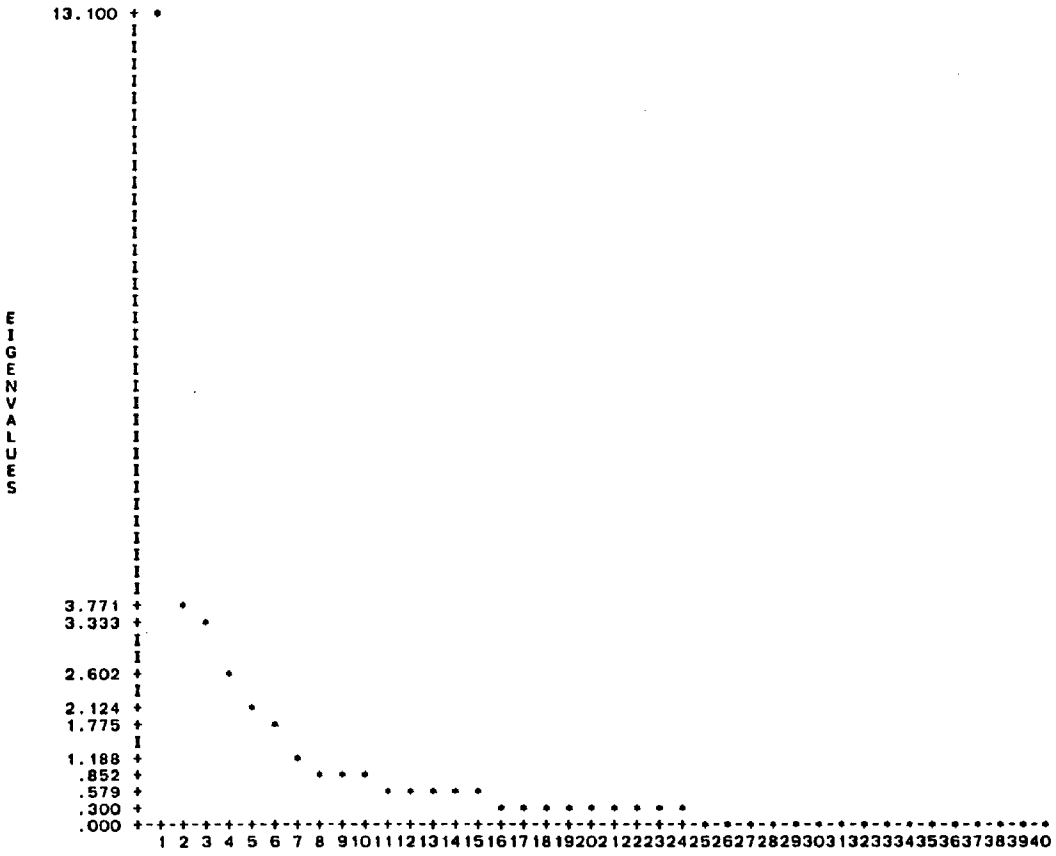
appropriate number of factors to include in the final solution. The Kaiser Criterion "suggests that only factors that account for variances greater than 1 (the eigenvalue is greater than 1) should be included (Norusis, 1986: B-47). Using the Kaiser criterion, the solution in this case includes seven factors.

This solution is substantiated by examination of the Scree Plot illustrated in Figure 4.5. The Scree Test involves noting where the scree or "rubble" begins, that is, where the slope of large factors begins to trail off. In this case, the scree begins at the seventh factor, again suggesting a seven factor solution (Norusis, 1986: B-47; see also, Rummel, 1970). It is important to note that because factoring is used in this research project for data reduction purposes, it is unnecessary to seek the definition of the dimensions produced (Adelman, et al., 1975; Rohrbaugh and Wehr, 1978; Romesburg, 1984). This would be an important step if factoring were being utilized to test hypotheses regarding the relationships among certain variables.

Once the appropriate factor solution has been determined, a fourth step involves the rotation of the new variables for purposes of better definition or distinction. Also, rotation is particularly desirable when factor scores will be used to provide input for further analyses (Rummel, 1970: 120). The Varimax rotation procedure is used at this

FIGURE 4.5

SCREE PLOT OF EIGENVALUES:
Factor Solution for
State Government Budget Analysts'
Spending Recommendations



point. This procedure maximizes the variance between factors and, therefore, simplifies the final solution (Kim and Mueller, 1978). Following the rotation procedure, seven factor scores are calculated for each analyst and saved into an active file to be accessed when the cluster procedure is conducted. The following section discusses the results from such analysis.

Cluster Analysis

Cluster analysis, a procedure very familiar to behavioral scientists, is gaining popularity as an analytical tool (Lorr, 1983). The goal of this procedure is the classification of objects or units into groups whereby within group homogeneity and between group heterogeneity is maximized (Zapan, 1982: 4). In this case, the objects (analysts' decision policies) are grouped according to the values of their factor scores produced in the previous step.

As with the factor procedure, clustering can be accomplished in a variety of ways. Two types of clustering include the non-hierarchical (single-level) and the hierarchical (multi-level) procedures. The first method partitions entities into clusters by an interative process while the latter classifies entities into groups either through agglomerative or divisive means. The agglomerative procedure begins with all objects as single entities and then combines them by level until all objects are included

within one group. The divisive procedure assumes all objects are included in one group and then divides this group into successively smaller ones until all objects stand alone (Lorr, 1983: 19-20). The agglomerative technique of hierarchical clustering is most frequently used and will be the procedure of choice for grouping in this project.

Several agglomerative methods exist, distinguishable by the definition of distance considered between an entity and a cluster or between two clusters (Mezzich and Solomon, 1980: 20-21). In this case, Ward's minimum-variance method is used. Zapan (1982: 25) elaborates on the distance measure (squared Euclidean) endorsed by the Ward's method and its usefulness:

> The Ward's method is based on statistical minimization of clustering "expansion." At each step in this method the central point is calculated for any possible combination of two clusters and then the total sum of squared distances from this point to all objects in this hypothetical cluster is evaluated. The association of two clusters giving the smallest "sum of squares" is then taken to be the new cluster. Therefore, the distance between two clusters has no meaning as a real "geometrical" distance; it is a purely statistically evaluated parameter which can be easily seen from the linking values on the dendrogram....The Ward method is normally regarded as a very efficient clustering method, but favors the grouping of small clusters.

As with the factor procedure, clustering involves several steps. The first step requires development of a standardized data matrix. In this case, analysts'

recommendations were standardized prior to being factored. Principal Components analysis then reduced from 40 to seven the number of variables needed to be considered when clustering, "to overcome the difficulty of clustering too many variables" (Everitt, 1980: 10). Using these seven factor scores developed for each analyst, a "resemblance" or distance data matrix is developed which provides measures of the similarity or dissimilarity among pairs of subjects. As noted earlier, Ward's method of clustering necessitates the use of the squared Euclidean distance coefficient as its distance measure. This is a dissimilarity coefficient whereby the smaller the value of the coefficient, the more similar the subjects (Romesburg, 1984: 11-13).

After the data matrix is produced, clustering by step commences. An agglomeration schedule provides distance coefficients and the stages at which clusters are developed. This schedule can be used to help determine the number of clusters to consider in further analyses. A dendrogram provides a graphic display of clustering by stages and is more easily interpretable than the agglomeration schedule.

In this case, the cluster procedure was performed using the factor scores produced by Principal Components analysis. A data matrix was produced along with the agglomeration schedule. The resulting dendrogram is produced in Figure 4.6. In this figure, case and group numbers are listed along the bottom of the graph. The group numbers correspond

to those found in Table 4.7, which provides mean weights and standard deviations by group.

Eleven clusters are highlighted in Figure 4.6, although several more could have been acknowledged. The decision concerning how many clusters or groups to acknowledge is a subjective one. Usually, the distance values as represented on the vertical axis of the dendrogram are consulted to determine the least number of well-defined clusters (Romesburg, 1984: 213-215). Ultimately, it is the responsibility of the researcher to be able to substantiate reasonably the number of clusters chosen to consider in further analyses. In this case, the eleven clusters illustrated each contain a plausible number of cases and represent distinctive between group characteristics.

A variety of decision making structures are exhibited in Table 4.7. It is interesting to note that while 64 percent of the analysts weigh the cue, GOVSAGENDA, most heavily, 90 percent weigh the cue most heavily or equally heavy with one or two other cues. Also, while only 30 percent of the analysts weigh the analytical cues, WORKLOAD or EFFICIENCY, heaviest, 83 percent exhibit a spending orientation which reflects some influence from either one or both of these cues (see groups 1, 2, 4-9, and 11).

Other interesting aspects include the fact that the heuristic cue, ACQUISITIVE, is weighed heaviest by a mere six percent of the analysts surveyed. This cue comes into

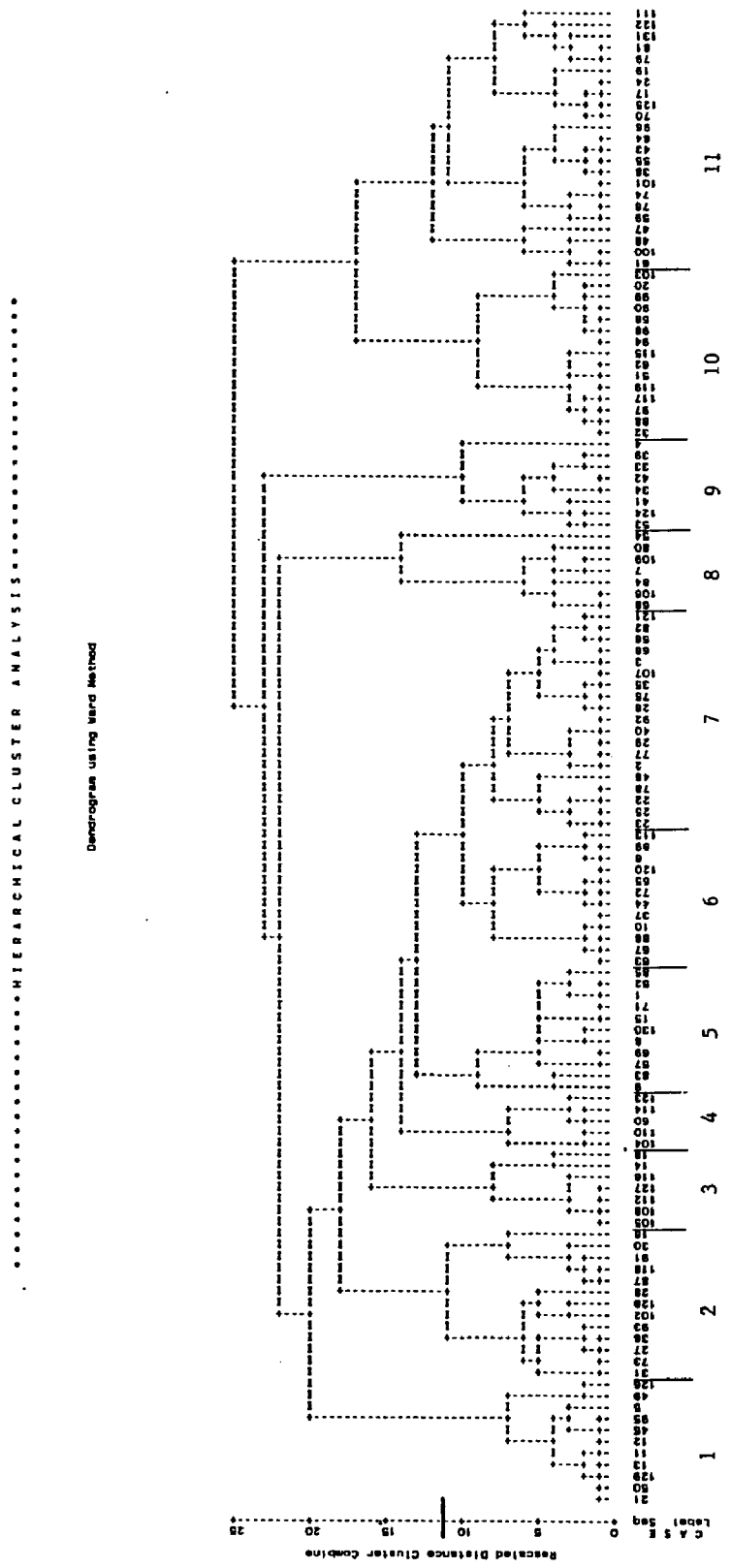


FIGURE 4.6

DENDROGRAM USING WARD METHOD

TABLE 4.7

MEAN WEIGHTS OF BUDGETARY CUES BY GROUP[a]

CUE #:[b]	1	2	3	4	5	6	7	MULTIPLE R	# IN GROUP
GROUP #:									
1	**18**	14	10	**25**	12	12	9	.82	11
	(9)	(5)	(5)	(9)	(8)	(6)	(4)	(.06)	
2	**16**	8	8	**41**	11	9	7	.91	13
	(10)	(5)	(4)	(10)	(6)	(4)	(4)	(.05)	
3	11	16	12	**24**	10	**21**	5	.87	7
	(4)	(2)	(4)	(6)	(4)	(5)	(3)	(.05)	
4	**38**	**15**	11	13	8	8	6	.92	5
	(9)	(5)	(5)	(7)	(7)	(4)	(4)	(.03)	
5	**21**	14	16	**17**	9	16	8	.90	11
	(5)	(6)	(6)	(7)	(4)	(11)	(3)	(.05)	
6	15	**22**	8	**25**	10	13	7	.89	12
	(5)	(4)	(3)	(5)	(4)	(3)	(2)	(.03)	
7	**17**	**17**	11	**24**	12	12	7	.87	19
	(7)	(4)	(6)	(8)	(6)	(6)	(3)	(.04)	
8	12	**18**	**17**	**22**	8	14	9	.85	7
	(4)	(7)	(10)	(9)	(2)	(3)	(8)	(.08)	
9	**24**	10	**32**	11	9	6	7	.86	8
	(7)	(7)	(9)	(3)	(5)	(5)	(4)	(.07)	
10	8	13	8	**27**	**18**	12	14	.90	15
	(5)	(5)	(3)	(6)	(5)	(5)	(6)	(.05)	
11	12	**26**	7	**22**	9	11	12	.86	23
	(9)	(10)	(5)	(11)	(5)	(4)	(10)	(.06)	
								TOTAL:	131

[a] Standard deviations for each weight and predictability score are provided in parentheses directly below each.

[b] Cue numbers correspond to the following as defined in Table 2.1 and as represented in Figure 2.2:

1-WORKLOAD, 2-EFFICIENCY, 3-ACQUISITIVENESS, 4-GOVERNOR'S AGENDA, 5-LEGISLATURE, 6-AGENCY HEAD REPUTATION, 7-PUBLIC SUPPORT.

play in budgetary recommendations as the third highest weighted cue for eighteen other analysts (see groups 5 and 8), although analysts in group 5 consider this cue as influential as AGHEADREP. And finally, according to Table 4.7, only 18 analysts apply predominant weight to just one cue, as opposed to considering two or more cues rather heavily (see groups 2 and 4).

The cluster procedure provides for a fuller interpretation of the decision making patterns of these analysts than does sample averages. In fact, results from clustering substantiate those provided in Table 4.5. Note, however, that many of the standard deviations of the weights within the groups represented in Table 4.7 are large. Standard deviations provide some indication of within group homogeneity. The results in Table 4.7 concerning dispersion can be explained by two factors: 1) the presence of outliers included in some groups, and 2) the characteristics of Ward's method of clustering. In the first instance, the presence of outliers definitely affects standard deviation values. In group 8, for example, case number 54 indicates a weight for the cue, SUPPORT, of 26. This outlier greatly influences calculation of the standard deviation for SUPPORT in this relatively small group of analysts.

More importantly, the method of clustering used influences group development and, therefore, affects final

within group homogeneity. Concerning Ward's method, Romesburg (1984: 135) points out that,

> Because the objects merged at any step are never unmerged at subsequent steps, the finding of the minimum value of [the distance among entities] at each step is conditioned on the set of clusters already formed at prior clustering steps....This value [of the distance index] may be larger than the true minimum--larger than the one that could be found if the unmerging of clusters were permitted.

Nevertheless, Romesburg (1984: 135) adds that this method "usually gives a near-optimal solution that is good enough for most purposes" and can even provide "the optimal solution."

In this case, the decision was made to keep outliers throughout the factoring and clustering procedures, in order to take advantage of as much information as possible. Also, subsequent consideration of the average judgment policies of the resulting clusters serves to further support the distinctive qualities of the groups as illustrated in Table 4.7. This helps to promote the reliability of the information presented thus far.

Graphic interpretation of average judgment policies by group is presented in Figure 4.7. This information was developed in the same manner as that in Figure 4.4. Average recommendations by group were calculated and then regressed using Policy PC to produce an average judgment policy for each cluster of analysts. The weights for these average

judgments correspond with the mean weights for each group as presented in Table 4.7, although the distinctiveness of decision making orientation is more apparent in Figure 4.7. Again, it is noteworthy that analysts tend to utilize most cues in a positive, linear fashion. Agency head reputation, however, is often considered in a curvilinear manner (see groups 3, 5, 8, and 11, in particular). Analysts in groups 8 and 11 consider trustworthiness of agency heads positively, to a point, after which such a characteristic is interpreted less positively.

The interpretation of ACQUISITIVE tends to be quite distinctive, depending upon the group. Note the differences in use of this cue across groups 3, 5, and 6 through 10 (weights for this cue in each of these groups are statistically significant at the .005 level). Those who consider this variable rather heavily when making spending decisions take advantage of the cue in a negative, linear fashion (groups 8 and 9). Analysts in groups 3 and 5, however, utilize this cue in a curvilinear pattern resembling that illustrated for the entire sample (see Figure 4.4). Finally, two groups, 6 and 10, do not consider ACQUISITIVE very important when making budgetary recommendations. However, when they do consider the variable, they take advantage of it in a positive, linear or slightly curvilinear fashion. For these analysts, acquisitiveness on the part of the agency head is viewed

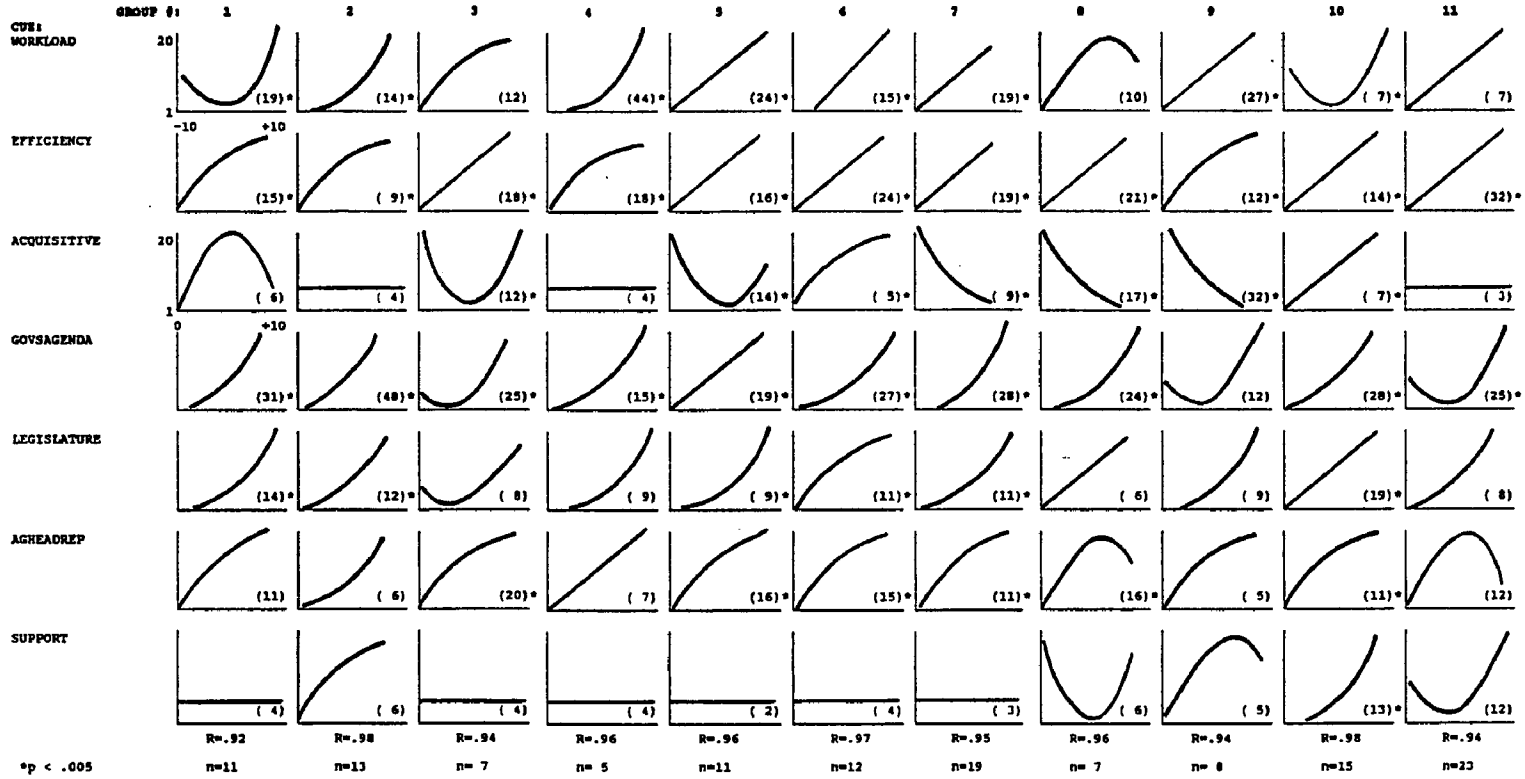


FIGURE 4.7

JUDGMENT POLICIES BY GROUP
TOTAL N=131

positively; the greater the request (compared to current budget) the stronger the recommendation by the analyst to include the request in the total budget package.

Finally, the graphic presentation in Figure 4.7 allows for the comparison across groups which may seem to be similar, based on their cue weightings alone, yet vary when the manner in which cues are utilized is exhibited. For example, analysts in groups 6 and 11 weigh the cues EFFICIENCY and GOVSAGENDA heavily, and have somewhat similar weightings across the other cues. However, the manner in which they are influenced by each of the variables sometimes differs. Notice the differences between these two groups concerning analysts' consideration of the political cues, in particular.

INTERPRETATION OF RESULTS

These results are noteworthy for several reasons. First, the multiple correlation coefficients produced for individual analysts are extremely encouraging -- suggesting that simulations of this kind can model the decision making task of certain experts adequately. Of course, the choice and number of criteria, and their definition are crucial aspects to the development of an appropriate simulation for the subjects of interest.

Second, considering the analysts both individually and as grouped, this research arithmetically and graphically

illustrates that it is important to distinguish not only cue weights, but the manner in which cues are utilized. As illustrated in Figures 4.3 and 4.7, analysts can apply similar weightings to cues, yet consider the information in a different linear or curvilinear fashion.

A third implication of this research concerns the groups produced by clustering. The variation in decision structures manifested on the part of the analysts as grouped suggests that these public employees cannot be labelled strictly rationalist, incrementalist, or politico. For instance, 73 percent of the analysts in this study utilize GOVSAGENDA and either WORKLOAD or EFFICIENCY as the first and second most heavily weighted cue when making budgetary recommendations to their governor (see groups 1, 2, 5-8, and 11 in Table 4.6). This implies that for most analysts, their relationship with the governor by virtue of their position as budget staff does not necessarily preclude the consideration of rational aides to decision making. This point is reiterated in Table 4.5.

Finally, it is somewhat curious that so few analysts indicated heavy or moderate weighting of the cue, ACQUISITIVE. Such results lend credence to arguments that adherence to traditional routines and heuristics is weakened as fiscal climate, organizational setting, and technological

capabilities change.[7] Chapter Five will address the influences of these factors on analysts' judgment policies.

CONCLUSION

This chapter has provided a description of the sample, written feedback from subjects concerning the research instrument, and arithmetic and graphic analyses of both individual and group judgment policies of analysts. Results indicate the existence of a rather homogeneous group of state government employees involved in the specific duties ascribed to the central budget office analyst position.

The decision making structures of these employees when involved in the familiar task of reviewing spending requests for recommendation to the governor are both distinctive and consistent. Not surprisingly, gubernatorial direction influences such judgments heavily. However, the analyses also reveal the very substantial influence of rational decision aides to these budgeters, along with the somewhat lesser influence of agency administrators. While acquisitiveness of the agency head is utilized differently

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[7]See Chapman, 1982; Duncombe and Kinney, 1986; MacManus and Grothe, 1989; Schick, 1988; Straussman, 1979, and; Tarschys, 1986 for discussions of changing budgetary relationships and decision making patterns in periods of financial decline in the public arena. Similarly, consult Botner, 1985; Cope, 1987; Gosling, 1987; Grizzle, 1987; Lauth, 1987; Lee, 1981; Polivka and Osterholt, 1985; Ramsey and Hackbart, 1979 and 1982, and; Stone, 1985 concerning the influences of organizational setting and informational capabilities on public decision makers.

among several groups of analysts, interpretation for the entire sample indicates traditional consideration of this variable. Analysts, as agents of the governor, tend to remain fiscally conservative. That is, acquisitiveness on the part of agency heads generally is treated negatively. Nevertheless, according to the results concerning sample averages, those administrators who are particularly aggressive in their spending demands should fair better than those who ask for incremental increases in terms of receiving more favorable recommendations from analysts reviewing their budgets. Regardless of this point, ACQUISITIVE is one of the least important cues to analysts when making budgetary judgments. Likewise, legislative direction and public support provide little influence to the subjects of this study.

These results contribute to the literature concerning public budgetary practice, particularly concerning the use of rational decision tools throughout such process. As noted in Chapter One concerning budgetary decision making, the underlying rationale for reform (for example, reliance on objective measures of performance) is to foster more equitable public policy. Thus, the results of this investigation should be very encouraging to reformers. That is, it is rare that the budgeter of interest in this case considers only one type of cue when making spending recommendations. While analysts favor gubernatorial

direction when examining agency budget requests, they also take advantage of certain rational measures of performance before making their final recommendation. Such results imply "mixed-value" adherence on the part of these budgetary experts.

The following chapter will analyze group differences further, taking into consideration the independent variables defined in Chapters Two and Three. It is expected that distinctive personal, organizational, technical, and fiscal environments of the analysts will be reflected in their judgment policies and that the relationships between these independent variables and analysts' decision making orientations can be substantiated.

CHAPTER 5
DISCRIMINANT ANALYSIS:
Factors Influencing Analysts' Decision Typologies

INTRODUCTION

Chapter Five examines several factors which influence analysts' spending orientations. Specifically, the relationship between analysts' decision making strategies and financial, organizational, technical, and personal variables will be analyzed. The first part of this chapter assesses the financial condition of the participating state governments for fiscal year 1989. Individual state data are preceded by a comparison of the Southern region's average general revenues and expenditures, and long term debt to the rest of the nation. Portraits of the organizational setting and mission of each budget office surveyed, and the technological capabilities afforded analysts, are presented as well. A second section explains discriminant analysis and suggests a model to symbolize the relationship between the independent variables presented in the first section of the chapter and the dependent variable, analyst's judgment policy. The third part of Chapter Five presents results from the discriminant procedure. The conclusion considers the strengths and weaknesses of the discriminant model and discusses implications of the research.

FISCAL CLIMATE, ORGANIZATIONAL SETTING, AND TECHNOLOGY: The Environment of the Budget Analyst Employed in the Southern Region of the United States

Fiscal Climate

As noted in Chapter One, the past decade has been a period of great financial and operational transition for most state governments. The federal government's retreat from the provision of many service and support systems has further burdened state governments with additional administrative and financial responsibilities. Most states have met the challenge through traditional as well as non-traditional methods of budget balancing (Hackbart and Leigland, 1990).[1] However, while many state governments maintained balanced budgets throughout the 1980s, they did so at the expense of savings, rainy day funds, and/or year-end balances (Carnevale, 1988; see also, Leigland, 1988: 222).

To get a picture of the financial condition of the state governments included in this research, it is necessary to summarize that of the rest of the United States.[2] From

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[1]Traditional strategies of budget balancing include cutting spending and raising taxes. Non-traditional methods include tapping new revenue sources and developing new debt strategies.

[2]All information presented in this section takes advantage of financial and population data from State Government Finances of the Government Finance Series developed by the U.S. Bureau of the Census, for 1978 through 1988. Data from Table 3 (Summary of State Government Finances, by State) and Table 22 (Population and Personal Income) provided the information for this section, specifically.

1982 to 1988, general revenues (taxes, intergovernmental revenues (federal aid), charges and miscellaneous revenues), general expenditures (including education, welfare and social services, transportation, and hospitals), and long term debt increased, on average, across the nation, as measured by percent change in constant dollars. For instance, for all states other than those included in this survey, general revenues increased by 24 percent; general expenditures increased by 23 percent; and, long term debt increased by 44 percent.[3] The dramatic growth in long term debt is indicative of the increasing emphasis placed on debt financing for state government operations.

The same figures for the Southern region alone are only marginally different from those above. Specifically, from 1982 to 1988, general revenues increased by 29 percent; general expenditures increased by 25 percent; and, long term debt increased by 39 percent. The slightly higher increases in revenues and expenditures for this region compared to the rest of the nation are attributable, in part, to demographic shifts. This region experienced a nine percent increase in

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[3]Constant dollars are determined using the implicit price deflator for GNP related to state and local government purchases of goods and services, 1982 = 100 (base year); 1988 = 130.8. The fourth quarter figure from Table 7.4 in Survey of Current Business (1989: 16-17) is used.

population from 1982 to 1988; the rest of the nation experienced a five percent increase for the same period.[4]

While the Southern region of the United States has experienced slightly greater financial growth than the rest of the nation (from 1982 to 1988), it is evident that the region's fiscal capacity is less than that of the other states. Comparison of per capita general revenues and per capita general expenditures for the Southern region to the rest of the states demonstrates this point. For the period from 1978 to 1988, on average, per capita revenues for the Southern states are 72 percent of the rest of the nation, and per capita expenditures are 76 percent of the rest of the nation. Ultimately, the financial growth of the region does not signify parity with averages (per capita and total) for the rest of the nation.

Ending balance as a percent of total (1989) estimated expenditures also provides evidence of fiscal stress being experienced by this region. Of the ten states included in this study, only one (South Carolina) approaches the five percent threshold recommended by analysts for healthy financial operation (Colby, 1989: 11). Table 5.1 presents

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[4]Per capita figures are also available. For all states except the Southern region, average per capita general revenues and expenditures increased by 16 percent from 1982 to 1988, while average per capita long term debt increased by 37 percent for the same period. For the Southern states, average per capita general revenues increased by 18 percent; average per capita general expenditures increased by 15 percent; and average per capita long term debt increased by 28 percent from 1982 to 1988.

TABLE 5.1

FINANCIAL DATA: 1989 Estimates[a]
(in millions of dollars)

STATE	GENERAL FUND REVENUES	GENERAL FUND EXPENDITURES	EXCESS OR (SHORTFALL)	ENDING BALANCE	ENDING BALANCE AS A % OF EXPENDITURES
ALABAMA	$3004.0	$3159.3	(155.3)	21.2	0.67%
FLORIDA	9410.4	9511.1	(100.7)	5.2	0.05
GEORGIA	6254.0	6254.0	-0-	-0-	-0-
KENTUCKY	3298.5	3308.3	(9.8)	21.9	0.66
LOUISIANA	4041.0	4034.0	7.0	157.0	3.89
MISSISSIPPI	1741.1	1798.5	(57.4)	31.1	1.73
NORTH CAROLINA	6168.4	6586.1	(417.7)	(24.8)	(0.38)
SOUTH CAROLINA	3093.8	3160.0	(66.2)	140.8	4.46
TENNESSEE	3395.0	3443.0	(48.0)	32.0	0.93
VIRGINIA	5395.9	5583.3	(187.4)	122.1	2.19
TOTAL	**$45802.1**	**$46837.6**	**($1035.5)**	**$506.5**	**1.08%**

[a] All figures obtained from survey instrument completed by financial officers in each state government participating in the 1988 State Government Budget Analysts Project.

1989 estimates for revenues, expenditures, and ending balances collected from the financial officers in each participating state government. Notice that the aggregate 1989 estimated ending balance for this region is 1.08 percent of the aggregate 1989 spending estimate for 1989 -- a balance that falls far below the five percent recommendation.[5]

The financial data collected in the present survey are confirmed by data provided in City and State's (1989) Fourth Annual State Financial Report for the 50 states. Table 5.2 provides the measures of fiscal capacity gathered from the survey, including: 1989 estimated general fund revenues per capita, 1989 estimated long term debt per capita, and bond ratings (both Moody's, and Standard and Poor's).

The calculation of averages presented earlier for the Southern region indicate similar growth yet less capacity when compared to the rest of the nation. Additionally, the 1989 estimates in Table 5.2 illustrate some diversity of fiscal situation among the states in this region. For instance, Mississippi's 1989 estimated general fund revenues per capita are 68 percent of Georgia's; and Kentucky's

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[5]Eight of the ten states in this survey estimate revenue shortfalls in 1989. Hackbart (1988) points out that state governments have little experience with such shortfalls. He adds that "revenue shortfalls are a novelty of the 1980s. They are reflective of an economic downfall [particular to the Southern region of the United States]" (Hackbart, 1988).

TABLE 5.2

FINANCIAL VARIABLES BY STATE[a]
(1989 Estimates)

STATE	REVSPC: GENERAL FUND REVENUE $/capita	LTDPC: LONG TERM DEBT $/capita	BOND RATINGS Moody/S & P	BOND SCORE[b]
ALABAMA	727.89	144.61	Aa/AA	75
FLORIDA	760.03	308.81	Aa/AA	75
GEORGIA	977.04	315.39	Aaa/AA+	90
KENTUCKY	886.46	768.20	Aa/AA	75
LOUISIANA	914.25	692.00	Baa1/BBB+	50
MISSISSIPPI	663.28	196.24	Aa/AA-	70
NORTH CAROLINA	945.20	102.53	Aaa/AAA	100
SOUTH CAROLINA	885.71	198.00	Aaa/AAA	100
TENNESSEE	690.18	221.60	Aaa/AA+	90
VIRGINIA	899.92	55.00	Aaa/AAA	100

[a] Estimated general fund revenues per capita were calculated using the figure for 1989 estimated general fund revenues provided by financial officers in each participating state government divided by the 1988 population figure provided by City and State's (1989) Fourth Annual State Financial Report. Estimated long term debt per capita is the figure provided by financial officers in each state. Bond ratings provided by the financial officers were checked against those indicated for each state in City and State's report.

[b] This score is a judgmental scale developed by the researcher which establishes 100 as the strongest/best quality rating and 50 as the weakest/poorest quality rating.

projected long term debt per capita is almost 14 times that of Virginia's.

The states can be compared according to their bond rating as well. In this case, an interval scale from 50 points (weakest rating) to 100 points (strongest rating) was developed by the researcher to indicate the strength of the bond rating. The final column in Table 5.2 represents the score assigned to each state government based on this scale. The three financial variables (REVSPC, LTDPC, and BOND) presented in Table 5.2 are incorporated into the arithmetic model developed using discriminant analysis, a procedure explained later in this chapter.[6]

Budget Office Strength: Organizational Setting, Analyst Focus, and Budget Mission

In order to assess budget office strength, it is necessary to develop a composite score which utilizes the measurement of the organizational variables defined in Chapter Three. Five variables are used to measure budget office strength in terms of organizational setting, analyst allegiance and focus, and budget mission and format. These variables include, organizational location of the budget office, method of appointment of the budget office director, size of the office, budget format, and primary mission of the office. Each of these variables is weighted equally at

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[6]An additional record considering these variables was added to those for each analyst in the SPSS-X raw data file.

20 points[7]; therefore, the highest possible composite score that an office could receive is 100.

Organizational location of the budget office and the method of appointment of the director are two variables which measure allegiance of budget staff to the governor. Specifically, location of the budget office within the executive office of the governor and gubernatorial appointment of the budget director strengthen the chief executive's budget powers, and foster a strong allegiance on the part of budget staff to their governor (Abney and Lauth, 1989: 830). In this case, budget offices located within the governor's executive offices receive 20 points; those located outside of the executive offices receive no points. Offices employing directors appointed by the governor receive 20 points; those with directors appointed by the governor with consent of one or both houses of the legislature receive 15 points; those with directors appointed by a department head with approval of the governor receive 10 points; and those with directors appointed by a department or division head receive 5 points.

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[7]While Chapters One and Three present literature assessing the influence of each of these variables on an analyst's decision making style, no empirical work exists which ranks the variables as to their relative importance to a budgeter. Therefore, each variable is afforded equal weight in the development of an overall score related to the influence of the budget office, organizationally, on the spending policies of analysts.

Scoring for the organizational variables based on survey results are presented in Table 5.3. Four of the participating offices are located within the executive offices of the governor (Florida, Georgia, Kentucky, and North Carolina). In all of these states, the budget director is appointed by the governor and serves at the pleasure of the chief executive. Each of these states receives 20 points for the variable, LOCATION, and 20 points for the variable, DIRECTOR.

On the other hand, four state governments have their budget offices located in separate departments or divisions of administration and/or finance (Alabama, Louisiana, Tennessee, and Virginia). These states did not receive any points for the location variable. Nevertheless, two of the states (Tennessee and Virginia) have budget staff whose allegiance to the governor is strengthened by virtue of the appointment of their director by the chief executive. Further, each director's term of office is determined by the governor. Thus, Tennessee and Virginia receive 20 points each for the variable, DIRECTOR.

In Alabama, the State Budget Officer is appointed by the head of the Department of Finance, subject to gubernatorial approval. This officer serves at the pleasure of the department head. Louisiana's Budget and Management Director is a civil service employee, appointed by the Commissioner of the State's Division of Administration. The

TABLE 5.3

ASSESSMENT OF BUDGET OFFICE STRENGTH:
Organizational Setting, Analyst Focus, and Budget Mission

VARIABLE NAME:	LOCATION	DIRECTOR SIZE (#)		FORMAT	MISSION	TOTAL SCORE[a]
STATE:						
ALABAMA	-0-	10	5.6 (18)	20	10	45.6
FLORIDA	20	20	10.7 (118)	-0-	20	70.7
GEORGIA	20	20	12.0 (74)	-0-	10	62.0
KENTUCKY	20	20	9.2 (30)	20	20	89.2
LOUISIANA	-0-	5	8.0 (41)	-0-	10	23.0
MISSISSIPPI	10	15	3.0 (9)	-0-	10	38.0
NORTH CAROLINA	20	20	5.4 (58)	20	10	75.4
SOUTH CAROLINA	-0-	5	5.1 (25)	-0-	10	20.1
TENNESSEE	-0-	20	8.3 (31)	20	10	58.3
VIRGINIA	-0-	20	20.0 (104)	20	15	75.0

[a] Total Score is a composite score of the values for each of the scores on the variables from LOCATION to MISSION. Total score serves as the variable, ORGSCORE, a measure of budget office strength.

appointment strategies for Alabama and Louisiana are indicated by the scores for the variable, DIRECTOR, of 10 and 5, respectively.

Two of the participating states have rather unusual arrangements concerning the placement of a central budget office. Mississippi's budget office is not within the executive offices of the governor, yet is closely aligned with the chief executive by virtue of its independence from other departments or divisions. This state's budget office is a division of the Financial Management Board (FMB) which is chaired by the governor. This office is directly responsible to the governor for provision of the budget document to be presented to the legislature; it is a counterpart to the Joint Legislative Budget Committee's Legislative Budget Office (Clynch, 1988). In this case, the budget director is appointed by the governor, with advice and consent from the Senate; this officer serves at the pleasure of the governor. Because of the relationship between the FMB and the governor, this budget office receives 10 points for the location variable. The appointment of the head of the budget division within the FMB warranted 15 points for the variable, DIRECTOR.[8]

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[8]Since its inception, the Joint Legislative Budget Committee's budget has served as the starting point for budgetary negotiations in the legislature, while the executive budget is usually ignored. However, greater impetus on the part of Governor Ray Mabus has fostered more consideration by the legislature of gubernatorial priorities. Clynch (1988: 18-19) is cautiously optimistic about the movement away from

South Carolina's central budget office is placed within the State's Budget and Control Board (BCB), another unique setting. This is an executive/legislative body of which the governor is chairman. While the power of the BCB in budget development is acknowledged (Whicker, 1986), for the purposes of this study, the score for the location variable is related solely to allegiance to the governor. In South Carolina, those who staff the budget division hold an allegiance to the BCB, and not specifically to the governor. Therefore, South Carolina received a score of zero for this variable. Concerning appointment of the budget director, this is the responsibility of the BCB Commissioner. The director's term of office is indefinite. Because of this, South Carolina's budget office receives a score of 5 for the variable, DIRECTOR.

As pointed out in Chapters One and Three, the size of the budget office also contributes to the resources and influence of those employed within it. The score which measures office size considers a ratio of the number of employees within the budget office (line and staff, 1988) to the total number of state government employees (1988). This ratio provides a relative measure of size and allows for comparability across the ten participating state governments. The state with the largest budget office

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"politics as usual" in Mississippi to the executive-centered budget system characteristic of most states.

compared to the other nine offices receives 100 percent of the 20 points possible. The score for every other office is determined by multiplying the ratio of percentages by 20 points. For instance, Georgia's budget office employs .12 percent of total state employees. This number is divided by .20 percent (percent of total state employees in Virginia's budget office -- the state with the largest budget office, according to this measure). The result is then multiplied by 20 to provide a score indicative of size. For Georgia, the score for the variable, SIZE, is 12.0.

Table 5.3 indicates the calculated score for the variable, SIZE, as well as the actual number of employees (line and staff) working in each budget office. Three states (Alabama, Mississippi, and South Carolina) have relatively small budget shops (25 employees or less). Medium-sized operations, from 26 to 50 employees, are found in Kentucky, Louisiana, and Tennessee. Considerably larger offices are found in North Carolina, Georgia, and especially, Florida and Virginia.

Considering the fourth organizational variable, budget format, all budget officers interviewed acknowledged a tendancy toward hybridization, if not in form, at least in thought. Generally, the line-item format serves as a starting point for budgetary negotiations between analysts and agency personnel, particularly for budgeters in states

where a line-item format is legally required for submission to the legislature.

In answer to the question, Which one of the following best characterizes the budget format used in your state?, five budget officers checked, "traditional, line-item budget." Mississippi's budget director noted, however, movement toward program budgeting. In fact, Mississippi law requires the submission of the budget to the legislature in program budget format, even though control of appropriations by the budget office remains at the line-item level.[9] Similarly, South Carolina's budget director pointed out that their 1988 budget cycle included a pilot study in the use of program-performance budgeting. Nevertheless, these five states receive no points for the variable, FORMAT.

North Carolina was the only state to indicate that two budget formats were applicable -- both line-item and program. This state receives 20 points for the variable, FORMAT, because of the complete integration of the program format in their budget process. The following explanation of narrative and statistical data included in the general instructions to agency personnel regarding budget preparation emphasizes the program format required in North Carolina:

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[9]Clynch (1988) substantiates this "nudging" toward program budgeting in Mississippi and suggests recent gubernatorial influence to be partially responsible.

> For a number of years, narrative and statistical data--departmental goal statements, program purpose statements, program objective statements, and statistical measures of program activity--have been a part of the recommended state budget. Since the last biennium, the Office of State Budget and Management has worked closely with departments to make program statistical measures more meaningful. The current budget preparation cycle continues this emphasis on quantifiable program data which will indicate the impact and outcomes of programs in addition to measuring activities. This effort is intended to supplement narrative descriptions with program statistical data which identify the target populations or environmental conditions, the specific relationships of the programs to these populations or conditions, and intended outcomes (Cameron, 1988: 1).

Also included in the budget instructions is a request that program managers provide information which relates program objectives to the goals of the department as well as "providing quantifiable program data to support budget requests" (Cameron, 1988: v).

Three states (Alabama, Kentucky, and Virginia) checked program budget as an appropriate categorization of their format. Virginia's deputy budget officer added that their format, "includes elements of all theory." Finally, Tennessee was the only state with a format signified as a "modified zero base approach." Each of these states, along with North Carolina, receives 20 points for the variable, FORMAT.

Question four of the 1988 State Budget Analysts Project questionnaire related to organizational setting, budget

format and mission required the budget officer completing the instrument to rank functions in terms of their importance to the role of the budget office in their state. The missions included, in random order: controlling agency expenditures; evaluating the efficiency of agency performance; serving as policy and planning staff to the governor; and, evaluating the effectiveness of agency performance. Average ranking for the ten states substantiates the predominance of the control function of most budget offices. That is, average rank for the control mission is 1.3; for the policy mission, 2.2; for the efficiency mission, 3; and for the effectiveness mission, 3.4.

Seven budget officers ranked the control mission as the primary one required of their office, while three ranked it as the second most important function of their office. Two budget officers (Florida's and Kentucky's) ranked the policy mission as primary, while five ranked it second. Finally, one officer (Virginia's) ranked the efficiency mission as the most important function of that state's budget office. The budget officers in Mississippi and Tennessee ranked this mission as the second most important function of their office. Scores for the variable, MISSION, indicate the primary function as control (10 points), efficiency (15 points), or policy development (20 points).

A total score (ORGSCORE) for each state government budget office is calculated by adding the points received by each office for the individual organizational variables. According to the values for ORGSCORE provided in the last column of Table 5.3, Kentucky is an example of a state with a strong budget office in terms of staff allegiance to the governor, coupled with a program budget format, and a primary mission of policy development and planning. It is expected that analysts in this type of setting would be more inclined to display spending orientations which ascribe predominant weight to gubernatorial direction. Other state government budget offices which can be considered powerful, in this sense, are those in Florida, Virginia, North Carolina, and Georgia.

Not surprisingly, Table 5.3 suggests the less powerful offices to be found in Alabama, Mississippi, Louisiana, and particularly, South Carolina -- a state with an especially weak governor (from a budgetary perspective). It is expected that analysts in these budget offices will exhibit traditional, incremental behavior regarding the review of agency spending plans. Gubernatorial direction should be less important to these analysts as a decision cue than it would be to those employed in offices more closely aligned with the governor.

Technological Capabilities

A related aspect of the influence of organizational setting and budget office mission to decision strategy of the budgeter is the technological sophistication of the office. Chapters One and Three noted the relationship between the informational and analytical capabilities of an office to the duties, performance, and work product of employees. In this case, another interval level composite score is developed to assess degree of sophistication of the computer facilities afforded participating analysts.

The score measuring technological sophistication is comprised of two equivalent parts of 50 points each. The range of scores for each part of the variable, TECSCORE, is a judgmental scale developed by the researcher. The first part of the TECSCORE measures the availability of microcomputer access to analysts within their office. Question nine of the computer section of the 1988 State Government Budget Analysts Project questionnaire determines if each analyst is provided a microcomputer upon entry into their respective budget office. Scores for the variable, ACCESS, range from zero points for no access, 25 points for limited access, and 50 points for complete access (every analyst is provided with a microcomputer upon entry into the office). Table 5.4 indicates that half of the budget offices interviewed provide complete access to the hardware

TABLE 5.4

ASSESSMENT OF BUDGET OFFICE SOPHISTICATION:
Access and Availability of Computer Technology

VARIABLE NAME:	ACCESS	SOFTWARE	TOTAL SCORE[a]
STATE:			
ALABAMA	50	22.7	72.7
FLORIDA	25	25	50
GEORGIA	50	22.7	72.7
KENTUCKY	50	18.2	68.2
LOUISIANA	25	11.4	36.4
MISSISSIPPI	25	15.9	40.9
NORTH CAROLINA	50	22.7	72.7
SOUTH CAROLINA	25	18.2	43.2
TENNESSEE	25	50	75
VIRGINIA	50	25	75

[a] Total score is a composite score of the values for the variables, ACCESS and SOFTWARE. This score is the variable, TECSCORE, a measure of the technological sophistication of the budget office.

in question, while half provide limited access to their analysts.

A second part of the composite score measuring technological sophistication measures software and peripheral amenities provided by each office. As noted in Chapter Three, question three of the above questionnaire provides a checklist of peripherals available in each budget office, while question four provides a checklist of available software packages. The variable, SOFTWARE, is measured in a similar manner as the variable, SIZE, is measured in Table 5.3. That is, the budget office with the greatest number of peripherals and software capabilities receives 100 percent of 50 points possible. The score of every other office is determined by dividing the number of capabilities from the largest office into the number for the office of interest, and then multiplying by 50. The resulting scores for all offices indicate the relative capabilities of the offices. For instance, Tennessee's budget office offered the largest array of peripheral and software capabilities to their analysts in 1988, while Louisiana's office afforded the least amount of peripheral and software capability to their analysts.

Total scores measuring technological sophistication of budget offices (TECSCORE) are determined by adding the points received for the variables, ACCESS and SOFTWARE, together. Values for TECSCORE indicate that six of the

budget offices surveyed are rather sophisticated in terms of hardware access and software/peripheral availability (scores from 68 to 75). Three offices (in Louisiana, Mississippi, and South Carolina) illustrate environments with rather rudimentary technological capabilities, compared to their neighbors in the region. Florida's budget office falls closer to these states, although complete access to microcomputers for their analysts was established in November of 1988 -- a date following the researcher's visit to that office.

The composite scores developed which measure budget office strength (ORGSCORE) and technological sophistication (TECSCORE) are interval level variables used as predictors in the discriminant procedure.[10] The following section explains this procedure and presents an arithmetic model representative of the relationship between these variables and analysts' spending policies.

DISCRIMINANT ANALYSIS: A Description

Discriminant analysis provides a means of classifying subjects into groups according to predictor variables. Unlike cluster analysis, which assigns individuals to previously unknown groups, discriminant utilizes group

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[10]These two scores, descriptive of each office, are added to the record of financial data provided for every participating analyst. (See footnote six in this chapter).

membership as the dependent variable. Thus, this variable is a qualitative, nominally measured one. The independent or discriminating variables are quantitative, interval level measurements.

According to Kachigan (1986: 357-358), "discriminant analysis identifies boundaries between groups; the boundaries are defined in terms of variable characteristics which discriminate objects into criterion groups." Likewise, Klecka (1980) suggests the primary objectives of using the discriminant procedure. One objective is explanation -- to learn which variables are related to the criterion variable (group membership). Another objective is prediction -- to classify subjects into groups according to their known values on the independent (predictor) variables. Utlimately, the purpose of the discriminant procedure is to develop mathematical functions which optimally separate subjects according to their group membership based on their values for the independent variables.

Discriminant analysis utilizes the information known for each subject (group membership, and values for each of the predictor variables) to develop functions. A discriminant function is a weighted, linear combination of the values on the independent variables. Discriminant scores are calculated for each subject, using the function equation. The following equation represents a hypothetical discriminant function equation:

$$D = d_1(V_1) + d_2(V_2) + \ldots d_n(V_n)$$

where, D = discriminant score for individual subject on first function
d_{1-n} = discriminant coefficients for each predictor variable included in the function
V_{1-n} = individual subject's actual value on each predictor variable included in the function (Bibb and Roncek, 1976: 351).

Discriminant functions are developed to maximize the difference between groups and thereby minimize overlap of subjects across groups. "Ideally, the resulting function scores within a particular group will be quite similar. The closer the scores, the more homogeneous the individaul groups will be internally, and the more distinct each group will be from the others" (Legge and Ziegler, 1979: 28). Functions are determined so that resulting scores allow for minimum misclassification of subjects into groups.

The number of functions used in a discriminant model depends on the number of groups. Generally, the number of functions is equal to the number of groups less one (Kachigan, 1986: 361). However, like the factor and cluster procedures, this rule of thumb can change. It is incumbent upon the researcher to determine the efficiency of including all functions in a final discriminant model regardless of their statistical significance, or lack thereof.

In this case, discriminant analysis will be used to answer the following questions:

1) Which varible(s) is(are) the best predictor(s) of an analyst's spending policy?

2) In what manner do predictor variables influence an analyst's consideration of criteria concerning agency budget requests for the purpose of making spending recommendations to the governor?

3) If the values of the predictor variables are known, how much is prediction of analysts' spending policies improved over chance alone by using the discriminant model?

The next section explains data preparation, group membership, and variable definition necessary for the discriminant procedure.

PREPARATION OF DATA

The Dependent Variable: Group Membership

The first step in utilizing the discriminant procedure requires consideration of the criterion variable, group membership. In Chapter Four, results from cluster analysis produced 11 groups of analysts, partitioned according to their use of budgetary cues when making spending recommendations. These groups, while relevant, are sometimes only minimally distinctive. Therefore, it was determined that the 11 groups could be categorized into four general types of spending orientation or policy. These types are classified as POLITICO, MIXED-VALUE, RATIONALIST, or INCREMENTALIST.

Analysts are classified as POLITICO if they apply predominant weight to one or more of the political criteria

included in the hypothetical budget requests (GOVSAGENDA, LEGISLATURE, AGHEADREP, and/or SUPPORT). According to Table 4.7, 35 analysts (groups 2, 3, and 10) can be categorized as POLITICOs. Those labeled MIXED-VALUE include anlaysts who ascribe almost equal consideration to the cue, GOVSAGENDA, and to one or both of the rational cues, WORKLOAD and EFFICIENCY. The MIXED-VALUE category includes the largest number of analysts (83) from groups 1, 5 through 8, and 11 (see Table 4.7). Two very small groups, RATIONALISTs (group 4, with five analysts) and INCREMENTALISTs (group 9, with eight analysts), are those who ascribe predominant weight to either one or both of the rational cues (WORKLOAD and EFFICIENCY), or to ACQUISITIVE, respectively. Table 5.5 lists the four policy types which represent nominal values of the dependent variable used in the discriminant procedure.

The Independent Variables

A second step to prepare for discriminant requires the definition and measurement of the independent variables. The present model includes nine predictor variables. Five of these include the financial, organizational, and technical variables described in the first part of this chapter. Four variables quantify the personal characteristics of the analysts.

TABLE 5.5

ANALYSTS GROUPED ACCORDING TO POLICY TYPE[a]

GROUP #	POLICY TYPE	PREDOMINANT USE OF BUDGET CUES	CLUSTER GROUPS (from Table 4.7)	#
1	POLITICO	GOVSAGENDA, LEGISLATURE, AGHEADREP, and/or SUPPORT	2, 3, 10	35
2	MIXED-VALUE	GOVSAGENDA and WORKLOAD and/or EFFICIENCY	1, 5-8, 11	83
3	RATIONALIST	WORKLOAD and/or EFFICIENCY	4	5
4	INCREMENTALIST	ACQUISITIVE	9	8
			TOTAL:	131

[a] Four typologies determined by researcher based on cue weightings for analysts as grouped in Table 4.7.

Specifically, the financial climate of the state is measured by 1989 estimated general revenues per capita (REVSPC), long term debt per capita (LTDPC), and bond score (BOND) (see Table 5.2). Strength of the budget office in terms of organizational setting, analyst focus, and budget mission, as measured by the composite score, ORGSCORE, is a fourth predictor variable (see Table 5.3). The technological sophistication of the budget office, as measured by TECSCORE, is a fifth one (see Table 5.4). These variables are measured at the interval level.

Several variables measure the educational background, work experience, and other personal characteristics of analysts. These include: SCHOOL, YEARS, SEX, and AGE. SCHOOL and SEX are dummy variables coded 0 or 1 (college graduate or advanced degree, and female or male, respectively). YEARS is the number of years an analyst had served in the position.[11] AGE is analyst's age in years. These variables are interval level measurements.

Table 5.6 provides the means for each of the predictor variables by policy type and for the total number of

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[11]In Section II, PERSONAL CHARACTERISTICS, of the 1988 State Budget Analysts Project Questionnaire submitted to participants, question 42 asks, "How long have you held this position (in years)?" Question 43 asks, "If this position is different from budget analyst, how long did you serve as a budget analyst in this state?" Results from question 42 are coded as YEARS for those in the entry-level or senior analyst position at the time of the administration of the questionnaire. Results from question 43 are coded as YEARS for those no longer serving as analysts at the time of the administration of the questionnaire.

TABLE 5.6

MEANS OF PREDICTOR VARIABLES BY POLICY TYPE

POLICY TYPE:	POLITICO	MIXED-VALUE	RATIONALIST	INCREMENTALIST	ALL ANALYSTS
VARIABLE:					
REVSPC	$857.45 (35)	$848.11 (83)	$855.28 (5)	$924.93 (8)	$855.57 (131)
LTDPC	$247.86 (35)	$353.72 (83)	$230.96 (5)	$318.09 (8)	$318.57 (131)
BOND	89 (35)	78 (83)	93 (5)	88 (8)	82 (131)
ORGSCORE	63 (35)	56 (83)	75 (5)	65 (8)	59 (131)
TECSCORE	61 (35)	59 (83)	74 (5)	72 (8)	61 (131)
SEX	.71 (34)	.66 (83)	1.0 (5)	.37 (8)	.67 (130)
AGE	42 (34)	37 (83)	42 (5)	39 (8)	39 (130)
SCHOOL	.55 (33)	.58 (81)	.60 (5)	.25 (8)	.55 (127)
YEARS	5.6 (33)	4.4 (77)	6.9 (5)	4.9 (8)	4.8 (123)

analysts included in this research project. Results indicate distinctions across all or some of the policy types for each of the independent variables. For instance, analysts in the MIXED-VALUE category are in a financial, organizational, and technological environment somewhat different from those in the other three categories. These analysts are employed in environments that can be characterized as less fiscally secure, less powerful (from an organizational and mission standpoint) and less sophisticated concerning technical capabilities than the environments of analysts who exhibit any of the other decision making orientations.

Distinctions across the personal characteristics of analysts as grouped are evident as well. Looking at the averages for the four categories across these variables it is possible to develop a profile of the analyst who exhibits each type of decision making orientation. In general, analysts exhibiting the spending behavior of the POLITICO or the RATIONALIST are male, middle-aged, probably the recipient of an advanced degree, and with over five years experience in the position. RATIONALISTs, in fact, have more experience in the position, on average, than POLITICOs. Analysts in the MIXED-VALUE category are similar to POLITICOs and RATIONALISTs, yet younger and less experienced, on average.

The profile of the INCREMENTALIST is quite different from that of the other three profiles. Analysts in this category are predominantly female, middle-aged, and less experienced in the position than either the POLITICOs or the RATIONALISTs. Also, these analysts are less likely than those in other groups to have an advanced degree.

Consideration of means of the independent variables across groups is a first step in the distinction of analysts' spending policies. However, such analysis does not provide statistical confirmation of the discriminating power of these variables or that they serve to facilitate the correct classification of analysts. The following section addresses this issue by presenting the results from discriminant analysis.

ANALYSIS AND RESULTS

The first part of this analysis is exploratory; to determine which variables are the best predictors of group membership.[12] This analysis uses a forward stepwise

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[12]The discriminant model assumes the following: First, the number of discriminating variables is less than the number of cases, by at least two. Second, all variables are measured at the interval level. Third, no varible is a linear combination of other discriminating variables. Fourth, no two predictor variables are perfectly correlated. Fifth, the population covariance matrices are equal for each group. And sixth, each group is drawn from a population which has a multivariate normal distribution.

The fifth and sixth assumptions are somewhat problematic for this data, primarily due to the variability in group size. Concerning the equality of group covariance matrices, Bibb and Romcek (1976: 364) concede that unequal matrices can bias the

followed by AGE (analyst's age in years), and TECSCORE (measure of technological sophistication of the budget office). While the addition of the other variables does not generate a statistically significant change in Rao's V, they contribute enough to classification to be included in the discriminant model. YEARS (number of years in the analyst position) and LTDPC (long term debt per capita) are the only variables not included in the model.

Results in Table 5.7 suggest that the best predictors of analysts' spending orientations are not confined to one type of variable. That is, a mix of financial, organizational, technical, and personal characteristics serve to distinguish analysts' decision making strategies. Specifically, the historical fiscal health of a state government, the technological sophistication of the budget office, and the age of the analyst serve as the best determinants of an analyst's consideration of budget cues when making spending recommendations to the chief executive officer. Also, by virtue of their inclusion in the final discriminant model, the other variables (SCHOOL, SEX, ORGSCORE, and REVSPC) cannot be summarily ruled out as influential to the classification of analysts according to policy type.

Table 5.8 presents a crosstabulation of actual (rows) with predicted (columns) group membership. The "agreement diagonal" shows the number of correctly classified cases

TABLE 5.8

CLASSIFICATION RESULTS: ALL VARIABLES INCLUDED

POLICY TYPE:	# OF CASES	POLITICO	MIXED-VALUE	RATIONAL	INCRMNTL
POLITICO	32	12 (38%)	5 (16%)	11 (34%)	4 (13%)
MIXED-VALUE	81	12 (15%)	41 (51%)	17 (21%)	11 (14%)
RATIONAL	5	0 (0%)	0 (0%)	5 (100%)	0 (0%)
INCRMNTL	8	0 (0%)	0 (0%)	2 (25%)	6 (75%)
TOTAL:	126	24	46	35	21

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 51%

Classification Processing Summary:

131 Cases were processed.
  0 Cases were excluded for missing codes or out-of-range group codes.
  5 Cases had at least one missing discriminating variable.
126 Cases were used for classification matrix output.

(Legge and Ziegler, 1979: 29). Thirty-eight percent of the analysts characterized as POLITICO are correctly classified into this category using the discriminant model. Fifty-one percent of analysts categorized as MIXED-VALUE, and 75 percent of those categorized as INCREMENTALIST, are correctly classified. Finally, all of the analysts in the RATIONALIST category are classified as RATIONALIST. In total, over half (51 percent) of analysts of known policy type are correctly classified into their respective category by using the discriminant model.

The percentage of known cases correctly classified (51 percent) provides a measure of the predictive accuracy of the model (Klecka, 1980: 50). With four groups, it would be expected that classification would be correct 25 percent of the time by chance alone (a one in four chance of correctly classifying subjects). That the model would generate correct classification 51 percent of the time indicates the helpfulness of the model in distinguishing analysts by policy type.

A standardized measure of improvement in prediction by using the model can be calculated using tau. This proportionate reduction in error measure is generated by subtracting the summation of prior probability of group membership from the number of cases correctly classified using the model, and dividing this value by that obtained by subtracting the summation of prior probability of group

membership from the total number of cases (Klecka, 1980: 50-51). The following represents the calculation of tau for this data:

$$\text{tau} = \frac{(12+41+5+6) - [(.25*32)+(.25*81)+(.25*5)+(.25*8)]}{126 - [(.25*32)+(.25*81)+(.25*5)+(.25*8)]}$$

Thus, classification based on the predictor variables included in this model made 35 percent fewer errors than would be expected by chance alone.

A second discriminant analysis was conducted using only the predictor variables included in the final model of the initial procedure. The results from this analysis are presented in Table 5.9. This model produces similar results to those in Table 5.7. Again, the variables, BOND, AGE, and TECSCORE, provide the most discriminating power. Educational level (SCHOOL) indicates more discriminating power than the previous model. The contributions of budget office strength, sex of the analyst, and estimated revenue climate provide only limited contribution to the classification of analysts.

The bottom half of Table 5.9 provides information concerning the functions derived from the discriminant procedure. Interpretation of eigenvalues allows for the comparison of the relative discriminating power of functions. The value for the first function (.28) indicates that it is twice as powerful as the second function, and

TABLE 5.9

DISCRIMINANT ANALYSIS: KEY VARIABLES ENTERED

VARIABLE	F TO ENTER/ REMOVE	NUMBER INCLUDED	RAO'S V	CHG IN RAO'S V	SIG OF CHANGE
BOND	3.6	1	16.82	16.82	.0008
AGE	3.0	2	27.98	11.15	.0109
TECSCORE	2.8	3	36.44	8.46	.0374
SCHOOL	2.0	4	43.22	6.78	.0792
ORGSCORE	1.2	5	48.35	5.13	.1629
SEX	1.7	6	53.28	4.94	.1765
REVSPC	1.3	7	57.80	4.52	.2104

DISCRIMINANT FUNCTION	EIGENVALUE	RELATIVE PERCENTAGE	CANONICAL CORRELATION	χ^2	DF	SIG
1	.28	59.3	.47	21.8	12	.0396
2	.14	28.9	.35	6.5	5	.2637
3	.06	11.7	.23			

more than four times as powerful as the third function concerning discriminating ability.

Conversion of eigenvalues to relative percentages provides a better measure of the discriminating power of each function. In this case, the first function contains 59.3 percent "of the total discriminating power in this system of equations" (Klecka, 1980: 36). The relative percentages of the second and third functions (28.9 percent and 11.7 percent, respectively) indicate moderate/weak to weak discriminatory power.

The canonical correlation coefficient provides another statistical avenue to determine the importance of discriminant functions. The square of the canonical correlation provides a measure of "the amount of variance in the discriminant function explained by the groups" (Legge and Ziegler, 1979: 31). According to the present model, group membership explains 22 percent of the variance in the first function, 12 percent of the variance in the second function, and 5 percent of the variance in the third function.

Chi-square values and significance levels are presented in the bottom, right of Table 5.9. This information is used to determine the necessity of including all derived functions in a final model. As the results show, after deriving the first function, the remaining discrimination is significant at the .04 level. However, following the

derivation and inclusion of the second function, "all significant information about group differences has been absorbed" (Klecka, 1980: 41). Therefore, the remainder of the analysis will consider the first two functions only.

Analysis of centroids provides a clearer understanding of the separation between policy types. As mentioned earlier, centroids are mean discriminant scores for functions by group. Table 5.10 presents the centroids for the first and second discriminant functions by spending policy. The discrepancy of mean scores across policy types for each function is evident. Concerning the first function, analysts characterized as MIXED-VALUE generate the lowest scores, on average, compared to their counterparts in the other groups. For the second function, INCREMENTALISTs generate the lowest scores compared to the other analysts.

The separation among decision making orientations can be displayed graphically using a plot. Figure 5.1 presents the plot of centroids for both functions. The horizontal axis represents values for discriminant scores for the first function; the vertical axis represents values for discriminant scores for the second function. Comparing centroids according to the first function (horizontally), the most dramatic separation occurs between the POLITICOs and RATIONALISTs, and MIXED-VALUEs. Comparing centroids according to the second function, the greatest separation exists between the POLITICOs and the INCREMENTALISTs.

TABLE 5.10

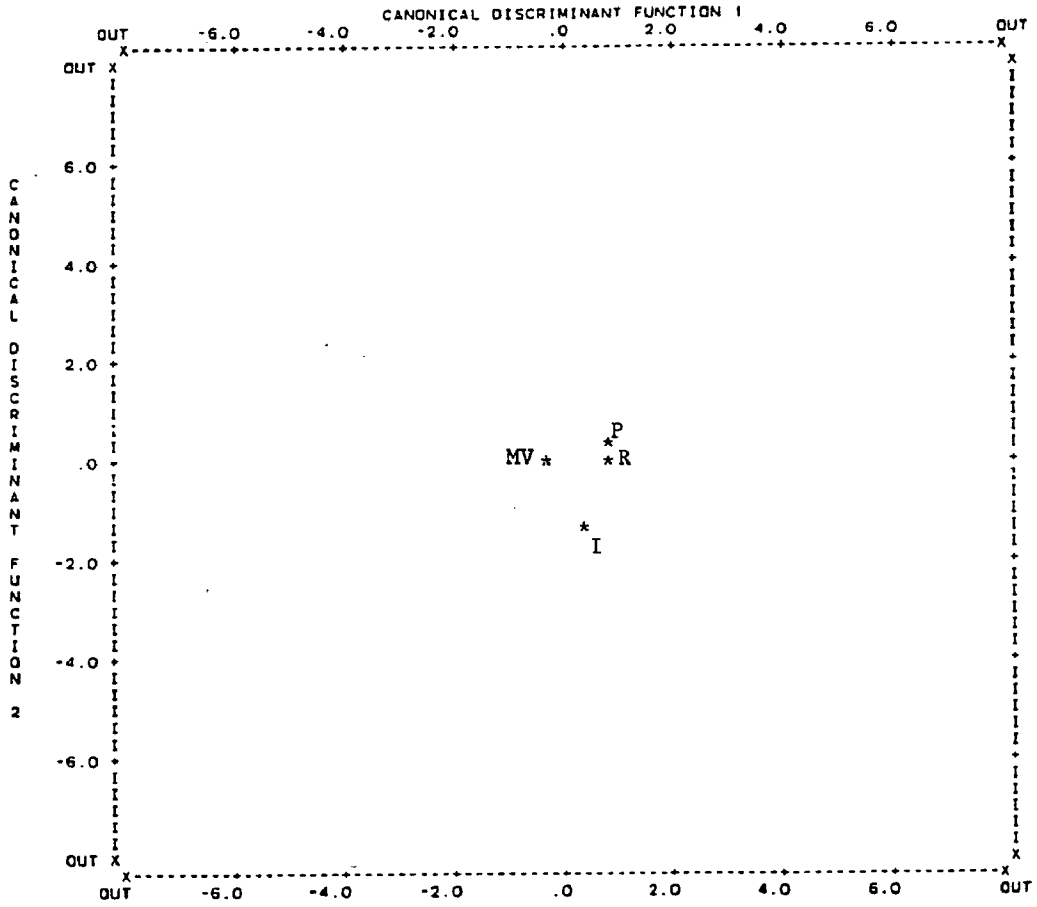
CENTROIDS FOR FUNCTIONS BY POLICY TYPE

POLICY TYPE:	GROUP MEAN FOR FUNCTION 1	GROUP MEAN FOR FUNCTION 2
POLITICO	0.74	0.23
MIXED-VALUE	-0.39	0.04
RATIONALIST	0.81	0.10
INCREMENTALIST	0.44	-1.36

FIGURE 5.1

ALL GROUPS SCATTERPLOT

(* indicates a Group Centroid)



MIXED-VALUEs and RATIONALISTs have almost identical centroid values (.04 and .10, respectively) on this function. Given these results, it is expected that the first function will be most helpful in distinguishing MIXED-VALUEs from all others, while the second function will be most helpful in distinguishing INCREMENTALISTs from all others, particularly POLITICOs.

To assess the relative contribution of each independent variable to the derived functions, standardized discriminant function coefficients are generated. These coefficients are standardized to account for the different units in which each of the variables is measured.

Table 5.11 presents the standardized function coefficients for the first two functions by policy type. Results show that BOND, and then AGE, are the strongest contributers to the discriminatory power of the first function (.75 and .62, respectively). Substantively, as fiscal climate of a state government improves, and as the analyst ages, the score of an analyst on this function increases. Alternatively, as the fiscal climate deteriorates (reflected in a poorer bond rating), and for younger analysts, the score on the first function should be lower (note the centroid for the MIXED-VALUEs for the first function; see Table 5.10). This information corresponds to that presented in Table 5.6. Specifically, MIXED-VALUEs are younger, on average, than analysts in other

TABLE 5.11

STANDARDIZED DISCRIMINANT
FUNCTION COEFFICIENTS

VARIABLE	FUNCTION 1 COEFFICIENTS	FUNCTION 2 COEFFICIENTS
SEX	-0.06	0.37
AGE	0.62	-0.003
SCHOOL	-0.37	0.43
REVSPC	0.02	-0.52
BOND	0.75	0.50
ORGSCORE	0.40	0.43
TECSCORE	-0.25	-0.99

categories. Also, their environment is less stable, financially, than those of analysts exhibiting the other spending orientations.

Turning to the second function, the technological sophistication of the budget office is the predominant factor contributing to this function's discriminatory power. In this case, higher values for TECSCORE would generate lower scores for this function. Alternatively, lower values for TECSCORE would generate high scores for the function. POLITICOs represent a group whose technical environment is less sophisticated when compared to that of the other policy types, particularly INCREMENTALISTs (see Figure 5.1). For this function, it is expected that POLITICOs would generate the highest scores, while INCREMENTALISTs would generate the lowest scores.

Finally, a new classification matrix is derived using the two-function discriminant model. This matrix is presented in Table 5.12. Again, the agreement diagonal indicates the number of correct classifications. Based on the information from analysis of centroids, it has been determined that the discriminant model is most powerful in terms of separating MIXED-VALUEs on function one and INCREMENTALISTs on function two. Therefore, it is expected that the greatest percent of correct classifications would occur in these cells. In fact, classifications are correct

TABLE 5.12

CLASSIFICATION RESULTS: KEY VARIABLES INCLUDED;
TWO FUNCTION MODEL

POLICY TYPE:	# OF CASES	POLITICO	MIXED-VALUE	RATIONAL	INCRMNTL
POLITICO	32	11 (34%)	8 (25%)	10 (31%)	3 (9%)
MIXED-VALUE	81	14 (17%)	50 (62%)	4 (5%)	13 (16%)
RATIONAL	5	1 (20%)	1 (20%)	3 (60%)	0 (0%)
INCRMNTL	8	1 (13%)	0 (0%)	1 (13%)	6 (75%)
TOTAL:	126	27	59	18	22

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 56%

Classification Processing Summary:

131 Cases were processed.
  0 Cases were excluded for missing codes or out-of-range group codes.
  5 Cases had at least one missing discriminating variable.
126 Cases were used for classification matrix output.

62 percent of the time for the MIXED-VALUEs, and 75 percent of the time for the INCREMENTALISTs. These two cells have the greatest percent of correct classifications, although RATIONALISTs are close behind (correctly classified 60 percent of the time). Overall, 56 percent of the analysts are correctly classified into a policy type using this final discriminant model. The tau value indicates that the prediction of decision making orientation among analysts can be improved by 41 percent by knowing the values for the financial, organizational, technical, and personal variables included in the model.

CONCLUSION

Bibb and Roncek (1976: 356) suggest that the greatest difficulty to using discriminant analysis is the initial differentiation of subjects into groups. In other words, once group membership is defined, discriminant provides a powerful means of analyzing the variables which best predict such membership. Ultimately, the strength of the procedure lies in its ability to discriminate according to the qualitative nature of the dependent variable. So often in the social sciences, the dependent variable is unable to be measured at more than the nominal level. Thus, traditional multiple regression is not an analytical option to the researcher.

In the present study, discriminant offers the key to determining both the statistical and substantive relationships between analysts' spending policies and traditional factors related to their external and internal decision environments. The strength of the model lies in the variables considered. Development of groups required extensive preliminary analysis to generate legitimate policy types which actually characterize and separate analysts according to their spending strategies. Consideration of the nine initial independent variables necessitated the collection of financial, organizational, technical, and personal data, development of composite scores, judgmental scales, and in some instances, dummy measurement. The validity and reliability of these measures can only be substantiated by collaboration with past literature, which has been provided, and perhaps by the consideration of future researchers.

The results of the analysis provide several insights into state government analyst decision behavior. First, it is interesting that financial, organizational, technical, and personal characteristics are integrated collectively into the analyst's budgeting scheme. That is, none of these variables can be considered solely responsible for analysts' decision making orientations concerning spending recommendations. Second, of these variables, long term financial health of the state, coupled with analyst's age,

and technological sophistication of the budget office serve as the best predictors of policy type. And third, analysts can be differentiated into groups representative of policy type using the two-function discriminant model. Specifically, younger analysts in less secure financial environments can be expected to exhibit the spending policy of the MIXED-VALUE. Alternatively, this suggests that older analysts in more comfortable environments, financially, tend to rely on just one "preferred" type of budget cue, be it political, rational, or incremental. Also, analysts characterized as POLITICOs can be expected to come from the least sophisticated environment concerning technical capabilities of the budget office.

The next chapter considers past research illustrative of both the behavioral perspective and empirical methodology. The contributions of this dissertation to this body of literature are considered. Implications of results presented here are detailed. Finally, a future agenda for research concerning public budgeting behavior is suggested.

CHAPTER 6
CONTRIBUTIONS OF STUDY:
Interpretations of Budgetary Behavior

INTRODUCTION

The sheer magnitude of public budgets today as well as the many purposes they serve necessitate an understanding of how they are developed. Inherent in such an understanding is the distinction between content and process. While the contents of budgeting -- revenues, appropriations, and program expenditures -- are relatively simple to quantify and analyze, the process of budgeting is much more difficult to operationalize and hence, examine empirically. The process of budgeting involves both the uniqueness and commonness of human behavior in a certain context (Golembiewski and Rabin, 1983: 91). In a most elemental sense, budgets are the result of the spending judgments of those legally responsible for requesting, recommending, and appropriating public money.

Not surprisingly, the difficulty in identifying decision typologies of budgeters has hampered research efforts concerning their spending behavior (Duncombe, Duncombe, and Kinney, 1989: 49-50). As noted in the Introduction to this project, research on this topic has been confined typically to aggregate analyses of financial

data or anecdotal case analyses of specific budgetary circumstances. Very little budgeting research is both behavioral in perspective, and empirical in methodological approach.

The purpose of this chapter is three-fold. A primary purpose is to establish this study as the most recent and methodologically sophisticated treatment to date of the decision making behavior of budgeters. A second purpose is to interpret results of this research project and to identify their contribution to an understanding of human cognitive process, in general, and, more specifically, to an understanding of state government analyst behavior and public budgeting theory. Finally, the conclusion will suggest a research agenda for future work in the field of public budgeting behavior.

EMPIRICAL RESEARCH RELATED TO BUDGETARY DECISION MAKING

This section summarizes previous empirical studies which analyze the decision strategies of one or more budgeters from a behavioral perspective. Each piece of research offers a unique approach to decifering the information processing activity of budgeters. While each is limited in scope and generalizability of results (due to deficient sample size, representativeness, and/or stringency of statistical tests employed), all provide some insight into understanding patterns of spending behavior.

The Laboratory Approach

One of the earliest applications of the true experiment to the study of budgetary decision making is offered by Stedry (1960). In his work, Stedry emphasizes the role of motivation and expected reward as related to budget success. Specifically, he reviews psychological experiments which analyze the relationship between stress (deprivation) and animal behavior. He suggests that similar types of research applied in a budgetary context can generate information about the motivational influences on budgeters when making decisions about cutting and spending.

Stedry analyzed the judgment behavior of 108 predominantly management and administration students enrolled at Carnegie Institute of Technology. He developed a series of six tests made up of 15 problems each. Subjects received a reward or punishment (in dollars) depending upon the success of their decision making. Stedry grouped students according to the amount of information they were given beforehand regarding expectations for meeting their "budget." Budget success was measured in terms of number of problems solved successfully by the subject. By controlling for the availability of information or "prior knowledge", Stedry tested the influence of implicit versus explicit expectations on subjects' level of aspiration or "internalized standard of performance" regarding budget success (Golembiewski and Rabin, 1983: 98).

Results from this experiment indicate that the best performers were subjects who received explicit "high performance" expectations and then set their aspiration level. The worst performers were those who also received "high performance" expectations yet had already established their aspiration level. Stedry (1960: 90) explains that the worst performers may have set low personal standards of performance and, when confronted with high expectations for success, became discouraged and simply failed to meet such expectations.

Stedry's work is noteworthy because of the unique focus on the role of expectation on budget success. Additionally, he incorporates the laboratory setting successfully to analyze individual behavior related to budgetary problem solving. The greatest threat to the external validity of this research is the generalizability of results due to the nature of the decision task (water jar problems) and the characteristics of the subjects (university students). Nevertheless, his effort paved the way for future applications of the laboratory approach to the study of the decision making patterns of budgeters.

Barber (1966) provides another application of the lab setting in his research for Power in Committees. In order to verify the incremental behavior of public budgeters, Barber examines the budgetary deliberations of board of finance members from several small New England towns. He

required each board to conduct a budget reducing task by asking members to determine where and how they would cut their most recent budget if they had to. Barber then performed a content analysis of the deliberations to determine what criteria were actually referenced by budgeters as they approved and rejected reductions.

His results indicate several criteria which foster "more or less" incremental behavior in budgeters. The perceived controllability of appropriations, their size and the amount of increase from last year are all factors used by budgeters to simplify their decisions regarding spending. Also, the insularity of budget problems attests to the short-term focus of budgeters. That is, Barber cites that board members rarely made comparisons across other governments similar to their own. Rather, budgeters focus almost exclusively on their own community and its unique budgetary situation (Barber, 1966). The uncertainty related to the risks of not funding particular programs and projects also serves as an improtant decision criteria. Barber notes that some decisions were made with "considerable confidence" and others with "considerable doubt," depending on the degree of uncertainty related to the effects of cuts on such spending categories. Finally, Barber points out that the detailed focus on budget figures alone, can negatively impact long-term considerations of policy direction.

Like Stedry's work, Barber's research successfully incorporates the lab approach to the study of budgetary decision making. However, where Stedry's focus is individual decision process, Barber concentrates on group decision making activity. His content analysis of taped deliberations precludes the quantification of individual decision making patterns. This method of analysis, and the lack of an empirical control, call into question both the internal and external validity of his results. Nevertheless, Barber's consideration of the actual spending strategies of public budgeters involved in a familiar decision task is compelling.

Simulation and Multiple Criteria Modelling

Innovative research by Crecine in 1967 introduces the simulation as a means of understanding public spending behavior. To develop a model of municipal budgetary decision making, Crecine used actual dollar estimates of department requests, mayoral recommendations, and council appropriations for three cities (Cleveland, Detroit, and Pittsburgh) in the United States. With such data from several standard accounts of up to 64 departments and administrative units for a period of six to ten years, he produced a computer simulation of budgeting decisions. Crecine compared observed budgetary decisions with those generated using the computer simulation to analyze "budget

drift." He determined that decision making related to public spending is opportunistic -- increasing expenditures are more likely to result from opportunities to expand (given more revenues), rather than from voiced or perceived need (Crecine, 1967: 814).

Unlike the previous two studies, Crecine's work concentrates on the decisions of budgeters in the form of actual dollar amounts. His contribution to the understanding of budgetary behavior lies in his use of simulation to study drift. As he emphasizes, the stability of public budgetary processes allows for consideration of spending decisions in such a format. And, like Barber, the value of Crecine's work stems from his consideration of the actual decisions of public budgeters.

Stewart and Gelberd (1976) use a different simulation technique to illustrate, mathematically and graphically, budgeters' allocation policies. They take advantage of social judgment theory to determine the decision making patterns of municipal budgeters and citizens. As discussed in Chapter Two, such analysis is a method of quantifying individual decision making orientations by having subjects provide an overall rating or judgment concerning prototypes of an actual decision task. Regression analyses of subjects' judgments concerning each prototype produces mathematical representation of the relative importance of

the criteria to the subject when involved in the specified decision making task.

In their study, Stewart and Gelberd analyze budgeters' judgments about how to allocate public funds. To determine the decision making patterns of city council members, the city manager, and specific business and environmental interest group members from Boulder, Colorado, they developed 30 randomly generated "budgets" representative of different allocation plans. The scored criteria represented in each plan included: streets, community development, parks, water and sewer, and public information services. Subjects rated each plan on a scale from 1 (extremely undesireable) to 20 (extremely desireable). Two weeks after the initial session, council members and the city manager again completed the judgment task -- this time predicting how they felt business and environmental interest group members would have "voted" on each budget.

Results from this research indicate that council members and the manager were consistent in their initial judgments concerning allocation plans; and, their spending policies remain consistent with their own voting records. However, Stewart and Gelberd found that these subjects made poor predictions as to the judgments of the interest group members. They cite three reasons for this incongruency: 1) the interest group members' decisions could have been so inconsistent, that prediction of their judgment policies was

impossible; 2) members of the same interest group may have different judgment policies; and/or 3) the council members and manager simply lacked an understanding of the judgment policies of the interest group members. The authors believe that the third reason is the most likely explanation for the incongruency.

The work of Stewart and Gelberd is important because it mathematically illustrates the information processing activity of public budgeters and citizens. On the other hand, problems with this particular research effort include the very small sample size (17 subjects), and criteria development and definition. As mentioned in Chapters Two and Three, a crucial aspect of social judgment analysis, related to the validity of results, is profile development. Determination of the decision task requires that the number and type of criteria included be reasonable, realistic, and understandable to the subject. Obviously, the researcher's choice of criteria affects the realism and comprehensibility of the decision task required of subjects.

Stahl and Zimmerer (1984) also take advantage of the multiple criteria modelling approach to analyze the acquisition decisions of upper-level executives from 42 private firms in the United States. Data collected by these scholars include executives' subjective weightings of six criteria relevant to them in making the decision to buy another firm. Additionally, Stahl and Zimmerer provided

profiles of 32 hypothetical firms scored on the six criteria and asked subjects to indicate on a scale whether they were strongly against (-5) or strongly for (+5) acquisition of each firm.

There are several relevant findings from this study. Primarily, Stahl and Zimmerer verify that executives' decisions can be modeled with a high degree of consistency and reliability. Second, they note that decisions are individual or firm specific; that is, no two judgment policies are exactly alike. On the other hand, the authors maintain that certain commonalities do exist among expert decision makers -- some criteria are more important, over all, than others to these budgeters. Finally, as relates to the findings of Stewart and Gelberd, these decision makers have relatively poor insight into their own decision making strategies.[1]

With this research Stahl and Zimmerer promote the usefulness of simulation in modelling individual decision making patterns, particularly of experts involved in a routine and familiar task. While their focus on the private sector has limited application in the public arena, their conclusions regarding the ability to model cognitive styles

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[1]Stahl and Zimmerer find significant differences between executives' subjective and relative weightings of criteria. That is, subjects underplayed the importance of the most heavily weighted criteria, and over-emphasized the importance of the least heavily weighted criteria (Stahl and Zimmerer, 1984: 375-376).

and the insight into individuals' knowledge of their own information processing activities are enlightening and pertinent to similar activity of public budgeters.

A Small Group Experiment: The Introduction of Treatments

Similar to Stedry (1960), Bretschneider, et al. (1988) use a controlled experimental setting to study the informational influences on the decisions of budgeters. In this case, subjects (101 graduate students in public and business administration from Syracuse University) were provided with a case description of a hypothetical, medium-sized city. The case description included information regarding municipal revenues and expenditures, demographics, and a historical perspective of the city. Additionally, students were subjected to several "treatments" -- the first involving policy role (either aligned with the council and a retrenchment perspective, or with the mayor and an expansion perspective); the second involving the accuracy of past revenue forecasts (either consistently overforecasted, underforecasted, or oscillating). Given their policy role, the accuracy of past revenue forecasts, and information about the hypothetical city, subjects then provided a maximum expenditure ceiling for the upcoming fiscal year (Bretschneider, et al., 1988).

Results from this experiment provide evidence of the influence of policy role on the spending orientations of

budgeters. Specifically, "individuals assigned to the role of finance officer (mayoral affiliation), on average, set their budgets 800,000 dollars higher than those assigned the role of legislative budget analyst" (Bretschneider, et al., 1988: 319). This is to be expected, given the expansion perspective afforded by alignment with the mayor's office in this case.

The influence of forecast bias on judgment policies is less telling in terms of statistical significance. The authors did find that subjects were more likely to compensate for historical overforecasting than for underforecasting by reducing the ceiling. From this they surmise that budgeters are able to make adjustments in their spending recommendations, "albeit imperfectly," based on historical financial data (Bretschneider, et al., 1988: 318).

Concerning personal attributes, results indicate that those subjects more willing to take risk, as measured by subjects' Choice Dilemma Scores, tended to set their ceiling for expenditures higher than those subjects labelled more risk averse. The authors also find that subjects reflective of an analytical cognitive style, as measured by their scores on the Myers-Briggs Personality Scales, were more conservative in their determination of the expenditure

ceiling than the more intuitively oriented subjects.[2] While the authors seem to have some difficulty explaining this phenomena, such results are logical in light of the literature regarding the effects of financial climate, and particularly fiscal stress, on budgeters' consideration of rational decision aides.

These scholars are successful on several counts involving method and focus. Primarily, they are able to illustrate mathematically the influences of policy position and historical information on the spending strategies of subjects. Also, they address the distinctiveness of cognitive styles by noting that some individuals are more analytically than intuitively oriented and that such orientation can affect their spending decisions.

Like Stedry's work, the weakest aspect of this study is related to its external validity because the subjects are students, and not necessarily practitioners, of public and business administration. Also, the insular quality of the case development and presentation is somewhat problematic concerning the generalizeability of results. Regardless, the authors' call for the application of the true experiment to analyze budgetary behavior is well-founded. Their use of

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[2]The Choice Dilemma Score ranges from one to nine, indicating increasing risk aversity. The Myers-Briggs Personality Scales ranges from -65, indicative of a "feeling/intuitive" personality, to +65, indicative of a "sensing/analytical" personality (Bretschneider, et al., 1988).

such a method proves that implementation can be successful even concerning budgetary behavior, a variable so difficult to operationalize and quantify.

Problem Solving: Technical Versus Contextual Decision Strategies

Recent research by McCaffery and Baker (1990) engages subjects in a problem solving exercise coupled with a written assessment and clarification of decision strategy to measure intuitive versus analytical judgment orientations of budgeters. "The authors analyze whether certain decisional protocols (attitudes and thought processes) significantly affect decision makers' preferences for contextual (practical) as compared to technical solutions" (McCaffery and Baker, 1990: 143-144).

McCaffery and Baker assessed the decision strategies of 34 administrators enrolled in an executive Master of Public Administration program using a variety of subjective and objective measurements. First, subjects provided essays which reflected their assessment of administrators' budget request strategies. According to the authors, this measurement provides an "initial, long-term memory probe" of budgeters actual experience in the budget process. Second, subjects engaged in a simulation exercise requiring their recommendation for future personnel given a continued increase in workload. This problem solving activity serves as an internal validity check against the budgeters'

subjective decision strategies outlined in their essays. Finally, the authors divided subjects into two groups according to their answers to the simulation. (Members were divided according to whether they chose the technically correct answer to the budget problem.) Subjects in each group were asked to describe the major influences on their decision strategy in the simulation as well as to answer questions further clarifying their judgment policy (McCaffery and Baker, 1990: 145).

Results from this research coincide with much of the work previously mentioned. First, according to subjects' responses in the essays, the majority suggest a rational-comprehensive approach to budgeting. The authors note that the "what should go, will go" budgeting perspective is predominant. This is the traditional reform perspective underscored by the politics-administration dichotomy -- technical experts determine and request spending needs while politicians allocate on the basis of power roles (McCaffery and Baker, 1990: 146).

Second, the authors found no statistically significant difference between experienced and unexperienced budgeters concerning their choice of a solution. In fact, results show that close to one third of the 34 subjects did not choose the "technically correct" solution. Surprizingly, when asked to account for their own decision behavior, "the most influential protocol for both groups (experienced and

unexperienced) was program manager or administrator experience" (McCaffery and Baker, 1990: 154). Overall, the authors found that 82 percent of subjects considered factors other than "straight workload considerations" as influencing their choice of a solution to what the authors consider a purely technical problem.

When comparing judgment styles, the authors find that budgeters categorized as more contextually oriented (choosing the less technically correct solution in the resource allocation problem) engage a broader perspective concerning decision alternatives than their more technically oriented counterparts. Alternatively, the more analytically minded budgeters (choosing the technically correct solution in the simulation) interpret their "decisional leeway" as limited. Accordingly, those exhibiting this orientation chose solutions characterized as more certain and less risky than contextually oriented budgeters. Relatedly, the authors find that the more technically correct the choice of solution, the greater the perception on the part of the budgeter that penalties would be imposed should workload increases not be covered sufficiently. And finally, the more practical or contextual the decision orientation, the less the budgeter's sense of responsibility to the clientele.

Validity problems associated with this work are attributed in part to the small sample size. More

importantly, the analysis of budgeters' consideration of just one resource allocation problem may be an inadequate assessment of objective judgment orientation. Nevertheless, the significance of this research lies in its attempt to conceptualize differences between analytically and intuitively oriented budgeters in terms of choice behavior. Also, this research compares subjective and objective decision strategy. Like Stewart and Gelberd (1976), and Stahl and Zimmerer (1984), these authors illustrate the gap between what budgers claim is important to them and what, in fact, influences their spending decisions.

RECONCILING METHOD AND FOCUS

The work presented in this dissertation takes advantage of the behavioral perspective and incorporates empirical methodology to study budgetary decision making. Like Stewart and Gelberd (1976), social judgment theory was used to analyze the spending policies of public budgeting experts. Compared to the studies mentioned, this project surveyed a relatively large number of public budgeters currently engaged in making spending decisions. The method of analysis utilized a simulation format; in this case, prototypes of the decision making task represented state agency and department budget requests. Participants completed the simulation in their own work setting. Individual and group typologies of judgment orientation were

then generated. Finally, the statistical and substantive relationships between financial, organizational, technical, and personal characteristics, and analysts' spending policies were investigated and further defined.

Contribution to Understanding Human Cognitive Process

Results from this research, coupled with those from past efforts to decifer patterns of budgetary decision making, provide evidence that the spending orientations of budgeters can be modeled effectively. Also, it is apparent that budgeters can be differentiated according to these orientations. Based on such research, several propositions about the cognitive process typical of public budgeters surface and are presented below.

First, the decision making patterns of budgetary experts are both idiosyncratic and nomothetic. That is, the spending policies of individual budgeters are unique, yet patterns of common behavior among such experts naturally develop, are maintained, and can be measured. Second, decision makers, even experts, remain unclear regarding insight into their own decision making orientations. A gulf still exists between what budgeters proclaim is important to them when making spending decisions, and what really comes into play when they are involved in the decision task itself. Third, the manner in which budgeters utilize certain criteria when determining budgets is influenced by

financial, organizational, technical, and personal factors associated with the decision context.

The Case of the State Government Budget Analyst

Results from this project specifically produce new information about a little known budget player -- some facts coincide with the findings of past studies, yet some generate questions about behavior and budget practice. First, the profile of the typical state government budget analyst suggests that the position may be a conduit for career advancement in state government. The typical analyst is male, middle-aged, experienced, and educated. Many come to the analyst position from another state government agency. And, almost one quarter (24 percent) of those participating in this project held mid- to upper-level management positions at the time of administration of the questionnaire. These factors imply that the analyst position can serve as a stepping stone to management.

Also, the characteristics of the analyst typical in this case lend credence to the argument that state government workers are sophisticated and competent concerning the credentials they bring to the job. The work experience and educational level of these budgeters attests to the increased professionalism promoted by many state government budget offices today.

Related to the decision behavior of this group of budgeters, evidence shows that, on average, analysts take advantage of several cues when making spending recommendations. In this sample, most adhere predominantly to gubernatorial direction, and then efficiency of operation of the agency, and changes in workload. The influence of agency heads and the legislative agenda are not as important as these first three cues to analysts when making spending recommendations. Acquisitiveness of the agency head and public support for agency services and/or programs are considered only slightly by analysts, on average, when reviewing budget requests.

Some interesting aspects of the analyses of individual decision patterns involve both the types of criteria considered important, and the manner of their influence. For instance, relatively few analysts (six percent) consider the acquisitiveness of the agency head as important when developing spending recommendations. Of those who weigh this cue heavily, most exhibit traditional "guardian" behavior -- that is, the more acquisitive the agency head (request compared to current budget), the more negatively the analyst interprets the request. For these analysts, the more a director asks for, the more he or she gets cut.

Concerning manner of influence, most of the other cues are utilized by analysts in a positive linear, or curvilinear, manner. For instance, the more positively a

request is endorsed by the governor, the stronger the recommendation by the analyst to include it in the total budget package. Such behavior is expected. It is interesting, however, that distinctions in the manner in which cues are interpreted by analysts do exist, particularly for those considering acquisitiveness most heavily. While the predominant number of these analysts exhibit traditional behavior, some interpret the cue very differently -- greater acquisitiveness generating stronger recommendations. These results signify that even if budgeters weigh cues similarly, they may interpret them differently.

Grouping analysts according to decision orientation provides further evidence of the distinctive qualities of spending strategies and illustrates that while cognitive process is unique, there are patterns, expecially among experts involved in a familiar decision task. Four typologies surface using the groups as clustered. Sixty three percent of the analysts are categorized as MIXED-VALUE -- indicating that a strong majority utilize at least two types of cues (in this case, rational or analytical and intuitive or political). Alternatively, only 37 percent of the sample ascribe predominant weight to just one type of cue, be it rational, quasi-rational, or intuitive. Of these analysts, 73 percent are categorized as POLITICO, with

relatively few confining their consideration to either rational or quasi-rational (incremental) cues only.

Perhaps the most interesting aspect of the final analytical section is the statistical reiteration of the role of fiscal climate and analyst age on budget behavior. While technical and organizational factors cannot be discounted in the separation of decision typologies of analysts, clearly, fiscal stability of the state, along with the age of the analyst, provide the greatest discriminatory power in terms of separating MIXED-VALUEs from all other analysts. Results in Chapter Five indicate that rational decision tools can be expected to play the greatest role in budgetary decisions in less fiscally stable environments and for younger analysts. These results substantiate much of the work mentioned above -- that as "decisional leeway" becomes limited, decision makers search for more objective, technical methods of solving problems.

The relationship between age and analytical thinking on the part of analysts may be more complex. It may be that younger analysts are more familiar than older analysts with such decision tools, and so, are more comfortable with their use. Or, perhaps they are just less familiar with the politics of budgeting. That is, younger analysts may be less confident concerning their recommendation strategy and, therefore, rely on a combination of analytical and intuitive cues when determining spending plans.

Contribution to Public Budgeting Theory

From a purely academic standpoint, this project has answered the questions posed in the Introduction successfully. For questions one through three, the answer is yes -- analysts do differ in the weights they apply across the seven cues which represent state agency budget requests; analysts also differ in the manner in which they consider budget cues; and, analysts of similar decision orientation do vary across the independent variables representing fiscal climate of the state, budget office strength and technical sophistication, and personal characteristics of analysts.

From a practical standpoint regarding the quality of public spending decisions today, practitioners and scholars alike may breathe easier. For the results of this project suggest that the majority of modern budgeters maintain a mixed-value orientation. As noted in Chapter Four, it is difficult to interpret most subjects of this study as strictly technicians or politicos -- given the mix of criteria considered most heavily by these experts when making budgetary recommendations. And, according to the results in Chapter Five, this orientation should be expected, given the financial climate of most of the states visited. In this environment and for this group of budgeters, traditional incremental behavior does not prevail. Rather, these subjects characterize budgeters who

acknowledge and weigh both analytical and intuitive guidance when determining spending plans. Given the conclusions of Hammond, et al. (1987) concerning error-free judgment, such an orientation among public budgeters may be the best that reformers and citizens can hope for.

RESEARCH AGENDA: Future Scholarship in the Field

While empirical research which considers the individual decision making behavior of public budgeters has been slow to evolve, the advancement of more sophisticated techniques to measure human cognitive activity bodes well for future study in the field. To extend this line of research focus and methodology, it is suggested that additional and repeated applications of the simulation technique be conducted to determine the spending policies of practicing public budgeters. Because the routine and repetitive nature of the budget cycle fosters expertise among budget players, analysis of expert judgment, in this case, is facilitated.

Additionally, attempts should be made to compare budgeters' decision making strategies with budgeted results. This may necessitate the examination of real funding recommendations for specific agencies in conjunction with judgment analysis to determine the congruence between budgeters' recorded strategies and actual decision outcomes over time.

Finally, the communication flow between academicians and practitioners must be facilitated to enlighten budgeters as to their true decision orientations. Such information will promote greater understanding among budget players concerning which criteria are most important and in what manner they can be expected to influence the individual in a given decision context. For as Grizzle (1985a: 340) notes in her analysis of the development of performance measures, once agencies know what information is "worth including in their budget justifications," they can then efficiently tailor such requests in order to foster the most favorable response from budget reviewers.

Ultimately, our understanding of human cognitive processes remains inadequate as long as we are unable to accurately predict individual or group choice in a given situation. Development of a predictive equation of such human behavior is alluring because it implies the ability to determine outcomes, or future events. In the public arena, knowledge of this sort suggests the ability to influence policy. This dissertation develops a model of behavior for state government experts involved in a familiar and important budget task. While the model is not perfect, it does clarify the information processing strategy of central budget office analysts and lends insight into the expected behavior of those responsible for the management of taxpayers' dollars.

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APPENDICES

APPENDIX A

STATE BUDGET ANALYSTS PROJECT
September 1988

INSTRUCTIONS FOR COMPLETING THE QUESTIONNAIRE

SECTION I.

This questionnaire concerns the ways in which you approach your review of agency budget submissions. As a participant in this survey, you are assured of complete confidentiality. Results will be reported in aggregate form and not on an individual basis.

This questionnaire may be very different from those you have completed in the past. The first section consists of a decision making exercise. You will be presented with hypothetical state agency budget requests which vary across seven defined criteria. Assume that these agencies represented by the budget request profiles only vary across these criteria and do not differ on other attributes. A sample agency budget request profile is illustrated below.

EXAMPLE BUDGET REQUEST FOR FISCAL YEAR 3

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXXXX	(-6)
EFFICIENCY	X	(0)
ACQUISITIVENESS	XXXXX	(4)
GOVERNOR'S AGENDA	XXXXXXX	(6)
LEGISLATURE AGENDA	XXXX	(3)
AGENCY HEAD REPUTATION	XXXXXX	(-5)
PUBLIC SUPPORT	XXX	(2)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

WHERE THE CRITERIA ARE DEFINED AS FOLLOWS:

WORKLOAD: the degree of increase or decrease in the volume of work or number of clients served by the agency from FY1 through FY2.

EFFICIENCY: the degree to which workload measures indicate increased or decreased efficiency of agency performance from FY1 through FY2.

ACQUISITIVENESS: the degree to which this request reflects an increase or decrease over the agency's current budget.

GOVERNOR'S AGENDA: a measure of how important the policy goals and objectives of this agency are to the governor's fiscal and policy agenda for FY3.

LEGISLATURE'S AGENDA: a measure of how significant the policy goals and objectives of this agency are to the FY3 agenda of important members of the state legislature.

AGENCY HEAD REPUTATION: a measure of the trustworthiness of the agency director in terms of equating past requests with actual spending patterns.

PUBLIC SUPPORT: the degree to which client groups and constituencies outside of state government are interested in the agency's programs and services.

The example request above comes from an agency that has experienced a decrease in workload from FY1 through FY2. Efficiency of operation, however, has remained unchanged. This agency's director is asking for an increase over current budget. This budget request is receiving positive support from the governor, though its goals and objectives are slightly less important to the agenda of significant members of the legislature. This agency's director has a reputation for padding his budget requests, and there is some positive public support for the programs and/or services provided by this agency.

Based on this information, you should determine the strength of your recommendation of this request to the governor on a scale from 1 (very weak recommendation) to 20 (very strong recommendation). Indicate the strength of your recommendation in the space provided directly below each budget request profile.

You will be presented with 40 hypothetical budget request profiles. Please make a decision regarding every request presented to you. Do not leave any spaces for your recommendation blank. This section should take from 20 to 30 minutes to complete.

SECTION II.

After you have completed the decision making exercise in SECTION I, please answer the questions in the final section. SECTION II asks you some questions about your education and work background. Please remember to check "yes" on question 50 if you would like to receive a copy of the results of this study. The last section should take from five to ten minutes to complete.

NOTE: Research at The University of Georgia which involves human participants is carried out under the oversight of the Institutional Review Board. Procedural questions or problems regarding these activites should be addressed to Ms. Heidi L. Roof, Coordinator, Human Subjects Research, or Dr. J.B. Jones, Director, Institutional Review Board, Office of Vice President for Research, The University of Georgia, 604A Graduate Studies Research Center, Athens, Georgia 30602, (404) 542-6514 or 542-5938. Specific questions pertaining directly to the questionnaire should be addressed to Katherine G. Willoughby, Institute of Public Administration, Georgia State University, 12th Floor, Urban Life Building, Atlanta, Georgia 30303, (404) 651-3350 or (404) 261-6489. Also, inquiries may be addressed to Dr. Thomas P. Lauth, Department of Poltical Science, Baldwin Hall, University of Georgia, Athens, Georgia 30602, (404) 542-2938.

EXAMPLE BUDGET REQUEST PROFILE #1

```
                      (-max)      (min)       (+max)
                       -10 . . . . 0 . . . . +10

WORKLOAD                              XXXXX          (4)
EFFICIENCY                            XXXXXXXXX      (8)
ACQUISITIVENESS                       XXXX           (3)
GOVERNOR'S AGENDA                    XXX            (-2)
LEGISLATURE'S AGENDA                  X              (0)
AGENDA HEAD REPUTATION     XXXXXXXXXX               (-9)
PUBLIC SUPPORT              XXXXXXXXX               (-8)
```

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

EXAMPLE BUDGET REQUEST PROFILE #2

```
                      (-max)      (min)       (+max)
                       -10 . . . . 0 . . . . +10

WORKLOAD                 XXXXXXXXXXX            (-10)
EFFICIENCY                        XXXXXXX         (6)
ACQUISITIVENESS                   XX              (1)
GOVERNOR'S AGENDA                XXX             (-2)
LEGISLATURE'S AGENDA     XXXXXXXXXXX            (-10)
AGENDA HEAD REPUTATION          XXXX             (-3)
PUBLIC SUPPORT                    XXXXXXXXX       (8)
```

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

EXAMPLE BUDGET REQUEST PROFILE #3

```
                      (-max)      (min)       (+max)
                       -10 . . . . 0 . . . . +10

WORKLOAD                        XXXXXX           (-5)
EFFICIENCY                           X            (0)
ACQUISITIVENESS                      XXXXXXX      (6)
GOVERNOR'S AGENDA                    XXXXXXXX     (7)
LEGISLATURE'S AGENDA                 XXXX         (3)
AGENDA HEAD REPUTATION             XXXX          (-3)
PUBLIC SUPPORT                       XXX          (2)
```

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

STATE BUDGET ANALYSTS PROJECT
QUESTIONNAIRE

SECTION I. AN EXERCISE IN REVIEWING BUDGET REQUESTS

For each hypothetical budget request, provide the number (from 1 to 20) which best indicates the strength of your recommendation of the request to your governor (1 = very weak recommendation to the governor; 20 = very strong recommendation to the governor).

BUDGET REQUEST PROFILE #1

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXXX	(5)
EFFICIENCY	XXXXXX	(-5)
ACQUISITIVENESS	XXXXXXXXX	(8)
GOVERNOR'S AGENDA	X	(0)
LEGISLATURE'S AGENDA	XXXXXXXXX	(-9)
AGENCY HEAD REPUTATION	XXXX	(-3)
PUBLIC SUPPORT	XXX	(2)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #2

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXXXXX	(7)
EFFICIENCY	XXXXXXXXXX	(-10)
ACQUISITIVENESS	X	(0)
GOVERNOR'S AGENDA	X	(0)
LEGISLATURE'S AGENDA	XXXXXXXXX	(9)
AGENCY HEAD REPUTATION	XXXXX	(4)
PUBLIC SUPPORT	XXXXXXXX	(-7)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #3

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXX	(3)
EFFICIENCY	XXXXXXXXXX	(-10)
ACQUISITIVENESS	X	(0)
GOVERNOR'S AGENDA	XXXXX	(-4)
LEGISLATURE'S AGENDA	X	(0)
AGENCY HEAD REPUTATION	XX	(1)
PUBLIC SUPPORT	XXXXX	(-4)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #4

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXX	(-4)
EFFICIENCY	XXXXXXXXX	(8)
ACQUISITIVENESS	X	(0)
GOVERNOR'S AGENDA	XX	(1)
LEGISLATURE'S AGENDA	XXXXXXXXX	(9)
AGENCY HEAD REPUTATION	XXXXXXXX	(-7)
PUBLIC SUPPORT	XXXXXXXXX	(8)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #5

	(-max) -10 . . . . 0 . . . . +10	(min)	(+max)
WORKLOAD	XXXXXXXXX		(8)
EFFICIENCY	XXXXX		(-4)
ACQUISITIVENESS	X		(0)
GOVERNOR'S AGENDA	XXXXXXXXXXX		(10)
LEGISLATURE'S AGENDA	XX		(-1)
AGENCY HEAD REPUTATION	XXXXX		(-4)
PUBLIC SUPPORT	XXXXX		(-4)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #6

	(-max) -10 . . . . 0 . . . . +10	(min)	(+max)
WORKLOAD	XXXXXXXXXX		(9)
EFFICIENCY	XXXXXXXXXX		(-10)
ACQUISITIVENESS	XXXXXXXXXX		(10)
GOVERNOR'S AGENDA	XXXXXXX		(6)
LEGISLATURE'S AGENDA	XXXXXXXX		(7)
AGENCY HEAD REPUTATION	XXX		(2)
PUBLIC SUPPORT	XXX		(-2)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #7

	(-max) -10 . . . . 0 . . . . +10	(min)	(+max)
WORKLOAD	XXXXXXX		(6)
EFFICIENCY	X		(0)
ACQUISITIVENESS	XXXXXX		(5)
GOVERNOR'S AGENDA	XXXXX		(-4)
LEGISLATURE'S AGENDA	XXXXXXX		(6)
AGENCY HEAD REPUTATION	XXX		(2)
PUBLIC SUPPORT	XXXXXX		(-5)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #8

	(-max) -10 . . . . 0 . . . . +10	(min)	(+max)
WORKLOAD	XXXXXXXXXX		(9)
EFFICIENCY	XXXXXXXXXX		(-10)
ACQUISITIVENESS	X		(0)
GOVERNOR'S AGENDA	XXXX		(3)
LEGISLATURE'S AGENDA	XXXXXXXX		(7)
AGENCY HEAD REPUTATION	XXXXXX		(5)
PUBLIC SUPPORT	XXXXXXXXX		(-9)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #9

	(-max) -10 . . . . 0 . . . . +10	(min)	(+max)
WORKLOAD	XXXX		(3)
EFFICIENCY	XXXXXXXXX		(8)
ACQUISITIVENESS	XXXXX		(4)
GOVERNOR'S AGENDA	XXXXXXXXX		(8)
LEGISLATURE'S AGENDA	XXXXXXXXX		(-9)
AGENCY HEAD REPUTATION	XXXXX		(-4)
PUBLIC SUPPORT	XXXX		(-3)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #10

	(-max) -10 . . . . 0 . . . . +10	(min)	(+max)
WORKLOAD	XXXXXXX		(-6)
EFFICIENCY	XXXXXX		(-5)
ACQUISITIVENESS	XX		(1)
GOVERNOR'S AGENDA	XXXXXX		(5)
LEGISLATURE'S AGENDA	XXXXXX		(5)
AGENCY HEAD REPUTATION	XXXXXXXXX		(9)
PUBLIC SUPPORT	XXXXXXX		(6)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #11

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXX	(-3)
EFFICIENCY	XXXXXXX	(6)
ACQUISITIVENESS	XXXXXXX	(6)
GOVERNOR'S AGENDA	XXXXXXXXX	(8)
LEGISLATURE'S AGENDA	XXXXXXXXX	(-9)
AGENCY HEAD REPUTATION	XXX	(-2)
PUBLIC SUPPORT	XX	(1)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #12

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXX	(4)
EFFICIENCY	XX	(1)
ACQUISITIVENESS	XXXXXXX	(6)
GOVERNOR'S AGENDA	XXXX	(-3)
LEGISLATURE'S AGENDA	XXXXXXX	(-7)
AGENCY HEAD REPUTATION	XXXXXXXX	(7)
PUBLIC SUPPORT	XXXXXXXXXX	(-10)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #13

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXXXXXX	(8)
EFFICIENCY	XXXXXXX	(6)
ACQUISITIVENESS	XXXXXXX	(6)
GOVERNOR'S AGENDA	XXXXX	(-4)
LEGISLATURE'S AGENDA	XXXX	(-3)
AGENCY HEAD REPUTATION	XXXXX	(-4)
PUBLIC SUPPORT	XXX	(-2)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #14

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXX	(4)
EFFICIENCY	XXXXXXXXX	(-9)
ACQUISITIVENESS	XX	(1)
GOVERNOR'S AGENDA	XXXX	(-3)
LEGISLATURE'S AGENDA	XXXXX	(4)
AGENCY HEAD REPUTATION	XXXXX	(4)
PUBLIC SUPPORT	XX	(1)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #15

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXXXX	(6)
EFFICIENCY	XXXXXXXXX	(-9)
ACQUISITIVENESS	XXXXXXXXX	(8)
GOVERNOR'S AGENDA	XXXXXXXX	(-7)
LEGISLATURE'S AGENDA	XX	(1)
AGENCY HEAD REPUTATION	XXXXXX	(-5)
PUBLIC SUPPORT	XXXX	(-3)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #16

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXX	(-5)
EFFICIENCY	XXXXXXXXXX	(-10)
ACQUISITIVENESS	XXXXXXX	(6)
GOVERNOR'S AGENDA	XXXXXXXXX	(9)
LEGISLATURE'S AGENDA	XXX	(2)
AGENCY HEAD REPUTATION	XXXXXXXXXX	(-10)
PUBLIC SUPPORT	XXXX	(3)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #17

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXX	(4)
EFFICIENCY	XXXXXXXXX	(8)
ACQUISITIVENESS	XXXXXX	(5)
GOVERNOR'S AGENDA	XXX	(-2)
LEGISLATURE'S AGENDA	XXXXXXXXXX	(-10)
AGENCY HEAD REPUTATION	XX	(-1)
PUBLIC SUPPORT	XXX	(2)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #18

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXX	(-3)
EFFICIENCY	XXXXXXXXX	(-9)
ACQUISITIVENESS	X	(0)
GOVERNOR'S AGENDA	XXXXXXXXX	(8)
LEGISLATURE'S AGENDA	XXXX	(-3)
AGENCY HEAD REPUTATION	XXXXXX	(5)
PUBLIC SUPPORT	XXXXXXXX	(-7)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #19

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXXXXX	(-7)
EFFICIENCY	XXXXXXXXXX	(9)
ACQUISITIVENESS	X	(0)
GOVERNOR'S AGENDA	XXXXXXX	(-6)
LEGISLATURE'S AGENDA	XXXXXXXX	(-8)
AGENCY HEAD REPUTATION	XXXXXXXX	(7)
PUBLIC SUPPORT	XXX	(-2)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #20

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXX	(-2)
EFFICIENCY	XX	(-1)
ACQUISITIVENESS	XXXXXXXX	(7)
GOVERNOR'S AGENDA	XXXXX	(-4)
LEGISLATURE'S AGENDA	XXXXXX	(-5)
AGENCY HEAD REPUTATION	XXXXXXX	(-6)
PUBLIC SUPPORT	XXXXXXX	(-6)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #21

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXX	(-2)
EFFICIENCY	XXXXXX	(-5)
ACQUISITIVENESS	XXXXX	(4)
GOVERNOR'S AGENDA	XXXXXXX	(-6)
LEGISLATURE'S AGENDA	XXXXXX	(5)
AGENCY HEAD REPUTATION	XXXXXXX	(6)
PUBLIC SUPPORT	XXXXXXXX	(7)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #22

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXX	(-4)
EFFICIENCY	XXXXXXXXX	(8)
ACQUISITIVENESS	X	(0)
GOVERNOR'S AGENDA	XXXXXXXXXX	(9)
LEGISLATURE'S AGENDA	XXXX	(3)
AGENCY HEAD REPUTATION	XXXXXXXX	(-7)
PUBLIC SUPPORT	XXXXXXX	(6)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #23

	(-max) -10	(min) 0	(+max) +10	
WORKLOAD		X		(0)
EFFICIENCY		XXXXXXXXX		(8)
ACQUISITIVENESS		X		(0)
GOVERNOR'S AGENDA		XXX		(2)
LEGISLATURE'S AGENDA		XXXXXXXXX		(9)
AGENCY HEAD REPUTATION		XX		(-1)
PUBLIC SUPPORT		XXXXXXXX		(7)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #24

	(-max) -10	(min) 0	(+max) +10	
WORKLOAD	XXXXXXXXX			(-9)
EFFICIENCY	XXXXX			(-4)
ACQUISITIVENESS		XX		(1)
GOVERNOR'S AGENDA		XXXXXX		(5)
LEGISLATURE'S AGENDA		XXXXXX		(5)
AGENCY HEAD REPUTATION	XXXXXX			(-5)
PUBLIC SUPPORT		XXXXXX		(5)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #25

	(-max) -10	(min) 0	(+max) +10	
WORKLOAD		XXXXXXXXX		(8)
EFFICIENCY		XXXXXX		(5)
ACQUISITIVENESS		XXXXX		(4)
GOVERNOR'S AGENDA	XXXXXXXX			(-7)
LEGISLATURE'S AGENDA		XXXXXXXXXX		(10)
AGENCY HEAD REPUTATION		XXXXXXXXXX		(10)
PUBLIC SUPPORT		XXXXXXXXX		(9)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #26

	(-max) -10	(min) 0	(+max) +10	
WORKLOAD		XXXXXXXX		(7)
EFFICIENCY		XXXXXXXX		(7)
ACQUISITIVENESS		XXXXXXXXX		(8)
GOVERNOR'S AGENDA	XXXX			(-3)
LEGISLATURE'S AGENDA		XXXXXX		(5)
AGENCY HEAD REPUTATION	XX			(-1)
PUBLIC SUPPORT		XXXXXXXXX		(9)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #27

	(-max) -10	(min) 0	(+max) +10	
WORKLOAD		XXXXXXX		(6)
EFFICIENCY		XXXXXX		(5)
ACQUISITIVENESS		X		(0)
GOVERNOR'S AGENDA	XXXX			(-3)
LEGISLATURE'S AGENDA		XXXXXXXXX		(8)
AGENCY HEAD REPUTATION	XXXXX			(-4)
PUBLIC SUPPORT		XXXXXXXXX		(8)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #28

	(-max) -10	(min) 0	(+max) +10	
WORKLOAD		XXXXX		(4)
EFFICIENCY		XXXXXXXXX		(8)
ACQUISITIVENESS		XXXXXXXXX		(8)
GOVERNOR'S AGENDA	XXXX			(-3)
LEGISLATURE'S AGENDA		XXXXXXX		(6)
AGENCY HEAD REPUTATION	XXXXXXXXX			(-8)
PUBLIC SUPPORT		XXXXXXXXXX		(9)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #29

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXXX	(5)
EFFICIENCY	XX	(-1)
ACQUISITIVENESS	XX	(1)
GOVERNOR'S AGENDA	XXXXXXX	(6)
LEGISLATURE'S AGENDA	XX	(-1)
AGENCY HEAD REPUTATION	XXXX	(-3)
PUBLIC SUPPORT	XXXXXXXX	(-7)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #30

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXX	(2)
EFFICIENCY	XX	(1)
ACQUISITIVENESS	X	(0)
GOVERNOR'S AGENDA	XXX	(2)
LEGISLATURE'S AGENDA	XXXXXXXXXX	(-10)
AGENCY HEAD REPUTATION	XXX	(-2)
PUBLIC SUPPORT	XX	(-1)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #31

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXXXXX	(7)
EFFICIENCY	XXXXXX	(5)
ACQUISITIVENESS	XXXXXXX	(6)
GOVERNOR'S AGENDA	XXXX	(-3)
LEGISLATURE'S AGENDA	XXXXXXX	(-6)
AGENCY HEAD REPUTATION	XXXXXXX	(-6)
PUBLIC SUPPORT	XXXXXXXX	(-7)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #32

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XX	(1)
EFFICIENCY	XXXXXX	(5)
ACQUISITIVENESS	XXXXXXXX	(7)
GOVERNOR'S AGENDA	XXXXXXXX	(-8)
LEGISLATURE'S AGENDA	XXXXXXX	(6)
AGENCY HEAD REPUTATION	XXXXXXXX	(-8)
PUBLIC SUPPORT	XX	(-1)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #33

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXXXXX	(-8)
EFFICIENCY	XXXXXXX	(-7)
ACQUISITIVENESS	XX	(1)
GOVERNOR'S AGENDA	XXXX	(-3)
LEGISLATURE'S AGENDA	XXXXXX	(-6)
AGENCY HEAD REPUTATION	XXXXXXXX	(8)
PUBLIC SUPPORT	XXXXXX	(-6)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #34

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	X	(0)
EFFICIENCY	XX	(-1)
ACQUISITIVENESS	X	(0)
GOVERNOR'S AGENDA	XXXXXX	(-6)
LEGISLATURE'S AGENDA	XX	(-1)
AGENCY HEAD REPUTATION	XXXXXXXXXX	(10)
PUBLIC SUPPORT	XXXXXX	(6)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #35

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXX	(4)
EFFICIENCY	XXXXX	(-4)
ACQUISITIVENESS	XXXXXXXXXX	(9)
GOVERNOR'S AGENDA	XXXXX	(4)
LEGISLATURE'S AGENDA	XXXXXXXX	(7)
AGENCY HEAD REPUTATION	XXXXX	(-4)
PUBLIC SUPPORT	XXXXXXXX	(-7)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #36

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXX	(2)
EFFICIENCY	X	(0)
ACQUISITIVENESS	XXXXXX	(5)
GOVERNOR'S AGENDA	XXXXXXXXXX	(9)
LEGISLATURE'S AGENDA	XXXXXXXXX	(-8)
AGENCY HEAD REPUTATION	XXXX	(3)
PUBLIC SUPPORT	XXXXXXXXX	(-9)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #37

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXX	(4)
EFFICIENCY	XXXXXXXX	(-7)
ACQUISITIVENESS	XXXXXXXXX	(9)
GOVERNOR'S AGENDA	XXXXXXXXXX	(-10)
LEGISLATURE'S AGENDA	XX	(-1)
AGENCY HEAD REPUTATION	XXXXXXXXXX	(-10)
PUBLIC SUPPORT	XXXXXXXXXX	(-10)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #38

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXX	(-3)
EFFICIENCY	XXXXXXXXX	(-8)
ACQUISITIVENESS	XXX	(2)
GOVERNOR'S AGENDA	XXXXX	(4)
LEGISLATURE'S AGENDA	XXXX	(-3)
AGENCY HEAD REPUTATION	XXXXX	(-4)
PUBLIC SUPPORT	XX	(-1)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #39

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXXXXX	(-7)
EFFICIENCY	XXXXXXXX	(7)
ACQUISITIVENESS	XX	(1)
GOVERNOR'S AGENDA	XXXX	(-3)
LEGISLATURE'S AGENDA	XXXXX	(-4)
AGENCY HEAD REPUTATION	XXXXXX	(-5)
PUBLIC SUPPORT	XXXXX	(4)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

BUDGET REQUEST PROFILE #40

	(-max) -10 . . . . 0 . . . . +10	
WORKLOAD	XXXXX	(-4)
EFFICIENCY	XXXXXXXXXX	(-10)
ACQUISITIVENESS	XXXXXX	(5)
GOVERNOR'S AGENDA	XXXXXXXX	(-8)
LEGISLATURE'S AGENDA	XXXXXXXXX	(9)
AGENCY HEAD REPUTATION	XXXXX	(4)
PUBLIC SUPPORT	XXXXXX	(-5)

STRENGTH OF YOUR RECOMMENDATION (1 to 20) _____

SECTION II. PERSONAL CHARACTERISTICS

41. What is your present job title? _____

42. How long have you held this position (in years)? _____

43. If this position is different from budget analyst, how long did you serve as a budget analyst in this state? _____

44. How long have you been employed in state government (in years)? _____

45. Where were you employed immediately prior to your present position? (check one)

____In another agency in this state government
____In a municipal agency in this state
____In a budget office in another state government
____In an agency in another state government
____In a municipal agency in another state
____In a federal agency
____In the private sector
____Other, please indicate:_____

46. What is the highest level of education you have completed so far? (check one)

___High School Graduate
___Some School after High School, such as Business or Technical School
___Some College
___College Graduate, major:_____
___Some Graduate work beyond College
___Master's Degree, major:_____
___Doctoral or Professional Degree, major:_____
___Other, please indicate:_____

47. What is your age? _____

48. What is your sex? _____male _____female

49. What is your income?

___Less than $15,000
___$15,000 up to $20,000
___over $20,000 up to $25,000
___over $25,000 up to $30,000
___over $30,000 up to $35,000
___over $35,000 up to $40,000
___over $40,000 up to $45,000
___over $45,000

50. Would you like to receive a copy of the results of this research? ___yes ___no

THANK YOU FOR YOUR PARTICIPATION IN THE STATE ANALYSTS PROJECT.

APPENDIX B

STATE BUDGET ANALYSTS PROJECT
QUESTIONNAIRE
September 1988

FISCAL CLIMATE OF YOUR STATE

in $ millions

	1988 actual	1989 estimate
ALL FUNDS		
Revenue	_____	_____
Expenditure	_____	_____
GENERAL FUND		
Beginning Balance		_____
Total Revenue	_____	_____
Total Expenditure	_____	_____
Year's Excess		_____
Ending Balance		_____
as % of Expenditure		_____
Rainy Day Fund	_____	_____
1988 Long Term Debt		_____
Year End Debt Outstanding		_____
Year's Debt Issues		_____
Longterm Debt ($/capita)		_____

RATINGS

Moody's _____ Standard & Poor's _____

DEMOGRAPHICS

Population _____

Number of State Employees _____ Per 1000 Population _____

Per Capita Income (1987) _____

Job Growth _____ Unemployment _____

APPENDIX C

STATE BUDGET ANALYSTS PROJECT
QUESTIONNAIRE

ORGANIZATIONAL SETTING, BUDGET FORMAT, AND AGENCY MISSION

1. Where is your state budget office located?

____within the governor's office
____as an independent office (not within any other department)
____within a department of administration
____within a department of finance
____other, please indicate:_____

2. What is the total number of employees working in the state budget office (secretarial/clerical, managerial/ administrative, as well as budget analysts)? _____

3. Which one of the following best characterizes the budget format used in your state? (check one)

____Traditional, line-item budget
____Performance budget
____Program budget
____Zero-Base budget
____Other, please indicate:_____

4. Please rank the following functions in terms of their importance to the role of the budget office in your state government.

____Controlling agency expenditures
____Evaluating the efficiency of agency performance
____Serving as policy and planning staff to the governor
____Evaluating the effectiveness of agency performance

5. Which of the following kinds of information does your office require of state agencies as part of their budget submissions? (check as many as appropriate)

____Cost estimate information for objects of expenditure
____Information regarding sources of revenue
____Information regarding programs, goals, and objectives
____Volume of work information
____Workload efficiency (cost per units of work or activity)
____Program effectiveness information

6. Which of the following functions does your office perform in addition to the review of agency budget submissions? (check as many as appropriate)

____Allotment (e.g. quarterly) of the appropriated funds
____Pre-audit of proposed agency expenditures
____Management review or assistance at the request of agencies or the governor
____Process agency requests for the reprogramming or transfer of funds during the operating year (i.e. budget amendments)
____Preparation of revenue forecasts
____Preclearance on behalf of the governor of all agency requests for nonbudgetary legislation
____Special analysis and evaluation projects

7. At what levels is cost information collected by your office when reviewing agency budget requests? (check as many as appropriate)

____Appropriations
____Departmental
____Organizational unit within departments
____Program (if different from organizational unit)
____Specific levels within programs
____In relation to work/tasks performed

8. At what levels does your office have control over expenditures? (check as many as appropriate)

____Appropriations
____Departmental
____Organizational unit within departments
____Program (if different from organizational unit)
____Major object of expenditure
____Minor line items

9. Does your state legislature receive agency budget requests at the same time that they are received by the governor's office? ____yes ____no

THANK YOU FOR YOUR KIND ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE FOR THE STATE BUDGET ANALYSTS PROJECT.

APPENDIX D

STATE BUDGET ANALYSTS PROJECT
QUESTIONNAIRE

COMPUTER FACILITIES OF YOUR BUDGET OFFICE

1. Beside each function below, please indicate with a check whether it is routinely carried out by budget analysts in your office. Then, indicate what type of data processing support is provided by your office to carry out such functions.

FUNCTION	IS CARRIED OUT BY ANALYSTS	USING MICRO-COMPUTER	USING MAIN-FRAME	USING COMBI-NATION	USING NEITHER
Preparation of budget worksheets					
Revenue forecasting					
Expenditure forecasting					
Development of budget including consideration of budgetary alternatives					
Appropriations bill tracking					
Control of expenditures					
Budgetary reports					
Off-line projects and special studies					
Program analysis (prior to enactment of program)					
Program evaluation (assessment of program efficiency and effectiveness after enactment)					

2. Please indicate the number of microcomputers used in your budget office. _____

3. What peripherals are available in your budget office? (check as many as appropriate)

____printers ____hard disks
____plotters ____modems
____graphics ____other, please indicate:_____

4. Which software packages are available in your budget office? (check as many as appropriate)

____wordprocessing (WORDSTAR, WORDPERFECT, etc.), please indicate:_____
____financial analysis (LOTUS 1-2-3, VISICALC, etc.), please indicate:_____
____data storage/management (dBASE II/III, etc.), please indicate:_____
____statistical analysis (SPSSX, SAS, etc.), please indicate:_____
____decision analysis (REFLEX, EXPERT CHOICE, etc.), please indicate:_____
____other, please indicate:_____

5. a. Is the microcomputer system in your budget office networked internally (local area network linking all micros in the office together electronically)?
____yes ____no

b. If yes, does your network allow for? (check as many as appropriate)

____peripheral sharing ____shared mass storage
____electronic mail ____electronic calendar
____file transfer ____other, please indicate:_____
_____

6. Is the computer system used in your office compatible with the ADP services provided by your state government?
____yes ____no

7. Where in the organization of your state government is the ADP service office located?

____as a separate department/agency within the executive branch
____within the department of administration
____within the department of finance
____within another department, please indicate:_____

8. a. Is the computer system in your office networked externally with systems in other agencies and/or departments of state government? ____yes ____no

   b. If yes, to which state agencies and/or departments is your computer system networked?

_____
_____
_____
_____

9. a. Is each budget analyst provided with a microcomputer upon entry in the budget office? ____yes ____no

   b. If not, how many microcomputers are accessible to budget analysts on a daily basis? _____

10. a. What use of micro- and/or mainframe computers do you anticipate implementing in your budget office in the future to better accommodate analysts in carrying out their duties?

_____
_____
_____
_____

   b. To accommodate the functioning of your office in general?

_____
_____
_____
_____

THANK YOU FOR YOUR KIND ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE FOR THE STATE BUDGET ANALYSTS PROJECT.

APPENDIX E

THE UNIVERSITY OF GEORGIA

department of political science
baldwin hall
athens, georgia 30602
404/542-2057

Mr. Clark T. Stevens
Director
Office of Planning and Budget
270 Washington Street, SW
Atlanta, GA 30334

Dear Mr. Stevens:

I am writing on behalf of Katherine G. Willoughby, a candidate for the Doctor of Public Administration degree at the University of Georgia. We are interested in learning about the ways in which state budget analysts approach their reviews of agency budget submissions. While NASBO and others have complied a substantial amount of information regarding the characteristics of state budget offices and their procedures, very little research has been conducted which identifies the ways in which budget analysts approach their tasks. Specifically, we seek to learn about the kinds of factors analysts consider when they review agency requests and make funding level recommendations to you and your governor. We believe such information is necessary for a better understanding of budgeting in the states. It will not only be useful for those who teach and write about budgeting, but it may also contribute to the improvement of state budgeting practices. In order to obtain this information, we need your help.

This research in being conducted in ten southeastern states. The knowledge and experise of Georgia analysts will be combined with that of analysts from other states in the region to enhance our understanding of this important facet of state budgeting.

The research protocol requires the direct administration of a questionnaire to all analysts who have primary responsibility for reviewing agency budget requests and who have been through at least one budget cycle. It will take approximately 30 to 40 minutes of an analyst's time to participate in this project. If you agree to participate, Mrs. Willoughby will visit your office and administer the questionnaire in either a group session or individual meetings depending upon what you judge to be the most convenient format for your staff.

Individuals participating in the research effort are assured complete confidentiality. No analyst will be identified individually. Results will be reported only in aggregate form. Our primary interest is in patterns of budget analyst behavior, not individual responses.

Mrs. Willoughby will be contacting you by telephone in the next few days to learn of your willingness to participate in this study and to arrange for a date for her visit to Atlanta.

We believe that this research will be of benefit not only to those who teach about state budgeting, but also to those who are engaged in its practice. Thank you for considering our request to include Georgia in the study.

Sincerely,

Thomas P. Lauth
Professor and
Department Head

APPENDIX F

MEMO

TO: All Analysts Participating in the State Government Budget Analysts Project

FROM: Katherine G. Willoughby
Institute of Public Administration
Georgia State University
12th Floor, Urban Life Building
Atlanta, Georgia 30303

Thank you for participating in the State Government Budget Analyst Project. Your knowledge and expertise will be combined with that of analysts from nine other states in the region to enhance understanding regarding the ways in which you make budgetary decisions.

The research protocol requires direct administration of the questionnaire to all analysts, either individually or in a group format. Analysts of interest include those who have primary responsibility for reviewing agency budget requests and who have been through at least one budget cycle in your state. It will take approximately 30 to 40 minutes of your time to complete the questionnaire.

Participation in this research project is completely voluntary and imposes no risk, either personal or professional, to you. All participants remain completely anonymous. It is not necessary to identify yourself on the questionnaire presented. Results of this research will be reported only in aggregate form. The primary interest is in patterns of budget analyst behavior, not individual reponses.

If you have any questions regarding this research or protocol, please contact me by telephone (404) 651-3350 or (404) 261-6489. You can also write to me at: Institute of Public Administration, Georgia State University, 12th Floor, Urban Life Building, Atlanta, Georgia, 30303.

Thank you again for your assistance in this project.

Sincerely,

Katherine G. Willoughby

Katherine G. Willoughby

NOTE: Research at the University of Georgia which involves human participants is carried out under the oversight of the Institutional Review Board. Procedural questions or problems regarding these activities should be addressed to Ms. Heidi L. Roof, Coordinator, Human Subjects Research, or Dr. J.B. Jones, Director, Institutional Review Board, Office of Vice President for Research, The University of Georgia, 604A Graduate Studies Research Center, Athens, Georgia, 30602, (404) 542-6514 or (404) 542-5938. Specific questions pertaining directly to the questionnaire should be addressed to Katherine G. Willoughby, Institute of Public Administration, Georgia State University, 12th Floor, Urban Life Building, Atlanta, Georgia, 30303, (404) 651-3350 or (404) 261-6489. Also, inquiries may be addressed to Dr. Thomas P. Lauth, Department of Political Science, Baldwin Hall, University of Georgia, Athens, Georgia, 30602, (404) 542-2938.