



## Bounded Rationality and Budgeting

Mukdad Ibrahim\*

School of Business, American University of Ras Al Khaimah, United Arab Emirates. \*Email: [Mukdad.ibrahim@aurak.ac.ae](mailto:Mukdad.ibrahim@aurak.ac.ae)

### ABSTRACT

This article discusses the theory of bounded rationality which had been introduced by Herbert Simon in the 1950s. Simon introduced the notion of bounded rationality stating that while decision-makers strive for rationality, they are limited by the effect of the environment, their information process capacity and by the constraints on their information storage and retrieval capabilities. Moreover, this article tries to specifically blend this notion into budgeting, using the foundations of incremental theory introduced by Charles Lindblom by the end of 1950s. The end of discussion shows that the use of intended rationality on public sector organizations will be through of implementing of incremental theory's rules and procedures.

**Keywords:** Bounded Rationality, Budgeting, Incremental Budgeting

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### 1. INTRODUCTION

Rational theories regarding how these decision makers go about choosing how much to fund budget line items attempts to offer bounded rationality explanations on the basis for these decisions. Constrained by the natural limits on the ability of humans to make accurate forecasts, especially when dealing with a large number of budget lines, a complicating decision-making structure, a budgeters predictions on the alignment of their budget decisions with their intended consequences are often overly optimistic. These limitations do not rule out use however, as budgeters will still employ various decision making strategies to assist them in meeting their goals. These strategies can be best described as boundedly rational due to the fact that budgeters, aware of the probability that the decisions they make based on such strategies are not going to be ideal, know that they still go a long way in helping them realize program goals. In other words, budgeters knowingly choose to make decisions that although not perfect, are considered "adequate."

The earliest boundedly rational theories of budgeting was conceived and advanced in the 1960's by the prominent scholar Aaron Wildavsky, whose works on budgeting are still relevant and highly regarded within the field of budgeting to this day (MacDonald, 2011). He argued that, with the federal government of the United States in particular, individuals responsible for the maintaining or

devising of programs that make up the federal budget must take a calculated and gradual approach in order to reach their desired level of funding for that particular program. Budgeters should commence by analyzing the "base" of each individual budget line, or the level of funding that was acquired for that line in the previous year. Using this base as a reference, budgeters can go forth and make gradual increases or decreases based on the most current information and perhaps most importantly in accordance with their current availability of funds. For instance, if supporters of a specific program are able to successfully justify why further funding is needed for their program, budgeters may choose to slightly expand the amount of funding being appropriated for that particular program. Additionally, even in the instance of a yearly budget fluctuation, budgeters should still refrain from making any substantial changes to each budget line. This incremental approach is government by necessity, as examining the budget in its entirety would mean embarking on the near impossible task of individually examining and analyzing each budget line in order to determine the optimal level of funding needed for the fulfillment of the goals expressed in the programs. Given the sheer size of the federal government and consequently the resulting number of decisions that must be made, this approach would be highly unfeasible and as a result, not to be employed in the federal budgeting process. Thus, by making incremental changes, budgeters can adequately reach funding levels for all the various budget lines, guaranteeing the adequate albeit non optimal operation of these programs.

Subsequent research revealed that in reality; many budgeting decisions were still not incremental, which precipitated further refinement of Aaron Wildavsky's guidelines. Partly evolving from Aaron Wildavsky's approach, the serial judgment theory of budgeting developed by John Padgett agrees with the incremental perspective in that budgeters decision making process are understood from a boundedly rational viewpoint. In order to cope with the vastness and the complexity of the decisions that must be undertaken, budgeters first use the level of funding from the previous year as their starting point, then proceed to act accordingly in order to meet satisfactory ends to each programs goals. However, this this rule by which budgeters make their decisions is not incremental choice. Budgeters do not make a conscious decision to allocate a level of funds that differs slightly from the amount allocated in the previous year, instead, budgeters consider a set of alternatives for funding levels, examining each one individually, until they arrive at one that they deem satisfactory. In this regard it is true that budgeters satisfice in that they do not attempt to determine the best possible funding level for a program.

In their research, Jones and Baumgartner (2005) state that, because the set of issues that budgeters can attend to is small, they ignore most information from the political environment. They do so even in the face of political mobilizations by coalitions favoring significant funding changes. Under these circumstances, year-to-year changes in budgets are characterized by incremental shifts in funding levels.

## 2. BOUNDED RATIONALITY

Bounded rationality explains how human beings, faced with immense complexity and cognitive limitations, deal with their decision making tasks by constructing simple models of reality and employing heuristics. Bounded rationality is a concept introduced into behavioral economists by Herbert Simon in 1955. Simon believes that the capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectivity rational behavior in the real world rationality (Simon, 1957).

However, Simon makes it clear that bounded rationality does not mean irrationality. To simplify the choice process and bring it within powers of human computation, Simon replaces the goal of maximizing or optimizing with that of satisfying, i.e., finding a course of action that is satisfactory without necessarily being optimal.

As individual faced with a choice situation, people construct a simplified model of the real situation based on past experience and highly selective views of present stimuli. Most responses are routine: One uses solutions one has used before. Sometimes, one is forced to engage in problem solving and one is most likely to conduct a limited search for alternatives along familiar and well-worn paths. One select the first satisfactory solution and one comes across without examining all possible options.

Conlisk (1996) gives four reasons for incorporating bounded rationality in economic models. First, there is abundant empirical

evidence that is important. Second, models of bounded rationality have proved themselves in a wide range of impressive work. Third, the standard justification for assuming unbounded rationality is unconvincing. And forth, deliberation about an economic decision is a costly activity, and good economics required that we entertain all costs.

A similar concept has been expressed by Lindblom (1959) who described and constructed two models of policy making, rational-comprehensive and successive-limited comparison. The first is completely rational and fits the traditional concept of the rational economic man. The second (incremental) is a more realistic description of a feasible decision-making process for complex situation where mean and ends are not distinct.

Bounded rationality means that people are limited in their ability to process new information, generate options, and anticipate consequences. The administrator, in Simon-Lindblom descriptions, faces a highly complicated environment where multiple goals and multiple values are related to each other in unknown ways. One has no reliable way of predicting the consequences of different courses of action. Decision making is made possible in uncertain world only by simplifying the problem and making marginal adjustment in policies which have been successful in the past.

Incremental decision making was developed not only as a descriptive model of decisions by bounded actors but as a normative mechanism for use in an uncertain world (Lindblom, 1959). If people are handicapped by limited cognition, and if the world is fundamentally complex and ambiguous, then it made sense for a decision maker to (Jones 1999) (a) move away from problems, rather than toward solutions, (b) make only small moves away from the problem; and (c) be willing to reverse direction based on feedback from the environment.

The incrementalist and bounded rationality schools of thought clearly share a number of attributes (Gist, 1989). The most obvious element is the notion that the ability of the human intelligence to collect, sorts though, and process information is limited, making the attainment of economically rational behavior impossible. In addition, both schools stress dissatisfaction with the status quo as the stimulant to the search for alternatives. The search behavior in both is limited to the familiar - the status quo serves as an anchor for search. Both emphasize the interrelations of ends and means and the search for alternatives that "satisfy," which address the immediate problem adequately, if not perfectly or forever. Finally, both resurrect rationality in a systemic sense by proposing ways in which collectives can overcome the cognitive shortcomings of individuals.

## 3. BUDGETARY PROCESS

The treasurer's department may carry out all preparation merely using the service departments as a source of information. Under such a system, the budget working papers will invariably be completed by finance staff although service departments will still be consulted about certain aspects of their budgets (e.g. costs of new developments). When detailed estimates have been prepared

there is also likely to be consultation with departments in case any “fine tuning” is necessary whilst departments, even under this system, will have the prime responsibilities for suggested areas of growth and cuts.

The description of the budgetary process supports the application of the incremental decision making. Decision makers identify the amount of spending in the preceding year, plus a little more to account for inflation and marginal growth. In this incremental scenario, public sector decision makers do not go through the difficult process and emotionally draining task of evaluating departments, programs and objectively quantifying needs. The preparation of the budget is a complicated and a lengthy process. Moreover, the budgetary process is a bargaining process which takes several meetings between committees and it is a very time-consuming and costly activity. Nevertheless, it is frequently the only way decisions can be reached in organizations when there are large differences among organization members on both goals and actions. (Based on the work of Wildavsky (1973), the following Table 1 shows the budgetary process in public organizations.

**Table 1: Budgetary process**

Details	Amount
Original estimate for 2014-15 at November price 2013 (previous decision)	XXX
Plus: Pay awards and price increases to November 2014 (no decision)	XXX
Base Budget	XXX
Add growth (development)	XXX
Subtract reduction (cut)	(XXX)
Total departmental budget for 2015-16	XXX
Add: Contingency provision for next year	XXX
Total budget	XXX

#### 4. THEORY OF SERIAL JUDGMENT

Like the incrementalist decision-maker, the serial judgment decision-maker begins the choice process with a fixed reference point or base, which is historically given in the form of prior budget estimates. From this historical starting point, however, the serial judgment decision-maker next makes conscious choice about “direction of search” - namely, whether to search for alternatives representing increased budget levels or whether to search for alternatives representing decreased budget levels.

This serial judgment process of decision-making generates budgetary outcomes in which most program allocations most of the time differ in only a marginal, but temporally variable, manner from the historical base. However, occasionally, as the normal outcomes of serial judgments decision making, more radical and “catastrophic” changes are also produced. Serial judgment theory implies that the federal budgetary system is much more responsive to political, bureaucratic and technical dynamics, on a routine even if constrained basis that the theory of process incrementalism would lead one to believe.

Padgett (1980) selects three fiscal years for his study: 1957, 1964, and 1966. His rationale is based on one fiscal year each

from the Eisenhower, Kennedy, and Johnson Administrations. He emphasizes the cross-sectional data within each of the three fiscal years and examines the progress of an agency’s budget from the agency itself through the Office of Management & Budget to the Congress. Thus, there are no longitudinal comparisons which exist over two consecutive fiscal years. In addition, only domestic (i.e., non-defense) agencies are used in the data base. The actual dollar figures are used to determine percentage changes from one stage of the annual budget cycle to the next. Padgett employs the use of the Kolmogorov-Smirnov one-sample test which compares the maximum error between the empirical (actual) distribution and the predicted cumulative probability distribution. The serial judgment model seeks to find the predicted percentage increase or decrease based primarily upon the overall fiscal limits of the total budget and the previous estimate from the earlier stage in the budget process. This is important because it shows that the “base” is used in the serial judgment model although the serial judgment model seeks to replace the incremental approach. In comparing the Kolmogorov-Smirnov statistics of the serial judgment model with incrementalism, Padgett finds that in ninety-four percent of the cases the serial judgment model has lower Kolmogorov-Smirnov statistics and hence a better goodness-of-fit than the incremental model using the same years of analysis for comparison (i.e., FY 1957, FY 1964, and FY 1966).

Padgett’s article does offer a new approach to budgetary theory - the serial judgment model. However, as noted in the preceding paragraph, the serial judgment model is based in large part on prior budgetary data. The “base” as originally developed by the incrementalists is also used as a foundation in the serial judgment approach. In his conclusion, Padgett states that his results support both the incrementalists and their critics. His selection of only three fiscal years with the latest 1966, over fifteen years old, does not aid the timeliness of the data base. More significantly, he does not disaggregate the data into controllable and uncontrollable funds nor does he control for inflation. The former is of interest because Padgett mentions the uncontrollability issue towards the beginning of his article specifically referencing the research of Gist (1977). Related to this point is his selection of only domestic (i.e., non-defense) agencies where historically the highest percentage of funds in uncontrollable. For these methodological reasons, Padgett’s theory does have some serious shortcomings.

#### 5. ROLE CONFLICT

Role conflict exists when an actor finds that complication with one role requirement may make it more difficult to comply with another role. For example, within the role of the legislative budgeter i.e., a member of the Policy Committee there may be a number of distinct role orientations possible for an individual to hold. Tension could rise as a result of the tension between the public role orientation of a responsible legislative budget cutter and the internal role orientation to fund a particular department at the maximum possible level because of personal convictions or political relationships with that department. Both of these role orientations could be held simultaneously within the role legislative budgeter, but each would call for a very different type of role behavior.

## 6. COMMUNICATION

In a political process like the budgetary process, downward communication can be seen as the effort by the decision making committee to assimilate the knowledge resources that are available to departments. It can also be seen as a mode of restriction in the sense that this committee usually sets upper limits with regard to what departments can spend. Upward communication can be seen as an effort to influence or an attempt to form a coalition in each department. It is an attempt by the actors in each department to increase role domain through contact and communication with this committee to advocate their policies.

## 7. SATISFACTION

Under conditions of bounded rationality, officials seemingly “do what they can” but they may, however, simply “make do.” The sacrificing position is more realistic than the optimizing alternative. If the officials agree on their own and other members roles and act in conformity with them, they may reduce their calculations and other efforts in the budgetary process and gaining greater level of satisfaction from their participation in the budgetary process. When they adopt the incremental methods and procedures to simplify their calculations, using the base and the fair share rules, department ahead can be more satisfied with the budgetary process.

## 8. THE BASE AND THE ALTERNATIVE

To reduce decision calculations, a decision maker will limit the number of alternatives actions that are considered by examining only the first few alternatives that come to mind. Another means of reducing decision calculations is to devise rules for quickly excluding many of the alternatives that could be considered (March and Herbert, 1958).

Governmental organizations have to give standard services to the people of the community. So most of their expenditure is either mandatory or set by law. Moreover, they use current or last year’s budget as a base in preparing the next year budget. As a result, there is a very small number of options available to the decision makers.

## 9. UNCERTAINTY AND THE ENVIRONMENT

One factor that influences the budgetary decisions is the decision makers’ uncertainty resulting from the complexity of the environment. Uncertainty is defined as a decision maker’s inability to predict the chances of a particular happening from specific decisions or actions (Luce and Raiffa, 1957). The cause of this uncertainty for intendedly rational decision makers is the complexity of the environment and the decision maker’s ability to comprehend such complexity. The complexity of the environment can change, thereby increasing or decreasing their perceived uncertainty (Tichy, 1981).

The decision problem may be uncertain for many reasons (Taylor, 1984). There may be insufficient knowledge of events

in the decision environment that will influence the decision outcomes and the causal relationships that exist among the aspects of the decision problem. Or some elements of the decision problem and its environment may be beyond the decision maker’s control. Moreover, decisions are made in organizational environments that are highly unstable due to the introduction of new technology, rapidly changing markets, or a host of other uncertain features.

There are three major sources of uncertainty in organizations: (Tichy, 1981):

- a) Environment - changing and complex environments engender uncertainty.
- b) Task - simple, routine tasks produce low levels of uncertainty, whereas complex tasks that are not routine create higher levels of uncertainty.
- c) Task interdependencies - the greater the inter-dependencies among the tasks, the greater the uncertainty.

Uncertainty in the task environment of an organization arises particularly from the unanticipated actions of outside elements, both supporters and rivals, whether this be the changing tasks, customers entering the market, or from unexpected regulatory action of government and other bodies in the institutional environment (Butler, 1991). The Audit Commission (1984) in examining the financial conditions in the local authorities stated:

“There are too many unnecessary uncertainties inherent in the system. These inhibit authorities from planning ahead. The lack of forward projections of central grand support to local authorities and the annual changes in expenditure targets and penalties pose particular problems for authorities and government.”

The analysis of uncertainty is mainly based on Milliken’s (1987) article. Milliken reexamined three types of environmental uncertainty, which can be experienced by an organization’s administrators as they try to understand, make sense out of, and respond to conditions in the external environment. The evidence will be the qualitative data obtained from the documents in this County Council mainly County Treasurer and Policy Committee Reports.

1. State Uncertainty. One type of uncertainty which organizational administrators can experience is uncertainty about the state of the environment. Administrators experience “state” uncertainty when they perceive the organizational environment, or a particular component of that environment, to be unpredictable. Of the three types of uncertainty, it is this type of uncertainty which is conceptually closest to using the term “environment uncertainty” to describe the state of the organizational environment. The following quotation, obtained in our research, is illustrative.

“Despite the continuing complexities and illogicalities of the local authorities finance, every effort has been made to produce a concise and intelligible analysis of the County Council’s budget position and one which concentrated on major policy areas. (Staffordshire County council-policy committee report 1987-1988).”

2. Effect uncertainty. A second type of uncertainty about the environment that relates to an individual's ability to predict what the impact of environmental events or changes will be on his/her organization. Effect uncertainty, thus, is defined as an inability to predict what the nature of the environmental change will be on the organization. The following statement illustrates this kind of uncertainty.

"Having made substantial cuts and expenditures over the last few years, this task has become more difficult and demanding as it is still a duty to provide services for those who are in need. (Staffordshire County Council: Policy committee report 1983-1984)."

3. Response Uncertainty. A third type of uncertainty is associated with attempts to understanding what response options are available to the organization. Response uncertainty is defined as a lack of knowledge of response options and/or an inability to predict the likely consequences. Response uncertainty stems from difficulties in valuing alternative courses of action. The careful valuation of alternatives, making it more or less favorable, and the relative importance of means used to compare alternatives. (Nutt, 1989). The statement below illustrates this kind of uncertainty.

"Given the uncertainty of the grant position in 1988-1989 and the political uncertainty arising from the election it is extremely difficult to make any firm recommendations on the level of net growth that the County Council should be contemplating for the year. (Staffordshire County Council: Report of County Treasurer. 1988-1989)."

Such uncertainty has led Staffordshire County Council to use incremental decision making to reduce the conflict and uncertainty in order to manage internal requirements to achieve their objectives, and to respond to external pressure from Central Government. Such a strategy deals with both uncertainty and conflict of interest, by proceeding in small moves which do not give rise to large irreversible or unpredictable effects.

## 10. USING HEURISTICS

The development of heuristics flows from the central facts with which budget-makers are confronted: The existence of value differences which are both analytically unmanageable because of incomparability and politically unmanageable because of individuals and group attachments to different preference orderings. A heuristic is thus a device which both enables a group to agree upon a solution to a potentially divisive problem and to maintain cohesion in the process. It is the introduction of heuristic values and norms which in a routine and agreeable fashion relieves the budget-makers of the necessity of confronting their problems in all their complexity. Given the uncertainties and dangers of their situation, decision-makers develop norms for reaching agreements which will be at least minimally satisfactory to all concerned. Such norms tend to encourage and justify the compromises which agreement implies. Thus, heuristics must appeal to shared values.

Two heuristics, it seems, are most prominent in satisfying these criteria. Both have been empirically identified in the literature on the budgetary process. The first of these is the heuristics of "fair share." Wildavsky (1964, 1979) has noted its occurrence in the budgetary process. If one is to reconcile competing claims and yet satisfy everyone minimally, at least most of the time, then one must see to it that everyone gets a "fair share." This notion incorporates a norm (fairness, justice) which is culturally shared and which is apt to have considerable persuasive force, especially in a situation where other guidelines are absent or confusing, and where decisions are necessary and unavoidable.

However, "fairness" cannot be defined purely in the abstract, it must have some operational content. It is given this, by the use of the second heuristic, which Lindblom (1959; 1958) has stressed so heavily, the heuristics of "precedent." What is a "fair share?" It may be argued, if I have been getting about the same slice of pie all the while, then I certainly believe I will be entitled to at least that much this time, and if I am willing to recognize that my colleagues have a legitimate claim of the same sort, then a "fair" slice this time would be pretty much what I got last time, percentage-wise. So precedent is followed. In so doing, as Wildavsky (1988) emphasizes, we make this year's budget basically by looking at last year's budget and making a few modest adjustments in a few categories. We proceed, in other words, by "successive limited comparisons" and avoid conflict (Lindblom, 1975). In this field Notz et al. (1983) state that:

- Budgeting is political in the sense that it deals with conflict over whose preference will prevail in the determination of organizational policy. Conflict over the allocation of resources is often a manifestation of unresolved goal conflict. Those areas in the organization that have historically received less than what they consider to be their fair share of resources will use the budgeting process to press for a more equitable allocation, while those areas that wish to retain their historical share will use the previously established goal hierarchy to justify their claims.

It is important to re-emphasize that the application of heuristics to the budgetary problem not only enables the problem of value comparisons to be resolved, but effectively buries the conflict potential of the budgetary decision-making situation beneath a structure of shared norms and routines. It is this function which primarily accounts for the persistence of incrementalism. In this field Wildavsky (1988) states:

When the budgetary base (last year's appropriation) is widely accepted, conflict is limited both because there is an agreed starting point and the increments are small. When the budgetary base is unacceptable, calculation becomes more complex and conflict rises.

For an incremental system to work, heuristics, such as those of fairness, precedent and base should be used. These depend upon compromise: Specifically, they depend upon the ability of decision-makers to cut the pie into small slices (i.e. pounds or thousands of pounds) in order to give a little here, take a little there, make minor adjustments, split differences,... etc., On the other hand, rational budgeting requires something more. It attempts to force such unwanted considerations upon the budget-makers. It

explicitly singles out the heuristic of precedent as illegitimate. It demands, through exhortations and through the structure of the program budget, that the value questions which heuristics had buried be exhumed and extensively worried about. It seeks to strip away the basis for routine and conflict-avoidance in budgetary decision-making.

## 11. CONCLUSIONS

Budgeting can be approached from the standpoint of participants as they perceive their environment and make calculations upon which their budgetary decisions depend. Calculation involves a study of how problems arise and how they are identified and broken into manageable dimensions. The budgetary environment is characterized by complexity, not only because of the need to make comparison among different programs that have different value for different people, but also on account of the complexity of most budgetary programs. Moreover, decision-makers arrive at budget decisions in a political environment in which it is difficult to predict accurately the ultimate consequences of their actions. It is not always clear which political actors and interests will side with which proposed program allocations. Budgetary politics can and often do create odd coalitions and expected conflicts. Therefore, participants in the budgetary process need to employ the following aid to calculation:

1. Budgeting is experiential. Rough assessments are made while experience accumulates.
2. Budgeting is simplified. Simpler problems which the decision-maker is familiar are used as a guide in solving more complex problem.
3. Budgeting occurs under a process of satisficing, the decision-maker satisfies and suffices as it is impossible to maximize.
4. Budgeting is incremental. The single largest determinant of the present year's budget is previous year's budget.

Three types of bounded rationality can be found at public organizations.

1. Bounds due to cognitive limits - Officials use only information relating to the previous year and depend upon these figures as criteria to build up their estimates. Moreover, using the fair share rule will make officials satisfies with the budgetary process.
2. Bounds due to social differentiation. Budgetary decisions are not made by one person. They involve officials from different departments, and politicians who hold different background, experiences and values regarding organizational programs that affect their allocation's decisions. Decision makers therefore, are influenced not only by their specific institutional environment but also by the peculiar mix of their distinctive personalities and the habits and ways of thinking instilled by their professional education and experience.
3. Bounds due to uncertainty. The uncertainty aspects of decision making behavior are incorporated into the theory of budgeting.

It was noted that the environment was complex and unstable. Officials were limited in their ability to perceive complex and unstable environments, process information and make calculations.

## REFERENCES

- Audit Commission for England and Wales (1984), *The Impact on Local Authorities' Economy, Efficiency and Effectiveness of the Block Grant Distribution System*. London: Audit Commission.
- Butler, R. (1991), *Designing Organization: A Decision Making Perspective*. London: Rutledge Publisher.
- Conlisk, J. (1996), Why bounded rationality? *Journal of Economic Literature*, 34(2), 669-700.
- Gist, J. (1989), Decision Making in Public Administration. In: Rabin, J., Hildreth, W.B., Miller, G.J., editors. *Handbook of Public Administration* New York: Marcel Dekker, Inc.
- Gist, J.R. (1977), Increment and base in the congressional appropriations process. *The American Journal of Political Science*, 21(3), 341-352.
- Jones, B.D. (1999), Bounded rationality. *Annual Review of Political Science*, 2(3), 297-321.
- Jones, B.D., Baumgartner, F.R. (2005), *The Politics of Attention: How Government Prioritizes Problems*, Chicago: University of Chicago Press.
- Lindblom, C. (1958), Policy analysis. *The American Economic Review*, 48(3), 42-54.
- Lindblom, C. (1959) The science of muddling through. *Public Administration Review* Spring, 19(2), 79-88.
- Luce, R., Raiffa, H. (1957), *Games and Decisions*. New York: John Wiley and Sons.
- MacDonald, J.A. (2011), Budgeting, rational models. In: Bertrand, B., Berg-Schlosser, D., Leonardo, M., editors. *International Encyclopedia of Political Science*. Newbury Park, CA: Sage Publication m Inc.
- March, J., Herbert, A.S. (1958), *Organizations*. New York: John Wiley and Sons.
- Milliken, F.J. (1987), Three types of perceived uncertainty: State, effect and respond uncertainty. *Academy of Management Review*, 12(1), 133-143.
- Notz, W.W., Strake, F.A., Atwell, J. (1983), The manger as arbitrator: Conflict over scarce resources. In: Bazerman, M., Lewicki, R., editors. *Negotiating in Organizations California: Sage Publication*.
- Nutt, P.C. (1989), *Making Tough Decisions*. San Francisco: Jossey-Bass.
- Padgett, J. (1980), Bounded rationality in budgetary research. *American Political Science Review*, 74(2), 354-372.
- Simon, H. (1957), *Models of Man*. New York: John Wiley and Sons.
- Staffordshire County Council: *Report of County Treasurer. 1988-1989*.
- Taylor, R.M. (1984), *Behavioral Decision Making*. Illinois: Foreman Publisher.
- Tichy, N. (1981), Networks in organizations. In: Paul C.N., William H.S., editors. *Handbook of Organizational Design*. Vol. 2, Oxford: Oxford University Press.
- Wildavsky, A. (1964), *The Politics of Budgetary Process*. Boston: Little Brown and Co.
- Wildavsky, A. (1979), *The Politics of Budgetary Process*. Boston: Little Brown and Co.
- Wildavsky, A. (1988), A cultural theory of budgeting. *International Journal of Public Administration*, 11(6), 265-277.