Assessing Incrementalism in United Arab Emirates Federal Budgeting

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Abstract

The aim of this paper is to test three incremental models on United Arab Emirates budgeting for the period of 1972-2010. The models are the magnitude of change, stability, and budget revenue. The data was obtained from ministry of finance's publication entitled Leading Financial Visions: 40 Years of Achievements. The findings confirm the use of incremental budgeting by the decision makers in UAE. Environmental factors seem to have an impact on budgetary outcomes.

1 Introduction

There are many approaches to explain budget and expenditure levels of government. One of the methods is public finance which draws heavily on economic theory. Another category of budgeting explanations is institutional analysis. The third category is the decision making approach. In this approach, there are two systems of budgeting, rational budget system, such as planning programing budgeting system and zero based budgeting and incremental budget system. For the last sixty years, a central question in budget theory has been whether or not incrementalism best describes governmental budgeting.

2 Research Methodology

The aim of this research is to test three models on UAE federal budgeting. The budget estimates and revenues estimates for years 1972 to 2010 was obtained from the publication of the ministry of finance: Leading Financial Visions: 40 years of Achievements. Three

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models are going to be used to assess the incremental decision making, magnitude of change model, stability model and budget revenue model.

3 Decision Making Approaches

Simon (1957) introduced the concept of bounded rationality. Simon argues that the ability of humans to gather, comprehend and retrieve information from memory and make inference is limited for a number of reasons. First, their environments are exceedingly complex. Second, their mental capabilities are very limited in comparison to the demands of a complex environment. Third, they are constrained by finite resources, from attempting to fully understand environmental complexities. As a result of these limitations, decision makers make decisions only in an intendedly rational manner.

A similar concept has been expresses by Lindblom (1959) who described and contrasted two models of decision making: rational-comprehensive and successive-limited comparisons. The first is completely rational and fit the traditional concept of rational economic man. The second (incremental) is a more realistic description of a feasible decision-making process for complex situation where means 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 an uncertain world only by simplifying the problem and making marginal adjustments 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 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 collet, 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.

For an incremental budget 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, such as zero based budgeting and planning programing budgeting systems 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.

4 Incremental Budgeting

Wildavsky (1964) identifies four methods that officials have used to decide upon actual monetary expenditure. The first method is one in which budgeting is experiential, relying heavily on experience and on making only the roughest judgments. Secondly, simplified budgeting is used when a very complex issue is under consideration. Thirdly, budgeting officials are satisfied. Calculation may be simplified by lowering one's sight. Officials do not try for the best of all worlds, whatever that might be, but in their words, they try to "get by" to "come out all right", to avoid trouble, to avoid the worst, and so on. Fourthly, budgeting is incremental. The largest determining factor of the size and the content of this year's budget is last year's budget. Most of the budget is a product of previous decisions. Incremental budget can be described as follows:

1. **Political**: The incrementalists claim that budgeting is a political process. Allocation cannot be made rationally on the basis of the public interest. The political conflict between spending departments and between spending departments and the treasury department can be reduced by an incremental approach because the area open to dispute is reduced. It is easier to agree on small increases or decreases than to compare the worth of one program to that of all others.

2. **Complexity**: In most public organizations, there are a large number of items that should be considered in setting up the budget. Man's ability to calculate is severely limited; time is always is short supply and pressures from the environment especially from ministry of finance. In this field Lineberry and Sharkansky (1971) state that budgets are complex and detailed documents, and past decisions are most reliable and handiest tools for grappling with complexity. Wolman (1984) shows how increased financial pressure has produced changes in Local Authority structures and processes, in particular the bargaining between service departments and central decision-makers within authority. Davies et al (1986) found that uncertainty was perceived by both councilors and officers as a major in the budgetary process.

3. **Budget Base:** Many of the activities in previous and current years are either mandatory or fundamental to the purpose of meeting organizational goals. In consequences it is necessary to concentrate only on the changes from the previous or current year in setting up the budget.

Fenno (1966) studies of thirty-six federal domestic bureaus for the time period 1947 to 1962. Fenno studies the decisions made by the House Committee on Appropriations and found that in seventy-five percent of the cases, the committee either increased or decreased the appropriations for the agencies by twenty percent or less when compared to the final appropriations granted in the previous year. Fenno had clearly established a cut-off point

of plus or minus twenty percent to determine whether or not a change could be considered incremental. This determination by Fenno was the first definitive statement on exactly what constituted an "incremental" change: 20%. Fenno's selection of this percentage is arbitrary. Sharkansky's study (1969) covers eleven periods between 1903 and 1965 and includes all fifty states. In reporting the results, Sharkansky highlighted those instances where the ratio deviated at least fifteen percent or instance where the ratio is less than or equal to 0.85 and greater than or equal to 1.15. He admits his fifteen percent criterion is arbitrary. The results show that in thirty-six percent of the cases the states exceeded the fifteen percent criterion. He concludes that the states exhibit incremental spending patterns over time. In his conclusion, Sharkansky strongly endorses incrementalist theory:

Incrementalism can be casted as both a descriptive model and an explanatory model (Wanat, 1974). As a descriptive model, Incrementalism implies that each year, organizations request more money than they received in the previous year. However, when Incrementalism is put forth as an explanatory model, it must also tell us why budgeting is descriptively incremental. The argument here is that organizations actually live with severe financial, time and information constrains in which it is difficult to follow the rational approach to decision making. Instead, they must simplify decision making by accepting the "base" (or previous expenditure level) of an organization and focusing all attention on requests for new funds (Berry, 1986).

Collins *et al* (1987) found that managers use last period's amounts as a basis or starting point. They prefer to defend existing budgetary levels or seek only incremental changes in their budgetary requests. Ibrahim and Proctor (1995) have tested the use of incremental budgeting on three county councils in the UK. They found that the three authorities use the last year's budget as the base in setting up the budget for the next year.

4. **Roles:** There is a difference in the role played by spending departments and the role played by treasury department officials in the budget-making process. Spending departments act as "advocate" and argue for better service and more expenditure in their area of responsibility, while the treasury department officials are predominantly "guardians" and their task is to ensure that available resources are not exceeded. Savoie (1990) applied the Wildavsky's "Guardian Advocate" framework on Canadian departments. He found that spending departments in Canada act as advocates for their program, while central agencies, such as the Department of Finance and the Treasury Board Secretariat try as best they can to exert control on spending as guardians of the Treasury.

Imbeau (2005) empirically tested of Wildavsky's guardian-advocate model of budgetary process. His hypothesis was that the speeches of ministries of Finance are systematically different from speeches of ministry of Education or Health on certain specific aspects. To test his hypothesis, he performed the content analysis on 130 policy speeches delivered in the Quebec National Assembly from 1970 to 2004. His conclusion was that there are significant traces of budgetary role-playing in policy speeches in Quebec and that the intensity of role-playing varies with political parties.

5. **Stability**: If the appropriations process excludes deliberation about the base, budgetary outcomes can be assumed to be stable. In another sense, budgeting is stable if the actors in the process do not change very much from year to year. The outcome of the budgeting might be understood as either the absolute allocation level for a service or the service or the service category's proportion of total expenditure.

5 Literature Review

Anton 1966 found that in Illinois, incrementalism provided a closer approximation of the budgetary process than did the rational model. According to Anton program related values were unimportant. The simple decision rules followed by the state budget analysts were to make marginal adjustments to the base. Moreover, Anton stated four rules for preparing and submitting budgets.

(1) Avoid requests for sums smaller than the current appropriation.
(2) Put as much as possible of the new request into the basic budget.
(3) Increases that are desired should be made to appear small and should appear to grow out of existing operations.
(4) Give the budgetary commission something to cut.

Anton concluded that "very few responsible agency administrators will be likely to request less money than is currently available to them.

Dye (1972) believes that the percentages of the total federal budget devoted to specific programs have changed only very gradually over the years. The incremental nature of the federal government's budget is revealed in figures showing the percentage of federal expenditures going to various purposes over the years. These figures change, but they do not change much.
Dye presents the following data on federal outlays:

Table 1: Incremental Budgeting

Area	FY60	FY65	FY68	FY70	FY72
National Defense	48.8%	41.9%	45.0%	40.1%	33.8%
Social	51.2%	58.1%	55.0%	59.9%	66.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Thomas R. Dye, Understanding Public Policy (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1972)

Wildavsky (1973) discusses the steps of incremental budgeting. First, last year's expenditures are calculated for each agency. This may involve some estimates since the previous fiscal year has not "closed its books" by the time the budget comes under consideration. Secondly, to this estimate of last year's expenditures is added what is essentially a cost-of-living increase based on a rise of salaries, price changes, and population movements. This is, in effect, placing the federal budget on "automatic pilot" with no policy changes taken into consideration. The "expenditure base" now consists of last year's expenditures (Step 1), plus the "automatic pilot" (e.g., primarily inflation) dollar increases (Step 2). The third step involves a three percent real increase in expenditure base or the "Annual Expenditure Increment." It is this three percent that the real battle will be fought over yet still keep the change "incremental" in nature such that the changes will not disrupt the budget process. Any increase above this three percent total would automatically trigger a tax increase--a major (i.e., non-incremental) decision

Shull and Franklin (1978) use two different categories of expenditure: appropriations and expenditures. Appropriations refer to the original yearly congressional appropriation, or budget authority. Expenditures, on the other hand, refer to all sources of annual spending including trust funds which are not subject to annual review by the Congress, such as Social Security. In their statement on defining incremental change, Shull and Franklin are very explicit:

An incremental appropriation of expenditure is one that is ±10 percent change from the level of the previous year. The 10% cutting point is an arbitrary selection but not an uncommon one. The definition of incremental used, by most scholars ranges from 5-15%.

Using data on fifty-three federal agencies over a period of twenty years (1952-1971), the authors found that in fifty-five percent of the cases for appropriations the change in annual appropriations was within the ±10 percent range. For expenditures, the ±10 percent criterion was met in forty-nine percent of the instances. The average annual change was sixteen percent for appropriations and eighteen percent for expenditures.

The authors also sought to determine if incrementalism was becoming more or less prevalent. By separating the data base into two equal time periods, 1952-61 and 1962-71, Shull and Franklin found that incremental changes were increasing for appropriations and slightly increasing for expenditures as the below Table shows.

Table 2: Incremental and Non-incremental Budget Changes

Percent	1952-61	1962-71
Appropriations:		
Incremental	52%	58%
Non-Incremental	48%	42%
Total	100%	100%
Expenditures:		
Incremental	47%	52%
Non-Incremental	53%	48%
Total	100%	100%

SOURCE: Steven A. Shull and Grace A. Franklin, "Agency Appropriations and Expenditures: A Descriptive Note on Budget Change," Southern Review of Public Administration 1 (March 1978)

Danziger (1976) tried to explicate some simple operational models of budgetary incrementalism; and to examine the adequacy of these models by means of an empirical test in four comparable systems – British county boroughs. To achieve his objectives, Danziger used the following models:

1. The magnitude of change. Danziger used the following parameters:
(a) If the change is between 5%-15%, then the change is considered as incremental.
(b) The change is considered relatively incremental if the change in the budget between 16% - 30%
(c) And a non-incremental if the change is more than 30% between this year's budget and the last year's budget.

2. Stability of allocation. Danziger used two models, the incremental trend model and the prosperity change model.

3. Change Dynamic in Allocations. Here, Danziger used three models:
(a) Strict Incremental Model
(b) Fair share Model
(c) Base Budget Model

Danziger's paper drew upon data from four of the larger county boroughs. The data included expenditure data from the published records of each county borough and also interviews with relevant actors in the budgeting system.

To assess the models, data are analyzed by linear regression techniques. The regression coefficient, F scores and fraction of explained variance R^2 provide evidence for evaluating the adequacy, through time and across spending categories, of the various models. Magnitude of change are summed by category and 'prosperity change scores' are computed. His findings are as follows:

1. Danziger found that 60 to 75 percent of the changes in each county borough are within the clearly incremental range.
2. The stability in allocations is addressed by the incremental trend model and by the prosperity change score. The incremental trend model whose regression estimates are primarily responsive to stability in the base, has the highest predictive power of any conceptualization of incrementalism. The prosperity change scores reveal that programs do prosper and decay within general service categories.
3. In case of naïve models the results reveal that the strict incremental model does not explain half the variation in a single case when it's in the positive form. In its negative form, it is successful in 18 percent of the cases. The fair share model explains half the variation in only 12.5 percent of the cases.

Ibrahim and Proctor, (1992) tested the use of incrementalism in budgeting. Their sample included three local authorities, Staffordshire, Shropshire and Derbyshire. They started their article with the brief discussion on the incremental decision making and moved to talk about the components of incremental budgeting. Their discussion included the political process, complexity, budget base, roles and stability concepts. They test data from 1979 to 1989 using four models: magnitude of change, stability of allocation, appropriation, and Dye model.

1. The Magnitude of Change Model
For the magnitude of change, the analysis showed that the lowest change in Staffordshire is 2 percent and the highest is 19 percent. For Shropshire, the lowest change is 3.22 and the highest is 22.2. In case of Derbyshire, the lowest change is 4.26 percent and the highest is 22.01 percent.

2. The Stability Model
To assess whether the budgetary process is incremental, the authors used the statistical fit of the data to the regression line, R^2 value. A low R^2 value indicates a low degree of stability for budgetary output. On the other hand, a high R^2 indicates a high level of output stability. The authors employed regression analysis using the following formula:

$$Y_t = a + bY_{t-1} + e$$

Where:
Y_t = this year budget
a = an intercept term
b = the slope of the line of best fit for the relationship
Y_{t-1} = Last year budget

The results of the analysis showed R^2 has a value more than 90 percent for both the whole shires and its services.

3. The appropriation Model

In the case of appropriation model, the focus for each department was on both R^2 and the value of the slop which indicates the increases of fund over last year. The results showed very high R^2 and most departments got some extra percentage over the last year budget. The analysis supports evidence for an incremental approach to budgeting in these organizations.

4. The Dye Model

The result of testing Dye Model showed that budgeting in these authorities is incremental, since the total budget which each authority has devoted to the departments changes only incrementally over the years

Ibrahim and Proctor (1992) tried to report the response of three local authorities to fiscal stress. The stress was caused by the policies of central government in the 1980s, when all local authorities in the United Kingdom found themselves in serious financial difficulties. Local authorities, both large and small were faced with reductions in the central government grant on the one hand, and increases in the costs brought about by rising inflation and continued demand for services on the other hand.

The study was conducted by means of personal interviews with officers in the local authorities concerned and through scrutiny of published documents. It took place over the period 1988 to 1991 and paid specific attention to budgetary decision making over the period since 1980. One of the principle objectives of the study was to ascertain whether the budgetary decision making process in these local authorities followed the rational or the incremental model.

The authors started their testing with the strategies the authorities used to cope with fiscal stress. They found these authorities use the following strategies during the 1980s.
1. Buying time
2. Capitalization
3.   Building up reserves
4. Revenue increases
5. Tax increase
6. Reduce spending
7. Personnel cut
8. Cut expenditure.

The following are the methods used by the authors to test if the budget is rational or incremental during the 1980s:

1. Shifting departmental allocations
2. Enlarging the budget pie
3. Fair share reductions.

The main conclusion confirms the hypothesis that local authorities make incremental adjustment in response to resource scarcity. There are three reasons behind that. The first is that cutbacks are likely to be viewed as temporary. Decision makers looked on the perceived stress as a fact of life and made it part of the budgetary routine. The second reason is that if the cuts were not substantial, budget reductions are likely to be made in discretionary spending areas which avoid conflict between departments. The third reason is that Central Government usually informs local authorities about how much each authority will get as block grant by the end of December. So, decisions have to be made quickly and this places a limit on local authority decision-makers' ability to involve others. It has to be done in that way in order to make the final decision about the rate tax and the whole budget in February/April.

Boyne *et al* (2000) tried to develop the theory and evidence on incrementalism in four ways. First, they interpreted the concept of incrementalism as 'adherence to public norms. Secondly, they tested two specific decision rules that may be used to operationalize a budgetary norm: "marginality", or the size of annual deviations from expenditure norms; and "regularity", which concerns the consistency of such deviations over time. Thirdly, they examined the impact of 'environmental shocks' on the extent of incrementalism in local expenditure decisions. Finally, they examined the annual budgetary decisions of 403 councils over a period of 16 years.

They stated that previous empirical analyses of incrementalism in the budgetary output of English local authorities are deficient in several ways. These include a failure to make explicit assumptions about budgetary norms, an absence of formal statistical tests, a focus on nominal rather real spending, and an examination of historically determined level of spending rather than contemporary spending changes.

To test their theory, they selected different variables and used regression analysis. Few of the statistical results support the hypothesis that local expenditure decisions are dominated by general budgetary norms or specific decision rules. They concluded that their results cast considerable doubt on incrementalism as a theory of local spending decisions.

Dezhbakhsh *et al* (2003) used U.S. budgetary data for 1946 through 1994, including 93 of the agencies in DDW's original sample, to identify cases with a statistically small budgetary change, estimate incremental cycle for these agencies, and examine the political and economic determinants of these cycles. They offered a new method for testing budgetary incrementalism. This method involves three distinct steps. The first step builds on cross-agency variation in budgetary changes to identify statistically cases with a marginal outcome. The second step examines the regularity of such outcomes, using the time-series dimension of the data, to identify incremental cycles and the corresponding incremental/Non-incremental counts. The third, and perhaps the most important steps step is explanatory as it involves testing hypotheses about how various political and economic variables affect the extent of budgetary incrementalism. This step involves a Poisson regression of the constructed series of Non-incremental counts on various political and economic variables. They apply this method to a sample of government agencies to explain when incremental legislative outcomes happen and what factors contribute to a deviation from an incremental path. They stated that their method is different from those used in other DDW-based studies in two ways. First, their statistical analysis is more expensive and

rigorous, leading to identification of specific agencies with incremental budgets. Second, their paper has a significant explanatory component. It examines political and economic variables that contribute to incremental decision making. Their results strongly suggest that the number of incremental outcomes in budget outlay is affected by various economic and political factors. The estimates, as they stated, of the resulting relationship over time are economically meaningful, politically interesting, and robust to their definitional and statistical choices. They suggested that the last squares regression used previously to examine incrementalism in the budgetary process are inappropriate and their results may be suspect due, among other things, to non-stationary of U.S. budgetary data.

6 Empirical Analysis

6.1 The Magnitude of Change Model

The incrementalist approach to planning is concerned with change at the margin. Decision makers and organizations often lack factual and causal information that could facilitate calculation of the effectiveness of existing expenditure and the need for future spending. Budgeting therefore tends to be incremental in the sense that only small changes are made to existing programs. The budget consists largely of a repetition of the budget which preceded it a year earlier. The budgetary process mainly comprises the standard operating procedure of adding a marginal increase or decrease to the preceding year's allocation (Sharpe 1984). Wildavsky (1979) sees the process to be clearly incremental. Officers and members of federal government need to simplify and satisfice, and depend on feedback to cope with the budget. Wildavsky argues that not only are a limited number of alternatives considered, but they involve relatively small adjustments from an existing base. Wildavsky draws on data from Fenno (1973) which depict the annual percentage modifications in the obligational authority granted by the US House Appropriations Committee. The table below shows the results for 37 domestic agencies over a 12-year period. Almost exactly one-third of these cases (149 out of 444), fall within 5 percent range. A little more than half of the cases (233) are in the 10 percent bracket. Just under three-quarters of the cases (326) occur within 30 percent. Less than 10 percent (31) are in the extreme range of 50 percent or more.

Table 3: Incremental Change

Details	0-5%	6-10%	11-20%	21-30%	31-40%	41-50%	51-100%	101% +
Number of cases	149	84	93	51	21	15	24	7

Bailey and O'Connor (1975) present a mini review of the literature on incrementalism. They include a review of the research by Dahl and Lindblom (1953), Wildavsky (1964), Fenno (1966), Sharkansky (1969) and Dye (1972). Baily and O'Connor complain that all previous research is deficient in that an appropriate criterion to distinguish between incremental and non-incremental has not been established. They use the following criteria for defining incremental, intermediate and non-incremental change:
0-10 percent considers as an incremental change.
11-30 percent considers as intermediate change.
+31 percent considers as non-incremental change.

Using the Bailey and O'Connor criteria, anything up to a 10 percent increase would be regarded as definitely incremental and anything over 30 percent would be regarded as non-incremental. The analysis of thirty eight changes shows that the lowest change is -20.2 percent and the highest is 231.7 percent. 81.58 percent of the changes are within incremental and Decremental range of 30 percent changes.

Table 4: Magnitude Change Model

Change	Ratio	Number
Decremental Changes within 30%	28.95	11
Between 1% to 10%	44.74	17
Between 11% to 20%	2.63	1
Between 21% to 30%	5.26	2
Over 30%	18.42	7
Total	100%	38

6.2 The Stability Model

Incrementalism has been defined conceptually as the degree of stability in the patterns of budgetary outputs over time. Provided that the underlying incremental pattern can be specified, the incremental nature of a budgetary system can be assessed by evaluating the adherence of its budgetary output over time to that pattern. If the patterns of budgetary outputs are perfectly compatible with the specified incremental pattern, it can be said to be perfectly stable. As the number and magnitude of deviations from this established pattern increase, the degree to which that budgetary system exhibits incremental patterns of output decreases. This model focuses on the absolute allocation level rather than on the configuration of longitudinal change or on any decision rule underlying process. It is thus a marginal alteration of the total model and can be estimated by means of linear regression (Danziger 1978):

$$Y_t = a + bY_{t-1} + e$$

Where Y represent budgetary output at time t; a represent an intercept term; is some fixed percentage of the base Y_{t-1} *; and e represent the random error for time t.*

In a perfectly incremental process, all observations would fall on the regression line, meaning that all observations would be perfectly compatible with the mean pattern of output. To assess whether the budgetary process is incremental we use the statistical fit of the data to the regression line i.e. the R^2 value. A low R^2 value indicates a low degree of stability for budgetary outputs. On the other hand, a high R^2 indicates a high level of output stability.
SPSS Software has been used to analyze the data. The analysis reveals the following results:

Table 5: Stability Model

Indicator	Value
R^2	0.886
T-test	16.75
Significant	000
F-test	285.59
Significant	000
Correlation	0.941

6.3 Budget Revenue Model

Under this model the decision makers consider the last year's revenues as an important factor in determining the spending volume and the surprise for this year. In this case the budget does emphasize the ascendancy of the revenue in budgeting calculations. Decision makers are constrained by actual limitations on revenue raising powers. Regression analysis has been conducted as follows:

$$Y_t = a + bR_{t-1} + e$$

Where:

Y_t *is the budget level for this year and a represent the intercept term..*

R_{t-1} *is the revenue amount for the last year and e represent the random error for time t*

SPSS Software has been used to analyze the data. The analysis reveals the following results:

Table 6: Revenue Model

Indicator	Value
R^2	0.911
T-test	19.15
Significant	000
F-test	366.85
Significant	000
Correlation	0.954

7 Conclusion

The central concern of this research has been to test the validity of three incremental models on United Arab Emirates budgeting. The magnitude of change model shows that most changes fall within incremental threshold $\pm$ 30%. Surprisingly, 11% of the changes were decremental changes and 7% fall within non-incremental changes, which reflect the effect of the environmental forces on budgeting. The stability model used here is to measure the stability and consistency of the allocation over the years of the study. The criterion here is the R^2 which measure the impact of last year's budget on this year's budget allocation. The R^2 was 0.886 which shows the budget allocations have higher level of stability. In other words, decision makers are relying on previous year budget estimates to make their decision

for this year. The R^2 figure indicates that there are other factors that have an impact on the budget allocation decision. The budget revenue model assumes that decision makers consider the last year's revenue as an important factor for determining this year budget. Again R^2 is 0.911 which reflect the importance of this factor in making the budget decision and leave a room for the other factors that affect this decision.

Moreover, there are environmental forces that influence the budgetary outcomes. First, various environmental factors such as inflation and industrialization translate into inputs to the budgetary process. Second, there are internal factors such as increase in the demands for services and change in the priorities which are likely to have significant impact on the budgetary process, and therefore appropriation outcomes. Finally, the budget outcomes are also influenced by the previous year's decision making, which is the basic logic of incrementalism.

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