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STEVEN A. SHULL

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Interrelated Concepts in Policy Research

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THE RESEARCH FRAMEWORK

The implementation of public policy in the American system of government has long been a function of the bureaucratic agencies of the executive branch. The increased complexity of governmental decision-making has led to demands by executive and legislative institutions for expertise from those elements in government that possess the most technical knowledge–the bureaucracy. The delegation of considerable authority to bureaucratic officials has increased their discretionary power and has made agencies the center of the policy arena (Rourke, 1969: 55). Recently, there has been a heightened sensitivity that the bureaucracy makes, as well as carries out, policy decisions (Fritschler, 1969). Indeed, executive branch agencies may be one of the main sources of policy initiatives in the federal government (Long, 1968: 19).

Although governmental decisions are made within executive agencies to a considerable extent, little of the activity that occurs is visible to most of the elements of society, including the legislature, and even the rest of the executive branch. As part of the "invisible bureaucracy" it is clear that agencies escape public scrutiny and possess a considerable degree of autonomy (Rourke, 1969: 33, 113; Fenno, 1959; 228ff; Neustadt, 1960).

AUTHOR'S NOTE: *I am indebted to my former colleague Grace Franklin and to my present colleagues Ed Clynch and Dave Neubauer for incisive comments on an earlier draft of this paper. Jan Davis went beyond the call of duty in typing the paper with both speed and accuracy. A very special debt is owed to Randall Ripley of Ohio State University, who, as director of the Mershon Center's project "Policymaking in the Executive Branch," provided me with employment, encouragement, and intellectual guidance throughout my graduate studies. I also appreciate Dr. Ripley's permission to utilize here portions of my contribution to his* Policy-Making in the Federal Executive Branch *(1975).*

The existing literature on bureaucratic behavior has not developed the theoretical statements and methodologies required for scientific research and cumulative knowledge. Much of the present literature has been limited to non-systematic case analysis.[1] The systematic quantitative research that has been conducted has focused almost entirely on the nature of agency budgeting. The findings of pervasive incrementalism in the budgetary process have led scholars to conclude that agencies have little opportunity for discretion and initiative in budgeting and, by implication, in other areas of the policy process.

In focusing on the budgeting aspects of agency behavior, these studies have limited themselves, not surprisingly, to measuring agency policy actions in simple dollar amounts (for example, size of appropriations or expenditures),[2] and have largely ignored other measures of policy. While these "budgetary" policy actions are important, one can also consider agency behavior in terms of "functional" policy actions. Functional actions encompass tangible, non-dollar measures of what the agency is doing to implement its programs.

It has long been assumed (perhaps because of the failure to look beyond the relatively accessible dollar measures) that the functioning of agency programs depends entirely on the number of dollars an agency has. What are here defined as functional activities of agencies have been taken for granted or have been assumed to be largely the result of an agency's budgeting experience.[3] But that assumption deserves testing. Although the magnitude of agency functional actions is expected to be related to the dollars available, the underlying assumption here is that expenditures and other measures of budgetary actions do not alone predict functional activities performed by agencies.

This research seeks, first, to understand the factors affecting policy-making, and second, to ascertain the nature (or type) of policies (that is, particular kinds of budgetary and functional actions) that are affected by those factors. The conceptual framework of a major research project on policy-making[4] was utilized to identify factors affecting policy-making. From each of the two concepts of policy determinants—characteristics of internal agency structure and characteristics of external agency environment—a subset of variables was selected: agency maturity as a component of structure, and governmental coalitions as a component of environment.

Both maturity and coalitions are expected to provide constraints on agency policy behavior.[5] That some institutional characteristics comprising agency maturity (such as age, turnover of personnel, agency organization) are more rigid for some agencies than for others probably limits the range of policy actions that those agencies can undertake. Coalitions are groups of influential actors that must be reckoned with within the agency's external political environment. The perception of coalition demands or support is

probably a calculation in the agency's decisions regarding its policy actions. Agency policy responses to these determinants consist of budgetary and functional policy actions. Throughout this paper, budgetary policy actions will be used interchangeably with budgetary actions and dollar activities. Terms considered synonomous with functional policy actions include functional actions, implementing activities, and non-dollar actions. These concepts, related literature, and hypotheses are discussed in the following sections.

BUDGETARY POLICY ACTIONS

Perhaps most interesting in a study of policy are the measures of policy itself. Dollars have long been used as measures of agency policy actions because they "map funding of all the activities of the agency," and "represent limits of activity for the agency official; in a sense they define the achievable goals of the agency" (Ripley et al., 1973b: 24). Whether dollars are as restrictive to programs as this view would suggest has been questioned elsewhere (Shull, 1975a). Nevertheless, budgetary questions are intrinsically interesting in their own right and are an important policy concept of this study. Budgetary actions are considered first, as dependent variables affected by maturity and coalitions, and second, as independent variables affecting subsequent (functional) agency activity.

The indicators of budgetary actions used in this study were the percent change in appropriations (from the previous year), the percent change in expenditures (from the previous year), budget success (appropriations as a percent of the amount requested by the agency from congress), and agency expenditures as a percent of the total federal budget.[6] Although expenditures are considered a budgetary variable, it is argued here that expenditures differ from appropriations in that they are less subject to coalition pressures than are appropriations (Wildavsky, 1964: 123-125). Expenditures also occur at a later and less visible stage of the policy process than do appropriations.

Presumably the agency has greater control over expenditures than appropriations–although one could argue that agency involvement in the appropriations process differs considerably as some agencies take far more initiative than others (see Sharkansky, 1969, on agency assertiveness). In addition to less coalition interference and more secrecy, agencies are able to influence the timing of expenditures to a greater extent than is possible with appropriations. Expenditures are often spread out over several years, and the fact that these patterns are irregular across agencies, and even for any one agency, suggests some flexibility. It is also assumed here that the internal distribution of funds to differing functional actions can be manipulated to a considerable extent by the agency. These characteristics of greater agency control (or discretion) over expenditures than appropriations makes the expenditures vari-

able similar to functional actions (see Weidenbaum and Larkins, 1972: ch. 5, for a more involved discussion of agency expenditures).

It is anticipated that budgetary actions will be more susceptible to environmental influences than to any structural attributes the agency may possess, because budgetary actions involve numerous actors outside the agency (that is, factors of the external environment). In addition, it is expected that presidential and congressional coalitions would have a greater impact on dollar actions than on implementing actions, which are presumably further removed from coalition influences.[7]

FUNCTIONAL POLICY ACTIONS

Functional actions are agency policy activities that occur subsequent to the budget process. These actions are literally the activities the agency pursues as it implements programs. Because the activities are so disparate, and because this is an entirely uncharted area of policy research, three general classes of functional actions were developed to guide data collection and analysis—acquisition of physical resources, delivery of benefits, and target beneficiaries served.

In selecting the three broad categories of functional policy actions it was assumed a priori that differences in agency activities could be discerned according to function. Agencies were expected to emphasize certain kinds of activities in lieu of others, depending upon their perception of their role (such as "goods," "knowledge," or "service" producer). For example, "empire-builders" (and probably also young, less established agencies) might be inclined to acquire physical resources; "program-oriented" agencies to concentrate on performing activities; and "constituent-oriented" agencies to seek beneficiaries to serve. While agencies will probably also differ in these activties according to their statutory mission, such a consideration has not been included here. The concern in this exploratory research was less in defining and categorizing agencies than it was in making certain that at least three different types of basic functions, conducted in varying degrees by all agencies, could be identified. Agencies could be categorized according to type or mission in furure research in an effort to further understand their functional policy actions.

In order to develop the three types of functional policy actions more fully, two different dimensions to each activity were sought. While this increased the work of data collection, it also made it more likely that an indicator could be found for each type of activity. In addition, it allowed more specificity into the nature of functional actions than selecting only one activity would have permitted. The following discussion will define each of the three broad categories, state the two dimensions of each category sought, and give several examples of indicators used to measure them.

The acquisition of physical resources encompasses activities that expand or maintain an agency's physical resource base. Physical resources include such things as specialized equipment, land, raw materials, and field units. Specific examples include the number and square feet of buildings owned, number of offices or bases, and number of aircraft towers licensed. Two measures of physical resources were selected for use—the number of field installations an agency possessed and beneficial facilities of the agency.

Delivery of benefits is used in a broad sense to mean performance of services by the agency, where services are defined by the agency's mission. Two measures of service performance were used, activities performed and number of field personnel used by the agency in performing its services. Number of loans dispersed, number of field employees, and amount of hydroelectric power generated are examples of ways in which agencies deliver benefits.

Target beneficiaries are the recipients of agency activities, and are comprised of two groups. Primary beneficiaries are groups currently receiving some agency service, while potential beneficiaries are populations who could receive services at some future time. Examples of beneficiaries include number of hospital patients, certificates or patents received, and public attendance at agency projects. Although beneficiaries no doubt will be used in the study of policy results in future research, the use of beneficiaries as a measure of functional policy actions is not out of order here. One of an agency's principal activities is the cultivation of clientele groups, whose support is useful as the agency seeks to promote itself and its programs throughout the bureaucracy. While primary beneficiaries may be the more immediate barometer of agency clientele, potential beneficiaries are expected to indicate the prospects of the agency to attract beneficiaries in the future.

The specific indicators used for each of the measures of functional actions are presented in Table 7. A cursory look suggests that functional actions present a major data collection problem.[8] The existence of data on non-dollar measures of agency activities is limited, and there is no general source for such information. It is left to the individual agencies to publish information about their activities, and the agencies' reports vary widely in both amount and quality of data reported. The current state of non-dollar data for policy actions leaves one with no choice but to use differing indicators to measure the same functional action. Sometimes the indicators fit the concept very well; other times an indicator may be only tangentially related, and frequantly there may be no data at all. While the validity of this approach may be challenged, the exploratory nature of the study and the state of the data allowed no choice.

One might argue that using a different indicator for each agency makes comparability impossible and limits the researcher to doing a series of case studies. That position is not accepted here. While individual differences among the agencies will be considered, the principal focus is on developing general patterns of agency activity. Two standardized measures of functional action variables were used for this purpose—a growth index and a percent change measure.

The growth index measures change in the raw variable value against a base year of 1.0. The growth index reflects a true standardization in that each agency starts from the same level (1.0) and thus comparison among agencies is facilitated. This measure also illustrates the actual yearly (or cumulative) increments undistorted by large variations in percent change values. In this way the growth measure is more similar to the raw data but has the advantage of being in standardized form. The percent change measure looks at change from the value of the previous year and is more reflective of *annual* changes in variable values than the growth measure.

AGENCY MATURITY

Agency maturity has been shown to be an elusive concept that has several dimensions (see Ripley and Franklin, 1975). The concept is viewed here as the level of physical development an agency possesses in order to be able to perform its tasks (or functions). Characteristics of agency maturity used in this study are number of years since the agency was created (age), number of civilian employees (size), and percentage of supervisory personnel (hierarchy). No attempt was made to construct a formal index of maturity. These indicators were selected because it was believed they measured different aspects of a single concept. For example, age refers to chronological development, while size and hierarchy refer more to structural components of the agency. While both of these aspects are "physical," there also appears to be a "behavioral" dimension to agency maturity (see Ripley and Franklin, 1975).

Agencies that are older, larger, and more hierarchical are considered here to be more mature. There is some evidence that agencies grow larger as they get older (Downs, 1967; Simon, 1953). It is also assumed that older (and larger) agencies will have a greater percentage of supervisory personnel. Downs surmised that these more mature agencies are more conservative and are less willing to change or to request large increases in program funding (1967: 20). In addition, Ripley et al. determined that less mature agencies have greater change in policy actions (1973b: 18). Thus it is hypothesized that:[9]

Hypothesis 1.1—The less mature the agency, the greater the budgetary policy actions.

Hypothesis 1.2–The less mature the agency, the greater the functional policy actions.

Older, larger agencies that have a greater proportion of supervisory personnel will tend to have less change in appropriations and expenditures (that is, more budgetary stability). It is also anticipated that more mature agencies will have lower levels of functional policy actions.

An agency must develop its physical capacity before it can carry out further tasks. In order to develop this capacity, less mature agencies make greater demands of congress and the president, who may feel that less mature agencies deserve the chance to get their programs off the ground and are supportive of these demands. While less mature agencies stand the hope of greater development of their structural characteristics, such agencies may also be more vulnerable to dramatic shrinkage than more mature (and perhaps also more stable) agencies. More mature agencies may be more stable only up to a point of organizational "senility" where their physical capacities begin to diminish (Ripley and Franklin, 1975).

While some institutional characteristics are rigid (such as age) and limit the range of agency policy actions, others may be quite manipulable by agencies. It is expected that both size and hierarchy may be changed, and if either has implications for functional actions, then we would expect this finding to be useful to decision-makers in planning their program decisions.

GOVERNMENTAL COALITIONS

Hinckley defines coalitions as "the joint use of resources to determine the outcome of a decision in a mixed motive situation" (1972: 197). Although this definition is useful, perhaps more germane to the present enterprise is Ripley's conception of coalitions, which refers to "clusters of supporters and/or opponents (both governmental and non-governmental) of specific programs administered by and decisions made by agencies" (Ripley et al., 1973b: 13).

The limited theoretical and empirical literature on the subject of coalition behavior and agency policy suggests that highly visible coalitions and highly charged political situations are associated with increasing policy actions (Ripley et al., 1973a, 1973b: 19; Sundquist, 1968; Kessel, 1968). Both the level of coalition visibility and the level of partisanship are encompassed by the indicators of the two types of coalition behavior studied here–supportive coalition behavior and non-supportive coalition behavior. The president and congress constitute the coalition activity surrounding the agency's budgetary and functional policy actions. (A summary of the indicators for the coalitions and maturity variables is presented in Appendix A.)

Governmental Support

Governmental support refers to levels of positive attention and affect toward the agency as expressed in public arenas by presidents and congressmen. Support by both types of actors was measured in terms of percentages of support for agency or program related roll-calls. An additional (independent) measure of presidential support was generated from public statements made by the president. (Although the hypotheses refer to governmental support generally, it may be that the president and congress have very different views of agencies, necessitating a separate testing and comparing of the results.)

The federal budget is a major tool for presidential leadership and policy coordination (Polsby, 1964), but the president takes a minimum role in the specifics of budgeting in terms of active personal participation (Sharkansky, 1969). Although the president limits his attention to a few of the most important details (Schick, 1972: 88), he may decide to initiate legislation independent of agencies and play a greater role in the process, as President Lyndon Johnson did on poverty and education programs. Accordingly, when the president does take an active role in support of a particular agency, it seems reasonable to expect that the agency's budget and program prospects will be affected–if it can be assumed that congress respects executive recommendations.[10]

Although presidents approach congressional relations quite differently, legislators have come to accept and expect considerable presidential leadership, even from passive presidents (Ripley, 1969: 34). Congress, in fact, is most effective when it cooperates with the president rather than when it opposes him (Ripley, 1969: 135).[11] Davis and Ripley (1967) found that programs not having executive support tend to receive less congressional support. Accordingly, presidential and congressional agreement in support of an agency would probably be related to budget growth (Rourke, 1969). Thus, it is hypothesized:

Hypothesis 2.1–The greater the governmental support of agencies, the greater the budgetary policy actions.

Hypothesis 2.2–The greater the governmental support of agencies, the greater the functional policy actions.

Governmental Conflict and Partisanship

Governmental conflict and partisanship refer to highly visible and active opposition to an agency or its programs. Indicators for these concepts were measured by vote splitting on agency related roll-calls, overall (for conflict), and between political parties (for partisanship). Closely divided roll-calls

provide visible evidence that efforts at resolution of differences were not successful at earlier stages of the bargaining and decision-making processes in congress, particularly in committees.

The variables included in this concept were limited to conflict and partisanship within congress, as indicators for presidential conflict and partisanship were not available. It is expected that this concept will be inversely related to the governmental support concept: when governmental support (particularly congressional) is high, it is anticipated that conflict and partisanship will be low.[12] Although conflict may temporarily increase the appropriations of a particular agency, it seems likely that a sustained high level of conflict in congress will eventually have an adverse effect on the agency's budget prospects (Fenno, 1966).

One might expect that a high degree of partisanship would also negatively affect an agency's budget experience. Sharkansky argues, however, that partisanship may increase the budget growth of agencies, especially for those that are innovative (1970b: 61). Sharkansky found partisanship to be the single most important factor leading to deviations in budget routines (1970b: 53).

Conflict and partisanship are not identical and LeLoup hypothesized that "conflict may occur without partisanship, but partisanship is unlikely to occur without conflict" (1973: 21). Nevertheless, the two concepts may covary, and because of perceived association between congressional conflict and congressional partisanship, they have been linked to hypothesize that:

Hypothesis 3.1–The greater the governmental conflict and partisanship concerning agencies, the less the budgetary policy actions.

Hypothesis 3.2–The greater the governmental conflict and partisanship concerning agencies, the less the functional policy actions.

As with governmental support, it was expected that conflict and partisanship would be associated more with budgetary than functional policy actions, and thus it is expected that a greater relationship will exist among the variables in the first hypothesis than the second.

INTERRELATIONSHIP OF POLICY CONCEPTS

Although Sharkansky (1970a: 129) contends that increases in spending may not improve levels of service, it is expected that expenditures and other budgetary actions will be related directly to functional actions.

Hypothesis 4–The greater the budgetary policy actions the greater the functional policy actions.

While the relationship between these two concepts is expected to be strong, it is questionable whether dollars (appropriations and expenditures) can be translated directly into agency activities and programs. Are agency programs completely dominated by changes in funding available? Or do other factors (such as maturity and coalitions) play some role in the implementing activities of agencies? These questions are crucial to this study.

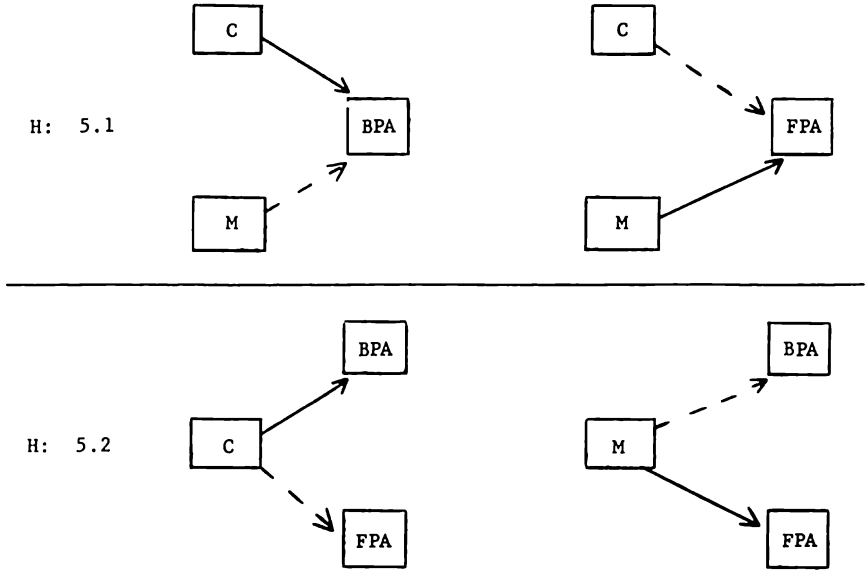
The multivariate hypotheses which follow are drawn from the preceding discussion and summarize the anticipated relationships among the concepts (maturity, coalitions, budgetary actions, and functional actions) used in this study. The following hypotheses assume that it is possible to combine earlier variables into concepts and then to see whether the relative impact of the concepts on one another can be ascertained.

Hypothesis 5.1–Coalition variables tend to be more highly related to budgetary actions than are maturity variables, while maturity variables tend to be more highly related to functional actions than are coalition variables.

Hypothesis 5.5–Coalition variables tend to be more highly related to budgetary actions than to functional actions, while maturity variables tend to be more highly related to functional actions than to budgetary actions.

Such an exercise should allow a greater level of abstraction and provide more generalized statements about political phenomenon than is the case when one can talk only about associations among indicators and variables. The hypothesized relationships are portrayed diagramatically in Figure 1.

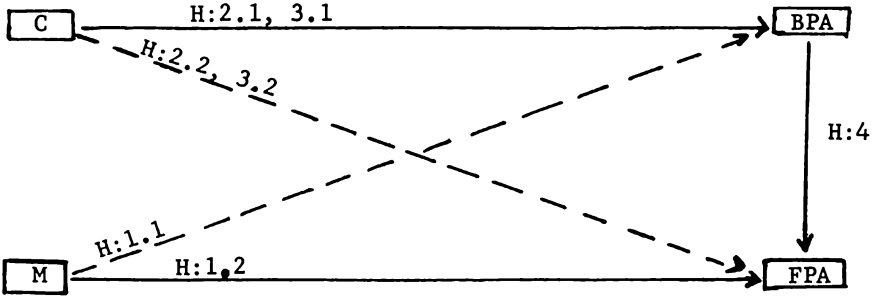
Hypothesis 5.1 is concerned with the relationships among the concepts when the independent variables are compared simultaneously to a single dependent variable. Hypothesis 5.2 is concerned with the relationship when a single independent variable is related to the dependent variables simultaneously. Hypothesis 5.1 compares the relative impact of structural and environmental concepts (maturity and coalitions) as they relate first to budgetary policy actions and then to functional policy actions. Hypothesis 5.2 evaluates which type of policy response concept, budgetary or functional policy actions, is more influenced by maturity and by coalitions. While these hypotheses are similar, the findings for each could easily differ. For example, while coalitions may be more important than maturity variables in explaining budgetary actions, coalition variables might have even greater explanatory power with functional actions even though their impact relative to maturity variables may be diminished. Figure 2 illustrates all of the hypothesized relationships of this study.



Key: C = Coalition variables
M = Maturity variables
BPA = Budgetary Policy Actions
FPA = Functional Policy Actions

Solid lines indicate relationships that are expected to be stronger than those connected by dashed lines. Hypothesis numbers are indicated.

Figure 1: Hypothesized Multivariate Relationships



Key: C = Coalition variables
M = Maturity variables
BPA = Budgetary Policy Actions
FPA = Functional Policy Actions

Solid lines refer to relationships that are expected to be stronger than those connected by dashed lines. Hypothesis numbers are indicated.

Figure 2: Hypothesized Bivariate Relationships

METHODOLOGY

Only brief operationalization of the concepts used in this research is presented in the text and Appendix A. (A much more detailed explication of indicators and variables may be seen Shull, 1974.) The main emphasis of this section is a discussion of the methodological questions encountered in the study, including units and levels of analysis, data analysis techniques, time lags, and criteria for confirmation of hypotheses.

Units of Analysis and Levels of Aggregation

This research involves an examination of the policy actions of eight agencies of the federal government in fiscal years 1960 through 1971. The agencies studied are the following: Veterans Administration (VA), Army Corps of Engineers (ACE), Commodity Credit Corporation (CCC), Atomic Energy Commission (AEC), National Aeronautics and Space Administration (NASA), Agency for International Development (AID), Office of Education (OE), and Federal Aviation Administration (FAA). The agencies include both regular executive branch agencies (ACE, AID, CCC,[13] FAA, OE) and independent agencies (AEC, VA, NASA). This distinction of agency type is one way of including agencies that have been statutorily granted different structures and missions. No claim is made that the agencies included were selected through any randomized process; they were agencies which seemed to exhibit at least some differences on the governmental coalition and agency maturity variables of this study. Although the agency is the unit of analysis,[14] the research is conducted on different levels in order to detect any differences in agency responses. The data are analyzed for agencies separately and for all agencies aggregated.[15]

Data Analysis Techniques

The data will be presented and hypotheses tested in several ways in this study, ranging from comparison of agencies on a single variable to multivariate analysis.[16] In terms of univariate analysis, histograms, tables, and graphs showing range and mean values will be used. These descriptive statistics are given for each agency separately to facilitate comparison. Comparison of agencies on a single variable allows the researcher to detect patterns of change among agencies as well as between variables. Thus the use of single variable analysis can be a useful adjunct to hypothesis testing. One should be aware, however, that when mean and range values are used (as in Figures 3 and 4) they can be masking a greater amount of variance that is occurring year to year.

The bivariate analysis utilized simple product-moment correlation coefficients which were computed at both levels of aggregation. When agencies are aggregated, the number of data points is at its maximum, and thus confidence in the correlation coefficients should be high. However, the disadvantage of this approach is that a low correlation may mask considerable variation within agencies. To detect differences among agencies, bivariate correlation coefficients were also computed for each agency separately. While confidence in analysis based on such a small number of data points (10 or 11 depending on the agency) must be limited, propositions can be tentatively tested by the direction and magnitude of the correlation values.

Multiple regression[17] was used to examine the relative importance of each variable cluster when the others are held constant. Because the degree of freedom limitation is further aggravated by the introduction of a greater number of explanatory variables, regressions were computed only for agencies combined. The results of regression analysis will appear in two forms: standardized beta coefficients and the variance explained in a dependent variable by each particular combination of independent variables.[18] Standardized betas control for the effects of other standardized independent variables in a particular regression "model," and suggest the relative contributions of different variables to the total explained variance (R^2). Thus, standardized betas have similar properties to partial correlation coefficients.

Time Lags

It is recognized that the time elapsed between the initial appropriations decisions and agency program decisions is substantial. Presidential and congressional affect towards agencies is probably most visible during the budgetary process. Any impact that these feelings would have on subsequent program activities of agencies, however, would obviously take time. Consequently, a dynamic element is incorporated into the variables being analyzed.

It was estimated that presidential and congressional activity surrounding the agency's budget occur approximately one year prior to agency receipt of appropriations, and thus, coalition activities were lagged one year ahead of budgetary actions. Although expenditures occur at a later stage in the budget process, and although they include sources other than regular appropriations, examination of the data indicated that change in appropriations and expenditures could be compared in the same fiscal year. Very little difference occurred in their correlations whether they were lagged or not.[19] In addition, a data point is retained when they are treated in the same year, an important consideration since the number of years in the time frame is small.

While budgetary actions are analyzed in the same year, it seemed likely that they would occur prior to agency program implementation. That is, agencies need to have some idea of the magnitude of their funds before they

can begin to engage in functional actions. Structural variables were not lagged in this analysis, partly because there is relatively little change in their values from year to year, and also because it was felt that there was no theoretical reason why they should be.

It seemed likely that some types of agency activities occur at a later stage than others. The acquisition of physical resources was assumed to occur later (lagged one year) than delivery of benefits or beneficiaries served, which were determined here to occur in the same fiscal year as maturity variables. Accordingly, the temporal sequence decide upon covers a two-year period and was as follows:

Year t_{-1}	Year t_0	Year t_{+1}
Coalitions	Maturity Budgetary Action Functional Actions (other than physical resources)	Functional Actions (physical resources)

Several time lags were experimented with, and while the differences resulting from using different time periods were usually minimal, there was greater concern that those lags selected could be justified on theoretical grounds even if their empirical relationship was not as high as some other choice. Greater experimentation with time lags was limited by the fact that functional action data were often available for only a few years. Utilization of different time sequences may be considered when the data base is expanded to include more years. An issue related to proper time sequence is the question of differing basis of yearly measurement. While some of the data were available by calendar years only, it has all been converted to fiscal years (July 1-June 30) in this analysis.

Criteria for Confirmation of Hypotheses

Correlation and regression analysis were used to test the research hypotheses. In terms of magnitude of correlation values, the arbitrary cutting point of ±.20 was selected as the "significant" value. A correlation value equal to or greater than ±.20 tends to confirm the hypothesis (assuming the coefficient is in the predicted direction), while a correlation value less than .20 suggests no relation exists. It should be emphasized that the value of ±.20 is an arbitrary level for which no special importance is claimed. It is not intended to imply statistical significance. Some will no doubt feel that the criterion of ±.20 is too low to give one much confidence in the results. The criticism may be particularly germane in the instances where agencies have been looked at individually, and thus the number of observations is limited. Nevertheless,

the preliminary nature of this research effort, the severe data collection problems, and the general dearth of theoretical development in this area has suggested that it may make more sense to experiment with a broad number of relationships to see which might hold the greatest future potential than to satisfy methodological purists. Coefficients in the hypothesized direction and magnitude of ±.20 may be as much as can be expected when research is in such embryonic stages.

Individual agency correlations can be compared to this standard by listing the number of agencies that tend to confirm, disconfirm, or have no relationship to the hypotheses. These latter two categories were included because the correlation tables themselves for agencies disaggregated were omitted for reasons of parsimony. Such summary information (see Tables 3-5) allows one to discern how well the hypothesized relationships and confirmation criteria are being met for all eight agencies. It is only the "confirmed" category, of course, that actually leads to acceptance of a hypothesis.

The results of regression analysis will be indirectly related to the hypothesis testing, but should help ascertain which group of independent variables are more closely related to, and explain most of the variance in, the dependent variables being analyzed. Thus, regression analysis should be more useful in testing the multivariate (concept level) hypotheses.

RELEVANCE

A number of policy implications might be derived from this research. This study aspires to assist policy-makers in reducing uncertainty and clarifying risks involved in selecting one policy alternative over another. More specifically, hopefully this research will portray the differing nature of budgetary and functional actions, illustrating the relative salience of particular structural or environmental forces. In this way, decision-makers might be able to ascertain which variables are manipulable by them, thereby increasing their action latitude.[20]

The hypotheses suggest that the structural variables will be more easily manipulated by the agencies than environmental variables and that this is the case more for functional than budgetary decisions. Agencies may plead an inability to influence events in the budgetary process, and while this plea may be exaggerated, it is contended here that agencies will have considerably more flexibility in decisions subsequent to budgeting. By monitoring these differing emphases of agency activity, it is expected that patterns will emerge by which less "successful" agencies can see what agency program focus or orientation tends to characterize more successful agencies. Although such an assessment is clearly post-hoc, it is hoped that the research will have at least minimum predictive and/or forecasting utility. At the present state of the art there is little more that one can ask or expect.

While questions or manipulability are obviously important in policy research, perhaps the most significant aspects of this study are the multiple hypotheses (5.1 and 5.2), where the emphasis is upon broader *concepts* rather than the more narrow variable (and even indicator) level of research. It seems crucial that if political scientists are to talk intelligently about concepts in the field, then we must begin to ascertain if and how they can be measured and how they interact with one another to produce public policy. While the present effort is admittedly a rough foray into some possibilities, the research does at least begin to address this problem.

MATURITY, COALITIONS, AND BUDGETARY POLICY ACTIONS

This section examines the effect of agency maturity and governmental coalitions on budgetary policy actions. In this study, budgetary policy actions are treated as an intermediate step, rather than the end result of policy-making. Because these monetary resources are believed to be important to understanding subsequent agency activities, the relative importance of maturity and coalitions on budgetary policy actions should help make the link between budgetary policy actions and functional policy actions more intelligible.

A DESCRIPTIVE LOOK AT BUDGETARY POLICY ACTIONS

Prior to examining the influence of the independent variables, the budgetary measures themselves were examined over time. The raw data values of appropriations and expenditures revealed considerable differences across the agencies. These figures have not been incorporated here (see Shull 1974 for a discussion) because of space constraints and because it was felt that standardized measures would provide greater comparability.

Figures 3 and 4 present the standardized values (percent change) of appropriations and expenditures for each agency. The patterns of greatest and least change are similar for both variables. CCC, FAA, NASA, and OE showed instances of greatest percent change in expenditures, while the same agencies plus AID showed greatest change in appropriations. The *average* percent change in appropriations exceed ±10% (an arbitrary cutting point) for two agencies (OE and NASA), while the average percent change in expenditures exceeded ±10% for four agencies (OE, NASA, FAA, and CCC). The figures make it clear that every agency (except the AEC) experienced non-incremental change (that is, greater than ±10%) in appropriations and expenditures at least once between 1960 and 1971. The fact that the number of agencies with an average percent change in expenditures greater than ±10% was greater

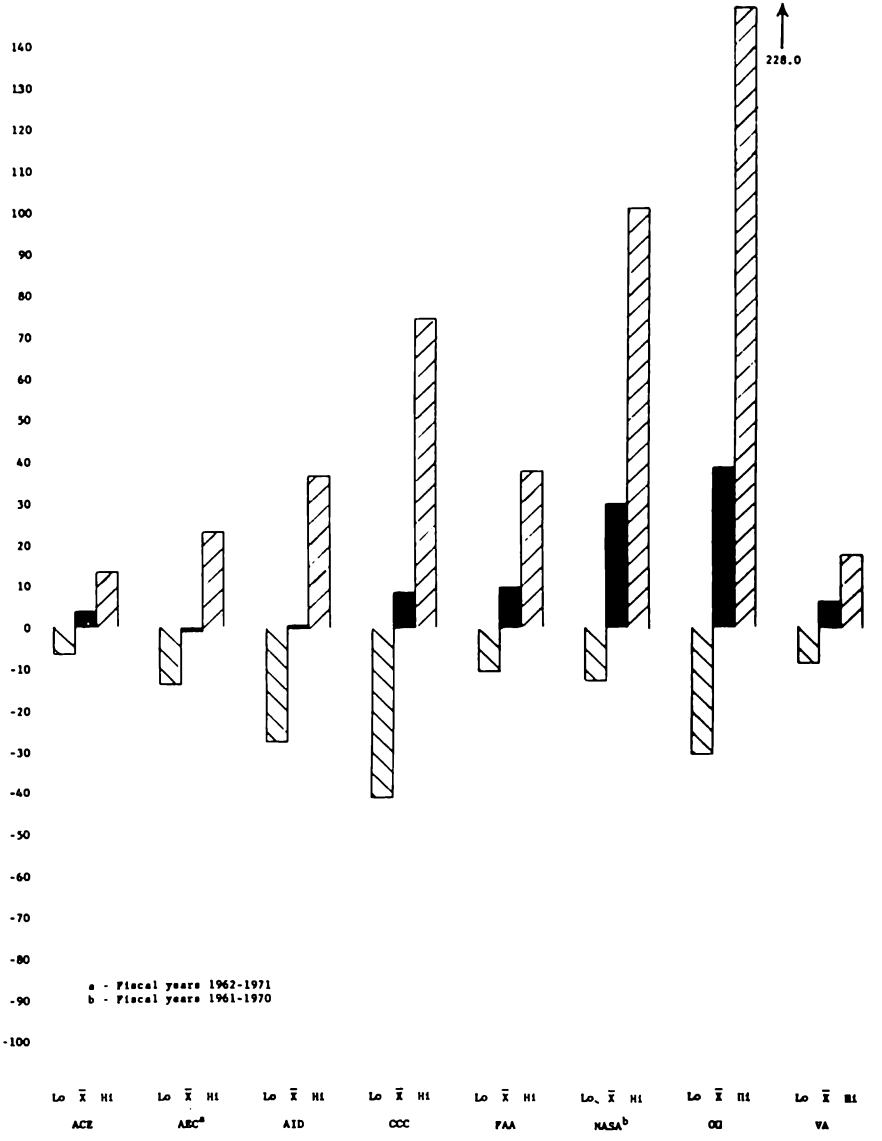


Figure 3: Least, Greatest and Mean Percent Change in Appropriations for Each Agency (1960-1971)

61 448

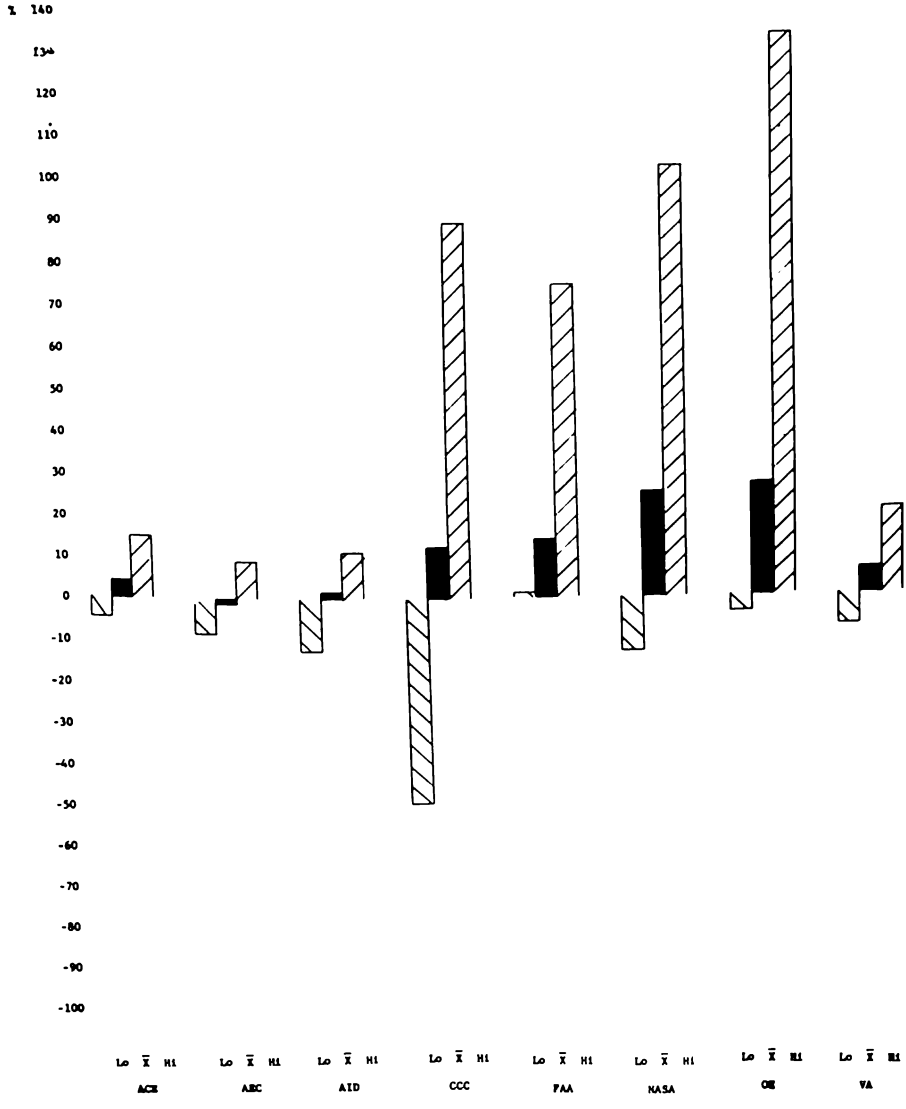


Figure 4: Least, Greatest, and Mean Percent Change in Expenditures for Each Agency (1960-1971)

TABLE 1
Number of Times Agencies Experienced Non-Incremental Change in Appropriations and Expenditures* (1960-1971)

Agency	Percent Change in: Appropriations	Expenditures	(N)
OE	10	8	11
CCC	9	8	11
AID	9	3	11
NASA	5	7	10
AEC	4	0	10
FAA	4	3	11
VA	3	3	11
ACE	2	2	11
Totals	46	34	86

*Non-incremental means percent change equal to or greater than ±10%.

than the number of agencies experiencing non-incremental change in appropriations might be indicative that agency administrators feel less bound by an incrementalist perspective as they spend funds than congressmen do as they make appropriations.

Table 1 offers some evidence contrary to this speculation, however. The total number of times each agency experienced a non-incremental change in appropriations and expenditures is summarized in the table for the period 1960-1971. Individually, some agencies experienced non-incremental change in both variables (OE, CCC) and some agencies experienced primarily incremental change in both variables (FAA, VA, ACE) while there is no clear relationship between the variables for the remaining agencies (NASA, AID, AEC). Overall, the number of non-incremental cases for appropriations is greater (53.5%) than it is for expenditures (35.9%). This may suggest that agencies are more cautious or at least have some flexibility in the timing of expenditures (see Ripley and Franklin, 1975, for more extensive examinations of incrementalism).

BIVARIATE ANALYSIS OF BUDGETARY ACTIONS

The following sections relate maturity and coalitions with these budgetary action variables through correlation and regression analysis. The correlation values for agencies separately were felt to be too combersome to be included in the text, but appear in Shull (1974) for the interested reader. A brief discussion of the relationships for agencies separately is included here, however, along with summary tables of the number of agencies tending to confirm or disconfirm the relationships (see also Appendix C, Table C-2).

Agency Maturity

The indicators for the maturity variables of the study were not highly correlated and do not provide a useful summary of the concept of maturity when considered together. As a result, the finding of Ripley et al. (1973b: 41) that less mature agencies tend to have greater policy actions depends upon the indicator of maturity to which one is referring. Accordingly, hypothesis 1.1, which stated that the less mature the agency the greater the budgetary policy actions, needs to be broken down into its component variables in order to be tested. Thus, analysis using maturity as a broader concept is limited here.

There were pervasive relationships between size and raw values of appropriations (r=.57) and expenditures (r=.66). It may be seen in Table 2, however, that the correlations between size and standardized measures of appropriations and expenditures for agencies combined were of very small magnitude (although in the predicted direction). The individual agency correlations revealed little additional information. There was a slight tendency to support the hypothesis for appropriations, but no discernible pattern for expenditures. Table 3 illustrates (based upon the individual agency correlations presented in Shull, 1974) the number of agencies that tend to confirm the hypothesis for each maturity variable.

There is support for the findings of Ripley et al. (1973b: 30, 40) that hierarchy is negatively related to policy actions, but the coefficients for agencies combined are low (see Table 2). The individual agency correlations also lend support to this finding (see Table 3). One has greater confidence in hierarchy than size since there are more agencies fitting the expected relationship than agencies not fitting it.

Age was not in the predicted direction for agencies combined, but the coefficients were of such small magnitude that no relationship can be claimed between age and budgetary actions. Younger agencies have slightly greater propensity for budgetary actions when one looks at the individual agency correlations (see Table 3).

To recapitulate, correlations for agencies combined demonstrated very slight support for the hypothesis that less mature agencies tend to have greater budgetary actions for two of the maturity variables, size and hierarchy, but not for age. Individual agency correlations revealed a somewhat greater association. There was some support for the hypothesis on all relationships except size and expenditures, while hierarchy had the greatest overall explanatory power (see Table 3).

Coalitions

Governmental Support: Hypothesis 2.1 predicted a positive relationship between governmental support and agency budgetary actions. The presiden-

TABLE 2

Comparison of Maturity and Coalition Variables with Budgetary Actions
(correlations—agencies combined)

	% Δ Appropriations	% Δ Expenditures
MATURITY		
Size	-.08	-.06
Hierarchy	-.10	-.14
Age	.08	.03
COALITIONS		
Governmental Support		
Presidential support score	.49*	.31*
Presidential roll-call support	.14	.07
Congressional support	.05	-.03
Governmental Conflict and Partisanship		
Congressional conflict	-.05	.02
Congressional partisanship	.06	.03

* coefficients achieving the criterion of "significance" (±.20). N = 86

TABLE 3
Number of Agencies Confirming Hypothesis 1.1

Variable	% Δ Appropriations			% Δ Expenditures			Total		
Maturity	C	NR	D	C	NR	D	C	NR	D
Size	2	6	0	2	3	3	4	9	3
Hierarchy	5	2	1	5	1	2	10	3	3
Age	3	4	1	4	2	2	7	6	3

Code: C = confirms; NR = no relationship; D = disconfirms (within ±.20)

Correlations based upon 10-11 data points

tial support (score) is positively related to budgetary actions both for agencies combined (Table 2) and for agencies separately (Table 4). Overall, the presidential support score was the best predictor of agency budgetary actions.

The second measure of presidential support (roll-call support) has far less relationship with appropriations and expenditures with agencies combined, although the coefficients are in the predicted direction (see Table 2). The individual agency correlations (expressed in Table 4) were more conclusive for appropriations than for expenditures.

The congressional support measure was also inconclusive, and this was particularly the case when agencies were combined. As with presidential roll-call support, correlations by agencies separately tended to confirm the hypothesis for appropriations but to have mixed results for expenditures (see Table 4).

While hypothesis 2.1 is primarily concerned with governmental support in presidential rather than congressional terms, the congressional support variable was included for comparison purposes. It is expected that the president and congress view agencies differently,[21] and that the fortunate (and unusual) agency having high scores on both measures would be likely to receive favorable budgetary treatment.

In summary, the findings relating governmental support to budgetary policy actions can be confirmed with confidence only if one relies upon the presidential support score rather than the other two measures of governmental support. Table 4 shows that when agencies are disaggregated, percent change in appropriations, as hypothesized, is related to all three measures of governmental support. However, in terms of the indicators themselves, presidential support score is the only one that holds across both budgetary policy actions. If one is willing to accept that particular indicator of governmental support, then there is a fair amount of evidence to confirm the hypothesis.

Governmental Conflict and Partisanship: Hypothesis 3.1 suggested that congressional conflict and partisanship (contrary to government support) would have adverse consequences for agency budgetary actions. As seen in Table 2, neither variable has much impact on budgetary actions when the agencies are combined. For agencies separately, the conflict measure is related negatively to percent change in appropriations as expected for five agencies and positively with only two (see Table 5).

While congressional conflict had fairly good explanatory power for the appropriations variables when agencies are considered individually, it was not very useful in predicting expenditures (see Table 5). The one finding that did seem of interest is that conflict and partisanship reacted differently with appropriations variables than with expenditures variables. While conflict affects appropriations measures in the predicted direction, the relationship of

TABLE 4
Number of Agencies Confirming Hypothesis 2.1

Variable	% Δ Appropriations			% Δ Expenditures			Total		
	C	NR	D	C	NR	D	C	NR	D
Governmental Support									
Pres. support score	5	2	1	5	2	1	10	4	2
Pres. roll-call sup.	6	1	1	3	2	3	9	3	4
Cong. support	5	1	2	2	4	2	7	5	4

Code: C = confirms; NR = no relationship; D = disconfirms (within ±.20)
Correlations based on 10-11 date points

TABLE 5
Number of Agencies Confirming Hypothesis 3.1

Variable	% Δ Appropriations			% Δ Expenditures			Total		
	C	NR	D	C	NR	D	C	NR	D
Government Conflict and Partisanship									
Cong. Conflict	5	1	2	2	4	2	7	5	4
Cong. Partisanship	2	3	3	1	3	4	3	6	7

Code: C = confirms; NR = no relationship; D = disconfirms (within ±.20)

Correlations based on 10-11 data points

partisanship to expenditures generally tends to be in the opposite direction (see Table 5).

THE RELATIVE IMPACT OF MATURITY AND COALITIONS ON BUDGETARY POLICY ACTIONS

Part of a more extensive model to be presented later in this paper asserts that coalition variables will be more highly related to budgetary actions than are maturity variables. A logical extension of this assertion, although not stated in hypothesis form, is that *within* budgetary actions, appropriations and expenditures are also differently affected by maturity and coalition variables. Visually presented, the expectation about degree of relationships is as follows:

	Appropriations	Expenditures
Coalitions	high	low
Maturity	low	high

As mentioned earlier, it has been assumed that coalitions have greater impact on the more visible appropriations than on expenditures. This assumption will be considered here, primarily through multiple regression analysis, because the simple bivariate correlation coefficients with agencies combined (Table 2) provided little insight into whether coalitions or maturity are stronger determinants of budgetary actions. The results of regression are more insightful, and several models have been selected (see Table 6) to include different combinations of maturity and coalition variables.

Model A illustrates the considerable importance of the presidential support score in explaining both budgetary measures and the relatively greater influence of congressional conflict on appropriations as opposed to expenditures. Model B demonstrates the weaker explanatory power of the presidential roll-call support variable as opposed to the support score; it also reflects the weakness of the congressional support and congressional partisanship measures, and it shows the increased explanatory power of age in the model. Model C substitutes hierarchy for size, and hierarchy has a greater explanatory power than the variable it replaced. Model D best fits expectations here. When the maturity and three main coalition variables are all included, the maturity variables each have greater explanatory power for expenditures than appropriations while the exact reverse is true for coalitions. This finding is amplified in Figure 5 which present the *mean* beta coefficients from model D. Support is demonstrated for the expectation that coalitions are more closely related to appropriations while maturity variables are more closely related to expenditures. In this sense, expenditures will be shown to have at least some

TABLE 6
Regression Models (Budgetary Actions)
(Standardized Beta Coefficients)

	Independent Variable	Appropriations %Δ	Expenditures %Δ
A	Pres. supp. score	.55	.34
	Cong. conflict	-.27	-.10
	Cong. partisanship	.07	.01
	Size	-.05	-.03
	Age	.05	.02
	R^2 (% variance explained)	30	11
B	Cong. conflict	-.09	.00
	Cong. partisanship	.08	.01
	Pres. roll-call supp.	.18	.06
	Cong. support	.10	-.00
	Size	-.03	-.03
	Age	.11	.04
	R^2 (% variance explained)	05	01
C	Pres. supp. score	.57	.35
	Cong. conflict	-.25	-.07
	Cong. partisanship	.09	.02
	Hierarchy	-.13	-.19
	Age	-.01	-.01
	R^2 (% variance explained)	31	13
D	Pres. supp. score	.56	.35
	Cong. conflict	-.29	-.12
	Cong. partisanship	.07	.01
	Size	-.15	-.16
	Hierarchy	-.21	-.27
	Age	-.05	-.10
	R^2 (% variance explained)	32	15

properties of functional actions. Expenditures, like functional actions variables, occur at a later and less visible stage of the budgetary process than appropriations. They are also (like functional actions) probably more manipulable by agencies than are appropriations.

All four models illustrate the ability of maturity and coalitions to explain over twice as much variance in appropriations as in expenditures. Finally, two of the three main coalition variables tend to explain more variance in budgetary actions than do maturity variables, lending preliminary support to part of hypothesis 5.1.

	Appropriations	Expenditures
Coalitions	30.7	16.0
Maturity	13.7	17.7

* mean level of beta coefficients in Model D, irrespective of direction

Figure 5: Relationship Between Maturity, Coalitions and Budgetary Actions*

DISCUSSION

The association of maturity and coalition variables to budgetary actions differs according to the two levels of analysis. With the exception of the presidential support score, there were few conclusive relationships for agencies combined. These "insignificant" correlations were generally more discernible through regression analysis applied to the combined agencies. When agencies were examined separately, considerable variation in budgetary actions was evident. In general, more confidence exists in relationships with appropriations than expenditures since maturity and coalitions explain twice as much variance in the former as in the latter.

Several implications may be drawn from these findings. Presumptions of budgetary stability in much of the literature have prevented a more complete understanding of the forces that lead to the very real changes that occur in agency appropriations and expenditures. The importance of this section, in addition to verifying that substantial changes occur in both fiscal activities, is that it confirms that political actors (and to a lesser extent agency characteristics) can have an impact on the allocation of these monetary resources.

MATURITY, COALITIONS, AND FUNCTIONAL POLICY ACTIONS

It was demonstrated in the previous section that characteristics of agency maturity, and particularly governmental coalitions, account for some of the differences in budgeting that agencies experience. These instrumental variables will now be related to the non-fiscal activities that occur subsequent to the budgetary process—the implementing or functional actions performed by agencies. Functional actions are the things which agencies actually do—activities over which they may have greater discretion than was the case for their budgetary experience.

A DESCRIPTIVE LOOK AT FUNCTIONAL POLICY ACTIONS

Table 7 identifies the indicator and the raw data values for the beginning year and the ending year of the functional policy actions used in this study. The purpose of these figures is to show the development of the particular activity from the beginning of the study to the end (usually a span of 12 years). The presentation of these widely disparate raw data values is made, not because there is great confidence in comparing different indicators for different agencies, but because it was believed essential to have some feel for the initial data if one is ever to assess the policy ramifications of particular agency activities. The fact that indicators of a particular variable differ widely tends to confirm the initial judgment that the standardized values have greater

TABLE 7
Raw and Standardized Data Values (Functional Policy Actions)

	Agency	Indicator Name	Raw Data		Standardized	
			1960 (or) Initial Figure	1971 (or) Final Figure	Index of Growth	Average Percent Change
ACQUIRING PHYSICAL RESOURCES*						
1. Field Installations	ACE	# buildings owned	5,196	6,598	1.3	2.4
	AEC	# buildings owned	7,026	6,048	.86	-1.0
	AID	# regional bureaus + # program offices + # management offices	14	19	1.4	6.9
	CCC	Missing Data				
	FAA	# regional offices and/or # major field organs	6	12	2.0	7.0
	NASA	# field installations	10	11	1.1	1.1
	OE	# staff offices + # service elements	7	19	2.7	19.7
	VA	# buildings owned	7,565	5,211	.69	-3.3
2. Beneficial Facilities	ACE	volume of reservoir storage (in millions of acre feet	162	231	1.4	3.3
	AEC	square feet of buildings owned	73,115	76,414	1.05	.42
	AID	Missing Data				
	CCC	Missing Data				
	FAA	# aircraft towers licensed	139	281	2.0	7.4
	NASA	# applications satellites	6	5	.83	4.1
	OE	# classrooms provided for by PL81-815 funds	1,818	7,866	4.3	44.5
	VA	square feet of buildings owned	114,719	109,305	.95	-.43

Table 7 (Continued):

	Agency	Indicator Name	Raw Data		Standardized	
			1960 (or) Initial Figure	1971 (or) Final Figure	Index of Growth	Average Percent Change
DELIVERY OF BENEFITS						
3. Activities Performed	ACE	amount of hydroelectric power generated (billions KWH)	28	68	2.5	8.7
	AEC	# nuclear power plants under construction	11	76	6.9	21.2
	AID	# surveys authorized by AID	1	11	11.0	348.4
	CCC	quantity of commodities pledged in CCC loan program (bushels of corn)	571,960,000	323,320,000	.56	-1.2
	FAA	# aircraft handled by FAA air-route traffic control centers	9,437,900	21,571,000	2.3	9.7
	NASA	# spacecraft launches obtaining earth orbit or beyond	16	30	1.9	12.1
	OE	# students housed under PL81-815 funds	63,039	46,717	.74	39.4
	VA	# loans dispersed	146,000	284,000	1.9	8.9
4. Field Personnel Utilized	ACE	Missing Data				
	AEC	# contract employees	104,612	99,207	.95	-.42
	AID	# direct hire personnel overseas	2,900	2,800	.97	.56
	CCC	Missing Data				
	FAA	# non-Washington field employees	36,341	44,557	1.2	2.4
	NASA	employment at major installations other than headquarters	8,963	30,460	3.4	14.6
	OE	Missing Data				
	VA	# employees in Veterans Benefits Office	17,374	16,426	.95	-1.6

Table 7 (Continued):

	Agency	Indicator Name	Raw Data		Standardized	
			1960 (or) Initial Figure	1971 (or) Final Figure	Index of Growth	Average Percent Change
TARGET BENEFICIARIES						
5. Primary Beneficiaries	ACE	public attendance at recreation areas	109,000,000	300,000,000	2.8	9.7
	AEC	# nuclear powerplants licensed to operate	2	21	10.5	34.6
	AID	# participant trainees	8,121	7,198	.89	-1.0
	CCC	Missing Data				
	FAA	# airmen certificates held (pilot)	348,060	733,000	2.1	7.9
	NASA	# patent waivers granted	9	8	.89	115.6
	OE	# eligible applicants for PL81-874	3,797	4,628	1.2	1.8
	VA	# patients treated in VA hospitals	111,410	84,002	.75	-2.5
6. Potential Beneficiaries	ACE	Missing Data				
	AEC	# contractor & construction design employees	11,199	8,554	.76	-1.6
	AID	# less developed countries participating in investment insurance program	55	91	1.7	7.5
	CCC	total farm population (thousands)	15,635	9,425	.60	-4.5
	FAA	# all airports/airfields recorded with FAA	6,426	11,261	1.8	5.3
	NASA	Missing Data				
	OE	enrollment in public institutions of higher education	2,100,000	6,200,000	2.9	10.3
	VA	# living veterans	24,000,000	28,000,000	1.2	1.7

* The acquisition of physical resources was assumed to occur later in time than other functional actions. Data for these functional actions was therefore lagged one year behind data for delivery of benefits and target beneficiaries (which were assumed to occur in the same fiscal year as budgetary actions).

legitimacy in terms of bivariate and multivariate data analysis. Nevertheless, one should not lose sight of what the original data looks like, particularly if one hopes the fruits of the research effort will have some utility to agency decision-makers in the real world.

The two standardized measures of functional actions, growth and percent change, are also presented in Table 7. The following paragraphs briefly summarize the standardized measures for each agency. (The interrelationship of growth and percent change of each functional action is expressed in correlation values in Appendix B.)

There was too little information about the CCC to have much confidence in understanding its relative standing in the functional actions, since data were available for only two of the six variables. For those two variables (activities performed and potential beneficiaries), however, the agency tended to have a fairly low rank, and to have experienced a decline from its earlier years.

NASA and, to a lesser extent, OE were agencies that tended to experience greater average change than their overall growth would lead one to expect. This is because of a leveling off (or even a decline for NASA) of the very rapid growth the agencies experienced in the earlier years of the study. Because the magnitude of this early growth was considerable, the agencies (particularly OE) still appear in a relatively favorable position (compared to other agencies) in terms of functional actions.

The FAA and ACE are fortunate agencies in experiencing positive yearly change and overall growth on every functional action measure. While their yearly changes were less dramatic (that is, more stable) than those for NASA, they generally experienced greater overall growth. The AEC also experienced a degree of stability, but unfortunately for the agency the results were mixed on each of the three categories of functional actions. While the AEC generally experienced incremental changes similar to FAA and ACE, they tended to be moderately negative, resulting in overall decline in the agency's functional actions.

AID exhibited moderately positive change and growth on acquisition of physical facilities but mixed behavior on delivery of benefits and target beneficiaries served. Its substantial growth in activities performed and potential clientele may assist AID in its relative position in the future.

The VA experienced yearly decreases and overall decline in both types of physical resources. While the same pattern exists for field personnel utilized, the agency is making a greater effort in activities performed. The VA also had a conflicting experience on the two measures of beneficiaries served, with growth experienced for potential beneficiaries and decline for primary clientele. This increase in the number of living veterans may be more a function of health patterns rather than increasing numbers of entrants into the military. If this proves to be the case, then the eventual impact on the agency will not be as favorable as the figures on potential beneficiaries first appear.

BIVARIATE ANALYSIS OF FUNCTIONAL ACTIONS

It may be seen from the table in Appendix B that most of the functional action variables are interrelated. Thus, agencies seem to acquire physical resources to enable them to deliver benefits to particular groups in society. In spite of similarities among several of the functional actions, considerable differences among agencies were evident on many of the measures (see Appendix C, Table C-1). Some of these differences appear to be related to maturity and coalition variables. Since a rather large amount of descriptive data about functional actions is presented in this paper, only correlation tables for agencies combined will be presented here.

Agency Maturity

Hypothesis 1.2 stated that less mature agencies tend to have greater functional actions. The first of the three maturity indicators, agency size, is negatively related as predicted with all 12 functional action measures (see Table 8). Although there is consistent support for this finding, most of the coefficients were of small magnitude and generally do not meet the "significance" criterion. While greater change and growth in functional actions (particularly field installations) appears to be characteristic of small agencies, the low coefficients do not give us enough confidence to confirm the hypothesis generally.

Hierarchy tends to have little relationship with functional actions when agencies are combined. Only two correlations of the possible 12 were "significant" (see Table 8), and in those instances the correlations were counter to the original hypothesis; that is, agencies with a higher percentage of supervisory personnel tended to have greater (not less) functional actions (at least with respect to growth in activities performed and primary beneficiaries). However, there was a slight tendency for most of the smaller coefficients to be in the predicted direction.

Results were also mixed for age. Correlations greater than ±.20 occurred in five of the 12 cases, although only three were in the predicted direction. On the basis of these correlations, younger agencies tend to be associated with activities performed and personnel utilized, while older agencies exhibit growth and change in potential beneficiaries (see Table 8). Each of the coefficients between age and delivery of benefits variables was in the predicted direction.

To summarize, the findings for hierarchy and age are mixed in terms of the two tests: sign (or direction) and "significance" level of coefficients. Size was a consistent (but weak) predictor, however. While the correlations for each of the three maturity variables more often than not were in the predicted direction, the limited magnitude of the coefficients makes claims of

TABLE 8
Maturity and Functional Actions
(Correlations for Agencies Combined)

	Size	Hierarchy	Age
Acquiring Physical Resources			
1) Field Installations N=71			
CHANGE	-.28*	-.10	-.17
GROWTH	-.39*	-.09	.09
2) Beneficial Facilities N=65			
CHANGE	-.15	.01	.14
GROWTH	-.18	-.07	-.02
Delivery of Benefits			
3) Activities Performed N=82			
CHANGE	-.08	.11	-.09
GROWTH	-.17	.33*	-.26*
4) Personnel Utilized N=43			
CHANGE	-.14	-.12	-.34*
GROWTH	-.18	-.00	-.43*
Target Beneficiaries Served			
5) Primary Beneficiaries N=69			
CHANGE	-.09	.10	-.13
GROWTH	-.27*	.71*	-.17
6) Potential Beneficiaries N=66			
CHANGE	-.04	-.12	.36*
GROWTH	-.14	-.07	.57*

*Coefficients achieving the criterion of "significance" (±.20).

confirmation suspect. This caution also is warranted as a cursory look at individual agency correlations revealed very mixed relationships. These findings and the earlier statements about maturity lead one to conclude that an index of maturity is needed in order to test hypotheses at the concept level.

Coalitions

Governmental Support: Hypothesis 2.2 stated that governmental support tends to be related to greater functional actions. It is evident in Table 9 that measures of governmental support have differing impact on functional policy actions. Even though the findings are limited in magnitude, nearly all of the coefficients for presidential support score are in the predicted positive direction. While the presidential roll-call support measure has lower coefficients with functional policy actions, the findings for that variable were also as hypothesized. In spite of low magnitude of the coefficients, the two presidential support measures give tentative confirmation of the hypothesis in each of the three substantive areas of functional actions with respect to presidential support. Thus, presidential support is at least nominally related to acquisition of physical resources, several of the delivery of benefits measures, and also potential beneficiaries (see Table 9 for correlation values).

The results for congressional support were less conclusive, and the two "significant" correlations were contrary to expectations. Congressional support is negatively related to growth in personnel utilized and percent change in potential beneficiaries (see Table 9). Although the magnitude of the coefficients were quite small, there were enough in the direction opposite to that predicted (10 out of 12) to give some confidence that congressional support tends to be negatively related to functional policy actions. Perhaps this low profile of activity is a characteristic in agencies that congress prefers.

Governmental Conflict and Partisanship: Congressional conflict tends to be positively (not negatively as predicted) correlated with several of the functional policy actions when agencies are combined. This is especially the case for acquisition of physical resources, and the coefficients for all four indicators are above +.40 (see Table 10). Although the implications of this finding are somewhat unclear, perhaps agencies that perceive themselves as engendering high levels of conflict feel the need to place their financial resources into physical facilities in order to entrench themselves, rather than to spend money for other types of activity. Another explanation might be that it is precisely because those agencies spend funds inordinately for buildings and other facilities, that they encourage the enmity of congress. Admittedly, such assertions are highly speculative. Agencies scoring high on congressional conflict also exhibit a considerably greater propensity to have growth in activities performed and, to a lesser extent, change and growth

TABLE 9
Governmental Support and Functional Actions
(Correlations for Agencies Combined)

	Presidential Support Score	Presidential Roll-Call Support	Congressional Support
Acquiring Physical Resources			
1) Field Installations N=71			
CHANGE	.18	.07	-.03
GROWTH	.05	.24*	-.12
2) Beneficial Facilities N=65			
CHANGE	.07	-.02	-.06
GROWTH	-.14	.08	-.14
Delivery of Benefits			
3) Activities Performed N=82			
CHANGE	.13	.06	.02
GROWTH	.15	.17	-.14
4) Personnel Utilized N=43			
CHANGE	.17	.19	-.03
GROWTH	.06	.24*	-.23*
Target Beneficiaries Served			
5) Primary Beneficiaries N=69			
CHANGE	.01	.04	-.13
GROWTH	-.19	-.05	.13
6) Potential Beneficiaries N=66			
CHANGE	.31*	.13	-.26*
GROWTH	.36*	.15	-.04

*Coefficients achieving the criterion of "significance" (±.20).

in potential beneficiaries. Agencies having high levels of congressional conflict appear to experience low levels of growth in primary beneficiaries, however. Perhaps this suggests that congress does not have much sympathy for agencies that do not show evidence of visible clientele support.

Congressional partisanship had almost no relationship to functional policy actions, and there were no significant correlations among the 12 possible relationships (see Table 10). In addition to being extremely small, over half of the coefficients are in the opposite direction from what was predicted.

TABLE 10
Governmental Conflict/Partisanship and Functional Actions
(Correlations for Agencies Combined)

	Congressional Conflict	Congressional Partisanship
Acquiring Physical Resources		
1) Field Installations N=71		
CHANGE	.43*	.02
GROWTH	.41*	-.01
2) Beneficial Facilities N=65		
CHANGE	.46*	.04
GROWTH	.41*	-.09
Delivery of Benefits		
3) Activities Performed N=82		
CHANGE	.17	.10
GROWTH	.55*	.05
4) Personnel Utilized N=43		
CHANGE	-.00	-.19
GROWTH	-.10	-.16
Target Beneficiaries Served		
5) Primary Beneficiaries N=69		
CHANGE	-.05	.11
GROWTH	-.24*	-.10
6) Potential Beneficiaries N=66		
CHANGE	.28*	.18
GROWTH	.30*	.05

*Coefficients achieving the criterion of "significance" (±.20).

Although they have not been discussed here, the individual agency correlations show a tendency to support the hypothesis: that is, partisanship is somewhat negatively related to change and growth in functional actions. This is particularly the case for the delivery of benefits variables. With agencies combined, however, the results are inconclusive.

To summarize, hypothesis 2.2 relating governmental support to functional actions is partially supported only if one uses the presidential support measures as the criteria of governmental support. The congressional support indicator was found to have a negative relationship with functional actions. Hypothesis 3.2 stated that congressional conflict and partisanship will be negatively related to functional actions. Although there is no visible relationship for congressional partisanship, congressional conflict seems to be related positively (not negatively as predicted) to most functional actions. The tables demonstrated that while both measures of presidential support were fairly weak, but consistently related to all types of functional actions, none of the three congressional measures were in the predicted direction.

THE RELATIVE IMPACT OF MATURITY AND COALITIONS ON FUNCTIONAL POLICY ACTIONS

This section provides a cursory examination of part of hypothesis 5.1. The expectation is that maturity variables are more highly related to functional actions than are coalitions. A brief review of the correlation coefficients of maturity and coalitions with functional actions provides little insight into the *relative* importance of these concepts. The coefficients generally did reveal greater association with growth than change measures, however, and this finding was part of the basis for selecting the four growth variables as the focus in regression analysis. It was hoped that the results of multiple regression would prove more conclusive than correlational analysis; in order to provide some comparison with the regression models for budgetary actions, the same four models are used in Table 11 below to predict functional actions.

Maturity variables generally explain a greater proportion of the variance (as predicted) in regard to the two types of beneficiaries served. Size is negatively associated with growth in primary beneficiaries, while hierarchy is positively related to the same variable. Agency age is, by far, the most important determinant of potential beneficiaries; thus, the maturity variables are predominant in terms of explaining beneficiaries. In each regression model where size and hierarchy are used as predictor variables, their beta coefficients are negatively related with field installations but positively associated with activities performed (if to a lesser extent). This is logical since it was expected that less mature agencies would be more inclined to spend their resources for physical resources than in delivering benefits. The findings for

TABLE 11

Regression Models (Functional Actions) (Standardized Beta Coefficients)

	Independent Variable	Field Installations	Activities Performed	Primary Beneficiaries	Potential Beneficiaries
		(Growth Measures)			
A	Presidential Support Score	-.11	-.01	-.17	.29
	Congressional Conflict	.43	.62	-.36	.31
	Congressional Partisanship	-.28	-.14	-.04	-.22
	Size	-.31	.01	-.48	.04
	Age	.11	-.24	-.20	.60
	R^2 (% variance explained)	30	39	29	52
B	Congressional Conflict	.42	.62	-.43	.44
	Congressional Partisanship	-.28	-.14	-.04	-.20
	Presidential Roll-call Support	.15	.09	-.36	.39
	Congressional Support	.02	-.04	.08	.12
	Size	-.23	.06	-.67	.19
	Age	.15	.22	-.30	.72
	R^2 (% variance explained)	31	40	37	56
C	Presidential Support Score	-.08	-.03	-.19	.27
	Congressional Conflict	.53	.60	-.26	.29
	Congressional Partisanship	-.23	-.15	-.03	-.24
	Hierarchy	-.10	.21	.83	.15
	Age	.09	-.16	.18	.67
	R^2 (%variance explained)	23	43	66	54
D	Presidential Support Score	-.10	-.02	-.20	.28
	Congressional Conflict	.40	.64	-.29	.33
	Congressional Partisanship	-.28	-.14	-.04	-.22
	Size	-.48	.15	-.09	.15
	Hierarchy	-.34	.28	.78	.23
	Age	-.04	-.12	.16	.71
	R^2 (%variance explained)	37	44	66	56

age are more mixed but tend to react in an opposite manner from size and hierarchy; that is, older agencies are associated with greater growth in field installations but less growth in activities performed.

It can be seen from a comparison of the regression models in Table 11 that maturity variables are clearly less successful in accounting for the preponderance of the variance in the non-beneficiary variables: growth in field installations and activities performed. The reason for this is the obvious importance of the congressional conflict variable in each model predicting those variables. It is only in model D that structural variables again emerge as pervasive determinants of field installations. Congressional partisanship assumes greater influence in relation to other variables with regard to field installations and potential beneficiaries than was evidenced in its bivariate correlation coefficients. It is important in each of the four models and also in the predicted direction. This finding might lead one to modify the earlier judgment that congressional partisanship is unrelated to functional policy actions, for it is associated consistently with less functional actions when using regression analysis. The relative importance of presidential support is diminished in regression analysis. Both measures of presidential support are consistent, however, in being positively associated with potential beneficiaries but negatively related to primary beneficiaries.

The relative impact of coalitions and maturity variables on functional actions is not as clear-cut as it was for budgetary actions. The importance of particular maturity and coalition variables changes with different functional actions, and each of the variables has good explanatory power in particular instances. While these mixed findings lead to some confusion as to the *relative* importance of maturity and coalitions on functional actions, it is apparent from the regression equations here and in the preceding section that coalitions and maturity have greater explanatory power overall for functional actions than for budgetary actions.[22]

DISCUSSION

It has been shown that maturity and coalitions are related to many of the implementing actions in which agencies engage. The three different types of functional action categories were affected differently by particular maturity and coalition variables. Perhaps the most important implication to be drawn from these findings is that political environment and structural characteristics of agencies have an impact on what agencies do to implement their programs. The fact that the impact of these variables was greater for functional actions than in the determination of how much money agencies receive leads to speculation that agencies may have constraints on their program decisions. It also suggests that there are considerations other than merely fiscal ones that play a part in those decisions and resultant actions. Whether this is the case, or

whether fiscal considerations are paramount in implementing actions of agencies, will be the focus of the following section.

THE RELATIONSHIP OF BUDGETARY AND FUNCTIONAL POLICY ACTIONS

How much do dollars limit the program decisions of agencies? If the amount of money an agency has available to spend is highly related to the implementation of its programs, then the impact of maturity and coalitions may matter little in these subsequent decisions. If dollars are imperfectly related to implementing actions, however, then maturity and coalitions may assist in explaining some of the remaining variance. In this examination budgetary policy actions have been treated both as an independent and dependent variable.[23]

BIVARIATE ANALYSIS: WITHIN AND BETWEEN AGENCY RELATIONSHIPS

Although hypothesis 4 predicted a positive relationship between budgetary and functional policy actions, the correlations in Table 12 between the standardized budgetary and functional actions for agencies combined are certainly less than conclusive. Contrary to expectation[24] and to assumptions in the current literature, there seems to be very little relationship between the numerous measures of an agency's budgetary experience and the kind of activities in which it engages subsequent to (and presumably as a result of) budgeting. Not only is there minimal relationship between particular kinds of budgetary and functional actions, but increases or decreases in budgetary actions seem to have mixed impact on increases or decreases in functional actions.

Expenditures were generally expected to be stronger determinants than appropriations of functional actions, but it may be seen in Table 12 that expenditures were no better predictors than appropriations, and by looking at direction alone, neither were particularly more important for change than for growth. Although the "significant" relationships are fewer and of less magnitude than expected, they are in the hypothesized direction, and all but one of the coefficients greater than ±.20 were positive. Thus, there was a slight tendency for budgetary actions (at least as measured by percent change in appropriations and expenditures) to be positively correlated with change and growth in functional actions.

Lest one think that the standardized budgetary actions used as predictors distort a presumed high relationship between budgetary and functional actions, the skeptical reader will be surprised to learn that raw values (not

TABLE 12
Correlation of Budgetary and Functional Policy Actions
(Agencies Combined)

	% Δ Appropriations	% Δ Expenditures
Acquiring Physical Resources		
1) Field Installations N=71		
CHANGE	.37*	.19
GROWTH	.10	.07
2) Beneficial Facilities N=65		
CHANGE	-.08	.45*
GROWTH	-.16	.09
Delivery of Benefits		
3) Activities Performed N=82		
CHANGE	.07	.01
GROWTH	-.14	-.10
4) Personnel Utilized N=43		
CHANGE	.71*	.69*
GROWTH	.12	.23*
Target Beneficiaries Served		
5) Primary Beneficiaries N=69		
CHANGE	-.07	-.13
GROWTH	-.14	-.22*
6) Potential Beneficiaries N=66		
CHANGE	.23*	.14
GROWTH	.23*	.21*

*Coefficients achieving the criterion of "significance" (±.20).

presented here) of both appropriations and expenditures were even less related with the 12 functional actions measures. Of the 24 possible relationships presented in Table 12, only five significant coefficients were observed, and those were of small magnitude (within ±.27). The inescapable conclusion to be drawn from the discussion thus far is that, at least when agencies are combined, there is only a marginal relationship between budgetary and functional policy actions.[25]

A further look at Table 12 tends to confirm this view even more, since the highest positive relationships may be due to other factors. For example, the largest coefficients exist between both of the budgetary measures and personnel utilized. The reader may be somewhat puzzled as to why personnel utilized is so highly related to budgetary actions while number of agency personnel (size) was not. Even though there is a theoretical relationship between the two variables, the former was standardized (%Δ and growth) while the latter variable was retained as a raw measure. The process of standardization may inflate the importance of budgetary actions (as discussed in note 20). Thus, with a caveat about the strongest coefficients, the relationship between budgetary and functional policy actions is seen to be limited. A few more specific statements can be made however. There does appear to be a positive relationship between both budgetary variables and field installations, between expenditures and beneficial facilities, and between both measures and potential beneficiaries. Even though the coefficients are small, there is a consistent negative relationship between budgetary measures and primary beneficiaries. Thus, agencies seem to make a greater effort to acquire clientele support when they have had budgetary setbacks.

One might argue that these low correlation coefficients are due to considerable within-agency variation. In order to test this assumption the agencies were disaggregated. Table 13 shows the number of agencies tending to confirm the hypothesis. (The individual agency coefficients appear in Shull, 1975a.)

Budgetary actions had differing relationships to functional actions when agencies are looked at separately. While expenditures tend to be a slightly better predictor of functional actions than appropriations, neither budgetary action was a consistent predictor, and overall, there was an equal or greater number of disconfirmations of the hypothesis as there were confirmations (see Table 13). Several specific findings should be mentioned. Change in appropriations and expenditures tend to be related positively to both change measures of delivery of benefits, but related negatively to growth in acquisition of physical resources and primary beneficiaries served. Thus, agencies experiencing budget expansion seem to increase their activities and personnel and, therefore, their capability to deliver benefits. Agencies demonstrating budgetary decline appear to retrench themselves into acquiring physical re-

TABLE 13
Number of Agencies Confirming Hypothesis 4

	% Δ Appropriations			Expenditures			Total		
	C	NR	D	C	NR	D	C	NR	D
Acquisition of Physical Resources									
1) Field Installations									
CHANGE	4	1	3	1	4	3	5	5	6
GROWTH	0	5	3	1	2	5	1	7	8
2) Beneficial Facilities									
CHANGE	2	5	1	3	2	3	5	7	4
GROWTH	0	3	5	1	3	4	1	6	9
Delivery of Benefits									
3) Activities Performed									
CHANGE	3	4	1	3	4	1	6	8	2
GROWTH	1	5	2	3	4	1	4	9	3
4) Personnel Utilized									
CHANGE	3	5	0	5	3	0	8	8	0
GROWTH	1	5	2	1	5	2	2	10	4
Target Beneficiaries Served									
5) Primary Beneficiaries									
CHANGE	0	7	1	3	1	4	3	8	5
GROWTH	0	3	5	2	3	3	2	6	8
6) Potential Beneficiaries									
CHANGE	2	5	1	3	3	2	5	8	3
GROWTH	2	5	1	3	4	1	5	9	2

Code: C = confirms; NR = no relationship; D = disconfirms
(MD coded as NR, and NR = within ±.20).

sources and in seeking additional (immediate rather than future) clientele support.

MULTIVARIATE ANALYSIS: AGENCIES COMBINED

It was felt that multiple regression analysis would be useful in determining whether the relationships between variables that were observed through bivariate analysis also persist when other variables are introduced into the model. Two new budgetary variables (budget success and expenditures as a

percent of the total federal budget) were added to the model in order to determine whether other budgetary variables would also have little relationship to functional actions. These variables were unrelated to the two existing budgetary measures and thus tapped differing dimensions of the concept.

In Table 14 the four generally unrelated budgetary actions are combined in a regression model to assess their relative impact on the numerous functional actions. It is evident from the table that even the four variables combined explain little variance in functional actions. In those instances where at least a minimal threshold of variance is explained (20%), the variables generally are better at predicting change rather than growth measures.

TABLE 14
Regression Model (Functional Actions)
(Standardized Beta Coefficients)

	Success	% Δ Appropriations	% Δ Expenditures	% Federal Budget	R^2 = % Explained
Acquiring Physical Resources					
1) Field Installations					
CHANGE	-.19	.32	.10	-.15	20
GROWTH	-.21	.04	.08	-.28	14
2) Beneficial Facilities					
CHANGE	-.17	-.28	.56	-.05	29
GROWTH	-.22	-.24	.19	-.14	12
Delivery of Benefits					
3) Activities Performed					
CHANGE	-.17	.06	.01	-.01	04
GROWTH	-.43	-.17	.00	-.07	21
4) Personnel Utilized					
CHANGE	.21	.55	-.08	.48	79
GROWTH	.04	.07	.18	.21	09
Target Beneficiaries Served					
5) Primary Beneficiaries					
CHANGE	.01	-.02	-.12	.11	03
GROWTH	.05	-.08	-.20	-.13	07
6) Potential Beneficiaries					
CHANGE	-.03	.19	.08	-.17	09
GROWTH	-.04	.16	.17	-.19	11

It was expected from the bivariate correlation coefficients that the two budgetary change variables generally would contribute a larger share of the variance in the model. The findings demonstrate that the relative importance of a particular budgetary variable depends on the functional action being considered. Percent change in appropriations and expenditures each contribute the preponderance of variance to change in particular functional actions, and in each instance the relationship is positive. Specifically, percent change in appropriations is related to field installations and personnel utilized, and percent change in expenditures to beneficial facilities. Expenditures as a percent of the total federal budget and budget success were generally negatively related to functional actions, most prominently with both change and growth in field installations and potential beneficiaries for the former, and field installations and activities performed for the latter.

In conclusion, results of multiple regression analysis are not much different from the bivariate correlations in the finding that budgetary actions are generally not highly related to functional actions. The inclusion of two new and unrelated budgetary variables lends even further confidence to this statement. In only one instance do the four budgetary actions explain as much as 30% of the variance in functional actions, and in this instance (change in personnel utilized), the variable was considered more a structural than a functional action variable.

INTERRELATIONSHIP OF POLICY CONCEPTS

Some tentative statements have been made about the relationship of maturity and coalition variables with budgetary and functional actions, as well as the relationship between the two policy action concepts themselves. This section explores hypotheses 5.1 and 5.2 looking at the interrelationship of all four policy concepts. A very brief review of the regression models presented in preceding sections provides the background for the discussion and hypothesis testing that follows.

REVIEW OF THE REGRESSION MODELS

Table 6 revealed that environmental variables, as hypothesized, were generally better predictors than structural variables of budgetary actions. There was a difference, however, in the way appropriations and expenditures were affected by maturity and coalitions. Maturity variables were generally more highly related to expenditures, while coalitions had greater predictive power for appropriations.

The relationship of coalition and maturity variables to functional actions tended to be more mixed, and the relative importance of particular variables

was found to be dependent upon the type of functional action to which one is referring. The presidential support score that was the most significant in predicting budgetary actions (see Table 6) was the coalition variable least related to functional actions (see Table 11). On the other hand, the relatively weak relationships that occurred between congressional conflict and partisanship and budgetary actions were more pronounced in functional actions.

Congressional conflict and, to a lesser extent, congressional partisanship were fairly important in contributing to the variance in growth in field installations and activities performed in spite of the fact that the relationship was opposite that predicted. (See note 26 for a further development of this finding.) It was only with the inclusion of all structural variables in Model D (Table 11) that the dominant impact of congressional conflict on field installations was diminished. Even with all the structural variables included, congressional conflict is still the pervasive determinant of growth in activities performed.

Although field installations and activities performed were largely influenced by coalition variables, the structural variables clearly emerged superior in terms of primary and potential beneficiaries (see Table 11). It may be seen from this discussion that agency functional actions were less consistently affected by structural and environmental variables than were budgetary actions. A diagrammatic presentation of the relative importance of maturity and coalitions as they relate to the policy action concepts is presented in Figure 6.

EXPLORING THE MULTIVARIATE HYPOTHESES

The hypotheses to be considered in this section deal with the relative importance of maturity and coalition variables for agency budgetary and functional actions. One simple way to get at the thrust of these assertions is to test the various budgetary and functional action measures through multiple regression, with each model being comprised solely of coalition or maturity variables. The potential problem of including similar variables in a regression model (resulting in highly related independent variables) has been minimized by selecting variables that were theoretically, but not highly empirically, related. In neither of the models was the relationship between any two variables greater than $r = \pm.42$. A brief look at the percent of the variance explained (R^2) by each model gives some indication of which group of variables has greater explanatory value. The findings are presented in Table 15.

The figures in Table 15 are supportive of hypothesis 5.1, which stated that coalition variables tend to be more highly related to budgetary actions than do maturity variables, while maturity variables tend to be more highly related to functional actions than do coalition variables. Coalitions were more important than maturity variables in explaining budgetary actions. With respect to functional actions the explanatory power of maturity variables increases

	Maturity	Coalitions
Budgetary Actions		
Overall	Lo	Hi
Appropriations	Lo	Hi
Expenditures	Hi	Lo
Functional Actions		
Overall	Hi	Lo
Acquisition of Physical Resources	Hi	Lo
Delivery of Benefits	Lo	Hi
Target Beneficiaries Served	Hi	Lo

Figure 6: Relationships of Policy Concepts

TABLE 15
Percent Variance Explained

	Maturity	Coalitions
Budgetary Actions		
Percent change in appropriations	04	31
Percent change in expenditures	05	11
Functional Actions (growth)		
Field installations	53	25
Activities performed	24	35
Primary beneficiaries	68	08
Potential beneficiaries	97	19

dramatically as predicted. Maturity variables explain a much greater share of the variance than coalition variables in functional actions in every instance except activities performed.

The findings presented in Table 15 offer only partial support for hypothesis 5.2, however. Hypothesis 5.2 stated that coalition variables would be more highly related to budgetary actions than to functional actions, while the opposite would be the case for maturity variables. Based upon this hypothesis, it was expected that the salience of coalition variables would diminish in explaining functional actions. This has not proven to be the case, since *both* coalitions and maturity variables have greater explanatory power for functional actions than for budgetary actions.[26] As a result of this mixed finding, the composite hypothesis 5.2 is only partially correct; that is, maturity variables are more highly related with functional than with budgetary actions, but the converse is not the case for coalition variables. Figure 7 summarizes the relationships among the concepts.

EXPLAINING FUNCTIONAL POLICY ACTIONS

How does the inclusion of budgetary actions in the model affect the relative impact of maturity and coalitions on agency functional policy actions? One interesting finding, not entirely unexpected given the low relationships found earlier, is that the budgetary model (consisting of the four measures) explain less variance than either maturity or coalitions in each instance

PREDICTED

	BPA	FPA	H
M	low	high	H: 5.2
C	high	low	H: 5.2
H	H: 5.1	H:5.1	

ACTUAL ($\bar{X}$ R^2)

	BPA	FPA	H
M	4.5	60.5	H: 5.2
C	21.0	21.8	H: 5.2
H	H: 5.1	H: 5.1	

KEY: M = Maturity variables
C = Coalition variables
H = Hypothesis number
BPA = Budgetary policy actions
FPA = Functional policy actions

The cells above summarize both the predicted and the actual findings for hypotheses 5.1 and 5.2. Hypothesis 5.2 is presented in the row (horizontal) cells of the contingency tables, and hypothesis 5.1 is presented in the column (vertical) cells. Of the four predicted relationships, only one was not confirmed, and in this instance the difference was very small. Maturity explained functional actions well, but was a weak predictor of budgetary actions. Coalitions predicted both budgetary and functional actions similarly.

Figure 7: Interrelationships Among Policy Concepts

of the four functional action measures concentrated on in regression analysis thus far. Table 16 shows the amount of variance explained in all 12 of the functional action measures by each of the three independent variable clusters.[27] In 10 of the 12 instances, at least a quarter of the variance is explained by one of the three clusters of variables; in half of those cases maturity variables explain a greater amount of variance than either coalitions or budgetary actions. This is the case for both measures of field installations and potential beneficiaries, as well as the growth measures of personnel utilized and target beneficiaries served.

Coalitions were the most important determinant for only two functional action variables, growth in beneficial facilities and activities performed. The two instances where budgetary variables explained the most variance in functional policy actions were change rather than growth measures: beneficial facilities and personnel utilized (see Table 16). This was to be expected since the two main budgetary actions themselves were change measures. This comparison of policy concepts was felt to be a useful exercise in order to give some insight into the differing effects of each concept separately.

A severe problem with the models composed exclusively of variables in a particular policy concept is that they clearly omit other variables that are also hypothesized as having an impact on the various functional policy actions, thus violating one of the basic assumptions of regression. Another problem with dividing models by policy concept, as in Table 16, is that the models do not give any indication of the relative importance of particular variables interacting with others in a different policy concept. Thus, no feel is acquired for the interactive effects of the three policy concepts on functional actions.

A model consisting of variables from each policy concept should be more helpful in determining each concept's influence relative to variables representing other concepts. While the regression model presented in Table 17 is only one of a number of possible models, it should give some insight into which variables (as well as policy concepts) make the greatest contribution to an explanation of functional policy actions. It is evident from the beta coefficients in Table 17 that the individual variables tend to have interactive effects on one another. However, the inclusion of budgetary variables in the model (percent change in expenditures and appropriations) does little to change the individual coefficients. While the budgetary measures contribute to the overall explanation of functional actions, they do not appear to work through maturity or coalition variables.

The relative impact of coalitions and maturity when combined in a regression model places considerable importance on coalitions, primarily because of the prominence of the congressional conflict variable. Coalition variables continue to have an important impact on activities performed and acquisition of physical resources variables. It was the maturity variables, however, that were the most important for the other delivery of benefits measure (personnel

TABLE 16
Percent Variance Explained in Functional Actions
(by Maturity, Coalitions, Budgetary Actions)

	Maturity	Coalitions	Budgetary Actions
Acquiring Physical Resources			
1) Field Installations			
CHANGE	26%	22%	20%
GROWTH	53%	25%	14%
2) Beneficial Facilities			
CHANGE	9%	25%	29%
GROWTH	21%	33%	12%
Delivery of Benefits			
3) Activities Performed			
CHANGE	4%	4%	4%
GROWTH	24%	35%	21%
4) Personnel Utilized			
CHANGE	33%	12%	79%
GROWTH	36%	15%	9%
Target Beneficiaries Served			
5) Primary Beneficiaries			
CHANGE	3%	4%	3%
GROWTH	68%	8%	7%
6) Potential Beneficiaries			
CHANGE	52%	19%	9%
GROWTH	97%	19%	11%

TABLE 17
Regression Model (Functional Actions as Predicted by Coalitions, Maturity, and Budgetary Actions)

Functional Actions	Coalitions: Conflict	Coalitions: Partisanship	Maturity: Size	Maturity: Age	Budgetary Actions: % Δ Appropriations	Budgetary Actions: % Δ Expenditures	R^2
Acquiring Physical Resources							
1) Field Installations							
CHANGE	-.25	.50	-.07	.13	.48	.09	41
GROWTH	-.24	.39	-.26	.05	.19	.06	27
2) Beneficial Facilities							
CHANGE	-.18	.51	.05	.14	-.16	.54	49
GROWTH	-.36	.50	-.05	-.02	-.02	.19	29
Delivery of Benefits							
3) Activities Performed							
CHANGE	.07	.15	-.01	-.10	.07	-.04	05
GROWTH	.07	.54	.02	-.26	-.10	-.09	39
4) Personnel Utilized							
CHANGE			Missing Data				
GROWTH	-.03	-.21	-.30	-.47	.06	.22	33
Target Beneficiaries Served							
5) Primary Beneficiaries							
CHANGE	.11	-.14	-.15	-.14	-.09	-.14	06
GROWTH	-.05	-.42	-.49	-.20	-.10	-.19	33
6) Potential Beneficiaries							
CHANGE	.16	.29	.16	.35	.14	.04	29
GROWTH	.22	.26	.08	.56	.07	.11	50

utilized), and particularly for all of the measures of target beneficiaries served (see Table 17). The importance of budgetary variables was limited with the exception of change in both measures of acquisition of physical resources. Thus, when all policy concepts are combined into a regression model, the impact of budgetary actions is minimal, while coalitions, and especially maturity, had the greatest explanatory power for functional actions.

CONCLUSIONS

UTILITY OF CONCEPT-LEVEL ANALYSIS

The hypotheses of this study suggest that relationships are looked at in terms of concepts. With the exception of the previous section on interrelationships, however, hypothesis testing was primarily at the variable level. This was because the measures generally were not highly correlated and, therefore, provided differing dimensions of the concepts. Consequently, relationships were mixed, depending upon which variables were used.

Appendix A provides a brief recapitulation of the measurement of the variables of this study, as well as the sources used in their collection. (A more complete discussion of the measures is presented in Shull, 1974, which explicates some of the indicators in greater detail, compares numerous measures, and offers a rationale for the selection of certain indicators in place of others.) In several instances in this research (such as presidential support score, congressional conflict), a summary indicator (or index) of the variable was used rather than relying on each indicator separately. The advantage of this strategy is that the number of variables that must be used in the analysis is reduced substantially and it may also provide a more unidimensional measure of the concept. In spite of such efforts to achieve unidimensionality, conceptual problems persisted.

The concept of maturity provided some of the thorniest problems, as none of the three component variables were related and each had differing effects on budgetary and functional actions. For example, size and age had almost no relationship, yet both had widely differing association with hierarchy. Ripley and Franklin (1975) have articulated the lack of unidimensionality of the indicators of maturity and have argued that there are several components to the concept, including physical aging, structural development, and administrative experience. The indicators of the present study appear to include the first two dimensions. According to Ripley and Franklin (1975), "relationships are far more complex–and interesting–than the organizational theory literature had initially suggested to us." It seems relatively clear that better summary measures are needed if one desires to test the concept of agency maturity rather than several isolated (and unrelated) structural characteristics of agencies.

Examination of the concept of coalitions produced a problem similar to that encountered with agency maturity; that is, the indicators were not unidimensional, and the findings were dependent upon the political actor being considered. The two measures of presidential support were similar but had a slight negative correlation with congressional support, which suggests that the president has some tendency to oppose those agencies that engender greater support from congress (see Figure 8). While governmental support had both a

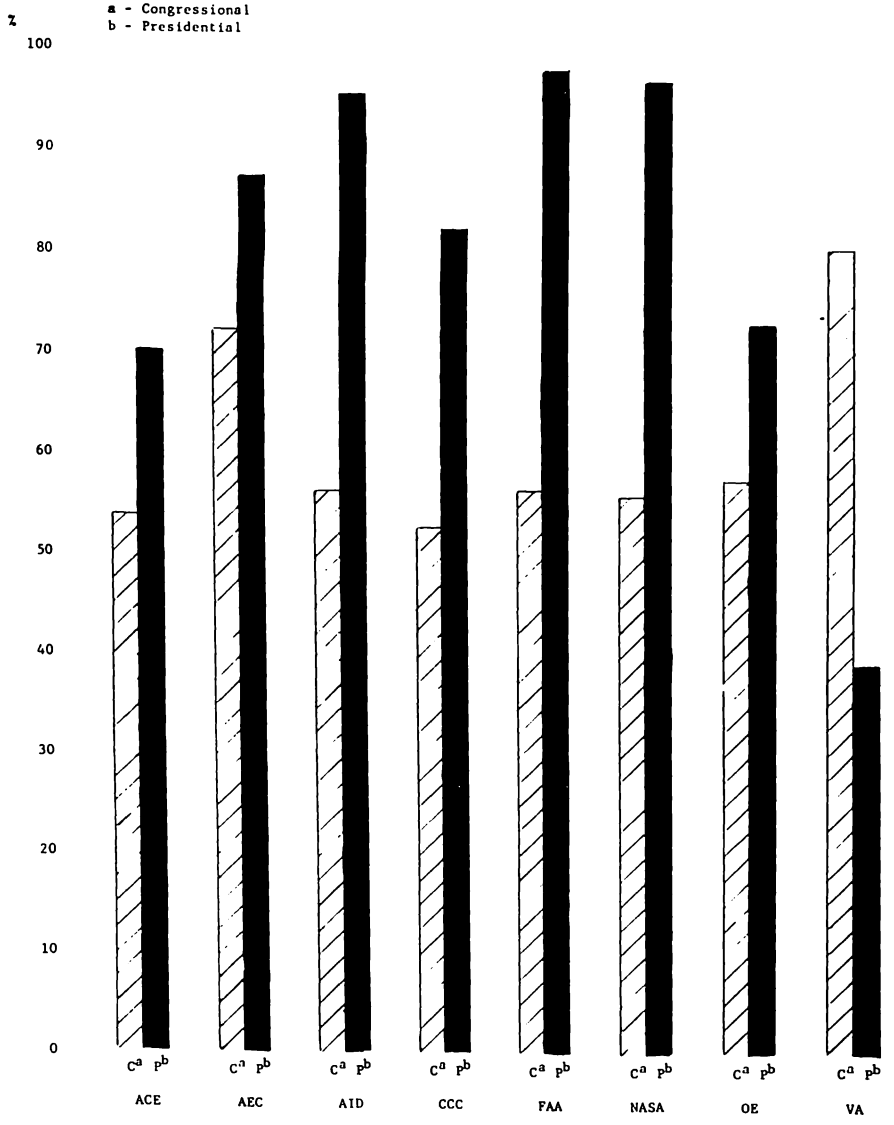


Figure 8: Congressional vs. Presidential Support (Average % Support Level) (1960-1971)

presidential and congressional dimension, governmental conflict and partisanship was limited to congressional measures. The expectation that there would be a negative association between governmental support and congressional conflict and partisanship over agencies was generally confirmed, with congressional support relating negatively with indicators of conflict ($r = -.24$) and partisanship ($r = -.22$). In general, coalitions were more in conformity with expectations and more unidimensional than maturity variables. Perhaps this was because coalition variables were usually composite indices and provided better summarization of the concept sought. (A summary of maturity and coalition characteristics is presented in Appendix C.)

In terms of budgetary actions, appropriations and expenditures were shown to represent two quite theoretically and empirically different subconcepts. In spite of the same operational definition (percent change), the two measures were not very highly related ($r = -.34$). One of the reasons expenditures differ from appropriations is that appropriations figures included in this research do not include supplementals while expenditures consist of all federal funds expended (often over several years) by the agency with the exception of trust funds.

Appendix B shows that almost all relationships among the functional action variables are positive. The table also illustrates that the activities *within* the three substantive groups are not particularly interrelated more highly than they correlate with other groups. The exception to this is the physical resource variables which are all fairly highly related. Activities performed were not very highly correlated with the measures in any of the three categories, perhaps because it was a catchall category with widely different indicators, while the measures of the other variables were more similar, both theoretically and substantively (see Table 7). Of the two types of beneficiaries served, potential beneficiaries was associated positively with the physical resource variables. Perhaps agencies acquire physical facilities in anticipation of serving a potential clientele rather than their present constituency. Although the present concern is not primarily with the interrelationship among the numerous functional policy actions, there are some interesting relationships which might be of some concern in future research.

The preceding statements and findings recognize some of the problems with concept-level analysis. Yet, even though this was a preliminary study which had severe data collection problems, some relationships were found, not only among variables, but among all four concepts as well (hypotheses 5.1 and 5.2). The author views this as encouraging, and certainly worthy of additional work by scholars toward clarifying concepts that have long been taken for granted. There is another important reason for not abandoning concept-level analysis just because it does not always work as well as we might like. It may be that if others find that indicators and variables that have been assumed to be components of a larger abstraction continue to be

unrelated, then we are even more justified in rethinking broader conceptualizations. Problems of definition, measurement, and dimensionality are genuine hurdles but do not recommend against this more encompassing focus that clearly has not been considered in current policy research. The present findings are believed to have implications both for agencies and for policy research in general. These will be explored in the remaining sections.

IMPLICATIONS OF THIS STUDY FOR AGENCIES

A major focus of this research (and of the Ripley project) has been to isolate some of the variables that are manipulable by agencies. Since agencies cannot change their age and probably would not wish to reduce their size in order to achieve greater functional actions, perhaps they would be advised to seek to increase their percentage of supervisory personnel. While hierarchy was only moderately related to most functional actions, it was quite highly related to growth in primary beneficiaries—an attribute that appeared to bring the agency favors from congress in the form of less conflict over its annual appropriations.

In general, it would seem that the optimum strategy for agencies to follow would be to focus on those factors and relationships that seem to assist them in developing budgetary and functional actions, while at the same time avoiding those situations associated with decreases in those policy responses. This is assuming that the agency goal is to expand, or at least not to decrease its development.

Small agencies would be advised to continue to acquire physical resources, but at the same time they should realize that this action is highly related to congressional conflict. Young agencies seem to spend a disproportionate share of their efforts on delivery of benefits, while old agencies concentrate on the development of future beneficiaries. Perhaps this characteristic of older agencies is one of the factors that thas enabled them to endure.

Agencies seeking presidential support would do well to place larger amounts of their resources into the development of future clientele support. It is, of course, these same activities that seem to draw the greatest ire of congress. Perhaps each agency will need to decide whether the cultivation of presidential support or the avoidance of congressional conflict is more important to its particular immediate situation. If, for example, an agency is desirous of increasing its financial base, then the importance of presidential support (even more than congressional support) in budgeting has already been demonstrated.

Since congressional conflict was particularly highly related to the acquisition of physical resources, an agency might be advised to minimize its activity in that area, particularly if it is an agency (such as AID) that already has an inordinately high degree of conflict. One safe activity for agencies to perform

from the standpoint of congressional conflict is to concentrate on developing a base of primary beneficiaries.

Implications may also be drawn from the relationship between budgetary and functional actions. Those agencies with the greatest change in appropriations and expenditures also have the greatest change and growth in functional actions. The temporary budgetary risks that might ensue seem well worth it to an agency that can weather such setbacks for long term development of *both* budgetary and functional actions. Moreover, agencies were shown to have a flexibility in functional actions that is not highly dependent upon the dollars they have to spend.

It was deemed important in this study to address the question of how much latitude agenices have in their decisions at each stage in the policy process. Certainly some factors are more subject to "control" or manipulation by the agency than others; Figure 9 presents an impressionistic overall ranking of the relative manipulability among the policy concepts examined in this study.

While the placement of concepts on the scale in Figure 9 is somewhat arbitrary, it is not without some theoretical and empirical rationale. Since budgetary decisions (appropriations) involve governmental actors other than the agency, the agency appears to be more at the mercy of these outside institutions than it is in subsequent program (or implementing) decisions. Within a given concept (for example, budgetary policy actions), there may be different degrees of manipulability. Thus, expenditures and appropriations rank differently, primarily because agency expenditures are less influenced by other institutions (Wildavsky, 1964: 123-125).

It has been argued in this paper that functional actions are more manipulable than budgetary actions, and therefore, agencies are expected to be less constrained in those implementing activities that occur subsequent to budgetary determinations. Agencies' budgetary policy actions were shown to be poor predictors of their functional activities, but this does not mean that agencies have great flexibility in their activities subsequent to budgeting. It has been demonstrated here that maturity and coalitions do constrain agency activites both in terms of budgeting, and to a greater extent, in their subsequent functional activities. Thus, while there are real limitations on agency activities, it is anticipated that by highlighting some of the determinants of budgetary and functional activities, agencies will be able to make

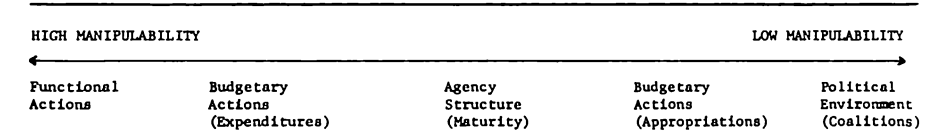


Figure 9: Agency Control Over Policy Concepts

strategic choices with considerably more information than they may now possess.

If the need exists in policy research to deal with manipulable variables, as Williams contends (1971: 14, 54), then it is ironic that the most widely researched areas in public policy to date have, in fact, been those areas least under the purview of policy-makers to change. Roherty (1970) may be right that social scientists have simply not been sympathetic to the constraints under which decision-makers operate.

IMPLICATIONS OF THIS STUDY FOR POLICY RESEARCH

Interspersed throughout this paper have been efforts to review the policy implications of the research. Some of the findings were more relevant to the scholar, such as those that assessed the relative importance of particular measures or variables, or the attempt to assess the interrelationship of the concepts of the study. On the other hand, it is believed that a number of the findings of this study deal with issues relevant to agency decision-makers. Johnson (1970) criticizes much of the policy literature for having implications that are greater than its applications. The claim for this research is that both elements are present and that both are essential ingredients if one is desirous of understanding the entire policy process.

Justification for the above contention is based upon the treatment in this research of manipulability, policy as an independent as well as a dependent variable, concept-level analysis, and agency activities subsequent to budgeting. In terms of manipulability, "controllable" relationships have been explicated as well as possible agency strategies. By considering policy as both an independent and a dependent variable, the research has delved into not only the commonly considered governmental processes, but also into issues of the content (or substance) of policy as well. This has been done at the variable level, but an effort was also made to look at relationships more broadly—through concepts that have been recognized in theory but ignored in empirical research. The concepts used have been shown to have utility, but they are in need of refinement. For example, while the study demonstrated that both maturity and coalitions are related to policy actions, the nature of the relationship depends upon the measures of maturity and coalitions being used and the type of policy actions (budgetary or functional) examined.

There seems to be a considerable difference between dollar and non-dollar measures of agency activity, and it may be that how much money agencies get is not so important as what they do with it. If the propositions of this study are correct, policy-making does not stop at the budgetary process, but it is also relevant to activity beyond these stages. Functional actions of agencies are important because these are the activities over which the agency has greatest control, and because they have a direct effect on the lives

of citizens, both beneficiaries and non-beneficiaries. Attention to these subsequent activities or developments is essential if one hopes to evaluate the impact of agency programs. Research such as that done here is thus a prerequisite to this assessment function. A consideration of the impact of these policy actions would be a logical extension to the present study and is contemplated in future research.

NOTES

1. The castigation of case studies can be made too strongly. Russett (1970a) makes a persuasive case in arguing that case studies have considerable utility for cumulative knowledge. In spite of a plethora of descriptive non-theoretical, and non-generalizable studies, there have been a number of good case studies of bureaucratic behavior. Some of the most important include Bailey and Mosher, 1968; Fritschler, 1969; Grosse, 1970; Natchez and Bupp, 1973; Brady and Althoff, 1973; Russett, 1970b.

2. Several of the more important examples include Key, 1949; Lockard, 1959; Dawson and Robinson, 1963; Hofferbert, 1966; Dye, 1966; Grumm, 1971; Sharkansky, 1970a, 1968; and Fry and Winters, 1970. The dearth of research on non-fiscal measures of policy outcomes has been decried by Grumm, 1971, and Ripley and Franklin, 1975. Recent efforts to go beyond dollar measures include Asher and Van Meter, 1973, and, particularly, LeMay, 1973.

3. This assumption appears in much of the literature on agency activities. For example, Rourke casually states that the "range of services any agency can provide is determined ultimately by the money it is authorized to spend" (1969: 25). Other scholars have shown, however, that level of spending is just one of a number of factors affecting services (see especially Sharkansky, 1969: 198; LeMay, 1973).

4. The research project referred to is "Policy-Making in the Executive Branch," directed by Randall B. Ripley, at the Mershon Center, Ohio State University. The initial theoretical piece emanating from the project (Riplet, et al., "Policy-making: A Conceptual Scheme," 1973a), provides the intellectual basis for the present research effort. A revised version of the theory and a report on the major investigations stemming from it appeared in Ripley and Franklin (eds.) *Policy-making in the Federal Executive Branch* (1975). This paper does not claim to have tested the broader concepts in their entirety.

5. Studies showing a relationship between structural characteristics and budgetary actions include Davis, 1970; LeLoup, 1973; Moreland, 1973; Ripley, et al., 1973b; and Shull, 1974. The relationship between presidential and congressional coalitions and budgetary actions is explored in Fenno, 1966; Ripley, 1972b; LeLoup, 1973; Davis and Ripley, 1967; Schick, 1971; Sharkansky, 1969, 1970b; Sharkansky and Turnbull, 1970c; Shull, 1974; Sundquist, 1968; and Wildavsky, 1964.

6. The latter two variables were used only in the regression model to provide an additional dimension of budgetary actions and to provide four independent variables in the regression. Thus, there were four indicators of budgetary policy actions, none of which were highly empirically related. There were also some differing theoretical considerations. Budget success and expenditures as a percent of the total federal budget get away from incrementalist notions and raise some interesting questions about agency assertiveness in relationship to other agencies. These two variables are developed further in Shull (1974).

7. Why are budgetary actions expected to be more susceptible to coalition influence than functional actions? It may be that knowledgeable coalitions attempt to participate in the more visible (priority-setting) phase rather than to have influence in the implementing phase. Although expenditures seems less visible to coalitions than appropriations, implementing actions of agencies appear to be even more obscured from public and coalition scrutiny. Fritschler (1969) demonstrated that the bureaucracy has been delegated considerable authority by congress. The president is also largely removed from questions of administrative policy (Truman, 1969). Ripley (1972a) has shown that presidential and congressional influence in bureaucratic policy-making is greatest at the same stage–in policy decisions rather than subsequent program choices. The literature lends some confidence to the assertion of considerable agency autonomy, particularly in later stages of policy-making.

8. The selection of some indicators of functional actions over other indicators may seem to be haphazard. Occasionally, identical measures (for example, square feet of buildings owned) were available for two or more agencies and were used whenever possible. Most of the indicators were idiosyncratic, however, and when comparability among them was difficult to achieve, they were judged according to how well they met the definitions for each of the three functional policy actions and their two components. Such notions as beneficiaries, physical resources, and functional policy actions were very prevalent in the minds of my colleagues on the project referred to earlier. The author was in frequent consultation with them during the data collection stage regarding the most logical indicators, which resulted in several project working papers, and this gestation finally produced the set of functional policy action indicators presented in Table 7. It should perhaps be reiterated that when one works with limited and varied data sources, diverse agencies, and with no previous work to guide the research in the area of functional policy actions, then it should not be surprising that some of the measures and/or criteria for their selection seem crude.

9. While the hypotheses are worded to suggest that "greater" is equivalent to an "increase" in policy actions, this is not entirely the case. In respect to the percentage change measures, greater refers only to *magnitude*, which may be positive *or* negative.

10. Although agencies generally consider themselves part of the administrative team, they also depend upon congress for funding and seek close relations with that body as well (Fenno, 1959; Truman, 1951). This divided loyalty may cause conflict since congress may look askance at agencies too closely tied to the president (Truman, 1951). The "proper" relationship with each participant in the budgetary process is difficult for agencies to determine, and those that are able to strike the best mix will likely be most successful in receiving their appropriations requests.

11. Although congress can review and amend the president's budget, it can scarcely substitute one of its own (Gordon, 1969). The utilization of budget messages, OMB, and central clearance are some of the factors that have led to increased executive initiative in the budgetary process (Neustadt, 1955). It is, of course, not only in the budgetary process that the president has assumed greater leadership but at various other levels as well, including policy initiation. Donovan (1967) argues that much of the OEO enacting legislation emanated from the White House, and other scholars (Ripley, 1972a; Sundquist, 1968: 489) contend that most of the legislative programs of the Kennedy administration were written from the White House. Ripley further found that the four programs he studied were passed by congress in essentially the same form as they had been proposed by the executive branch (1972b: 172).

12. While it was hypothesized that presidential support increases the budget success of any agency (Sharkansky and Turnbull, 1970c), the level of conflict in congress may affect this relationship between the president and the agency. Agencies often bypass the president and OMB and try to build favorable coalitions in congress, especially with the

appropriate appropriations subcommittee (Wildavsky, 1964). In the appropriations process in congress, the subcommittees and the entire committee attempt to come to consensus among themselves, most of the conflict being resolved at the committee level (Wildavsky, 1964; Sharkansky, 1969). Given the existence of this norm in both the house and to a lesser extent in the senate, one can see congressional floor conflict arising over an agency's appropriation as the exception rather than the rule.

13. The CCC is actually a government corporation and is only loosely affiliated with the Department of Agriculture.

14. Why the intermediate agency level rather than focusing on the department or the program as levels of analysis? Natchez and Bupp (1973) make a persuasive case for programs rather than agencies as units of analysis. It is true, as they point out, that "program" budgets aggregated to the agency level may mask a great deal of variation that is occurring within an agency. Thus, they contend that the appearance of stability and incrementalism of agency budgets is far less in reality than it appears. The same argument could be made for aggregating agency budgets to the departmental level, and it is clear that agencies within a department (just as programs within an agency) may fare very differently in budgeting. However, it is argued here, that decision-makers (particularly congressmen and the president) think more in agency than in department terms, and that the department (with the exception of defense) has little influence or effect on agency's budget experience. Although the program level might better explain nuances in budgeting, the data sought for this research were primarily available for the agency level only, particularly structural characteristics, certain coalition variables, and functional policy actions. While Natchez and Bupp argue that programs have greater histories of support and opposition than agencies and departments (1973: 956), it is expected that the present data will show considerable variation in terms of government support and opposition toward agencies.

15. A dichotomization of the agencies according to their orientation or general mission may be seen in Shull (1974). By combining similar agencies, this exercise has the advantage of greater generalizability than case analysis provides. At the same time, the typology was able to tap patterns of differences that are often masked in statistical analysis where agencies are combined.

16. The correlational and regression techniques incorporated here both assume a linear relationship among the variables. It is likely, however, that some of the relationships are not linear, and more extensive use of non-linear techniques in contemplated for future research.

17. There may be problems of multicollinearity when using multiple regression analysis. The difficulty occurs when independent variables are correlated, that is, there is an inability to tell how much variance in the dependent variable is due to any one independent variable. This problem is exacerbated as the independent variables are more highly correlated. In order to reduce problems of multicollinearity in the present analysis, independent variables were purposely selected that were not too highly correlated (that is, within $\pm.45$). This is not always an easy task since it was expected (and desired) that these variables would be theoretically related. Nevertheless, problems of multicollinearity should be relatively slight in the present analysis.

18. Cursory examination of standard error in the regression models demonstrated that error was generally smaller than the standardized betas and thus was probably minimal.

19. The relationship between percent change in appropriations and percent change in expenditures in the same year is $r = +.34$; when expenditures is lagged one year after appropriations the relationship is $r = +.30$.

20. While the research does have implications for decision-makers, there are a number of problems with the data in its present form that may limit its policy relevance. Standardization of data invariably has costs associated with it (Ripley, et al., 1973b: 25); the disadvantage may be particularly evident here because of the necessity of standardizing budgetary and functional policy actions due to the idiosyncratic nature of the latter measures. Functional policy actions as measured by percent change and growth may inflate the importance of budgetary policy actions more than if one could have looked at the implementation of functional actions through their raw data values. This is because the standardized measures are all indicators of *size* rather than the *internal allocation* of functional activity. And, it is probable that the former is more dependent upon funding levels than the latter would be. (The author is grateful to an anonymous reviewer for this interpretation.) While we have not measured these internal allocations, we can assess the relative disposition of agencies to stress one type of activity over others, irrespective of funding. If such discretion exists, it may mean that functional actions are more manipulable by agencies than are their budgetary actions. It is recognized that the research would likely have greater relevance to policy-makers if internal decision processes could be tapped, however, and future data collection efforts could be directed toward this goal.

21. While this linkage between congressional and presidential affect toward agencies is not tested here, it is recognized by the author as one of considerable importance and has been explored in greater detail in a paper entitled "Coalitions and Budgeting" (Shull, 1975b). It was shown there that the president and congress often have very different views toward agencies. For example, the agency with the greatest congressional support of those included here (VA), also exhibited the least presidential support.

22. This finding relates to an untested speculation by Grumm that "non-financial policy outputs would show a greater dependence on structure than financial ones" (1971: 322).

23. Although the very first attempts at policy analysis in the 1940s tended to be problem oriented, the bulk of literature since the beginning of the scientific revolution of the 1950s has been concerned with the processes of policy-making rather than the content of policy itself. The process literature as exemplified by Key, Dye, Sharkansky, Hofferbert and others used a number of political and socio-economic variables to predict the outcome of policy decisions. Although most of the empirical work has looked at policy in this way (as a dependent variable), other scholars (often with a greater concern for theoretical considerations) have contended that one could turn the focus around and use the substance or outcomes of policy to predict the processes. The main advocates of this approach of using policy as an independent variable have included Salisbury and Heinz, Lowi, Ranney, Froman, and Jones. It is only very recently that this dichotomous view of policy has been challenged, notably by Dolbeare (1973) and Ripley, et al. (1973a). The argument of these scholars is that attention needs to be given to both process and content if one is to understand the entire policy arena. The present research effort has attempted to identify with this most recent trend in the discipline.

24. This implication that funding levels have a pervasive impact on programmatic activities of agencies appears in much of the policy literature and is discussed near the beginning of this paper (see also note 3). While an important relationship between budgetary and functional actions was anticipated, the research has also speculated that agency program implementation is not entirely dependent upon available funding. As stated by Ripley and Franklin, "the outer boundaries of actions are set by total available resources, but the possibilities for quite different internal options are numerous" (1975: ch. 8).

25. While relationships between budgetary and functional policy actions are probably as strong as others reported here, it will be demonstrated subsequently that the

importance of budgetary actions diminishes even further when maturity and coalition variables are included in the model (see Table 17).

26. The greater importance of coalitions for functional than for budgetary policy actions can be attributed in large measure to congressional conflict, and to a lesser extent to congressional partisanship. The relationship of these variables to functional actions is generally opposite to what was hypothesized. Nevertheless, the direction of the coefficients for each component variable is not so important in the multivariate hypotheses where the concern is with the relative explanatory power of each concept as a whole. Thus, in spite of some relationships between coalitions and functional policy actions, maturity variables still explained more variance (as hypothesized) in functional actions than did coalition variables.

27. There were differing numbers of variables comprising the various regression models (structure = three, environment = five, budgetary actions = four). Although this might make some differences in terms of their relative explanatory power due to differing degrees of freedom, environment with only the three main variables had about the same impact as it had with the five. Even with five variables, the coalition model was not as good as maturity as a predictor of functional policy actions. Accordingly, the differing numbers of variables in each model was considered unimportant.

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APPENDIX A*

Operationalization of Structural, Environmental, and Budgetary Variables

Concept/Variables	Indicator(s)/Sources
I. Environment (Governmental Coalitions)	
A. Governmental Support	
1) Presidential Support	1) % pro-agency roll-calls President supported of total (Source: Congressional Quarterly Almanac)
	2) presidential support score (mentions + statements x "tone") (Source: Public Papers of the President)
2) Congressional Support	1) percent pro-agency roll-calls of total (Source: Congressional Quarterly Almanac)
B. Governmental Conflict	
1) Congressional Conflict	1) conflict (vote split x # roll-calls) (Source: Congressional Quarterly Almanac $1 - \left\lvert \frac{\frac{yes_1 - nay_1}{total_1} + \ldots \frac{yes_n - nay_n}{total_n}}{N} \right\rvert$
2) Congressional Partisanship	1) % partisan roll-calls; 50% Democrats voting against 50% Republicans (Source: Congressional Quarterly Almanac)

II. Structure (Agency Maturity)

A. Size	1) Total number of civilian personnel (Source: U.S. Budget Appendix)
B. Age	1) Number of years since creation (Source: Government Organization Manual)
C. Hierarchy	1) Supergrades (GS 16-18) total employees (Source: U.S. Budget Appendix)

III. Budgetary Policy Actions

A. Percent Change in Appropriations	(Source: Appropriations, Budget Estimates, Etc.)
B. Percent Change in Expenditures (less trust funds)	(Source: U.S. Budget)
C. Budget Success	Appropriations/Requests (Source: Appropriations, Budget Estimates, Etc.)
D. Expenditures as a Percent of the Total Federal Budget	(Source: Statistical Abstract of the U.S.-adapted)

*A much fuller discussion of operationalization of the structural and environmental variables may be seen in Chapter Two and Appendix A of Shull, 1974.

APPENDIX B

Intercorrelation of Standardized
Functional Policy Actions

		Change in:						Growth in:					
		FI	BF	AP	PU	Pr.B.	Pot.B.	FI	BF	AP	PU	Pr.B.	Pot.B.
Change in:	FI	----											
	BF	.54*	----										
	AP	-.23*	-.22*	----									
	PU	.25*	.30*	.06	----								
	Pr.B.	-.16	-.03	-.04	.11	----							
	Pot.B.	.19	.09	.11	.14	-.12	----						
Growth in:	FI	.65*	.32*	-.09	.11	.01	.17	----					
	BF	.51*	.60*	-.40*	.00	.24*	.06	.75*	----				
	AP	.07	-.08	.19	.08	-.06	.21	.10	.04	----			
	PU	-.03	.11	-.08	.23*	.40*	.11	.34*	.54*	-.12	----		
	Pr.B.	-.19	-.11	-.06	-.12	.32*	-.12	-.18	-.03	-.09	-.02	----	
	Pot.B.	.59*	.39*	-.04	.18	-.08	.51*	.76*	.45*	.05	.61*	-.35*	----

Key: FI - Field Installations
BF - Beneficial Facilities
AP - Activities Performed
PU - Personnel Utilized
Pr.B. - Primary Beneficiaries
Pot.B. - Potential Beneficiaries

An asterisk indicates coefficient meets criterion of "significance" (±.20).

APPENDIX C

Table C-1. Summary of Characteristics

	VARIABLE	ACE	AEC	AID	CCC	FAA	NASA	OE	VA
MATURITY	size	large	small	small	small	large	mod. l.	small	large
	% SC	small	large	large	small	small	large	small	small
	% MC	small	large	large	small	small	large	large	small
	age	old	mod. y.	young	mod. old	mod. y.	young	old	mod. old
COALITIONS	Presidential support score	lo	mod.	hi	mod.	mod.	mod. hi	v. hi	mod.
	Congressional conflict	mod.	lo	hi	mod.	mod.	mod.	hi	lo
	Congressional partisanship	hi	mod.	hi	hi	lo	lo	hi	lo
	Presidential roll-call support	mod.	mod.	hi	mod.	hi	hi	mod.	lo
	Congressional roll-call support	lo	hi	mod.	lo	mod.	mod.	mod.	hi
BUDGETARY ACTIONS	Budgetary success	hi	mod.	lo	mod. lo	mod.	mod.	hi	hi
	% change appropriations	lo	lo	hi	mod.	mod.	hi	hi	mod.
	% change expenditures	mod. lo	lo	lo	mod.	mod.	hi	hi	mod. lo
	Expenditures % federal budget	lo	mod. hi	mod.	mod. hi	lo	hi	mod. lo	hi
FUNCTIONAL ACTIONS	% change fi[b]	lo	lo	mod.	--	mod.	lo	hi	lo
	Growth fi[b]	mod.	lo	mod.	--	hi	mod.	hi	lo
	% change bf[c]	lo	lo	--	--	lo	mod. lo	hi	lo
	Growth bf[c]	mod.	mod. lo	--	--	hi	lo	hi	lo
	% change ap[d]	mod.	mod.	v. hi	v. lo	lo	mod.	hi	lo
	Growth ap[d]	mod. hi	hi	v. hi	v. lo	mod. hi	mod.	lo	mod.
	% change pu[e]	--	lo	lo	--	mod.	hi	--	mod.
	Growth pu[e]	--	lo	lo	--	mod.	hi	--	lo
	% change $b[f]	hi	mod.	mod.	lo	lo	hi	v. hi	mod.
	Growth $b[f]	mod.	mod.	lo	mod.	mod.	hi	v. hi	mod.
	% change pri[g]	mod.	hi	lo	--	mod.	v. hi	lo	lo
	Growth pri[g]	hi	v. hi	lo	--	mod.	lo	mod.	lo
	% change pot[h]	--	lo	mod.	lo	mod.	--	hi	lo
	Growth pot[h]	--	lo	mod.	lo	mod.	--	hi	mod.

a - No difference
b - Field installations
c - Beneficial facilities
d - Activities performed
e - Personnel utilized
f - $ beneficiaries
g - Primary beneficiaries
h - Potential beneficiaries

($ Beneficiaries omitted in the present analysis)

APPENDIX C

Table C-2. Average Overall Effects of Maturity and Coalitions on Budgetary Policy Actions

	MATURITY			COALITIONS				
Level of Aggregation	Size	Hierarchy	Age	Presidential Support Score	Presidential Roll-call Support	Congressional Support	Conflict	Partisanship
Combined	-	-	+	+	+	(mixed) NR	(mixed) NR	(+) NR
CCC	+	-	-	-	mixed	+	mixed	+
OE	+	+	+	+	+	-	-	+
AID	mixed	-	-	+	-	mixed	mixed	+
ACE	-	-	-	+	+	-	+	+
AEC	+	-	-	-	mixed	-	+	+
FAA	+	-	+	mixed	mixed	+	mixed	mixed
VA	+	+	+	+	+	+	-	-
NASA	-	-	-	+	+	+	-	-

Note: The relationship had to be in the same direction for both budgetary variables to be coded (+) or (-); otherwise, it was coded as mixed. NR = no relationship.

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