DEFENSE BUDGETING:
ORGANIZATIONAL ADAPTATION TO
EXTERNAL CONSTRAINTS

John P. Crecine

PREPARED FOR:
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John P. Crecine

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This Memorandum is part of a set of studies of organizational decisionmaking undertaken by the Economics Department of The Rand Corporation. The organizational decision processes in the U.S. Department of Defense that generate the President's Annual Defense Appropriations Bill are described in detail. The descriptive theory was developed through extensive interviews with past and present participants in the process, both in the Department of Defense and in the Bureau of the Budget. The study covers the period fiscal years 1952 through 1969; it does not take account of changes introduced during the Nixon Administration.

This study should be of use to those interested in the determinants of defense expenditures and the behavior of large-scale organizations, and to those interested in the reform or modification of defense budgeting practices. In addition, the work represented here may provide useful insights into the budgetary behavior of the military establishments of other countries, including the Soviet Union.

The author is the Director of the Institute of Public Policy Studies at the University of Michigan and a consultant to The Rand Corporation. He is indebted to Rand colleague Sidney Winter for many productive encounters on this subject. Graham Allison, Otto Davis, John E. Jackson, A. W. Marshall, John Steinbruner, and John Stromberg have also provided valuable comments on an earlier draft of this study. E. Brunner, B. D. Bradley, and P. Hammond similarly have provided important critical comments. The author also wishes to express his gratitude to those present and former DoD and DoE officials who freely gave of their time and shared their experience.
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I. INTRODUCTION

This study of budgetary decisionmaking in the Defense Department is concerned with how large organizations make decisions or reach positions that satisfy some conditions in the organization's external environment. The importance of budgetary decisions themselves and the existence of the external defense environment have long been recognized. There is, however, increasing controversy over the relative importance of internal processes and procedures used by organizations in arriving at decisions. Are the processes and procedures themselves important determinants of outcome, or is it sufficient to know that if the choices satisfy some externally determined condition, the organizations will somehow respond appropriately? Should one focus on the externally generated constraints or on the adaptive mechanisms? What are the relevant external factors?

The position taken in this Memorandum is that the relative importance of internal and external factors in determining choices varies a great deal between decision areas within an organization and between organizations. For the class of decisions under discussion here, neither internal nor external factors predominate. It is impossible to understand the internal decision procedures without understanding which external stimuli and constraints the organization is adapting to. On the other hand, final outcomes (budgets) are not uniquely determined by external constraints and stimuli -- a fact that gives the particular internal procedures their relative importance.

There are two obvious reasons why it makes sense to examine how and why organizational decisions (defense budgets) are made:

1. To increase our ability to predict future decisions by the same organization, and to explain past and predict future decisions by similar organizations.

2. To provide necessary information for improving organizational decisionmaking.

This Memorandum describes some preliminary results of a study of the determinants of the annual U.S. defense budget. It is a study of
decisionmaking within the U.S. Department of Defense and within the Executive branch of the U.S. government. The major characteristics of the annual budgetary process that generates the annual Defense Appropriations Bill within the Executive branch have important implications for the understanding of other, related military decisionmaking. For example, budget line-item totals provide part of the context for more specific weapons procurement decisions. An accurate model of the defense budgetary process would provide a more realistic set of assumptions for long-range studies of U.S. force postures and program analyses. For instance, in planning, it is important to know if program decisions determine budgetary decisions or are in fact partially constrained by them.

If we can assume that the USSR military establishment is faced with external constraints similar to those of the U.S. military and that their organizational repertoire of adaptive mechanisms is similar to ours, then an accurate model of our budgetary process is very likely to have predictive ability for USSR defense budgets, and hence force structures. The USSR and U.S. military budgetary processes may indeed be similar in important respects. Even if they were not entirely so, studies of the U.S. military budget process may produce useful insights as to how features of the organizations involved, the formal legal structure of the procedures, and so on influence budget splits and other budgetary behavior. This might allow one to guess at, and partly to reconstruct, likely budgetary behavior of the Soviet military establishment.

When one is trying to improve organizational performance by changing organizational procedures, a strategy that ignores the existing decision processes will, except by chance, be inferior to one that does not. For instance, the existing defense budgetary process, whatever its shortcomings, does perform the function of bringing military "needs" into line with larger, national fiscal constraints. Any modified budgetary system would also have to perform this and many other necessary functions. Most organizational reforms are attempts to remedy
a defect in the existing system. A sensible reform should consider not only dysfunctions of the existing system but its positive functional aspects as well. Descriptive theories (such as the one presented here) have utility in that respect.

This Memorandum directly relates to other Rand budget studies. An investigation being conducted by J. L. Stromberg focuses on the same class of decisions as this study (line items in the annual Defense Appropriations Bill), with a much greater concentration on the role of the Congress. S. G. Winter and the author are exploring determinants of the total for the defense budget and its relationship to nondefense requirements and government fiscal policies. G. T. Allison and A. W. Marshall have been examining military decisionmaking in the Soviet Union more broadly. J. E. Jackson of the U.S. Air Force Academy, and the author are examining the processes described here using econometric methods and service totals.

Finally, this study should add to a general understanding of how large, complex organizations make decisions and interact with their external environment. In particular, it is hoped this study will add to the knowledge of how public sector organizations make resource-allocation decisions.¹

Although much appears in the literature on how defense resource allocation decisions should be made,² little can be found concerning how these decisions are made. Much literature has been devoted to the explanation (or, usually, the justification) of particular decisions³


or the chronicling of recurrent financial horror stories involving military (mis)spending. Some historical accounts exist of the determinants of the DoD budget and expenditure totals;\(^1\) these are not stated in such a way that a systematic model can be constructed of the national decision process that determines how much defense is enough. Although descriptions of, perhaps, a more desirable process of allocating the defense total to military programs, services, missions, and appropriations categories exist in the Planning, Programming, Budgeting System (PPBS) literature,\(^2\) for most budgetary items that process does not bear much general resemblance to the actual one. The lack of an adequate descriptive theory of defense budgeting exists in spite of the economic, political, and social significance of the topic.

Conventional wisdom yields a list of some of the factors presumed important in defense resource allocation -- military threats, hot wars, state of domestic economy, inter-service rivalry, broad defense strategy (massive retaliation, limited warfare, and so on) -- but tells us little more than the direction of change in the total spent on defense because of one factor, other things being equal, and virtually nothing about the allocation process.

For all practical purposes, decisions on overall defense spending are budgetary decisions, coinciding with the annual Federal budgetary and appropriations process for the U.S. Department of Defense. Although there are slippages and accelerations between the budget spending plan and actual spending of the appropriated amounts from year to year, in the long run it is the budgeting process that determines levels of defense spending.

My objective is to describe and "explain," in as unambiguous a way as possible, how the dollar amounts associated with each of the


line items in the Appropriations Bill for DoD passed by Congress (see Table 1) were generated. Because these figures are the result of a sequence of decisions, I also want to describe and explain intermediate decisions at the following stages of budget development:

1. Service submissions to Secretary of Defense.
2. Secretary of Defense's budget recommendations for DoD to the President.
3. The President's budget for DoD, as submitted to the Congress.
4. The DoD Appropriations Bill passed by the House.
5. The DoD Appropriations Bill passed by the Senate.
6. The final DoD Appropriations Bill from Congress.

This study and database cover the budgets from fiscal years (FY) 1952 through 1969. FY 1970 will be included as the data are made available.

Space limitations necessitate confining this discussion to stages (1)-(3).

Models were constructed from interviews with many top and middle level officials, former and current, of the Office of the Secretary of Defense, the Services, the Bureau of the Budget, and from long-time observers of national security affairs. Nearly all were cooperative and open. Stage-of-development data (FY 1952-FY 1969) are being used to calibrate the models and test hypotheses.

The defense budget consists of a sequence of converging decisions, involving non-linear allocation processes and decision rules at critical stages, and to describe as well as statistically explain them, many of the theories are stated as process models. The flow charts contained herein are being used to construct computer simulation models of the associated decision process.

Specifically, I shall describe significant features of the process by which "how much is enough defense" is determined and how these resources are allocated within DoD. At present, some people claim
<table>
<thead>
<tr>
<th>Major Program Categories (includes all services)</th>
<th>Appropriations Categories (separate line items for each service and OSD)</th>
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<tbody>
<tr>
<td>A. Strategic Forces (.116)</td>
<td>1. Military Personnel (.280)</td>
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<tr>
<td>B. General Purpose Forces (.427)</td>
<td>2. Operations and Maintenance (.277)</td>
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<td>C. Intelligence and Communications (.076)</td>
<td>3. Procurement (.313)</td>
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<tr>
<td>D. Airlift and Sealift (.022)</td>
<td>4. Research, Development, Test and Evaluation (.097)</td>
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<tr>
<td>E. Guard and Reserve Forces (.036)</td>
<td>5. Military Construction (.017)</td>
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<tr>
<td>F. Research and Development (.062)</td>
<td>6. Other (.015)</td>
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<td>G. Central Supply and Maintenancy (.088)</td>
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<td>H. Training, Medical (.118)</td>
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<td>I. Administration (.021)</td>
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<tr>
<td>J. Other (.033)</td>
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Note:

*Numbers in parentheses are portions of the total for each item in the FY 1969 President's Budget.*
that resource allocation decisions are really program decisions, made in the context of a PPB system, which are then translated (costed) into the appropriations categories for presentation to the Congress. Others, myself included, claim that final program decisions, rather than determining appropriation title decisions, are severely constrained by them. That the two accounting systems are quite different is obvious; see Table 1. That it is important to know whether resources are allocated on the basis of program or appropriations categories is equally obvious.

WHAT THE STUDY IS NOT ABOUT

This study is not an attack on the Planning, Programming, Budgeting System in toto. My concern is with how line items in annual DoD appropriation bills get determined. PPBS, larger strategic questions, the particular substantive arguments put forth to justify various budget submissions, allocations to items at levels below major appropriations title categories, actual expenditures, and the like are of importance only as they affect those relatively few dollar amounts in budget submissions that are voted on by the Congress. I shall address only a limited class of decisions that are separable and therefore subject to somewhat independent examination.

ORGANIZATION

For a variety of reasons, overall fiscal constraints have an important effect on the DoD budget total. Except for the first year or two of a shooting war and other rare events (a new President committed to a new military strategy), year-to-year changes in defense totals seem to be determined nearly independently of specific military needs. During normal periods, the process of allocating the DoD total is nearly decomposable from the process of fixing the total. I shall first discuss the entire question of the total of the Federal budget and the basic split between defense and non-defense expenditures in the context of aggregate influences on defense spending. The approximately decomposable nature of the DoD budget will then be examined, followed by a discussion of PPBS and the way it is supposed to operate
in DoD; resource allocation in this view is seen as the aggregation of program decisions. An explanation of how PPBS has actually worked leads to a detailed discussion of the first item in a hierarchy of internal resource allocation processes in DoD. The allocation process is seen as basically an organizational phenomenon dominated by standard bureaucratic repertoires for dealing with the recurrent and rather standard organizational problem of generating an annual budget document by, basically, disaggregating a total. Finally, some preliminary conclusions are discussed.

The available literature on defense budgeting recently has been heavily dominated by PPBS advocates. I am not concerned here with the many and considerable merits of a PPB system. Unfortunately, however, many believe, for one reason or another, that the PPB system largely determines the annual DoD budget as submitted to the President. A recurrent theme in this study concerns the relationship between theoretical and actual operation of the PPBS (only) as it affects the annual DoD appropriations budget.

A PARTIAL THEORY OF PUBLIC EXPENDITURES

Observations at various levels of government and public expenditure data indicate that, at least for the period following World War II, the principal determinant of total government expenditures (at all levels of government) is total revenue raised by taxation. Trivial as this observation may seem, it contains implications at variance with most public expenditure studies found in the literature, which contend that expenditures determine revenues rather than being determined by them.

An examination of the existing public expenditure literature yields an assumption, implicit in most of the empirical studies,

concerning the existence of certain long-term forces exogenous to the government that determine public expenditures. Although revenue constraints sometimes impinge on level of public expenditures, this (so the assumption goes) is a short-run phenomenon and revenues are, in the intermediate and long run, brought into line with expenditure levels determined by these external forces. The balance between needs (expenditures) and resources (taxation revenues) is accomplished by adjusting resources (tax rates). The political process merely functions as a market substitute in achieving a balance between needs (largely determined outside the political and bureaucratic system) and resources. How is this balance achieved? What is the nature of this balance?

The "market model" of public expenditures would appear more plausible if those populations associated with particular expenditure needs were identical to populations associated with the more general resources used to finance needs, and if the typical voter did not conceive of particular expenditures and general tax burdens as separate issues.

The partial theory of public expenditures providing the conceptual framework for this study is (briefly) as follows: ¹

The political process, at most points in time, has reached a quid pro quo between the highly differentiated forces representing expenditures or needs (bureaucracies and their allied publics) and the relatively undifferentiated forces representing general resources (the voting public). At any point in time, a more or less pervasive agreement exists on what constitutes a "reasonable" level of general taxation, although divergent opinions may persist within and between the government and the public. Furthermore, people's concepts of "reasonable levels" of taxation center on tax rates, and not on their total tax bill. Agreements concerning what is "reasonable" are particularly hard to achieve, hence tax rates are changed only when there is a major reason to do so and there is substantial agreement among the voting public or legislature concerning the appropriateness both of that

¹For a similar point of view, which they refer to as the "displacement effect," see A. T. Peacock and J. Wiseman, Public Expenditures in the United Kingdom: 1900-1952, National Bureau of Economic Research, 1962.
reason and the associated public expenditure. The more important and widespread the revenue source, the more difficult it is to change rates (income tax rates are more difficult to change than property taxes or excise taxes).

The difficulty involved in changing tax rates is dramatically illustrated by the history of the Kennedy tax cut proposal. A more or less continuous effort to get the tax cut approved by Congress was spectacularly unsuccessful. It was only in the emotional aftermath of the President's assassination that enough support could be found for passage and a new agreement on tax burdens could be reached. Another recent example also illustrates the point. Even in the face of persistent, unambiguous, and significant economic pressures caused by our Viet Nam involvement, it took well over a year to get a 10 percent tax surcharge bill approved by Congressman Mills and the Congress.

When the tax rate, and hence general tax burden, changes, it signifies a new "agreement" has been reached and new attitudes are formed on what constitutes "reasonable" tax levels. When (and if) the reason for a tax increase subsides, there is every indication that the public-expenditure remedy or response will persist or at least not return to former levels. In any event the public will have developed a changed perception of reasonable tax burdens, as resistant to change as the previous attitude. In the case of increased expenditures and tax levels, the expenditure itself develops inertial forces through the corresponding (expanded) bureaucracy and its allied publics. In the case of a particular reduction in expenditures, a decrease in the general tax burden without an appropriate reason appears unlikely because of the competing demands of existing bureaucracies for the freed funds. In the post-Depression culture of the United States, problems and events specific enough to be seen as appropriate reasons for changing tax-burden attitudes are generally seen as justifying higher levels of expenditures rather than lower.

In a society with a reasonable number of crises, social problems, and catastrophies, a series of peaks separating ever-higher plateaus will be superimposed on the expenditure pattern resulting from those
forces affecting only tax yields (population changes, inflation with a progressive tax structure, and the like). See Figure 1.

The process of expenditure determination set forth here is a two-stage process. The first stage determines total public expenditures (for a given level of government). Rates are generally constant, and changes in the total are determined by long and short-run forces affecting yields. Rates are changed only by shocks to the political system, catastrophic forces, or crises perceived in a relatively uniform way by a large majority of the (voting) population and the government.

The second stage represents the allocation of the total among various expenditure items (bureaucracies and their allied publics). This stage consists of an administrative decision process, dominated by convention, rules of thumb, the inertial forces inherent in the component bureaucracies, outcomes of bureaucratic battles, and a competition among minorities (represented by a bureaucracy) for available funds. Resource allocation decisions generally take the form of marginal adjustments to an existing allocation pattern. Although some adjustments reflect the positive concerns of the chief executive, they have a marginal overall impact. Though catastrophic events usually affect a specific expenditure item (wars, elections won on a platform emphasizing particular expenditures), in normal times changes in particular expenditure items are more likely to reflect a change in the size of the minority being served, the severity of its problems, and shifts in the focus of public attention -- if these are identifiable.\(^1\)

\(^1\)These items suggest various strategies for bureaus attempting to increase their share of public resources.
Fig. 1—Drift in public expenditures implied by "partial theory"
II. BUDGET TOTALS AND THEIR IMPORTANCE: AGGREGATE CONSIDERATIONS

At the heart of the Federal budgetary process is what President Eisenhower referred to as the "Great Equation":

\[
\text{Total government revenues} + [(+) \text{ deficit or } (-) \text{ surplus}] =
\text{defense spending} + \text{non-defense spending}
\]

The equation holds both in the budget planning stage and after the budget has been approved by Congress. The total size of the budget has political and social meaning. The "deficit" is an economic policy instrument and an important political bellweather. The split between defense and non-defense is an important policy instrument for any administration.

The four variables in the Great Equation represent four policy instruments. With policy objectives associated with all four variables, it becomes extremely difficult for any one instrument to vary so as to simultaneously meet the objectives of the other three. The Great Equation is a Great Identity. As long as budgets are based on an accounting system, parts have to add to wholes, and as long as participants and public see the budget in terms of a defense and non-defense cognitive map, this Great Identity has the force of a natural law.

Each of the four policy instruments has unique and important features that constrain its use.

It is important to note two things concerning the "revenues." The revenue total, of course, is the product of tax rates and tax yields, summed over all tax bases. First, the U.S. Treasury Department and the Council of Economic Advisors are becoming extremely proficient in estimating tax yields. This increased accuracy has, for the most part, removed "convenient" estimates of yields from the list of flexible or ethical policy instruments. Second, it is next to impossible to change tax rates (or to add a new tax) in the same year as the budget year one is planning for. Given the difficulty in changing tax rates, "revenues" as a policy instrument is effectively removed for the upcoming budget year except under the most "catastrophic"
conditions. Although the government and public may be getting more sensitive to the idea of changing tax rates as a policy instrument, we are a long way away from the day when the Chief Executive can influence a change in major taxes at will.

That "deficits" are important policy instruments is clear. Depending on the economic philosophy of an administration, a positive or negative deficit can be seen as an important lever for regulating economic growth (Kennedy-Johnson) or as a number which must be kept as close to zero as possible as in the days of Truman and Eisenhower, when a balanced budget was an important national goal. Use of the "deficit" as a balancing instrument in the Great Identity is severely constrained by the economic and political goals of a particular administration.

At least for the present, any administration is fairly seriously constrained in its use of the left-hand side of the Identity to respond to desired changes on the right-hand side. "Deficit" is a policy instrument responding to different sets of forces from those impinging on the right-hand side. "Revenues," aside from normal yield increases, is difficult to control as a policy instrument. This means that in normal times, whatever the total of revenues and deficit equals determines within fairly close tolerances what defense plus non-defense must add to. In a world where revenues and deficit have political and economic constraints attached to them, either defense or non-defense or both must also have fiscal constraints applied, because of the Identity.

It should be noted that significant organizational and bureaucratic constraints govern defense and non-defense spending as well. These expenditures represent ongoing organizations. To cut back on defense operations, for example, means closing bases in someone's Congressional district, cutting back on military contracts for some company, putting some workers out of work, killing some officer's pet project, blocking promotions for certain military personnel, and the like. For non-defense items, cutting back on services or programs that some group has grown to expect presents similar problems. Real
political and social costs involved in reducing expenditure levels guarantee the kind of organizational inertia that implies the right-hand side of the identity for the budget year will contain elements at levels at least as great as for the current year.

Even in defense spending, where more obvious needs subside when a shooting war halts, steps have been taken to guarantee a level of spending close to last year's. Beginning with the Eisenhower Administration's acceptance of the "Long Haul" doctrine, designed to avoid the feast and famine nature of military budgets in the pre- and post-World War II experience, the end of a hot war did not mean a sharp reduction in DoD budgets. Rather, there has been general agreement that a certain level of defense spending was needed to maintain national security. Just what this level of investment should be has been the object of much debate, however.

Two additional features of the Identity should be mentioned. First, each of the four variables represent policy instruments for different groups of people. Revenues are estimates generated by the Treasury Department based on existing rates. The Council of Economic Advisors and President have primary interests in tax rate changes and the deficit. The Bureau of the Budget (BoB) and domestic agencies are advocates of non-defense programs, and the Pentagon and selected Congressmen push for defense programs. The yearly fixing of the Great Identity involves all of these people and groups, each focusing on different policy instruments and forced to do battle because of the Identity. For example, consider the public debate between President Johnson and Congressman Mills over the Johnson 10 percent tax surcharge. Both saw the same problem: intolerably high deficits. The President wanted to raise revenues while Mills wanted to reduce both defense and non-defense spending.

Second, consider the simultaneous nature of the process of fixing the terms in the Identity. When the President's budget goes to the printer in early January, the enormously complex set of numbers constituting the defense total, when added to the even more complex set of numbers representing non-defense, has to add to a total that satisfies both revenue and deficit targets. This does not happen automatically.
Defense spending has consequences for non-defense spending. Preparation of the non-defense portion of the budget is currently accomplished through appropriations targets sent to agencies by the Bureau of the Budget. These targets are stated in terms of New Obligational Authority, the figures submitted in the President's budget. Agencies must submit detailed justification for appropriation requests exceeding their target, few of which are approved. Targets are sent to agencies during July and August. These dates provide important evidence for the description of how the system works.

**IMPLICATIONS OF THE GREAT IDENTITY**

Assuming the total of the President's budget has political, economic, and social meaning, and assuming the appropriations targets have real meaning for DoD and non-defense agencies, one of the following must be approximately true:

1. Non-defense budget requests are adjusted after the DoD budget submission becomes known, to conform to the fiscal constraints,
   or
2. DoD budget is adjusted on the basis of the non-defense budget and the fiscal constraints,
   or
3. The non-defense appropriations targets are coordinated with a "target" for defense appropriations meaning that the DoD total is known, with a range (+/- $1-2 billion) in July or August,
   or
4. There is no effective fiscal constraint because:
   a. Revenues are increasing faster than budget requests, or
   b. The "tolerable deficit" is large enough to accommodate independently determined defense and non-defense totals, or
   c. A catastrophic event or crisis has changed the public concept of "tolerable deficit" or "appropriate level of taxation" (tax rates).
Reason and interview data indicate conditions (3) and (4)(c), as appropriate characterizations of the fixing of the DoD total. The existence of an appropriations target (ceiling?), partially a function of political and economic constraints, has been belabored, only because of repeated public denials of the use of "arbitrary ceilings" and ceilings of any kind in DoD budgeting since 1961. Their existence prior to that is part of the public record.\(^1\)

The point in time at which a DoD total is approximately known is important evidence in attempts to specify exactly how the Great Identity is fixed, how the trade-off between guns and butter is made, and the extent to which the fixing of the defense total is independent of its allocation.

HISTORICAL PERSPECTIVES ON THE FIXING OF THE DOD TOTAL

Referring back to the conceptualization of public expenditure determination, let us first examine determinants of the budget total (revenues + tolerable deficit).

In normal times, the following are likely to bring about a natural increase in total revenues, assuming notions on tax burdens are notions about rates:

1. Increased real per capital Gross National Product or Gross National Income.
2. Inflation under progressive tax system.
3. Increase in population.

(1) and (2) act to increase the effective tax rate but not the apparent one. (3) acts directly on yields.

Shocks to the political system, if severe, can bring about long-run and short-run shifts in the "normal" revenue figures by causing a shift in the tax rate or by effecting a change in the magnitude of a tolerable deficit. Wars and economic calamities of the order of magnitude of the Great Depression cause shifts in tax rates. Wars,

economic policies, elections won with promises containing definite expenditure implications (Kennedy on missile gap and limited war capability), and the focus of public attention on domestic or defense problems can bring about temporary shifts in the tolerable level of the deficit.

In specifying how the defense spending total (more accurately, the DoD Appropriations Target) is set, within the overall budget constraint it is useful to distinguish between the practices of the Truman-Eisenhower Administrations and those of the McNamara-Kennedy-Johnson era. In the former period, there was a widespread belief that a strong economy was the most effective defense a country could have and that high levels of defense spending tended to weaken the economy. This belief was based on the notion that a mobilization base and not the peacetime military establishment wins wars. With the exception of the Korean War period, the late 1940s and the 1950s were characterized by the establishment of various expenditure (and appropriation) ceilings by the President, reasonably constant for a period of years, with slight adjustments for price increase. During the McNamara era, the Secretary of Defense provided the primary inputs for the determination of the DoD ceiling or appropriations target. In reality, throughout the 1950s and 1960s, deficit, defense, and non-defense totals have been jointly determined.

Partially because the existence and form of fiscal constraints severely limit feasible organizational resource allocation processes and partly because there has been considerable controversy recently on the subject, I shall devote considerable attention to the subject of budgetary ceilings.

**Truman-Eisenhower DoD Ceilings**

In May of 1946, President Truman

...decreed that in FY 1948 military activities could have one third of the funds remaining after the fixed charges

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(national debt interest, etc.) had been met. This was the initial appearance of the "remainder method" of calculating security expenditures which was to become a familiar feature of both Truman and Eisenhower peacetime budgets.\(^1\)

There is little evidence to indicate where the one-third figure came from. It is clear, however, that this yielded a base DoD budget of $12-$13 billion which was quickly replaced by the firm $13 and $14 billion ceilings in the late 1940s. As the ceiling set in, so did the obvious log-rolling practice of equal service shares. A series of previously ignored studies on the necessary level of defense effort was revived, revised, and referred to when the external shocks of the first Soviet atomic bomb (September 1949) and Korean War (June 1950) occurred. The Truman "ceiling," consisting of civilian estimates of economic limitations, was discarded, and military "required" force levels were the driving forces in the budgetary system. After the Korean War, defense budgets, which had reached a peak of over $50 billion, were reduced to a new plateau of $32-$35 billion in FY 1956. There is strong reason to suspect that the Eisenhower goal of a balanced budget for FY 1955, something he could not achieve in FY 1954, was a crucial factor in determining the new level of defense spending.\(^2\) In 1961, former Defense Comptroller Wilfred McNeil described the determination of budget ceilings and their application during the Eisenhower Administration as follows:

Back in 1949, 1950, and 1951, it had been decided that we would increase the level of defense and carry it on at a rather high plateau looking ahead for some period of time and to avoid the old system of peaks and valleys.

The projections of what it might cost to get this reasonably high level of defense in the early part of the 1950's, 1952, 1953, and 1954 was (sic) in the neighborhood of $35 billion, or a little more.

Therefore, as a result, the Bureau of the Budget the following year said, "We would like to see what an initial plan for the coming year looked like at the $35-, $37-, $39-

\(^1\)Ibid., p. 42.
\(^2\)Ibid., pp. 223-224.
or $38-billion level." I would not consider that the Bureau of the Budget was setting that figure.

Now, the $40-billion initial planning level came along in the late 1950's, after there had probably been price changes of 10 percent, so that really the initial ceilings were based on, let us say, a stable dollar and were still in the ball park, so far as overall planning was concerned....

I know of no budget in recent years that came to the Congress in the precise amount established as the initial budgeting ceiling ....

But I want to add that I think the staff of the Bureau of the Budget, by the very nature of their operation, does think -- as Gertrude Stein might have said -- that the budget ceiling is a budget ceiling.

Things have been somewhat different under Secretary McNamara; just how different is another question.

McNamara Blank Check for Defense

The official position on "ceilings" during the McNamara era is clear; they didn't exist. The implications of this position for resource allocation processes in DoD were made equally clear; programs determine budgets. For instance, the testimony of Alain Enthoven, former Assistant Secretary of Defense (Systems Analysis), in PPB Hearings before Senator Jackson's Subcommittee on National Security and International Operations (September 27, 1967) is particularly revealing of the "official position":

... Since 1961, the Secretary of Defense has not operated with any predetermined budget ceiling. Rather, he judges each proposal on its merits, considering the need, the contribution of the proposal to increased military effectiveness, and its cost in national resources. The total Defense budget recommended by the Secretary of Defense to the

President, and by the President to the Congress, is the sum of many such judgments about military need and effectiveness and their relation to cost.

PPBS enables the Secretary of Defense, the President, and the Congress to focus their attention on the major missions of the Department of Defense, rather than on lists of unrelated items of expenditure. For example in making decisions about Strategic Retaliatory Forces, the Secretary looks at the threat, at our national objectives, and at alternative plans to meet our objectives, their effectiveness, and their costs. He reviews the data on these matters with the Joint Chiefs of Staff and the Services, obtains their advice, and makes decisions on the forces. From there on, the breakdown of the budget by Service and appropriation title is largely derivative, a process left mostly to the staff.\(^1\)

A further elaboration of the "official position" appears below in Section IV.

A highly placed official of BoB described Secretary McNamara's relationship with Presidents Kennedy and Johnson as follows:

Ceilings don't exist. The President has given Mr. McNamara more or less a blank check for defense. Any Secretary of Defense and any President have a unique relationship. Because of U.S. government operations, this must be the case, it has to be the case.

Mr. McNamara:

When I took office in January, 1961, President Kennedy instructed me to --

1. Develop the force structure necessary to meet our military requirements without regard to arbitrary budget ceilings.

2. Procure and operate this force at the lowest possible cost.\(^2\)

This quote appears in a high percentage of public and internal DoD documents issued by Secretary McNamara concerning defense budgets under both President Kennedy and President Johnson. Yet, fiscal constraints surely operate. In light of the above discussion, it is important to specify in more detail exactly what "without regard to arbitrary budget ceilings" means.

\(^1\) Pp. 69-71.

One clear meaning it has had in practice is that Mr. McNamara has had substantial discretion in determining "how much defense is enough." The interesting question from our standpoint is not who decided what the ceiling ("arbitrary" or not) or appropriations targets should be, but what considerations were taken into account.

Fiscal considerations place rough limits on the total federal budget and, as a result, define an acceptable range (within about $3-$4 billion) for the DoD total. The DoD total is less of a finite decision than it is a sequence of decisions, taken in light of fiscal constraints, that converge on a specific figure. The fiscal constraints, meanwhile, are adjusted somewhat in light of the DoD preliminary totals.

It is useful to distinguish between the process in OSD before the October 1 service submissions (budget requests) and the budget review period between service submissions and the delivery of the DoD budget request to the President in early January. The DoD submission to the President has not been modified by the President (or BoB) during the McNamara regime -- testimony to the "blank check" he was given by two Presidents and testimony to the government-wide perspective he has used in considering the DoD requests.

A MODEL OF THE PROCESS OF DETERMINING BUDGET TOTALS

Basically the split between defense and non-defense represents a balance among perceived defense needs, non-defense needs, and fiscal constraints, discussed above. The DoD total decision is made at the level of Secretary of Defense, Director of the Bureau of the Budget, Secretary of Treasury, the Council of Economic Advisors, and the President. In recent years, this quantity (how much defense is enough) was determined by Secretary McNamara in a highly internalized way, but the factors used reflect a more general "Presidential perspective." Factors affecting the adjustment from the previous year in the DoD appropriations level appear to be such things as general revenue increases, international crises, domestic needs, economic conditions, and Soviet defense policies. The collective opinion of the DoD total (not always easily arrived at) appears to have all the characteristics
of a summary attitude. The environment throws up information, some of which is perceived to be relevant to defense spending. Some information causes an implicit upward adjustment in totals, some argues for a reduction. Another important type of information for the Secretary of Defense consists of a rough feel for the costs implicit in current force structure estimates in the DoD planning process. The cumulative effects of this information (external events and internal planning documents) specify, in a broad sense, a new level of defense spending. Apparently the range for the total is arrived at during the late summer preceding the January President's Budget and is transmitted to or coordinated with the President, Director of BoB, Secretaries of Defense, State, and Treasury (for revenue estimates), and recently the Chairman of the Council of Economic Advisors (see Figure 2). Usually this is accomplished at two or more formal meetings. A bargaining session of some sort apparently exists for the purpose of filling out or further fixing the components of the budget equation:

\[ \text{[Total government revenues]} + \text{["tolerable" deficit]} = \]
\[ \text{[defense spending]} + \text{[non-defense spending]}. \]

Although as suggested above the terms in the equation are not independent of one another, it appears as if defense spending has had much more influence over policy changes in total revenues (tax policy) and deficit than has non-defense spending. The two items on the right-hand side of the equation, once determined, form budgetary constraints to be administered by the Director of BoB and Secretary of Defense.

The reduced form of such a decision system could be characterized as follows:

\[ \hat{d}_{t+1} = f_1(D_t, N_t, \hat{R}_{t+1}, X_t, G_t, W_t, E_{D,t}, E_{F,t}) \]
\[ (1) \]

\[ \hat{D}_{t+1} = f_2(D_t, N_t, \hat{R}_{t+1}, X_t, G_t, W_t, E_{D,t}, E_{F,t}) \]
\[ (2) \]

\[ \hat{N}_{t+1} = f_3(D_t, N_t, \hat{R}_{t+1}, X_t, G_t, W_t, E_{D,t}, E_{F,t}) \]
\[ (3) \]
Shocks to Political System
"Catastrophic Event(s)"

Focus of Public Attention
(N.Y. Times Index)
$E_D, t; E_F, t$

Economic Forecasts

Current Tax Rates

"Tolerable Deficit"
(Council of Economic Advisors)
$\bar{d}_{t+1}$

Revenue Forecast
(Dept. of Treasury)
$\bar{R}_{t+1}$

Defense - Non-defense split

Budget or Expenditure Total
$(\bar{d}_{t+1} + \bar{R}_{t+1})$

Current Appropriations
$D_t, N_t$

Force Structure Plans --
- Major Program Memo (MPM-formerly DPM's)
- JSOP (Joint Chiefs)
- FYDP Five-Year Defense Plan
  (OSD, Systems Analysis)
  (Secretary of Defense, Joint Chiefs of Staff)

Totals for Planning Purposes
(BaB, State, DoD, Treasury,
CEA, White House)

Defense Preliminary Total --
Appropriations Target
$\bar{D}_{t+1}$

Non-defense Preliminary Total
$\bar{N}_{t+1}$

Internal, DoD
Resource Allocation Process
(Secretary of Defense)

Bureau of Budget gives
non-defense agencies their
Appropriation Targets
(Director, Bureau of the Budget)

--- Persistent relationship
----- Occasional relationship

Fig. 2—Fixing of defense and non-defense appropriations target
where

\( \hat{d}_{t+1} = \) planned deficit

\( \hat{D}_{t+1} = \) planned defense total

\( D_t = \) current defense total, used as a planning figure for defense total, assumes current base of operations to be continued

\( N_t = \) total for non-defense items in administrative budget, current budget year

\( \hat{R}_{t+1} = \) Treasury estimate of revenues for coming budget year

\( C_t = \) gap between full employment GNP and current GNP, current calendar year

\[ X_t = \begin{cases} 
1 \text{ if Kennedy-Johnson} \\
0 \text{ if Truman-Eisenhower}
\end{cases}, \text{ calendar year} \]

\( W_t = \) number of U.S. servicemen wounded in action, current calendar year

\( E_{D,t} = \) Exogenous, focus of public attention index (based on New York Times articles) for current calendar year, domestic issues

\( E_{F,t} = \) Exogenous, focus of public attention index (based on New York Times articles) for current calendar year, foreign issues.

\( X_t \) reflects the substantial difference in economic perspectives between administrations viewing a balanced budget as sacrosanct and those embracing the new economics, which views a surplus or deficit as important fiscal regulators for the economy.

The planning figures referred to in Figure 2 are not available in any precise form. The Major Program Memoranda (formerly known as Draft Presidential Memoranda) are not in a form where it is possible to estimate a cost for the entire package of programs. The Five Year Defense Plan has not yet been updated to reflect Major Program Memoranda.
decisions at the time the system is converging on the defense total. In light of this, the defense total for the current year, \( D_t \), upwardly adjusted, appears to be a reasonable surrogate for the Secretary of Defense's "feel" for what current plans would cost. This is especially true when one considers the fiscal constraints on possible configurations of programs.

It is acknowledged that an identification problem could exist when one attempts to move from the reduced form, above, to a specification of model structure.

It should also be noted that during the Kennedy-Johnson years (and probably for the Nixon years)

\[
\hat{R}_t = f(\hat{\alpha}_t, \hat{D}_t + \hat{N}_t)
\]

where, based on the new economics, the impact of government expenditures was included in the revenue estimation procedure. Given the crudeness of the model, introducing this complication would serve little purpose, however.

**SUMMARY**

The above model is probably a reasonable representation of the set of considerations that resulted in the setting of a defense total for the study period (1952-1969); it was primarily a Presidential decision under Truman and Eisenhower. The unique feature of Mr. McNamara's stint in the Pentagon is not that the considerations were substantially different, but that he, rather than the Presidents he served under, seemed to fill in the amounts in the Great Identity and would then "announce" the result for defense spending to the rest of the participants -- primarily the Director of BoB so that he might issue appropriations targets for non-defense agencies (in August). Given the nature of the constraints on the four policy variables in the Identity, when any one of the four is fixed, for all intents and purposes, so are the other three.
III. THE APPROXIMATE DECOMPOSABILITY OF THE DEFENSE BUDGET: AGGREGATION ISSUES

The process of arriving at an annual Federal budget consists of a sequence of decisions, or more accurately, the fixing of a sequence of constraints. Furthermore, this sequence of constraints is a hierarchical sequence in any given year, with prior decisions imposing constraints on subsequent decisions. Decisions on the overall size of the budget (revenues + deficit) constrain decisions concerning the split between defense and non-defense. The particular share of the total for defense constrains service shares and growth in particular appropriations categories. The total available in any appropriations category in turn constrains sub-elements or programs (for example, weapons systems in procurement accounts) within those categories. Budgets for expenditure objects constrain actual expenditures. This is not to argue that the hierarchy is "pure" in the sense that items lower in the hierarchy have no influence on higher constraints, only that the influence of lower on higher is minimal.\(^1\)

It should be pointed out that the above characterization of the process (in normal times) is at variance with the PPBS-McNamara, public version of the process. They contend that the defense total is based primarily on hard, rational military needs and is only marginally constrained by non-defense and economic considerations (see statement by Alain Enthoven, above). That this is not the case will be discussed at length in the next section.

Under Truman and Eisenhower, for purposes of fixing the DoD total in non-war times, the process was explicitly decomposable. Eisenhower announced and enforced ceilings on DoD appropriations after the Korean War. His message to the services was essentially, "you have $X billion (annually) to allocate as you see fit." The services had great discretion as long as they remained inside their budgetary limits. In the

1960 campaign, this policy and decision procedure was labeled by Senator Kennedy as an "arbitrary budget ceiling" and was an important campaign issue.

The difference in the decision process under McNamara and under Truman-Eisenhower is in the way fiscal constraints were enforced. Eisenhower and Truman revealed their fiscal constraints at the outset of the annual budget exercise; McNamara (Kennedy-Johnson) never revealed his explicitly -- only implicitly during the budget review stage at the Office of the Secretary of Defense at the end of the annual exercise.

There is no foreordained budget constraint by appropriation title. Limits get applied to the overall budget, not individual accounts, but the fact remains, ultimately, limits did apply. The point is the current (program) budget system ignores the fact that such constraints and limits exist and they have to exist. We would be better off if we recognized from the start (of the budget planning cycle) that we had to make decisions in the context of a realistic budget constraint instead of waiting until the end to do this. Decisionmakers don't want to decide important issues until very late in the game.¹

Because of President Kennedy's repeated criticisms in the 1960 campaign of the ceiling-approach to defense budgeting under Eisenhower, Mr. McNamara seems to have made a political decision to avoid all reference to and deny the existence of any form of "ceiling." The important thing, however, is not whether it exists, but rather how it is calculated and how it is enforced.

ON THE CAUSES OF APPROXIMATE DECOMPOSABILITY

No one would argue that the decision process fixing the budget for the Department of the Army is (or should be) more closely related to the parallel process for Health, Education, and Welfare (HEW) than to the Department of the Navy's budgetary process. Such a system is at least somewhat decomposable in that in certain matters, one could analyze the behavior of the Army by considering the Navy, but ignoring

¹Interview with a former high-level official, Office of the Assistant Secretary of Defense (Systems Analysis), April 1968.
the influence of HEW. The basic argument in this study is that certain communication, coordination, and calculation costs make defense budgeting separable from non-defense budgeting except in the very aggregate (Great Identity) sense.

Consider the problem of coordinating the plans (budgets) of defense agencies with those of non-defense agencies. I have already argued that decisions on revenues and deficits are constrained by factors other than the level of government expenditures. Defense and non-defense budgets have to add up to this total. By midsummer, estimates of revenues and (necessary) deficits have been formulated and the process of convergence begins on final planning figures submitted with the President's budget in January. Depending on how many economic surprises the next six months or so holds, the initial total is well fixed (easily within a range of, say, $5 or $6 billion). Interviews with DoD officials indicate that in late July or early August the non-defense agencies are sent their budgetary guidelines or "appropriations targets" by the Bureau of the Budget -- fiscal constraints are applied early in non-defense agencies and the non-defense portion of the budget is set in the large, if not the small. If three of the four terms of the Great Identity are known, the fourth must also be known, at least approximately. At least outwardly, the process is clearly a decomposable one to this point.

That internal resource allocation decisions were largely separable from the (prior) setting of limits on the total under Eisenhower is disputed by no one. That the process was decomposable under the McNamara-PPB system is not so obvious. Returning to the overall planning process, if the non-defense total is approximately known in mid or late summer, then the defense total is also approximately known, if not publicly revealed. The question becomes, how is the basic guns-butter split arrived at? Many systems-analysis, PPBS people in DoD argue that the defense figure is arrived at by a costing out of approved DoD military plans. ¹

¹Note that an additional argument is also implicit in this contention: that the non-defense total is what is left over after the defense total has been calculated; a variation of the "remainder method" (see above).
The Major Program Memorandum, reasonably complete by midsummer, is not in a form to be costed out to arrive at the DoD total. A look at when program planning decisions are actually made reveals that the majority are made after or during the budget review phase (between the October 1 service submissions and early January when the President's budget goes to Congress). This all suggests very strongly that the DoD total is arrived at in a way other than by simply adding up the costs of approved programs.

Consider the alternatives to the decomposable process suggested above. Assuming fiscal constraints do apply ultimately, it could be that all Federal agencies (defense and non-defense) would simply make independent budget submissions which would then be added up and, at the end of the budget cycle, would somehow be brought into line. At least three things argue against the world's being structured in this way.

First, one need only look at the size of \( n \) in the following

\[
\text{Revenue} + \text{deficit} = \sum_{i=1}^{n} (\text{Line item in Appropriations Bills})_i
\]

to realize the magnitude of the administrative and computational problem. The number of line items in the annual appropriations bills, \( n \), is in the thousands. It is no easy task to get several thousand items to add up, even approximately, to a "predetermined total" even if that total is only a ballpark figure. Under the current advocacy system where nearly all line items have one or more advocates arguing for increased funds, the total resulting from unconstrained agency budget submissions would not be within any realistic fiscal constraints and would probably exceed such constraints by 50-100 percent. Any feasible type of review (cutting sessions) aimed at bringing the sum of requests into line would have to rely on very simple rules of thumb — across-the-board cuts, drastic reduction of a small number of items, and the like. The incommensurability of the items and the time constraints imposed on budget reviews (October through December) make it impossible for a single decisionmaker or group to make judgments on the relative strengths of the advocates' arguments, without resort to drastically simplified heuristics.
Second, when one realizes that several thousand people are deeply involved in this review process, in getting the parts to fit the constraints on the whole, one gets some idea of the enormous coordination problems involved. Yet budgets do get generated yearly and they do, however imperfectly, satisfy aggregate constraints. It is only by placing controls on the advocacy process that this is possible, however; through assumptions by all participants that activities will be carried on at current levels, at least, and through formal and informal expectations that individual percentage increases will be constrained by percentage increases in the Federal budget total.

Another observation that reveals the decomposable nature of the process concerns the independence of staff effort during the budget review stage. The Bureau of the Budget has exclusive responsibility for reviewing (cutting) requests from the non-defense agencies. In recent years at least, the Office of the Assistant Secretary of Defense, Comptroller, has had primary responsibility for reviewing service budget requests. Although several BoB staff members participate in the DoD budget review sessions, they are considered by all involved to be members of the Pentagon staff in spirit, if not in fact. They physically move across the river (to the Pentagon) during the "budget crunch." Disagreements between BoB and the Defense Comptroller's office personnel have been relatively minor. On the few major disagreements that occurred in the Kennedy-Johnson years between the two staffs, when the Director of BoB and the Secretary of Defense took their respective cases to the President, DoD was never overruled.

The nature of staff activity; the predominance of fiscal constraints; explicit appropriations targets for non-defense agencies; administrative, computational, and informational difficulties inherent in a "non-decomposable system"; and the nature of the task requiring that several thousand parts approximately add up to a whole all argue strongly for the existence of an approximately decomposable resource allocation system for defense, where "how much defense is enough?" is answered by "how much can the nation afford?" and where the allocation of that total is further decomposed among major units of DoD.
DECOMPOSITION OF THE DEFENSE TOTAL

The services have some demands to be met that appear to enter the budgetary process as somewhat independent constraints to be satisfied. Services want:

(1) An increase in budget total.
(2) An increase in the size of their forces (as measured by ships, divisions, and wings).
(3) A constant or increasing share of the total military budget.

The stability in service shares over the 1956-1966 period bears out the existence of these rules under normal conditions. Major changes (more than 2-5 percent) in service shares have occurred only in wartime years during the last thirty years.

An additional bit of information illustrates the decomposability of the process within DoD. When services submit their budget requests on October 1, they are submitted to the Office of Deputy Comptroller (Budget). There, the service requests are literally decomposed by Appropriations Titles. Submissions relating to procurement items are sent to the Budget Directorate for Procurement, those for Research and Development are sent to the Directorate for R&D, and so on. Here, parts of the decomposed budget are reviewed independently (see Figure 3).

THE UNIQUENESS OF WAR TIME

The above situation may hold for normal times — military "needs" determined by fiscal constraints. The same condition does not hold during the first year or two of a shooting war. Expansion of military budgets, reflecting military "needs," is likely to take high priority, leading to a relaxation of fiscal constraints (change in tax rates and in increase in the "acceptable" level of a deficit) and perhaps a greater share of any normal increases in revenues. At least at the beginning of a war, it is probably no longer accurate to describe the decision system as even approximately decomposable.
Fig. 3—Organization of Deputy Comptroller's (budget) office


IV. PPBS, A NORMATIVE MODEL OF BUDGETING:  
AN AGGREGATION PROCESS

When Senator Kennedy became President in 1961, he came in on a platform that took major exception to President Eisenhower's method of deciding how much defense was enough. It is not clear if Kennedy was unhappy with the procedure of establishing a ceiling, target, or fiscal constraint within which the military was required to work, whether he was just unhappy over the level (too low) of that ceiling, or if he was unhappy with both procedure and policy. In any event, one of the very first things Secretary McNamara did on assuming office was to install Charles Hitch and, with him, systems analysis and PPBS as new systems in the Pentagon. Although many contend that former Secretary of Defense Gates had already laid the groundwork for PPBS and that General Maxwell Taylor had previously espoused a similar system, there can be little doubt that McNamara and Hitch deserve the credit for any changes that may have come about because of PPBS. However, for the class of decision of concern here, a substantial difference exists between PPB in theory and in practice.

PPB: THEORY

The traditional military budget was and is based on a system of appropriations accounts with a clear input and organizational orientation (see Table 1). Decisions about resource allocation decisions were made in terms of the objects of expenditure (military personnel, procurement, and so on) and the decision unit making that expenditure (Army, Navy, Air Force). In such a system, the needs of management and control were served adequately. The base commander knew how many men, what pieces of equipment, inventories, and the like he had at his command; he at least had the data on hand to enable him to keep pilferage down and keep track of those resources entrusted to him. A system of mutual expectations grew up around the old Navy and War Departments involving the military bureaucracy, the President and his Budget Bureau, and the relevant committees in Congress. When the Department of Defense was formed in 1948, the accounting system and
structure of the Army and the Office of the Secretary of Defense were manned with personnel from the financial management offices of the services.

There have been substantive changes and discontinuities in structure over the years, but great continuity in the personnel manning the structure. The continuity of the system of mutual expectations has been preserved through a surprisingly constant stock of people rotating through a series of positions in the Financial Management sections of the services, the Comptroller's Office of the Defense Supply Agency, and the Office of the Assistant Secretary of Defense, Comptroller. On-the-job experience has taught each group of participants what to expect from the others at budget time under the existing appropriations structure. The old budgeting system is firmly entrenched. The critics of the traditional system, in addition to their charges that the "arbitrary" budget ceiling was inappropriate, pointed out that the planning function in the U.S. military establishment was poorly performed. Services were planning for different wars, against different enemies, on different battlefields. The Army's war was to be fought on a European style terrain, using traditional WWII weapons, the Navy's war would of course be fought at sea, and the Air Force conceived of an exchange of nuclear bombs with its Strategic Air Command assuming the primary role. The Air Force and the Navy were not particularly concerned with how the Army troops got from their home bases to the battlefields. The Army did not seem to worry greatly about the problems of building their skeleton divisions to combat readiness, and so on; as long as the Army obtained their X divisions, they could easily be filled out and equipped in time of emergency.

Aside from the fundamental strategic questions raised in the 1960 presidential campaign -- that we were only capable of fighting an all-out nuclear war -- doubts were cast on the adequacy of the entire military planning apparatus. A graduated response capability implied a stock of troops in readiness, logistical support to get troops and equipment to wherever they were needed, Navy and Air Force transport equipment within which Army equipment would fit, coordinated transport and battle plans, air support in the field, and the like. The inadequacy of military planning in the late 1950s was seen as stemming in part from characteristics of the annual budgetary process as practiced in DoD. An annual budgetary process that took explicit account only
of budget-year expenditures could produce a situation where a seemingly minor $50 million Research and Development decision implied $5 billion expenditure on a particular weapons system over the next four years. A budgetary process giving DoD a fixed amount for a given fiscal year and allowing substantial freedom in its expenditure is likely to produce nearly equal service shares, strong inter-service rivalry for the annual increments to existing budgetary bases, and highly decentralized military planning. The fiscal decentralization implied by the Eisenhower (arbitrary) budget ceiling was seen to have carried over into all phases of military planning.\footnote{If there is any single organizational "truth" that has emerged from these studies, it is that planning does not go on in any meaningful sense unless the participants see a clear connection between planning activities and the real resources they receive. Planning, to be meaningful, must be tied to the (budget) resource allocation process.} A remedy to this situation was purported to be the Planning Programming Budgeting System.\footnote{There is no doubt that PPBS has gone a long way toward correcting many of the faults of the old system: the total stream of expenditures implied by a particular appropriation in a particular year is at least identified in a crude sense; there is some coordination in the planning of force structures; where two weapons systems are seen as competing, an attempt is made to choose the most "cost-effective" one, and so on. My major point is that PPBS has had very little direct impact on the determination of the total DoD budget and the allocation of that total to appropriations categories. PPBS clearly has aided DoD in making better decisions in many other areas, however.}

The summer 1969 PPB system can be seen in summary form in Figure 4. Although there have been changes since PPB was first applied to the FY 1963 DoD budget under the direction of Charles Hitch, they have been minor. The names of most of the major decision documents have changed over the years (see notes on Figure 4), but their substance is basically the same as in the original system. It should be emphasized that the following description is of how the system is supposed to work in DoD, according to DoD rules and procedures, not how it does work.

The basic idea behind PPB is that the military ought to determine their objectives first, what expenditures are needed to achieve those objectives in the long run, and minimize those expenditures. In PPBS,
Fig. 4—Theoretical PPBS decision flows and sequences

- MPM: Major Program Memorandums (formerly known as Draft Presidential Memoranda (DPM))
- PCR: Program Change Requests (formerly known as Program Change Proposals)
- PCD: Program Change Decisions (formerly known as Subject Issue Decisions (SIs) of program years)
- PID: Program Budget Decisions (covers only current and budget years)
- FYDP: Five-Year Defense Program (formerly known as Five-Year Force Structure and Financial Plan (FYSSFP))
- JSOP: Joint Strategic Objectives Plan compiled by the Joint Chiefs of Staff
this means assessing the threat (a combined view of enemy capabilities and intentions), determining the force structure needed to meet that threat (divisions, wings, fleets, and their development), allowing individual services to react to these plans and inviting them to propose modifications, and costing out the approved plans for the upcoming budget year. Finally, for purposes of fixing the annual budget, the approved plans which have been costed out in terms of the program budget structure (see Table 1) are converted to the familiar appropriations budget structure for submissions to the President and Congress. The actual decisions, however, are made in terms of the program categories, in terms of objectives, not in terms of program inputs (appropriations categories).

The system consists of documents and procedures aimed at facilitating a dialogue over military plans, and keeps track of decisions made during that dialogue. The Major Program Memorandum (MPM), in its many draft versions, provides a general statement of the perceived military threat and an overall description of all military programs and how they relate to that threat. The MPM is prepared by the staff of the Secretary of Defense and is influenced by a somewhat parallel document issued by the Joint Chiefs of Staff, the Joint Strategic Objectives Plan. Both documents are more or less under continuous review by the Office of the Assistant Secretary of Defense, Systems Analysis. Once the Secretary issues a draft MPM, the services are asked to respond.

At any given point in time, a set of approved programs is supposed to exist in DoD. To change this set of programs or to modify an element of one of these programs requires the submission to the Secretary of Defense (through Systems Analysis) of a Program Change Request (PCR). The Secretary responds to the PCR with a Program Change Decision (PCD). PCRs and PCDs are supposedly stated in terms of total costs over the life of the program, not just budget-year costs. In case that a change in one program also effects other programs, these effects are to be included in the PCR and PCDs as well. While the more or less continuous PCR-PCD planning process proceeds, the results of PCDs are used to update the draft MPM and the Five-Year Defense Program (FYDP),
a financial document with the estimated costs of all approved OSD programs carried forward for five years (planning horizon). Technically, the services are required to update their FYDP monthly.

As the time approaches for services to prepare their annual appropriations requests, a "finalized" MPM is issued containing all OSD-approved programs. The service budget submissions to the Office of the Secretary of Defense consist of two parts. The first is the "basic" submission which is merely a costing out of OSD-approved programs. The second is an "addendum" submission representing service reclamas to the list of OSD-approved programs; giving the services a final chance to argue for particular programs they think important. Because the addendum submissions imply a change in the list of approved programs, they must be accompanied by supporting PCRs.

On October 1st of each year, the usual deadline for service submissions to OSD, the basic and addendum budgets of each service are presented to the Office of the Assistant Secretary Comptroller and the Secretary of Defense for review. Since all items in the basic budgets have previously been approved (in theory), the Comptroller's Office review is "merely" for establishing the right program costs. The Comptroller's review is an argument about the costing-out process, not about the programs themselves. How much does a tank cost? How much does it cost to equip an airborne division?

Addendum budget submissions and changes made during the review process are handled slightly differently than are program changes that arise during the normal PCR-PCD process. Usually, budget decisions taken during the October-December review period, the "budget crunch," are for the budget year only. Such decisions are recorded in documents called Program Budget Decisions (PBDs).

After the Comptroller's budget review, the properly costed-out basic budget, plus any changes made through PBDs, constitutes the DoD Budget Submission to the President, converted to the familiar appropriations categories. The Budget Submission to the President represents the new, updated list of DoD approved programs. The month following submission of the budget to the President is spent updating the various
planning documents to reflect decisions taken during the budget review. Any program changes made must be supported by a PCR. PCRs are used to introduce the out-year (past the budget year) implications of PBDs. PCRs are reviewed by Systems Analysis and result in PCDs and an updated Five Year Defense Program.

PPBS represents a classic problem in organizational design. Several assumptions about the nature of the external and internal environments of the system make the design infeasible in important respects, however. The system, as described, is nicely designed for structuring debate about military objectives, plans to realize those objectives, and the costing out of plans. PPBS as described above cannot exist in the above form, however. The system fails to take account of some very real political and organizational constraints.

PPBS IN PRACTICE: SOME REASONS FOR THE DIFFICULTIES

There are several reasons why the PPB system has not operated in the manner it is designed to. Some of the reasons stem from the failure of the system to come to grips with the overall fiscal constraints on the DoD total during the programming phase of the budgetary cycle.

A feature of the DoD program system since its inception has been the concept of "no arbitrary ceilings." In other words, a new proposal need not be accommodated within some predetermined or fixed manpower or obligational authority ceiling and each case will be considered on its merits. In practice, this has obviously not meant that the sky has been the limit. In fact, it has frequently appeared to be the case, particularly in the budget review process, that the Department of Defense has been assigned budgetary targets. These targets, if they have in reality existed, have never officially been acknowledged. Unofficially, however, more often than not, the word has come down the financial management chain that the service budgets as initially submitted were "X" dollars above the level considered reasonable. Frequently, PBD (Program Budget Decision) reductions have, in the aggregate, approximated this "X" overage.¹

¹Quotation from internal DoD memorandum from one service to an Assistant Secretary of Defense. Similar communications, formal and informal, from the other services exist as well, dated 1969.
Associated with this difficulty are the problems caused when the services realize that Program Change Decisions made during the planning phase do not constitute budget decisions. No comprehensive set of OSD-approved programs exists at the October 1 service submission deadline that can be costed out. The Major Program Memorandum is not in a form that lends itself to a complete costout of DoD programs for the upcoming budget year, and, as services have discovered, the updated Five Year Defense Program does not actually reflect either OSD approved costs or programs.

During the programming phase, OSD requires Program Change Requests to be costed out down to the program-element level of detail, but responds to these requests in a much more aggregate manner. The services feel that either the disaggregation was not necessary in the first instance or the aggregate decision includes too much ambiguity; what did they approve and what did they disallow?

Finally, the President’s budget submission, in theory, is merely an updating of the ongoing programming and planning process. Yet services are required to make separate submissions for this purpose on different forms, using different formats.

In theory, the planning and programming phase of PPBS is supposed to drive the budgeting phase. Programs and plans determine budgets. In actuality, budgets (severely) constrain programs and plans. One bit of information is particularly telling on this point. The following are direct quotes that have been verified by hard data:

For the FY 1968 and FY 1969 budget cycles, one OSD official reported the results of the following study:

Ninety percent of the (program) decision documents were written after December 28. The reason for this “piling” of key decisions toward the end of the budget cycle is because the Secretary of Defense cannot afford to commit himself early on major decisions and still maintain any flexibility. He has to see how the wind is blowing on the federal budget, particularly in regard to total. He has to see what the price tag on the hard core of the defense budget looks like.¹

¹April 1968 interview.
The Military Departments have typically delayed submission of large numbers of PCRs until late in calendar year program budget cycles. OSD for its part has been capricious in its consideration of PCRs.... The result has been that half or more of all PCRs have been "folded" by OSD into the budget review process.¹

The net result of these disparities between theory and practice is that, far from the programming decisions driving the budgeting system and setting constraints for the appropriations process, the determination of the annual DoD appropriations bill provides the constraints for most of the programming decisions. The sum of the program costs must fit within the appropriations targets. The next section is a description of how the DoD total, the determination of which has been discussed above, is decomposed into the line items found in the annual appropriations bill (see Table 1).

¹Internal DoD memo, 1969.
V. A POSITIVE MODEL OF THE ALLOCATION OF DOD TOTAL: A PROCESS OF DISAGGREGATION

Although the DoD budgetary process has changed somewhat (during the McNamara era), the flow of decisions for appropriation figures does not appear to be fundamentally different from that found in the 1950s. Differences in process under the Kennedy-Johnson and under the Truman and Eisenhower administrations, both real and alleged, are discussed at various points below.

Expenditure decisions in DoD can usefully be thought of as decisionmaking within a hierarchy of constraints. Because of the relative difficulty of changing rates of taxation, the question of "how much defense does the nation need?" becomes, in the absence of such major disturbances as wars and elections, "how much defense can the nation afford?" When that is determined (within a range), service budget submissions, which always total to more than available resources (what the nation "can afford"), are then modified (usually cut) so that they are within the more or less predetermined resource constraint. Once Congressional appropriations are decided, the obligatory authority granted provides a constraint on total obligations that can be incurred for purposes specified in the appropriations bill, which in turn provides constraints on actual military operations.

In spite of the many differences in necessary procedures under PPBS, the methods of arriving at dollar figures for the line items in the appropriations request, consistent with the fiscal constraints on the total, discussed above, are not dissimilar from those utilized during the Truman-Eisenhower administrations; namely, a prior determination of total for defense and a cutting of service requests to meet the overall target figure or total. One of the principal reasons for this is that the organization in the Office of the Assistant Secretary of Defense (Comptroller) responsible for reviewing (cutting) service submissions consists of a large number of people who came up under Wilfred McNeil, former Defense Comptroller for Truman and Eisenhower. Another reason is that program decisions are not made with reference to fiscal constraints, hence at the end of the budget cycle they must be "brought into line."
SERVICE SUBMISSIONS

The discussion on service submissions should be viewed in the context of the time schedule illustrated in Figure 5. Few people realize the amount of backup detail that goes into the various budget proposals. Budget requests originate at the lowest levels of the services and are eventually passed on up the line. Given a call for estimates, estimates are formulated at the base level and are subject to reviews at that level. The base reviews go on up to the command level and are reviewed there. Finally these are sent to the service headquarters where they are reviewed again. The services (headquarters) send out budget formulation guides with the call for estimates. This guidance is amplified at each stage in the chain of command, as calls for estimates are transmitted downward.

As budget requests or estimates come up the system or chain, they get compressed and aggregated. But the detail is retained at all times at lower levels. As one long-time OSD official, who has spent most of his career in the Financial Management sections of the services, comments:

This feature is undesirable in the sense that details get lost on the way up and people don't recognize what the budgets they see are really based on. Another disadvantage is that changes made in reviews dealing with aggregate figures are not made in terms of basic detail. Therefore much information is lost and it is not clear what the implications of aggregate revisions are for the original detailed request. On the plus side, it is clearly not possible to have a staff large enough to review the total defense budget in all of its detail.1

The time schedule for budget reviews is as follows (for example, FY 1971):

(1) Call for estimates made in November 1968.
(2) Field reviews completed at the end of the period March-April 1969.

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1February 1968 interview with official in Office of the Assistant Secretary of Defense (Comptroller).
Fig. 5—Sequence of budget decisions
(3) Service headquarters review completed May through July 1969.
(4) OSD review, October through December 1969.

Theoretically, service submissions are supposed to be based only on approved OSD programs, to be found in the FYDP or the MPM. The October-December budget review of service submissions is supposed to consist merely of the Defense Comptroller's Office costing out the approved program plan and comparing that with service submissions.

Control is first established in the budgeting process by reference to substantive programs as approved by the Secretary. It is not possible for OASD, Comptroller to validate service submissions by comparing them with "approved" programs however. It is not possible because major program changes are being made at the budget time (budget review time). Systems Analysis and the Comptroller's reviews are being made at the same time.¹

You might say the Secretary is one of the principal handicappers in the system. What we really need is to have most of the DPMs (Draft Presidential Memoranda, now MPM) by the first of July to give the Services time to base their budget submissions on real DoD program plans. In effect, however, the Services "ignore" OSD program decisions partly because they aren't sure what OSD programs are. They end up using their own assumptions about programs and, based on those assumptions, start formulating their budget submissions on January 1. These assumptions are carried all the way through to the finish of their submissions on October 1. Consequently the Service budget submissions are always out of step with OSD programs.

Program decisions are not available to form a "current" DoD five year defense plan.... We find that the Secretary has not acted on most program requests prior to the budget review period. The budget should really be a refined, more feasible calculation and elaboration of existing plans. Unfortunately, we find that we (Office of Assistant Secretary of Defense, Comptroller) either cause program decisions to be made or change program decisions far beyond those required by refinements (during the budget review period).²

¹ March 1968 interview with official in Office of the Assistant Secretary of Defense (Comptroller).
² April 1968 interview with high-level official in Office of the Assistant Secretary of Defense (Comptroller).
The data on service submissions reveal a system of behavior that can be described as somewhat erratic and opportunistic. Some very definite things can be said about overall characteristics of service submissions:

(1) They provide for increases in all items.
(2) They are designed to at least maintain their service's share of the total, and
(3) collectively, they always greatly exceed available resources.

The rationale for service padding of requests is well known and illustrated amply in this quote from one of the principals responsible for a service budget submission:

"If you go in with the hard core budget that you have a realistic chance of getting and the (other two services) .... come in with their usual budgets, the....is bound to end up with an extremely austere budget. For instance, in fiscal year....., we came in with (X+5) billion and it was cut to (X) billion, which was about what we expected. Now if we'd come in with (X) billion we would have ended up with (X-3) or (X-2) billion. This would have been a very unacceptable budget from the (service's) standpoint. So we would be cutting our own throats by coming in with a realistic budget. (February 1968 interview.)"

Preferences for certain kinds of items can be observed as well -- the Navy wants ships (more than people), Army wants people (divisions), and the Air Force prefers its increases to be in the form of wings of aircraft. Increases in these items really mean increases for key elements of the force structure -- increases that imply substantial increases in still other items. In periods of declining defense spending, the military services would rather cut back on modernization programs, readiness levels, and so on -- anything that would not reduce the force structure. The Navy would rather have their ships 50 percent unmanned than reduce the number of ships.

Between the original call for estimates and the October 1 submission to OSD, the services may have 30 to 40 review exercises before the budget request is passed up to OSD. Part way through the service budgeting process, on roughly June 1, the Comptroller of DoD issues a
guidance letter, which pulls together as many pieces of specific policy
guidance (logistics, guidance, modernization plans, etc.) as possible.

The letter's objective is to make the first step toward finding out what the hard core budget is for defense. If the services merely submitted logical elaborators of already-approved program decision as their budget, they would have a budget no President could live with. For example, see Table 2 for the totals of somewhat-constrained service submissions.

Because fiscal constraints ultimately must be applied and because such constraints are not built into the earlier phases of the process -- the planning and programming phase in the Kennedy-Johnson administrations -- the budget review conducted by the Defense Comptroller's Office assumes the dominant role in determining the appropriations bill and in making broad DoD resource allocation decisions.

OSD BUDGET REVIEW

October-December "Budget Crunch"

The system of mutual expectations that has grown up around DoD budgeting activities accounts for a large portion of behavior in the budget review stage. The OSD's Comptroller's Office has primary responsibility for reviewing service submissions and for enforcing fiscal constraints. The review procedures have a significant impact on the structure of outcomes. One of the principal subunits in the Office of the Assistant Secretary of Defense, Comptroller (see Fig. 3) is the Deputy Comptroller (Budget), which is the first to process and review service budget submissions.

The services make their submissions on October 1, and they are immediately broken down by appropriations categories and sent to the appropriate Budget Directorate (Fig. 3) for review. As an official in one of the budget directorates described their function:

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1Econometric models derived from the research reported here describing the OSD budget review using service totals have been estimated by John E. Jackson, "Defense Appropriations," unpublished paper, February 1970. His results are entirely supportive of the description of the process presented here.
Table 2

STAGE-OF-DEVELOPMENT TOTALS (NOA)
(in billions of dollars)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Service Requests (October 1 submission)</th>
<th>Secretary of Defense Recommendation</th>
<th>Final Appropriations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1953</td>
<td>65.4</td>
<td>51.9</td>
<td>44.3</td>
</tr>
<tr>
<td>1954</td>
<td>50.5</td>
<td>43.4</td>
<td>34.5</td>
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<tr>
<td>1955</td>
<td>35.9</td>
<td>31.2</td>
<td>28.8</td>
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<td>1956</td>
<td>37.4</td>
<td>31.4</td>
<td>31.9</td>
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<tr>
<td>1957</td>
<td>40.6</td>
<td>34.8</td>
<td>34.7</td>
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<tr>
<td>1958</td>
<td>55.4</td>
<td>38.6</td>
<td>33.8</td>
</tr>
<tr>
<td>1959</td>
<td>42.0</td>
<td>39.1</td>
<td>39.6</td>
</tr>
<tr>
<td>1960</td>
<td>48.4</td>
<td>40.8</td>
<td>39.2</td>
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<tr>
<td>1961</td>
<td>40.7</td>
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<tr>
<td>1969</td>
<td>101.5</td>
<td>79.8</td>
<td>73.6</td>
</tr>
</tbody>
</table>
The Procurement Directorate gets the procurement budget for each of the Services plus some additional items like the defense stock funds and the Military Assistance Programs. Our job is to make sure that the President's budget includes only those hard core requirements that need to be, and can be, procured in a given budget year. This means that our evaluation of appropriateness of deployment decisions must be made in light of state-of-weaponry-development and the defense needs and the production capabilities.

The first go-around on budget cutting and review is to check to see that the prices in the submissions are right, that the quantities can be procured, and that we're really far enough along in development and see that the weapon systems are really far enough developed to go into procurement. Second, we need other ways to bring down the budget to a reasonable level. Systems Analysis, I&L (Installations and Logistics), DDR&E (Directorate Defense Research and Engineering), all get into the act depending on if their programs are affected.

We (OASD, Comptroller) actually develop some alternatives for the Secretary of Defense which may even change force structure decisions. Really the budget crunch consists of a collective bargaining process. We attempt to look at it from the Secretary of Defense's and the President's point of view.

Eight men in the Procurement Directorate review $30 to $40 billion in procurement requests. Our job is to coordinate and focus the efforts of Systems Analysis, DDR&E, I&L.\(^1\)

Comptrollers is the coordinating office and solicits inputs from the three technical offices to see if they have anything to offer.\(^2\)

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Converging on Appropriation Line Items

A practice has developed in OSD over the past several years that illustrates the sense in which budget reviews are conducted, the form it takes, and how fiscal constraints are enforced. After the services submit their budgets on October 1, the budget analysts in the various

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\(^1\)Technical offices in Office of the Secretary of Defense: Systems Analysis; Director of Defense, Research, and Engineering; Installations and Logistics.

\(^2\)April 1968 interview with official, Directorate for Procurement, Office of the Assistant Secretary of Defense (Comptroller).
Directorates examine their particular line items and after a couple of
days issue what is known as a "planning forecast," which is then sent
to the Secretary of Defense. The planning forecast is an estimate of
how the review (cutting) is going to come out. The forecasts are com-
piled by major appropriation title.

They have been used and requested by McNamara so that
he can get a feel for what he is going to end with by October
1. The initial forecasts are forecasts by the individual
(appropriation title) Directorates and really approximate
intuitive feels by each guy. He gets these feels by knowing
weak spots in the program, things that have been already
turned down on several occasions, etc. He also has a feel
for what happened in the past with regard to the percentage
each area came down in prior years.

The initial forecast theoretically assumes no change
in force structure. This initial (planning) forecast is
assumed by McNamara to be the result of normal cuts by us
(Office of Assistant Secretary, Comptroller). In fact,
in the last couple of years, the initial planning forecast
(made by OSD Comptrollers and submitted to McNamara) has
been taken as gospel. For example, Service submissions may
total to (\$X) billion in (Appropriations Title Z). On the
basis of past experience, (The Directorate) may give
Mr. McNamara a figure of (\$Y) billion as a planning fore-
cast for Procurement. Mr. McNamara, however, considers
that this is just a result of normal cutting and takes that
as gospel. This means two things. He (McNamara) now knows
what program changes will have to be made to get the total
budget down and he also starts to work on ways to get below
the expected (\$Y) billion, in other words, how to cut below
(\$Y) billion.¹

A MODEL OF THE BUDGET REVIEW PROCESS

The model outlined in Figure 6 illustrates the major features of
a model of the OSD review process. The planning forecasts are taken
as the upper bound on the total defense budget. If the fiscal con-
straints, as represented in the appropriations target, are met, then
relatively little pressure exists to make cuts other than the "normal"
cuts in the Office of the Comptroller. Minor packaging considerations

¹April 1968 interview with official in Office of the Assistant
Secretary of Defense (Comptroller). Emphasis added.
Fig. 6—Model of Comptroller's budget review
remain to be dealt with. Additional adjustments reflecting Congressional concerns, a desire to make the total appear as small as possible (under $75 billion, under $80 billion), and the like, tend to dominate at the later stages of budget review.

If fiscal constraints have yet to be met through the original Comptroller's Office cuts, the Secretary of Defense is motivated to make additional cuts himself or pass cues down to the Directorates to be harsher in the review hearings. Those appropriation titles that have the biggest preliminary cuts (as implied in the planning forecast) are the most likely places to look for further cuts and soft spots, in getting down to the hard core defense budget. On the other hand, as preliminary figures get closer to the current appropriations levels, service resistance to further cuts stiffens.

The nature of the planning forecasts is interesting and informative as this selection of quotations (February and April 1968) from personnel in the Defense Comptroller's Office indicates:

We can come up with an estimate (of the total) at any time. We prefer to have service submissions in our possession at that time, however.

After the first week (after October 1) we know what they (services) ask for. Working with the services day in and day out we are asked to give reasonable estimates of the ultimate outcome of the budget review process. This is a guess on our part.

Actually quite a bit of time passes before the planning forecasts are revised substantially by the analysts. When these revisions are brought about they look at the very few Program Budget Decisions that come trickling through the system as indicators of how the total budget will go. For instance, if McNamara decides to stretch out maintenance so that there's a $500 million saving, this means the planning forecast gets revised downward from $30 billion to $29.5 billion.

Once a particular Directorate has given its planning forecast to the Secretary of Defense, that forecast becomes a real, operative goal of that Directorate. The figure given the Secretary is, in effect, an informal commitment to bring the set of budget requests under the Directorate's control down to that level. This is not always easy and
the actual achievement of that goal takes the better part of three months -- October, November, and most of December. In the final mad scramble at the end of December, the Directorates have usually achieved their cutting goal or planning forecast. It is then that this is revised -- usually on the basis of program decisions.

A description of the sequence of events in FY 1969 may serve to bring these things into sharper focus:

1. Service submissions total $102 billion.
2. Planning forecasts total $82 billion.
3. Additional trimming by the Secretary of Defense and OASD, Comptroller brings the total down below $80 billion to $79.6 billion.

It is after the trimming and budget review is over (last week in December) that most program decisions are released, well over half of a total of roughly 400 per year.

CONSIDERATIONS IN THE PLANNING FORECAST

The Five Year Defense Plan represents an approximation of the total for first planning forecast. These forecasts are then adjusted to reflect known program "shoot downs." For instance, in the past OSD has denied requests for nuclear ships. The planning forecast for a procurement account would reflect this even though it might have been in the FYDP. Knowing what the percentage reductions have been in the past also is considered in determining a "realistic" planning forecast.

In further refining a planning forecast the analysts and the appropriation title Directorates refine service submissions and requests on the basis of engineering considerations (whether the weapon system is ready to be deployed or can be produced, or whether development is far enough along to go into production), attrition rates, revised and updated attrition rates, wear out and replacement rates.

Basically, however, experience with the decision system is the prime ingredient in the budget review exercise.
The organization (Office of the Assistant Secretary of Defense, Comptroller) develops, over time, some expertise at the analyst's level. They live with the items day in and day out. They become familiar with the feasibility of producing given items, the probability that the given program level will be achieved, what prices will be, latitudes of flexibility on programs.\(^1\)

There are many techniques that can be used in bringing the budget down to acceptable levels, and it is almost always to make necessary cuts.

In spite of the change in budgetary procedures in the McNamara era, the need for a decision that satisfies some constraints on budget totals leads to nearly the same kind of budget-cutting, fat-trimming activity on the part of the Comptroller's office in OSD as observed in the 1950s. Many of the same people are still there with their familiarity with "soft spots" in service submissions and budget cutting rules. A priority list of accounts also seems to exist. Vulnerable accounts, when budgets must be cut, seem to be Operations and Maintenance in wartime and Procurement in times of peace. In addition, inventory and supplies which are part of the logistics policy constitute manipulatable funds. By changing inventory requirements from quantities necessary, for example, to sustain 120 days of combat to 90 days or reducing procurement levels from 1000 airplanes to 950, represent significant sources of budgetary funds. The difficulty of measuring impacts of these expenditure cuts may account for their vulnerability.

The flexibility in procurement schedules may account for its vulnerability. It is relatively easy to defer construction starts, stretch out procurement schedules, delay new procurements, and keep weapons systems in the R&D stage a year longer instead of deploying the system. Military personnel amounts, on the other hand, are usually well fixed, once force levels have been decided. One major effect of the PPBS in DoD seems to be to make some expenditures more defensible in the budget-cutting operation than others. This, of course, places some premium on measurability of costs and benefits.

\(^{1}\)April 1968 interview with official in the Office of the Assistant Secretary of Defense (Comptroller).
Accounts vulnerable during periods of intense fiscal pressure are candidates for increases during expansionary periods. In summary, defense budgeting seems to consist of two related states: A bargaining stage where the budget total is arrived at, involving the external environment to a great extent; and decomposition stage involving allocation of the total, reflecting internal, bureaucratic considerations, and made in terms of the old appropriations categories instead of program categories.
VI. CONCLUSIONS

This study has attempted to sketch the broad outlines of a descriptive theory of two stages of a decision system that allocates U.S. government resources to national defense: the stage that determines the total for defense, and the stage that allocates that total among the services by adapting to problem constraints. The discovery of these procedures and systematic modes of behavior sheds light on goals and motivations (perhaps only by implication).

Organizations, being collections of individual decisionmakers, exhibit systemic limitations on problem solving and decisionmaking behavior similar to those exhibited by individuals (limited computational skills, attention focus). The increase in the computational power of the organization over the single individual is offset by the increased difficulty of coordination and communication. The magnitude of the coordination problem is a function of the feasibility of decomposing a larger problem into more solvable subproblems.

In the case of the DoD budget, the resource allocation process must adapt to overall fiscal constraints; the sum of the parts must add to a particular whole, or more accurately, add to a number within a narrow range. For an organization as large as the U.S. Department of Defense, this requirement is not trivial.

I have attempted to demonstrate two things in this study: the existence and importance of fiscal constraints on the U.S. defense budget and the existence of systematic modes of behavior within DoD which, functionally, decompose that total into its parts. In describing the process, I have made great use of the fact that the system will adapt to the fiscal constraints and that adaptation is accomplished by resorting to systematic decision rules (for cutting requests and for limiting requests). It has not been necessary to go through the painstaking, blow-by-blow arguments, debates, and actual bargaining processes that take place during the annual budget review. Simply realizing that incentives to cut disappear when the overall fiscal constraints are satisfied allows us to leave out much of the substance
of particular arguments in an acceptable explanation for why Army Procurement or Air Force, Research, Development, Test, and Evaluation came out to a particular figure in a given year. The rationalization of particular outcomes is relevant to a sufficient explanation only when decision justification is highly correlated with considerations present at the time of decisionmaking. My purpose has been to suggest how all the confusing, conflicting, and expensive issues that come up in the context of defense budgets fit into the larger scheme of things and are constrained by this larger scheme.

NORMATIVE IMPLICATIONS OF FINDINGS

Because PPBS represents the best known attempt to increase the rationality of governmental resource allocation decisions, I shall confine my remarks to this reform. In the absence of any universally accepted method of equating activities as diverse as Head Start programs, Air Pollution Control programs, and military programs, it is clear that no analytic technique will automatically generate a defense budget independent from overall fiscal considerations. Resource allocation within DoD may be another matter however. Weapons system tradeoffs can be made, alternative programs for meeting particular military objectives can be formulated and evaluated, and so on. It is certainly more reasonable to expect that program tradeoffs within the military are easier to calculate than tradeoffs between military and nonmilitary activity.

Yet, at the present time, PPBS does not seem to have great impact at the highest level of resource allocation within DoD; PPBS may determine how many planes and missiles and of what kind to buy for the Air Force during a given year, but such decisions are made within the budget levels present in the annual Appropriations Bill. There appear to be two principal reasons for this:

(1) The current PPE system is not credible to the services. All planning and programming decisions are reversible. They do not carry the force of actual resource allocation decisions as do those made for the annual
Appropriations Bill. PPB decisions are always made to conform to appropriations decisions made during the October-December budget crunch.

In fact, it is hard to see who in DoD views PPBS decisions as hard-and-fast budget decisions. The continuance of two budgeting systems (see Table 1) encourages the present state of affairs. As long as Congress demands that the Appropriations Bill contain the same old account categories, aggregate resource allocation decisions will be made on the basis of those categories. Such decisions will cause PPB decisions to adapt to appropriations decisions. For many purposes, it seems highly desirable to allocate resources on the basis of functions and objectives rather than the objects of expenditures. To accomplish this in DoD calls for a change in the accounts appearing in the Appropriations Bill to program categories.

(2) The current PPB system does not do what any foreseeable budget decision system has to do if it is to be the primary determinant of DoD resource allocation; it has to adapt to external, fiscal constraints.

Subject to the points raised in (1), above, there are many ways of building the fiscal constraint into PPBS; whether appropriations targets are introduced in the original planning documents or at the service level, they must be introduced if PPBS is to be credible for all the participants and is to produce a feasible solution to the defense budget problem.

CAVEATS

For purposes of exposition, I have contended that the total size of the Federal budget and the split between defense and non-defense were determined exclusively by external factors with negligible feedback. I further contended that once the defense and non-defense totals were decided upon, they were not revised in the process of making allocation decisions later in the process. There clearly is some slippage at the margin between defense and non-defense, depending on environmental events occurring between August and December. New
proposals that have mobilized support during the period, revised
revenue estimates, military activity or crises, pet programs of the
President, and so on are all instances where the defense total can
and does get revised, at the margin. My contention is, however, that
the figure used to get a fix (in August or early September) on the
broad features of the upcoming defense budget is used for planning by
so many non-defense agencies and other governmental institutions that,
in effect, it becomes a self-fulfilling prophecy. There are severe
constraints on the magnitude of the possible adjustment in the initial
fix on defense totals. Virtually the only possibility for major
adjustment occurs when the economic forecasts used to estimate "Reve-
nues" and "Deficit" change drastically from August to December. A
counter-cyclical fiscal policy reduces this potential source of slack
as well. In summary, when the defense total is fixed, it is fixed
within a range of about $2 billion.

Another contention made was that program decisions had no effect
on the totals by Appropriation Title in the Defense Budget. There
is a good deal of evidence that this is so; for example, timing of
release of Program Budget decisions. It is probably the case that
occasionally in the process of trying to fit program decisions into
the constraints represented by the Appropriation Title amounts, those
amounts are adjusted upward -- again at the margin.

Exactly how important these marginal adjustments are is an empir-
ical question. If the marginal adjustments to higher order constraints
caused by lower order processes are made in a systematic manner, over
time, their cumulative effects could be very significant. At this
stage of research it is more important to identify the major systemic
effects; if for no other reason than to draw our attention to those
adjustments in constraints that are truly "marginal" (by filtering
out the systematic adjustments).

In a study such as this, it is wise to point out things that were
not said as well as those that were. For example, I have not contended
that PPBS has had negligible impact on all resource allocation in DoD.
On the contrary, it undoubtedly has, but in areas different from the
concerns of this study. PPBS, as employed in the Office of the Assistant Secretary of Defense (Systems Analysis), had its greatest impact in the areas of R&D and procurement. The impacts have been in choosing among competing weapons systems, coordination of weapons system decisions with needs of broader missions, and the like. They have not had great impact on the determination of the total allocation to procurement, however.

I have not said that the particular arguments and debates, made on substantive grounds, in the process of adapting the budget to external constraints, are unimportant. In the aggregate, these debates are largely over program and functional priorities -- OSD's vs. the services'. From the standpoint of the kinds of systemic behavior this study is concerned with, they may be unimportant; but they are crucial in determining what the military actually does. I have only been describing the first steps in a hierarchy of constraints that characterizes the overall decision process (see Figure 7); not all steps.

FUTURE RESEARCH PLANS

This Memorandum is only the first step in a larger research project. In essence this represents the initial model building stage. Extensive interviewing of current and former participants in Federal and defense budgetary processes produced the outline for the models reported here. Many high and middle level officials in Bureau of the Budget, Office of the Assistant Secretary of Defense (Comptroller), (Systems Analysis), the Services Office of the Assistant Secretary of Defense (especially the Financial Management sections), many long-time observers, and former participants were interviewed in depth. These interviews indicate that the above description is not inaccurate in any important respect.

The next stage of research is only partially completed: data analysis, model building and modification, parameter estimation, and so on. Stage-of-development budgetary data have been collected and coded for FY 1952-69, and are being used to specify, construct, and test models of the processes described herein.
Fig. 7—Hierarchy of constraints in DOD budgeting
Once the process of producing the President's version of the defense budget has been modeled satisfactorily, its processing by Congress will be examined.

Possibilities for further research focus on other steps in the hierarchy of decision processes (see Figure 7) such as the important apportionment process in DoD after the final budget is received from Congress.