ALTERNATIVE STRATEGIES FOR INCREASING MULTIYEAR PROCUREMENT

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PREFACE

As requested by Senator Lawton Chiles, ranking minority member of the Committee on the Budget, United States Senate, this study examines multiyear procurement contracts already approved by the Congress and alternative strategies that could lead to greater savings through increased use of multiyear procurement. In accordance with the Congressional Budget Office (CBO) mandate to provide objective analysis, this paper contains no recommendations.

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SUMMARY

In 1982, the Congress enacted legislation that authorized the Department of Defense (DoD) to purchase major weapon systems and their components using a special type of multiyear contracting involving economic order quantities (EOQ). Under this concept the Department of Defense can enter into a contract committing it to purchase weapons over several years; moreover, the government provides money early in the contract to allow the supplier to purchase components--for example, landing gear for aircraft--in large, economical quantities in order to reduce overall program costs. Further, the government agrees to reimburse the contractor for certain costs if the contract is cancelled. In return for assuming this risk, the government expects savings of at least 10 percent over what it would have spent if it had negotiated a series of annual contracts for the same number of items. In 1987, DoD projects that 6.4 percent of its total obligational authority (TOA) for procurement will be under those multiyear contracts.

Greater use of multiyear contracting has been urged during the past several years by some outside of the Congress. Specifically, the President's Private Sector Survey on Cost Control (the Grace Commission) and the President's Commission on Defense Management (the Packard Commission) have recommended increased use of multiyear procurement. This study examines the advantages and disadvantages of multiyear procurement to date, and evaluates approaches for increasing its use.

ADVANTAGES AND DISADVANTAGES OF MULTIYEAR PROCUREMENT

The available data indicate that multiyear procurement is achieving its basic objectives. Multiyear contracts appear to have saved money. During fiscal years 1982-1986, the Department of Defense requested Congressional approval to enter into 59 multiyear contracts. Of these, the Congress judged that 40 met the strict criteria for multiyear funding. DoD projects $6.2 billion savings in TOA for these 40 contracts, relative to costs using annual procurement. Using a 10 percent real discount rate, DoD estimates $1.4 billion in present value savings from the 23 multiyear programs approved during fiscal years 1984-1986. (Data on present value savings have only been provided since 1984. Had a real discount rate in the range of 0 to 4 percent been used, present value savings would have been greater.) These savings occur largely because materials and components can be purchased more efficiently using economic order quantities early in the contract period, but savings may also stem from the reduced risk that a multiyear contract affords the contractor.

Savings cannot be estimated with certainty, however, since DoD never buys the same system under both annual and multiyear contracts. Moreover, none of the approved multiyear contracts has been completed through final delivery of all contracted weapons. Nonetheless, when the General Accounting Office (GAO) conducted audits of selected multiyear programs such as the Multiple Launch Rocket System (MLRS), the UH-60 helicopter, and the F-16 aircraft, it found that savings from purchasing materials and components in economic order quantities were approximately equal to those projected by the Department of Defense.

Multiyear programs also appear to entail fewer changes in numbers of weapons bought, both on an annual basis and over the life of the contract. This greater stability may minimize increases in weapons costs. As with savings, increased stability is difficult to assess, but multiyear programs have been stable according to several indicators. Of the 40 approved multiyear contracts, 39 were actually awarded and only two of these have had purchases over the life of a contract that differed from the planned contract amount. On an annual basis, the rate of quantity adjustments by the Department of Defense and the Congress for multiyear programs has been lower than for other procurement programs. During fiscal years 1982-1986, for example, quantities approved in the budget for multiyear programs were adjusted from planned levels 36 percent of the time as compared with 68 percent of the time for non-multiyear procurement programs.

The benefits of multiyear procurement have not, however, been achieved without disadvantages. Because the Department of Defense assumes the risk for purchasing material and components in economic order quantities at the beginning of a multiyear contract, more money must be appropriated in the first year of the contract than if the same program was executed using a series of annual contracts. Multiyear contracts also limit the government's flexibility to reduce the defense budget because the costs of cancelling a multiyear contract before it is fully executed can be high. In a period of sharp budget reductions, this means that programs with annual contracts might bear disproportionately large cuts. Indeed, the House Committee on Armed Services has thus far approved only two of the seven multiyear contracts proposed by DoD in 1987, citing the constrained budget environment for the next several years as its reason. The Senate Armed Services Committee, however, approved five multiyear contracts in 1987, citing potential savings as justification.

Multiyear procurement also prohibits one form of competition--annual competition between two or more contractors--that is another approach to achieving procurement savings. Analysis of savings attributable directly to annual competition has shown mixed results, however. A study by the Rand Corporation in 1983 concluded that in seven cases where two contractors competed annually, and where costs or savings could be estimated, four actually showed increased costs because of competition; costs to establish

and qualify a second contractor and other added costs more than offset competitive savings. Moreover, multiyear procurement does not prohibit many types of competition. The government can award multiyear contracts to more than one contractor, or it can keep more than one contractor in the bidding until the multiyear award and then select one. Indeed, the Rand study suggests that competitive savings from such a winner-take-all competition are more frequent than from annual competition.

OPPORTUNITIES FOR GREATER USE OF MULTIYEAR PROCUREMENT

This study indicates that multiyear contracting for major weapon systems could be expanded beyond the level currently planned. In fiscal years 1982 to 1986, the use of multiyear by DoD increased gradually from 3.2 percent of its procurement total obligational authority to 11.9 percent. The level of multiyear has begun to decrease during 1986, however, and will fall to 6.4 percent during 1987 even if the Congress approves all the Administration's 1987 multiyear candidates. Thus, maintaining recent levels would result in more multiyear procurement than is now planned.

Differences among categories of procurement funds also suggest a potential for greater use. The Navy has used multiyear procurement less than the other services, seldom in ship construction and proportionately less than the other services for aircraft and missile procurement. The use of multiyear is also low in all the services' "Other Procurement" accounts, which buy smaller weapons and parts. Moreover, it is seldom applied to aircraft and missile modification programs, utility craft, and vehicles. Indeed, applying multiyear procurement to the purchase of smaller weapons may be one of the more promising ways to expand its use.

APPROACHES THAT WOULD INCREASE THE USE OF MULTIYEAR CONTRACTING

Of course, the Congress may wish to continue its current policy, reviewing only the candidates for multiyear procurement proposed by DoD. That would leave to DoD the choice of whether to expand the use of multiyear procurement. If, however, the Congress wishes to increase incentives for multiyear procurement without becoming involved in a case-by-case review of candidate weapon systems, it could adopt one of two approaches.

Approach I. New Production Programs

The first approach reflects the Packard Commission's recommendation that all programs approved for production be authorized for multiyear procurement, with separate contracts for periods of low-rate and high-rate production. To illustrate the effects of this strategy, Approach I assumes

multiyear procurement for all new production programs scheduled to begin during fiscal years 1988-1989; this approach also assumes continuation of multiyear programs already approved plus approval of all the Administration's 1987 candidates. Under this approach, multiyear use would increase from 6.4 percent of DoD procurement TOA in 1987 to 10.8 percent in 1988 but would decrease gradually thereafter to approximately 7.9 percent in 1991. Nonetheless, levels for 1988-1989 would be higher than DoD's historical average of 8.2 percent during 1982-1986.

To achieve this level, DoD would have to commit an additional $23 billion in TOA to multiyear procurement during 1988-1989 (see Summary Table). Upfront costs associated with economic order quantities would increase by $900 million in 1988, while estimated savings based on past rates could increase by $2.7 billion during the period of the multiyear contracts. These increases would be relative to levels associated with multiyear contracts already approved plus programs proposed as multiyear candidates by the Administration for 1987. Estimates are based on results from the 40 programs already approved, but should be viewed as rough guides because of major uncertainties in the data.

Although savings might be expected under this approach, there would be some decrease in the flexibility the Department of Defense has to reduce its budget. The reduction in flexibility could grow sharply in the years beyond 1990 if all systems in production were put under multiyear contracts. Furthermore, this alternative might result in premature approval of some programs for multiyear procurement, since certain programs in low-rate production--all of which under this approach would be nominated for multiyear--might still have technical problems to be resolved. This risk, however, would be reduced if approval for multiyear procurement was delayed until the weapons system successfully completed operational tests and was approved for high-rate production. Indeed, one way to implement a version of this approach would be to have the Congress require that all programs approved for high-rate production also be proposed for multiyear procurement unless DoD submitted a report indicating why not.

Approach II. Setting a Goal

Rather than requiring that all new production programs be placed under multiyear procurement, the Congress could establish a goal for multiyear use. The goal could be stated as a percent of total obligational authority (TOA) for procurement. If DoD failed to meet the goal, it would have to report its reasons to the Congress.

SUMMARY TABLE. ESTIMATED SAVINGS FROM MULTIYEAR PROCUREMENT, AT PRESENT AND UNDER TWO ALTERNATIVE APPROACHES
(Fiscal years, in billions of current dollars)

Alternative	TOA Under Multiyear		Additional Upfront TOA Requirements in 1988	Estimated Savings in 1988-1991
	1988	1988-1991		
Approved Multiyear Programs and FY 87 Candidates	7.7	19.7	-	2.3
Approach I	11.5	43.0	0.9	5.0
Approach II				
15 percent goal	9.1	58.5	0.4	6.8
20 percent goal	10.5	74.8	0.9	8.7

For illustrative purposes, this alternative considers goals of either 15 percent or 20 percent in 1991, achieved through steady, incremental increases above the current level. Under this alternative, DoD would have to commit an additional $38.8 billion in TOA (for the 15 percent goal) or $55.1 billion in TOA (for the 20 percent goal) to multiyear procurement during 1988-1991 (see Summary Table). Additional upfront costs in 1988 would vary between $400 million and $900 million, while additional estimated savings over the lives of the contracts would range from $4.5 billion in TOA to $6.4 billion. Again, all estimates are relative to levels associated with approved multiyear contracts plus 1987 candidates.

Approach II would provide management focus on the use of multiyear procurement, while still permitting the use of case-by-case assessment to minimize the risk of inappropriate application. Other multiyear benefits would accrue in proportion to the level of additional use achieved. On the other hand, flexibility to reduce budgets could be more severely diminished than under Approach I during 1988-1989 because levels of multiyear procurement would be higher.

SECTION I. INTRODUCTION

In fiscal year 1986, the Department of Defense (DoD) will spend about $92.4 billion of budget authority for weapons procurement. These weapons will be bought from thousands of private companies under millions of contract actions. Most of these contracts will cover requirements for only one year even though, typically, total requirements for a weapon system are met over a number of years. A minority of DoD contracts, however, use a special technique called multiyear contracting.

Outside of DoD, multiyear contracting has a wide range of meanings, depending on the length of the contract, how risks are shared between the buyer and seller, and other factors. This study focuses on multiyear contracting as it has been defined in recent years by the Department of Defense and the Congress.

Under this definition, multiyear contracting is a method of acquiring up to five years of military items under a single contract. For example, under normal procedures the military might buy, say, 100 aircraft a year for five years using five separate contracts, one each year. Alternatively, a single multiyear contract signed at the beginning of the period would provide for the purchase of all 500 aircraft, at a rate of 100 a year. The cost for each of the 500 aircraft would be established at the time the multiyear contract was signed, perhaps with provisions for price adjustments as actual inflation became known. The contractor would receive regular payments under the contract as work was completed on the aircraft.

A key feature of DoD's multiyear procurement is that contracts may allow advance procurement of materials, components, and associated labor for weapons to be procured in the later years of a contract. Thus, for example, the multiyear contract for 500 aircraft might allow the contractor to buy all 500 of the landing gear for the aircraft in the first year. This would allow purchases in quantities that hold down costs, that is, in economic order quantities (EOQ). The government usually agrees in the multiyear contract to pay for the costs of these EOQ buys at the time they occur. This study focuses upon multiyear contracts that use advance procurement to achieve economic order quantities. 1/

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1. Another type of multiyear procurement--called "classic multiyear" procurement by DoD--does not permit the contractor to use government funding to make advance purchases of items. Thus classic multiyear contracts might buy 500 trucks at a rate of 100 a year, but

The Congress clearly intends that multiyear procurement be used only for selected weapons systems. The weapons must be stable in their technology, the contractor and his cost estimates must be considered reliable, and there must be reasonable agreement as to the numbers of weapons to be bought. (Other important criteria are discussed later in this study.) Generally, this means that only weapons in high-rate production are even candidates for multiyear procurement.

Even with successful multiyear contracts, the Congress makes annual appropriations to cover payment for that year's period. This Administration and the Congress reserve the right to alter funding or even to cancel the contract each year. A contractor is protected against loss due to alteration or cancellation of a multiyear contract, however, by provisions that allow reimbursement of costs up to a specified dollar level called the cancellation ceiling. The cancellation ceiling could cover losses such as investments in plant and equipment made by the contractor in anticipation of future work. The Congress requires that each year's appropriation for a multiyear contract include dollars to pay for work to be done that year plus the full amount of the cancellation ceiling.

Advantages and Disadvantages

DoD's approach to multiyear contracting offers some important potential advantages. Most important, it could cut costs. As noted above, multiyear contracts make it realistic for companies to order in economic order quantities, which may result in savings through economies of scale. Under annual contracts, few companies would make EOQ buys because of the risk that future contracts would be cancelled or awarded at lower than planned levels. Multiyear contracting also provides a contractor with a more certain outlook for future production. This can enhance a company's ability to plan its plant, equipment, and manpower and so achieve lower costs. Greater certainty may also make a company more willing to accept a lower rate of profit.

Multiyear contracting could also prevent uneconomic changes in procurement planning. Both the Administration and the Congress frequently lower planned buys of weapons in response to budget reductions and other pressures. Multiyear contracts make it more difficult and costly to alter

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Footnote Continued

would not permit government funds to buy in the first year all 500 engines needed for these trucks. Little data exist on the extent and characteristics of classic multiyear contracts, and they are not considered in this analysis.

these plans, and so could lead to more realistic initial plans that would be carried out with fewer changes. Multiyear contracting might also minimize engineering changes in weapons, which can drive up costs. Such changes, while not impossible under a multiyear contract, are probably more difficult than under annual contracts.

Multiyear contracting has some potential disadvantages. Though it does not prevent many types of competition, it prohibits annual competition among contractors, which could lead to savings. The advantage of stability noted above could also make it harder for DoD to react to changes in technology or in the military threat. Moreover, because of EOQ buys, multiyear procurement requires upfront investment beyond levels associated with annual buys. Such upfront investment might be difficult in a period of fiscal restraint. Also, multiyear procurement involves a large administrative burden.

Most important, though, are the restrictions on budget flexibility entailed in multiyear procurement. While multiyear contracts can technically be cancelled each year, in practice this is difficult. The government would be liable for termination charges up to the cancellation ceiling and could end up buying many worthless products. In the aircraft illustration used above, for example, cancellation could mean that the government paid for 500 landing gear but received no usable aircraft. Thus multiyear contracts restrict the flexibility of the Department of Defense to make reductions necessitated by budget constraints. This is a particular problem in a period when reductions in the defense budget imposed by the Congress, and those made under the Balanced Budget and Emergency Deficit Reduction Act of 1985 (BBEDRA, better known as Gramm-Rudman), have led to sharp declines in defense budget authority relative to levels proposed by the Administration. 2/ Indeed, in a recent press release, the House Armed Services Committee indicated that it proposed denying approval for a number of new multiyear contracts because of the need to retain flexibility. The Senate Armed Services Committee, on the other hand, recommended

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2. Indeed, applications of BBEDRA in 1987 and beyond could pose special problems for weapons under multiyear contracts. Under the current BBEDRA law, cuts in the defense budget must be equal in percentage terms at the level of programs, projects, and activities. In 1986, this resulted in equal percentage cuts in each major weapon system and sometimes in several components of a system. Such cuts could force the abrogation of a multiyear contract. In 1986, the President had authority to exempt specific defense projects, and he did so for a number of projects with multiyear contracts. In 1987 and beyond, however, the President has no such authority.

approval for five new multiyear programs in the 1987 authorization act, citing significant savings to be gained. Others have also examined defense procurement and concluded that multiyear contracting should be increased. Most recently, the President's Commission on Defense Management (better known as the Packard Commission) recommended that multiyear procurement be expanded significantly beyond current levels.

Plan of the Paper

After discussing the legislative history of multiyear procurement, the paper assesses the advantages and problems of the multiyear contracts signed since 1982. The study also considers the feasibility of expanding multiyear contracting beyond current levels. Finally, it presents several approaches should the Congress decide to expand the use of multiyear contracting.

SECTION II. LEGISLATIVE AND POLICY BACKGROUND

The use of economic order quantity multiyear procurement for major programs represents a significant change in the defense acquisition policy that has characterized past Defense Department buying practices. Before 1981, the use of multiyear procurement was restricted to smaller programs since the law limited cancellation ceilings to $5 million. Since many weapons programs featured costs in the hundreds of millions, this prohibited most from making much use of EOQ buys. After a major review of defense acquisition practices directed by Deputy Secretary of Defense Carlucci in 1981, the Department sought legislative approval for expanding the use of multiyear procurement. Its recommendation encouraged the extensive use of multiyear procurement based upon a "case-by-case benefit/risk analysis" and possible savings of 10 percent to 20 percent in unit procurement costs.

The 1982 authorization act (P.L. 97-86) adopted DoD's principal recommendation and removed the $5 million cancellation ceiling limit. The new law simply required Congressional notification prior to the award of a multiyear contract with a cancellation ceiling in excess of $100 million. The legislation also introduced other changes intended to encourage multiyear procurement. Whereas previous legislation had limited the cancellation ceiling to reimbursing contractors for one-time, or nonrecurring, costs, P.L. 97-86 authorized both recurring and nonrecurring costs to be covered within the cancellation ceiling in order to reduce program risk to prospective contractors. The law also permitted advance procurement for cost reduction purposes; previous legislation had allowed advance procurement of components only to speed up procurement to meet military needs.

The 1982 authorization legislation also endorsed the case-by-case approach to the multiyear approval process. It introduced basic criteria for selection of multiyear programs, and these criteria were subsequently incorporated into the Defense Appropriations Subcommittee report on the 1982 appropriation act's requirement for justification materials:

- Benefit to the Government. A multiyear program should yield substantial savings when compared to conventional annual contracting methods. The 1986 appropriation act further

suggests that multiyear contracts are justified if, and only if, they can be shown to yield savings estimated in present value terms. 1/

- o Stable Requirement. The number of items to be procured is expected to remain constant during the planned contract period in terms of production rate, fiscal year phasing, and total quantities.

- o Stable Funding. The program is expected to be funded at the level specified in the multiyear contract over the entire length of the contract.

- o Stable Configuration. The program should be technically sound, have completed engineering development and development testing, have relatively few anticipated design changes, and should be based on stable underlying technology.

- o Confidence in Cost Estimates. There should be reasonable assurance that contract cost and savings estimates are realistic, based upon the use of proven cost-estimating techniques and prior cost history of the same or similar production items.

- o Confidence in Contractor Capability. There should be confidence that the potential contractor(s) can perform the work both in terms of production capability and in terms of incorporating government-furnished items into the weapons system.

Later in 1982, the 1982 appropriation act (P.L. 97-114) refined the provisions of that year's authorization act and reinstated some restrictions on the use of multiyear procurement. Rather than simply notifying the Congress, DoD was not allowed to proceed with a multiyear contract for a major weapon system without a specific provision of law authorizing the contract. (A "major system" was later defined in the 1984 appropriations act as a program estimated to cost more than $200 million in research and development or $1 billion in procurement in 1980 dollars.) The threshold for Congressional review of multiyear candidates was originally set at a cancellation ceiling greater than $100 million. This restriction was revised

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1. The Department of Defense has used a 10 percent real discount rate to compute its present value savings. A real government discount rate in the range of 0 to 4 percent, however, appears more in line with current economic conditions. Applying a discount rate in this range as opposed to the 10 percent rate would increase the present value savings of multiyear contracts because savings in future years would be discounted less.

in the 1986 appropriation act to require enabling language only for multiyear contracts with procurement costs greater than $500 million. Even for nonmajor systems, the Congress requires notification prior to award for multiyear contracts employing economic order quantity procurement that costs the government in excess of $20 million in any one year of the contract or for contracts that include a cancellation ceiling in excess of $20 million.

The Conference Report on the 1984 appropriation act further revised procedures for justifying multiyear contracts to the Congress. Before then, the initial justification package submitted to the Congress in conjunction with the President's budget request had presented savings based on contract estimates. The 1984 legislation required the submission of a second set of materials based on data estimated after a contract is signed.

The net effect of multiyear legislation since 1981 has been to allow greater use of multiyear contracts. But the procedures also ensure high visibility in the budget review for multiyear contracts dealing with major weapons.

SECTION III. REVIEW OF PERFORMANCE UNDER MULTIYEAR PROCUREMENT

Overall use rates of multiyear contracts for major programs have increased since P.L. 97-86 was enacted in 1981. Between fiscal years 1982 and 1986, multiyear contracts increased as a proportion of the Department of Defense's total obligational authority (TOA) for procurement from 3.2 percent to 11.8 percent (see Table 1). 1/ In the process of achieving these gains, DoD proposed 59 weapons systems as candidates for multiyear procurement during 1982-1986. The Congress approved 40 of them. Of the 19 programs that were disapproved, DoD estimates that four were determined by the Congress to be inadequately justified, four projected inadequate savings, and the remainder were judged unstable as to requirements, funding, or design.

Despite this recent growth, a number of large multiyear contracts (B-1B airframe, subsystems and spares; TB-16 Towed Array; MK 45 Gun Mount; A-6E TRAM; MLRS; KC-10; NATO Seasparrow; DMSP; C-2; SM-1; and NAVSTAR) are now approaching their conclusion. Thus, the use of multiyear will decline after 1986 unless substantial new programs are soon approved. Indeed, without any new programs, the percentage will fall to 1.8 percent by 1991.

Use rates in Table 1 are based on the portion of procurement actually under a multiyear contract and do not include any part of a weapon system bought under annual contracts. Use rates are based on negotiated contract values, if available, or on projected contract estimates provided by DoD. The figures for 1987-1991 include multiyear programs that were approved before 1987 and extend to that period plus all 1987 candidates submitted to the Congress. No new multiyear programs beyond 1987 were assumed. The estimates by service express multiyear use rates as a proportion of each service's procurement TOA.

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1. Total obligational authority (TOA) is a Department of Defense financial term that expresses the value of the direct defense program for a fiscal year. It differs from budget authority in that it includes certain transfers from previous appropriations but does not include offsetting receipts.

TABLE 1. USE OF MULTIYEAR CONTRACTS
(By fiscal year, in percents of total obligational authority)

	1982	1983	1984	1985	1986	President's Budget 1987	Projection[a] 1988	1989	1990	1991
Total Defense Procurement	3.2	5.0	8.0	11.9	11.8	6.4	7.2	5.6	2.3	1.8
Army	4.5	8.7	8.6	9.9	15.2	17.6	14.8	12.4	3.0	2.2
Navy	0.3	1.1	1.6	2.1	5.5	3.2	7.9	5.8	4.0	3.2
Air Force	5.2	7.9	13.3	21.2	16.5	4.3	3.0	2.5	0.3	0.3

SOURCES: National Defense Budget Estimates for fiscal year 1987, DoD fiscal year 1987 Procurement Annex, DoD Justification of Estimates submitted to the Congress, fiscal years 1982-1986.

a. Assumes no additional MYP programs beyond 1987 candidates.

ESTIMATED MULTIYEAR SAVINGS

Proponents of multiyear contracting recommend its use primarily on the basis of the savings it could achieve over annual contracting as well as the greater program stability it could ensure. Table 2 displays DoD estimated savings for approved multiyear programs and the 1987 multiyear candidates. Total estimated savings are $8.3 billion in TOA: $6.2 billion for approved programs, and $2.1 billion for the 1987 candidates. In constant 1987 dollars, savings total $4.7 billion. Expressed in terms of present value, which takes into account the time value of money, DoD's estimated savings for approved multiyear programs have totalled approximately $500 million each year since the Department began reporting present value savings in fiscal year 1984. The data in Table 2 are aggregated from justification materials provided to the Congress and do not reflect any changes or adjustments that might have occurred since the submission.

DoD multiyear savings estimates are expressed as percentages in Table 3. According to its projections, multiyear procurement saves about 11.7 percent of TOA relative to costs under annual contracts. Comparable figures for constant dollar and present value estimates are not available for the entire 1982-1987 period, but have been increasing since first reported in 1984. Constant dollar savings percentages have increased from 8.2 percent to 11.3 percent during 1984-1986. Present value savings percentages have increased from 5.9 percent to 8.3 percent during the same period.

These multiyear savings, based on projections, are of interest, but data based on actual savings would be more convincing. Actual savings from multiyear contracts are not available, since DoD does not purchase the same weapon using both annual contracts and multiyear contracts; thus one must always estimate what costs might have been under annual contracts when assessing multiyear savings.

Candidates for multiyear contracts include such estimates, and these are the basis for the savings shown in Tables 2 and 3. Subsequent to Congressional approval, however, multiyear programs may undergo changes because of engineering redesigns or for other reasons. In most cases, the cost estimates assume that annual contracting will not be updated to reflect program changes, and this leads to uncertainties in estimates of savings. The impact of this shortcoming is limited, however, because multiyear programs must demonstrate stable configuration in order to be approved, so that program changes are likely to be relatively small. Uncertainties in savings also occur because none of the 40 multiyear contracts approved by the Congress has achieved complete delivery of all items.

Other difficulties in estimating savings stem from the requirement for present value analysis. The Department of Defense uses a flat 10 percent

TABLE 2. MULTIYEAR SAVINGS ESTIMATES

Fiscal Year	MYP Programs Proposed - Approved	TOA Savings (billions of current dollars)	TOA Savings (billions of constant base year dollars)	Present Value Savings [b] (billions of constant dollars)
1982	8 -- 8	$0.8	[a]	[a]
1983	15 -- 9	$1.2	[a]	[a]
1984	15 -- 6	$1.5	$1.2	$0.6
1985	11 -- 9	$1.0	$0.8	$0.4
1986	10 -- 8	$1.7	$1.0	$0.5
1987	7	$2.0 [c]	$1.7 [c]	$1.0 [c]
Total	66 -- 40	$8.3	$4.7	$2.5

SOURCES: Secretary of Defense, fiscal year 1987 Annual Report to the Congress, p. 105; and DoD Justification of Estimates submitted to the Congress, fiscal years 1984-1987.

a. Not reported by the Department of Defense in multiyear justification materials submitted to the Congress.

b. The real discount rate assumed by the Department of Defense is 10 percent. If a lower real discount rate was used, the present value savings would be greater.

c. Estimated savings if all of the seven candidates proposed by the Department of Defense for multiyear procurement are approved by the Congress.

TABLE 3. MULTIYEAR SAVINGS ESTIMATES
(In percents)

Fiscal Year	TOA Savings (current dollars)	TOA Savings (constant base year dollars)	Present Value Savings [a] (constant dollars)
1982	10.6	[b]	[b]
1983	15.5	[b]	[b]
1984	11.5	8.2	5.9
1985	8.7	9.7	7.4
1986	14.9	11.3	8.3
1987	10.5	[c]	[c]
Average	11.7		

SOURCE: DoD Justification of Estimates submitted to the Congress, fiscal years 1982-1987.

a. DoD estimates using 10 percent discount rate.

b. Not submitted for 1982-1983 programs. Requirement established in 1984.

c. Not available.

real discount rate in accordance with OMB Circular A-94. The General Accounting Office (GAO), however, uses discount rates that reflect the average yield on outstanding marketable Treasury obligations that have remaining maturities similar to the period pertaining to the program; GAO estimates this to be 4 percent at present. As a result of this difference, DoD estimated 8.1 percent present value savings for the fiscal year 1986 multiyear candidates, while GAO estimated 9.7 percent. A still lower discount rate would further increase the present value savings.

While the cost savings estimates in Tables 2 and 3 have important uncertainties, they also have received some independent corroboration. GAO has conducted audits of multiyear programs that approximate selected DoD savings projections. GAO savings estimates for the Army's MLRS system ($179.9 million in TOA), for example, are comparable to DoD's projected savings (209.1 million in TOA). Estimates of savings due to advance purchase of materials in economic quantities for MLRS were virtually identical: DoD estimated $165.9 million in savings; GAO estimated $166.8 million. GAO also provided savings estimates that closely approximate those of DoD for the UH-60 Blackhawk helicopter and for subsystems purchased for the F-16.

A final but important area of uncertainty in the estimates is the data base itself. The 40 systems approved for multiyear contracts in 1982-1986 are certainly not a random sample of all DoD systems. They were selected because of their stability and in the belief that multiyear contracts for these weapons could save money. Nor are the 40 systems random as to type of weapon; there are, for example, proportionately more aircraft, and fewer ships, and proportionately more large weapons projects than in all of DoD procurement. On the other hand, the 40 systems do include systems from every military service and every major type of DoD weapon (aircraft, missiles, ships, and weapons and tracked combat vehicles). While these limits on the data base certainly mean that estimated savings from these systems may not necessarily apply to the future since the mix of multiyear weapons system types is likely to change, these are the only data available from which to project savings for additional multiyear procurement.

Despite these limitations, it seems reasonable to conclude that multiyear procurement can provide significant savings. Intuition and theory suggest that multiyear contracts can save money because of EOQ orders and greater stability for the contractor, and the available data bear this out. In order to obtain more conclusive empirical findings, it would be helpful to examine completed multiyear contracts using annual procurement baselines that have been adjusted to reflect program changes. It would also be desirable for GAO and DoD to agree on the appropriate discount rate to use in calculating present value savings. The Congress might wish to require DoD to provide such additional data, at least for selected systems.

PROGRAM STABILITY INDICATORS

Program stability is another potential advantage of multiyear contracting. Multiyear can avoid growth in cost to the extent that program stability is maintained. In the past, the cost of program instability through production stretchouts has been high. According to the Congressional Budget Office's analysis of the December 1985 Selected Acquisition Reports (SAR), for example, production stretchouts of current SAR programs will cost about $4.0 billion.

Since improved program stability is a basic objective of multiyear contracting, it has been emphasized in the process by which multiyear candidates are identified and approved. Three of the six criteria for multiyear approval contained in P.L. 97-86, for example, concern program stability: stability of requirement, stability of funding, and stability of configuration. For this reason, multiyear programs have tended toward greater stability than other procurement programs.

Of the 40 multiyear programs approved by the Congress since 1982, only one has been cancelled (M-60 Thermal Sight) because of a change in requirements, and one has not been awarded (M-9 Armored Combat Earthmover). Most important, over the entire period of each contract, planned quantities have been approved for all effective multiyear programs except for the C-2 aircraft and the MK-45 gun mount. The former was reduced below the planned level by the Congress, and the latter was reduced as a result of a change in requirements.

On a year-to-year basis, there has been more change in multiyear contract amounts but still less than for non-multiyear contracts. Table 4 shows that some change (either up or down) in quantities of weapons from planned levels was approved by the Congress 36 percent of the time for multiyear programs as against 68 percent for non-multiyear programs. This relatively greater stability prevailed both in DoD and the Congress. Between the DoD planned quantity and the quantity contained in the President's budget, adjustments for multiyear programs have occurred 25 percent of the time as opposed to 60 percent for non-multiyear procurement programs. The Congress introduced adjustments to multiyear quantities only 20 percent of the time as opposed to 35 percent for other procurement programs.

Adjustments of multiyear programs are not necessarily counter-productive. Adjustments may, for example, accelerate programs and reduce program costs. The approved multiyear program for the Defense Meteorological Support Program (DMSP) contained four satellites, purchased one per year for four years. The program was subsequently adjusted to buy the four satellites in three years, two of them during the first year and two in the third year. Table 4 indicates the degree to which positive and negative

TABLE 4. CHANGES IN DEPARTMENT OF DEFENSE PROCUREMENT PROGRAMS (Percent of the time any change was made, up or down) a/

Multiyear Programs	
Changes from DoD Planned Quantity (BY+1) to President's Budget Quantity	24.6
Changes from President's Budget to Congress-Approved Quantity	20.0
Changes from DoD Planned Quantity (BY+1) to Congress-Approved Quantity	36.1
Non-Multiyear Programs	
Changes from DoD Planned Quantity (BY+1) to President's Budget Quantity	59.6
Changes from President's Budget Quantity to Congress-Approved Quantity	35.3
Changes from DoD Planned Quantity (BY+1) to Congress-Approved Quantity	68.1

SOURCE: Congressional Research Service; Selected Defense Procurement Acquisition Profiles; June 12, 1986.

a. These results are based on the DoD's procurement annex (P-1) data for fiscal years 1982-1986. Each year, the DoD's P-1 records identify the quantities of planned procurement for the budget year (designated BY) and the next year (designated BY+1). Line 1 identifies the percent of the time that any change was made (either up or down) between the BY+1 plans for a given year and the President's budget for that year. These changes were made during the DoD planning process, though they could have been motivated by actions taken by the Congress. Once DoD has submitted a budget, the Congress acts. Line 2 shows the percent of the time that any change (up or down) from the President's budget was made by the Congress. Line 3 shows the percent of the time changes were made between the DoD planning level (BY+1) and the final level approved by the Congress.

quantity adjustments to multiyear programs have been introduced at various stages of the budget process, but does not show whether these changes had a positive or negative effect on the programs.

It should be noted that Table 4 is based on data aggregated by a weapons system, such as the F-16 aircraft. The data, therefore, are only indirect indicators of multiyear stability since, in many cases, multiyear contracts represent only a portion of the overall program. For example, only the F-16 airframe is under a multiyear contract. In addition, multiyear data statistics in Table 4 exclude the year when the Congress was deciding on whether to approve the multiyear contract. Thus they should reflect only actions applied to approved multiyear programs.

OTHER INDICATORS OF PERFORMANCE

Stability of configuration--that is, the absence of engineering changes during production--is also an important objective of multiyear contracts, but should be assessed in light of the flexibility to make changes necessary to respond to changes in the threat or to meet safety standards. No data were available with which to make a systematic assessment of configuration stability versus flexibility in multiyear programs. Interviews with program managers, however, gave evidence that multiyear contracts have been used to achieve both goals. Program personnel from the Navy's C-2 aircraft, for example, reported that they were able to protect the aircraft's configuration from proposed engineering changes in communications and engine subsystems. 2/ On the other hand, program personnel from the B-1B aircraft program indicated that they were able to introduce changes needed to meet flight safety standards within the constraints of the multiyear contract. 3/

DoD's Selected Acquisition Reports (SAR) also indicate positive performance for multiyear programs in minimizing unanticipated cost growth and meeting schedules. The CBO review of programs in the December 1984 SAR identifies unit cost decreases for fiscal year 1985 in 12 of 15 multiyear programs included in the SAR. Decreases in total program unit costs (total program procurement costs divided by the total number of weapons purchased) were reported for 10 of the multiyear programs. Also, 13 programs were reported at or ahead of schedule.

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2. Meeting with C-2 program personnel on April 11, 1986.

3. Meeting with Air Force Procurement personnel on April 10, 1986.

Clearly, multiyear programs have displayed some important advantages. It is impossible to know, however, how much of the better performance is associated with multiyear techniques, and how much is associated with selecting the most stable and well-developed systems as candidates for multiyear contracts. This point has more than academic importance. If the better performance noted above is due to selection of the programs, then expanding multiyear contracting to other systems might not achieve the same improvement in performance. It seems unlikely that all the improvements in performance associated with multiyear, particularly cost savings, are due to this "selection bias" of better programs. Cost savings seem more likely to stem from the multiyear technique, including the ability to purchase in economic quantities and the stability afforded the contractor. Other improvements in performance, however, could reflect the selection bias, and managers should certainly bear it in mind as they consider expanding multiyear contracting.

EFFECTS ON BUDGET FLEXIBILITY AND NEAR-TERM COSTS

Not all of the effects of multiyear contracting are necessarily positive. For example, multiyear contracting could adversely affect budget flexibility, or the ability of the Department of Defense to respond to major reductions in planned funding. In 1986, for example, the Congress reduced DoD's request for procurement TOA by $14.3 billion, or 13.4 percent. The 11.8 percent of procurement funded under multiyear procurement could not be radically reduced without costly and inefficient termination of multiyear contracts. It might seem that 11.8 percent not subject to change is not great. On the other hand, there may be other high-priority programs not under multiyear--perhaps because they have not yet achieved sufficient maturity or stability--that are effectively exempt from reductions. The exemption of a combination of multiyear programs and these high-priority programs might mean that substantial changes in procurement funding such as those in 1986 could result in large changes in the remaining procurement programs. Indeed, in a news release issued by the House Armed Services Committee following Committee markup of the fiscal year 1987 Defense Authorization Act, the Committee indicated that it was concerned that it would be difficult to enter into multiyear procurement contracts given budget constraints for the next few years. For this reason, the Committee approved only two--Stinger and Patriot missiles--of the seven multiyear contract programs proposed by the Department of Defense. The Senate Armed Services Committee, on the other hand, recommended approval for seven new multiyear programs in the 1987 authorization act, citing significant savings to be gained.

Multiyear procurement also increases near-term costs, which reduce flexibility within near-term budgetary constraints. Aggregate first-year

costs for approved multiyear programs during 1982-1986 were projected to average about 31 percent higher than first-year costs estimated for annual contracts. These additional costs were for the purchase of materials and components in economic order quantities in order to achieve long-term savings. First-year, upfront costs may vary considerably among multiyear programs, of course.

Increased use of multiyear will also require additional administrative effort to prepare justification materials and to provide support for departmental and Congressional reviews and post-award audits.

MULTIYEAR PROGRAMS AND COMPETITION

While budget flexibility and upfront costs are important management problems, a more fundamental concern is often raised about multiyear contracting: its adverse effects on competition. Any adverse effects are, of course, limited to "prime" contractors. The government enters into contracts with these prime contractors who assemble the weapon; the primes then pay a substantial part of total contract monies to subcontractors who make various components. A multiyear contract with a single prime contractor need not mean that there is no competition among the subcontractors. Among prime contractors, multiyear contracting prohibits one particular type of competition--annual competition--but does not prohibit other important types.

In prohibiting annual competition, multiyear contracting could sacrifice cost savings. It is possible that annual competition could result in savings as manufacturers incorporate new manufacturing technologies or gain greater confidence about the cost to build a weapon. Savings are not, however, assured. A 1983 Rand study analyzed seven dual-source contracts--that is, contracts where two contractors competed annually and divided the total buy of weapons. 4/ Three of those contracts suggested savings from competition, but four of them suggested added costs. This type of competition can actually add to costs for several reasons: the government must pay the nonrecurring costs to keep a second contractor in business; each contractor loses some economies of scale; and each takes longer to achieve savings that come from having produced large numbers of a weapon.

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4. Michael Beltramo, "Dual Production Sources in the Procurement of Weapon Systems: A Policy Analysis," RAND Study P-6911-RGI, November 1983.

While multiyear contracts prevent the government from realizing any savings from annual competition, they do not prohibit savings from other types of competition. For a few weapons that are bought in large quantities, it may be possible to divide the buy and award two multiyear contracts, thereby retaining the advantages of having two contractors while still realizing the benefits of multiyear procurement. Most often this will not be practical. But the government can keep two or more contractors in production until it awards a multiyear contract, allowing the multiyear to be competed in a one-time, winner-take-all competition. That same 1983 Rand study suggested that savings from competition in winner-take-all contracts were more frequent and larger than those for split buys.

Indeed, in some cases, multiyear contracting may actually enhance the chances of savings from competition. In the case of the Navy's multiyear contract for LHD ships, for example, program personnel indicate that the promise of a long-term, multiyear contract in the context of a lean shipbuilding business environment has generated bids from firms that, for business reasons, might not have been able to compete for annual buys. 5/Such competition, program personnel report, has provided an incentive for the incumbent LHD shipbuilder to submit a bid that may have been lower than one it would have submitted with fewer competitors.

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5. Meeting with LHD program personnel on April 10, 1986.

SECTION IV. FEASIBILITY OF EXPANDING MULTIYEAR PROCUREMENT

While there are potential disadvantages to multiyear contracting, its potential benefits have generally outweighed them in the opinion of many groups. Governmental and nongovernmental organizations have supported the use of multiyear procurement and have encouraged its expansion. In 1984, the President's Private Sector Survey on Cost Control (PPSSCC--the Grace Commission) recommended increased use of multiyear to achieve additional savings during 1985-1988. Last year, Georgetown University's Center for Strategic and International Studies also endorsed multiyear procurement. In recent months, the President's Blue Ribbon Commission on Defense Management (Packard Commission) issued two reports that urged the expansion of multiyear procurement and recommended that it be used for all programs approved for full-scale development and either low-rate or high-rate production. Of course, DoD strongly urged expansion of multiyear procurement in 1981.

Whether multiyear can be expanded beyond today's level depends primarily on whether additional suitable candidates can be identified. This study provides some data that suggest such candidates are available. Ultimately, however, the availability of suitable candidates must be determined after a case-by-case review.

PATTERNS OF USE

As indicated in Table 1, the services vary widely in their use of multiyear. Perhaps the services with projected low rates of use might place greater management emphasis on multiyear contracting. During 1982-1986, the Army and the Air Force have favored the use of multiyear more than the Navy. The Navy has generally preferred annual competition as an alternative acquisition approach. Nevertheless, the Navy has requested and received approval for a number of major multiyear programs (LHD, CH-53, and C-2) and has proposed a multiyear contract for the F-18 aircraft, MK-45 Gun Mount, and HARM missile in the 1987 budget.

Perhaps more important, patterns of use vary widely by type of appropriation, which suggests that some types of appropriations could make greater use of multiyear contracting. Table 5 displays multiyear use data by appropriation account. While the data show a trend of gradual increases during 1982-1986, certain anomalies are apparent. Several appropriation accounts show relatively low use: Navy shipbuilding, aircraft and missile

TABLE 5. USE OF MULTIYEAR CONTRACTING BY APPROPRIATION ACCOUNT
(By fiscal year, in percents of procurement account TOA)

Account	1982	1983	1984	1985	1986	President's Budget 1987	Projection[a] 1988	1989	1990	1991
Shipbuilding and Conversion (SCN)	0	0	0.4	1.0	12.2	2.6	9.0	5.8	0.2	0
Weapons and Tracked Combat Vehicles (W/TCV)	4.8	8.8	8.3	10.5	31.5	34.4	29.1	23.6	0	0
Aircraft										
Army	20.2	20.9	16.6	24.6	27.4	25.1	20.3	20.6	3.6	0
Navy	0.3	2.1	2.2	2.9	3.4	5.3	16.6	14.0	13.6	11.5
Air Force	8.9	10.5	20.8	31.0	26.3	5.2	4.1	3.5	0	0
Missiles/Weapons										
Army	0	15.8	18.6	17.4	18.3	37.1	31.5	25.8	16.8	14.8
Navy	1.3	4.8	6.3	5.7	4.4	4.4	2.3	0.9	0.8	0.4
Air Force	0.5	7.5	4.5	11.6	6.5	7.7	3.6	3.1	1.1	1.0
Other Procurement										
Army	1.3	0.2	0.2	1.0	0.5	0.3	0.3	0.2	0	0
Navy	0	0	0.2	0.2	0.1	0	0	0	0	0
Air Force	1.7	1.5	1.4	0	0	0	0	0	0	0

SOURCE: National Defense Budget Estimates for fiscal year 1987; DoD fiscal year 1987 Procurement Annex; DoD Justification of Estimates submitted to the Congress, fiscal years 1982-1987.

a. Assumes no new multiyear programs beyond those in President's 1987 budget.

procurement, Air Force missile procurement, and the Other Procurement accounts (Other Procurement pays for many smaller items like radios and trucks, as well as for large spare parts). In addition, certain types of procurement programs such as aircraft and missile modification programs, utility and target craft, and common/standard components appear as generic types of procurement in which multiyear use is low, and where there might be a potential for its increased application. Since there have been at least some approved multiyear programs in each of these accounts, it is not evident why they have used multiyear procurement to a lesser extent than others. Some of these accounts, moreover, such as missile procurement, deal with programs having large annual procurement quantities and might be more attractive multiyear procurement candidates than others--such as the shipbuilding account--where individual programs are not bought in relatively high volume.

POTENTIAL MULTIYEAR CANDIDATES

A preliminary review of the supporting data for the President's 1987 budget also suggests that a number of major programs might qualify for multiyear contracting, beginning in fiscal year 1988. The list of candidates includes all that meet two simple criteria: a program must have been in production during fiscal years 1985-1986 (suggesting that it has achieved enough stability to be approved for two years) and must have production planned for 1988-1991 (suggesting a potential for future stability). Table 6 gives lists of programs that meet these basic criteria. The planned procurement value for these programs during 1988-1991 is about $44 billion in total obligational authority (TOA).

Some of the systems in Table 6 might not qualify for multiyear contracting in the near term because of planned model changes. Information provided by the services, for example, indicates that model changes are planned for the F-15 and the P-3 aircraft. Although a model change might introduce technical change and so temporarily rule out a multiyear contract, it should not preclude multiyear as a future acquisition strategy if multiyear criteria are met following the introduction of a new model. On the other hand, rapid introduction of successive model changes for a system would be likely to preclude the use of multiyear on the basis of instability of requirements, configuration, or both. The F-15, P-3, or any other system for which a model change might be planned must be assessed accordingly.

Other programs listed in Table 6 might not qualify as multiyear candidates because of current or planned dual-source production. As the previous chapter suggested, however, such cases should be carefully considered in order to maximize the benefit to the government. The

TABLE 6. POTENTIAL MULTIYEAR CANDIDATES
(Fiscal years 1988-1991)

- Major Programs:

Air Force	Navy	Army
F-15	EA-6B	HELLFIRE
AIM 9 SIDEWINDER	AV-8B	TOW II
AGM 65 MAVERICK	F-14 A/D	M88A1 RECOVERY VEHICLE
KC135	P-3	M-16 RIFLE
	TOMAHAWK	9mm HANDGUN
	AIM/RIM 7 SPARROW	
	AIM 54 A/C PHOENIX	
	HARPOON	
	SM-2 ER	
	HELLFIRE	
	25mm GUN MOUNT	

- Aircraft Modification Programs
- Missile Modification Programs
- Utility Craft and Vehicle Programs; Target Craft and Drones
- Common/Standard Components
- Other Procurement Appropriation Programs

SOURCE: DoD fiscal year 1987 Procurement Annex.

advantages of multiyear must be weighed against those of annual competition between two producers.

In addition, certain programs identified in Table 6 (KC-135, P-3, and TOW II) have been proposed for multiyear authorization, but were denied by the Congress during past budget reviews. These programs are included on the list since they meet the basic criteria for initial screening for multiyear candidacy (past and planned production), and might have rectified whatever factors caused denial of the multiyear request in the past.

Table 6 includes only programs with procurement in 1985-1986. A number of other major programs that are planned to enter production during 1988-1989 could eventually be candidates for multiyear contracting. The supporting data accompanying the President's 1987 budget include 15 such programs, estimated to cost $24.3 billion during 1988-1991 (see Table 7). Each new program must, of course, be examined individually to determine if the criteria for multiyear approval could be met.

TABLE 7. NEW DEFENSE PRODUCTION PROGRAMS PLANNED FOR FISCAL YEARS 1988-1989
(In millions of current dollars)

System	Estimated Cost (TOA) 1988-1991
RC-12D	$ 411.4
M-198 HOWITZER	77.7
M-3 MACHINE GUN	9.8
V-22	4,365.0
T-45	1,839.3
AMRAAM	736.3
PENGUIN	60.7
EMATT ASW TGT	73.2
SSN-21	4,882.5
LSD-41 (CARGO)	1,174.0
AE	1,600.0
C-21A	199.6
TTBT	369.0
SRAM II	937.4
C-17	7,604.6
Total	$24,340.5

SOURCE: DoD fiscal year 1987 Procurement Annex.

SECTION V. ALTERNATIVE APPROACHES TO INCREASING MULTIYEAR PROCUREMENT

The Congress cannot, of course, review each weapon system and judge whether it meets the criteria for multiyear procurement. Indeed, the Congress may prefer to pursue its current strategy: allow the DoD to propose new candidates and then decide whether or not to approve them.

On the other hand, the Congress could decide that multiyear contracting requires more impetus. There are bureaucratic obstacles in the way of multiyear contracting. A proposal to award a multiyear contract must be approved by many levels within DoD and by several committees of the Congress; each approval requires presentations and supporting documentation. The added administrative load might discourage some program managers from proposing multiyear contracts. The Congress, however, may judge that the potential savings are worth the administrative burden. Then, too, in a period of tight fiscal limits, the services and DoD might judge that multiyear contracting reduces budget flexibility too much to justify the savings. While some in the Congress might agree with this decision, others might not. Finally, several groups of experts--most recently and notably the Packard Commission--have strongly recommended more use of multiyear contracting.

If the Congress decides that more multiyear contracting is appropriate, it may wish to consider two alternative approaches that would enable it to avoid getting involved in a case-by-case review of each candidate system. One would be to insist that all weapon systems be placed under multiyear procurement unless DoD could show why not. Another would be to set a goal--perhaps in percentage terms--for multiyear procurement.

APPROACH I. PLACE ALL NEW PRODUCTION PROGRAMS UNDER MULTIYEAR PROCUREMENT

One approach to increasing the use of multiyear procurement was recently proposed by the Packard Commission. In its April 1986 report, the Commission recommended that the Department of Defense request the Congress to authorize multiyear funding for all programs approved for full-scale development while they are still in low-rate production, and if low-rate production is successful to approve multiyear contracts for the systems

when they are in high-rate production. To illustrate the effects of this approach, this study assumes that all programs planned to enter production during fiscal years 1988-1989 are placed under multiyear contracts in addition to continuing all multiyear contracts already approved and all candidates proposed in the 1987 budget. 1/

Figure 1 illustrates the potential level of multiyear procurement that would be achieved under this approach. In fiscal year 1988, for example, multiyear could account for 10.8 percent of total obligational authority, but would gradually decline to 7.9 percent by 1991. Nonetheless, levels for 1988-1989 would be higher than DoD's historical average of 8.2 percent during 1982-1986.

To achieve these levels, approximately $23 billion of TOA above currently approved or proposed levels would have to be committed to multiyear contracts during 1988-1991 (see Table 8). Additional first-year upfront costs would be about $900 million in 1988. Assuming the rate of savings projected for 1982-1986 multiyear programs, this approach could provide an additional $2.7 billion TOA savings during 1988-1993.

These estimated upfront costs and savings should only be taken as rough guides. The estimates are based on percentages taken from the 40 programs already approved, and, as was noted earlier, there is considerable uncertainty surrounding these estimates. Nor is it clear that the 40 past programs are a fully accurate guide to future performance, though they provide the only available data. The potential seems clear: expanding the use of multiyear to levels modestly higher than those in the recent past should, on the evidence, increase multiyear benefits accordingly. In addition to savings, other benefits such as stability would be realized at modestly higher levels. There would be offsetting disadvantages, of course, principally modest further reductions in budget flexibility and increases in the administrative burden of justification and oversight.

In the longer run, the effects of this approach could be much more far-reaching. Since about 50 percent of the DoD procurement budget pays for major systems that are in production, this approach could eventually place about half the procurement budget under multiyear contracts. The potential for savings would be large but so too would the reduction in budget flexibility.

One danger is that mechanical application of this approach could lead to premature multiyear contracting. In the past, some of DoD's low-rate

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1. Since this study does not deal with research and development, it does not analyze the Packard Commission's recommendation concerning multiyear contracting for systems in full-scale production.

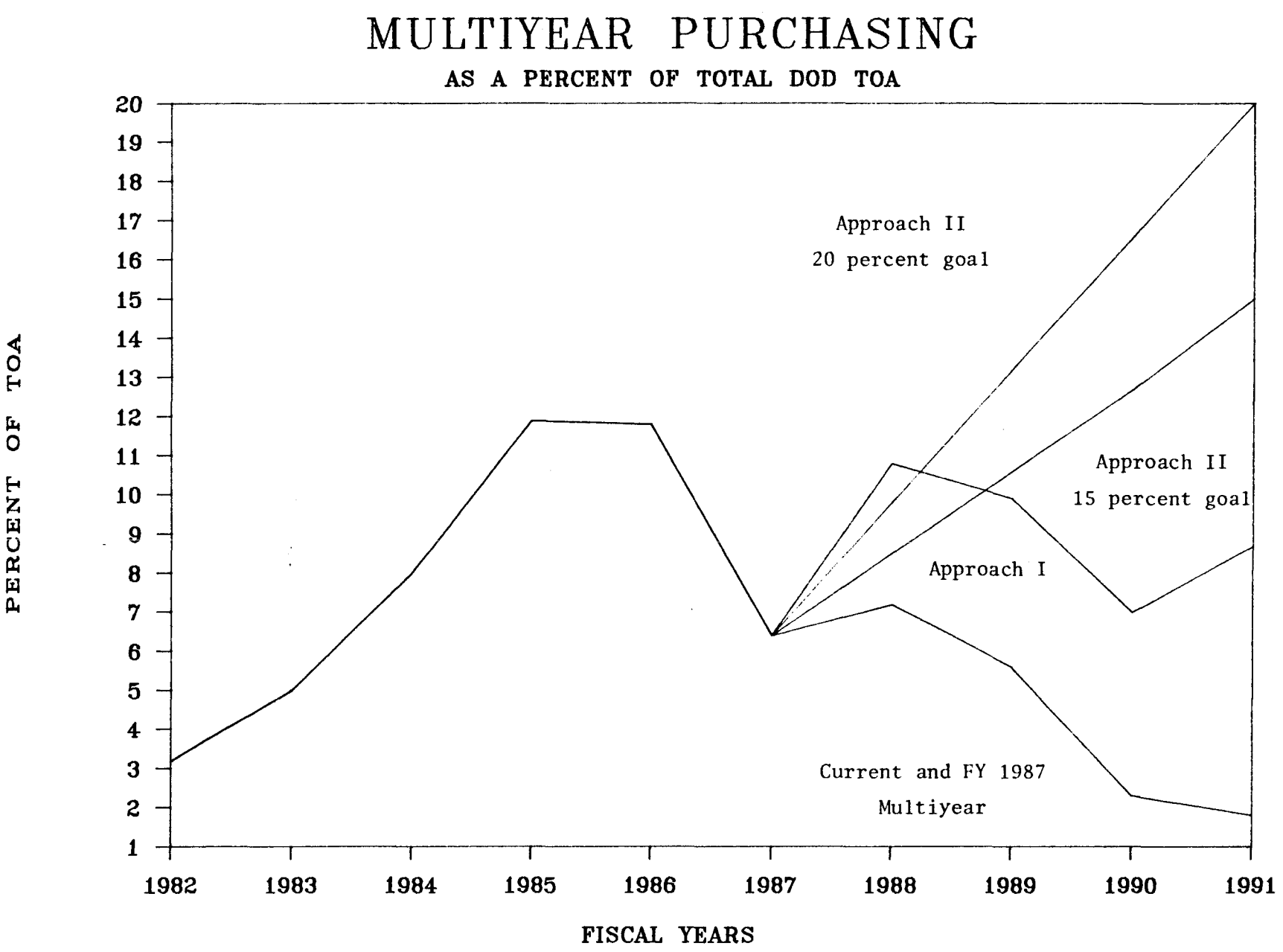
MULTIYEAR PURCHASING
AS A PERCENT OF TOTAL DOD TOA
PERCENT OF TOA
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Approach II
20 percent goal
Approach II
15 percent goal
Approach I
Current and FY 1987
Multiyear
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
FISCAL YEARS

TABLE 8. APPROACH I: ESTIMATED SAVINGS FROM MULTIYEAR PROCUREMENT, AT PRESENT AND UNDER TWO ALTERNATIVE APPROACHES
(Fiscal years, in billions of current dollars)

Alternative	TOA Under Multiyear		Additional Upfront TOA Requirements in 1988	Estimated Savings in 1988-1991 a/
	1988	1988-1991		
Approved Multiyear Programs and 1987 Candidates	7.7	19.7	-	2.3
Approach I	11.5	43.0	0.9	5.0
Approach II				
15 percent goal	9.1	58.5	0.4	6.8
20 percent goal	10.5	74.8	0.9	8.7

SOURCES: National Defense Budget Estimates for fiscal year 1987; DoD fiscal year 1987 Procurement Annex; DoD Justification of Estimates submitted to the Congress, fiscal years 1982-1987.

a. Assuming an 11.7 percent savings rate for multiyear programs, as projected for 1982-1986.

production programs have not met operational requirements and have been cancelled (for example, the Army's Division Air Defense Gun or DIVAD). More rarely, some high-rate production programs have required major modifications (for example, the C-5 transport aircraft that eventually required new wings). If this approach had been in place then, these programs would have been placed under multiyear contracts.

How might the Congress implement an approach such as this while minimizing the chances of approving programs for multiyear prematurely or of approving too many to allow adequate budget flexibility? One variant recommended by the Packard Commission would continue to treat programs in low-rate production as they are treated today, placing them under multiyear procurement only if DoD recommends and the Congress approves. At the same time, the Congress could require that all programs in high-rate production be under multiyear contracts unless the DoD explains why they are not. DoD would have to be specific as to why a program was not included under multiyear procurement. Placing all high-rate programs under multiyear, unless DoD recommended against it, might provide added impetus to multiyear procurement while retaining the advantages inherent in a case-by-case review.

APPROACH II. SETTING A MULTIYEAR PROCUREMENT GOAL

Another approach would be to establish goals for multiyear procurement, perhaps expressed as a percentage of DoD procurement total obligational authority. If the goal was not met, DoD could be required to report to the Congress why not. This approach would be consistent with other legislation adopted by the Congress, which has established goals and reporting thresholds for Defense acquisition. The Nunn-McCurdy provision (P.L. 87-86, Section 917) in the 1983 authorization act, for example, established a threshold for growth in unit costs of weapons that, if breached, requires a report from DoD. In this way, DoD could be given an incentive to increase the use of multiyear procurement without requiring the Congress to designate specific candidates for it. DoD would thus retain the flexibility to continue its case-by-case assessments.

As with any management-by-objective approach, establishing the appropriate level for a multiyear goal is problematic. The goal selected must be attainable while also providing an incentive for improved performance. For illustrative purposes, this alternative considers two goals, 15 and 20 percent, to be reached in even increments by 1991 (see Figure I).

Either level seems achievable. For example, if all programs listed in Table 6 were approved for multiyear contracting in fiscal year 1988, they would approach 21 percent of total DoD procurement. If, in addition, the

new production programs listed in Table 7 were approved for multiyear in 1988, multiyear TOA would approach 25 percent of total DoD procurement. This would be substantially higher than the 8.2 percent average level attained in the past. (The fiscal year 1987 level, including both approved programs and the 1987 candidates, is only about 6.4 percent of total DoD procurement.)

The lower goal of 15 percent would require an additional $39 billion in multiyear TOA above currently approved and planned levels. First-year upfront costs for 1988 would be approximately $400 million. Total additional TOA savings at the 15 percent level would be an estimated $4.5 billion during 1988-1993. A 20 percent goal would require an additional $55 billion multiyear TOA beyond approved and planned levels during 1988-1991. First-year, upfront costs for 1988 would be approximately $900 million, with additional potential savings during 1988-1993 of about $6.4 billion. As noted above, these estimates are based on results from the 40 approved programs and should be treated as rough guides.

This approach could achieve significant benefits through increased multiyear use while retaining an important degree of management flexibility. It would retain the benefits of the case-by-case approach, permitting the Department to determine optimal multiyear candidates and require annual competition for production contracts if greater benefits to the government could be demonstrated. Other benefits of increased multiyear use, such as increased stability, would obtain in proportion to the level of multiyear TOA. Disadvantages, principally reduced budget flexibility, would also obtain.

A difficulty presented by this approach involves the intrinsic tension between retaining the case-by-case approach to multiyear selection while striving to achieve an overall goal. Defense procurement is subject to major perturbations that can affect multiyear usage. The completion of one large multiyear contract for the B-1B bomber, for example, has reversed the gradually increasing levels of multiyear use experienced during 1982-1986. No new procurement program is of sufficient size to offset the completion of the B-1B. Had the goal been in effect for 1987, it might have been very difficult to meet.

On the other hand, this alternative would only require that DoD report to the Congress if the goal was not met. If a large program such as the B-1B reached completion and no other suitable candidates were available based on the case-by-case selection criteria, DoD would not be required to recommend less appealing, or unqualified, programs for multiyear approval.

The form and scope of the report would be important issues. The Congress could simply require that DoD indicate why the goal was not met.

This would minimize the administrative burden on the Department, but might not provide much information to the Congress, nor give DoD much incentive to seek suitable candidates in order to avoid having to make the report. Alternatively, DoD could be required to analyze each major procurement program in high-rate production that was not under a multiyear contract. The analysis would indicate what specific multiyear criteria each program failed to meet. While imposing a greater administrative burden on DoD, such a report would probably be more informative to the Congress.