CAN CONGRESS RELY ON DoD's INFLATION

ADJUSTMENTS AS THE BASIS FOR A BUDGET FREEZE?

·A Report Prepared by the Military Reform Caucus

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AS THE BASIS FOR A BUDGET FREEZE?

Since 1979, each year's Congressional debate on the DoD budget ceiling
has focused on what percentage to add to last year's budget, after last year's
budget has been adjusted for inflation. Concerning the inflation adjustments
themselves, there has been no Congressional debate--even though the adjustments
are calculated by an interested party, namely, DoD.

DoD's annual adjustment for inflation differs from other COLA's in a funda-
mental way. Whereas the Social Security, and the various retirement and salary
COLA's adjust payments to compensate for inflation that has already occurred,
DoD's inflation adjustment is based on inflation that is predicted to occur
in the future. Despite the fact that inflation predictions are notoriously
inaccurate, the Congress has no institutional mechanism to annually determine
if DoD is overestimating inflation or to insure that DoD returns any excess
funds to the treasury.

To help Congress exercise its oversight responsibility, the Military
Reform Caucus has conducted a study to review whether DoD's inflation
adjustments represent unbiased estimates or hidden additions to DoD's annual
budget growth. The study has produced three key findings:

1. To increase funding for major systems procurement, in every
budget since FY'83 the DoD has awarded itself a 30% add-on to its traditional
Defense Procurement Deflator inflation rate projections.[1] The 30% projected rate
increase is unwarranted, particularly when compared to actual historical
inflation rates for major systems (see Appendix A for details). Yet, DoD
claims that the 30% increase is justified by a 1979 Department of Commerce
study. In fact, that study does not address inflation rate projections,
much less 30% add-ons.

2. Using either the new, Carlucci-introduced Major Commodity Deflator
or the traditional Defense Procurement Deflator for Dod's annual inflation
adjustment inherently rewards DoD for a)overruns; b) increases in contractor

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[1]

This add-on was one of the Carlucci management "reforms" promulgated in
late 1981.

The alternative, allowing DoD to continue increasing procurement outlays in FY'86 and beyond without changing current management and non-competitive procurement practices, will insure that the increased outlays will be largely converted into ever-increasing contractor overhead and other non-productive cost claims.

The American taxpayer should not be asked to continue paying DoD's inflation windfall while receiving no increased rearmament in return.

overhead or other non-productive cost claims; c) cost-increasing stretch-outs;
d) shifting funds into procurement accounts with high cost growth; and e) paying
inflated or unjustified prices for either spares or major systems.

The only way to avoid an inflation index that rewards DoD for
mismanagement is to use an index based on comparable market sectors of the
economy, such as the Producer Price Index for the manufacturing sector
(since the vast majority of DoD's purchases are manufactured items).

3. With or without the 30% add-on, DoD's projections of future
inflation have been consistently high relative to actual inflation in comparable
sectors of the market economy.

The DoD projections proved to be higher than actual inflation rates in
the manufacturing sector (Producer Price Index for Durable Manufactured Goods)
by 81%, 183%, 137% and 264%, respectively, for the last four budgets. (FY'82
to FY85).

Using several measures of actual inflation derived from the competitive
manufacturing sector of our economy, the excess appropriations due to DoD's
inflation overestimates appear to be $42 and $54 billion (see Appendix B).
These costs to the taxpayer are unwarranted.

These findings have three major implications for Congressional action:

  ° First, Congressional budget committees cannot continue relying
on DoD's own inflation projections and Dod's historical inflation indices.
Congress needs to make an independent estimate of an unbiased and reasonable
inflation allowance for DoD based on prices in comparable competitive market
sectors of the economy.

  ° Second, compared to inflation in the competitive manufacturing
sector, biased and unwarranted inflation adjustments have provided DoD with
excess funding of $42 billion to $54 billion between FY'82 and FY'85. The
most direct way for the taxpayer to recover this money would be to transfer
the excess funding out of DoD's unobligated balances back to the Federal
Treasury—where it would be used to reduce the deficit and its interest burden.

  ° Third, after the above correction for excessive inflation
allowances since FY'82, Congress needs to institute an annual DoD budget
correction, either positive or negative, for the previous years inflation
underestimate or overestimate.

APPENDIX A:

WHY THE MAJOR COMMODITY DEFLATOR IS
A MISLEADING MEASURE OF PROCUREMENT INFLATION

Introduction

In 1982, the DOD adopted what is now known as the Major Commodity Price Deflator for the stated purpose of more "realistically" estimating future inflation in the major system procurement accounts (i.e. the aircraft, weapons, missiles, and ship accounts). These selected accounts amount to about 80% of the DOD procurement budget and about 35% of total DOD purchases. DOD used this change of index to justify forecasting higher rates of inflation for the major system procurement accounts than for the remainder of DOD's procurement. Table I lists the projected deflator values for future years used in support of the FY'86 budget request. For use later in this analysis, Table I also provides the actual past values of these deflators, even though past deflators are not used in preparing future budget requests.

The DOD Comptroller states in National Defense Budget Estimates for FY 1985, March 1984, (page 54) that since FY'83, DOD has been forecasting the outyear inflation in the major procurement accounts to be a 1.3 multiple of the projected annual inflation in the GNP Price Deflator and that this change (from using the standard Defense Procurement Deflator forecasts) would add about $40 billion to the DOD budget between FY'83 and FY'87. This means that, for all future years, major systems are assumed to inflate at a rate 30% greater than the general rate of inflation for the whole U.S. economy. Is this a reasonable assumption? To answer this question, we will first examine the historical behavior of the Major Commodity Deflator. Second, we will examine the underlying assumptions used to construct this index.

TABLE I

DEPARTMENT OF DEFENSE DEFLATORS

| | OUTLAY DEFLATORS | | | | | | TOA DEFLATORS | | | |
| | ① | | ② | | ③ | | | | | |
FY	MAJ COMM	% INFL	DOD PROC	% INFL	GNP	% INFL	MAJ COMM	% INFL	DOD PROC	% INFL
1950	17.92		23.92		21.06		18.53		24.10	
1951	19.68	9.8%	26.20	9.5%	22.43	6.5%	18.33	-1.1%	24.22	0.5%
1952	19.68	0.0%	25.30	-3.4%	23.11	3.0%	17.89	-2.4%	24.29	0.3%
1953	19.56	-0.6%	25.64	1.3%	23.51	1.7%	19.39	8.4%	24.66	1.5%
1954	19.24	-1.6%	25.14	-2.0%	23.80	1.2%	19.29	-0.5%	25.72	4.3%
1955	20.52	6.7%	26.80	6.6%	24.15	1.5%	18.48	-4.2%	27.04	5.1%
1956	20.96	2.1%	27.89	4.1%	24.81	2.7%	19.95	8.0%	28.27	4.5%
1957	22.77	8.6%	30.02	7.6%	25.72	3.7%	20.04	0.5%	28.99	2.5%
1958	22.77	0.0%	30.37	1.2%	26.32	2.3%	20.11	0.3%	29.32	1.1%
1959	22.50	-1.2%	31.09	2.4%	26.80	1.8%	19.84	-1.3%	29.52	0.7%
1960	22.06	-2.0%	30.84	-0.8%	27.35	2.1%	20.07	1.2%	29.60	0.3%
1961	22.47	1.9%	31.46	2.0%	27.67	1.2%	20.05	-0.1%	29.59	.0%
1962	22.46	.0%	31.09	-1.2%	28.06	1.4%	20.06	.0%	29.63	0.1%
1963	21.80	-2.9%	31.18	0.3%	28.53	1.7%	20.71	3.2%	29.90	0.9%
1964	22.18	1.7%	31.31	0.4%	28.94	1.4%	21.73	4.9%	30.45	1.8%
1965	22.43	1.1%	31.65	1.1%	29.48	1.9%	22.55	3.8%	31.37	3.0%
1966	24.11	7.5%	32.70	3.3%	30.28	2.7%	24.23	7.5%	32.46	3.5%
1967	25.60	6.2%	33.88	3.6%	31.25	3.2%	25.01	3.2%	33.58	3.5%
1968	26.87	5.0%	35.03	3.4%	32.38	3.6%	27.17	8.6%	34.78	3.6%
1969	27.64	2.9%	36.14	3.2%	33.91	4.7%	28.66	5.5%	36.15	3.9%
1970	28.73	4.0%	37.56	3.9%	35.78	5.5%	29.21	1.9%	37.69	4.3%
1971	30.12	4.8%	39.27	4.6%	37.61	5.1%	31.14	6.6%	39.35	4.4%
1972	31.42	4.3%	40.77	3.8%	39.35	4.6%	33.34	7.1%	41.42	5.3%
1973	32.94	4.8%	42.47	4.2%	41.09	4.4%	36.10	8.3%	44.10	6.5%
1974	35.72	8.4%	44.92	5.8%	44.06	7.2%	39.03	8.1%	47.24	7.1%
1975	39.72	11.2%	48.88	8.8%	48.45	10.0%	41.94	7.5%	50.62	7.2%
1976	43.24	8.9%	52.10	6.6%	52.76	8.9%	45.10	7.5%	54.10	6.9%
1977	46.52	7.6%	55.99	7.5%	56.35	6.8%	50.03	10.9%	59.26	9.5%
1978	49.84	7.1%	59.80	6.8%	60.18	6.8%	54.96	9.9%	64.60	9.0%
1979	54.37	9.1%	65.01	8.7%	65.48	8.8%	60.80	10.6%	70.75	9.5%
1980	60.65	11.6%	71.90	10.6%	71.24	8.8%	67.78	11.5%	76.64	8.3%
1981	67.69	11.6%	79.52	10.6%	78.22	9.8%	74.46	9.9%	81.66	6.6%
1982	77.40	14.3%	85.56	7.6%	83.78	7.1%	80.36	7.9%	85.40	4.6%
1983	84.29	8.9%	88.99	4.0%	87.38	4.3%	85.59	6.5%	88.75	3.9%
1984	90.25	7.1%	92.37	3.8%	91.14	4.3%	90.17	5.4%	92.29	4.0%
1985	94.59	4.8%	95.79	3.7%	95.60	4.9%	95.02	5.4%	96.08	4.1%
1986	100.00	5.7%	100.00	4.4%	100.00	4.6%	100.00	5.2%	100.00	4.1%
1987	105.46	5.5%	104.20	4.2%	104.30	4.3%	104.96	5.0%	103.85	3.8%
1988	111.05	5.3%	108.37	4.0%	108.47	4.0%	109.82	4.6%	107.61	3.6%
1989	116.38	4.8%	112.38	3.7%	112.49	3.7%	114.71	4.5%	111.32	3.4%
1990	121.50	4.4%	116.20	3.4%			119.77	4.4%	115.10	3.4%

Projections

Historical Behavior of the Major Commodity Deflator

The empirical basis for DOD's Major Commodity outlay deflator is claimed to be the historical Defense Major Commodity purchase deflator calculated by the Bureau of Economic Analysis (BEA), Department of Commerce.[1] The BEA does not construct future estimates, and its historical calculations have only produced Major Commodity purchase deflators back to the fourth quarter of FY'77. Furthermore, since the BEA deflator is based on purchases while the DOD deflator is based on outlays (which apply to progress payments that occur slightly earlier in time than purchases), a conversion of the time phasing of the BEA data (by DOD) is necessary to construct the DOD deflator.

Notwithstanding this limited data base of only seven years of annual Major Commodity deflators actually calculated by BEA, Table I shows that DOD both predicts the index five years into the future (allegedly based on the 1.3 factor discussed on p.1) and extrapolates it back--by unknown and unpublished methods--to atleast FY'50 (the reference Comptroller report indicates an extrapolation back to FY'45).[2] The following paragraphs address the issue of whether the results of DOD's exploitation of this very limited empirical data base for inflation adjustment purposes makes sense.

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[1]
    The Defense Major Commodity Deflator is produced by BEA for DOD and at DOD's request; it is not used by BEA in any of their standard publications on inflation and the U.S. economy. It consists of BEA's standard Defense Purchases Deflator (which applies to all defense purchases) restricted to a small set of major procurement accounts (i.e. these mentioned on p.1)

[2]
    In general, a backward extrapolation of the Major Commodity Deflator would be done by assuming that its year-to-year percentage changes are the same as the percentage changes in some other, supposedly comparable, index (or weighted set of indices) for which the historical values are known. Then, the earliest available year of the Major Commodity Deflator would be adjusted, going backwards from that point one year at a time, by the percentage changes in the supposedly comparable index. Obviously, such a "reconstruction" of more than 20 years of past history for the Major Commodity Deflator has no scientific validity--particularly when there are only seven years of known values to form the basis for understanding the behavior of the deflator.

To test whether DOD's assumption of a 1.3 factor between Major Commodity inflation and GNP inflation is reasonable, we start by examining the ratio of the inflation rates of the two indicies in the past. Figure 1 depicts the annual ratio of Major Commodity inflation to GNP inflation for the period covering the BEA data (FY'78-FY'84)[1] and the period covering the projected data (FY'85-89). Figure 1 is computed from the data contained in Table I as follows: for each year between FY'78 and FY'89, the data in column (1) are divided by the data in column (3). This ratio, which is the ratio of the annual inflation rate for the Major Commodity Deflator to the inflation rate for the GNP Deflator, is then plotted for each year.

Figure 1 shows that, even if one accepts that the Major Commodity and the GNP indices are accurate measures of inflation, there is <u>no empirical basis</u> for assuming that future Major Commodity annual inflation will be 1.3 times the GNP inflation--only one historical point, i.e. FY'80, even approaches a ratio of 1.3.

Furthermore, notwithstanding the DOD Comptroller's statement that inflation is projected at a 1.3 multiple of the GNP Deflator (page 43, <u>National Defense Budget Estimates for 1985</u>, March 1984), Figure 1 demonstrates that the projections are <u>not</u> based on a 1.3 ratio--only one projected year; i.e. FY'89, has a ratio of 1.3. (Note: a small deviation from 1.3 has a large percentage effect because the ratio is a multiplication factor).

Figure 2 depicts the ratio of Major Commodity annual inflation to GNP inflation for the DOD-"backward-extrapolated" period between FY'50 and FY'77 (i.e. the historical period for which there are no actual BEA calculations to substantiate the DOD-stated values of the Major Commodity Deflator). Figure 2
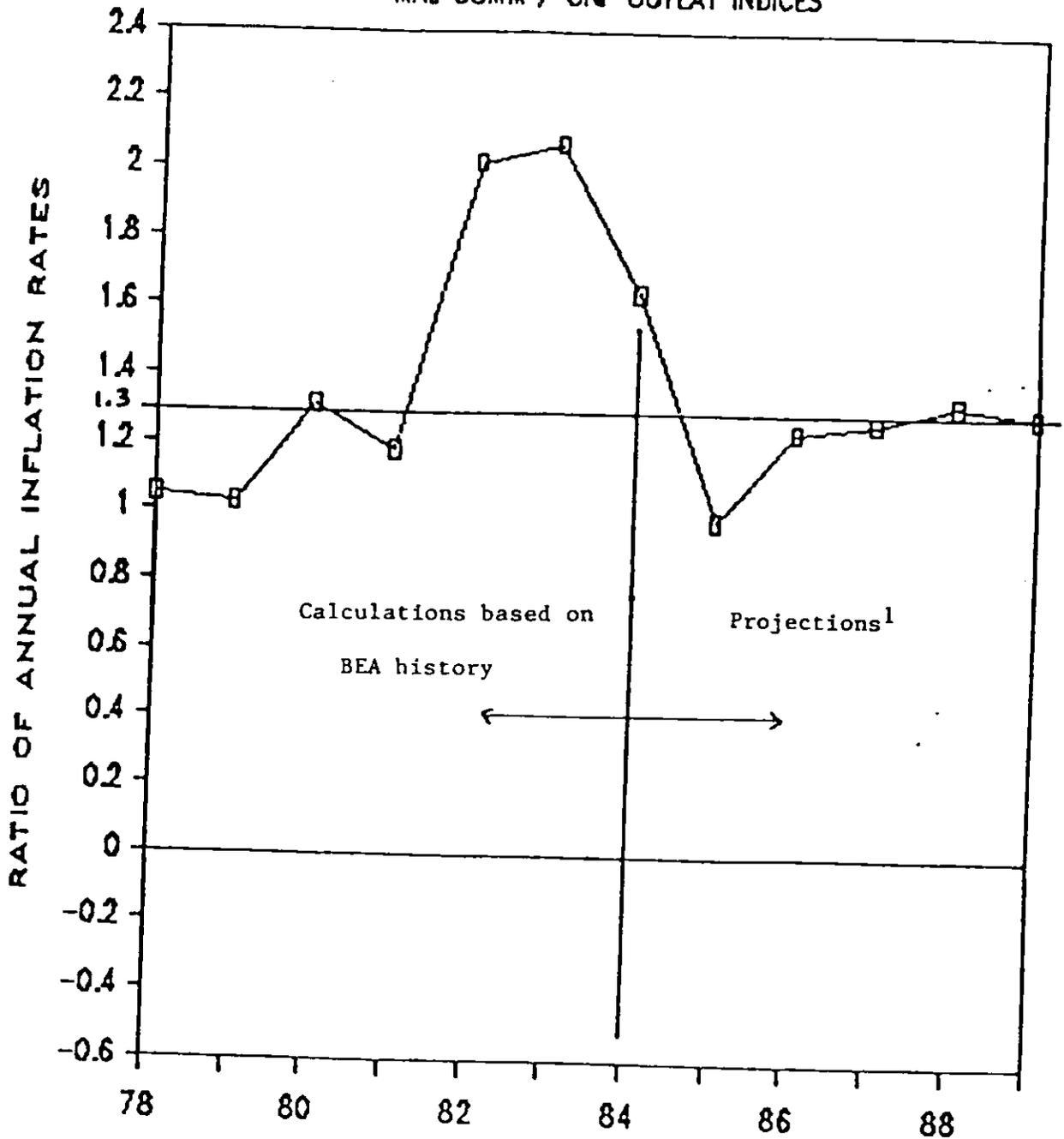
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[1]

Note that BEA has results for the last quarter of FY'77 and the first quarter of FY'85; these two quarters of BEA data are not used in this study because they are too limited to annualize.

FIGURE 1

RATIO ANNUAL INFLATION RATES

MAJ COMM / GNP OUTLAY INDICES

RATIO OF ANNUAL INFLATION RATES

Calculations based on

BEA history

Projections[1]

FISCAL YEAR

As of Feb. 19, 1985 only 1st Qtr.
FY '85 data was computed. There-
fore, FY '85 is treated as a proje

is constructed from the data in Table I in exactly the same way as Figure 1. Figure 2 makes it clear that the alleged constant multiple relationship of Major Commodity annual inflation to GNP inflation is non-existent over the period of the DOD backwards extrapolation--not one point corresponds to the value of 1.3. Moreover there is no discernible or economically meaningful pattern to the changes in the ratio of the two.

The preceding discussion raises the intriguing question: If the 1.3 factor does not apply to GNP inflation rates, where does it apply? Figure 3 gives us the answer. Figure 3 is constructed in exactly the same way as Figures 1 and 2 except the Major Commodity annual inflation is divided by DOD Procurement annual inflation [1] (i.e. in Table I, column 1 is divided by column 2). In the interest of brevity, Figure 3 combines the historical and projected data with the backwards extrapolated data. The DOD-projected data in Figure 3 reveal that the predicted Major Commodity annual inflation is, in fact, a 1.3 multiple of the DOD Procurement inflation.[2] Furthermore, if we examine inflation projections published by DOD to support the FY'84 and FY'85 budgets, we find that the ratio of the Major Commodity to the DOD Procurement inflation rate was 1.30 for all future years. Therefore, it is clear, that DOD planners calculate Major Commodity annual inflation to be 30% higher than inflation in the Defense Procurement Deflator (as opposed to their claim that they use 30% over the GNP Deflator.) Is this a reasonable assumption upon which to justify a request for $40 billion in additional appropriations to reflect a new way of estimating future inflation?

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[1]
    Note that the DOD Procurement Deflator in Table I and used here is defined by DOD Comptroller to exclude pay, fuel and major commodity accounts. It is, with rare exceptions, identical to the DOD deflators for O & M purchases military construction and R & D.

[2]
    Note: In FY'88 the ratio of 1.32 and in FY'90 the ratio is 1.29, in all other years, it is 1.30.

FIGURE 2

RATIO ANNUAL INFLATION RATES:FY51-FY77

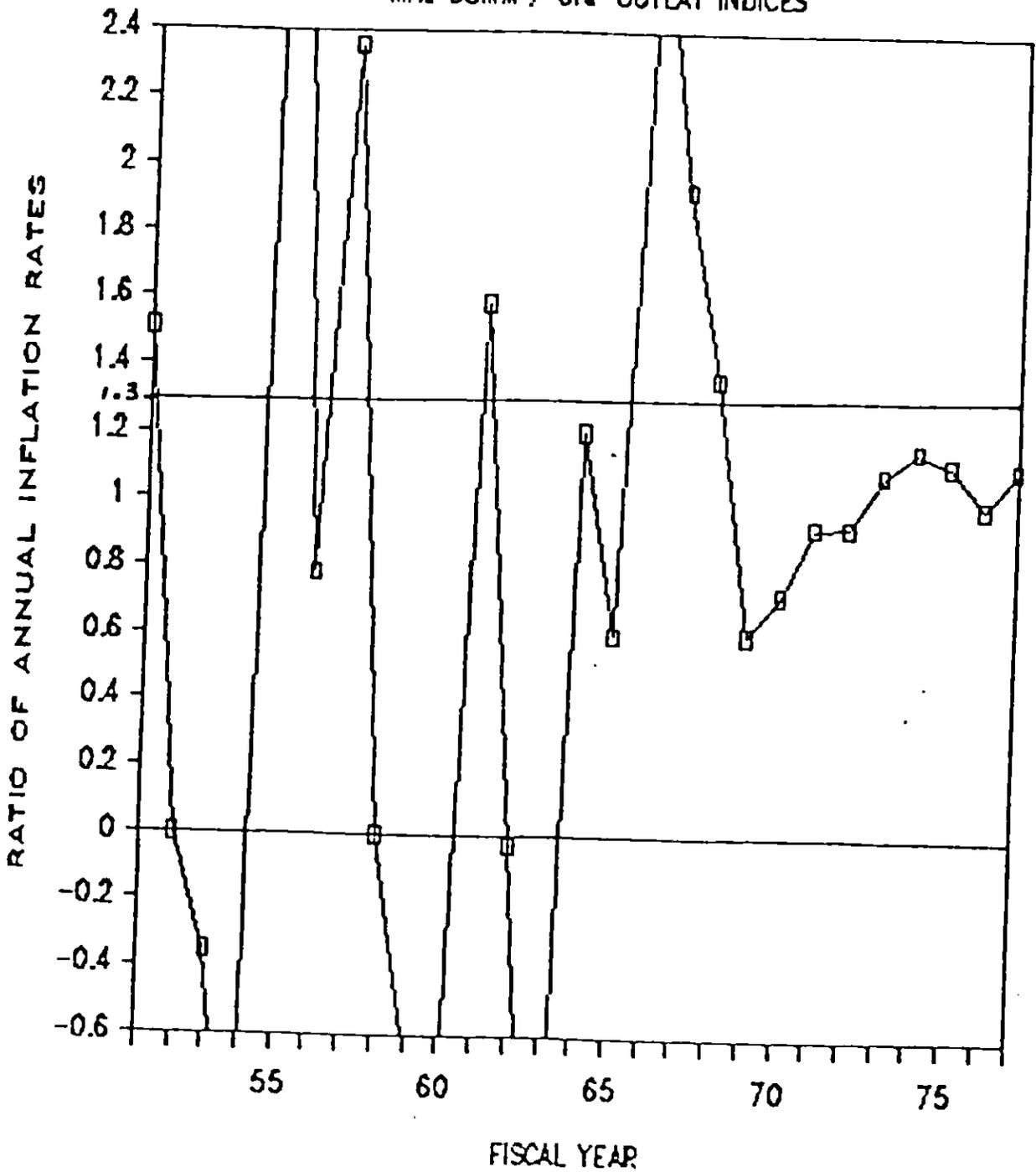## MAJ COMM / GNP OUTLAY INDICES

FISCAL YEAR

Figure 3 reveals that the answer to this question is <u>no</u>. The period for which historical BEA data exist does not contain even one data point to support the speculation that the future ratio of Major Commodity inflation rates to DOD Procurement inflation rates will be 1.3. Moreover, the backwards extrapolated data looks just as arbitrary as it did in Figure 2.

Examination of the FY'78-FY'84 time period in Figure 3 reveals that the three most recent years have ratios well above 1.3 while the preceding four years have ratios well below 1.3. Table II, which repeats the Table I data for these years, will be used to explain this pattern.

Table II reveals that, in general the DOD Procurement Deflator changes with the GNP Deflator—when GNP annual inflation increases, DOD Procurement inflation increases; and when GNP inflation decreases DOD Procurement inflation decreases. Up until FY 1981, the Major Commodity inflation tended to follow much the same pattern. However, in FY'82 GNP inflation dropped 2.7 percentage points and DOD Procurement inflation dropped similarly by 3.0 percentage points: despite this, Major Commodity inflation increased by 2.7 percentage points. This divergent behavior dramatically increased the spread between Major Commodity annual inflation and DOD Procurement/GNP inflation. By FY'84, this increased spread, while somewhat reduced, was still not resolved. If these data are to be believed, we are forced to accept the proposition that a fundamental change in the Major Commodity Deflator took place in FY'82 [1] —-i.e. that one consequence of the reduction in general inflation is a huge increase in the rate of Major Commodity inflation relative to GNP inflation (or relative to DOD Procurement inflation). Figure 3 suggests that this appalling state of affairs in Major Commodity procurement will be perpetuated if we continue to rely on a 1.3 planning factor.

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[1]
    Note that the year of the fundamental change (increase) in Major Commodity annual inflation relative to DOD Procurement inflation is the very year in which the Major Commodity Deflator was proposed as a budgeting "reform". Is this a coincidence?

-8-

FIGURE 3

RATIO OF ANNUAL INFLATION RATES

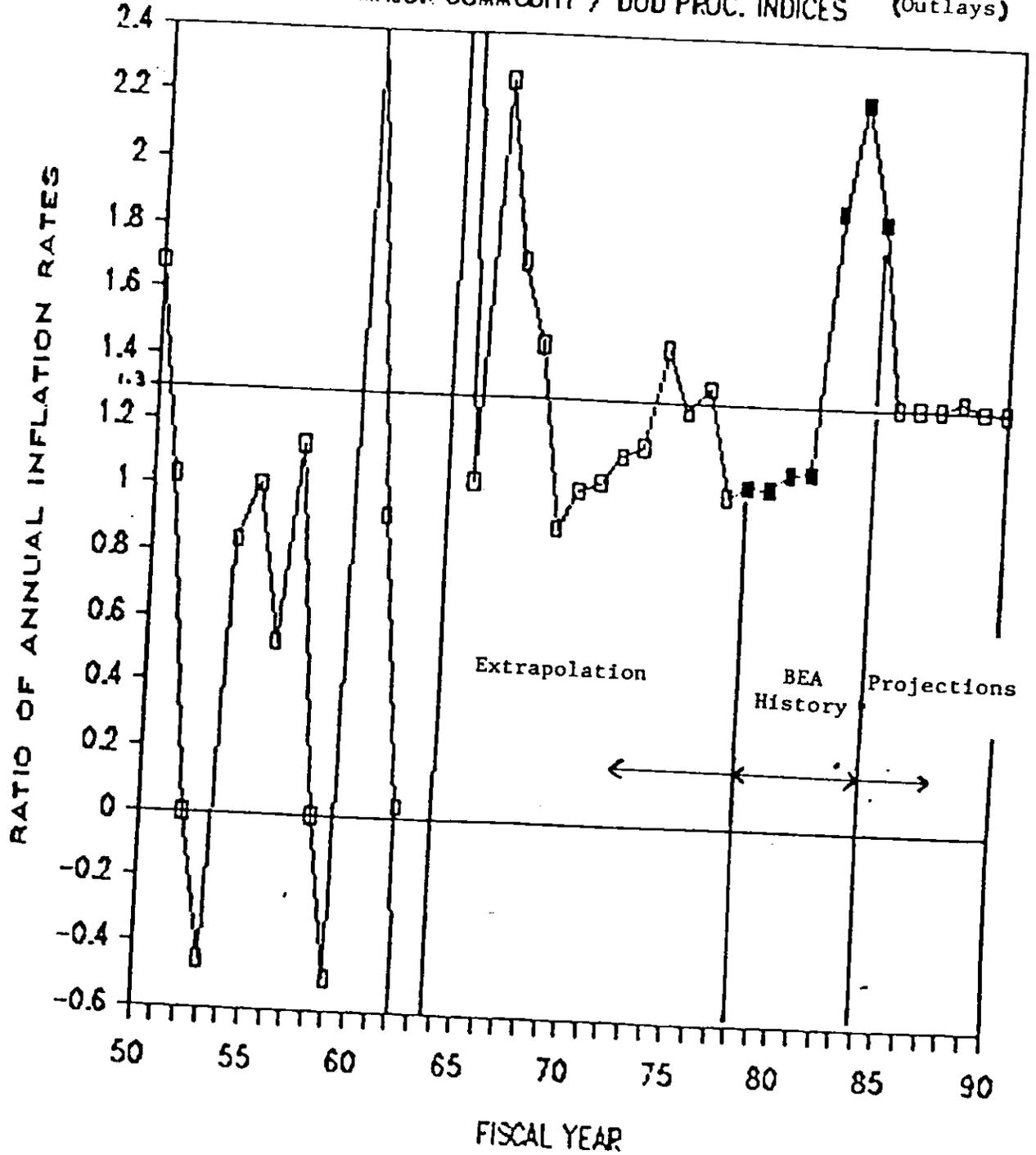## MAJOR COMMODITY / DOD PROC. INDICES   (Outlays)

Extrapolation

BEA
History   Projections

FISCAL YEAR

TABLE II

Outlay Annual Inflation for the Period Covered by the BEA Analysis

Fiscal Year	Major Commodity	DOD Procurement [1]	GNP
78	7.1%	6.8%	6.8%
79	9.1%	8.7%	8.8%
80	11.6%	10.6%	8.8%
81	11.6%	10.6%	9.8%
82	14.3%	7.6%	7.1%
83	8.9%	4.0%	4.3%
84	7.1%	3.8%	4.3%

[1]

Excludes pay, fuel and major commodity accounts.

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Why the Major Commodity Deflator Measures More Than Inflation

There is reason to believe that a substantial part of the inflation in the Major Commodity Deflator (as well as in the Defense Procurement Deflator) is a reflection of cost growth due to mismanagement as opposed to actual inflation. One of the greatest problems in constructing any economic index is accounting for changes in the set of items being purchased. In the case of DOD procurement, DOD is continally modifying existing hardware and introducing new hardware. Both activities increase cost, but it is extremely important to not include such cost increases in any reasonable DOD inflation index.

In an attempt to avoid this otherwise insoluble problem, the Department of Commerce economists who devised the DOD Purchases Deflator made a gross assumption: that for any new, more expensive system, the increase in "capability" is exactly equal to the increase in cost. This assumption allows the "market basket" of systems being procured by DOD [1] to retain exactly equal "capability", once there has been an adjustment for the cost increase of the new system replacing the old , less expensive system previously in the "market basket".

Without the theoretical assumption that cost is exactly proportional to capability, it is simply not possible to calculate a reasonable inflation index for defense. Unfortunately, this assumption suffers from the following fatal flaws:

1. The ultimate measure of weapons quality is combat performance and combat history is replete with examples of lower cost weapons being more

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[1]
     I.e. the "market basket" of systems and other items whose weighted prices form the DOD PurchaseDeflator. Note that the deflator is not based on a constant mix (or "market basket") of purchased systems (e.g., tanks, ships, aircraft, etc.), but that the mix or weighting varies every year as DOD shifts relative funding among purchased systems.

effective than higher cost weapons. [1] To cite a few clearly documented examples:
in WWII, the P-51 was a better air-to-air fighter than either the P-47 or the
P-38--it also cost the least by a substantial margin; the German Panzerfaust
was a much better anti-tank rocket than the American Bazooka--it was also
cheaper and easier to make; in Korea, the Sherman tank performed so much better
than the newer, much more expensive M-26 tank that the M-26 was withdrawn from
combat; in Vietnam, the F-8 achieved a higher air-to-air exchange ratio than
the more expensive F-4. The assumption that every increase in cost measures
an equivalent increase in quality simply cannot be justified as a general
assumption supporting the construction of any defense purchases deflator.

      2. There is also a problem associated with measuring the cost
increase of a new system or item. At the very time when a new system is
introduced into the procurement deflator's "market basket", unit costs are
changing rapidly: production rates are generally increasing; one time start-up
costs are being absorbed; designs are changing; and production lines are being
adjusted. Therefore, initial unit costs are a poor measure of the cost increase
of the new system over the one it is replacing. To deal with this problem, the
Department of Commerce economists constructing the Defense Procurement Index
made another simplifying assumption: they invoked the learning curve hypothesis
and computed the cost of a hypothetical future unit (generally the 100th unit)
and used this 100th unit cost as the measure of the "capability" increase. It
is well known that initial learning curve estimates are strongly biased on the
low side; this is the famous "buy-in" phenomenon. In the case of the buy-in,
the subsequent increases over the initial learning curve estimates therefore
show up as inflation in the index rather than being excluded from the index as
cost growth due to management and incentive problems. In view of DOD's past
propensity to blame inflation for cost growth problems, it seems unsound to
rely on an inflation index that, in effect, subsidizes a buy-in while forecasting
a substantially higher-than-actual rate of inflation. [2]

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[1] This does not imply that higher cost weapons cannot sometimes be
more effective than lower cost ones.

[2] An even more fundamental objection to using these initial learning
curve cost estimates is that recent studies using actual budget cost data for
a wide variety of major systems strongly imply that learning curves don't
exist, that is, the actual cost experience pattern changes unpredictably from
system to system.

3. The major commodity accounts are the most non-competitive portion of the DOD budget. The bulk of the funding is allocated to non-competitive, sole-source contracts that compute profits on the basis of a cost reimbursement formula. The very concept of applying a special inflation index to a non-market component of the economy where cost increases are directly subsidized is questionable--particularly if that index is assumed to inflate at a higher rate than the economy in general. In a market economy, competition provides continual pressure to hold down costs. Inflationary pressures must overcome the opposing competitive pressures of the marketplace--and therefore, at least theoretically, inflation has an objective meaning. Since these opposing pressures do not exist in a non-market, cost reimbursable economy (indeed, many argue that there are powerful profit incentives in cost reimbursable procurement to increase cost) one cannot objectively separate cost growth and overruns from inflation-caused changes. 1/ How can one theoretically calculate a separate inflation index for this segment of the economy? It would seem that only a general competitive market economy inflation index, like the Producer Price Index or manufacturing sector deflators, can avoid the problem of rewarding mismanagement.

1/ Comparing Major Commodity annual inflation to inflation in a roughly comparable competitive market sector provides some insight into how dominant the non-competitive cost growth factors may be in DOD major systems procurement, as seen below:

DOD Major Commodity Annual Inflations		Producer Price Index (Durable Manufactures) Annual Inflation
FY81-82	14.3%	4.8%
FY82-83	8.9%	2.7%
FY83-84	7.1%	2.5%

A P P E N D I X B:

HOW MUCH HAS THE DIFFERENCE BETWEEN
PREDICTED AND ACTUAL INFLATION COST THE TAXPAYER?

To answer this question, we need to know (1) the amount of money affected by the error; (2) the magnitude of the inflation forecasting error; (3) any adjustments made by Congress, OMB, or DOD to compensate for the error; and (4) the compounding effect of successive errors.

Funds Affected The amount of money affected by the annual inflation forecast error is the Total Obligational Authority appropriated by Congress each year. However, this money is spent over a period of successive years. A sizeable portion of the funds appropriated from FY 1982 to FY 1985 have not yet been spent. Two uncertainties complicate the analysis of how the inflation error affects these funds: uncertainties over future outlay rates and uncertainties over future inflation. To eliminate these uncertainties, we have elected to limit the analysis to expenditures that have already occurred. Since the TOA appropriations increased substantially between FY 1982 and FY 1985, expenditures for those years have been considerably less than TOA. Consequently, our use of expenditures is conservative in the sense that it understates the funds affected by the inflation rate overestimates.

Table III shows the total purchases by DOD less those for pay and fuel.

TABLE III

Defense Purchases Less Compensation and Fuels – Billions of Current Dollars

FY 1982	$ 96.7
FY 1983	115.9
FY 1984	131.6
FY 1985 1/	146.5

1/   Extrapolation of 2nd Quarter, FY'85

Source: Table GDP-58 4/22/85
         Government Division
         Bureau of Economic Analysis
         Department of Commerce

Table III displays purchases calculated on a delivery basis. However, some portion of these funds were outlaid as progress payments prior to delivery. Conceivably, some of these progress payments could fall in a previous year and therefore be subjected to a different error. This distortion is insignificant because TOA increased in each year and therefore outlays increased also. Purchases lag outlays, and since outlays are increasing, purchases in a given year will be smaller than outlays. Since we are computing the error on the basis of expenditures (which is conservative), the use of purchases instead of outlays will understate the error further. Consequently, the use of purchases to measure the funds affected by the inflation forecasting error magnifies the conservatism of the anlysis.

The Forcasting Error   Table IV compares DOD predicted to two measures of actual inflation in the manufacturing sector of the market economy. These indices were selected because the manufacturing sector, in a general sense, is where the vast bulk of DODpurchases would occur if they took place in a competitive market economy.[1]

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[1]   Some might be tempted to use actual GNP inflation to compare against DOD inflation. This would be a serious error, because GNP inflation includes very large components for banking, all government, real estate, agriculture, mining, other services—all activities that have little or nothing to do with DOD purchases. Note that these non-manufacturing components of GNP cause GNP inflation to be over twice as high as PPI (Manufacturing) inflation over the period FY 82 to FY 85 (see Table I for GNP annual inflation data).

TABLE IV

Predicted and Actual Inflation

	DOD-Predicted		Actual-Competitive Market Economy	
Year	DOD Total Purchases less Fuel & Pay [1]		PPI Durable [2]	PPI Mfrs. [2]
FY81-82	8.70%		4.79%	3.73%
FY82-83	7.53%		2.66%	.96%
FY83-84	5.91%		2.49%	2.44%
FY84-85	5.46% [3]		1.5% [4]	.60% [4]

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[1] DOD Comptroller data, includes predicted Major Commodity inflation weighted basis

[2] Producer Price Indices; Department of Labor Data

[3] Current Estimate (1/23/85) as reported by DOD Comptroller.

[4] Actual 1st and 2nd Quarter (FY) data.

Table V tabulates each year's difference between DOD predicted and actual inflation as calculated from the data in Table IV.

TABLE V

Difference Between DOD Predicted and Various Measures
Of Actual Inflation [1]

Differences

Year	Actual PPI for Durables Manufacturing	Actual PPI for All Manufacturing
FY81-82	3.91%	4.97%
FY82-83	4.87%	6.57%
FY83-84	3.42%	3.47%
FY84-85	3.96%	4.86%

[1] Calculated from data in Table IV: each actual column is subtracted
from the DOD predicted column.

Adjustments Made to Compensate for the Forecasting Error: From time to time,
Congress, OMB, or DOD have made downward revisions to Total Obligatioal Authority
for inflation related reasons. However, there is no organizational or pro-
cedural mechanism for routine resolution of differences between DOD predicted
and actual inflation. What has occurred appears to have been an ad hoc response
to transient political pressures. Table VI displays all the inflation related
reductions that we have been able to identify. Note that the adjustments are
in TOA: when we adjust our error calculations (which are based on purchases), our
adjustment is likely to be excessive because some of the TOA that is not yet
spent. Consequently, the adjustment--by being excessive--will tend to understate
the impact of the forecasting error.

TABLE VI

Inflation Related Budget Reductions Made By Congress/OMB

Billions of Current $-TOA

	FY82	FY83	FY84	FY85
O & M	0	0	.521	0
Procurement	.078	0	1.033	0
R&D	.026	0	.467	0
MilCon	0	0	.074	0
TOTAL	.104	0	2.095	0

Source: Annual Reports; HASC, SASC, HAC, SAC

Compounding of Successive Errors The financial impact of any one year's
inflation forecasting error compounds overtime. To illustrate, suppose two
billion dollars in excess inflation allowance funds are appropriated in FY1982.
Now, if no adjustments are made, this two billion is carried forward into the FY19
budget. 1/ If a new inflation allowance error is introduced in FY1983--say one
billion, the total error in 1983 is now three billion. Moreover, when 1982 and 19
are combined, the cumulative error is five billion dollars. Downward adjustments
to the forecasting error have the same compounding effect.

Excess Cost to the Taxpayer. The data described in Table III-VI and the
assumptions described in the preceding paragraphs permit us to estimate a range of
excess appropriations resulting from the difference between predicted and actual
inflation. When assessing this information, the reader is urged to bear in mind
that the analysis is conservative--when uncertainties arise, the assumptions
selected tend to understate the excess cost.

Table VII displays the computation of the cumulative
cost of the inflation forecasting error. To summarize: If we accept manufact-
uring sector indices as the appropriate measures of actual inflation relevant
to DOD purchases, Congress appropriated $42 billion to $54 billion in excess
of what was required to cover the actual impact of inflation between FY82 and
FY85.

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1/ Since the FY83 budget ceiling equals the FY82 budget (adjusted for
inflation) plus some percentage allowance for real growth.

TABLE VII

Excess Cost to the Taxpayer Resulting From
The Difference Between DOD Predicted and Actual Inflation

FY	(1) Purchases Less Pay and Fuel (Table III	(2) Pred./Actual Difference (Table V)	(3) New Error (1 x 2)	(4) Carry Fwd From Prev. Year	(5) Inf. Rel. Reduction (Table VI)	Total Yr. Exc (3+4-5
	Difference Between Predicted and PPI Durable Manufacturers					
82	96.7	.0391	3.8	0	.1	3.7
83	115.9	.0487	5.6	3.7	0	9.3
84	131.6	.0342	4.5	9.3	2.1	11.7
85	146.5	.0396	5.8	11.7	0	17.5
				Cumulative Excess		$42.2
	Difference Between Predicted and PPI Manufacturers					
82	96.7	.0497	4.8	0	.1	4.7
83	115.9	.0657	7.6	4.7	0	12.3
84	131.6	.0347	4.6	12.3	2.1	14.8
85	146.5	.0486	7.1	14.8	0	21.9
				Cumulative Excess		$53.7