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UNDERSTANDING THE FEDERAL DEFICIT PART 1: HOW FORECASTERS GET IT WRONG

INTRODUCTION

As Congress convenes to discuss impending federal deficits, gloomy forecasts are treated almost with the reverence once given to pronouncements from Mount Olympus. Lawmakers rushing to offer proposals--usually tax increases--to bridge the budget gap seldom pause even for a moment to question the predictions of the economic soothsayers.

Yet a review of the "science" of economic projections indicates that such forecasters are no more reliable than fortune tellers or astrologers. Government predictions of deficits, in particular, are often wide of the mark. At the beginning of each year, the Office of Management and Budget (OMB) estimates the budget deficit and other economic aggregates for the fiscal year beginning nine months later. OMB's yearly budget deficit projections have on average erred by 254 percent of the estimated deficit between 1971 and 1983. OMB has come within 50 percent of the actual deficit only five times in the last thirteen years. Moreover, OMB's errors are as likely to underestimate deficits as overestimate them.

Example: The President's FY 1983 Federal Budget, prepared by OMB, underestimated the active deficit by over \$100 billion--a 100 percent forecasting error; OMB later overestimated the same deficit in a forecast issued just two months before the end of the fiscal year--by \$14.4 billion.

This study is the first of a four-part series examining the nature and effects of the federal deficit. Part II will analyze the components of the deficit; part III will explore the deficit's impact on the domestic economy; and part IV will examine the trade impacts of the deficit.

According to one analyst, the FY 1984 budget deficit, based on the average OMB error of the recent past, could be anywhere in the range of \$156 billion to \$250 billion.¹ And the FY 1987 deficit, applying OMB's average past error rate, could end up anywhere between \$60 billion and \$244 billion.

Given this dismal track record, how much should policy making be based on OMB's estimates of the deficit? Not much--particularly when presumed deficits become the rationale for massive tax increases. In fact, if history is any indication, the current estimates of the 1984 budget deficit may be far too large. OMB's past deficit errors have tended to follow the economic cycle closely. In recoveries, actual deficits typically have been smaller than OMB predicted. OMB forecasting errors also have tended to grow as the recoveries advanced.

Why does OMB miss the mark? The major reason is the inherent difficulty confronting any forecaster trying to predict the economic cycle, particularly changes in such crucial variables as Gross National Product (GNP), unemployment, and inflation (CPI). OMB's yearly GNP estimates erred an average of 36 percent between 1977 and 1981. Its forecasts of percentage changes in CPI erred by an average of 130 percent between 1976 and 1982, and its annual estimates of percentage changes in unemployment erred by over 50 percent in the same period.² Even a small change in these fundamental economic assumptions can have massive effects on budget deficits. A 2 percentage point sustained increase in the rate of economic growth, for example, would reduce the cumulative FY 1984-1987 budget deficit by \$440 billion, or one-half of its current projected level.

The OMB is not the only forecaster to miss consistently, so errors cannot be blamed on politics or overoptimism among White House economists. A survey of leading private sector forecasters, whose clients pay for accurate information, shows that they miscalculated the timing of the economic recovery and missed the 1982 GNP growth by as much as 4 percentage points, or \$120 billion in some cases. The bipartisan Congressional Budget Office (CBO) also miscalculated the 1982 deficit by \$80 billion--a whopping 80 percent error.

The problem is not with the forecasters, but with the inherent impossibility of predicting even a few months in advance the performance of a volatile \$3 trillion economy. To generate accurate economic projections, forecasters would need perfect

¹ Thomas S. McCaleb, Associate Professor of Economics, Florida State University, Tallahassee; formerly Senior Staff Economist, President's Council of Economic Advisors, "Federal Budget and Fiscal Policy in the 1980's," unpublished paper, undated, p. 12.

² Randolph H. Boehm, Policy Analysis No. 25 (Washington, D.C.: The Cato Institute, June 30, 1983), pp. 14, 20, 24, and 27.

foresight of the economic cycle, business and consumer psychology, the impact of upcoming government taxes, the effects of budget and monetary policy, foreign shocks such as the OPEC oil price runup, and such events as natural disasters and wars. Even then, the forecasters would face the sticky task of translating these factors into government revenue and expenditure figures.

In order that the public be protected from policies based on flimsy forecasts, every congressional initiative or Administration budget request based on an economic forecast should be accompanied by the track record of the forecasting agency. In this way Americans could judge how much credence to place in the predictions underpinning the legislation being passed in their name.

In short, no forecaster can be expected to model accurately the activities and daily decisions of millions of economic actors. Human behavior, unlike natural phenomena, cannot be fully quantified.³ This is because human beings have free will and freedom of choice, and are never entirely predictable. Given these inherent limitations, economic policy should not be guided by forecasts, especially in turbulent times, but by fundamental principles designed to create a stable climate for long-term economic growth. If Congress cannot read the future, it should not keep trying to make a mid-course correction whenever a new prediction is released. It should chart a course of tax, regulatory, and spending policies to encourage risk-taking and reward work--and stick to it.

THE FORECASTING RECORD

Economic forecasting plays a fundamental role in economic policy making. While official government forecasters claim that their long-range assumptions are not intended as precise forecasts of economic conditions, it is nonetheless true that these budget assumptions, as well as private sector forecasts, are used to justify economic policy initiatives of critical importance. In particular, forecasts of enormous budget deficits "as far as the eye can see" have fueled the movement pressing President Reagan to back major tax increases.

OMB's record of predicting budget deficits and other economic aggregates is distressing. Each January, OMB issues a forecast in the Budget of the United States Government for the fiscal year beginning the following October. OMB also updates this budget forecast in the Mid-Session Review, published around July each year.

Chart 1 shows the errors in these OMB forecasts, in dollar amounts of the projected deficit, and as a portion of GNP. The

³ James B. Ramsey, Economic Forecasting--Models or Markets (Washington, D.C.: The Cato Institute, 1980), p. ix-xii.

CHART I

Federal Budget Deficit Projections
1971-1983
(in billions of dollars)

Budget (Fiscal Year) ¹	Projected	Actual	Error	Error (Percentage of Projection)	Error (Percentage of GNP)
1971	+\$1.3	\$23.0	\$24.3	1869	2.40
1972	11.6	23.4	11.8	102	1.05
1973	25.5	14.9	10.6	42	0.85
1974	12.7	4.7	8.0	63	0.58
1975	9.4	45.2	35.8	381	2.40
1976	51.9	66.4	14.5	28	0.88
1977	43.0	44.9	1.9	4	0.10
1978	47.0	48.8	1.8	4	0.09
1979	60.6	27.7	32.9	54	1.40
1980	29.0	59.6	30.6	106	1.20
1981	15.8	57.9	42.1	266	1.50
1982	29.7	110.6	80.9	272	2.70
1983	91.5	195.4	103.9	114	3.30

Average Absolute Error	<u>-\$30.7 billion</u>
Average error % projection	<u>254%</u>
Average error % GNP	<u>1.42%</u>

¹ Fiscal Year begins in October of the preceding calendar year. Hence FY 1983 began in October 1982.

Source: FY 1984 Budget of the United States and Cato Institute's "Forecasting the Economy: Do Presidents Get It Right?" June 30, 1983.

average error over the thirteen-year period is 254 percent of the projected deficit estimate. OMB's projections have been between 50 percent above and 50 percent below the actual deficit only five times in the last thirteen years. Actual deficits have ranged from a staggering 1,869 percent above to 63 percent below the yearly deficit forecast. The average yearly absolute error during the period has been over \$30 billion. And deficit errors have averaged about 1.5 percent of GNP.

A number of important conclusions result from examining OMB's sorry record of deficit forecasting:⁴

⁴ This section closely follows the approach of the Economic Progress Report published by the Treasury of the United Kingdom, No. 160, September 1983.

Bias in Errors

Little or no systematic bias is evident in forecasting errors. As Chart 1 shows, the OMB has overestimated and underestimated government deficits. In recent years the actual deficit has been much larger than OMB has forecast, but in three of the last thirteen years, actual deficits have been much smaller than the OMB originally predicted.

Cyclical Nature of Errors

Deficit forecasts show a cyclical pattern (see Graph 1). When GNP has been on an upswing, actual deficits have tended to be smaller than forecast; and when GNP has been falling, actual deficits have been larger than government forecasts. If this pattern holds true for 1984, talk of \$200 billion deficits will turn out to be well above the actual outcome.

Size of Errors

Deficit errors have been larger during periods of economic turbulence. Deficit errors in the late 1970s, a period of relative economic stability, were much smaller than they have been during the convulsive 1980s.

Timing of Forecasts

Not surprisingly, deficit forecasts made nine months ahead of the new fiscal year are more accurate than longer range forecasts but less reliable than those made during the fiscal year. But even this last group of projections often contains large errors. According to the U.S. Chamber of Commerce, deficit projections made three months after the start of the fiscal year were subject to errors that ranged from 35 percent below forecasted deficits to 50 percent above.⁵

Errors are Growing

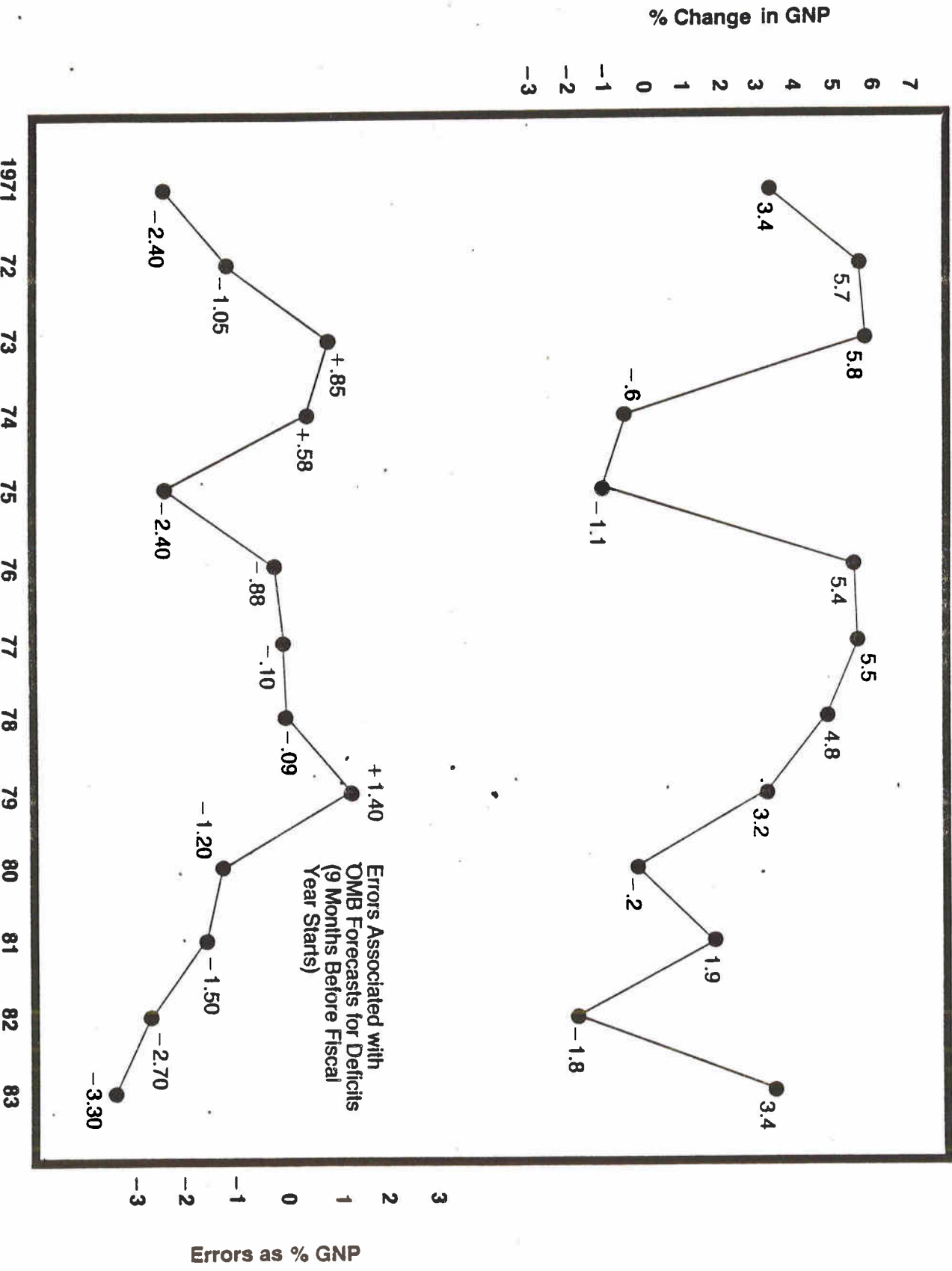
Errors have increased in absolute terms, and as a percentage of GNP since 1971. The FY 1983 deficit error as a portion of GNP was the largest in the entire period. This probably reflects greater fluctuation in the economic cycle.

AN EXAMPLE OF FORECASTING INACCURACY

The FY 1983 deficit forecast issued by OMB illuminates the difficulties in economic forecasting of the last thirteen years. In February 1982, OMB forecast an FY 1983 budget deficit of \$91.5

⁵ Richard W. Rahn, "Deficit Guessing Game Can Lead to Bad Economic Policies," mimeograph, undated.

THE ECONOMIC CYCLE AND DEFICIT FORECASTING ERROR



billion. The actual deficit turned out to be \$195.4 billion--more than 100 percent over the original projection, or 3.3 percent of GNP. This astounding error resulted in large part from the poorer than expected performance of the economy.

Then, having underestimated the budget effects of the recession, OMB forecasters went on to miss the economic recovery. The Mid-Session Review, issued by OMB on July 25, 1983--just two months before the end of the fiscal year--projected a \$209.8 billion federal deficit. The actual FY 1983 deficit came in \$14.4 billion lower than OMB had predicted just 67 days before. OMB's forecasting error amounted to an annual error of \$78.8 billion.⁶

The unemployment rate in the Mid-Session Review, moreover, was forecast at 9.6 percent by the end of FY 1983. Yet the final jobless figure had dropped to 8.8 percent. As Dr. Richard Rahn, the U.S. Chamber of Commerce's Chief Economist, asks: "With an error rate of this magnitude only two months in advance of the end of the fiscal year, how seriously should we take their projections for the next year, not to mention 1988?"⁷

WHY FORECASTS GO WRONG

The underlying problem with deficit forecasting is that economists cannot measure the deficit directly. The deficit is the difference between two very large numbers: estimated government outlays and receipts. A small percentage change in either of these two massive numbers can have a large impact on the residual government deficit. Just a 2 percent increase in government revenues, and a similar decrease in government outlays, for example, could change the budget deficit by \$30 billion.

There are a number of reasons why government and private forecasts alike have been wide of the mark in estimating federal revenues and outlays.

1. Economic Cycles

No forecaster has been able to predict the economic cycle with consistency. Yet even a small change in the underlying assumptions about GNP, inflation, and interest rates can have a dramatic effect on budget deficit forecasts.

Economic growth--The economic growth rate has enormous consequences for the budget deficit. During periods of rapid expansion, business profits, wages, interest, and dividend income surge while the Treasury gains new tax revenues generated from these sources. Greater economic growth, meanwhile, reduces

⁶ Ibid.

⁷ Ibid.

government expenditures, since more jobs mean less unemployment compensation, welfare, and other social spending. As such, the deficit is cut from two directions.

The most powerful way to cut the deficit is by economic growth. According to CBO calculations, a 2 percentage point sustained increase in economic growth would reduce the cumulative deficit by \$440 billion during 1984-1987.⁸ If the economic forecasts underestimated growth by such a degree, that alone would reduce upcoming budget deficit projections by as much as one half (see Chart II).

CHART II

The Effect on Budget Deficit Projections of Selected Changes in Economic Assumptions

(Increases in billions of dollars)

	<u>FY 1983</u>	<u>FY 1984</u>	<u>FY 1985</u>	<u>FY 1986</u>	<u>FY 1987</u>
Real Growth up 1%	-10	-28	-46	-62	-83
Unemployment down 1%	-25	-39	-39	-37	-37
Inflation down 1%	6	14	18	24	29
Interest Rates down 1%	-1	-5	-8	-10	-12

Source: CBO, "The Economic and Budget Outlook: An Update," September 1982.

Inflation--Inflation directly affects federal spending and revenues. Inflation boosts nominal corporate profits, personal incomes, payrolls, and sales and therefore increases tax collections--particularly as people are pushed into higher income tax brackets. (Beginning in 1985, however, indexation of brackets will reduce these inflation induced tax revenues.) Federal spending also increases due to inflation, because many government programs, including Medicare, Social Security, and federal pay, increase with inflation. Combining its effects on revenues and outlays, a 1 percent drop in the inflation rate actually would increase the government deficit by a total of over \$85 billion between 1984-1987.

Interest rates--The \$1.4 trillion government debt has made interest expense one of the largest and fastest growing items in the federal budget, skyrocketing to nearly \$130 billion in FY 1983. Unanticipated fluctuations in interest rates can have

⁸ Congressional Budget Office, "The Economic and Budget Outlook: An Update" (Washington, D.C.: U.S. Government Printing Office, September 1982).

significant effects on the accuracy of federal budget forecasts. According to the CBO, a one percentage point drop in interest rates for all government securities would cut the cumulative 1984-1987 budget deficit by \$35 billion.

Unemployment--A falling unemployment rate reduces unemployment compensation expenditures and other social welfare spending. Increased employment expands the tax base and therefore sharply increases tax revenues. According to the CBO, a one percentage point drop in unemployment would reduce the budget deficit by \$150 billion over the next four years.

2. Complexities in Revenue and Outlay Estimates

Even if the economic cycle could be gauged accurately, the forecaster must convert the resulting economic assumptions into revenue and outlay estimates. To do this, he must try to unravel the complexities of spending patterns, the timing of income tax payments, the use of tax deductions and shelters, the utilization of government programs, and many other factors. Errors made in these elements are compounded in the final revenue and outlay forecasts and then magnified in his deficit projection.

3. Legislative Changes

Forecasts assume certain legislative changes in tax and budget policy. But even the most seasoned political pundits rarely predict accurately what Congress and the President will do.

4. Other Surprises

There are many other unexpected events that may trigger a different deficit than that projected by economists. A natural disaster, such as a drought or a bad winter, can drastically alter government outlays and consumer spending patterns and have a significant effect on the deficit.

OMB IS NOT ALONE

OMB is not the only agency or organization to have trouble in developing accurate forecasts. Some critics say OMB's forecasts naturally are inaccurate because politics clouds its decision making. Others charge that administrations are inherently less competent or motivated than the private sector or the Congressional Budget Office. A recent review of both private sector and CBO forecasts, however, reveals that poor performance is not an OMB monopoly.

The Congressional Budget Office

Chart III shows the deficit estimates of the CBO for 1979 to 1983. In some years CBO has been noticeably more accurate in estimating the deficit than the OMB. In most years, however, the

CHART III

Congressional Budget Office
Deficit Estimates 1979-1983
(in billions of dollars)

<u>Fiscal Year</u>	<u>Date of Estimate</u>	<u>Estimate</u>	<u>Actual</u>	<u>Error % Estimate</u>
1979	12/77	\$38	\$27.7	27
1980	1/79	49	59.6	22
1981	2/80	21	57.9	176
1982	7/81	30	110.6	269
1983	2/82	157	195.6	25

Average error % projection: 104 percent.

Source: Congressional Budget Office.

errors have been in exactly the same direction and of about the same magnitude. CBO's yearly deficit projections from 1979 to 1983 on average erred over 100 percent. The errors ranged from 27 percent below to 269 percent above projected deficits.

Private Sector Forecasts

Chart IV provides a sample of leading private sector forecasts of GNP and the inflation rate for 1981-1983, compared with the actual results. These basic economic variables are among the most fundamental determinants of budget deficits. It can be seen that, although some forecasters came closer than others to the actual outcome in certain years, no forecaster was consistently accurate. These leading private sector forecasters erred by an average of 137 percent in their projections of GNP. The same private sector analysts erred annually in their forecasts of the inflation rate by 21 percent.

IMPLICATIONS FOR ECONOMIC POLICY

The poor record of all forecasters--private as well as government--holds important implications for current public policy:

1) Congress should not place more confidence in forecasters than their record justifies--especially in the case of projections of the economy four or five years hence. Policymakers should be extremely reluctant to use highly speculative forecasts to justify fundamental and far-reaching economic policy changes.

CHART IV

Private Forecasts of GNP

(percent change over previous fiscal year)

<u>Forecaster</u>	<u>FY 1981</u>	<u>FY 1982</u>	<u>FY 1983</u>
Chase Econometrics	0.6	0	2.1
Data Resources	0.8	-0.5	1.6
Brookings	0.7	-2.0	3.3
Townsend-Greenspan	1.5	-1.0	2.0
Wharton	<u>0.3</u>	<u>-0.3</u>	<u>2.4</u>
Average Prediction	0.8	-0.8	2.3
Actual	2.6	-1.9	3.4
% Error Each Year	225	138	48

Average Error Over 3 Years = 137 percent

INFLATION RATE

	<u>FY 1981</u>	<u>FY 1982</u>	<u>FY 1983</u>
Average prediction	11.0	8.0	4.7
Actual	<u>10.3</u>	<u>6.1</u>	<u>3.2*</u>
Average % Error	6	24	32

Average Error Over 3 Years = 21 percent

(*Estimate)

Source: The Washington Post, January 8, 1984.

2) Given the inherent limitations of forecasting, policymakers should rethink the case for tax increases based on the current gloomy budget deficit forecasts. There is no reason to suppose that these forecasts will be any more accurate than those in previous years--while it is certain that tax increases could choke off the recovery.

3) "Fine-tuning" the economy, national industrial plans, and efforts to smooth out the business cycle require accurate forecasting of economic trends and aggregates. Firm statistics simply do not exist, so such detailed policies are doomed to failure. Indeed, they even can destabilize the economy, given that errors in

forecasting closely follow the business cycle. "Countercyclical" economic policies based on erroneous forecasts actually could magnify swings in the economy, providing excessive stimulus in recoveries and too much restraint in recessions. Rather than providing policymakers with information to counterbalance the economic cycle, forecasting actually tends to intensify economic fluctuations.

4) The actual deficit for 1984-1985 probably will be substantially less than now forecast, if forecasting errors follow the typical cyclical pattern of the business cycle.

5) Accompanying every government budget should be a prominent disclaimer that economic assumptions are only careful guesses, not a scientifically reliable forecast of the likely outcome. Indeed, when policy initiatives and budgets are based on official forecasts, the Administration and congressional committees should be required to make public the track record of the forecasting agency during the previous ten years, so that the public might award the projections proper credence.

6) Since forecasts are unreliable, solid economic principles should become the basis for economic policy. Such policy should lay a stable foundation for long-term growth and not be adjusted on a yearly basis to anticipate flimsy predictions of future economic conditions. Congress and the Federal Reserve System should continue to move toward a tax system that rewards risk and effort, a regulatory system that removes barriers to enterprise, a spending reduction policy that shrinks the public sector, and a monetary policy that provides for stable and low money growth.

CONCLUSION

Government and private sector forecasts generate more heat than light. The naive confidence placed in economic forecasts by economists and policymakers alike is hardly warranted by the record. Official deficit forecasts for only one year have erred on average 254 percent a year over the last thirteen years. Even private sector firms, which earn their living from forecasting, are inaccurate in predicting the future. A forecast of two, three, four, and five years ahead is rarely closer to reality than a look into a crystal ball.

Would planning the economy, manipulating aggregate demand, and pursuing fashionable cure-alls such as industrial policy seem so desirable if the sorry forecast record were more widely known? Would economists and policymakers push for the large tax increases now being debated if they realized the massive range of errors inherent in any deficit prediction? The flawed record of forecasting certainly should cause economic advisors and lawmakers to use forecasts in a far more cautious and tentative manner.

But what should economic policymakers use as a guide if the science of prediction is so crude and unreliable? Perhaps they should recognize that the first step to wisdom is to recognize the obvious limitations in any sort of prediction and act accordingly. If Congress cannot predict the size of the federal deficit, or any other key variable, it should not try to persuade the American people to accept frequent policy changes to fit the latest economic forecasts. It should move instead to establish a broad, long-term tax and monetary framework, based on the lessons of economic history, and leave the guessing game to the gamblers on Wall Street.

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