An Assessment of the "Official" Economic Forecasts

Stephen K. McNees

Vice President and Economist, Federal Reserve Bank of Boston. *The author is most grateful to Lauren K. Fine and to Delia R. Sawhney for valuable research assistance.*

While the private sector generates dozens of macroeconomic forecasts, only three "official" forecasts emanate from government agencies. The oldest derives from the Employment Act of 1946, which created the Council of Economic Advisers and requires the Council to submit an annual report to the U.S. Congress. Starting in the early 1960s, this report provided an explicit numerical forecast of current-dollar or nominal GNP growth for the coming year; initially, the breakdown between the rate of real GNP growth and the rate of inflation, as measured by the implicit GNP deflator, had to be inferred from the text of the report. The Congressional Budget Act of 1974 created the Congressional Budget Office and requires it to present periodic reports on fiscal policy to the congressional budget committees. Significantly, this Act also established the practice of developing and presenting the federal budget, based on an economic projection, over a five-year horizon. Finally, in compliance with the Full Employment and Balanced Growth Act of 1978 (often referred to as the "Humphrey–Hawkins Act" in honor of its primary legislative sponsors), the Chairman of the Federal Reserve Board reports biannually to the Congress, presenting the economic projections of the members of the Federal Open Market Committee.

The Council of Economic Advisers' (CEA's) forecasts have been analyzed and compared with private forecasts many times. (See, for example, Moore 1977 and 1983 and McNees 1977 and 1988.) The Congressional Budget Office (CBO) has analyzed its own forecasts periodically, most recently in Reischauer (1995). This article updates these previous studies of CEA and CBO forecasts through 1994 and presents what may be the first published analysis of the Federal Open Market Committee's (FOMC's) "Humphrey–Hawkins" forecasts. It also incorporates alternative measures of changes in real output and prices recently developed by the Bureau of Economic Analysis (described in Young 1992 and 1993).

The results of the broader and longer data set used in this study alter slightly some of the conclusions of the previous research:

(1) Previous research almost uniformly has shown that the one-year-ahead "official" forecasts are about as accurate as forecasts obtained from surveys of private sector forecasters.[1] This study suggests the CEA's two- and four-year-ahead forecasts of real GNP have been slightly less accurate than, and the CBO's forecasts about as accurate as, the private sector forecasts. The lower accuracy stems from an optimistic bias in expectations of long-term real growth. On the other hand, the FOMC's forecasts issued each July for the following year are shown to have been somewhat more accurate than a standard private-sector forecast.

There are ample reasons to be skeptical that these differences will persist in future forecasts, however. For example, most of the advantage of the FOMC's forecasts derives from a superior performance in the early 1980s; since that time, private forecasts have been about as accurate as the FOMC's forecasts.

(2) Previous research has found both nominal and real GNP forecasts more accurate than simple rules of thumb, but at least one earlier study suggested that the "official" inflation forecasts were "not much if any better than simple extrapolations of last year's rate" (Moore 1983, p. 447 and Zarnowitz 1992, p. 399). This study finds that both the "official" and private inflation forecasts have been clearly more accurate than forecasts based on simple extrapolative rules of thumb.

I. Measuring Forecast Accuracy

A fundamental issue in judging forecast accuracy is the choice of the set of actual data to compare to the predictions. This follows from the fact that the National Income and Product Accounts (NIPAs) are revised repeatedly as new information becomes available. If the objective of the evaluation is to understand contemporaneous behavior—such as the reaction in the financial markets or the economic decisions taken at the time—the first data released, here called the preliminary data, are clearly the appropriate set of actual data to be used to evaluate the forecast. Preliminary data, however, include only partial information. Revised data, although not available until later, contain more information and, therefore, provide a better estimate of what actually occurred. They are the more appropriate standard for economic policymakers, econometric modelers, and most nonfinancial decisionmakers to use to estimate what "really happened" in the economy, as opposed to what was initially thought to have happened. These revised data will receive the primary emphasis in what follows, and the results based on preliminary data will be mentioned only secondarily.

The CEA's two- and four-year-ahead forecasts of real GNP have been slightly less accurate than, and the CBO's forecasts about as accurate as, the private sector forecasts.

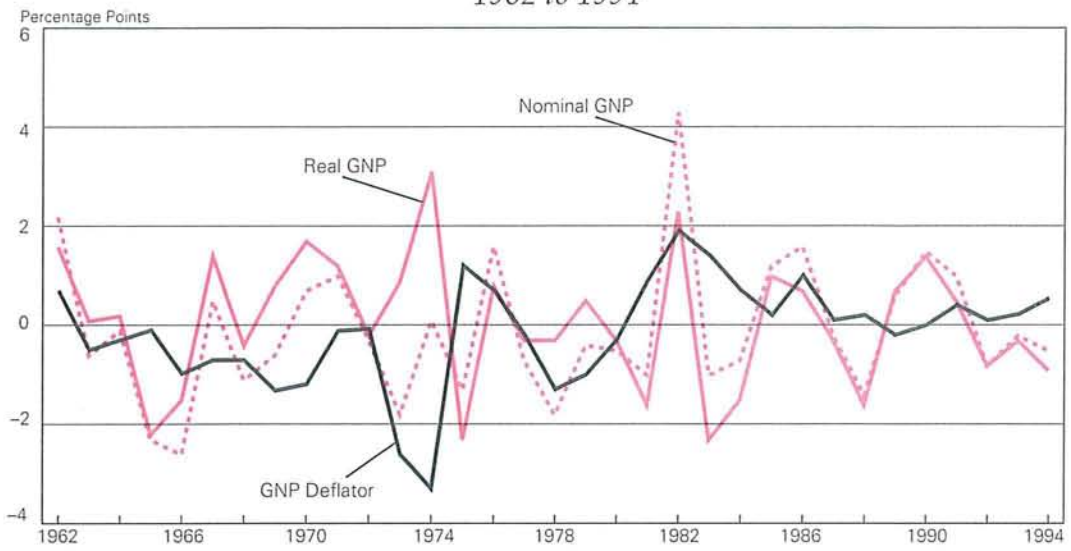
However, the fact that more recent data contain more statistical source information does not imply that forecasts should be evaluated against the actual data maintained in current data bases. The problem with doing so is that from time to time the BEA makes definitional and classification changes in the accounting framework (such as shifting mobile home production from consumer durable goods to residential investment) and also updates the base year of the weights by which the components of GNP are aggregated. Changes in base year weights affect the division of nominal GNP between prices and output.

Until recently, the BEA chose to emphasize GNP fixed-weighted quantity indexes because of their relative simplicity. The disadvantage of using a fixed-weighted quantity index, with weights chosen from one specific period, is that the relative price structure of the economy changes over time, clouding the interpretation of aggregate measures in periods far removed from the base year. This problem is especially acute for products like computers, whose relative prices have changed rapidly. The BEA has re-

[1] The exception (Belongia 1988) found that the CEA and the CBO forecasts were not biased but infers that "private sector forecasts generally were more accurate than those of the CBO" (p. 22) from a Fair-Shiller test that shows the private sector forecasts contained significant, independent information.

Figure 1

CEA Forecast Errors
1962 to 1994



sponded to this issue by updating the base year from which the fixed weights are taken in its periodic benchmark revisions—in 1975, the base year was changed from 1958 to 1972; in 1985, the base year was changed from 1972 to 1982; and in 1991, the base year was changed from 1982 to 1987.[2]

It does not seem reasonable to hold economic forecasters responsible for anticipating such changes in the social accounting framework. For example, a forecast might predict every component of GNP perfectly in 1982 weights but be far off the mark for total GNP in constant 1987 dollars. Unfortunately, once the BEA changes its accounting framework or rebenchmarks the NIPAs to a more recent year, it stops issuing estimates of actual values on the old basis. This poses an insurmountable problem for the evaluation of multi-period forecasts; no set of actual data exists in the same accounting framework used by the forecasters for periods just after a benchmark revision. To evaluate the multi-period forecasts in 1982 dollars made just before the BEA's shift to 1987 dollar accounts, one must either adjust the forecasts to the new accounting framework or attempt to produce actual data in the previous system of accounts. Neither approach is very satisfactory.

Recently, the BEA introduced two alternative measures of real GNP which are not based on the price weights of a single base year. (See Young 1992.) This article utilizes these "benchmark-years-weighted quantity indices" to compute the actual values in those years for which no actual data are available in the same system of accounts in which the forecasts were made, specifically 1975, 1985, and 1991. The following sections assess the performance of CEA, CBO, and FOMC forecasts in turn, using this alternative measure where no comparable actual data exist.

II. The CEA Forecasts

Figure 1 displays the errors of the CEA's one-year-ahead forecasts of the growth rates of nominal GNP, real GNP, and the implicit GNP deflator issued each year since 1962. (See the appendix for a description of the data, and Moore 1983, Ch. 26, page 433 and especially Table 26-3 on pages 442 and 443 for data back to 1961.) The errors are highly variable: By far the largest errors for both real growth and inflation oc-

[2] In 1991, both the BEA and the forecasters shifted emphasis from GNP to GDP. Accordingly, the errors reported below simply splice the two concepts after 1991.

Table 1
CEA Summary Error Measures
1962 to 1994

	Nominal GNP	Real GNP	GNP Deflator
Mean Errors			
CEA	−.1	.1	−.1
"Naive 1"	−.3	−.4	−.1
"Naive 4"	−.3	−.3	−.2
Mean Absolute Errors			
CEA	1.1	1.1	.8
"Naive 1"	2.3	2.5	1.0
"Naive 4"	1.9	2.3	1.6
Root Mean Squared Errors			
CEA	1.4	1.3	1.1
"Naive 1"	2.8	3.1	1.5
"Naive 4"	2.3	2.8	2.0
	Percent of errors greater than:		
1 Percent	39	42	24
2 Percent	12	15	6

curred in 1974. Because those errors were of opposite sign and roughly equal in magnitude, however, the nominal GNP forecast for 1974 was quite accurate, as would be expected if the 1974 errors were attributable to an oil price "supply shock." By far the largest error in any of the variables during this period was the 4.3 percentage point overestimate of nominal GNP growth in 1982. Both real growth and inflation were overestimated by unusually large amounts, a particularly clear example of an unexpectedly large downward shift in aggregate demand.

The vast majority of forecast errors, however, are less than 1 percentage point. As shown in Table 1, the average error without regard to sign, or the mean absolute error (MAE), is 1.1 percentage points for nominal and real GNP and 0.8 percentage point for inflation. The square root of the mean squared error, the RMSE, ranges from a low of 1.1 percentage points for inflation to a high of 1.4 percentage points for nominal GNP. Because the variability of these three series, as measured by their standard deviations, is about the same in this period, about 2.5 percentage points, it is not unreasonable to say that inflation rate forecasts tended to be more accurate than the nominal or real GNP forecasts. It is sometimes alleged that "official" forecasts contain an optimistic bias; however, no evidence is seen here of such a bias, in that the average error of all forecasts for each variable, shown in the top panel, is essentially zero.

The question is often asked, "How good are these forecasts?" The answer depends on the alternative forecast to which they are compared: Relative to simple or even fairly complex rules of thumb, the CEA forecasts are clearly superior. Evidence for this proposition also appears in Table 1. The second row of each panel gives the summary error measures for a naive model that takes last year's growth as its forecast of this year's growth. The third row of each panel shows a naive rule of thumb in which the average rate of growth in the past four years is taken as the forecast of the next year. The CEA forecasts are substantially better than either of these simple formulas.[3]

The CEA's forecasts are about as accurate as the private sector forecasts made around the same time. An exact comparison of the two is difficult because it is not clear exactly when the CEA forecasts were finalized. The Administration's forecasting efforts start as early as November of the previous year in connection with the planning for the President's budget proposal. But it is clear that the forecasts could be modified just before the release of the Economic Report of the President, which often includes actual data for the fourth quarter of the prior year, not released until late in January. The CEA forecast tends to be slightly more accurate than private sector forecasts released in December or January and slightly less accurate than those released in February. Table 2 attempts to match the CEA forecast with the private sector forecast released at about the same time. Because the differences are so small and a comparable timing pattern difficult to establish, it appears that the accuracy of the CEA forecast and that of private sector one-year-ahead forecasts are essentially the same.

III. The CBO Forecasts

The major innovation associated with the institution of CBO forecasts is that, for federal budgetary planning purposes, they are required to cover a five-year horizon. This longer horizon opens the possibility that evaluations of short-term forecasts may differ from those of "long-term" forecasts. (See, for example, Kamlet, Mowery, and Su 1987.)

The CBO has issued a series of evaluations of the accuracy of its own forecasts relative to those of the

[3] The naive forecasts use the actual growth rates available at the time these hypothetical forecasts would have been made.

Table 2
A Comparison of Private and CEA Summary Error Measures
1972 to 1994

	Nominal GNP	Real GNP	GNP Deflator
Mean Errors			
ASA	−.2	−.1	−.1
DRI	−.5	−.3	−.2
CEA	.0	.1	−.1
Mean Absolute Errors			
ASA	1.2	1.0	.9
DRI	1.0	1.0	.8
CEA	1.1	1.1	.8
Root Mean Squared Errors			
ASA	1.6	1.2	1.3
DRI	1.3	1.3	1.1
CEA	1.4	1.3	1.2
	Percent of errors greater than:		
1 percent			
ASA	48	30	26
DRI	44	30	26
CEA	39	35	26
2 percent			
ASA	17	13	9
DRI	17	17	9
CEA	4	17	9

CEA and those from the private sector. (See, for example, Reischauer 1994 and 1995.) The evaluation in this article differs from the CBO's in two ways: (1) the CBO uses the benchmark-year-weighted actual data throughout, whereas this study uses that series only when no actual data exist in the same conceptual framework in which the forecast was made, as explained above; (2) the CBO uses the Blue Chip survey as its measure of private sector forecasts; because the horizon of the Blue Chip forecasts did not extend to two years prior to 1982, this limits the period of comparison. In this study the forecasts of a prominent private commercial forecasting organization are spliced onto the Blue Chip forecasts to create a time series reaching back to 1976, when the CBO started to forecast.

The results of the three-way comparison are summarized in Table 3. The top panel shows that the accuracy of two-year inflation forecasts is virtually identical for the CEA, the CBO, and the "private sector" standard. The middle panel shows that the CBO forecasts of real GNP growth over a two-year horizon were about the same as the private sector forecasts and slightly, but distinctly, more accurate than the CEA's forecasts. The bottom panel shows that the private sector forecasts of real GNP growth over a four-year horizon are slightly more accurate than the CBO's and noticeably more accurate than the CEA's long-term forecasts. Because all previous comparisons of the CEA's forecasts with private sector forecasts have suggested the two are about equally accurate, this result merits some investigation.

Note first that this is not an inconsistency; previous comparisons, including the ones described in Tables 1 and 2 above, cover a one-year horizon. The superiority emerging from the CBO's data set comes from forecasts of real GNP growth over the longer

Table 3
Comparison of Private and Public Forecast Errors
1976 to 1994

	CBO	CEA	"Private"[a]
A. Inflation, CPI—Two-Year Average Growth Rate			
Mean Error	−.1	−.2	.0
Mean Absolute Error	1.4	1.4	1.4
Root Mean Squared Error	1.8	1.8	1.8
	Percent of errors greater than:		
1 Percent	44	61	50
2 Percent	28	17	22
B. Real GNP—Two-Year Average Growth Rate			
Mean Error	.3	.4	.1
Mean Absolute Error	.8	1.1	.8
Root Mean Squared Error	1.0	1.3	1.0
	Percent of errors greater than:		
1 Percent	33	39	44
2 Percent	0	17	0
C. Real GNP—Four-Year Average Growth Rate			
Mean Error	.8	1.2	.5
Mean Absolute Error	.9	1.3	.8
Root Mean Squared Error	1.2	1.5	1.0
	Percent of errors greater than:		
1 Percent	31	44	38
2 Percent	19	19	6

[a]Forecasts of a prominent commercial forecasting organization, 1976 to 1981, and Blue Chip forecasts thereafter.

two- and four-year horizons. The source of the difference is fairly clear; the CBO and private sector forecast errors for two-year estimates never exceed 2 percentage points. In contrast, the CEA's real GNP forecast errors exceeded 2 percentage points for 1981–82, 1983–84, and 1990–91. The first and last were overestimates, the other an underestimate of the strength of the early recovery. In all three instances, the CBO and private sector forecasts were quite similar. Their errors were unusually large and of the same sign as the CEA's, but in no case did they exceed 2 percentage points. As for the four-year real growth forecasts, all three forecasters show some tendency toward optimism—all their mean errors were positive. The higher mean value for the CEA forecasts reflects the fact that all its errors were positive except for an underestimate of the strong 1983–86 recovery period.

The private sector forecasts of real GNP growth over a four-year horizon are slightly more accurate than the CBO's and noticeably more accurate than the CEA's long-term forecasts.

Private sector forecasts are often wrong. It is not uncommon to find the actual outcome either higher than the highest private sector individual's point forecast or lower than the lowest point forecast. These facts embolden many private sector forecasters, as perhaps they emboldened the CEA forecasters, to diverge sharply from the private sector consensus view. More often than not, however, this strategy fails. Although it is easy to say the private consensus forecast is wrong (because it usually is), it is generally extremely difficult to systematically guess the direction of its departure from the future reality.

IV. The FOMC Forecasts

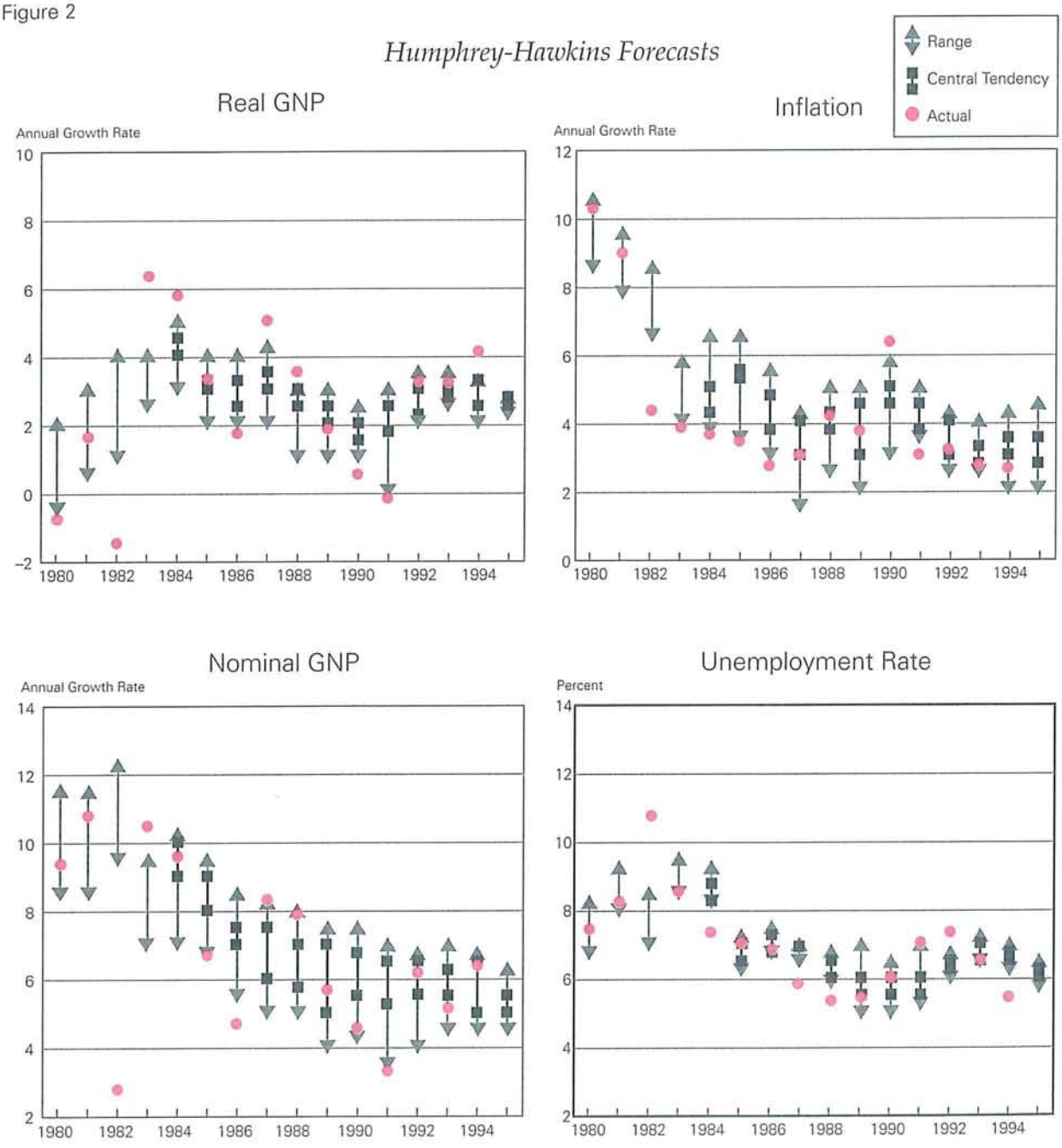
Since 1979, the Chairman of the Federal Reserve Board has appeared before Congress twice a year to discuss Federal Reserve conduct of monetary policy. In the testimony, the Chairman presents the range of the FOMC members' forecasts of the growth rates of nominal GNP, real GNP, and inflation (measured initially by the GNP deflator and more recently by the Consumer Price Index), and the level of the unemployment rate in the fourth quarter. In the February testimony, the forecasts pertain to the current year; in July, forecasts are given for both the current year and the following year. Currently, the range describes the forecasts of all participants at FOMC deliberations—that is, both voting and nonvoting FOMC members; earlier practice occasionally included only the forecasts of voting members.

Starting in 1983, the range of the forecasts was supplemented with a central tendency, constructed by discarding the extreme forecasts but not condensed to a point forecast. Because the FOMC forecasts are presented as a range, rather than as a point estimate as are virtually all other macroeconomic forecasts, assessing the FOMC forecasts cannot follow the standard procedures for point estimate forecasts.

For the one and one-half-years-ahead forecasts—those made each July for the following year, Figure 2 shows the high and the low points of the FOMC forecast range (the grey diamonds), the high and low points of the "central tendency" of the FOMC's forecasts (the black squares), and the actual outcome (the red circles) based on the revised data. Perhaps the most obvious way to start to assess these data is simply to compute the frequency with which the actual outcome fell within the range of FOMC members' forecasts, what will henceforth be called their "success rate." The success rate of the range of FOMC forecasts of all variables for all horizons relative to the preliminary data is 56 percent. The success rate relative to the revised data, as shown in the top panel of Table 4, is 49 percent. The difference between the two is due almost entirely to the real GNP forecasts—48 percent of the preliminary real growth estimates fell within the FOMC's range, whereas only 28 percent of the revised estimates of real growth fell within the FOMC forecast range, as shown in the second column, last row of the top panel of Table 4. In contrast, for the other three variables the success rates exceed 50 percent for both the preliminary and the revised actual data. The highest success rates are 67 percent for both the one-year-ahead inflation forecast and the one and one-half-years-ahead forecast of nominal GNP growth. The lowest success rate is the 19 percent rate for real GNP growth forecasts one-half year ahead.

Note that the success rates are consistently higher for the longer horizons. This generalization is true for all four variables, with preliminary or revised data,

Figure 2



Note: Forecast made in July for the following year, fourth quarter over fourth quarter.

Table 4
Success Rates
Percent of Revised Actuals within Forecast Interval

Forecast Horizon	Nominal GNP	Real GNP	Inflation Rate	Unemployment Rate	All Variables
		FOMC range, 1980 to 1994			
Half-year[a]	56	19	50	50	44
One Year	47	33	67	53	50
One and one-half years	67	33	53	60	53
All Horizons	57	28	57	54	49
		FOMC central tendency, 1983 to 1994			
Half-year	17	0	17	42	19
One Year	8	8	42	33	23
One and one-half years	36	0	36	36	27
All Horizons	20	3	31	37	23

[a]The half-year forecasts include a forecast made in July 1979 for 1979.

and for both the FOMC range and the FOMC central tendency, shown in the bottom panel of Table 4. The fact that forecasts with a longer horizon have a higher success rate is not at all a paradox: The success rate is the net result of two distinct factors—as the forecast horizon lengthens, forecast *uncertainty* rises, but at the same time the *dispersion* of the FOMC members' forecasts rises, as shown in Table 5. The dispersion among point forecasts is conceptually different from the uncertainty attached to each forecast. If the success rate were to be interpreted as a measure of uncertainty or a confidence interval, the level of confidence that can be associated with these forecasts is quite low—often below 50 percent. The decline in the success ratio as the forecast horizon lengthens simply shows that the dispersion of FOMC members' individual forecasts grows faster than the forecast uncertainty rises.

Table 5
The Width of the FOMC Ranges
1980 to 1994

Variable	Forecast Horizon	High	Mean	Low
Nominal GNP				
	Half-year[a]	3.0	1.91	1.25
	One Year	4.0	2.65	1.0
	One and one-half years	3.5	2.95	2.25[b]
Real GNP				
	Half-year[a]	2.5	1.41	.5
	One Year	3.0	1.90	1.0
	One and one-half years	3.0	2.00	1.0[c]
Inflation				
	Half-year[a]	1.75	1.16	.5
	One Year	2.0	1.58	.5
	One and one-half years	3.0	2.25	1.5
Unemployment Rate				
	Half-year[a]	1.25	.67	.25
	One Year	1.25	.80	.25
	One and one-half years	2.0	1.13	.5

[a]The half-year forecasts include a forecast made in July 1979 for 1979.
[b]Low falls to 1.75 for 1995.
[c]Low falls to 0.5 for 1995.

The dispersion of the FOMC members' point forecasts, as measured by the distance between the highest and the lowest forecasts, is not correlated with the accuracy of the forecasts, as measured by the distance between the actual outcome and the midpoint of the range of the FOMC forecasts. This same result occurs in virtually all collections of individual point forecasts, suggesting that the dispersion of individual forecasts is not a good measure of forecast uncertainty (McNees with Fine 1994).

Under the assumption that the FOMC forecasts can be characterized by their midpoint, one can easily compare them with other forecasts traditionally expressed as point estimates. Table 6 provides the standard summary error measures, the MAE and the RMSE, for the Blue Chip forecasts, the mean of a collection of private sector forecasts, and for the midpoint of the FOMC forecasts. Generally speaking, the

Table 6
Forecast Accuracy, Blue Chip and the Midpoint of the FOMC Range
1980 to 1994

	Mean Absolute Errors			
	Nominal GNP	Real GNP	Inflation	Unemployment Rate
Half-year[a]				
Blue Chip	1.4	1.3	.6	.5
FOMC	1.2	1.3	.7	.5
One year				
Blue Chip	1.6	1.3	.9	.5
FOMC	1.5	1.3	.8	.5
One and one-half years				
Blue Chip	1.9	1.6	1.4	.8
FOMC	1.7	1.4	**1.0**	.8

	Root Mean Squared Errors			
	Nominal GNP	Real GNP	Inflation	Unemployment Rate
Half-year[a]				
Blue Chip	1.8	1.5	.7	.7
FOMC	1.6	1.5	.9	.6
One year				
Blue Chip	2.3	1.6	1.2	.8
FOMC	2.1	1.5	1.1	.7
One and one-half years				
Blue Chip	3.0	2.1	1.7	1.2
FOMC	**2.5**	**1.7**	**1.3**	1.1

[a]The half-year forecasts include a forecast made in July 1979 for 1979.

Table 7
Forecast Accuracy, Blue Chip and the Midpoints of the FOMC Range and Central Tendency
1983 to 1994

	Mean Absolute Errors			
	Nominal GNP	Real GNP	Inflation	Unemployment Rate
Half-year				
Blue Chip	.9	1.0	.6	.3
FOMC Range	1.0	1.0	.6	.3
FOMC CT	1.0	.9	.6	.3
One year				
Blue Chip	1.3	1.2	.8	.5
FOMC Range	1.3	1.2	.7	.4
FOMC CT	1.4	1.3	.6	.5
One and one-half years				
Blue Chip	1.3	1.0	1.2	.7
FOMC Range	1.3	1.2	**.9**	.7
FOMC CT	1.2	1.0	**.8**	.7

	Root Mean Squared Errors			
	Nominal GNP	Real GNP	Inflation	Unemployment Rate
Half-year				
Blue Chip	1.1	1.1	.7	.4
FOMC Range	1.1	1.1	.7	.4
FOMC CT	1.1	1.1	.7	.4
One year				
Blue Chip	1.4	1.3	.9	.6
FOMC Range	1.5	1.3	.9	.6
FOMC CT	1.5	1.4	.8	.6
One and one-half years				
Blue Chip	1.6	**1.2**	1.3	.9
FOMC Range	1.5	1.5	1.1	.8
FOMC CT	1.5	**1.2**	**1.0**	.8

two sets of forecasts are about equally accurate. The few instances where the summary error statistics differ by more than 0.2 percentage point are shown in bold type. All such cases occur for the longest horizon, one and one-half years—that is, the forecasts for the next year that the Federal Reserve Chairman presents in testimony each July. In each case, the FOMC's midpoint was more accurate than the Blue Chip consensus.

Table 7 sheds some light on the source of much of the superior performance of the FOMC midpoint forecasts. Table 7 compares the accuracy of the Blue Chip forecasts with the midpoints of both the range of the FOMC's forecasts and its central tendency.[4]

[4] Forecasts of a prominent commercial forecasting organization are used for the Blue Chip nominal GNP, inflation, and unemployment rate 6- and 18-month ahead forecasts made in July of 1979.

Because the central tendency was not announced until 1982, this table omits the early 1980s when, as we have seen earlier, large forecast errors were made, especially for nominal GNP growth in 1982. (See the box.) With one exception, the table shows that the FOMC forecasts and the private forecasts are about equally accurate. The exception is the one and one-half-years-ahead inflation rate forecasts, where the FOMC forecasts are slightly but distinctly superior. Private forecasters might well argue that this advantage stems from the FOMC's ability to influence future inflation.

1982: A Forecast Failure.

Forecasts of 1982 were the least accurate, by a large margin, in the past 20 years. As illustrated below, all forecasters overestimated both real growth and inflation and thus overestimated nominal GNP growth by an extraordinary amount.

	Forecasts of 1982			
	Nominal GNP Growth	Real GNP Growth	Inflation Rate	Unemployment Rate
	Forecasts made in mid-1981			
Blue Chip	12.4	4.0	8.0	6.9
FOMC, midpoint of range	10.875	2.5	7.5	7.75
	Forecasts made in early 1982			
Blue Chip	9.9	2.6	7.2	8.7
FOMC, midpoint of range	9.25	1.75	7.125	8.875
Actual Values	2.7	−1.5	4.3	10.7

V. Summary

The historical record provides ample evidence that macroeconomic forecasts, both private and "official," are often imprecise and, at times such as 1973–74 and 1982, fundamentally misleading. There can be no assurance that such extraordinarily large surprises will not occur sometime again, and we have no good reason to be complacent about our ability to forecast.

At the same time, it is self-evident that the future is uncertain, so that forecasts necessarily will err. Perfection is not the relevant standard for judging forecast adequacy. When revisions often change actual outcomes by several tenths of a percentage point even well after the fact, it would be naive to expect forecast errors of essentially zero. From this perspective, it is comforting to see that multiple-percentage-point errors are rare. Far more often than not, macroeconomic forecasts have anticipated the level of the inflation and unemployment rates a year or more into the future within 1 percentage point. Simple rules of thumb have been far less reliable.

The only relevant standard for evaluating a forecast is the accuracy of other, comparable forecasts. If no superior alternative exists, then a large forecast error is simply a reflection of the fact that we live in an uncertain world, hardly a novel observation. On the other hand, because knowledge of the economy is quickly and widely disseminated, one seldom finds large, persistent differences in macroeconomic forecast accuracy among competent disinterested forecasters. This study reconfirms that both public and private forecasts are more accurate than simple rules of thumb. But it also finds some evidence of an optimistic bias in the multiyear real growth forecasts of the CEA and of slightly greater accuracy in the midpoint of the FOMC's longer-term forecasts than in their private sector counterparts. Much of this advantage stems from the turbulent early 1980s, however, and may not continue.

Appendix: Sources of Data

Figure 1: CEA Forecast Errors, 1962 to 1994 and
Table 1: CEA Summary Error Measures, 1962 to 1994

The forecasts of the Council of Economic Advisers come from the Office of Management and Budget, *Budget of the United States Government*, Fiscal Years 1963 to 1995. The CEA forecasts are made early each year for the current year. The actuals are the last available prior to each benchmark, taken from various issues of the *Survey of Current Business*. The years 1962 to 1964 are reported in 1954 dollars, 1966 to 1974 in 1958 dollars, 1976 to 1984 in 1972 dollars, 1986 to 1990 in 1982 dollars, and the remainder in 1987 dollars. The year-over-year forecasts made at the beginning of a benchmark year are in pre-benchmark dollars. The actuals, however, are released the following year in post-benchmark dollars. In all fairness to the forecasters' accuracy records, the benchmark-year-weighted index is used as the actual for 1965, 1975, 1985, and 1991.

Table 2: A Comparison of Private and CEA Summary Error Measures, 1972 to 1994

The dates of the private forecasts were consistently matched to the release date of the annual *Economic Report of the President*. See the paragraph above on Table 1 for information on the actuals.

Table 3: Comparison of Private and Public Forecast Errors, 1976 to 1994

The forecast errors for the two-year average growth rates of inflation and real GNP were calculated using forecasts and actuals provided by the Congressional Budget Office. For consistency, the benchmark-year-weighted index is used as the actual for 1985 and 1991. The remaining years use the last available actuals prior to each benchmark. The "private" forecasts were made by a prominent commercial forecasting organization, 1976 to 1981, and Blue Chip Economic Indicators thereafter.

Figure 2: Humphrey-Hawkins Forecasts
Table 4: Success Rates
Table 5: The Width of the FOMC Ranges, 1980 to 1994
Table 6: Forecast Accuracy, Blue Chip and the Midpoint of the FOMC Range, 1980 to 1994
Table 7: Forecast Accuracy, Blue Chip and the Midpoint of the FOMC Range and Central Tendency, 1983 to 1994

The forecast errors for the Humphrey-Hawkins and Blue Chip Economic Indicators forecasts were calculated using forecasts collected from the February and July Humphrey-Hawkins forecasts, the February and July issues of the *Blue Chip Economic Indicators*, and the last available actuals before each benchmark, as reported in various issues of the *Survey of Current Business*. The years 1979 to 1984 are reported in 1972 dollars, 1986 to 1990 in 1982 dollars, and the remainder in 1987 dollars. The 6- and 12-month-ahead forecasts made in February or July of a benchmark year are in pre-benchmark dollars. The actuals, however, are released the following year in post-benchmark dollars. In all fairness to the forecasters' accuracy records, the benchmark-year-weighted index is used as the actual for 1985 and 1991. To evaluate the 18-month-ahead forecasts made in July of the year prior to the benchmark, the benchmark-year-weighted index is also used for 1986 and 1992.

References

Belongia, Michael T. 1988. "Are Economic Forecasts by Government Agencies Biased? Accurate?" Federal Reserve Bank of St. Louis *Review*, November/December, pp. 15–23.

Economic Report of the President. Selected issues, 1964–95. Washington, D.C.: Council of Economic Advisers.

Eggert, Robert J., Editor. February and July issues, 1979–95. *Blue Chip Economic Indicators*. New York: Management Resources, Inc.

Federal Reserve Bulletin. Selected issues, 1979–95. Washington, D.C.: Board of Governors of the Federal Reserve System.

Kamlet, Mark S., David C. Mowery, and Tsai-Tsu Su. 1987. "Whom Do You Trust? An Analysis of Executive and Congressional Economic Forecasts." *Journal of Policy Analysis and Management*, vol. 6, no. 3, pp. 365–84.

McNees, Stephen K. 1977. "An Assessment of the Council of Economic Advisers' Forecast of 1977." *New England Economic Review*, March/April, pp. 3–7.

_____. 1988. "How Accurate Are Macroeconomic Forecasts?" *New England Economic Review*, July/August, pp. 15–36.

McNees, Stephen K. with Lauren K. Fine. 1994. "Diversity, Uncertainty, and Accuracy of Inflation Forecasts." *New England Economic Review*, July/August, pp. 33–44.

Moore, Geoffrey H. 1977. *Business Cycles, Inflation, and Forecasting*. Chapter 26. Cambridge, Mass.: Ballinger Publishing Company.

_____. 1983. *Business Cycles, Inflation, and Forecasting*. Cambridge, Mass.: Ballinger Publishing Company.

Reischauer, Robert D. 1994. *The Economic and Budget Outlook: An Update*. Especially Appendix A, pp. 45–57.

_____. Forthcoming August 1995. "Comparison of the CBO and Administration Economic Forecast Records," in *The Economic and Budget Outlook: An Update*. Also, private communication to the author, February 23, 1995, with updates.

Young, Allan H. 1992. "Alternative Measures of Change in Real Output and Prices." *Survey of Current Business*, April, pp. 32–48.

_____. 1993. "Alternative Measures of Change in Real Output and Prices, Quarterly Estimates for 1959–92." *Survey of Current Business*, March, pp. 31–37.

Zarnowitz, Victor. 1992. *Business Cycles: Theory, History, Indicators, and Forecasting*. Chicago, Illinois: The University of Chicago Press.

Working Papers

1993 Series

No. 93–1—"Assessing the Performance of Real Estate Auctions," by Christopher J. Mayer
No. 93–2—"Bank Regulation and the Credit Crunch," by Joe Peek and Eric Rosengren
No. 93–3—"A Model of Real Estate Auctions versus Negotiated Sales," by Christopher J. Mayer
No. 93–4—"Empirical Evidence on Vertical Foreclosure," by Eric S. Rosengren and James W. Meehan, Jr.
No. 93–5—"Reverse Mortgages and the Liquidity of Housing Wealth," by Christopher J. Mayer and Katerina V. Simons
No. 93–6—"Equity and Time to Sale in the Real Estate Market," by David Genesove and Christopher J. Mayer

1994 Series

No. 94–1—"Monetary Policy When Interest Rates Are Bounded at Zero," by Jeffrey Fuhrer and Brian Madigan
No. 94–2—"Optimal Monetary Policy in a Model of Overlapping Price Contracts," by Jeffrey C. Fuhrer
No. 94–3—"Near Common Factors and Confidence Regions for Present Value Models," by Stephen R. Blough
No. 94–4—"Estimating Revenues from Tax Reform in Transition Economies," by Yolanda K. Kodrzycki
No. 94–5—"Gifts, Down Payments, and Housing Affordability," by Christopher J. Mayer and Gary V. Engelhardt
No. 94–6—"Near Observational Equivalence and Persistence in GNP," by Stephen R. Blough

1995 Series

No. 95–1—"Banks and the Availability of Small Business Loans," by Joe Peek and Eric S. Rosengren
No. 95–2—"Bank Regulatory Agreements and Real Estate Lending," by Joe Peek and Eric S. Rosengren
No. 95–3—"Housing Price Dynamics within a Metropolitan Area," by Karl E. Case and Christopher J. Mayer
No. 95–4—"Tobin's q, Economic Rents, and the Optimal Stock of Capital," by Richard W. Kopcke
No. 95–5—"Small Business Credit Availability: How Important Is Size of Lender?" by Joe Peek and Eric S. Rosengren
No. 95–6—"The (Un)Importance of Forward-Looking Behavior in Price Specifications," by Jeffrey C. Fuhrer

Single copies of these Working Papers and information about the 1991 and 1992 Series may be obtained without charge from the Research Library—D, Federal Reserve Bank of Boston, P.O. Box 2076, Boston, MA 02106–2076 or phone (617) 973–3397.