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## A New Data Set on Monetary Policy: The Economic Forecasts of Individual Members of the FOMC

### ABSTRACT

This paper describes a new data set of the forecasts of output growth, inflation, and unemployment prepared by individual members of the Federal Open Market Committee. The paper discusses the scope of the data set, possibilities for extending it, and some potential uses. It offers a preliminary examination of some of the cross-sectional features of the data.

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Since 1979, the Federal Reserve has regularly published forecasts of inflation, output growth, and unemployment. The forecasts reflect the views of the members of the Federal Open Market Committee (FOMC).<sup>1</sup> The published forecasts, however, include only simple summary statistics.

The Federal Reserve generally releases documents and background material related to monetary policymaking, such as transcripts of FOMC meetings and staff forecasts, with a five-year lag. In August 2007, in the course of another project (Romer and Romer 2008), we pointed out to the Federal Reserve that since the economic forecasts of FOMC members were part of the policymaking process, the logic of the disclosure policy suggested that the forecasts underlying the summary statistics should be released with the same five-year lag. In May 2009, the Federal Reserve released some of these forecasts—though, as described below, not the full set of forecasts more than five years old.

This note describes the coverage of the data, possibilities for extending them, and some of their possible uses. It also briefly examines the relationships among the members' forecasts of different variables. The current form of the full data set is available as an on-line appendix to the paper.

## 1. COVERAGE

The FOMC forecasts followed a relatively fixed format during the period currently covered by the new data set. The forecasts were prepared in conjunction with the Federal Reserve's

semi-annual *Monetary Policy Reports* to Congress, which were submitted in February and July. Four variables were forecast: nominal GDP growth, real GDP growth, CPI inflation, and the unemployment rate. The forecasts of the first three variables were for the four quarters ending in the fourth quarter of the year; the forecasts of the unemployment rate were for the fourth quarter. The February forecasts were for the current year; the July forecasts were for both the current year and the following year.

The members of the FOMC initially prepared their forecasts prior to the FOMC meeting preceding the release of the *Monetary Policy Report*. In preparing their forecasts, the members had access to considerable information, including the staff forecast prepared for the FOMC meeting. The members were not given any specific assumptions about the conduct of monetary policy, but instead conditioned their forecasts on their judgments of “appropriate” policy. After the meeting, the members had an opportunity to revise their forecasts. During the period covered by the forecasts that were released by the Federal Reserve, the chair did not prepare any forecasts as part of this process.

The individual forecasts released by the Federal Reserve are the final forecasts that it has for each *Monetary Policy Report* for the period 1992-1998. The ending date reflects a decision by the FOMC to release the data with a ten-year lag rather than the standard five-year lag. The starting date reflects gaps in the Federal Reserve’s documentation. There are two problems with the materials prior to 1992. First, for some meetings, the forecasts of some or all of the members are simply missing. Second, in some cases the Federal Reserve has members’ initial forecasts but not their final forecasts, or it is not clear whether the forecasts are the initial or final ones. For some meetings, for example, the materials the Federal Reserve now has do not indicate when the forecasts were prepared, or summary statistics computed from the materials do not match the

statistics published in the *Monetary Policy Reports*.

The on-line appendix includes several small items in addition to those supplied by the Federal Reserve, including the names of the regional bank presidents, whether they were voting members of the FOMC at the time of each forecast, and real-time figures for the realized values of the variables that were forecast.

## 2. PROSPECTS FOR EXTENDING THE DATA SET

In principle, the data could be extended in three directions: backward in time, in greater depth for the period already covered, and forward in time. With regard to the first of these, as noted above, the Federal Reserve has some data for the period 1979-1991, although they are incomplete. With regard to the second, the forecasts released by the Federal Reserve are the final forecasts for which it has documentation, completed after the associated FOMC meeting and after members have seen one another's forecasts. Whether the Federal Reserve has information about the initial forecasts is unclear. There may also be background memos containing additional information about such issues as the exact timing of the forecasts. Finally, with regard to the third direction, the Federal Reserve obviously has the forecasts from 1999 to the present.

The only direction in which extensions will occur largely automatically is forward in time: each year, the Federal Reserve will be willing to release an additional year of forecasts. Given its trend toward greater transparency, however, the Federal Reserve might decide at some point to release additional data, particularly if researchers express interest in them. For example, the Federal Reserve already releases verbatim transcripts of FOMC meetings, which often include explicit discussions of members' views about the outlook for the economy, with a five-year lag.

It might therefore decide at some point that the same lag is appropriate for the members' forecasts. Similarly, it might decide that there was a potential benefit and little cost to releasing the data prior to 1992, despite their incomplete coverage.<sup>2</sup>

### 3. SOME POTENTIAL USES

There are a variety of issues one could examine using data on the forecasts of individual monetary policymakers. In many cases, the seven years of data that are currently available will not be enough to provide substantial insight. For this reason, this section simply lists some possibilities, recognizing that in most cases serious analysis will have to await the availability of additional data.

In studying the data, one issue that could be important is that the forecasts may not always reflect the FOMC members' best judgments about the likely outcomes, for two reasons. First, because they believed that only summary statistics would be released, some members may have put little effort into their forecasts. Second, in some cases the members' objective may not always have been to report their best estimates. For example, a member who favored lower interest rates than other members of the committee might have erred on the side of reporting forecasts of output and inflation lower than his or her actual point estimates.

The issues one could investigate using the new data include:

- Are the disagreements among members mainly about aggregate demand or aggregate supply? That is, when one member forecasts higher output growth than another, does he or she typically forecast higher inflation than the other, lower inflation, or is there no systematic relationship?
- Are there systematic differences in forecast accuracy across different types of

members of the FOMC? Possible comparisons include regional bank presidents versus members of the Board of Governors, members with Ph.D.s in economics versus ones without Ph.D.s, and more experienced versus less experienced members.

- Do the forecasts pass standard tests of forecast rationality? For example, are members' forecasts biased or excessively volatile?
- What are the characteristics of forecast revisions (either revisions from before to after the FOMC meetings, if those data become available, or from one *Monetary Policy Report* to the next)? For example, do members appropriately account for the informational content of other members' forecasts and of the staff forecast?
- Do forecasts have predictive power for dissenting votes?
- Are the forecasts of the regional bank presidents for the economy as a whole correlated with conditions in their Federal Reserve districts?
- What do the forecasts reveal about specific episodes? For example, one could ask to what extent the members were surprised by the low unemployment and low inflation of the 1990s. If earlier data become available, one could ask how broadly the members believed the Volcker disinflation would succeed in reducing inflation, and what they believed about the output and unemployment costs of doing so.<sup>3</sup>

#### 4. EXAMPLE: CROSS-SECTIONAL CORRELATIONS

As noted above, seven years of semi-annual data is of limited value in addressing time-series issues. For example, it is almost certainly too short a sample to provide useful information about forecast accuracy or forecast revisions.

The data have a substantial cross-section component, however: for each *Monetary Policy*

*Report*, there are between sixteen and eighteen individual forecasts. This section therefore looks briefly at the relationships among the forecasts of different variables. That is, it examines whether, if one sees a member forecasting a higher value of some variable than other members, this provides any information about his or her forecasts of other variables.

The analysis focuses on the relationships between three pairs of variables: output growth and CPI inflation, output growth and the unemployment rate, and CPI and GDP inflation. For the *July Monetary Policy Reports*, where the members made forecasts for the current year and the next year, the analysis uses the forecasts of cumulative output growth and inflation over the two years and of the level of the unemployment rate at the end of the second year. The forecasts of GDP inflation are computed from the forecasts of nominal and real GDP growth. Throughout, only the cross-section variation in the forecasts is considered. Specifically, the forecasts of each variable are regressed on dummy variables for each *Monetary Policy Report*. The analysis is then performed on the resulting residuals. For example, the correlations reported below are correlations between these residuals, and the scatter plots show these residuals. Thus the analysis focuses on the variation across members at a given meeting, not on the variation across meetings.

Table 1 shows the standard deviations and correlations of the residuals, and Figure 1 presents the scatter plots corresponding to the three focal correlations. One message is that there is substantial variation in the forecasts. The standard deviation of the growth forecasts is 0.37 percentage points; that of the unemployment rate is 0.16 percentage points; and that of CPI and GDP inflation are 0.39 and 0.45 percentage points, respectively. Figure 1 shows that these numbers are not driven by a handful of outliers, but reflect genuine heterogeneity. The case where outliers are most important is CPI inflation, where dropping the three most extreme

observations (the Federal Reserve Bank of Cleveland in July 1993 and July 1994, and the Federal Reserve Bank of St. Louis in July 1994) lowers the standard deviation from 0.39 to 0.34 percentage points.

A second message is that there is no clear relationship between forecasts of real variables and inflation. None of the correlations between either real GDP growth or unemployment and either of the inflation measures is close to statistically significant. Panel a of Figure 1 displays this lack of correlation visually. (The analysis focuses on CPI inflation because it was the measure of inflation that was explicitly reported in the forecasts during this period.) To the extent that there is any relationship, it is slightly positive. A member's growth forecast at a meeting being higher by 1 percentage point than those of other members is on average associated with his or her inflation forecast being higher by 0.08 percentage points (standard error = 0.07). Dropping the observation at the lower right of the figure (the Federal Reserve Bank of Cleveland forecast in July 1995) raises the coefficient to 0.15 and makes it marginally significant (s.e. = 0.07). On the other hand, also dropping the observation at the upper right (the Federal Reserve Bank of St. Louis in July 1992) lowers the coefficient back to 0.10 (s.e. = 0.07).

The final message is that the forecasts of concepts that are closely related are strongly correlated in the expected directions, but that there is nonetheless substantial independent variation. The correlation between the forecasts of GDP growth and the unemployment rate is  $-0.40$ . That between the two inflation measures is  $0.65$ . Both are overwhelmingly significant. A member's forecast of GDP growth being higher by one percentage point is associated with his or her forecast of the unemployment rate being lower by 0.18 percentage points (s.e. = 0.03). The CPI inflation forecast being higher by 1 percentage point is associated with the GDP inflation forecast being higher by 0.75 percentage points (s.e. = 0.06).

Panels b and c show, however, that knowing a member's forecast of one of the variables still leaves considerable uncertainty about his or her forecast of the related variable. Adding the GDP growth forecast to the regression of the unemployment forecast on the dummy variables for each *Report* reduces the standard deviation of the residuals only from 0.159 to 0.146 percentage points. Similarly, adding the CPI inflation forecast to the regression for GDP inflation reduces the standard deviation of the residuals from 0.450 to 0.341 percentage points. Again, these results are not driven by outliers. Discarding the observation at the upper right of panel b (Governor John Laware's forecast in February 1995) moves the correlation of the forecasts of GDP growth and unemployment from  $-0.40$  to  $-0.45$ ; discarding the observation at the lower right (the Federal Reserve Bank of Cleveland in July 1995) moves it from  $-0.40$  to  $-0.37$ . In panel c, excluding the observation at the upper right (the Federal Reserve Bank of St. Louis in July 1994) only lowers the correlation from 0.65 to 0.63.

As this example suggests, the Federal Reserve's decision to release the forecasts of the individual FOMC members provides researchers with a potentially valuable new data set on monetary policy. Particularly as the time period covered by the data is extended, the data set will allow a variety of new questions about monetary policy to be addressed.

## REFERENCE

Romer, Christina D., and David H. Romer. (2008) "The FOMC versus the Staff: Where Can Monetary Policymakers Add Value?" *American Economic Review*, 98:2 (May), 230-35.

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TABLE 1  
CROSS-SECTIONAL STANDARD DEVIATIONS AND CORRELATIONS

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	Growth	Unemp.	$\pi$ (CPI)	$\pi$ (GDP)
Real GDP Growth	0.37			
Unemployment Rate	-0.40	0.16		
CPI Inflation	0.08	-0.05	0.39	
GDP Inflation	0.02	-0.04	0.65	0.45

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NOTES: Entries on the diagonal are standard deviations of residuals of regressions of the forecast of the variable on dummy variables for each *Monetary Policy Report*, in percentage points. Off-diagonal entries are correlations between residuals.

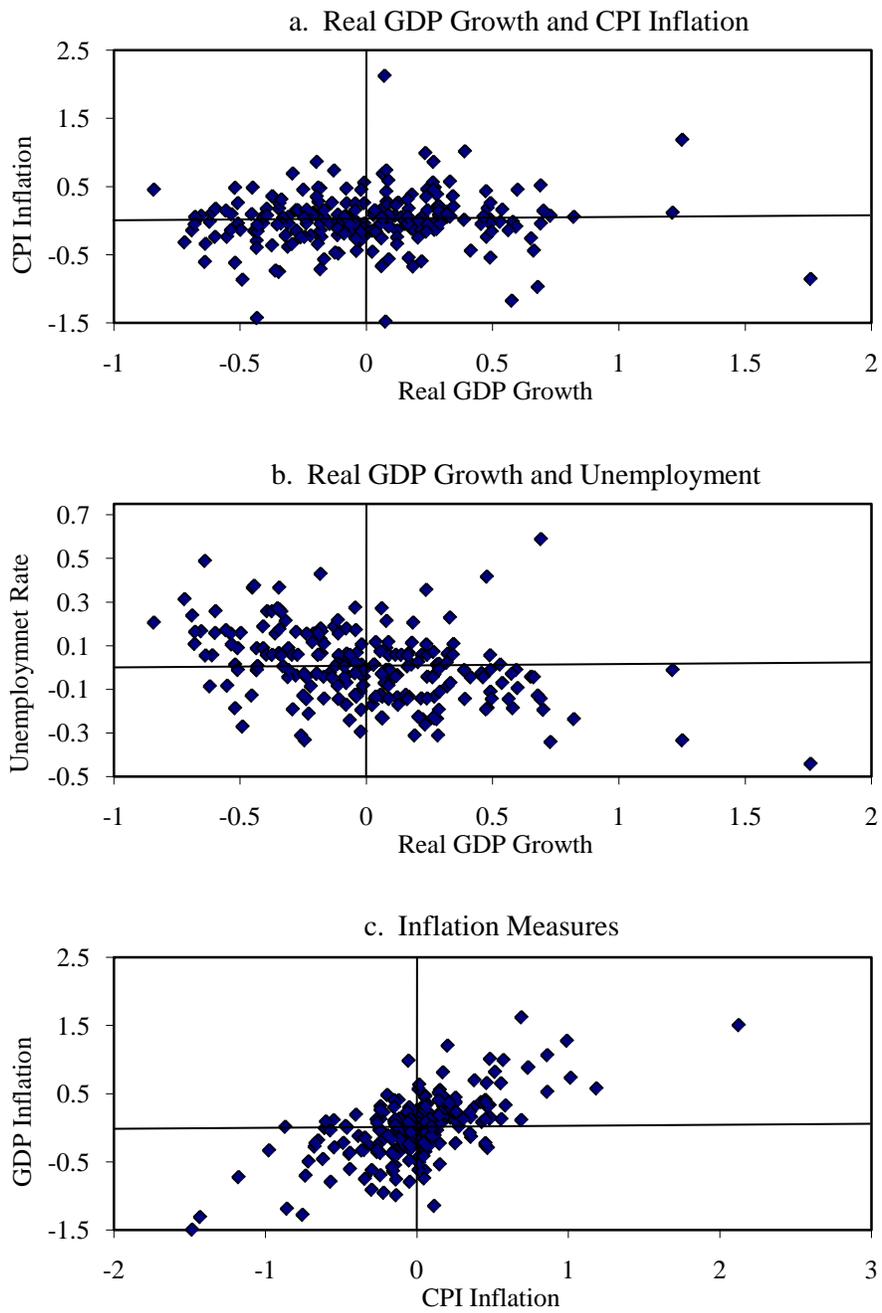


FIG. 1. Cross-Sectional Relationships between Forecasts of Different Variables.

## NOTES

<sup>1</sup> Technically, at any time the FOMC consists only of the members of the Board of Governors and the presidents of five of the twelve regional Federal Reserve Banks. For simplicity, however, in this paper “members” is used as shorthand for the governors and all the regional bank presidents.

<sup>2</sup> If the Federal Reserve released these data, it would be likely to identify any uncertainties and imperfections in them. If not, researchers could perform the task, noting cases where it was unclear whether the forecasts were the members’ initial or final forecasts and where summary statistics computed from the forecasts that were released differed from those in the *Monetary Policy Reports*.

<sup>3</sup> The fact that the chair did not participate in the forecasting process in the period covered by the forecasts that have been released reflected a decision by the chair in that period, Alan Greenspan, and not a general Federal Reserve policy (Alan Greenspan, personal communication, February 19, 2010). Thus materials for the earlier period might include forecasts made by the previous Federal Reserve chair, Paul Volcker.