How Useful are Estimated DSGE Model Forecasts for Central Bankers?*

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Abstract

DSGE models are a prominent tool for forecasting at central banks and the competitive forecasting performance of these models relative to alternatives–including official forecasts–has been documented. When evaluating DSGE models on an absolute basis, however, we find that the benchmark estimated medium scale DSGE model forecasts inflation and GDP growth poorly, although statistical and judgmental forecasts forecast as poorly. Our finding is the DSGE model analogue of the literature documenting the recent poor performance of macroeconomic forecasts relative to simple naive forecasts since the onset of the Great Moderation. In the 1997-2006 period, in particular, inflation has been unforecastable by any method but this is in line with the standard New Keynesian model prediction that inflation will not be systematically varying when monetary policy responds to expected inflation aggressively. While its lack of forecasting power is not evidence against the DSGE model, the fact that its forecast errors are comparable to those of the Greenbook is not evidence for the model's success either.

1   Introduction

Dynamic stochastic general equilibrium models were descriptive tools at their inception. They were useful because they allowed economists to think about business cycles and carry out hypothetical policy experiments in Lucas critique proof frameworks. In their early form, however, they were viewed as too minimalistic and too lacking in their connection to the data to be considered as appropriate for use in practical policy analysis.

Smets and Wouters (2003, 2007), however, changed this perception. In particular, their demonstration of the possibility of estimating much larger and richly-specified DSGE models as well as their finding of good forecast performance of their DSGE model (as measured by root mean squared errors, RMSEs) relative to competing VAR and Bayesian VAR models has led DSGE models to be taken more seriously by central bankers around the world. Indeed, estimated DSGE models are now quite prominent tools for macroeconomic analysis at many policy institutions with forecasting being one of the key areas where these models are used, albeit not necessarily as the principal forecasting framework.

Reflecting this use of DSGE models, several central-bank modeling teams have in recent research evaluated the relative forecasting performance of their institutions' DSGE models. Notably, however, in addition to considering their DSGE models' forecasts relative to time series models (as Smets and Wouters did), these papers also consider official central bank forecasts. For the U.S., Edge, Kiley, and Laforte (2010) compare the Federal Reserve Board's DSGE model's forecasts to alternatives such as those generated by time series models as well as official Greenbook forecasts and find that the DSGE model forecasts are competitive with, and indeed often better than, others.[1] For the U.S. this is

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[1] Other examples with similar findings include, Adolfson et al. (2007) for the Riksbank's DSGE model and Lees et al. for the RBNZ's DSGE model (2007). In addition, Adolfson et al. (2006) and Christoffel (2010) examine out-of-sample forecast performance for DSGE models of the euro area although the focus of these models is much more on technical aspects

an especially notable finding given that previous analyses have documented the high-quality of the Federal Reserve's Greenbook forecasts (Romer and Romer, 2000, Sims, 2002).

We began writing this paper with the aim of establishing the marginal contributions of statistical, judgmental and DSGE model forecasts to efficient forecasts of key macroeconomic variables, such as GDP growth and inflation. How much importance should central bankers attribute to model forecasts on top of judgmental or statistical forecasts? We first evaluated the forecasting performance of the Smets-Wouters (2007) model–a popular benchmark–for U.S. GDP growth, inflation and interest rates, and compared these forecasts to those to those of a Bayesian VAR and the FRB staff's Greenbook forecasts. Importantly, to ensure that the same information is used to generate our DSGE model and BVAR model forecasts as was used to formulate the Greenbook forecasts we use real time data and re-estimate the model at each Greenbook forecast date.

In line with the results in the DSGE model forecasting literature, we find that the root mean squared error of the DSGE model is similar to, and often better than, the BVAR and Greenbook forecasts. Our surprising finding was that unlike what one would expect when told that the model forecast is better than that of the Greenbook, the DSGE model does a very poor job of forecasting fluctuations. The Greenbook and statistical forecasts are similarly not capturing much of the realized changes in GDP growth and inflation in our sample, 1997 to 2005. There is a moderate amount of nowcasting ability and then almost nothing beginning with one quarter ahead forecasts. Thus, the forecast comparison is not one of one good forecast relative to another; all three methods have very low forecasting power and combining them does not lead to much improvement.

This finding reflects the changed nature of macroeconomic fluctuations in the Great Moderation period. As, among others, Stock and Watson (2007) force-

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of model evaluation.

2

fully noted, inflation is characterized with a process dominated by its temporary component in the recent period, contrasted with the dominance of the permanent component in the earlier sample. Tulip (2009) makes a similar point for GDP. Atkeson and Ohanian (2001) note that the New Keynesian Phillips curve does not fare well in forecasting inflation in the recent sample. Data availability prevents us from answering the question of whether the forecasting ability of estimated DSGE models has worsened with the Great Moderation but we do address the question of whether these models' forecasting performance are in an absolute sense ultimately poor and find that they are.

We argue that this is a positive finding. As we discuss in more detail below, the DSGE model itself implies that under a strong monetary policy rule there should not be much forecastability. Thus, one implication of this paper is that forecasting ability is not always a good metric to evaluate models.

The remainder of the paper is organized as follows. Section two describes the different forecasting methods that we will consider in this paper, including those generated by the Smets and Wouters (2003) DSGE model, the Bayesian VAR model, the Greenbook, and the Blue Chip, which is an additional forecast that we consider due to the fact there is a five-year delay in the public release of Greenbook forecasts and we want to consider the most recent recession. Section three then describes the data that we use, which as noted is real-time to ensure that the same information is used to generate our DSGE model and BVAR model forecasts as was used to formulate the Greenbook and Blue Chip forecasts. Section four describes and presents the results for our forecast comparison exercises while section five discusses them. Section six considers robustness analysis and extensions. In particular we show in this section that judgmental forecasts have adjusted faster to business cycle turning points in the past two recessions. Section seven concludes.

2 Forecast Methods

In this section we briefly review the four different forecasts that we will later consider the performance of. These forecasts are the Federal Reserve Board's Greenbook forecast, the Blue Chip Consensus forecasts, a DSGE model forecast, and a Bayesian VAR model.

2.1 Greenbook

The Greenbook forecast is a detailed judgmental forecast that until March 2010 (after which it became known as the Tealbook) was produced eight times a year by staff at the Board of Governors.[2] The specific dates of when each Greenbook forecast is produced – and hence the data availability of each round – is somewhat irregular since the Greenbook is made specifically for each Federal Open Market Committee (FOMC) and the timings of each FOMC meeting are themselves irregular. Broadly speaking FOMC meetings take place at an approximate six-week interval (although for some reason they tend to be further apart at the beginning of the year and closer together at the end of the year). The Greenbook is generally closed about one week before the FOMC meeting takes place so as to allow enough time for economists at the Reserve Banks to analyze and critique the document and brief their Bank Presidents. Importantly – and unlike several other central banks – the Greenbook forecast reflects the view of the staff and not the members of the FOMC.

Greenbook forecasts are formulated subject to a set of assumed paths for financial variables, such as the policy rate, key interest rates, and stock market wealth. Over time there has been some variation in the way these assumptions have been set. For example, as can be seen from the Greenbook federal funds

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[2] The renaming of the Federal Reserve Board's main forecasting document reflected a re-organization and combination and the original Greenbook and Bluebook. Throughout this paper we will continue to refer to the FRB's main forecasting document as the Greenbook.

rate assumptions reported in the Philadelphia Fed's Real-Time Data Set for Macroeconomists, it is apparent that from about the middle of 1990 to the middle of 1992 an essentially constant path of the federal funds rate was assumed in making the forecast.[3] In other periods, however, the path of the federal funds rate does vary, reflecting a helpful conditioning assumption about the path of monetary policy consistent with the forecast.

As is the case for most judgmental forecasts, the maximum projection horizon for the Greenbook forecast vintages is not constant and varies from ten to six quarters during the course of a year. In September of each year, the staff extend the forecast to include the year following the next in the projection period. Since the third quarter is not yet finished at the time of the September forecast, that quarter is included in the Greenbook projection horizon, generating a maximum horizon of ten quarters. The end-point of the projection horizon remains fixed for subsequent forecasts as the starting point moves forward. As a result, by the July/August forecast round of the following year the projection period extends out only six quarters. In our analysis, we consider a maximum forecast horizon of eight quarters because the number of observations for nine and ten quarters is very small. Note also that the nature of the Greenbook forecast horizon implies that the number of observations for a forecast horizon of eight quarters will be smaller than the number of observations for horizons of six quarters and less. Specifically, of the eight Greenbook projections prepared each year, only five - that is, those prepared for the September, November, December, January, and March FOMC meeting – include forecasts that extend for eight quarters. In contrast, all eight projections prepared each year include forecasts that extend six quarters or less.

We use the forecasts produced for the FOMC meetings starting in January

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[3]See   http://www.philadelphiafed.org/research-and-data/real-time-center/greenbook-data/.

1992 and ending in December 2004. Our forecast-vintage start date represents when the GDP – rather than GNP – became the key indicator of economic activity. This is not a critical limitation since GNP forecasts can clearly be used for earlier vintages. The end date was chosen by necessity: Greenbook forecasts are made public only with a 5-year lag. The first two columns of the appendix tables provide detailed information on the dates of Greenbook forecasts we use and the horizons covered in each forecast. Note that the first four Greenbook forecasts that we consider fall in the episode of when the policy rate was assumed to remain flat throughout the projection period.

2.2 Blue Chip

The Blue Chip Economic Indicators are a poll of the forecasts for U.S. economic growth, inflation, interest rates, and range of other key variables of approximately 50 banks, corporations, and consulting firms. The Blue Chip is published on the 10th day of each month although the poll is taken on about the 4th or 5th of the month. A consensus forecast – which is equal to the median of the individual reported forecasts – is then reported along with the average of the top 10 and bottom 10 forecasts for each variable. In our analysis we use only the consensus forecast.

2.3 DSGE Model

The DSGE model that we use in this paper is exactly that of Smets and Wouters (2007). The description of the model given here follows somewhat closely the description presented in section one of Smets and Wouters (2007) and section two of Smets and Wouters (2003).

The Smets and Wouters model is an application of a real business cycle model (in the spirit of King, Plosser, and Rebelo, 1988) to an economy with

sticky prices and sticky wages. In addition to nominal rigidities, the model also contains a large number of real rigidities – specifically habit formation in consumption, costs of adjustment in capital accumulation, and variable capacity utilization – that ultimately appear to be necessary to capture the empirical persistence of U.S. macroeconomic data.

The model consists of households, firms, and a monetary authority. Households maximize a non-separable utility function defined over two arguments (goods and labor effort) over an infinite life horizon. Consumption appears in the utility function relative to a time-varying external habit variable and labor is differentiated by a union. This assumed structure of the labor market enables the household sector to have some monopoly power over wages, which implies a specific wage-setting equation that in turn allows for the introduction of sticky nominal wages, which in this case follow Calvo (1983).[4] Capital accumulation is undertaken by households, who then rent capital to economy's firms. In accumulating capital households face adjustment costs. As the rental price of capital changes, the utilization of capital can be adjusted, albeit at an increasing cost.

The firms in the model rent labor and capital from households (in the former case via a union) to produce differentiated goods for which they set prices, again according to the Calvo model. These differentiated goods are aggregated into a final good by different (perfectly competitive) firms in the model and it is this good that is used for consumption and accumulating capital.

The Calvo model in both wage and price setting is augmented by the assumption that prices that are not reoptimized are partially indexed to past inflation rates. Prices are therefore set as a function of current and expected marginal costs but are also determined by the past inflation rate. Marginal costs depend on the wage and the rental rate of capital. Wages are set analogously

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[4] Gali, Smets and Wouters (2010) present an estimated DSGE model explicitly incorporating unemployment.

as a function of current and expected marginal rates of substitution between leisure and consumption and are also determined by the past wage inflation rate. The model assumes a variant of Dixit-Stiglitz aggregation in the goods and labor markets following Kimball (1995). This aggregation allows for time-varying demand elasticities, which allows more realistic estimates of price and wage stickiness.

Finally, the model contains seven structural shocks, which is equal to the number of observables used in estimation. The model's observable variables are the log difference of real GDP, real consumption, real investment, and the real wage, log hours worked, the log difference of the GDP deflator, and the federal funds rate. These series – and in particular their real time sources – are discussed in detail below.

In estimation, the seven observed variables are mapped into 40 model variables by the Kalman filter. Then 36 parameters (17 of which belong to the seven ARMA shock processes in the model) are estimated via Bayesian methods and 5 parameters are calibrated. It is the combination of the Kalman filter and Bayesian estimation which allows this large (although technically called a medium scale) model to be estimated rather than calibrated. In estimation we used the same priors as Smets and Wouters (2007) as well as using the same data series. Once the model is estimated for a given data vintage, forecasting is done by employing the posterior modes for each parameter. The model can produce forecasts for all model variables but we only use the GDP growth, inflation and interest rate forecasts.

2.4   Bayesian VAR

The Bayesian VAR is, in its essence, a simple forecasting VAR(4). The same seven observable series that are used in the DSGE model estimation are used in

8

the VAR. Having seven variables in a four lag VAR leads to a large number of parameters to be estimated–the same problem that arises in the DSGE model estimation. The solution is also the same. Priors are assigned to each parameter (and the priors we use are again those of Smets and Wouters, 2007) and the data are used to update these in the VAR framework. Similar to the DSGE model, the BVAR is estimated at every forecast date using real time data and forecasts are obtained by utilizing the modes of the posterior densities for each parameter.

Both the judgmental forecast and the DSGE model have an advantage over the purely statistical model, the BVAR, in that the people who produce the Greenbook and Blue Chip forecasts obviously know a lot more than seven time series and the DSGE model was built to match the data that is being forecast. That is, judgment also enters the DSGE model in the form of modeling choices. To help the BVAR overcome this handicap it is customary to have a training sample–to estimate the model with some data and use the posteriors as priors in the actual estimation. Following Smets and Wouters (2007) we also "trained" the BVAR with data from 1955-1965 but, in an a sign of how different the early and the late parts of the sample are, found that the trained and untrained BVAR forecast performance is comparable and that the untrained BVAR usually performs better. We therefore report results from an untrained BVAR.

3   Data and Sample

In this section we provide a brief overview of the data involved in the forecasting process and our sample period. A detailed appendix presents sources, mnemonics and information on how the raw data is converted to the form used in estimation.

The data we use for the estimation of the Smets-Wouters DSGE model and

the BVAR are the real time versions of the Smets-Wouters (2007) data. We use the same seven series but pull real time vintages of each series at each forecast date. Our forecast dates coincide with either the dates of Greenbook forecasts or those of the Blue Chip forecasts. That is, at each Greenbook or Blue Chip forecast date, we use the data that was available on that date to estimate the DSGE model and the BVAR.[5] We then generate forecasts out to eight quarters. From the data perspective, the last known quarter is the previous one, therefore the one quarter ahead forecast is the nowcast (and the n quarter ahead forecast corresponds to $n-1$ quarters ahead counting from the forecast date.). This convention is also the case for Greenbook and Blue Chip forecasts.

We will evaluate the forecasts for real per capita GDP growth, GDP deflator inflation and the short rate. GDP growth and inflation are in terms of non-annualized quarter over quarter rates, interest rates are in levels. Our main focus will be on inflation forecasts because this is the forecast that is the most comparable across the different forecasting methods. The DSGE model and the BVAR produce continuous (and in very recent periods negative) interest rate forecasts while judgmental forecasts obviously factor in the discrete nature of the interest rate setting and the zero nominal bound. Furthermore, the Blue Chip forecasts do not contain forecasts of the federal funds rate and hence we cannot do robustness checks for the interest rates or use the longer sample for this variable.

The issue about GDP growth is more subtle. The DSGE model is based on per capita values and produces a per capita GDP growth forecast. The BVAR similarly uses and produces per capita values. On the other hand, GDP growth itself is announced in aggregate terms and Greenbook and Blue Chip forecasts

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[5] See the appendix for exceptions to this. There are a few instances where one of the variables from the last quarter is not released yet on a Greenbook forecast date. In these instances we help the DGSE amd BVAR forecasts by appending the FRB staff backcast of that data point to the time series.

are in terms of aggregate growth. We use the Fed staff's internal population growth forecasts to adjust the Greenbook GDP growth forecasts so as to bring them onto comparable terms with the DSGE and BVAR forecasts. For the Blue Chip forecasts we use *actual* – first final – population growth data to GDP convert growth forecasts to a per capita basis. The population series used in the Smets-Wouters model has a number of extremely sharp spikes caused by census picking up previously uncaptured population levels as well as CPS rebasings. The Greenbook, on the other hand, produces a smoothed population forecast. Thus, the data construction hurts the Greenbook forecast and helps the Blue Chip forecasts (as both the Blue Chip and the realized variable are transformed using the actual population growth numbers) for per capita GDP growth.

We estimate the models (DSGE and BVAR) with data going back to 1965 and do the first forecast on January 1997.[6] The Greenbook forecasts are embargoed for five years, therefore our last forecast is in 2004Q4, forecasting the period out to 2006:Q3. There are two scheduled FOMC meetings per quarter and thus all of our forecasts are made twice a quarter. This has consequences for correlated forecast errors, as explained in the next section. For Blue Chip forecasts, the sample ends in 2010Q1. Blue Chip forecasts are published monthly with horizons one to five quarters covered every month and long horizons covered less often.

We should note that, while not identical, our sample is close to the ones used in previous studies of forecast ability of DSGE models, such as Smets-Wouters (2007) and Edge et al. (2010). It is also important to note that the sample is in the great moderation period, after the long disinflation was complete, and that the period corresponds to a particularly transparent monetary policy making episode, with the FOMC signalling likely policy actions in the near future with

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[6] We have produced the vintage data sets going back to 1992 and are currently estimating the model for the 1992-1996 period.

statements accompanying releases of interest rate decisions.

4   Forecast Comparison

We distinguish between two types of forecast evaluations. Given a variable to be forecasted, x, and its h-period ahead forecast (made h-periods in the past) by method y, $\widehat{x}_y^h$ one can compute the root mean square error of the real time forecasts

$$RMSEx_y^h = \sqrt{\frac{1}{T}\sum_{t=1}^{T}\left(x_t - \widehat{x}_{y,t}^h\right)^2}. \tag{1}$$

Comparing the root mean square errors across different forecast methods, a policy maker can then choose the method with the smallest RMSE to use. The RMSE comparison therefore answers the decision theory question: Which forecast is the best and be used? To our knowledge, all of the forecast evaluations of DSGE models so far (Smets and Wouters 2007, Edge et al. 2010, Christoffel et al. 2010, Wieland and Wolters 2010) have used this metric–and concluded that the model forecasts do well.

In Figure 1 we carry out this exercise with real time data and show the RMSE of the DSGE model forecasts for inflation and GDP growth relative to those of the Greenbook and BVAR forecasts at different horizons. This figure visually conveys a result that Smets and Wouters and Edge et al. have shown earlier: except for very short horizon inflation forecasts (where the Greenbook forecasts are much better) the DSGE model forecasts have the lowest RMSE for both inflation and growth. The literature has taken this finding as both a vindication of the estimated medium scale DSGE model, and as a sign that these models can be used for forecasting as well as for positive analysis of counterfactuals and for optimal policy questions.

While Figure 1 indeed shows that the DSGE model has the best forecasting

12

record among the three forecasting methods we consider, it does not offer any clues about how good the "best" is. To further evaluate the forecasts, we first look at the scatter plots of the four quarter ahead forecasts (a horizon that the DSGE model outperforms the Greenbook and BVAR) of inflation an growth from the DSGE model and the realized values of these variables. With a good forecast performance, the observations should lie on the 45-degree line

The scatter plots shown in Figure 2 are surprising. For both variables, the points form clouds rather than 45-degree lines, suggesting that the four quarter ahead forecast of the DSGE model is quite unrelated to the realized value. To get the full picture, we run a standard forecast efficiency test and estimate

$$x_t = \alpha_y^h + \beta_y^h \widehat{x}_{y,t}^h + \varepsilon_{y,t}^h. \tag{2}$$

A "good" forecast should have an intercept of zero, a slope coefficient of one, and a high R^2. If the intercept is different from zero the forecast has on average been biased, if the slope is different from one, the forecast has consistently under or over predicted deviations from the mean, and if the R^2 is low then little of the variation of the variable to be forecasted is captured by the forecast. Note that especially when the point estimates of α_y^h and β_y^h are different from zero and one, respectively, the R^2 is a more charitable measure of the success of the forecast than the RMSE calculated in (1) as the errors in (2) are residuals obtained from the best fitting line. That is, a policy maker would make errors of size $\varepsilon_{y,t}^h$ only if she knew the values of α_y^h and β_y^h and adjusted $\widehat{x}_{y,t}^h$ with these.

Table 1 shows the estimation results of (2) for the DSGE model, BVAR and Greenbook forecasts of inflation, GDP growth and interest rates.[7] The table suggests that forecasts of inflation and GDP growth have been very poor by

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[7]The standard errors reported are Newey-West standard errors for $2 * h$ lags, given there are two forecasts made in each quarter. Explicitly taking the clustering into account made no perceptible difference. Neither did using only the first or second forecast in each quarter.

all methods, except for the Greenbook inflation nowcast. The DSGE model inflation forecasts have about zero R^2 and slope coefficients very far away from unity. GDP growth forecasts are likewise capturing only 15 percent of the actual variation in growth and point estimates of the slopes are often quite away from unity but null hypotheses of slopes equaling one cannot be rejected due to large standard errors. Except for the Greenbook nowcast, the results are very similar for the judgmental forecast and the BVAR forecasts.

All three forecast methods, however, do impressively in forecasting interest rates. This is surprising as short rates should be a function of inflation and GDP, and thus should not be any more forecastable than these two variables, except for the forecastability coming from interest rate smoothing by policy makers. The issue here is that the interest rate is highly serially correlated, which makes it easy to forecast. (Indeed, in our sample the level of the interest rate behaves like a unit root process as verified by an unreported ADF test.)[8] Thus, the bottom panels in Table 1 are likely showing long-run cointegrating relationships rather than short-run forecasting ability. We therefore follow Gürkaynak, Sack and Swanson (2005) in studying at the change in the interest rate rather than its level.

Table 2 shows the interest rate change forecast evaluations for the three methods. The forecast success is now more comparable to inflation and GDP growth forecasts, although in the short run there is more forecastability in interest rate changes due to smoothing. The very strong nowcasting ability of the Greenbook partly comes from the fact that while the Fed staff know interest rates changes in integer multiples of 25 basis points, while BVAR and the DSGE model produce continuous interest rate forecasts.

Figure 2, Table 1 and Table 2 collectively show that while the DSGE model

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[8] While nominal interest rates cannot theoretically be simple unit root processes due to the zero nominal bound, they can be statistically indistinguishable from unit root processes in small samples and pose their econometric difficulties.

forecasts are comparable and often better than Greenbook and BVAR forecasts, this is a comparison of very poor forecasts to each other. To provide a benchmark for forecast quality, we introduce a constant forecast. If a policy maker could have used one of these three forecasts over the 1997-2006 period or could have access to the actual mean of the series over the 1997-2005 period and used that as a forecast (and zero change as the interest rate forecast at all horizons) how would the root mean square errors compare?

We show the actual levels of the root mean square errors in Figure 3. The constant forecast does about as well as the other forecasts, suggesting that the DSGE model, BVAR and Greenbook forecasts are not accomplishing much. To understand the quantities involved, observe that the 4-quarter ahead inflation forecast RMSE of the DSGE model is 0.25 in quarterly terms. This would be one percent annualized and lead to a 95 percent confidence interval that is four percentage points wide. That is not very useful for policy making.

Table 3 statistically compares the mean squared error of the constant forecast to that of the DSGE forecast using the Diebold-Mariano-West test. The p-values for the null hypothesis that the MSEs are equal is rejected in only one case, and that is in favor of the constant forecast performing better. Thus, while the DSGE model forecast is as well a forecaster as the Greenbook, they are both as poor forecasters as a constant.[9]

5   Discussion

Our findings are surprising given the Romer and Romer (2000) finding that the Greenbook is an excellent forecaster of inflation at all horizons. Figure 4 shows the reason of the difference. The Romer and Romer sample covers a period

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[9] In an other sign that forecast performance differences across model and judgmental forecasts are not systematic, for inflation, averaging across forecasts for quarters 1 to 6, the DSGE forecast outperforms Greenbook about half of the time.

when inflation had a large swing. Our sample–and the sample used in other studies for DSGE model forecast evaluations–covers a period where inflation behaves more as $i.i.d.$ deviations around a constant level. That is, there is not much to be forecasted.

This is in line with the Stock and Watson (2007) argument that after the Great Moderation, the permanent (forecastable) component of inflation diminished and the bulk of the variance began to be caused by the transitory (unforecastable) component. It is therefore not surprising that no forecasting method does well. Trehan (2010) shows that a similar lack of forecast ability is also evident in the Survey of Professional Forecasters and the Michigan Survey. Atkeson and Ohanian (2001) document that over the period 1984 to 1999 a random-walk forecast of four-quarter ahead inflation outperforms the Greenbook forecast as well as Phillips curve models. Fuhrer et al.(2009) show that this is due to the parameter changes happening with the onset of the Great Moderation. D'Agostino and Giannone (2006) also consider a range of time series forecasting models – including univariate AR models, factor augmented AR models, and pooled bivariate forecasting models – as well as institutional forecasts – that is, the Greenbook forecast and the forecasts from the SPF – and document that while RMSEs for forecasts of real activity, inflation, and interest rates have dropped notably with the Great Moderation, time series and institutional forecasts have also largely lost their ability to improve on a random walk. Relatedly, Tulip (2009) documents a notably larger reduction in actual output-growth volatility following the Great Moderation relative to the reduction in Greenbook root-mean-squared forecast errors, thus indicating that much of the reduction in output-growth volatility has stemmed from the predictable component – that is, the part that can potentially be forecast.

That said, we would argue that DSGE models should not be judged solely

by their (lack of) absolute forecast abilities. Previous authors, such as, Edge et. al (2010), were conscious of the declining performance of Greenbook and other time series forecasts when they performed their comparison exercises but took as given the fact that staff at the Federal Reserve Board are required to produce forecasts of the macroeconomy eight times a year and simply asked whether from a DSGE model forecast should be introduced into the mix of inputs used to arrive at the final Greenbook forecast. In this case relative forecast performance is a relevant point of comparison. It is important to note that in central-bank forecasting it not only the values of the forecast variables that are important but also the "story" associated with the forecast – that is, the narrative explaining how present imbalances will be unwound as the macroeconomy moves toward the balanced growth path. A well thought-out and much-scrutinized story accompanies the Greenbook forecast but is not something present in reduced-form time series forecast. An internally consistent and coherent narrative is, however, implicit in a DSGE model forecast indicating that these models can also contribute along this important dimension of forecasting.

We reemphasize that our finding is actually a positive one. Inflation being unforecastable is a prediction of basic DSGE models when monetary policy responds aggressively to inflation. Goodfriend and King (2009) make this point explicitly using a tractable model. If inflation is forecasted to be high, policy makers increase interest rates and rein in inflation. Thus inflation is never predictably different from the (implicit) target and all of the variation comes from unforecastable shocks. In models that have the divine coincidence, output gap will have the same property. Thus, it is well possible that the model is "correct" and therefore cannot forecast cyclical fluctuations but the counterfactual scenarios produced by the model can still inform policy discussions.

6 Robustness and Extensions

To verify that our results are not specific to the relatively short sample we have used and to the Greenbook date vintages we employed, we repeated the exercise using Blue Chip forecasts as the judgmental forecast for the 1997-2010 period. Blue Chip forecasts are collected each month and released on the 10th of the month. We also estimated the DSGE model and the BVAR using data vintages of those dates and produced forecasts.

We do not display the analogues of Figures 1-3 and Tables 1-3 for brevity but note that the findings are very similar when Blue Chip forecasts replace Greenbook forecasts and the sample is extended to 2010, encompassing the financial crisis episode. (One difference is that the Blue Chip forecast has some nowcasting ability for GDP as well as inflation.) The DSGE model forecast is similar to and sometimes better than the judgmental forecast and is almost uniformly better than the BVAR in the RMSE sense, but all three forecasts are very poor forecasts. (This exercise omits the forecasts of interest rates as Blue Chip does not include forecasts of the overnight rate.) The longer sample allows us to answer some interesting questions and provide further robustness checks.

Although we use quarter over quarter changes and not annual growth rates for all of our variables, overlapping periods in long horizon forecasting is a potential issue. In Figure 5 we show the non-overlapping four quarter ahead absolute errors of DSGE model forecasts made in the January of each year for the first quarter of the subsequent year. Horizontal lines at -0.25 and 0.25 show forecast errors that would be one percentage point in annualized terms. Most errors are near or above (in absolute value) these bounds. It is clear that our statistical results are not driven by outliers (a fact also visible in Figure 1).

To provide a better understanding of the evolution of forecast errors over time Figure 6 shows three year rolling averages of root mean square errors for

four quarter ahead forecasts, using all 12 forecasts for each year. Not surprisingly, the forecast errors are considerably higher in the latter part of the sample, which includes the crisis episode. The DSGE model does worse than the Blue Chip forecast once the rolling windows includes 2008, for both inflation and the GDP growth forecasts.

Lastly, we look at the forecasting performance of alternative models during the recent crisis and the recession. Figure 7 (not included in this draft) shows the forecast errors beginning with 4 quarter ahead forecasts and ending with the nowcast for three quarters: 2007Q4, the first quarter of the recession according to the NBER dating, 2008Q3, when Lehman failed and per capita GDP growth turned negative, and 2009Q1, when the extent of the contraction became clear. While all forecasts clearly first miss the recession, then its severity, the Blue Chip forecasts in general fare better. An interesting point is the within quarter improvement in the judgmental forecast, especially for the nowcast quarter. The DSGE and statistical models have access to mostly revised versions of data belonging to the previous quarter and before. On the other hand, forecasters surveyed by the Blue Chip survey observe within quarter developments and learn of industrial production, retail sales, etc. as well as receiving updates about policy responses, which were not following previous prescriptions that are in the estimated parameters. For example, the Blue Chip forecasters surely knew of the zero nominal bound, whereas both estimated models (DSGE and statistical) imply deeply negative nominal rate forecasts during the crisis.

It is not very surprising that judgmental forecasts fare better in capturing such regime switches. The DSGE mode, lacking a financial sector and a zero nominal bound, should naturally do somewhat better in the pre-crisis period. In fact, that is the period this model was built to explain. But this also cautions us that out-of-sample tests for DSGE models are not truly out of sample as long as

19

the sample is in the period the model was built to explain. The next generation of DSGE models will likely have the zero nominal bound as a standard feature and will do better when explaining the great recession. Their real test will be to explain–but not necessarily to forecast–the first business cycle that follows the models' creation.

7   Conclusion

DSGE models are very poor in forecasting, but so are everything else. Forecasting ability is a nonissue in DSGE model evaluation because in recent samples (over which these models can be evaluated using real time data) there isn't much to be forecasted. This is consistent with the literature on the Great Moderation, which emphasizes that not only the standard deviation of macroeconomic fluctuations, but also their nature has changed. In particular, cycles are driven more by temporary, i.e. unforecastable, shocks.

The lack of forecastability is not evidence against the DSGE model and indeed can be evidence in favor of it. Monetary policy was characterized with a strongly stabilizing rule in this period and the model implies that such policy will undo predictable fluctuations, especially in inflation. Thus, the model itself implies that fluctuations should not be forecastable. We leave scrutinizing this point and studying the forecasting ability of the model in pre- and post-Great Moderation periods in more detail to future work.

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Table 1a. Inflation Forecasts
DSGE Model Forecast Accuracy

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	0.354**	0.048	-0.014	0.074	0.088	0.128
	(0.120)	(0.181)	(0.358)	(0.376)	(0.392)	(0.305)
Intercept	0.275**	0.408**	0.441**	0.414*	0.421*	0.414**
	(0.052)	(0.094)	(0.160)	(0.168)	(0.172)	(0.137)
R2	0.09	0.00	0.00	0.00	0.00	0.00
Obs	64	64	64	64	64	64

BVAR Forecast Accuracy

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	0.429**	0.227	0.207	0.045	-0.075	-0.116
	(0.109)	(0.154)	(0.166)	(0.195)	(0.230)	(0.320)
Intercept	0.218**	0.311**	0.317**	0.422**	0.513**	0.559**
	(0.053)	(0.097)	(0.078)	(0.101)	(0.115)	(0.188)
R2	0.15	0.04	0.03	0.00	0.00	0.01
Obs	64	64	64	64	64	64

Greenbook Forecast Accuracy

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	0.704**	0.191	0.154	-0.275	-0.606	-0.640*
	(0.095)	(0.273)	(0.336)	(0.353)	(0.336)	(0.318)
Intercept	0.117*	0.355**	0.374**	0.560**	0.716**	0.749**
	(0.052)	(0.117)	(0.135)	(0.135)	(0.149)	(0.144)
R2	0.50	0.02	0.01	0.01	0.07	0.08
Obs	64	64	64	64	64	64

Standard errors in parentheses
* significant at 5%; ** significant at 1%

Table 1b. GDP Growth Forecasts
DSGE Model Forecast Accuracy

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	0.799**	0.966*	1.320**	0.877	1.321*	1.563**
	(0.277)	(0.403)	(0.392)	(0.584)	(0.523)	(0.570)
Intercept	0.107	0.009	-0.196	0.078	-0.182	-0.298
	(0.220)	(0.310)	(0.263)	(0.399)	(0.325)	(0.347)
R2	0.16	0.15	0.20	0.07	0.15	0.14
Obs	64	64	64	64	64	64

BVAR Forecast Accuracy

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	0.157	-0.033	0.075	0.046	0.119	0.066
	(0.234)	(0.258)	(0.240)	(0.260)	(0.288)	(0.410)
Intercept	0.527**	0.639*	0.566*	0.592*	0.530	0.567
	(0.197)	(0.246)	(0.230)	(0.235)	(0.269)	(0.330)
R2	0.01	0.00	0.00	0.00	0.01	0.00
Obs	64	64	64	64	64	64

Greenbook Forecast Accuracy

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	0.548**	0.248	-0.043	-0.199	-0.402	-0.254
	(0.152)	(0.234)	(0.170)	(0.189)	(0.400)	(0.313)
Intercept	0.401**	0.504**	0.638**	0.732**	0.824**	0.749**
	(0.097)	(0.140)	(0.114)	(0.135)	(0.198)	(0.198)
R2	0.18	0.02	0.00	0.01	0.04	0.02
Obs	64	64	64	64	64	64

Standard errors in parentheses
* significant at 5%; ** significant at 1%

Table 1c. Interest Rate Forecasts
DSGE Model Forecast Accuracy

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	0.704**	0.191	0.154	-0.275	-0.606	-0.640*
	(0.095)	(0.273)	(0.336)	(0.353)	(0.336)	(0.318)
Intercept	0.117*	0.355**	0.374**	0.560**	0.716**	0.749**
	(0.052)	(0.117)	(0.135)	(0.135)	(0.149)	(0.144)
R2	0.50	0.02	0.01	0.01	0.07	0.08
Obs	64	64	64	64	64	64

BVAR Forecast Accuracy

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	0.919**	0.874**	0.838**	0.799**	0.743**	0.670*
	(0.022)	(0.046)	(0.085)	(0.140)	(0.208)	(0.288)
Intercept	0.048*	0.050	0.041	0.039	0.060	0.109
	(0.021)	(0.036)	(0.058)	(0.111)	(0.193)	(0.293)
R2	0.97	0.90	0.77	0.62	0.46	0.30
Obs	64	64	64	64	64	64

Greenbook Forecast Accuracy

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	1.003**	0.970**	0.898**	0.797**	0.675**	0.525*
	(0.004)	(0.031)	(0.074)	(0.123)	(0.172)	(0.207)
Intercept	-0.006	0.000	0.034	0.102	0.197	0.325
	(0.005)	(0.026)	(0.061)	(0.107)	(0.159)	(0.210)
R2	1.00	0.96	0.87	0.71	0.51	0.31
Obs	64	64	64	64	64	64

Standard errors in parentheses
* significant at 5%; ** significant at 1%

Table 2. Forecasts of Changes in Interest Rate

DSGE Model Forecast

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	0.482**	0.511*	0.715*	1.212*	1.477*	1.329
	(0.163)	(0.250)	(0.352)	(0.545)	(0.585)	(0.668)
Intercept	-0.026	-0.029	-0.042	-0.061	-0.070	-0.056
	(0.022)	(0.029)	(0.036)	(0.043)	(0.043)	(0.044)
R2	0.13	0.13	0.17	0.29	0.31	0.20
Obs	64	64	64	64	64	64

BVAR Forecast

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	0.794**	1.175**	1.243*	1.230*	1.206	1.309*
	(0.176)	(0.331)	(0.569)	(0.601)	(0.612)	(0.627)
Intercept	-0.030	-0.047	-0.056	-0.058	-0.054	-0.052
	(0.018)	(0.028)	(0.040)	(0.046)	(0.047)	(0.047)
R2	0.36	0.21	0.16	0.19	0.20	0.24
Obs	64	64	64	64	64	64

Greenbook Forecast

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead
Slope	1.069**	1.408**	1.071**	0.537	0.794	-0.121
	(0.029)	(0.182)	(0.378)	(0.420)	(0.502)	(0.548)
Intercept	-0.002	-0.026	-0.037	-0.025	-0.027	-0.003
	(0.002)	(0.017)	(0.033)	(0.037)	(0.039)	(0.039)
R2	0.98	0.50	0.10	0.02	0.05	0.00
Obs	64	64	64	64	64	64

Standard errors statistics in parentheses
* significant at 5%; ** significant at 1%

Table 3. MSE Comparison of DSGE Model and Constant Forecasts

	1Q Ahead	2Q Ahead	3Q Ahead	4Q Ahead	5Q Ahead	6Q Ahead	7Q Ahead	8Q Ahead
Inflation	0.36	0.02	0.21	0.36	0.47	0.56	0.31	0.36
GDP Growth	0.49	0.31	0.16	0.54	0.17	0.11	0.20	0.37
Int. Rate Change	0.92	0.84	0.95	0.63	0.53	0.67	0.56	0.71

P-value of the null hypothesis that MSEs are equal.

Figure 1. Relative Forecast RMSEs

28
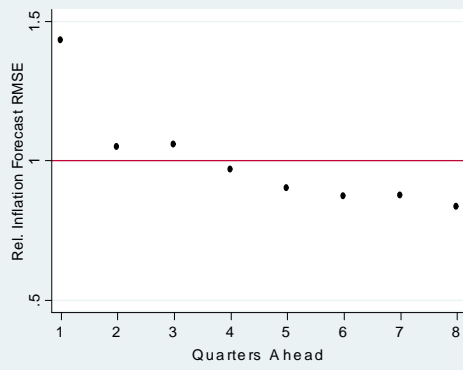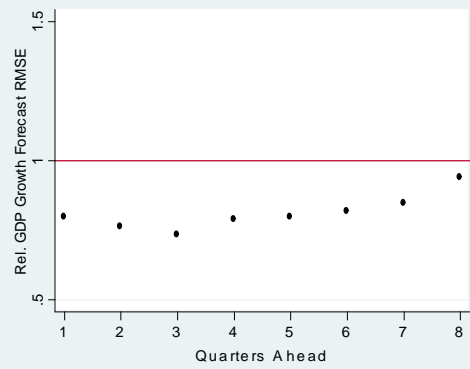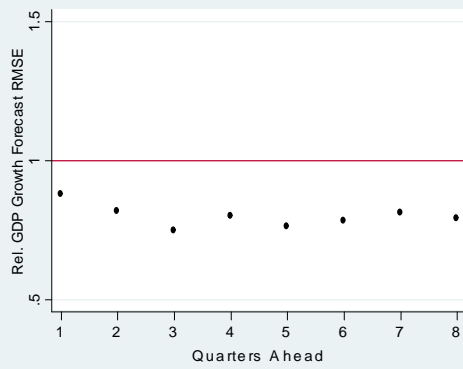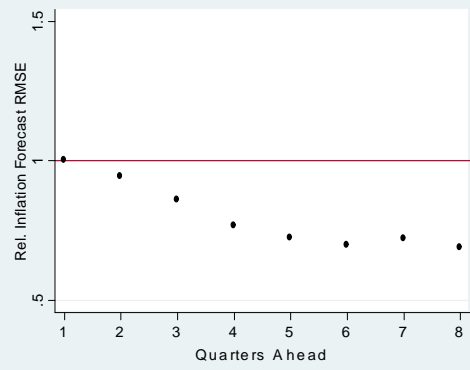
Figure 2. Realized and 4Q Ahead DSGE Model Forecasts

Figure 3. RMSEs of Alternative Forecasts

Figure 4. A Short History of Inflation
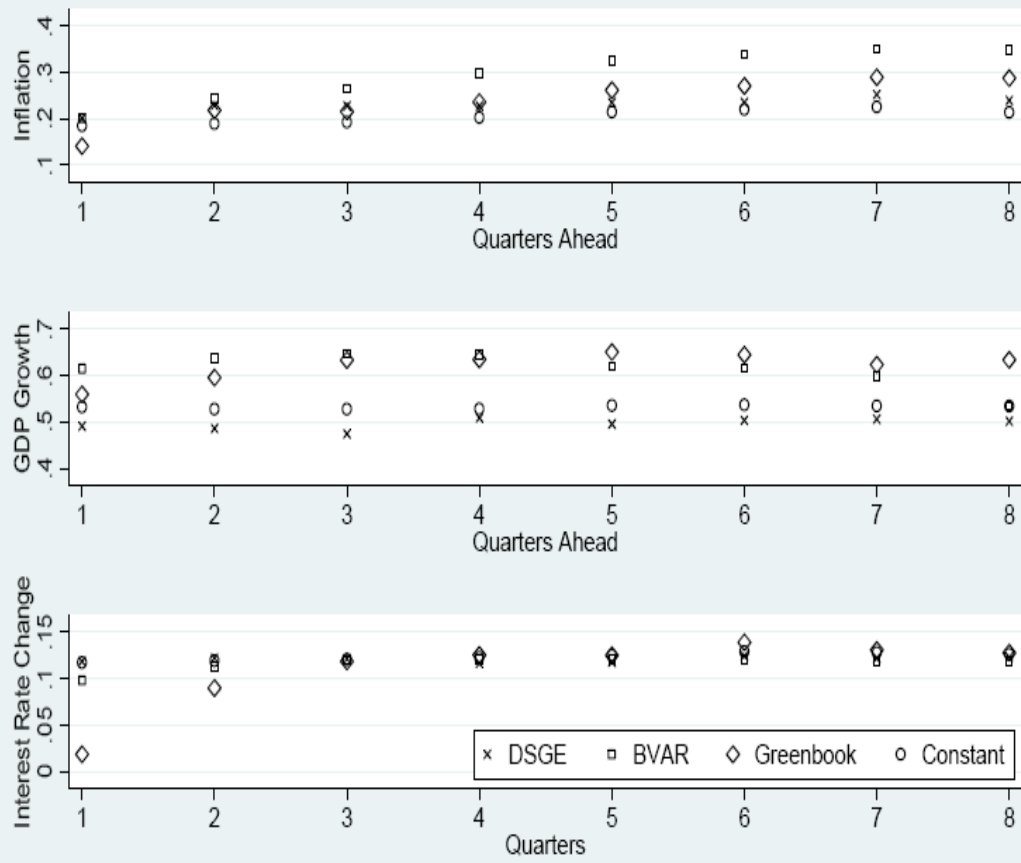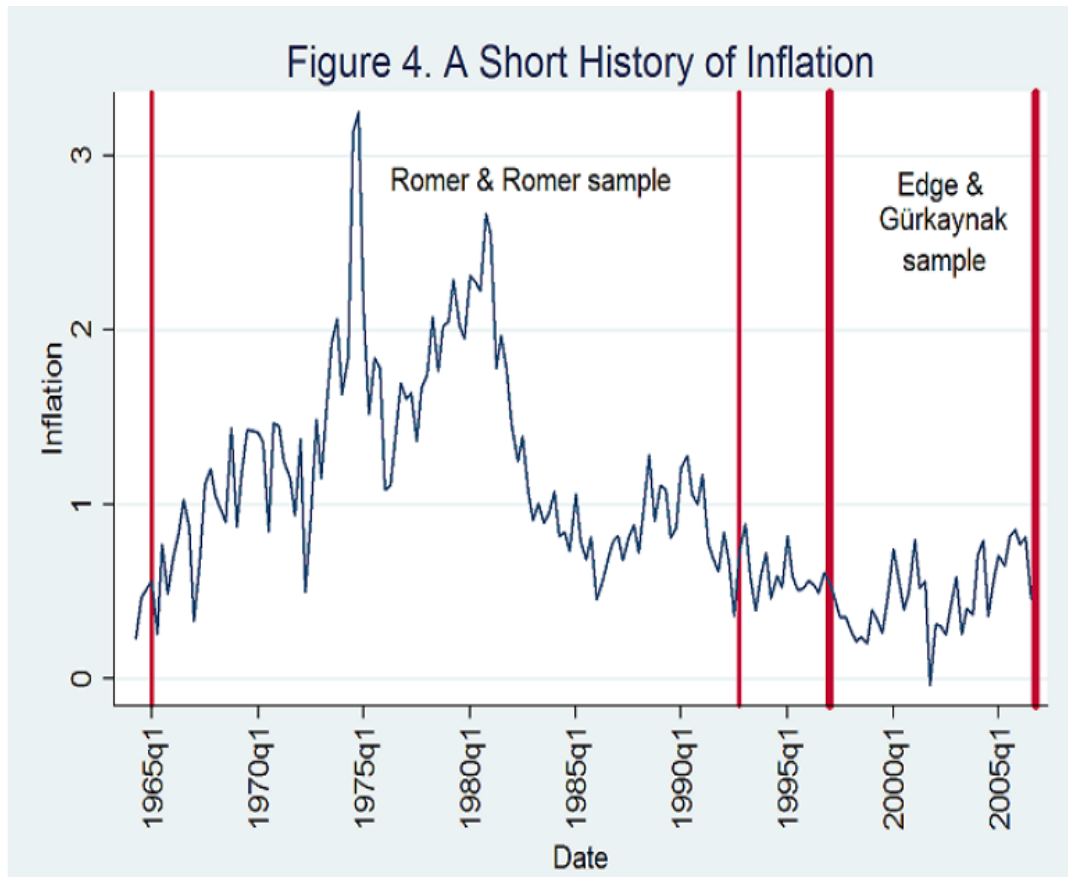
Figure 5. Non-Overlapping 4Q Ahead Forecast Errors
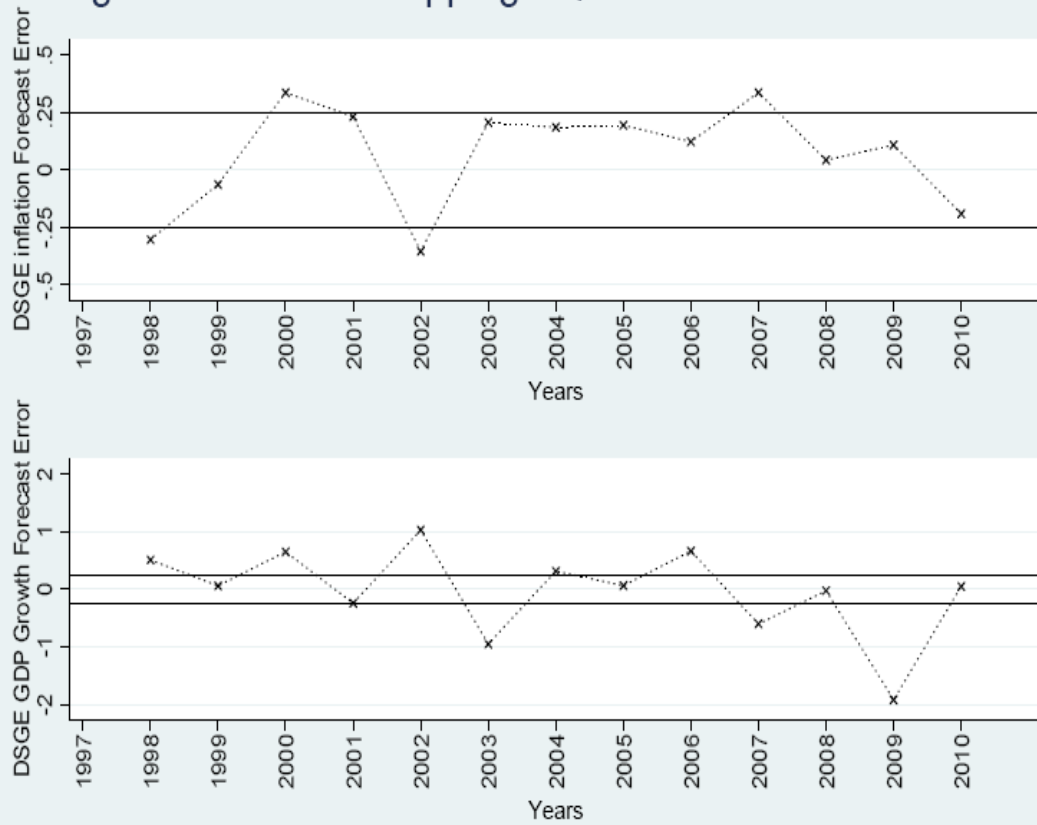
Figure 6. Three Year Rolling Average of 4Q Ahead RMSEs

33
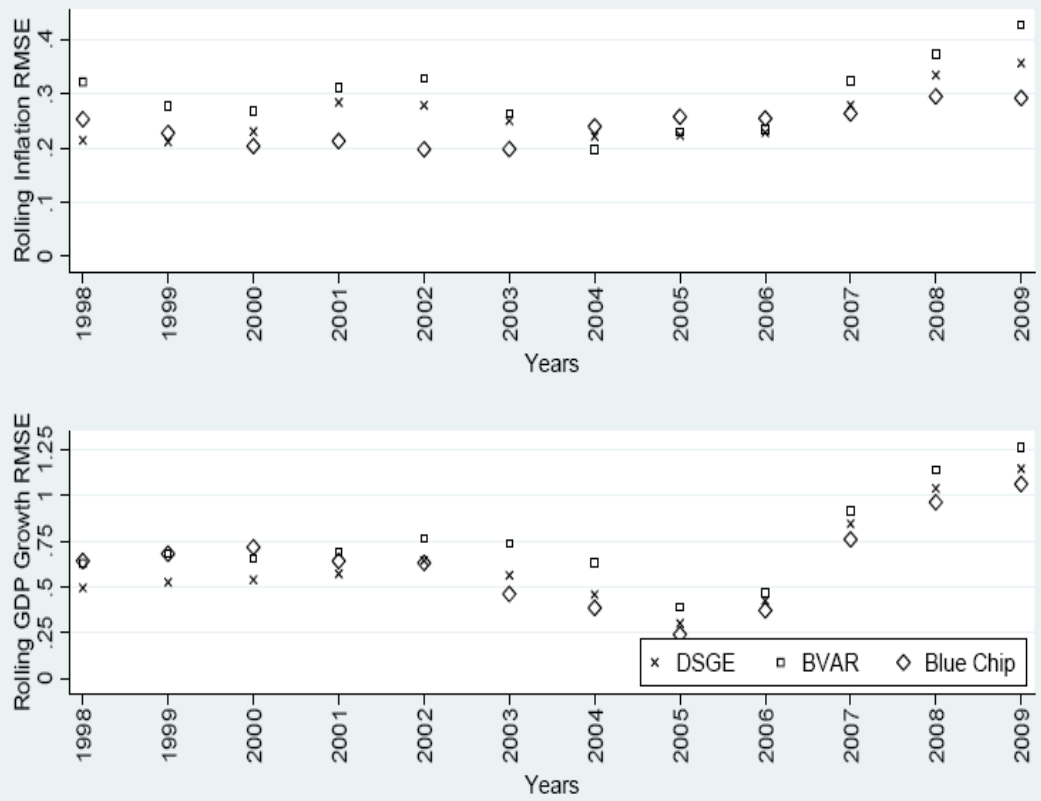
Appendix A. Constructing the Real Time Data Sets

In this appendix we discuss how the real time data sets that we use to generate all of the forecasts other than those of the Greenbook are constructed. To ensure that when we carry out our forecast performance exercises we are indeed comparing the ability to forecast of different methodologies (and not some other difference) it is critical that the information/data sets that we use to generate our model forecasts are the same as those used to generate the Greenbook and Blue Chip forecasts. For this we must be very conscious of the timing of the releases of the data that we use to generate our model forecasts and how they relate to timings of the Greenbook's closing dates and Blue Chip publication dates.

We begin by document the data series that are used in the DSGE model and in the other reduced-form forecasting models. Here relatively little discussion necessary, since we employ essentially all of the same data series that were used by Smets and Wouters in estimating their model. We then move on to provide a full account of how we constructed the real-time data sets that we then use to generate the model forecasts. We then briefly explain our construction of the "first final," which for real GDP growth and the rate of GDP price inflation is ultimately what we compare the forecasts against.

The data series used

To allow comparability with the results of Smets and Wouters (2007) we use exactly the same data series that they used in their analysis. Because we will subsequently have to obtain different release vintages for all of our data series (other than the federal funds rate) we do need to be very specific about the data release from which each series is obtained (not only the government statistical agency from the data series is obtained).

Four series used in our estimation are taken from the National Income and Product Accounts (NIPA). These accounts are produced by the Bureau of Economic Analysis and they are constructed at the quarterly frequency. The four series from the NIPA are real GDP ($GDPC$), the GDP price deflator ($GDPDEF$), nominal personal consumption expenditures ($PCEC$), and nominal fixed private investment (FPI). The mnemonics that we use – given in parenthesis – are in all cases other than real GDP the same as those used by Smets and Wouters. And, the only reason for using a different mnemonic for real GDP is that whereas in Smets and Wouters real GDP is defined in terms of chained 1996 dollars (and therefore denoted by GDPC96), for our analysis the chained dollars for which real GDP is defined changes with the data's base year. Actually, the GDP price deflator also changes with the base year (since it is usually set to 100 in the base year) though it appears that its mnemonic does not change.

One series used in our estimation is taken from the Labor Productivity and Costs (LPC) release. These data are produced by the Bureau of Labor Statistics

and are constructed at the quarterly frequency. The series that we used from the LPC release is compensation per hours for the nonfarm business sector ($PRS85006103$). The mnemonic here is not intuitive but rather reflects the name that data service that Smets and Wouters used to extract their data – macrospect – gave to the series.

Three series used in our estimation are taken from the Employment Situation Summary (ESS), which contains the findings of two surveys the Household Survey and the Establishment Survey. This data release is produced by the Bureau of Labor Statistics and is constructed at the monthly frequency. The three series from this source are average weekly hours of production and nonsupervisory employees for total private industries ($PRS85006023$), civilian employment ($CE16OV$), and civilian noninstitutional population ($LNSINDEX$). The first of these series is from the establishment survey while the latter two are both from the household survey. Clearly, since our model is at the quarterly frequency we make simple transformations – specifically, take averages – of the monthly data.

The final series in our model – the federal funds rate – does not revise. This series, which is obtained from the Federal Reserve Board's H.15 release, comes at the business day frequency and the quarterly series is simply the average of this daily data.

We transform all of our data sources for use in the model in exactly the same way as Smets and Wouters as described below.

$$
\begin{aligned}
CONSUMPTION &= LN((PCEC/GDPDEF)/LNSINDEX) * 100 \\
INVESTMENT &= LN((FPI/GDPDEF)/LNSINDEX) * 100 \\
OUTPUT &= LN((GDPC/GDPDEF)/LNSINDEX) * 100 \\
HOURS &= LN((PRS85006023 * CE16OV/100)/LNSINDEX) * 100 \\
INFLATION &= LN(GDPDEF/GDPDEF(-1)) * 100 \\
REAL\ WAGE &= LN(PRS85006103/GDPDEF) * 100 \\
INTEREST\ RATE &= FEDERAL\ FUNDS\ RATE/4
\end{aligned}
$$

Obtaining the real time data sets corresponding to Greenbook forecasts

Tables 1 though 13 provide what – in the vertical dimension – is essentially a time line of the dates of all Greenbook forecasts and the release dates of all the data sources that we use *and that also revise*. The horizontal dimension of the table sorts the release dates according the data source in question.

From these tables it is reasonably straightforward to understand how we go about constructing the real time data sets that we will use to estimate our models from which we will obtain forecasts that will in turn have their forecast performance compared to the Greenbook forecasts. Specifically, for each Greenbook forecast we can look-up in the table what the most recent release – or vintage – of each data source was. For example, for the June 1997 Greenbook

forecast, shown about halfway down Table 6, that closed on June 25, we can see that the most recent release of NIPA data was the preliminary release of 1997:Q1 on May 30 and the most recent release of the LPC data was the final release of 1997:Q1 on June 18.[10] The ESS requires a little more explanation. This is a monthly series for which the first estimate of the data is available quite promptly (*i.e.*, within a week) of the data's reference period. Thus the most recent release of the ESS prior to the June Greenbook is the estimate for May 1997, released on June 6. An employment report release includes, however, not only the first estimate of the preceding month's data (in this case May) but also revisions to the two preceding months (in this case April and March). This means that from the perspective of thinking about quarterly data, the June 6 ESS release represents the second and last revision of 1997:Q1 data.[11] From looking up what vintage of the data was available at the times of each Greenbook we can construct a data set corresponding to each Greenbook that contains observations for each of our model variables taken from the correct release vintage. All of the vintages shown in the table were obtained from "ALFRED," which is an archive of Federal Reserve Economic Data maintained by the St Louis Fed.

In the June 1997 example given above the last observation that we have for each data series is the same – 1997:Q1. This will not always be the case. For example, in every January Greenbook round LPC data are not available for the preceding year's fourth quarter but EES data is always available and NIPA data sometimes is available. This means that in the January Greenbook for all years other than 1992 to 1994 there is – relative to the NIPA – one extra quarter of employment data. This is also the case in the 2002 and 2003 October Greenbooks; all Greenbooks for which this is an issue are marked with a †. Things can also work the other way. For example, in the Greenbooks marked with a ∗ we always have one less observation of the LPC relative to the NIPA. We use the availability of the NIPA as what determines whether data is available for a quarter or not. Thus, if we have an extra quarter of the ESS (as we do in the † rounds) we ignore it in making our first quarter ahead forecasts – even those for $HOURS$. If we have one less quarter of LPC data (as we do in the ∗ rounds) we use the staff's estimate of compensation per hour for the quarter, which is calculated based on the ESS's reading average hourly earnings. This is always available in time since the ESS is very prompt. Of this raises the question of why (given its timeliness) not just use the ESS's estimate for wages – that is, average hourly earnings for total private industry – instead of the LPC's compensation per hours for the nonfarm business sector series. One

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[10]Until last year the names of the three releases in the NIPA were, in the following sequence the advance release, the preliminary release, and the final release. Thus, the preliminary release described above is the second of three releases. Last year, however, the names of the NIPA releases were changed to the first release, the second release, and the final release. We refer to the original names of the releases in this paper. Note also that there are only two releases of the LPC for each quarter. These are called the preliminary release and the final release.

[11]Of course, the release also contains two thirds of the data for 1997:Q2, but we do not use this information at all. This is reasonably standard practice.

reason arises from our desire to stay as close as possible to Smets and Wouters, but another is that real time data on average hourly earnings in ALFRED only extend back to 1999. We would also note that there are much more elegant ways to deal with the jaggedness in data availability that we face. In particular, the Kalman filter, which is present in our DSGE model, does represent one way to make use of data that is available for only some series. We leave this to either a future draft or future work.

Obtaining the real time data sets corresponding to Blue Chip forecasts

Tables 14 though 31 provide the time line of the dates for all Blue Chip forecasts and the release dates of all our data sources. They are exactly analogous to Table 1 to 13 for the Greenbook although they extend further in time – specifically, to September 2009, one year ago from the time of writing.

As with the Greenbook there are instances where the last observation of data that we have is different across series. Indeed this is more frequent for the Blue Chip due to the fact that the survey of forecasters occurs at the beginning of the month and the EES is also released near the beginning of every month while the preliminary release of the LPC is usually at the beginning of the second, fifth, eighth, and eleventh months of each year. The timing of the release of the EES means that for every January, April, July, and October Blue Chip there is an extra quarter of employment data that we do not use in the estimation. Again, these rounds are marked with a †. Note that Blue Chip databases marked with a ∗ denote when we have one less quarter of LPC data than we have NIPA data. In this case when we have a quarter less of LPC data it is really only by a day of so that we are missing the LPS release so we make the assumption that forecasters do have this data over the quarters for which we have to make this data. As with the Greenbook forecast we use the availability of NIPA data to determine if data is available for a quarter.

Constructing the first final

A review of the data release tables should also give some indication of how we construct the "first final" data series, which is the series against which the Greenbook and model forecasts are evaluated. As can be seen in the table, every third release of the NIPA data and every second release of the LPC is marked with an "(F)." This represents the final release of the data prior to it getting revised in either an annual or comprehensive revision. For EES releases the final release for any quarter is represented by "r2." This denotes the second revision to the data, which is the last revision before any annual revision – or benchmarking – is made. Note that even when considering our economic growth forecasts were are in fact considering real GDP growth per capita and for this reason we must also pay attention to the "first final" releases of the ESS.

We make the first final data by simply extracting the first final observation – always the last one – from each final (F) or second revision (r2) vintage.

We must, of course, not extract the *levels* of these observations but rather the *growth rates* since the levels change with the base year whenever there is a comprehensive revision. Moreover, statistical agencies generally construct "best growth-rate" estimates and not "best level" estimates.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Intermin ESS releases (mthly)	Intermin ESS releases (qrtly)
			91:Q3(F): 12/20/91 91:Q4(A): 1/29/92	91:Q3(F): 1/3/92	91:Dec & CPS Revisions: 1/10/92	91:Q4: 1/10/92
Jan. 92*	1/30/92	92:Q1-98:Q4	91:Q4(P): 2/28/92	91:Q4(P): 2/5/92 91:Q4(F) & Ann. Revisions: 3/10/92	92:Jan & CES Revisions: 2/7/92 92:Feb: 3/6/92	91:Q4(r1): 2/7/92 91:Q4(r2): 3/6/92
Mar. 92	3/25/92	92:Q1-98:Q4	91:Q4(F): 3/26/92 92:Q1(A): 4/28/92	—	92:Mar: 4/3/92 92:Apr: 5/8/92	92:Q1: 4/3/92 92:Q1(r1): 5/8/92
May 92*	5/14/92	92:Q2-98:Q4	92:Q1(P): 5/29/92 92:Q1(F): 6/25/92	92:Q1(P,F): 6/17/92	92:May: 6/5/92	92:Q1(r2): 6/5/92
Jun. 92	6/26/92	92:Q2-98:Q4	92:Q2(A) & Ann. Revisions: 7/30/92	92:Q2(P) & NIPA Revisions: 8/11/92	92:Jun: 7/2/92 92:Jul: 8/7/92	92:Q2: 7/2/92 92:Q2(r1): 8/7/92
Aug. 92	8/13/92	92:Q3-98:Q4	92:Q2(P): 8/27/92 92:Q2(F): 9/24/92	92:Q2(F): 9/3/92	92:Aug: 9/4/92	92:Q2(r2): 9/4/92
Sep. 92	9/30/92	92:Q3-99:Q4	92:Q3(A): 10/27/92	92:Q3(P): 11/5/92	92:Sep: 10/2/92 92:Oct: 11/6/92	92:Q3: 10/2/92 92:Q3(r1): 11/6/92
Nov. 92	11/12/92	92:Q4-99:Q4	92:Q3(P): 11/25/92	92:Q3(F): 12/3/92	92:Nov: 12/4/92	92:Q3(r2): 12/4/92
Dec. 92	12/16/92	92:Q4-99:Q4				

Table 1: Greenbook Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 1992.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Interim ESS releases (mthly)	Interim ESS releases (qrtly)
			92:Q3(F): 12/20/92 92:Q4(A): 1/28/93	—	92:Dec & CPS Revisions: 1/8/93	92:Q4: 1/8/93
Jan. 93*	1/29/93	93:Q1-98:Q4				
			92:Q4(P): 2/26/93	92:Q4(P): 2/4/93 92:Q4(F) & Ann. Revisions: 3/9/93	93:Jan & CES Revisions: 2/5/93 93:Feb: 3/5/93	92:Q4(r1): 2/5/93 92:Q4(r2): 3/5/93
Mar. 93	3/17/93	93:Q1-98:Q4				
			92:Q4(F): 3/26/93 93:Q1(A): 4/29/93	93:Q1(P): 5/6/93	93:Mar: 4/2/93 93:Apr: 5/7/93	93:Q1: 4/2/93 93:Q1(r1): 5/7/93
May 93	5/14/93	93:Q2-98:Q4				
			93:Q1(P): 5/28/93 93:Q1(F): 6/23/93	93:Q1(F): 6/17/93	93:May: 6/4/93	93:Q1(r2): 6/4/93
Jun. 93	6/30/93	93:Q2-98:Q4				
			93:Q2(A) & Ann. Revisions: 7/29/93	93:Q2(P) & NIPA Revisions: 8/10/93	93:Jun: 7/2/93 93:Jul: 8/6/93	93:Q2: 7/2/93 93:Q2(r1): 8/6/93
Aug. 93	8/11/93	93:Q3-98:Q4				
			93:Q2(P): 8/31/93	93:Q2(F): 9/9/93	93:Aug: 9/3/93	93:Q2(r2): 9/3/93
Sep. 93	9/15/93	93:Q3-99:Q4				
			93:Q2(F): 9/29/93 93:Q3(A): 10/28/93	93:Q3(P): 11/4/93	93:Sep: 10/8/93 93:Oct: 11/5/93	93:Q3: 10/8/93 93:Q3(r1): 11/5/93
Nov. 93	11/10/93	93:Q4-99:Q4				
			93:Q3(P): 12/1/93	93:Q3(F): 12/8/93	93:Nov: 12/3/93	93:Q3(r2): 12/3/93
Dec. 93	12/15/93	93:Q4-99:Q4				

Table 2: Greenbook Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 1993.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Interim ESS releases (mthly)	Interim ESS releases (qrtly)
			93:Q3(F): 12/22/93 93:Q4(A): 1/28/94	—	93:Dec & CPS Revisions: 1/7/94	93:Q4: 1/7/94
Jan. 94*	1/31/94	94:Q1-98:Q4				
			93:Q4(P): 3/1/94	93:Q4(P): 2/8/94 93:Q4(F) & Ann. Revisions: 3/8/94	94:Jan & CES Revisions: 2/4/94 94:Feb: 3/4/94	93:Q4(r1): 2/4/94 93:Q4(r2): 3/4/94
Mar. 94	3/16/94	94:Q1-98:Q4				
			93:Q4(F): 3/31/94 94:Q1(A): 4/28/94	94:Q1(P): 5/5/94	94:Mar: 4/1/94 94:Apr: 5/6/94	94:Q1: 4/1/94 94:Q1(r1): 5/6/94
May 94	5/13/94	94:Q2-98:Q4				
			94:Q1(P): 5/27/94 94:Q1(F): 6/29/94	94:Q1(F): 6/15/94	94:May: 6/3/94	94:Q1(r2): 6/3/94
Jun. 94	6/30/94	94:Q2-98:Q4				
			94:Q2(A) & Ann. Revisions: 7/29/94	94:Q2(P) & NIPA Revisions: 8/9/94	94:Jun: 7/8/94 94:Jul: 8/5/94	94:Q2: 7/8/94 94:Q2(r1): 8/5/94
Aug. 94	8/12/94	94:Q3-98:Q4				
			94:Q2(P): 8/26/94	94:Q2(F): 9/7/94	94:Aug: 9/2/94	94:Q2(r2): 9/2/94
Sep. 94	9/21/94	94:Q3-99:Q4				
			94:Q2(F): 9/29/94 94:Q3(A): 10/28/94	94:Q3(P): 11/9/94	94:Sep: 10/7/94 94:Oct: 11/4/94	94:Q3: 10/7/94 94:Q3(r1): 11/4/94
Nov. 94	11/9/94	94:Q4-99:Q4				
			94:Q3(P): 11/30/94	94:Q3(F): 12/7/94	94:Nov: 12/2/94	94:Q3(r2): 12/2/94
Dec. 94	12/14/94	94:Q4-99:Q4				

Table 3: Greenbook Forecasts and NIPA, P&C, amd Employment Situation Release Dates, 1994.

Table 4: Greenbook Forecasts and NIPA, P&C, amd Employment Situation Release Dates, 1995.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Interim ESS releases (mthly)	Interim ESS releases (qrtly)
			94:Q3(F): 12/22/94	—	94:Dec & CPS Revisions: 1/6/95	94:Q4: 1/6/95
Jan. 95†	1/25/95	95:Q1-98:Q4				
			94:Q4(A): 1/27/95 94:Q4(P): 3/1/95	94:Q4(P): 2/7/95 94:Q4(F) & Ann. Revisions: 3/8/95	95:Jan & CES Revisions: 2/3/95 95:Feb: 3/10/95	94:Q4(r1): 2/3/95 94:Q4(r2): 3/10/95
Mar. 95	3/22/95	95:Q1-98:Q4				
			94:Q4(F): 3/31/95 95:Q1(A): 4/28/95	95:Q1(P): 5/9/95	95:Mar: 4/7/95 95:Apr: 5/5/95	95:Q1: 4/7/95 95:Q1(r1): 5/5/95
May 95	5/17/95	95:Q2-98:Q4				
			95:Q1(P): 5/31/95	—	95:May: 6/2/95	95:Q1(r2): 6/2/95
Jun. 95	6/20/95	95:Q2-98:Q4				
			95:Q1(F): 6/30/95 95:Q2(A) & Ann. Revisions: 7/28/95	95:Q1(F): 6/21/95 95:Q2(P) & NIPA Revisions: 8/8/95	95:Jun: 7/7/95 95:Jul: 8/4/95	95:Q2: 7/7/95 95:Q2(r1): 8/4/95
Aug. 95	8/16/95	95:Q3-98:Q4				
			95:Q2(P): 8/30/95	95:Q2(F): 9/7/95	95:Aug: 9/1/95	95:Q2(r2): 9/1/95
Sep. 95	9/20/95	95:Q3-99:Q4				
			95:Q2(F): 9/29/95 95:Q3(A): 10/27/95	95:Q3(P): 11/7/95	95:Sep: 10/6/95 95:Oct: 11/3/95	95:Q3: 10/6/95 95:Q3(r1): 11/3/95
Nov. 95	11/8/95	95:Q4-99:Q4				
			Shutdown	Shutdown	95:Nov: 12/8/95	95:Q3(r2): 12/8/95
Dec. 95	12/14/95	95:Q4-99:Q4				

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Interim ESS releases (mthly)	Interim ESS releases (qrtly)
			95:Q3(P,F) and Comp. Revisions: 1/19/96	—	95:Dec & CPS Revisions: 1/19/96	95:Q4: 1/19/96
Jan. 96*	1/26/96	96:Q1-98:Q4				
			95:Q4(A,P): 2/23/96	95:Q3(F): 2/8/96 95:Q4(P) & Ann. Revisions: 3/6/96	96:Jan & CES Revisions: 2/2/96 96:Feb: 3/8/96	95:Q4(r1): 2/2/96 95:Q4(r2): 3/8/96
Mar. 96	3/21/96	96:Q1-98:Q4				
			95:Q4(F): 4/2/96 96:Q1(A): 5/2/96	95:Q4(F): 4/10/96 96:Q1(P): 5/16/96	96:Mar: 4/5/96 96:Apr: 5/3/96	96:Q1: 4/5/96 96:Q1(r1): 5/3/96
May 96	5/16/96	96:Q2-98:Q4				
			96:Q1(P): 5/30/96	96:Q1(F): 6/18/96	96:May: 6/7/96	96:Q1(r2): 6/7/96
Jun. 96	6/26/96	96:Q2-98:Q4				
			96:Q1(F): 6/28/96 96:Q2(A) & Ann. Revisions: 8/1/96	96:Q2(P) & NIPA Revisions: 8/14/96	96:Jun: 7/5/96 96:Jul: 8/2/96	96:Q2: 7/5/96 96:Q2(r1): 8/2/96
Aug. 96	8/15/96	96:Q3-98:Q4				
			96:Q2(P): 8/29/96	96:Q2(F): 9/10/96	96:Aug: 9/6/96	96:Q2(r2): 9/6/96
Sep. 96	9/18/96	96:Q3-99:Q4				
			96:Q2(F): 9/27/96 96:Q3(A): 10/30/96	—	96:Sep: 10/4/96	96:Q3: 10/4/96
Nov. 96*	11/6/96	96:Q4-99:Q4				
			96:Q3(P): 11/27/96	96:Q3(P): 11/7/96 96:Q3(F): 12/5/96	96:Oct: 11/1/96 96:Nov: 12/6/96	96:Q3(r1): 11/1/96 96:Q3(r2): 12/6/96
Dec. 96	12/12/96	96:Q4-99:Q4				

Table 5: Greenbook Forecasts and NIPA, P&C, amd Employment Situation Release Dates, 1996.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Interim ESS releases (mthly)	Interim ESS releases (qrtly)
			96:Q3(F): 12/20/96	—	96:Dec & CPS Revisions: 1/10/97	96:Q4: 1/10/97
Jan. 97†	1/29/97	97:Q1-98:Q4				
			96:Q4(A): 1/31/97 96:Q4(P): 2/28/97	96:Q4(P): 2/11/97 96:Q4(F) & Ann. Revisions: 3/11/97	97:Jan & CES Revisions: 2/7/97 97:Feb: 3/7/97	96:Q4(r1): 2/7/97 96:Q4(r2): 3/7/97
Mar. 97	3/19/97	97:Q1-98:Q4				
			96:Q4(F): 3/28/97 97:Q1(A): 4/30/97 97:Q1(A,Err): 5/7/97	97:Q1(P): 5/7/97	97:Mar: 4/4/97 97:Apr: 5/2/97	97:Q1: 4/4/97 97:Q1(r1): 5/2/97
May 97	5/15/97	97:Q2-98:Q4				
			97:Q1(P): 5/30/97	97:Q1(F): 6/18/97	97:May: 6/6/97	97:Q1(r2): 6/6/97
Jun. 97	6/25/97	97:Q2-98:Q4				
			97:Q1(F): 6/27/97 97:Q2(A) & Ann. Revisions: 7/31/97	97:Q2(P) & NIPA Revisions: 8/12/97	97:Jun: 7/3/97 97:Jul: 8/1/97	97:Q2: 7/3/97 97:Q2(r1): 8/1/97
Aug. 97	8/14/97	97:Q3-98:Q4				
			97:Q2(P): 8/28/97	97:Q2(F): 9/9/97	97:Aug: 9/5/97	97:Q2(r2): 9/5/97
Sep. 97	9/24/97	97:Q3-99:Q4				
			97:Q2(F): 9/26/97 97:Q3(A): 10/31/97	—	97:Sep: 10/3/97	97:Q3: 10/3/97
Nov. 97*	11/6/97	97:Q4-99:Q4				
			97:Q3(P): 11/26/97	97:Q3(P): 11/13/97 97:Q3(F): 12/4/97	97:Oct: 11/7/97 97:Nov: 12/5/97	97:Q3(r1): 11/7/97 97:Q3(r2): 12/5/97
Dec. 97	12/11/97	97:Q4-99:Q4				

Table 6: Greenbook Forecasts and NIPA, P&C. and Employment Situation Release Dates, 1997.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Interim ESS releases (mthly)	Interim ESS releases (qrtly)
			97:Q3(F): 12/23/97	—	97:Dec & CPS Revisions: 1/9/98	97:Q4: 1/9/98
Jan. 98†	1/28/98	98:Q1-99:Q4				
			97:Q4(A): 1/30/98 97:Q4(P): 2/27/98	97:Q4(P): 2/10/98 97:Q4(F) & Ann. Revisions: 3/10/98	98:Jan & CES Revisions: 2/6/98 98:Feb: 3/6/98	97:Q4(r1): 2/6/98 97:Q4(r2): 3/6/98
Mar. 98	3/19/98	98:Q1-99:Q4				
			97:Q4(F): 3/26/98 98:Q1(A): 4/30/98	98:Q1(P): 5/07/98	98:Mar: 4/3/98 98:Apr: 5/8/98	98:Q1: 4/3/98 98:Q1(r1): 5/8/98
May 98	5/14/98	98:Q2-99:Q4				
			98:Q1(P): 5/28/98	98:Q1(F): 6/4/98	98:May: 6/5/98	98:Q1(r2): 6/5/98
Jun. 98	6/24/98	98:Q2-99:Q4				
			98:Q1(F): 6/25/98 98:Q2(A) & Ann. Revisions: 7/31/98	98:Q2(P) & NIPA Revisions: 8/8/8	98:Jun: 7/2/98 98:Jul: 8/7/98	98:Q2: 7/2/98 98:Q2(r1): 8/7/98
Aug. 98	8/13/98	98:Q3-99:Q4				
			98:Q2(P): 8/27/98	98:Q2(F): 9/3/98	98:Aug: 9/4/98	98:Q2(r2): 9/4/98
Sep. 98	9/23/98	98:Q3-00:Q4				
			98:Q2(F): 9/24/98 98:Q3(A): 10/30/98	98:Q3(P): 11/10/98	98:Sep: 10/2/98 98:Oct: 11/5/98	98:Q3: 10/2/98 98:Q3(r1): 11/5/98
Nov. 98	11/13/98	98:Q4-00:Q4				
			98:Q3(P): 11/24/98	98:Q3(F): 12/3/98	98:Nov: 12/4/98	98:Q3(r2): 12/4/98
Dec. 98	12/16/98	98:Q4-00:Q4				

Table 7: Greenbook Forecasts and NIPA, P&C, amd Employment Situation Release Dates, 1998.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Interim ESS releases (mthly)	Interim ESS releases (qrtly)
			98:Q3(F): 12/23/98	—	98:Dec & CPS Revisions: 1/8/99	98:Q4: 1/8/99
Jan. 99†	1/10/99	99:Q1-00:Q4	98:Q4(A): 1/29/99 98:Q4(P): 2/26/99	98:Q4(P): 2/9/99 98:Q4(F) & Ann. Revisions: 3/9/99	99:Jan & CES Revisions: 2/5/99 99:Feb: 3/5/99	98:Q4(r1): 2/5/99 98:Q4(r2): 3/5/99
Mar. 99	3/10/99	99:Q1-00:Q4	98:Q4(F): 3/31/99 99:Q1(A): 4/30/99	99:Q1(P): 5/11/99	99:Mar: 4/2/99 99:Apr: 5/7/99	99:Q1: 4/2/99 99:Q1(r1): 5/7/99
May 99	5/10/99	99:Q2-00:Q4	99:Q1(P): 5/27/99	99:Q1(F): 6/8/99	99:May: 6/4/99	99:Q1(r2): 6/4/99
Jun. 99	6/10/99	99:Q2-00:Q4	99:Q1(F): 6/25/99 99:Q2(A): 7/29/99	99:Q2(P): 8/5/99	99:Jun: 7/2/99 99:Jul: 8/6/99	99:Q2: 7/2/99 99:Q2(r1): 8/6/99
Aug. 99	8/10/99	99:Q3-00:Q4	99:Q2(P): 8/26/99	99:Q2(F): 9/2/99	99:Aug: 9/3/99	99:Q2(r2): 9/3/99
Sep. 99	9/10/99	99:Q3-01:Q4	99:Q2(F): 9/30/99 99:Q3(A) & Comp. Revisions: 10/29/99	—	99:Sep: 10/8/99 99:Oct: 11/5/99	99:Q3: 10/8/99 99:Q3(r1): 11/5/99
Nov. 99*	11/10/99	99:Q4-01:Q4	99:Q3(P): 11/24/99	99:Q3(P): 11/12/99 99:Q3(F): 12/7/99	99:Nov: 12/3/99	99:Q3(r2): 12/3/99
Dec. 99	12/10/99	99:Q4-01:Q4				

Table 8: Greenbook Forecasts and NIPA, P&C, and Employment Situation Release Dates, 1999.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Interim ESS releases (mthly)	Interim ESS releases (qrtly)
			99:Q3(F): 12/22/99	—	99:Dec & CPS Revisions: 1/7/00	99:Q4: 1/7/00
Jan. 00†	1/27/00	00:Q1-01:Q4				
			99:Q4(A): 1/28/00 99:Q4(P): 2/25/00	99:Q4(P): 2/8/00 99:Q4(F) & Ann. Revisions: 3/7/00	00:Jan & CES Revisions: 2/4/00 00:Feb: 3/3/00	99:Q4(r1): 2/4/00 99:Q4(r2): 3/3/00
Mar. 00	3/15/00	00:Q1-01:Q4				
			99:Q4(F): 3/30/00 99:Q4(F,r): 4/3/00 00:Q1(A): 4/27/00	00:Q1(P): 5/4/00	00:Mar: 4/7/00 00:Apr: 5/5/00	00:Q1: 4/7/00 00:Q1(r1): 5/5/00
May 00	5/11/00	00:Q2-01:Q4				
			00:Q1(P): 5/25/00	00:Q1(F): 6/6/00	00:May: 6/2/00	00:Q1(r2): 6/2/00
Jun. 00	6/21/00	00:Q2-01:Q4				
			00:Q1(F): 6/29/00 00:Q2(A) & Ann. Revisions: 7/28/00	00:Q2(P) & NIPA Revisions: 8/8/00	00:Jun: 7/7/00 00:Jul: 8/4/00	00:Q2: 7/7/00 00:Q2(r1): 8/4/00
Aug. 00	8/16/00	00:Q3-01:Q4				
			00:Q2(P): 8/25/00	00:Q2(F): 9/6/00	00:Aug: 9/1/00	00:Q2(r2): 9/1/00
Sep. 00	9/27/00	00:Q3-02:Q4				
			00:Q2(F): 9/28/00 00:Q3(A): 10/27/00	00:Q3(P): 11/2/00	00:Sep: 10/6/00 00:Oct: 11/3/00	00:Q3: 10/6/00 00:Q3(r1): 11/3/00
Nov. 00	11/8/00	00:Q4-02:Q4				
			00:Q3(P): 11/29/00	00:Q3(F): 12/6/00	00:Nov: 12/8/00	00:Q3(r2): 12/8/00
Dec. 00	12/13/00	00:Q4-02:Q4				

Table 9: Greenbook Forecasts and NIPA, P&C. and Employment Situation Release Dates, 2000.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Interim ESS releases (mthly)	Interim ESS releases (qrtly)
			00:Q3(F): 12/21/00	—	00:Dec & CPS Revisions: 1/5/01	00:Q4: 1/5/01
Jan. 01†	1/25/01	01:Q1-02:Q4				
			00:Q4(A): 1/31/01 00:Q4(P): 2/28/01	00:Q4(P): 2/7/01 00:Q4(F) & Ann. Revisions: 3/6/01	01:Jan & CES Revisions: 2/2/01 01:Feb: 3/9/01	00:Q4(r1): 2/2/01 00:Q4(r2): 3/9/01
Mar. 01	3/14/01	01:Q1-02:Q4				
			00:Q4(F): 3/29/01 01:Q1(A): 4/27/01	01:Q1(P): 5/8/01	01:Mar: 4/6/01 01:Apr: 5/4/01	01:Q1: 4/6/01 01:Q1(r1): 5/4/01
May 01	5/9/01	01:Q2-02:Q4				
Jun. 01	6/20/01	01:Q2-02:Q4	01:Q1(P): 5/25/01	01:Q1(F): 6/5/01	01:May: 6/1/01	01:Q1(r2): 6/1/01
			01:Q1(F): 6/29/01 01:Q2(A) & Ann. Revisions: 7/27/01	01:Q2(P) & NIPA Revisions: 8/7/01	01:Jun: 7/6/01 01:Jul: 8/3/01	01:Q2: 7/6/01 01:Q2(r1): 8/3/01
Aug. 01	8/15/01	01:Q3-02:Q4				
Sep. 01	9/26/01	01:Q3-03:Q4	01:Q2(P): 8/29/01	01:Q2(F): 9/5/01	01:Aug: 9/7/01	01:Q2(r2): 9/7/01
			01:Q2(F): 9/28/01 01:Q3(A): 10/31/01	—	01:Sep: 10/5/01	01:Q3: 10/5/01
Oct. 01*	10/31/01	01:Q4-03:Q4				
			01:Q3(P): 11/30/01	01:Q3(P): 11/7/01	01:Oct: 11/2/01	01:Q3(r1): 11/2/01
Dec. 01	12/5/01	01:Q4-03:Q4				

Table 10: Greenbook Forecasts and NIPA, P&C. and Employment Situation Release Dates, 2001.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Intermin ESS releases (mthly)	Intermin ESS releases (qrtly)
			01:Q3(F): 12/21/01	01:Q3(F): 12/6/01	01:Nov: 12/7/01 01:Dec & CPS Revisions: 1/4/05	01:Q3(r2): 12/7/01 01:Q4: 1/4/02
Jan. 02†	1/23/02	02:Q1-03:Q4				
			01:Q4(A): 1/30/02 01:Q4(P): 2/28/02	01:Q4(P): 2/6/02 01:Q4(F) & Ann. Revisions: 3/7/02	02:Jan & CES Revisions: 2/1/01 02:Feb: 3/8/02	01:Q4(r1): 2/1/02 01:Q4(r2): 3/8/02
Mar. 02	3/13/02	02:Q1-03:Q4				
			01:Q4(F): 3/28/02 02:Q1(A): 4/26/02	—	02:Mar: 4/5/02	02:Q1: 4/5/02
May 02*	5/1/02	02:Q2-03:Q4				
			02:Q1(P): 5/24/02	02:Q1(P): 5/7/02 02:Q1(F): 5/31/02	02:Apr: 5/3/02 02:May: 6/7/02	02:Q1(r1): 5/3/02 02:Q1(r2): 6/7/02
Jun. 02	6/19/02	02:Q2-03:Q4				
			02:Q1(F): 6/27/02 02:Q2(A) & Ann. Revisions: 7/31/02	—	02:Jun: 7/5/02 02:Jul: 8/2/02	02:Q2: 7/5/02 02:Q2(r1): 8/2/02
Aug. 02*	8/7/02	02:Q3-03:Q4				
			02:Q2(P): 8/29/02	02:Q2(P) & NIPA Revisions: 8/9/02 02:Q2(F): 9/5/02	02:Aug: 9/6/02	02:Q2(r2): 9/6/02
Sep. 02	9/18/02	02:Q3-04:Q4				
			02:Q2(F): 9/27/02	—	02:Sep: 10/4/02	02:Q3: 10/4/02
Oct. 02†	10/30/02	02:Q4-04:Q4				
			02:Q3(A): 10/31/02 02:Q3(P): 11/26/02	02:Q3(P): 11/7/02 02:Q3(F): 12/4/02	02:Oct: 11/1/02	02:Q3(r1): 11/1/02
Dec. 02	12/4/02	02:Q4-04:Q4				

Table 11: Greenbook Forecasts and NIPA, P&C. and Employment Situation Release Dates, 2002.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Interim ESS releases (mthly)	Intermin ESS releases (qrtly)
			02:Q3(F): 12/20/02	—	02:Nov: 12/6/02 02:Dec & CPS Revisions: 1/10/03	02:Q3(r2): 12/6/02 02:Q4: 1/10/03
Jan. 03†	1/22/03	03:Q1-04:Q4				
			02:Q4(A): 1/30/03 02:Q4(P): 2/28/03	02:Q4(P): 2/6/03 02:Q4(F) & Ann. Revisions: 3/6/03	03:Jan & CES Revisions: 2/7/03 03:Feb: 3/7/03	02:Q4(r1): 2/7/03 02:Q4(r2): 3/7/03
Mar. 03	3/12/03	03:Q1-04:Q4				
			02:Q4(F): 3/27/03 03:Q1(A): 4/25/03	—	03:Mar: 4/4/03	03:Q1: 4/4/03
Apr. 03*	4/30/03	03:Q2-04:Q4				
			03:Q1(P): 5/29/03	03:Q1(P): 5/1/03 03:Q1(F): 6/4/03	03:Apr: 5/2/03 03:May: 6/6/03	03:Q1(r1): 5/2/03 03:Q1(r2): 6/6/03
Jun. 03	6/18/03	03:Q2-04:Q4				
			03:Q1(F): 6/26/03 03:Q2(A): 7/31/03	—	03:Jun: 7/3/03 03:Jul: 8/1/03	03:Q2: 7/3/03 03:Q2(r1): 8/1/03
Aug. 03*	8/6/03	03:Q3-04:Q4				
			03:Q2(P): 8/28/03	03:Q2(P): 8/7/03 03:Q2(F): 9/4/03	03:Aug: 9/5/03	03:Q2(r2): 9/5/03
Sep. 03	9/10/03	03:Q3-05:Q4				
			03:Q2(F): 9/26/03	—	03:Sep: 10/3/03	03:Q3: 10/3/03
Oct. 03†	10/22/03	03:Q4-05:Q4				
			03:Q3(A): 10/30/03 03:Q3(P): 11/25/03	03:Q3(P): 11/6/03 03:Q3(F): 12/3/03	03:Oct: 11/7/03	03:Q3(r1): 11/7/03
Dec. 03	12/3/03	03:Q4-05:Q4				

Table 12: Greenbook Forecasts and NIPA, P&C. and Employment Situation Release Dates, 2003.

F'cast Name	GB closed	GB F'cast horizon	Interim NIPA releases	Interim LPC releases	Intermin ESS releases (mthly)	Intermin ESS releases (qrtly)
Jan. 04†	1/21/04	04:Q1-05:Q4	Comp. Rev.: 12/10/03; 03:Q3(F): 12/23/03	—	03:Nov: 12/5/03; 03:Dec & CPS Revisions: 1/9/04	03:Q3(r2): 12/5/03; 03:Q4: 1/9/04
			03:Q4(A): 1/30/04; 03:Q4(P): 2/27/04	03:Q4(P): 2/5/04; 03:Q4(F) & Ann. Revisions: 3/4/04	04:Jan & CES Revisions: 2/6/06; 04:Feb: 3/5/04	03:Q4(r1): 2/6/04; 03:Q4(r2): 3/5/04
Mar. 04	3/10/04	04:Q1-05:Q4	07:Q4(F): 3/25/04	—	04:Mar: 4/2/04	04:Q1: 4/2/04
Apr. 04	4/28/04	04:Q2-05:Q4	04:Q1(A): 4/29/04; 04:Q1(P): 5/27/04	04:Q1(P): 5/6/04; 04:Q1(F): 6/3/04	04:Apr: 5/7/04; 04:May: 6/4/04	04:Q1(r1): 5/7/04; 04:Q1(r2): 6/4/04
Jun. 04	6/23/04	04:Q2-05:Q4	04:Q1(F): 6/25/04; 04:Q2(A) & Ann. Revision: 7/30/04	—	04:Jun: 7/2/04	04:Q2: 7/2/04
Aug. 04*	8/4/04	04:Q3-05:Q4	04:Q2(P): 8/27/04	04:Q2(P) & NIPA Revision: 8/10/04; 04:Q2(F): 9/2/04	04:Jul: 8/6/04; 04:Aug: 9/3/04	04:Q2(r1): 8/6/04; 04:Q2(r2): 9/3/04
Sep. 04	9/15/04	04:Q3-06:Q4	04:Q2(F): 9/29/04; 04:Q3(A): 10/29/04	04:Q2(Err.): 10/13/04	04:Sep: 10/8/04	04:Q3: 10/8/04
Nov. 04	11/3/04	04:Q4-06:Q4	04:Q3(P): 11/30/04	04:Q3(P): 11/4/04; 04:Q3(F): 12/7/04	04:Oct: 11/5/04; 04:Nov: 12/3/04	04:Q3(r1): 11/5/04; 04:Q3(r2): 12/3/04
Dec. 04	12/8/04	04:Q4-06:Q4				

Table 13: Greenbook Forecasts and NIPA, P&C. and Employment Situation Release Dates, 2004.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
Jan. 92†	1/10/92		91:Q3(F): 12/20/91	91:Q3(F): 1/3/92	91:Nov: 12/6/91	91:Q3(r2): 12/6/91
					91:Dec & CPS Revisions: 1/10/92	91:Q4: 1/10/92
			91:Q4(A): 1/29/92	96:Q4(P): 2/05/92	92:Jan & CES Revisions: 2/7/92	91:Q4(r1): 2/7/92
Feb. 92	2/10/92					
			91:Q4(P): 2/28/92		92:Feb: 3/6/92	91:Q4(r2): 3/6/92
Mar. 92	3/10/92			96:Q4(P): 3/10/92		
			91:Q4(F): 3/26/92		92:Mar: 4/3/92	92:Q1: 4/3/92
Apr. 92†	4/10/92					
			92:Q1(A): 4/28/92	—	92:Apr: 5/8/92	92:Q1(r1): 5/8/92
May 92*	5/10/92					
			92:Q1(P): 5/29/92	—	92:May: 6/5/92	92:Q1(r2): 6/5/92
Jun. 92*	6/10/92					
			92:Q1(F): 6/25/92	92:Q1(P,F): 6/17/92	92:Jun: 7/2/92	92:Q2: 7/2/92
Jul. 92†	7/10/92					
			92:Q2(A) & Ann. Revisions: 7/30/92	—	92:Jul: 8/7/92	92:Q2(r1): 8/7/92
Aug. 92*	8/10/92					
			92:Q2(P): 8/27/92	92:Q2(P): 8/11/92 92:Q2(F): 9/3/92	92:Aug: 9/4/92	92:Q2(r2): 9/4/92
Sep. 92	9/10/92					
			92:Q2(F): 9/24/92	—	92:Sep: 10/2/92	92:Q3: 10/2/92
Oct. 92†	10/10/92					
			92:Q3(A): 10/27/92	92:Q3(P): 11/05/92	92:Oct: 11/6/92	92:Q3(r1): 11/6/92
Nov. 92	11/10/92					
			92:Q3(P): 11/25/92	92:Q3(F): 12/3/92	92:Nov: 12/4/92	92:Q3(r2): 12/4/92
Dec. 92	12/10/92					

Table 14: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 1992.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			92:Q3(F): 12/22/92	–	92:Dec & CPS Revisions: 1/8/93	92:Q4: 1/8/93
Jan. 93†	1/10/93					
			92:Q4(A): 1/28/93	92:Q4(P): 2/4/93	93:Jan & CES Revisions: 2/5/93	92:Q4(r1): 2/5/93
Feb. 93	2/10/93		92:Q4(P): 2/26/93			
				92:Q4(F) & Ann. Revisions: 3/9/93	93:Feb: 3/5/93	92:Q4(r2): 3/5/93
Mar. 93	3/10/93		92:Q4(F): 3/26/93			
				–	93:Mar: 4/2/93	93:Q1: 4/2/93
Apr. 93†	4/10/93		93:Q1(A): 4/29/93			
				93:Q1(P): 5/6/93	93:Apr: 5/7/93	93:Q1(r1): 5/7/93
May 93	5/10/93		93:Q1(P): 5/28/93			
				–	93:May: 6/4/93	93:Q1(r2): 6/4/93
Jun. 93	6/10/93		93:Q1(F): 6/23/93	93:Q1(F): 6/17/93		
				–	93:Jun: 7/2/93	93:Q2: 7/2/93
Jul. 93†	7/10/93		93:Q2(A) 7/29/93			
				93:Q2(P): 8/10/93	93:Jul: 8/6/93	93:Q2(r1): 8/6/93
Aug. 93	8/10/93		93:Q2(P) & Ann. Revisions: 8/31/93			
				93:Q2(F): 9/9/93	93:Aug: 9/3/93	93:Q2(r2): 9/3/93
Sep. 93	9/10/93		93:Q2(F): 9/29/93			
				–	93:Sep: 10/8/93	93:Q3: 10/8/93
Oct. 93†	10/10/93		93:Q3(A): 10/28/93			
				93:Q3(P): 11/4/93	93:Oct: 11/5/93	93:Q3(r1): 11/5/93
Nov. 93	11/10/93		93:Q3(P): 12/1/93			
				93:Q3(F): 12/8/93	93:Nov: 12/3/93	93:Q3(r2): 12/3/93
Dec. 93	12/10/93					

Table 15: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 1993.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			93:Q3(F): 12/22/93	—	93:Dec & CPS Revisions: 1/7/94	93:Q4: 1/7/94
Jan. 94†	1/10/94		93:Q4(A): 1/28/94	93:Q4(P): 2/8/94	94:Jan & CES Revisions: 2/4/94	93:Q4(r1): 2/4/94
Feb. 94	2/10/94		93:Q4(P): 3/1/94	93:Q4(F) & Ann. Revisions: 3/8/94	94:Feb: 3/4/94	93:Q4(r2): 3/4/94
Mar. 94	3/10/94		93:Q4(F): 3/31/94	—	94:Mar: 4/1/94	94:Q1: 4/1/94
Apr. 94†	4/10/94		94:Q1(A): 4/28/94	94:Q1(P): 5/5/94	94:Apr: 5/6/94	94:Q1(r1): 5/6/94
May 94	5/10/94		94:Q1(P): 5/27/94	—	94:May: 6/3/94	94:Q1(r2): 6/3/94
Jun. 94	6/10/94		94:Q1(F): 6/29/94	94:Q1(F): 6/15/94	94:Jun: 7/8/94	94:Q2: 7/8/94
Jul. 94†	7/10/94		94:Q2(A) & Ann. Revisions: 7/29/94	94:Q2(P): 8/9/94	94:Jul: 8/5/94	94:Q2(r1): 8/5/94
Aug. 94	8/10/94		94:Q2(P): 8/26/94	94:Q2(F): 9/7/94	94:Aug: 9/2/94	94:Q2(r2): 9/2/94
Sep. 94	9/10/94		94:Q2(F): 9/29/94	—	94:Sep: 10/7/94	94:Q3: 10/7/94
Oct. 94†	10/10/94		94:Q3(A): 10/28/94	94:Q3(P): 11/09/94	94:Oct: 11/4/94	94:Q3(r1): 11/4/94
Nov. 94	11/10/94		94:Q3(P): 11/30/94	94:Q3(F): 12/7/94	94:Nov: 12/2/94	94:Q3(r2): 12/2/94
Dec. 94	12/10/94					

Table 16: Blue Chip Forecasts and NIPA, P&C, amd Employment Situation Release Dates, 1994.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			94:Q3(F): 12/22/94	—	99:Dec & CPS Revisions: 1/6/95	99:Q4: 1/6/95
Jan. 95†	1/10/95					
			94:Q4(A): 1/27/95	94:Q4(P): 2/7/95	95:Jan & CES Revisions: 2/3/95	99:Q4(r1): 2/3/95
Feb. 95	2/10/95					
			94:Q4(P): 3/01/95	94:Q4(F) & Ann. Revisions: 3/8/95		
Mar. 95	3/10/95				95:Feb: 3/10/95	99:Q4(r2): 3/10/95
			94:Q4(F): 3/31/95	—	95:Mar: 4/7/95	95:Q1: 4/7/95
Apr. 95†	4/10/95					
			95:Q1(A): 4/28/95	95:Q1(P): 5/9/95	95:Apr: 5/5/95	95:Q1(r1): 5/5/95
May 95	5/10/95					
			95:Q1(P): 5/31/95	—	95:May: 6/2/95	95:Q1(r2): 6/2/95
Jun. 95	6/10/95					
			95:Q1(F): 6/30/95	95:Q1(F): 6/21/95	95:Jun: 7/7/95	95:Q2: 7/7/95
Jul. 95†	7/10/95					
			95:Q2(A): 7/28/95	95:Q2(P): 8/8/95	95:Jul: 8/4/95	95:Q2(r1): 8/4/95
Aug. 95	8/10/95					
			95:Q2(P): 8/30/95	95:Q2(F): 9/7/95	95:Aug: 9/1/95	95:Q2(r2): 9/1/95
Sep. 95	9/10/95					
			95:Q2(F): 9/29/95	—	95:Sep: 10/6/95	95:Q3: 10/6/95
Oct. 95†	10/10/95					
			95:Q3(A): 10/27/95	95:Q3(P): 11/7/95	95:Oct: 11/3/95	95:Q3(r1): 11/3/95
Nov. 95	11/10/95					
			Shutdown	Shutdown	95:Nov: 12/8/95	95:Q3(r2): 12/8/95
Dec. 95	12/10/95					

Table 17: Blue Chip Forecasts and NIPA, P&C. and Employment Situation Release Dates, 1995.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
Jan. 96	1/10/96		Shutdown	—	Shutdown	Shutdown
			95:Q3(P,F) & Comp. Revisions: 1/19/96	95:Q3(F): 2/8/96	95:Dec & CPS Revisions: 1/19/96; 96:Jan & CES Revisions: 2/2/96	00:Q4: 1/19/96; 00:Q4(r1): 2/2/96
Feb. 96*	2/10/96		95:Q4(A,P): 2/23/96	95:Q4(P): 3/6/96	96:Feb: 3/8/96	00:Q4(r2): 3/8/96
Mar. 96	3/10/96		95:Q4(F): 4/2/96		96:Mar: 4/5/96	96:Q1: 4/5/96
Apr. 96†	4/10/96		96:Q1(A): 5/2/96	95:Q4(F) & Ann. Revisions: 4/10/96	96:Apr: 5/3/96	96:Q1(r1): 5/3/96
May 96*	5/10/96		96:Q1(P): 5/30/96	96:Q1(P): 5/16/96	96:May: 6/7/96	96:Q1(r2): 6/7/96
Jun. 96	6/10/96		96:Q1(F): 6/28/96	96:Q1(F): 6/18/96	96:Jun: 7/5/96	96:Q2: 7/5/96
Jul. 96†	7/10/96		96:Q2(A) & Ann. Revisions: 8/01/96	96:Q2(P) & NIPA Revisions: 8/14/96	96:Jul: 8/2/96	96:Q2(r1): 8/2/96
Aug. 96*	8/10/96		96:Q2(P): 8/29/96	—	96:Aug: 9/6/96	96:Q2(r2): 9/6/96
Sep. 96	9/10/96		96:Q2(F): 9/27/96	96:Q2(F): 9/10/96	96:Sep: 10/4/96	96:Q3: 10/4/96
Oct. 96†	10/10/96		96:Q3(A): 10/30/96		96:Oct: 11/1/96	96:Q3(r1): 11/1/96
Nov. 96	11/10/96		96:Q3(P): 11/27/96	96:Q3(P): 11/7/96	96:Nov: 12/6/96	96:Q3(r2): 12/6/96
Dec. 96	12/10/96			96:Q3(F): 12/5/96		

Table 18: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 1996.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
Jan. 97†	1/10/97		96:Q3(F): 12/20/96	96:Q3(F): 12/5/96	96:Nov: 12/6/96	96:Q3(r2): 12/6/96
					96:Dec & CPS Revisions: 1/10/97	96:Q4: 1/10/97
Feb. 97*	2/10/97		96:Q4(A): 1/31/97	—	97:Jan & CES Revisions: 2/7/97	96:Q4(r1): 2/7/97
Mar. 97	3/10/97		96:Q4(P): 2/28/97	96:Q4(P): 2/11/97	97:Feb: 3/7/97	96:Q4(r2): 3/7/97
Apr. 97†	4/10/97		96:Q4(F): 3/28/97	96:Q4(F) & Ann. Revisions: 3/11/97	97:Mar: 4/4/97	97:Q1: 4/4/97
May 97	5/10/97		97:Q1(A): 4/30/97 97:Q1(A,r): 5/7/97	97:Q1(P): 5/07/97	97:Apr: 5/2/97	97:Q1(r1): 5/2/97
Jun. 97	6/10/97		97:Q1(P): 5/30/97	—	97:May: 6/6/97	97:Q1(r2): 6/6/97
Jul. 97†	7/10/97		97:Q1(F): 6/27/97	97:Q1(F): 6/18/97	97:Jun: 7/3/97	97:Q2: 7/3/97
Aug. 97*	8/10/97		97:Q2(A) & Ann. Revisions: 7/31/97	—	97:Jul: 8/1/97	97:Q2(r1): 8/1/97
Sep. 97	9/10/97		97:Q2(P): 8/28/97	97:Q2(P): 8/12/97 97:Q2(F): 9/9/97	97:Aug: 9/5/97	97:Q2(r2): 9/5/97
Oct. 97†	10/10/97		97:Q2(F): 9/26/97	—	97:Sep: 10/3/97	97:Q3: 10/3/97
Nov. 97*	11/10/97		97:Q3(A): 10/31/97	—	97:Oct: 11/7/97	97:Q3(r1): 11/7/97
Dec. 97	12/10/97		97:Q3(P): 11/26/97	97:Q3(P): 11/13/97 97:Q3(F): 12/4/97	97:Nov: 12/5/97	97:Q3(r2): 12/5/97

Table 19: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 1997.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
Jan. 98†	1/10/98		97:Q3(F): 12/23/97	–	97:Dec & CPS Revisions: 1/9/98	97:Q4: 1/9/98
Feb. 98	2/10/98		97:Q4(A): 1/30/98	–	98:Jan & CES Revisions: 2/6/98	97:Q4(r1): 2/6/98
Mar. 98	3/10/98		97:Q4(P): 2/27/98	97:Q4(P): 2/10/98	98:Feb: 3/6/98	97:Q4(r2): 3/6/98
Apr. 98†	4/10/98		97:Q4(F): 3/26/98	97:Q4(F) & Ann. Revisions: 3/10/98	98:Mar: 4/3/98	98:Q1: 4/3/98
May 98	5/10/98		98:Q1(A): 4/30/98	–	98:Apr: 5/8/98	98:Q1(r1): 5/8/98
Jun. 98	6/10/98		98:Q1(P): 5/28/98	98:Q1(P): 5/07/98	98:May: 6/5/98	98:Q1(r2): 6/5/98
Jul. 98†	7/10/98		98:Q1(F): 6/25/98	98:Q1(F): 6/4/98	98:Jun: 7/2/98	98:Q2: 7/2/98
Aug. 98*	8/10/98		98:Q2(A) & Ann. Revisions: 7/31/98	–	98:Jul: 8/7/98	98:Q2(r1): 8/7/98
Sep. 98	9/10/98		98:Q2(P): 8/27/98	98:Q2(P): 8/11/98 / 98:Q2(F): 9/3/98	98:Aug: 9/4/98	98:Q2(r2): 9/4/98
Oct. 98†	10/10/98		98:Q2(F): 9/24/98	–	98:Sep: 10/2/98	98:Q3: 10/2/98
Nov. 98	11/10/98		98:Q3(A): 10/30/98	98:Q3(P): 11/10/98	98:Oct: 11/5/98	98:Q3(r1): 11/5/98
Dec. 98	12/10/98		98:Q3(P): 11/24/98	98:Q3(F): 12/3/98	98:Nov: 12/4/98	98:Q3(r2): 12/4/98

Table 20: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 1998.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			98:Q3(F): 12/23/98	—	98:Dec & CPS Revisions: 1/8/99	98:Q4: 1/8/99
Jan. 99†	1/10/99					
			98:Q4(A): 1/29/99	98:Q4(P): 2/9/99	99:Jan & CES Revisions: 2/5/99	98:Q4(r1): 2/5/99
Feb. 99	2/10/99					
			98:Q4(P): 2/26/99	98:Q4(F) & Ann. Revisions: 3/9/99	99:Feb: 3/5/99	98:Q4(r2): 3/5/99
Mar. 99	3/10/99					
			98:Q4(F): 3/31/99	—	99:Mar: 4/2/99	99:Q1: 4/2/99
Apr. 99†	4/10/99					
			99:Q1(A): 4/30/99	—	99:Apr: 5/7/99	99:Q1(r1): 5/7/99
May 99*	5/10/99					
			99:Q1(P): 5/27/99	99:Q1(P): 5/11/99 / 99:Q1(F): 6/8/99	99:May: 6/4/99	99:Q1(r2): 6/4/99
Jun. 99	6/10/99					
			99:Q1(F): 6/25/99	—	99:Jun: 7/2/99	99:Q2: 7/2/99
Jul. 99†	7/10/99					
			99:Q2(A): 7/29/99	99:Q2(P): 8/5/99	99:Jul: 8/6/99	99:Q2(r1): 8/6/99
Aug. 99	8/10/99					
			99:Q2(P): 8/26/99	99:Q2(F): 9/2/99	99:Aug: 9/3/99	99:Q2(r2): 9/3/99
Sep. 99	9/10/99					
			99:Q2(F): 9/30/99	—	99:Sep: 10/8/99	99:Q3: 10/8/99
Oct. 99†	10/10/99					
			99:Q3(A) & Comp. Revisions: 10/29/99	—	99:Oct: 11/5/99	99:Q3(r1): 11/5/99
Nov. 99*	11/10/99					
			99:Q3(P): 11/24/99	99:Q3(P): 11/12/99 / 99:Q3(F): 12/7/99	99:Nov: 12/3/99	99:Q3(r2): 12/3/99
Dec. 99	12/10/99					

Table 21: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 1999.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			99:Q3(F): 12/22/99	–	99:Dec & CPS Revisions: 1/7/00	99:Q4: 1/7/00
Jan. 00†	1/10/00					
			99:Q4(A): 1/28/00	99:Q4(P): 2/8/00	00:Jan & CES Revisions: 2/4/00	99:Q4(r1): 2/4/00
Feb. 00	2/10/00					
			99:Q4(P): 2/25/00	99:Q4(F) & Ann. Revisions: 3/7/00	00:Feb: 3/3/00	99:Q4(r2): 3/3/00
Mar. 00	3/10/00					
			99:Q4(F): 3/30/00 99:Q4(F,r): 4/3/00	–	00:Mar: 4/7/00	00:Q1: 4/7/00
Apr. 00†	4/10/00					
			00:Q1(A): 4/27/00	00:Q1(P): 5/4/00	00:Apr: 5/5/00	00:Q1(r1): 5/5/00
May 00	5/10/00					
			00:Q1(P): 5/25/00	00:Q1(F): 6/6/00	00:May: 6/2/00	00:Q1(r2): 6/2/00
Jun. 00	6/10/00					
			00:Q1(F): 6/29/00	–	00:Jun: 7/7/00	00:Q2: 7/7/00
Jul. 00†	7/10/00					
			00:Q2(A) & Ann. Revisions: 7/28/00	00:Q2(P) & NIPA Revisions: 8/8/00	00:Jul: 8/4/00	00:Q2(r1): 8/4/00
Aug. 00	8/10/00					
			00:Q2(P): 8/25/00	00:Q2(F): 9/6/00	00:Aug: 9/1/00	00:Q2(r2): 9/1/00
Sep. 00	9/10/00					
			00:Q2(F): 9/28/00	–	00:Sep: 10/6/00	00:Q3: 10/6/00
Oct. 00†	10/10/00					
			00:Q3(A): 10/27/00	00:Q3(P): 11/2/00	00:Oct: 11/3/00	00:Q3(r1): 11/3/00
Nov. 00	11/10/00					
			00:Q3(P): 11/29/00	00:Q3(F): 12/6/00	00:Nov: 12/8/00	00:Q3(r2): 12/8/00
Dec. 00	12/10/00					

Table 22: Blue Chip Forecasts and NIPA, P&C, amd Employment Situation Release Dates, 2000.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			00:Q3(F): 12/21/00	–	00:Dec & CPS Revisions: 1/5/01	00:Q4: 1/5/01
Jan. 01†	1/10/01		00:Q4(A): 1/31/01	00:Q4(P): 2/7/01	01:Jan & CES Revisions: 2/2/01	00:Q4(r1): 2/2/01
Feb. 01	2/10/01		00:Q4(P): 2/28/01	00:Q4(F) & Ann. Revisions: 3/6/01		
Mar. 01	3/10/01		00:Q4(F): 3/29/01	–	01:Feb: 3/9/01	00:Q4(r2): 3/9/01
Apr. 01†	4/10/01		01:Q1(A): 4/27/01	01:Q1(P): 5/8/01	01:Mar: 4/6/01	01:Q1: 4/6/01
May 01	5/10/01		01:Q1(P): 5/25/01	01:Q1(F): 6/5/01	01:Apr: 5/4/01	01:Q1(r1): 5/4/01
Jun. 01	6/10/01		01:Q1(F): 6/29/01	–	01:May: 6/1/01	01:Q1(r2): 6/1/01
Jul. 01†	7/10/01		01:Q2(A) & Ann. Revisions: 7/27/01	01:Q2(P) & NIPA Revisions: 8/7/01	01:Jun: 7/6/01	01:Q2: 7/6/01
Aug. 01	8/10/01		01:Q2(P): 8/29/01	01:Q2(F): 9/5/01	01:Jul: 8/3/01	01:Q2(r1): 8/3/01
Sep. 01	9/10/01		01:Q2(F): 9/28/01	–	01:Aug: 9/7/01	01:Q2(r2): 9/7/01
Oct. 01†	10/10/01		01:Q3(A): 10/31/01	01:Q3(P): 11/7/01	01:Sep: 10/5/01	01:Q3: 10/5/01
Nov. 01	11/10/01		01:Q3(P): 11/30/01	01:Q3(F): 12/6/01	01:Oct: 11/2/01	01:Q3(r1): 11/2/01
Dec. 01	12/10/01				01:Nov: 12/7/01	01:Q3(r2): 12/7/01

Table 23: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 2001.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			01:Q3(F): 12/21/01	—	01:Dec & CPS Revisions: 1/4/05	01:Q4: 1/4/02
Jan. 02†	1/10/02					
			01:Q4(A): 1/30/02	01:Q4(P): 2/6/02	02:Jan & CES Revisions: 2/1/01	01:Q4(r1): 2/1/02
Feb. 02	2/10/02					
			01:Q4(P): 2/28/02	01:Q4(F) & Ann. Revisions: 3/7/02	02:Feb: 3/8/02	01:Q4(r2): 3/8/02
Mar. 02	3/10/02					
			01:Q4(F): 3/28/02	—	02:Mar: 4/5/02	02:Q1: 4/5/02
Apr. 02†	4/10/02					
			02:Q1(A): 4/26/02	02:Q1(P): 5/7/02	02:Apr: 5/3/02	02:Q1(r1): 5/3/02
May 02	5/10/02					
			02:Q1(P): 5/24/02	02:Q1(F): 5/31/02	02:May: 6/7/02	02:Q1(r2): 6/7/02
Jun. 02	6/10/02					
			02:Q1(F): 6/27/02	—	02:Jun: 7/5/02	02:Q2: 7/5/02
Jul. 02†	7/10/02					
			02:Q2(A) & Ann. Revisions: 7/31/02	02:Q2(P) & NIPA Revisions: 8/9/02	02:Jul: 8/2/02	02:Q2(r1): 8/2/02
Aug. 02	8/10/02					
			02:Q2(P): 8/29/02	02:Q2(F): 9/5/02	02:Aug: 9/6/02	02:Q2(r2): 9/6/02
Sep. 02	9/10/02					
			02:Q2(F): 9/27/02	—	02:Sep: 10/4/02	02:Q3: 10/4/02
Oct. 02†	10/10/02					
			02:Q3(A): 10/31/02	02:Q3(P): 11/7/02	02:Oct: 11/1/02	02:Q3(r1): 11/1/02
Nov. 02	11/10/02					
			02:Q3(P): 11/26/02	02:Q3(F): 12/4/02	02:Nov: 12/6/02	02:Q3(r2): 12/6/02
Dec. 02	12/10/02					

Table 24: Blue Chip Forecasts and NIPA, P&C, amd Employment Situation Release Dates, 2002.

62

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
Jan. 03†	1/10/03		02:Q3(F): 12/20/02	—	02:Dec & CPS Revisions: 1/10/03	02:Q4: 1/10/03
Feb. 03	2/10/03		02:Q4(A): 1/30/03	02:Q4(P): 2/6/03	03:Jan & CES Revisions: 2/7/03	02:Q4(r1): 2/7/03
Mar. 03	3/10/03		02:Q4(P): 2/28/03	02:Q4(F) & Ann. Revisions: 3/6/03	03:Feb: 3/7/03	02:Q4(r2): 3/7/03
Apr. 03†	4/10/03		02:Q4(F): 3/27/03	—	03:Mar: 4/4/03	03:Q1: 4/4/03
May 03	5/10/03		03:Q1(A): 4/25/03	03:Q1(P): 5/1/03	03:Apr: 5/2/03	03:Q1(r1): 5/2/03
Jun. 03	6/10/03		03:Q1(P): 5/29/03	03:Q1(F): 6/4/03	03:May: 6/6/03	03:Q1(r2): 6/6/03
Jul. 03†	7/10/03		03:Q1(F): 6/26/03	—	03:Jun: 7/3/03	03:Q2: 7/3/03
Aug. 03	8/10/03		03:Q2(A): 7/31/03	03:Q2(P): 8/7/03	03:Jul: 8/1/03	03:Q2(r1): 8/1/03
Sep. 03	9/10/03		03:Q2(P): 8/28/03	03:Q2(F): 9/4/03	03:Aug: 9/5/03	03:Q2(r2): 9/5/03
Oct. 03†	10/10/03		03:Q2(F): 9/26/03	—	03:Sep: 10/3/03	03:Q3: 10/3/03
Nov. 03	11/10/03		03:Q3(A): 10/30/03	03:Q3(P): 11/6/03	03:Oct: 11/7/03	03:Q3(r1): 11/7/03
Dec. 03	12/10/03		03:Q3(P): 11/25/03	03:Q3(F): 12/3/03	03:Nov: 12/5/03	03:Q3(r2): 12/5/03

Table 25: Blue Chip Forecasts and NIPA, P&C. and Employment Situation Release Dates, 2003.

F'cast Name	BlueChip released	BC F'cast horizon	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			Comp. Rev.: 12/10/03 / 03:Q3(F): 12/23/03	— / —	03:Dec & CPS Revisions: 1/9/04	03:Q4: 1/9/04
Jan. 04†	1/10/04					
			03:Q4(A): 1/30/04	03:Q4(P): 2/5/04	04:Jan & CES Revisions: 2/6/06	03:Q4(r1): 2/6/04
Feb. 04	2/10/04					
			03:Q4(P): 2/27/04	03:Q4(F) & Ann. Revisions: 3/4/04	04:Feb: 3/5/04	03:Q4(r2): 3/5/04
Mar. 04	3/10/04		07:Q4(F): 3/25/04	—	04:Mar: 4/2/04	04:Q1: 4/2/04
Apr. 04†	4/10/04		04:Q1(A): 4/29/04	04:Q1(P): 5/6/04	04:Apr: 5/7/04	04:Q1(r1): 5/7/04
May 04	5/10/04		04:Q1(P): 5/27/04	04:Q1(F): 6/3/04	04:May: 6/4/04	04:Q1(r2): 6/4/04
Jun. 04	6/10/04		04:Q1(F): 6/25/04	—	04:Jun: 7/2/04	04:Q2: 7/2/04
Jul. 04†	7/10/04		04:Q2(A) & Ann. Revision: 7/30/04	—	04:Jul: 8/6/04	04:Q2(r1): 8/6/04
Aug. 04	8/10/04		04:Q2(P): 8/27/04	04:Q2(P) & NIPA Revision: 8/10/04	04:Aug: 9/3/04	04:Q2(r2): 9/3/04
Sep. 04	9/10/04		04:Q2(F): 9/29/04	04:Q2(F): 9/2/04 / —	04:Sep: 10/8/04	04:Q3: 10/8/04
Oct. 04†	10/10/04		04:Q3(A): 10/29/04	04:Q2(Err.): 10/13/04 / 04:Q3(P): 11/4/04	04:Oct: 11/5/04	04:Q3(r1): 11/5/04
Nov. 04	11/10/04		04:Q3(P): 11/30/04	04:Q3(F): 12/7/04	04:Nov: 12/3/04	04:Q3(r2): 12/3/04
Dec. 04	12/10/04					

Table 26: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 2004.

F'cast Name	BlueChip released	MacroAdv. released	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			04:Q3(F): 12/22/04	04:Q3(F): 12/7/04	04:Dec & CPS Revisions: 1/7/05	04:Q4: 1/7/05
Jan. 05†	1/10/05		04:Q4(A): 1/28/05	04:Q4(P): 2/3/05	05:Jan & CES Revisions: 2/4/05	04:Q4(r1): 2/4/05
Feb. 05	2/10/05		04:Q4(P): 2/25/05	04:Q4(F) & Ann. Revisions: 3/3/05	05:Feb: 3/4/05	04:Q4(r2): 3/4/05
Mar. 05	3/10/05		04:Q4(F): 3/30/05	—	05:Mar: 4/1/05	05:Q1: 4/1/05
Apr. 05†	4/10/05		05:Q1(A): 4/28/05	05:Q1(P): 5/5/05	05:Apr: 5/6/05	05:Q1(r1): 5/6/05
May 05	5/10/05		05:Q1(P): 5/26/05	05:Q1(F): 6/2/05	05:May: 6/3/05	05:Q1(r2): 6/3/05
Jun. 05	6/10/05		05:Q1(F): 6/29/05	—	05:Jun: 7/8/05	05:Q2: 7/8/05
Jul. 05†	7/10/05		05:Q2(A) & Ann. Revisions: 7/29/05	05:Q2(P) & NIPA Revisions: 8/9/05	05:Jul: 8/5/05	05:Q2(r1): 8/5/05
Aug. 05	8/10/05		05:Q2(P): 8/31/05	05:Q2(F): 9/7/05	05:Aug: 9/2/05	05:Q2(r2): 9/2/05
Sep. 05	9/10/05		05:Q2(F): 9/29/05	—	05:Sep: 10/7/05	05:Q3: 10/7/05
Oct. 05†	10/10/05		05:Q3(A): 10/28/05	05:Q3(P): 11/3/05	05:Oct: 11/4/05	05:Q3(r1): 11/4/05
Nov. 05	11/10/05		05:Q3(P): 11/30/05	05:Q3(F): 12/6/05	05:Nov: 12/2/05	05:Q3(r2): 12/2/05
Dec. 05	12/10/05					

Table 27: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 2005.

F'cast Name	BlueChip released	MacroAdv. released	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			05:Q3(F): 12/21/05	—	05:Dec & CPS Revisions: 1/6/06	05:Q4: 1/6/06
Jan. 06†	1/10/06		05:Q4(A): 1/27/06	05:Q4(P): 2/2/06	06:Jan & CES Revisions: 2/3/06	05:Q4(r1): 2/3/06
Feb. 06	2/10/06		05:Q4(P): 2/28/06	05:Q4(F) & Ann. Revisions: 3/7/06		
Mar. 06	3/10/06		05:Q4(F): 3/30/06		06:Feb: 3/10/06	05:Q4(r2): 3/10/06
Apr. 06†	4/10/06			—	06:Mar: 4/7/06	06:Q1: 4/7/06
May 06	5/10/06		06:Q1(A): 4/28/06	06:Q1(P): 5/4/06	06:Apr: 5/5/06	06:Q1(r1): 5/5/06
Jun. 06	6/10/06		06:Q1(P): 5/25/06	06:Q1(F): 6/1/06	06:May: 6/2/06	06:Q1(r2): 6/2/06
Jul. 06†	7/10/06		06:Q1(F): 6/29/06	—	06:Jun: 7/7/06	06:Q2: 7/7/06
Aug. 06	8/10/06		06:Q2(A) & Ann. Revisions: 7/28/06	06:Q2(P) & NIPA Revisions: 8/8/06	06:Jul: 8/4/06	06:Q2(r1): 8/4/06
Sep. 06	9/10/06		06:Q2(P): 8/30/06	06:Q2(F): 9/6/06	06:Aug: 9/1/06	06:Q2(r2): 9/1/06
Oct. 06†	10/10/06		06:Q2(F): 9/28/06	—	06:Sep: 10/6/06	06:Q3: 10/6/06
Nov. 06	11/10/06		06:Q3(A): 10/27/06	06:Q3(P): 11/2/06	06:Oct: 11/3/06	06:Q3(r1): 11/3/06
Dec. 06	12/10/06		06:Q3(P): 11/29/06	06:Q3(F): 12/5/06	06:Nov: 12/8/06	06:Q3(r2): 12/8/06

Table 28: Blue Chip Forecasts and NIPA, P&C, and Employment Situation Release Dates, 2006.

66

F'cast Name	BlueChip released	MacroAdv. released	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			06:Q3(F): 12/21/06	–	06:Dec & CPS Revisions: 1/5/05	06:Q4: 1/5/07
Jan. 07†	1/10/07					
			06:Q4(A): 1/31/07	06:Q4(P): 2/7/07	07:Jan & CES Revisions: 2/2/06	06:Q4(r1): 2/2/07
Feb. 07	2/10/07					
			06:Q4(P): 2/28/07	06:Q4(F) & Ann. Revisions: 3/6/07	07:Feb: 3/9/07	06:Q4(r2): 3/9/07
Mar. 07	3/10/07					
			06:Q4(F): 3/29/07	–	07:Mar: 4/6/07	07:Q1: 4/6/07
Apr. 07†	4/10/07					
			07:Q1(A): 4/27/07	07:Q1(P): 5/3/07	07:Apr: 5/4/07	07:Q1(r1): 5/4/07
May 07	5/10/07					
			07:Q1(P): 5/31/07	07:Q1(F): 6/6/07	07:May: 6/1/07	07:Q1(r2): 6/1/07
Jun. 07	6/10/07					
			07:Q1(F): 6/28/07	–	07:Jun: 7/6/07	07:Q2: 7/6/07
Jul. 07†	7/10/07					
			07:Q2(A) & Ann. Revisions: 7/27/07	07:Q2(P) & NIPA Revisions: 8/7/07	07:Jul: 8/3/07	07:Q2(r1): 8/3/07
Aug. 07	8/10/07					
			07:Q2(P): 8/30/07	07:Q2(F): 9/6/07	07:Aug: 9/7/07	07:Q2(r2): 9/7/07
Sep. 07	9/10/07					
			07:Q2(F): 9/27/07	–	07:Sep: 10/5/07	07:Q3: 10/5/07
Oct. 07†	10/10/07					
			07:Q3(A): 10/31/07	07:Q3(P): 11/7/07	07:Oct: 11/2/07	07:Q3(r1): 11/2/07
Nov. 07	11/10/07					
			07:Q3(P): 11/29/07	07:Q3(F): 12/5/07	07:Nov: 12/7/07	07:Q3(r2): 12/7/07
Dec. 07	12/10/07					

Table 29: Blue Chip Forecasts and NIPA, P&C, amd Employment Situation Release Dates, 2007.

F'cast Name	BlueChip released	MacroAdv. released	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			07:Q3(F): 12/20/07	—	07:Dec & CPS Revisions: 1/4/08	07:Q4: 1/4/08
Jan. 08†	1/10/08		07:Q4(A): 1/30/08	07:Q4(P): 2/6/08	08:Jan & CES Revisions: 2/1/08	07:Q4(r1): 2/1/08
Feb. 08	2/10/08		07:Q4(P): 2/28/08	07:Q4(F) & Ann. Revisions: 3/5/08	08:Feb: 3/7/08	07:Q4(r2): 3/7/08
Mar. 08	3/10/08		07:Q4(F): 3/27/08	—	08:Mar: 4/4/08	08:Q1: 4/4/08
Apr. 08†	4/10/08		08:Q1(A): 4/30/08	08:Q1(P): 5/7/08	08:Apr: 5/2/08	08:Q1(r1): 5/2/08
May 08	5/10/08		08:Q1(P): 5/29/08	08:Q1(F): 6/4/08	08:May: 6/6/08	08:Q1(r2): 6/6/08
Jun. 08	6/10/08		08:Q1(F): 6/26/08	—	08:Jun: 7/3/08	08:Q2: 7/3/08
Jul. 08†	7/10/08		08:Q2(A) & Ann. Revisions: 7/31/08	08:Q2(P) & NIPA Revisions: 8/8/08	08:Jul: 8/1/08	08:Q2(r1): 8/1/08
Aug. 08	8/10/08		08:Q2(P): 8/28/08	08:Q2(F): 9/4/08	08:Aug: 9/5/08	08:Q2(r2): 9/5/08
Sep. 08	9/10/08		08:Q2(F): 9/26/08	—	08:Sep: 10/3/08	08:Q3: 10/3/08
Oct. 08†	10/10/08		08:Q3(A): 10/30/08	08:Q3(P): 11/6/08	08:Oct: 11/7/08	08:Q3(r1): 11/7/08
Nov. 08	11/10/08		08:Q3(P): 11/25/08	08:Q3(F): 12/3/08	08:Nov: 12/5/08	08:Q3(r2): 12/5/08
Dec. 08	12/10/08					

Table 30: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 2008.

F'cast Name	BlueChip released	MacroAdv. released	Interim NIPA releases	Interim P&C releases	Employ't Report (monthly)	Employ't Report (quarterly)
			08:Q3(F): 12/23/08	—	08:Dec & CPS Revisions: 1/9/09	08:Q4: 1/9/09
Jan. 09†	1/10/09					
			08:Q4(A): 1/30/09	08:Q4(P): 2/5/09	09:Jan & CES Revisions: 2/6/06	08:Q4(r1): 2/6/09
Feb. 09	2/10/09					
			08:Q4(P): 2/27/09	08:Q4(F) & Ann. Revisions: 3/5/09	09:Feb: 3/6/09	08:Q4(r2): 3/6/09
Mar. 09	3/10/09					
			07:Q4(F): 3/26/09	—	09:Mar: 4/3/09	09:Q1: 4/3/09
Apr. 09†	4/10/09					
			09:Q1(A): 4/29/09	09:Q1(P): 5/7/09	09:Apr: 5/8/09	09:Q1(r1): 5/8/09
May 09	5/10/09					
			09:Q1(P): 5/29/09	09:Q1(F): 6/4/09	09:May: 6/5/09	09:Q1(r2): 6/5/09
Jun. 09	6/10/09					
			09:Q1(F): 6/25/09	—	09:Jun: 7/2/09	09:Q2: 7/2/09
Jul. 09†	7/10/09					
			09:Q2(A) & Comp. Revisions: 7/31/09		09:Jul: 8/7/09	09:Q2(r1): 8/7/09
Aug. 09*	8/10/09					
			09:Q2(P): 8/27/09	09:Q2(P) & NIPA Revision: 8/11/09; 09:Q2(F): 9/2/09	09:Aug: 9/4/09	09:Q2(r2): 9/4/09
Sep. 09	9/10/09					
			09:Q2(F): 9/30/09	—	09:Sep: 10/2/09	09:Q3: 10/2/09

Table 31: Blue Chip Forecasts and NIPA, P&C. amd Employment Situation Release Dates, 2009.