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WHY THE SECOND QUARTER ECONOMIC GROWTH FIGURES PROBABLY WILL BE WRONG

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On August 1, the Department of Commerce's Bureau of Economic Analysis (BEA) is scheduled to release its preliminary or "advance" gross domestic product (GDP) growth estimate for the second quarter of 1996. This number, good or bad, inevitably will make front-page news and may have a significant impact on the presidential campaign. Just as inevitably, this preliminary number most likely will turn out to be wrong, for quarterly GDP data historically have been subject to substantial later revisions, sometimes so significant that the original estimate tells nothing about the course of the economy.

A single quarter estimate of the growth in GDP usually is a poor signal of the long-term direction of economic growth. Consider the following examples:

- X The GDP growth estimate for the first quarter of 1996 has been revised downward by 21 percent (from 2.8 percent to 2.2 percent).
- X During the last year of the Bush Administration, the first quarter 1992 advance estimate of GDP suggested an annualized growth rate of 2.0 percent. The subsequent revision of the GDP for that quarter showed that growth in the quarter actually was at an annualized rate of 4.7 percent. This is a 135 percent revision between the preliminary and final estimates.
- X As it turns out, the BEA underestimated the growth rate during the Reagan Administration in 63 percent of its advance estimates. During the Clinton Administration, the BEA so far has overesti-

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mated the growth rate on over 69 percent of the occasions on which it published advance estimates.

- X The BEA concedes that in 12 percent of the quarters between 1978 and 1991, the advance GDP growth estimate failed even to indicate correctly whether growth was positive or negative.
- X The average divergence between the advance estimate of GDP growth and the final GDP growth rate between 1976 and 1996 was equivalent to 50 percent of the value of the final GDP growth rate.

WHY DOES QUARTERLY GDP FLUCTUATE SO MUCH?

Measuring GDP changes is a very complex task, made all the more difficult by the fact that quarterly GDP figures are very volatile.

Gross domestic product (GDP) represents the total value of goods and services sold for final consumption by U.S. firms and individuals. It consists of four major components: personal consumption; investment (including business inventories and both residential and nonresidential fixed investment); net exports; and government purchases of goods and services. Fluctuations in any of these individual components of GDP in a given quarter can cause large changes in the quarterly growth rate. The components which typically have the largest and most common fluctuations are changes in business inventories and in government purchases.

A glance at the quarterly GDP growth figures for the last quarter of 1995 illustrates this point. Despite an annualized growth rate in personal consumption expenditures of 1.2 percent and a respectable annualized increase in nonresidential fixed investment of 3.1 percent, overall annualized growth in this quarter was at a recession-like low of 0.5 percent. The reason: An annualized fall in government purchases of over 12 percent during the winter shutdown of 1995-1996 drove down GDP during this quarter.²

Similarly, a number of one-shot factors probably will drive a significant increase in GDP for the second quarter of 1996. One leading econometric consulting firm, the St. Louis-based Macroeconomic Advisers,³ for example, cite a number of factors to support their prediction of a 3.7 percent annualized growth rate for this quarter. These factors include the complete recovery of government purchases following the winter shutdown, the end of the UAW strike at General Motors, an increase in the number of home mortgage refinancings stimulated by lower interest rates (which put extra cash into the hands of consumers), and the economy's recovery after the harsh winter weather.

The extent to which these short-term factors can influence quarterly growth figures can be gauged by looking more closely at what is happening to business inventories. Due to the GM strike and the harsh winter, business inventories fell substantially in the first quarter of 1996 as production experienced a slowdown. Macroeconomic Advisers predicts that over 38 percent of their projected growth in GDP (1.4 percent from a total annualized growth rate of 3.7 percent) in the second quarter of 1996 will come solely from firms restocking their inventories as production gets fully back on line.

2 Bureau of Economic Analysis Statistical Release, June 28, 1996. This can be viewed on the World Wide Web at: <http://www.stat-usa.gov/BEN/ebb/bea/gdp.bea>.

3 Macroeconomic Advisers, *The U.S. Economic Outlook*, June 8, 1996, pp. 6-8. The forecast model used by Macroeconomic Advisers is recognized generally as the industry leader. In 1995, Macroeconomic Advisers won the Blue Chip Consensus Forecasting award. Macroeconomic Advisers also won this award in 1993 and would have won it again in 1994 except for a rule against winning two times in a row. Their forecast and analysis are confirmed by Bureau of National Affairs Special Report No. 127, *Economic Outlook*, July 2, 1996, which surveyed 22 top econometric firms and found the average forecast of GDP annualized growth for the second quarter of 1996 to be 3.8 percent.

WHY ADVANCE ESTIMATES OF GDP GROWTH TEND TO BE WRONG

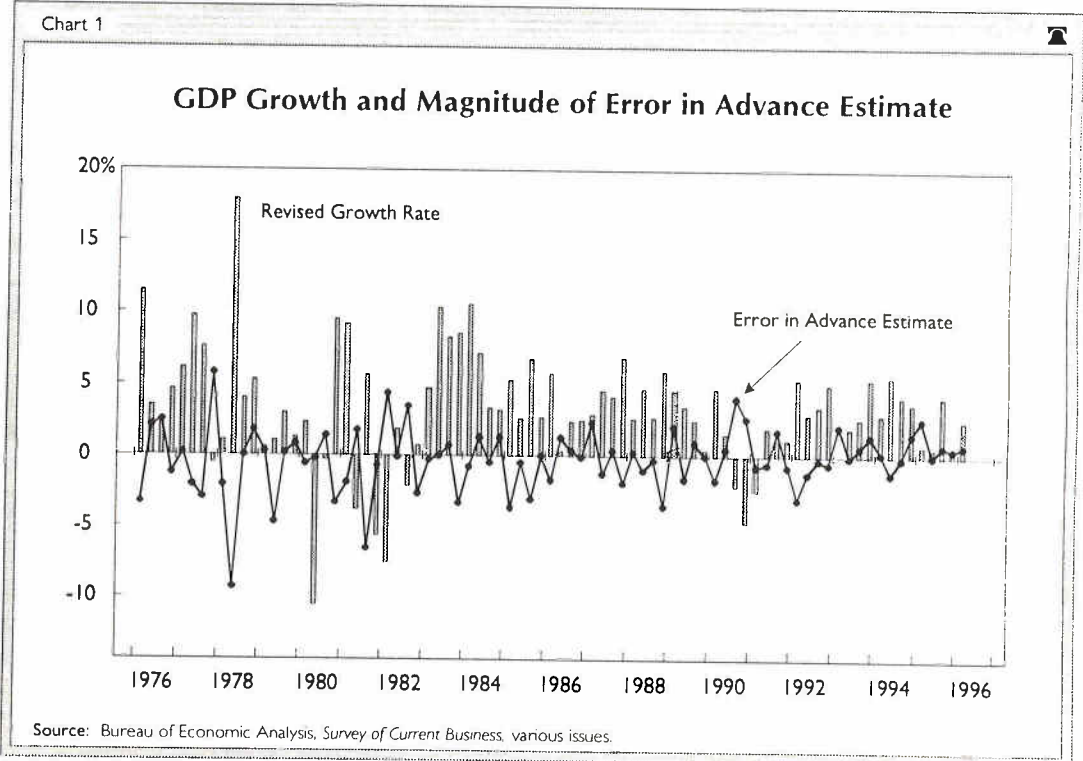
Measuring GDP is a massive and complicated undertaking that involves attempting to record the total sales of all goods for final consumption for the entire United States. The BEA produces its estimates based on sample sales data from a number of individuals and firms, collected during every month. Prices for thousands of individual items are estimated using sample data. Taken together, these comprise virtually millions of data points.

The problem is that when the advance estimate is published only 30 days after the close of the quarter, not all of these data have been examined—or are even available. In 1984, for example, top BEA official Robert Parker noted that for sales of all consumer goods, other than autos and trucks, only data from the first two months of the quarter were available when advance estimates of national income were being made.⁴ To estimate the GDP growth in such a case, with data either missing or unexamined, BEA economists must rely on a combination of extrapolation and guesswork. But given the turbulent nature of quarterly GDP changes, this guesswork often is very inaccurate. These factors mean that large revisions need to be made as the complete dataset becomes available and is examined in full by the BEA.

The revisions also tend to be large because the GDP growth rate is a rate of change. Thus, errors of a small magnitude in total GDP can lead to large errors in the growth rate. For example, if the actual GDP growth rate is 2 percent, even a small error in total GDP could translate into a large error in the actual growth rate, perhaps even 50 percent. In this context, it is not surprising that advance GDP growth estimates often vary substantially from the real figures.

Unfortunately, despite the fact that advance GDP growth estimates are subject to frequent and large revisions, they are quickly seized upon by politicians of both parties either to support their own records or to attack those of their opponents. And unlike the publication of

advance estimates, revisions of these quarterly data by the BEA hardly make the news. This process of correcting and finalizing GDP estimates can last for months—even years—following that initial release and can result in huge revisions which tell a completely different story about how well the



4 Robert N. Parker, "Revisions to the Initial Estimates of Quarterly Gross National Product of the United States, 1968-83," paper presented at University of Florence, Italy, November 1984, pp. 11-12.

economy performed.⁵ Chart 1 shows the difference between the initial “advance” estimates of the real annualized growth rate of GDP and the most up-to-date revisions of these figures for the period since 1976.

Chart 1 shows the difference or “error” between the advance and the most up-to-date revised estimate of the GDP growth rate. The “magnitude of the initial error” refers to the amount by which the advance GDP growth rate was later revised. Thus, if the advance estimate was a 3 percent annualized growth rate and the revised rate was 2 percent, the absolute error was 1 percentage point, which represents a revision of 33 percent.

In most cases, the error is substantial; on a number of occasions, it exceeds the real growth rate itself. Among recent examples of large errors is the first quarter of 1992, when the BEA’s advance estimate of GDP growth underestimated the real annualized growth rate by a factor of 135 percent (the advance annualized real growth estimate was 2.0 percent; real annualized growth in that quarter was actually 4.7 percent, according to the latest revision). The BEA also has revised downward its estimate of the growth rate for the first quarter of 1996 by a factor of almost one-third.

An analysis of the revisions contained in the BEA’s monthly *Survey of Current Business* over the 20-year period from 1976-1996 shows that these recent examples fit a general pattern over many years. In the 80 quarters between the first quarter of 1976 and the first quarter of 1996, the average magnitude of the total revision in annualized real GDP growth amounted to 1.4 percent of GDP. The average quarterly annualized growth rate in GDP over this period was 2.8 percent. This means that the average divergence of the advance estimate of GDP growth from the actual revised figure was equivalent to 50 percent of the value of the actual revised growth rate. According to BEA economist Allan Young, “advance” GDP growth figures failed even to show correctly whether GDP growth was negative or positive in 12 percent of all quarters over the period 1978-1991.⁶ Taking the Reagan years as an example, the BEA’s advance figures underestimated the growth rate in roughly two-thirds (63 percent) of all quarters. Likewise, during the Clinton era, the BEA so far has overestimated the rate of growth in about 70 percent of all of its advance estimates.

WHY IT MAKES MORE SENSE TO LOOK AT TRENDS IN GDP

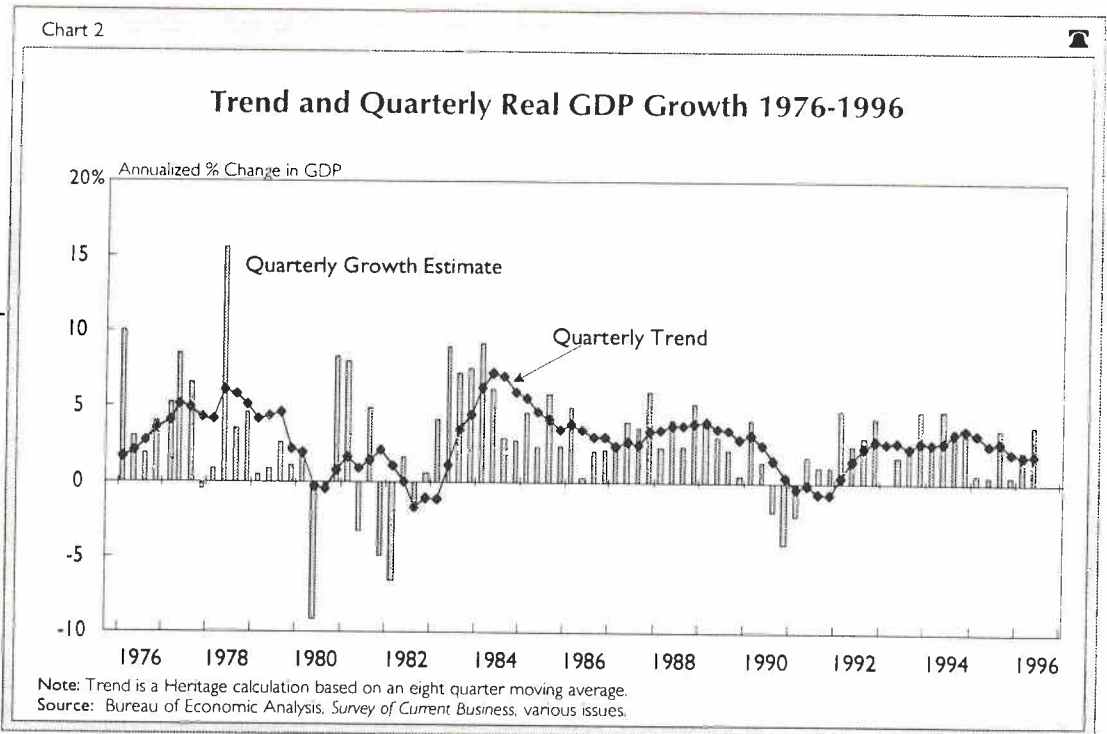
Because of the poor accuracy of advance estimates of GDP and the extreme volatility of quarterly GDP growth rates, a far better picture of the economy emerges from looking at the underlying trends. Chart 2 shows the trend⁷ in economic growth compared with the *revised* quarterly GDP growth rates between the first quarter of 1976 and the second quarter of 1996.⁸

5 GDP data, in addition to undergoing three reviews in the months immediately following collection, undergo large-scale periodic revisions, known as “benchmarking.” The most recent large-scale benchmarking of GDP figures came in January 1996, when the BEA revised and improved all GDP figures dating back to World War II. Among the revisions was the adoption of a chain-weight measure to adjust the figures for inflation, changes in the treatment of depreciation, and the use of new data from the IRS and the 1991 Census. See Bureau of Economic Analysis, “Improved Estimates of the National Income and Product Accounts for 1959-95: Results of the Comprehensive Revision,” *Survey of Current Business*, January/February 1996, p. 1.

6 Bureau of Economic Analysis, *Survey of Current Business*, Vol. 73, No. 10 (October 1993), p. 29.

7 Depicted using an 8-quarter moving average. Moving averages are widely used by economists and government agencies to remove fluctuations from data. They do this by summing and then averaging the change in a variable over a set number of periods. In this case, the moving average trend estimate for a quarter is the mean of GDP growth for that quarter and the seven preceding quarters. This moving average has the effect of filtering out large fluctuations in individual quarters while capturing the long-term pattern of change. For example, a once-off upwards fluctuation in growth in one particular quarter will change this moving average by a factor of only one-eighth of the change in the point estimate, but sustained growth over a number of periods will have a larger effect on the moving average. In all cases, the latest revised GDP growth figures are used. The real growth rate is measured in Chained 1992 dollars.

The data in Chart 2 show two major patterns in the rate of economic growth in recent years: an acceleration in growth rates between the first quarter of 1992 and the final quarter of 1994 and a deceleration in the growth rate beginning after the peak in 1994 and continuing through to the current



period. Both the expansion and the slowdown in the economy, however, have been punctuated by misleading “spikes,” or individual quarters when the GDP growth rate diverged from the trend. For example, during the first quarter of 1993, in the middle of an expansion, the growth rate of GDP fell to zero. More recently, the economy showed strong above-trend growth in the third quarter of 1995.⁹

As can be seen from Chart 2, individual quarterly GDP numbers are a rough and often misleading signal of the long-term and medium-term strength of the economy. Quarterly GDP figures can fluctuate widely because of factors that are unique to that quarter and which pose no long-term implications for economic prosperity.

CONCLUSION

Americans should not be lulled into a false sense of either economic prosperity or impending economic decline by estimates of the economy’s performance during a single quarter. The advance estimates that are scheduled to be released on August 1 are likely to be revised considerably in the weeks and months to come. And even if these quarterly snapshots actually were accurate, quarterly GDP numbers fluctuate considerably for reasons unconnected with the long-term economic growth rate. Americans should not allow themselves to be deceived by these numbers and the political posturing surrounding them; rather, they should pay attention to the longer term patterns in the economy.

8 The annualized real growth in GDP during the second quarter of 1996 is forecast at 3.7 percent by Macroeconomic Advisers.

9 It is important to emphasize that while the growth figures presented in Chart 1 represent the most up-to-date revisions, they are by no means final. All of the data, and especially the data from the most recent quarters, will continue to undergo checking and revision by the BEA.

