WHY ECONOMIC DATA SHOULD BE HANDLED WITH CARE: THE CASE OF THE SUSPICIOUSLY SLOW GROWTH STATISTIC

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Economic statistics should be used with caution. That admonition is not new, as economists have often warned of errors of observation, conceptual ambiguities, and spurious accuracy embedded in economic data (for example, see Morgenstern [1963]). Moreover, official spokesmen routinely warn of probable errors when releasing new figures. Despite that advice, however, many users of economic data still uncritically accept the seemingly straightforward statistics. The preliminary estimates of gross national product (GNP) and related items for the first quarter of 1983 are a case in point. The purpose of this note is to show that the interpretation of the first quarter statistics can be dramatically changed upon close inspection, and thereby illustrate the general need for caution in interpreting economic statistics.

Preliminary estimates indicated that real GNP grew at a 3.1 percent rate during the first quarter.[1] That relatively slow rate of growth was believed by many observers to be a highly significant indicator of the modest pace of near-term economic expansion. For example, Robert Gough, the director of national forecasting for Data Resources Inc. (a major economic consulting service) asserted, "[The GNP report] reaffirms initial forecasts that the recovery will be modest by historic standards. If this were a typical recovery, you would have a heck of a lot more growth than we're seeing." [1983]

If taken at face value, 3.1 percent real growth would indeed be quite modest. However, there are solid reasons for believing that the economy was stronger than the preliminary report indicated. This can most easily be seen by first looking at statistics that are produced in conjunction with the GNP figure and noting that the GNP implicit price deflator was reported to have grown at a 5.8 percent rate. However, other estimates of inflation were extremely low. The consumer price index, for example, rose at a sluggish 0.4 percent annual rate in the first quarter, and the producer price index for finished goods actually declined at a 3.9 percent annual rate. Thus one's suspicions should have immediately been aroused by the relatively high inflation estimate contained in the income and product accounts.

The estimate of the deflator, moreover, is critical to the estimate of real GNP. That is, if any factor caused the deflator to temporarily overstate the rate of inflation, then that same factor might well cause the reported growth rate of real GNP to temporarily deviate from the underlying growth trend of real economic activity. To see this, note that the Commerce Department receives estimates of spending in current dollars. In order to estimate real GNP, the Department's analysts adjust the current dollar figure for inflation by dividing it by the implicit price deflator. Consequently, the real GNP estimate depends on the estimated price index used in its construction.

At times, the GNP deflator diverges from many other price measures due to the fact that the deflator is affected by changes in quantities produced, whereas other indexes represent prices of fixed quantities of items.[2] More specifically, when (1) there is a sub-

[1] All references to the first quarter income and product accounts refer to "preliminary" estimates released in April. Although the statistics are routinely revised, the conceptual difficulties identified in this article are beyond the scope of routine revision.

[2] An implicit price deflator is simply the ratio of current period quantities valued at current prices to those same quantities valued at base period prices. In symbols,

$$IPD_t = \frac{\Sigma\ p^i_t q^i_t}{\Sigma\ p^i_{72} q^i_t}$$

where IPD is the implicit price deflator, p is the price of a single item, q is the quantity of a single item, the subscript t indexes a time period, 1972 is the base year, and the superscript i indexes all items in the aggregate to be deflated. Thus the deflator can be changed by a change in the pattern of output, that is to say, different q^i's in the formula above.

stantial change in the quantity of an item that is produced, and (2) the price of that particular item has changed either much more or much less than average, (relative to 1972, the base period for the index) then the GNP deflator will behave in a different manner than the GNP fixed-weight price index. And during the first quarter, two factors caused much of the divergence between the GNP implicit price deflator and other estimates of inflation. For one, the volume of federal purchases of agricultural products surged during the fourth quarter of 1982 and then fell back to a more normal level in the first quarter of 1983. Since the particular items purchased had relatively low prices, the net effect was a relatively low level of the deflator for the fourth quarter. A second factor was a significant decline in relatively high priced imports of petroleum products. Because imports are subtracted from domestic product in order to calculate GNP, the decline tended to boost the deflator in the first quarter. Combined with the depressed level of the deflator in the fourth quarter, the final result was a relatively high growth rate for the deflator.

Neither of those two effects represents inflation in the usual sense of a substantial, widespread, and sustained increase in prices. In addition, neither indicates a sluggish rate of growth of real economic activity. But each does have a substantial impact on reported numbers. Thus the GNP fixed-weight price index, a measure not affected by changes in the composition of output, rose at a 3.2 percent rate. Had that index been used to convert nominal to real GNP, then real growth in the first quarter would have been placed at 5.7 percent, rather than the reported 3.1 percent. (The higher figure seems to be consistent with monthly indicators that grew at a rapid pace, such as housing starts and industrial production.)

One should not conclude that GNP estimates are more unreliable than other economic figures. On the contrary, GNP and related statistics are probably our best single source of economic data. The point is simply that even the best data can be misleading, especially when considering changes over intervals as short as one quarter. Therefore one should not place too much emphasis on short-term movements of economic data without carefully searching for hidden anomalies.

References

1. Morgenstern, Oskar. On the *Accuracy of Economic Observations.* Princeton: 1963.
2. Powell, Eileen Alt. "Economy Grew at a 3.1% Pace in First Quarter." *Wall Street Journal,* April 21, 1983, p. 3.