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The Growth of Potential GNP: An Explanatory Note on the Council's 1965 Annual Report

From the March 1961 testimony of the Council before the Joint Economic Committee through the 1964 Annual Report, potential GNP (at 4 percent unemployment) was represented by a trend line drawn through the actual real GNP of mid-1955 with a constant annual growth of 3-1/2 percent per year. The 1965 Annual Report presented the same estimate once more for potential GNP in 1955-62, but it estimated the growth of potential at 3-3/4 percent a year beginning in 1963. The Report stated:

> "It now appears that the growth of potential has recently stepped up: A real growth rate of actual GNP somewhat greater than 3-1/2 percent has been required to prevent a rise in the unemployment rate. ... The best estimate of recent potential growth must be placed somewhat above 3-1/2 percent and below 4 percent. In line with this conclusion, Chart 12 shows the growth rate of potential GNP as 3-1/2 percent from 1955 through 1962 and 3-3/4 percent thereafter."

As the Report indicated, the trend rate of potential growth was estimated -- as in previous Council efforts -- by finding the rate of growth required to hold the unemployment rate constant. This method of "leaping" from unemployment to potential output and the statistical findings that emerge are discussed in Arthur M. Okun, "Potential GNP: Its Measurement and Significance," 1962 Proceedings of the Business and Economic Statistics Section of the American Statistical Association. (Reprinted as Cowles Foundation Paper No. 190.)

A number of pieces of evidence suggested the basic conclusion that the growth rate required to prevent a rise in the unemployment rate has recently exceeded 3-1/2 percent.

1. In Okun's 1962 paper, the following equation is presented:

$$\log N_t = \log \frac{N_f}{P_o^a} + a \log A_t - (a\, r)\, t$$

where N_t = the employment rate.

N_f = the employment rate at "full employment," taken to be 96.

P_o = potential GNP at time zero.

A_t = actual real GNP.

t = a time trend.

a = the "output elasticity of the employment rate."

r = the estimated potential growth rate.

For the period 1953 IV - 1960 III, this equation yields a potential growth trend of 3.5 percent. For the period from 1960 IV - 1964 III, the rate is slightly higher at 3.6 percent. This technique cannot be expected to yield meaningful results for shorter periods, so that one cannot examine the sub-periods of the current expansion.

2. A more flexible if less elegant approach is to take actual growth rates over a period of time and to try to infer potential growth by adjusting for the changes in the unemployment rate. The adjustment involves adding a percentage increment equal to 3.2 times the change in the unemployment rate to the actual growth of real GNP and then converting the "adjusted growth" to an annual

rate. Since the adjustment is only approximate, it is best to find initial and terminal dates which have nearly identical unemployment rates. Here are the results of several of these calculations:

Period	Growth Rate
1959-63	3.70%
1959-64	3.54
1959 II-1964 II	3.51
1960 I - 1964 II	3.78
1960 II-1964 III	3.71

All of these exceed 3.5 percent.

3. The 1962 Okun paper presented an alternative potential GNP estimate constructed by expanding actual GNP by a percentage equal to 3.2 times the excess of the unemployment rate over 4 percent. As the chart in that paper showed, the alternative measure of potential fluctuated around the 3-1/2 percent trend line in a cyclical pattern. But its performance in this expansion relative to the 3.5 percent trend line has been unusual in that the "alternative potential" remained consistently above the trend line for more than 3 years. The average deviation from 1963-I to 1964-III was $2 billion, again suggesting that the trend line needed to be pulled up.

None of these estimates is decisive on just when to bend the trend line or exactly how much to raise the estimated growth

rate. But the relevant range of rates does seem to be 3.6 to 3.8, and the relevant range of dates for the acceleration is 1961 to 1963. A 3-3/4 percent rate starting in 1963-I is an appropriate and reasonable choice. No more than this is claimed for it.

A rise in the growth rate of potential must reflect a higher rate of trend productivity growth, a more rapid normal growth of the labor force, or both. In view of the short period since potential growth apparently began stepping up, the Council Report is explicitly agnostic on the sources of the recent gain. Research is now underway to distinguish the factors at work. Whether or not the "normal" growth of the labor force has already increased, studies by the Bureau of Labor Statistics indicate it will be considerably higher in 1964-70 than it was in 1955-64. Taking this into account, the Council tentatively concluded that the annual growth of potential GNP is likely to average around 4 percent in 1965-70.