

Tax & Budget

BULLETIN

No. 5 • May 2002

New Evidence on the Old Phillips Curve

by William Niskanen and Alan Reynolds, Cato Institute

If you look up “Phillips Curve” on www.google.com, you will be deluged with links to about 15,000 articles and studies. The first on that list is from the popular website of University of California at Berkeley professor J. Bradford DeLong. He notes:

Whenever unemployment is low, inflation tends to be high. Whenever unemployment is high, inflation tends to be low. This inverse relationship between inflation and unemployment is called the Phillips curve.¹

That statement appears to be a description of the facts rather than merely the definition of a presumed relation. Indeed, it is true that facts originally inspired A. W. Phillips’ 1958 study, which was based on British data from 1861 to 1957. In the 1960s, U.S. data also seemed to show a tradeoff between unemployment and inflation.

Keynesian models developed in the 1960s relied heavily on the Phillips Curve to link nominal variables (measured in current dollars) with real variables (adjusted for inflation). Without that link, Keynesian theory would have needed some non-Keynesian (e.g., monetarist) explanation for inflation and deflation. The Phillips Curve made many economists and policymakers believe that higher unemployment was the cost of lower inflation. As such, the government needed to select a point that minimized the sum of those costs. Since it always seemed politically more urgent to reduce unemployment than inflation, that view helped rationalize a policy of monetary ease that produced waves of double-digit inflation in the 1970s and early 1980s. Wage and price controls and guidelines were adopted to fight inflation, but that simply caused wasteful economic distortions.

A strange thing happened on the road to a Phillips Curve nirvana where a little more inflation could be

swapped for less unemployment. Inflation and unemployment increased at the same time creating “stagflation.” By 1975, unemployment had risen sharply to 8.5 percent with inflation reaching highs in 1974 and 1975. It happened again in the early 1980s with unemployment peaking at 9.7 percent and inflation hitting highs between 1979 and 1981. It became painfully clear that high unemployment did not ensure low inflation, and high inflation did not ensure low unemployment.

Rather than simply discarding the failed Phillips Curve, economists began an unproductive search for reasons (such as oil supply shocks) why the curve might have “shifted.” Many argued that a trade-off still existed, but that we would have to accept much higher inflation in exchange for only slightly lower unemployment.

Any significant relationship between inflation and unemployment ought to be easily seen by plotting the figures on a scatter diagram. But doing that with annual figures for 1961 to 2001 just shows a random scatter. Unemployment is sometimes high and inflation low (1961); unemployment is sometimes low and inflation high (1969); both have been low at times (2001); and both have been high at times (1974 and 1980). To try to explain such variations by invisible shifts in the relationship is to leave the whole concept empty.

Edmund Phelps and Milton Friedman suggested in the late 1960s that the unemployment rate was related to *changes* in the inflation rate. This implied that the unemployment rate could decline temporarily in response to an increase in the inflation rate, but unemployment could not be held down by persistently higher inflation. Figure 1 shows that there has been a weak negative relationship between *changes* in inflation and the unemployment rate during the past four decades.² This link inspired a search for the lowest unemployment rate that could be maintained without an acceleration of inflation.

The resulting estimate became known by the dreadful acronym NAIRU—the non-accelerating inflation rate of unemployment. Figure 1 suggests the NAIRU is about 6 percent, but with considerable variation, based on U.S. data. Unemployment has been below 6 percent since 1994, for example, with no acceleration of inflation.

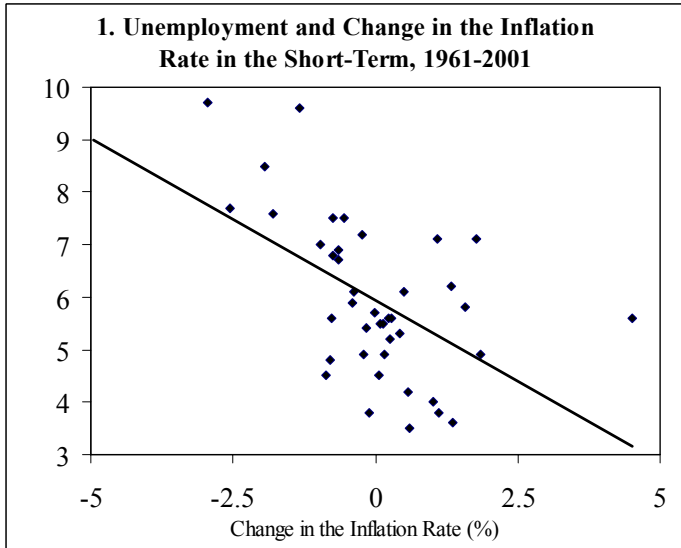
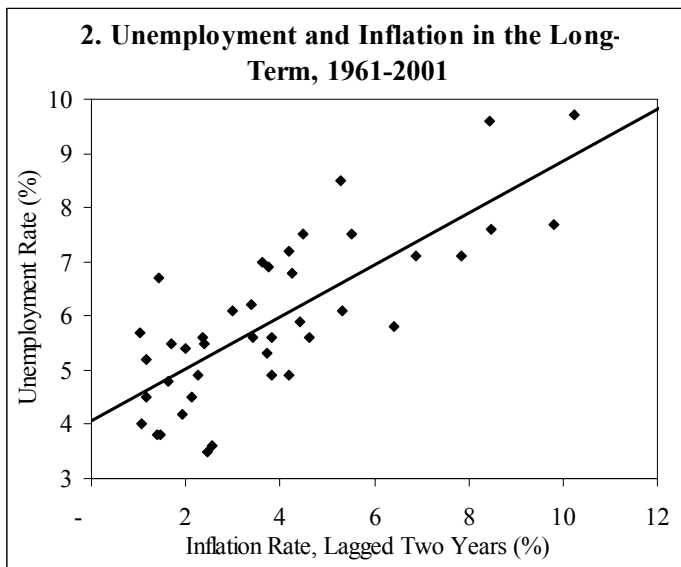


Figure 2, however, shows a strong *positive* relationship between the inflation rate and the unemployment rate two years later. This is the exact opposite of the *negative* relationship implied by the Phillips Curve.



For example, high inflation in 1974 was followed by 8.5 percent unemployment in 1975. And high inflation in 1980 was followed by unemployment of 9.7 percent by 1982. Higher inflation is typically followed by higher unemployment in subsequent years.

There are several possible explanations why the longer-term relationship between inflation and unemployment is actually *positive*, rather than negative as the original Phillips Curve predicted or neutral as the Phelps-Friedman variation predicted. First, the tax system is imperfectly indexed against inflation, especially with respect to income from capital (such as depreciation allowances and capital gains). As a result, inflation reduces after-tax returns on capital and forces cutbacks in business investment and related employment. Second, inflation may introduce confusion into relative price signals in the economy, which distorts efficient production and employment decisions. Third, the Federal Reserve has often reacted to higher inflation with a lag, restricting bank liquidity that results in belt-tightening by employers and temporarily higher unemployment.

To summarize: (1) There is no evidence of a Phillips Curve trade-off between unemployment and inflation in the long-term, (2) the usual way of estimating the NAIRU is formulated incorrectly, and (3) the actual relationship between inflation and unemployment is positive in the long run.

In a more formal paper, these relationships are modeled in three equations.³ The final equation comes to the striking result that the minimum sustainable unemployment rate is much lower than prior NAIRU estimates suggest—only about 3.7 percent. But such a low unemployment rate can only be sustained by keeping long-term inflation very close to *zero*.

¹ www.j-bradford-delong.net/multimedia/USPCurve.html.

² The inflation measure used is the chain-type price index for gross domestic product.

³ William Niskanen, *Cato Journal*, forthcoming. The model's first equation expresses the unemployment rate in equilibrium as a combination of a negative function of the current inflation rate and a positive function of the prior year's inflation rate. The second equation expresses the rate of change of the unemployment rate in terms of the difference between the rate when it settles down to equilibrium and the rate of unemployment a year earlier. It yields an estimate of the unemployment rate as 3.7 percent at zero inflation, based on U.S. data from 1961 to 2001.