

Explaining the U. S. Economic Miracle

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Introduction

Based on data through the end of 1999, the "Goldilocks" U. S. economy continued to be "neither too hot, nor too cold, but just right." Unemployment had declined to the lowest level since 1969, yet inflation had not yet begun to accelerate as would universally have been predicted as recently as three years ago based on existing structural relationships. Included among the remarkable achievements of the U. S. economy is the longest business expansion, as of February 2000, in U. S. historical records that date back to 1850.

While there are many important questions to raise about this successful macroeconomic record, by far the most important is to determine why inflation has remained so low. Once we can explain that, we can explain everything else, including:

- (1) Why short-term interest rates are currently lower than in late 1994, when unemployment was 6 percent instead of the current 4.1 percent.
- (2) With the booming economy and low interest rates, why profits have grown so rapidly.
- (3) With booming profits, why stock prices have exploded (this explanation requires not just low inflation, but also an explanation as to why the stock market overreacted on the low side to high inflation in the 1970s and has overreacted on the high side to the low inflation of the 1990s).

(4) With booming stock prices, why consumption has grown much faster than income during the past few years.

There are some commentators who quibble at the exclusive focus on inflation behavior as an explanation of the U. S. macroeconomic miracle. One group states that low inflation is not surprising, since an acceleration of wage growth from 1994 to 1998 (which stopped at least temporarily in 1999) was offset by an acceleration of productivity growth, so that unit labor costs have not exhibited an acceleration. In this view, the central question is to explain why productivity growth has accelerated, not why inflation is so low. Another group argues that low inflation is not surprising in light of the relatively low and declining rate of industrial capacity utilization, and so the spotlight should be shifted to ask why unemployment is so low in view of this low utilization rate.

Explaining the Low Inflation Rate

The standard organizing principle in U. S. mainstream macroeconomics is the natural rate version of the Phillips curve. There is a natural rate of unemployment or "NAIRU" (non-accelerating inflation rate of unemployment) at which the inflation rate is constant. When the actual unemployment rate declines below the NAIRU, inflation accelerates. When the actual unemployment rate rises above the NAIRU, inflation decelerates.

In order to determine the value of the NAIRU, we run a regression over some period of time in which the inflation rate is explained by its own lagged values (representing the role of "inertia"), the unemployment rate and by other relevant variables representing the impact of supply shocks. The constant term in the regression can be converted into a constant NAIRU, and

it is possible to allow the constant to vary over time, which yields a time-varying NAIRU.

The supply shock variables, at least in the United States context, typically include the rate of change of *real* import prices and *real* food-energy prices. When these relative price changes are equal to zero, then the influence of supply shocks is absent, and inflation is determined only by lagged inflation and the gap between the actual unemployment rate and the estimated NAIRU.

The NAIRU concept is sometimes called the "no-shock" NAIRU, namely the unemployment rate consistent with steady inflation in the absence of supply shocks. When adverse supply shocks occur, i.e. in the form of a sharp increase in the real price of oil, the unemployment rate needed to maintain inflation unchanged is, of course, much higher than the no-shock NAIRU. When beneficial supply shocks occur the unemployment rate consistent with steady inflation can fall below the no-shock NAIRU, and this appears to have occurred in the U. S. in the period 1995-98. In fact, the easiest way to explain the conjunction of high inflation and unemployment in the 1970s and the conjunction of low inflation and unemployment in the late 1990s is to emphasize the role of supply shocks operating in opposite directions in these episodes. In addition to the role of import and oil shocks in pushing unemployment up or down relative to the NAIRU, other events can push down the no-shock NAIRU itself, and quite a long list of these factors contributes to a full explanation of the U. S. experience.

Turning to the quantitative significance of the supply shocks, real import prices fell at an annual rate of 1.9 percent between 1992 and 1996, and then the rate of decline accelerated to an annual rate of 6.2 percent between 1996 and the first quarter of 1998, and the decline continued at a still rapid 4.5 percent per annum between then and the first quarter of 1999. Amplifying the effect of declining real import prices were real energy prices, which as measured by the CPI

declined by 10 percent in 1998 to a trough in early 1999. These relatively large beneficial supply shocks help us to understand how the economy was able to operate with an unemployment rate of 4.1-4.5 percent during a period when the most optimistic NAIRU estimate was in the range of 5.1-5.2 percent.

Factors Pushing Down the NAIRU

Added to this impact was the combined force of several other factors not entered directly into the econometric estimation that helped to push down the NAIRU directly. First among these was a series of measurement changes in the CPI, which between 1993 and 1999 reduced CPI inflation by 0.6-0.7 percentage points relative to "true" inflation (most of these changes were "backcast" in the national accounts deflators to 1978, and so measurement improvements play virtually no role in explaining why inflation in the deflators was so low in 1998-99). Second, there was a sharp deceleration of inflation in the medical care sector that accounts for 12 percent of GDP and 16 percent of consumption expenditures. After running at twice the overall inflation rate in 1990-93, medical care inflation slowed to a rate equal to overall inflation in 1996-97. Third, there was a sharp acceleration in the rate of *decline* of computer prices, so much so that the computer sector is now deducting nearly 0.6 percentage point from the inflation rate that pertains to the rest of the economy with the computer sector omitted.

A separate set of explanations for the declining NAIRU relates to behavior in the U. S. labor market. Several unrelated factors have combined to reduce the NAIRU. The first is demographics; teenagers typically have much higher unemployment rates than adults as they experience multiple transitions between school and work, and the share of teenagers in the labor force fell continuously after 1981. This beneficial event was offset by other factors, including an acceleration of medical care inflation, during the 1980s but made a small contribution to the favorable 1990s outcome. Second, the U. S. adopted "get-tough" anti-crime and anti-drug legislation that resulted a tripling of the number imprisoned between 1985 and the late 1990s. Some of these prisoners would have been unemployed if they had not been behind bars, and a recent estimate suggests that this reduced the NAIRU by perhaps 0.1-0.2 percentage points. A third factor which contributed to the increased efficiency of the U. S. labor market was a rapid rise in the share of employment attributable to temporary help agencies which allow workers to be matched much more quickly than before to part-time and unskilled job vacancies. Finally, an elastic supply of low-skill labor has been provided by legal and illegal immigration, particularly from Mexico, Central and Latin America, and the Caribbean nations. Recent reports suggest a sharp reduction in official attempts to locate and deport illegal immigrants.

All four of these factors work in the direction of reducing the unemployment rate for any given degree of labor-market tightness and help to explain why the unemployment rate is relatively low without the rate of capacity utilization being relatively high. Finally, a general set of factors has reduced the bargaining power of labor and helps to explain the relatively slow acceleration of wages in the face of low unemployment. These include the steady decline in the fraction of workers who belong to unions and the sharp decline in the real minimum wage that

occurred in the 1980s and early 1990s.

The Productivity Growth Revival

Between 1972 and 1995 U. S. nonfarm business output per hour grew at a dismal rate which until recently was estimated to be a mere 1.1 percent per year, in contrast to a rate of 2.8 percent per year between 1948 and 1972. Economists despaired to find a convincing explanation of the productivity growth slowdown. But since 1995 the slowdown appears to be over, and there is much discussion of the reasons for this turnaround. Some part of the improvement has been created by improved inflation measurement, which has reduced measured inflation while boosting measured output and productivity growth. As a result of this factor, the dismal 1.1 percent average growth rate for 1972-95 was boosted to 1.5 percent in revisions released in late 1999. But since the end of 1995 productivity growth has been at an average annual rate of 2.8 percent, equal to the golden age of 1948-72. What caused this recovery, and will it last?

No doubt part of the recovery reflects transitory cyclical factors. Historically any increase of output growth above its trend rate has been followed by a less than proportionate increase in hours growth, leading to a temporary bulge in productivity growth. Though the growth in the output trend has accelerated, there can be no doubt that actual output growth has been above any sustainable trend. We know that because much of the labor producing the extra output has come from a decline in unemployment (from 5.6 percent in 1995:Q4 to 4.1 percent in 1999:Q4) that is unsustainable in the sense that the unemployment rate cannot decline forever. Even if the unemployment rate levels off at 4 percent and does not rise back toward the NAIRU, output will of necessity grow slower, and most observers expect the unemployment rate to move back

toward at least 5 percent as the economy experiences the lagged impacts of higher real prices of imports and oil, as has occurred since early 1999. In Alan Greenspan's phrase, the remarkable rate of expansion of real GDP has been facilitated by two "safety valves," the unsustainable decline in the unemployment rate and the unsustainable rise in the U. S. trade deficit.

Using econometric techniques developed long before the recent productivity growth revival, I have estimated that roughly 0.5 percentage points of the 1.3 percent revival (from 1.5 to 2.8 percent) is attributable to this cyclical effect, and so the sustainable long-run trend rate of productivity growth has accelerated from 1.5 to 2.3 percent. A small further contribution of 0.2 percent has been made by measurement improvements and a favorable demographic shift in the age-sex composition of the work force. This leaves 0.6 percent as the remaining portion of the acceleration, and all of this has been achieved within the durable manufacturing sector, leaving no structural acceleration at all in the 88 percent of the private business economy producing nondurable goods and all types of services.

However the productivity revival is explained, it automatically contributes on a one-for-one basis to holding down the rate of change of unit labor costs. The productivity revival may have operated directly to hold down inflation by a mechanism similar to, but working in the opposite direction as, the productivity slowdown that occurred in the early 1970s. In the earlier episode, real wage increases may have been set at the customary rate of productivity increase, so that a slowdown in productivity growth would have directly boosted the growth in unit labor cost. In the recent episode, if real wage increases were set at the slow rate of productivity increase that became customary during the 1972-95 slowdown period, then the productivity growth revival would directly have reduced the growth rate of unit labor cost.

Conclusion

Sometimes we are satisfied to find a single "smoking gun" or "silver bullet" that alone is powerful enough to provide an explanation of a macroeconomic puzzle. However, on this occasion we have no fewer than 12 separate and largely unrelated explanations of why inflation has been so low given unemployment, or why unemployment has been so low without igniting inflation. These 12 factors in the order discussed here are (1) falling real import prices through early 1999, (2) falling real oil prices through early 1999, (3) measurement improvements that reduced measured inflation relative to true inflation, (4) an autonomous deceleration in medical care inflation, (5) an autonomous acceleration in the rate of decline of computer prices, (6) favorable demographics, (7) "get-tough" anti-crime and anti-drug policies, (8) the growth of temporary help agencies, (9) the flood of legal and illegal immigrants, (10) the declining importance of unions, (11) the declining real minimum wage, and (12) the productivity growth revival, which overlaps with (5) to the extent that it was partially caused by dynamic technological acceleration in the computer industry.

Thus we conclude that the late 1990s were an unusually brilliant period in U. S. macroeconomic history because an unusually long list of favorable events came together to hold down inflation, unemployment, or both at a time when monetary policy pursued a "wait-and-see" attitude that allowed these favorable developments to run their course without pre-emptive increases in interest rates. This environment began to change, however, early in the year 2000 as rising real import prices and real energy prices began to feed through to other prices. Some other elements in the list also showed signs of turning around, including medical care prices. Further, the direct contribution of rapid productivity growth would surely lessen in important as the rate of

real output growth slowed either through natural forces or under pressure of renewed monetary vigilance and restriction. While U. S. macroeconomic performance may continue to look relatively good in the next five years by historical U. S. standards and by current international standards, it is extremely unlikely to match the platinum standard achieved during the years 1995-99.