

THE 1990s INFLATION PUZZLE

A Commentary by Harvey Rosenblum

THE CURRENT ECONOMIC expansion differs from its post-World War II predecessors. First, it has lasted longer, 110 months and still counting (as of May 2000). Second, inflation has drifted downward throughout the expansion, contrary to the usual pattern of inflation rising as an expansion ages. Moreover, even though unemployment fell to around 4 percent in 1999 and early 2000, inflation—at least as measured by the core inflation rate, which excludes food and energy—has basically maintained its downward trajectory (*Chart 1*).

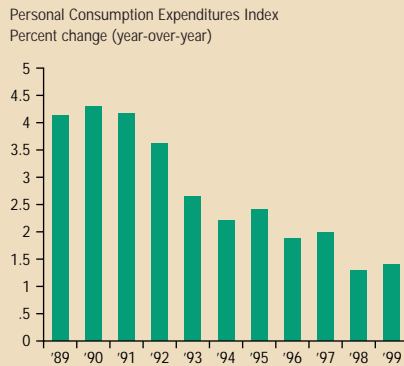
In earlier decades, low unemployment was associated with rising wage growth and rising inflation. During the 1990s, however, that connection seems to have been broken. This article explores a variety of factors that may help explain why the processes that generate inflation have undergone a fundamental shift during the 1990s.

I conclude that neither the unemployment rate nor the monetary growth rate can explain the declining inflation rate during the 1990s. Rather, the missing pieces to the inflation puzzle are to be found in the synergies among (1) immigration, (2) expanded trade and globalization, (3) the explosion of private-sector applications of new technologies, (4) the beginning of a reduced scope for government and (5) a quantum leap in the availability of capital to businesses of all sizes.

The Phillips Curve

For over 35 years, economics textbooks have addressed the Phillips curve. Back in the 1960s, the Phillips curve depicted an inverse relationship between inflation (actually wage growth) and

Chart 1
1990s Core Inflation Drifts Downward



SOURCE: Bureau of Economic Analysis.

unemployment. The concept was fairly simple: at low levels of unemployment, workers would demand higher wages; employers would capitulate but would increase product prices to maintain profit margins. In this world, lower unem-

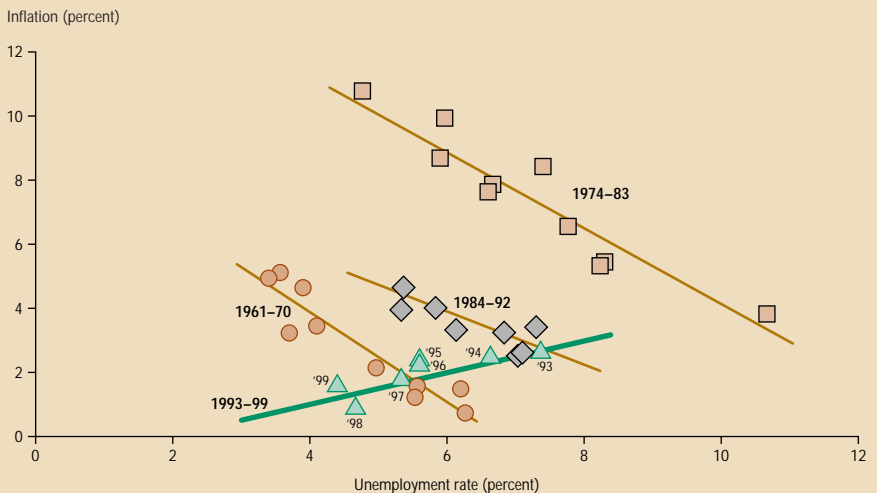
ployment tended to be followed by, but not necessarily cause, higher inflation.

This simplistic version of the Phillips curve framework has been discredited for a couple of decades, but belief in this relationship persists. A best-selling economics principles textbook deals with the matter this way:

“In what sense, then, do policymakers face a *trade-off* between inflation and unemployment? The answer is that: The cost of *reducing unemployment* more rapidly by expansionary fiscal and monetary policies is a permanently *higher inflation rate*.”¹

Before the mid-1990s a casual glance at the Phillips curve would have verified the previous quotation. The changing nature of the Phillips curve during the 1990s was not apparent until 1996 or 1997 (*Chart 2*). Even with additional data through the end of 1998, the author of a leading intermediate macroeconomics text suggests that the improved in-

Chart 2
The Phillips Curve Slopes Up in the '90s



SOURCE: Bureau of Economic Analysis, NIPA tables; Bureau of Labor Statistics.

flation performance of the 1990s was due to temporary factors:

“Low unemployment still leads to pressure on wages. The good inflation performance of the 1990s appears to be due more to an unusually slow increase in nonwage costs and import prices rather than to fundamental changes in the labor market. It is therefore reasonable to forecast that the natural rate [of unemployment] will not remain as low as it appears to be in the late 1990s.”²

More recently, Professor Brad DeLong challenged the mind-set of those who continue to believe in the Phillips curve:

“Thus perhaps the surprising thing is not that the Phillips Curve-based forecasts of inflation have gone awry in the past half decade. Perhaps the surprising thing is that the complicated economic processes determining changes in inflation could be summarized for so long by such a simple relationship as the Phillips Curve. In any event one thing is very clear: the simple theory of the relation between inflation and unemployment that economists have peddled for a quarter century no longer works.”³

Given the economics profession’s belief in the Phillips curve, at least in the short run, it is worth examining the forces that changed the inflation–unemployment relationship during the 1990s. What are these economic forces, and, equally important, are they likely to remain in place in the coming decade? The answers are critical in the Fed’s conduct of monetary policy. I now turn to another single-factor view of inflation that prevailed for many years.

Money as the Source of Inflation

Economists as far back as the 18th century observed a correlation between growth in the money supply—discoveries of gold and silver in those days—and subsequent outbreaks of inflation. Ultimately, this observation developed into the Quantity Theory of Money, which attempted to explain the relationship between money, prices and national income. Milton Friedman, winner

of the 1976 Nobel Prize for economics, expressed the relationship succinctly: “Inflation is always and everywhere a monetary phenomenon.”

It was adherence to this belief that induced then Federal Reserve Chairman Paul A. Volcker and the Federal Open Market Committee (FOMC) on October 6, 1979, to abandon conducting monetary policy by setting the federal funds rate and to instead focus more directly on controlling the growth rate of money. In part because extreme volatility of interest rates accompanied monetary targeting and in part because inflation had become more muted, the FOMC’s experiment with rigid monetary control ended three years after it began.

Although the inflation rate dropped from double-digit levels in the late 1970s and early 1980s, it rarely fell below the 3 percent to 4 percent range. The Fed finally abandoned monetary targeting altogether in mid-1993, following several consecutive years of exceptionally weak monetary growth. The FOMC announced its downgrading of M2 and M1 as intermediate targets because it recognized, in the words of Fed Chairman Alan Greenspan, “that the relationship between spending and money holdings was departing markedly from historical norms....The FOMC will continue to monitor the behavior of money-supply measures for evidence about underlying economic and financial developments more generally, but it will still have to base its assessments regarding appropriate policy actions on a wide variety of economic indicators.”⁴

In other words, in the Fed’s pursuit of price stability, money growth matters, but it matters a lot less than previously.

Other Influences on Inflation

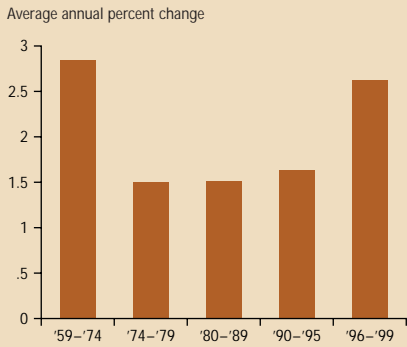
If both the unemployment rate and the money growth rate have lost their systematic linkage with inflation, what other factors influenced the disinflationary outcome of the 1990s? Several circumstances stand out from prior decades: (1) the surge in immigration; (2) the acceleration of world trade, especially the impact of NAFTA; (3) the spread of technology to the consumer

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Chart 3
Productivity:
Back to the Good Old Days



SOURCE: Bureau of Labor Statistics.

and business sectors, as military and other government programs subsided; and (4) the increased availability of financial capital throughout the U.S. economy. A more forward-looking monetary policy that dealt quickly and preemptively with inflation shocks may have also contributed to these more favorable inflation results.

Immigration. The accompanying article by Pia Orrenius and Alan Viard details the demographic and labor force impacts of the 1990s surge in immigration. By some estimates, at least one-fourth and perhaps as much as one-third of the labor force growth over the past two decades was supplied by immigrants. Casual observation suggests these proportions have risen in recent years and might be even higher if undocumented workers were accurately counted.⁵ This extra—seemingly endless—supply of labor has likely reduced worker demands for wage increases for any given level of unemployment, thereby muting the impact of the Phillips curve relationship.

As long as U.S. wages are several-fold greater than wages in countries whose workers can cross into the United States, legally or illegally, these higher U.S. wages will attract such workers like a magnet. In congressional testimony earlier this year, Greenspan cited the nation's labor shortage as "the greatest threat" to the economic expansion. Clearly, immigration has mitigated this threat and will continue to do so as long as the U.S. immigration door remains open. An economic expansion

without accelerating inflation requires, among other things, an abundant labor force.

In this context, consider an alternative to the traditional Phillips curve relationship. During the 1990s (and especially after 1993), low rates of unemployment were accompanied by "Help Wanted" banners on restaurants, hotels, retail establishments and other businesses. Immigrants filled many of these jobs. Immigrants add to the labor supply and also increase aggregate demand for goods and services in the overall economy. This further stimulates the demand for labor (native and immigrant) to produce the needed goods and services. As immigrant workers repatriate some of their earnings to their families in their country of origin, word spreads about the availability of "good jobs" in the United States. More immigrants follow, creating a different mix of jobs, particularly a higher proportion of low-skill, low-paying service-sector jobs that would not even have existed if the immigration door had been locked. Native workers gravitate toward the medium and higher skilled jobs.

In this dynamic setting, demographics is *not* destiny. Low unemployment does not drive up wages in excess of productivity, nor does it produce inflation that undermines an economic expansion. Rather, low unemployment induces an inflow of workers from abroad, changes the skill mix of the working-age population and feeds further economic expansion. This hypothesis is consistent with the evidence of the 1990s and is advanced to stimulate discussion and debate.

Technology, Trade and Globalization. Two of the most common economic anecdotes heard in Federal Reserve surveys of businesses in recent years are (1) labor markets are tight and (2) pricing power is virtually nonexistent (that is, price increases are undercut by competitors). Thus, businesses are searching the world for workers and investing more in training the workers they find. Freer trade, and the added competitive pressures that accompany it, spurred businesses to improve productivity, thereby helping to keep inflationary forces down (*Chart 3*).

When businesses have been unable to bring workers to the job location, they have sometimes managed to take the job to the workers. Such "virtual immigration" is made possible by the Internet and other low-cost communications technologies that have allowed information-processing jobs—such as writing software or processing credit card and hospital bills—to be shipped to other countries, including Ireland, India and Mexico. This has increased the pool of available labor beyond the conventional measures of the domestic labor force.

Companies are taking advantage of lower trade barriers to outsource production to places throughout the world where goods can be produced most cheaply. As a result of NAFTA's passage in 1993, Mexico has become a source of increased manufacturing capacity for the United States. Trade (exports plus imports) as a percentage of GDP has increased fairly steadily since the late 1940s. This trend has accelerated somewhat during the 1990s as trade with Canada and Mexico has become a

Table 1
Locus of Manufacturing Shifts to the Southwest
(State Rankings by Manufacturing Employment)

1985		1999	
Rank	State	Rank	State
1	California	1	California
2	New York	2	Maquiladoras
3	Ohio	3	Texas
4	Pennsylvania	4	Ohio
5	Texas	5	Illinois
10	Maquiladoras		

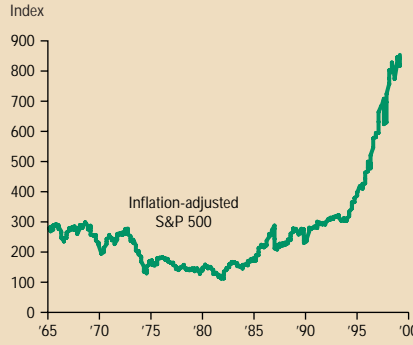
NOTE: Maquila employment grew from 212,000 in 1985 to 1.1 million in 1999.

SOURCE: Bureau of Labor Statistics; Instituto Nacional de Estadística, Geografía e Informática.

Clearly, immigration has mitigated the inflation threat and will continue to do so as long as the U.S. immigration door remains open.

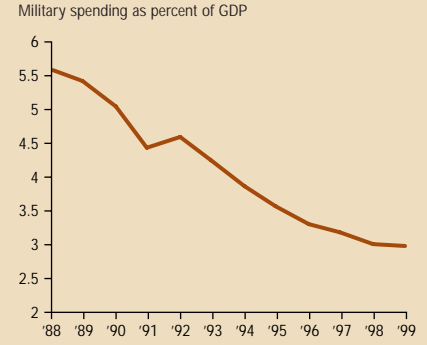
'Virtual immigration' is made possible by the Internet and other low-cost communications technologies.

Chart 4
Stock Market Takes Off



SOURCE: Federal Reserve Board of Governors; Bureau of Labor Statistics; author's calculations.

Chart 5
Cold War Ends



SOURCE: 1999 Economic Report of the President, Table B-80.

growing percentage of overall U.S. trade following NAFTA's passage.

One of the best-kept secrets in Washington, D.C., is that NAFTA is a success. Mexico has become our second-largest trading partner, with exports to Mexico currently exceeding \$100 billion annually. Because U.S. companies are sharing production among their U.S., Canadian and Mexican plants, the epicenter of U.S. manufacturing has shifted from the Northeast and Midwestern states to the Southwest. If maquiladora manufacturing is thought of as a physical extension of Texas and California production, the locus of manufacturing employment has clearly shifted during the past 15 years (Table 1). Moving production to its lowest cost location allows U.S. firms to compete more effectively with foreign companies. This has permitted output to grow while both unemployment and inflation fall.

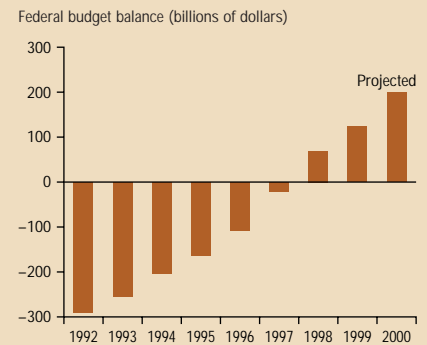
Access to Capital. The 1990s began with a credit crunch in many parts of the country. In the late 1980s, bank failures increased to post-Depression highs, and many banks, as well as non-bank lenders, had financial difficulties that induced them to deny credit to businesses. The situation began to improve by 1993 as banks rebuilt their liquidity and capital positions. By the late 1990s, it was a rarity to find businesses citing lack of access to credit. Labor shortages, not capital shortages, had become the issue of the day.

Equity capital availability has also improved, especially for high-tech firms. As the second stage of the bull market

took off in 1995 (Chart 4), so too did the number of initial public stock offerings by companies with short track records and no experience of profitability. Such easy access to low-cost capital has spurred the growth of entirely new industries or forms of delivering existing goods and services that would not have been possible without such democratization of the capital markets. This new capacity has added to competitive pressures and reduced the pricing power of incumbent firms. This has forced business to increase productivity, not prices.

Smaller Government. Two cross-currents of fiscal policy trends have also helped. In the aftermath of the Cold War, military spending as a percent of the nation's GDP has been reduced considerably, from over 5 percent down

Chart 6
Federal Budgets Shift from Deficit to Surplus



SOURCE: Office of Management and Budget; Congressional Budget Office.

to about 3 percent (Chart 5). This has freed up a sizable group of engineers, scientists and production workers to focus on the business and consumer market instead of the military.

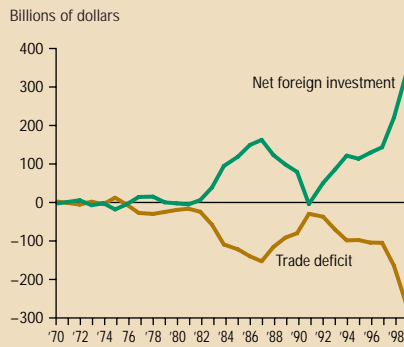
Second, government is playing a smaller role in the economy. In addition to increased deregulation and privatization of some government services, the federal government has been in budget surplus since 1998 and the budget balance has been improving for eight consecutive years (Chart 6). The previous government surplus was in 1969, and the last back-to-back surpluses occurred in 1956–57, when Elvis became king! With less need to finance government debt, the U.S. economy has found it easier and cheaper to finance the capital needs of U.S. businesses.⁶ The ensuing investment boom, especially in information technology and telecommunications equipment, has deepened the stock of capital relative to labor.

Throughout the 1990s the U.S. economy has also benefited from increasing flows of net foreign investment, the mirror image of our trade deficit (Chart 7). Without the foreign investment that augmented our immigration-bolstered labor force growth, it is doubtful the U.S. economy would have been able to boost its capital-to-labor ratio sufficiently to sustain the higher labor productivity enjoyed in recent years. Foreign capital and foreign labor are drawn to the United States because their anticipated returns exceed those in other countries. This combination of forces—along with the increased ability to develop technology that substitutes capital for low-skilled labor—has supported productivity growth, thereby keeping inflationary forces in check. The 1990s expansion is unusual in that productivity accelerated after several years of economic expansion, the opposite of what typically occurs as a business expansion ages beyond five years (Chart 8).

Sustainability

I have argued that the 1990s differed from the '70s and '80s in that a confluence of factors—immigration, technology, trade and globalization, smaller government and capital market democ-

Chart 7
Capital Flows and Trade
Deficits Mirror Each Other



SOURCE: Bureau of Economic Analysis.

ratization—suppressed the forces of inflation. An important issue for monetary policy is to what extent these factors will prevail in the coming decade. The answer depends in part on a few critical public policy choices to be made in the near future, particularly regarding trade and immigration.

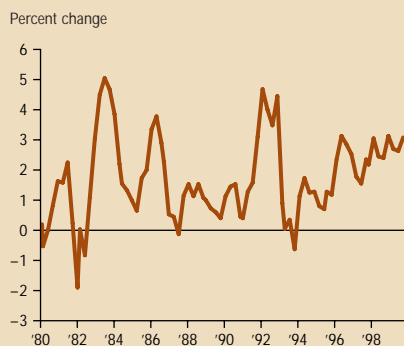
Over the past year we have seen increasing talk and modest action to open the U.S. immigration door wider than it has been over the past couple of decades and to more finely focus our immigration policy on the need for workers. Concerted action on this front would help keep inflation at bay and provide other benefits enumerated in the accompanying article by Orrenius and Viard.

Freer trade with a wider range of countries would increase market size and strengthen competitive pressures to enhance productivity. Businesses could

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Chart 8
Productivity Growth
Increases as Expansion Ages



SOURCE: Bureau of Labor Statistics.



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then take greater advantage of the economies of scale that are so prevalent in networked products and industries or in products with high fixed costs of development, such as pharmaceuticals.⁷ U.S. trade policy tends to be characterized by two steps forward, one step back. We are now in the one-step-back phase, with no fast track authority for negotiating additional free trade agreements. Perhaps the provision of permanent normal trade relations with China will shift the trade gears from reverse to forward. Although we will reap the benefits of NAFTA for many years to come, we would enjoy greater growth and lower inflation if NAFTA were supplemented by freer trade across the globe.

As shown in the Dallas Fed's 1996 annual report essay, "The Economy at Light Speed," there is no shortage of new technologies waiting to be adapted to the needs of business and consumers. If anything, the inventory of innovative technologies available for commercial exploitation has grown since 1996.

The United States begins the 21st century with a healthy banking and financial system. In addition, the Gramm-Leach-Bliley Act of 1999 will give the financial services industry the necessary leeway to adapt the appropriate corporate structures to respond to changing market and competitive forces. This more flexible financial structure should assure that improvements in business access to financial capital will continue. If government surpluses remain in place "as far as the eye can see," government's reduced financing needs will continue to free up capital resources for the private sector.

This combination of forces has the potential to sustain the favorable low-inflation environment that characterizes the U.S. economy at the dawn of the new century. Even in this favorable environment, monetary policy still matters. These forces have reduced but not eliminated inflation. The laws of supply and demand have not been repealed. These forces have augmented aggregate supply and enabled it to keep pace with growing aggregate demand. The Fed must remain vigilant in maintaining this balance. Given the long and variable lags with which changes in monetary policy impact the economy, and the reduced sensitivity of some economic sectors to

higher interest rates, the Fed has been on heightened alert for any reversal of these positive supply-side forces that have restrained inflation in the 1990s. Factors such as immigration, technology, globalization through freer trade, and more democratic capital markets are not easily included in standard macroeconomic models; nonetheless, Fed policymakers are striving to better understand how these pieces fit into the inflation puzzle.

Conclusion

To quote again from Brad DeLong: "If economists are to be of any use, they need to come up with a better—and in all likelihood more sophisticated—approach to understanding why inflation rises." This article has reviewed several difficult-to-quantify variables that contributed to, and are expected to continue to support, lower inflation than would be suggested by relationships such as the Phillips curve or the growth of traditional money supply measures. With concerted effort to extend free trade beyond NAFTA, to expand immigration based on the need to alleviate worker and skills shortages, and to continue to curtail the scope of government's role in the economy, there is good reason to believe that strong economic growth with low inflation can continue in the years to come.

Rosenblum is senior vice president and director of research at the Federal Reserve Bank of Dallas.

Notes

- ¹ William J. Baumol and Alan S. Blinder, *Macroeconomics: Principles and Policy*, 6th ed., 1994, Dryden Press, p. 395. Emphasis added.
- ² Olivier Blanchard, *Macroeconomics*, 2nd ed., Prentice Hall, 1999, p. 161.
- ³ J. Bradford DeLong, "What Happened to the Phillips Curve?" *New York Times*, March 9, 2000, p. C2.
- ⁴ Board of Governors of the Federal Reserve System, *1994 Monetary Policy Objectives*, Washington, D.C., February 22, 1994, p. 18.
- ⁵ In the presence of widespread illegal immigration, the term "immigration statistics," by its very nature, borders on being an oxymoron.
- ⁶ There are exceptions to the smaller government story. For example, federal tax revenues reached a 54-year high of 20.1 percent of GDP in 1999. On the other hand, federal spending was 18.7 percent of GDP, the lowest since 1974.
- ⁷ See W. Michael Cox and Richard Alm, "The New Paradigm," 1999 *Annual Report*, Federal Reserve Bank of Dallas, 2000, pp. 3–25.