

Federal Reserve Bank of San Francisco

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Money and Prices

Everyone agrees that inflation accelerated in 1978, as consumer prices rose by 9.0 percent over the course of the year, compared with a 6.8-percent increase in the previous year. However, not everyone agrees on the causes of this acceleration. While some point to the avarice of workers and firms in demanding more than the economy can deliver, others blame the acceleration on the money-supply growth experienced in the U.S. from late 1976 through mid-1978. It's important to realize that the two views are not necessarily inconsistent.

Those who advocate a monetarist view of inflation see a higher money supply as stimulating demand in the economy without affecting the supply of goods and services, and so inevitably leading to higher prices. The metaphor of "too much money chasing too few goods," while not entirely precise, captures much of the flavor of this argument.

On the other hand, advocates of cost-push explanations can be divided into two groups. Some see developments in the labor or commodity markets as affecting the price level regardless of what happens to the money supply. They believe that wage or commodity price hikes increase costs, which are then passed on in higher prices for other goods, and that this process can continue indefinitely on its own momentum. This approach raises several questions, however. If all prices increase autonomously, with no monetary expansion or other impetus to aggregate demand, then the resulting situation could not be sustainable. Underlying demand and supply condi-

tions would not have changed, but prices would have, so that something would have to give. Either prices will eventually return to their previous levels, or the growth rate and employment will fail. But it isn't consistent to expect continuing cost-push inflation with no other impetus to aggregate demand.

The other group of cost-push advocates therefore includes the money supply in a more sophisticated explanation. They agree that the money supply must grow for inflation to persist, but they argue that prices and wages usually rise first, and that the faster money growth is then necessary to avoid the slow growth and unemployment described in the previous paragraph. Thus, the money growth merely ratifies or accommodates an inflation that has its seeds in excessive wage or price demands. These excessive demands raise prices directly in the short-run, and indirectly in the long-run by causing monetary expansion.

Consistent explanations?

The latter cost-push theory is logically consistent within itself, and it is also consistent with much of the monetary explanation of inflation. Both theories agree that inflation can continue if and only if the money supply is expanded. Both would agree that once money growth is stopped, a painful period of depressed output and employment would ensue before inflation would start to fall.

Still, the two views have quite different policy implications. If autonomous wage and other types of cost hikes do typically precede monetary expansion,

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in the context where monetary non-accommodation by itself will induce a recession, then the least painful way to halt inflation would be through administrative restraints on wages and prices (and concomitant monetary restraint). In this case, excessive wage and price demands would be the real roots of inflation, and they should therefore be attacked directly.

On the other hand, so-called monetarists dispute this view that prices and wages typically play such an autonomous role. Rather, they believe that independent monetary-policy decisions are the more typical cause of monetary expansion. Once monetary expansion has stimulated aggregate demand, inflation is inevitable; and workers and firms will demand higher wages and prices merely to keep up with the inflation. Thus, wage and commodity price increases follow — rather than precede — money growth.

In this view, slower growth and lower employment would still follow in the wake of a move to restrictive monetary policy. However, controls (whether jawbone or otherwise) would only impede households and businesses from protecting themselves against an

inflation they did not start. Also, the controls would not prevent a future expansionary policy from starting the next inflationary spiral a few years hence.

Empirical evidence

Once again, both views are economically self-consistent. Therefore, it's an empirical question which is correct. Do autonomous wage and price hikes systematically precede and so cause monetary expansion, or is the opposite typically the case?

To throw more light on the subject, "causality tests" utilizing 1957-78 U.S. data were conducted between the (M₁ and M₂) money supply and a number of cost-push variables — namely, consumer prices (total and food), wholesale prices (total, farm, nonfarm, metal, and steel), wages (nonfarm and manufacturing), and unit labor costs (private business, nonfarm business, and manufacturing). M₁ includes currency plus bank demand deposits; M₂ includes currency plus all bank deposits except large time certificates.

In these tests, the statistical evidence suggested that the money supply (both M₁ and M₂) strongly affected prices, whereas the cost-push factors exerted very little if any effect on the money supply. Both M₁ and M₂ showed strong one-way effects on the aggregate consumer and wholesale price indexes. M₁ significantly affected all the sub-indexes except wholesale nonfarm and steel prices, and nonfarm and manu-

facturing wages; M₂ significantly affected all the sub-indexes except non-farm wages and several wholesale prices (farm and nonfarm, and metal and steel). However, none of the cost-push variables showed significant effects on M₁, and only wholesale metal and steel prices showed significant effects on M₂.

Some analysts argue that cost-push factors exert a more indirect influence on the money supply, with policy-makers reacting to the higher unemployment caused by higher wages. If this were true — if wages affect unemployment, and unemployment affects money — then we still should have seen some influence of wages on money in the tests just described. Still, as a means of directly testing for these indirect effects, causality tests were run between wages and unemployment and between unemployment and money. These tests showed significant effects of wage increases on unemployment, but no effects of unemployment on money growth. Thus, this indirect test showed no evidence of cost-push effects on the money supply.

Monetary view supported

In sum, these results support a monetary view of inflation. The tests did not attempt to take account of the various transmission mechanisms through which money can affect prices. Nor did they attempt to distinguish between those increases in the money supply that matched money demand, and

those which exceeded money demand. Yet using a very simple approach, the data found a systematic, statistically significant effect of the money supply on the price level. Changes in the rate of money supply growth (M₁ or M₂) were able to account for some 60 percent or more of quarter-to-quarter changes in the consumer-price inflation rate. Finally, the data failed to yield a significant effect of any cost-push type variable on M₁, and very little significant evidence of an effect on M₂. The evidence is consistent with a world where autonomous money-supply fluctuations are the primary cause of price fluctuations, and where wages and prices move together mainly because both are responding to previous money growth.

Of course, the present approach looked only for systematic effects. It's still possible that cost-push factors could have been important in particular isolated circumstances. One such case, and an obviously relevant one, is the 1978 acceleration in inflation. We are now examining the link between money, other factors, and inflation in 1978, and what this suggests for the inflation outlook in 1979.

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