

Research Department Federal Reserve Bank of San Francisco

March 8, 1974

Jobs and Prices

Federal Reserve Chairman Burns told Congress last week that January's upsurge in consumer prices was "a grim warning that we are on the brink of a two-digit inflation." He expressed pessimism about the possibility of halting inflation this year, but he added that the government can and should lay the groundwork for a "gradual return to reasonable price stability."

Chairman Burns ruled out any attempt at halting inflation precipitately because of the economic hardship that would be involved, but he added, "I think we can end inflation over the next two or three years without going through a protracted period of heavy unemployment." In this way, he implicitly drew attention to the trade-off between inflation and unemployment that goes under the heading of the Phillips curve.

Economists and policymakers have devoted a great deal of thought to the implications of the Phillips curve, ever since the British economist of that name developed the idea that unemployment and inflation are inversely related (1958). From this observation, many analysts argued that an expansionary policy could reduce unemployment at the cost of a predictably higher rate of inflation. Various econometric studies have shown that the trade-off varies with the levels of unemployment and inflation. But the principal argument has concerned the permanence of the inflation unemployment trade-off, and not the actual rate.

Money Illusion

In considering the Phillips curve as a policy guide, most economists believe that the trade-off between unemployment and inflation is a short-run phenomenon—one which arises due to unforeseen inflation or other sources of misinformation, and vanishes as soon as expectations adapt to inflationary experience. They suggest, for example, that labor unions in the long-run are not subject to "money illusion" in their wage negotiations; that workers actively seek to protect the purchasing power of their wages from erosion by inflation.

If labor operates with money illusion, a sort of stability could arise with labor desiring real wage increases of (say) 5 percent but accepting instead a nominal wage increase of 5 percent, reflecting a 3-percent increase in productivity and a 2-percent rise in prices. Money illusion would mean that labor believed it had received an increase in real wages of more than three percent. There is considerable empirical evidence that such money illusion exists in the short run.

If money illusion is absent, so that labor fully anticipates the inflation, it will demand larger increases in the next bargaining round—(say) the original 5 percent plus the 2-percent inflation factor. This 7-percent wage demand will lead to higher costs and prices and thence to higher wage demands in succeeding rounds of bargaining. In this way, inflation can spiral upward while real wage gains never exceed

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the 3-percent related to the growth in productivity.

Inflation consequently will continue to accelerate so long as labor expects (and receives) wage increases larger in nominal terms than its productivity gains. According to this position, the Phillips curve is not stable. In the short-run, a policy of ease will increase demand for labor, and thus stimulate employment and wages. However, as time passes and labor realizes that the increase in wages is being matched by an increase in prices, it will readjust its expectations and force the curve to shift upward. In order to hold a chosen level of unemployment, policymakers will have to follow an ever easier policy which will lead to higher and higher rates of inflation.

In the absence of money illusion, the Phillips curve in the long run will tend toward the vertical—no matter what the rate of inflation, there will be only one unemployment rate determined by productivity and labor market structure.

Short vs. long-run

The controversy over policy develops between those who would accept a higher rate of inflation in order to reduce unemployment, and those of the accelerationist school who argue that, in the long run, there is no way of reducing unemployment by means of inflation. But even the latter group admits to a short-run trade-off, in which increased inflation leads to a reduction in unemployment.

Some policymakers would concentrate upon the level of employment, since they assume that the costs of higher inflation can be met within our institutional framework while the short-run loss of output through unemployment can never be recovered. On the other hand, those who emphasize the need to control inflation would accept a short-run increase in unemployment, since in the long run the natural rate of unemployment cannot be reduced with higher inflation.

For the policymaker, the knowledge of how long it takes to get from the short run to the long run is obviously critical. Various studies of this subject tend to agree that the process of moving from the short run to the long run may take a very long period of time—perhaps as much as seven to ten years. One study, for example, suggests that it might take ten years to reduce 1969's inflation rate of 4.9 percent to a 2.5-percent target, consistent with an unemployment rate of 3.8 percent. However, the study indicates that a substantial portion of the final decline in inflation occurs within the first three to four years. By the end of the first year, the rate of inflation has fallen by 30 percent of the total adjustment and by the third year has covered 70 percent of the total price decline. For policymakers, with their concentration on short-term solutions to politico-economic problems, the time frames suggested here may provide cold comfort indeed.

Worsening situation

To gain possible insights on the extent to which monetary policy might influence the trade-off between unemployment and inflation in the period ahead, we introduced a standard economic forecast into a short-run model and then varied the money supply (M_1). Obviously, this is an oversimplified experiment, yet it yields some interesting insights. First, the model suggests that reducing the growth of the money supply might have a small effect on inflation by late 1974, but that it would not show an appreciable impact until 1975. Secondly, it suggests that sizable increases in unemployment could occur with relatively small decreases in the rate of inflation. In other words, there would be a high short-term cost in terms of employment if we sought to reduce rates of inflation from projected levels by any sizable amount over this period. The major reductions in inflation occur in 1976 and beyond.

These policy conclusions, tentative as they are, are gloomier than those that would have faced the policy-maker in the earlier inflation period of 1968 or 1969. Econometric testing indicates that, compared with today, a change in the growth of the money supply in 1968 probably would have exerted a faster and greater impact on inflation and brought about a smaller increase in the unemployment rate. For example, reducing the M_1 growth rate in 1968 from 6 to 4 percent would have helped bring about a drop of $\frac{1}{2}$ percentage point in the inflation

rate, at the cost of an increase of about $\frac{3}{4}$ percentage point in the unemployment rate, in the second year of the experiment. Today, in contrast, a similar reduction in the M_1 growth rate would help bring about a decline of roughly $\frac{1}{4}$ percentage point in the inflation rate, but at the cost of an increase of one full percentage point in the jobless rate.

These difficulties are related to the accelerating direction of the Phillips curve. In the late 1960s, econometric forecasting models began to give off strange signals. Based on the principle of the Phillips curve, the models predicted a moderate rate of inflation and relatively low rates of unemployment. But actual inflation increasingly exceeded the forecasts, and the errors became worse as unemployment and inflation both began to rise simultaneously.

It became more and more apparent that the Phillips curve was shifting upward. Increasingly the models began to show that as prices rose by some additional percentage, labor in its wage settlements was insistent on raising its wage demands by the full amount of price increases. That shift of thinking is apparent in the rising proportion of wage contracts involving automatic cost-of-living adjustments, and in the extension of that escalator principle to pension payments in the new contract in the aluminum industry. In short, it would seem that the accelerationist position has definite validity.

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT
(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 2/20/74	Change from 2/13/74	Change from year ago	
			Dollar	Percent
Loan gross adjusted and investments*	78,420	- 71	+ 8,306	+ 11.85
Loans gross adjusted—	59,926	+ 78	+ 7,710	+ 14.77
Securities loans	1,226	- 1	- 133	- 9.79
Commercial and industrial	20,659	- 6	+ 1,959	+ 10.48
Real estate	18,509	+ 28	+ 3,110	+ 20.20
Consumer instalment	9,161	- 1	+ 1,144	+ 14.27
U.S. Treasury securities	5,946	- 80	- 459	- 7.17
Other Securities	12,548	- 69	+ 1,055	+ 9.18
Deposits (less cash items)—total*	73,709	- 1,209	+ 6,098	+ 9.02
Demand deposits adjusted	20,869	- 885	+ 962	+ 4.83
U.S. Government deposits	487	- 292	- 929	- 65.61
Time deposits—total*	51,000	- 186	+ 6,075	+ 13.52
Savings	17,702	+ 42	- 509	- 2.80
Other time I.P.C.	23,799	- 184	+ 5,827	+ 32.42
State and political subdivisions	6,859	- 55	+ 392	+ 6.06
(Large negotiable CD's)	11,228	- 199	+ 4,118	+ 57.92
Weekly Averages of Daily Figures		Week ended 2/20/74	Week ended 2/13/74	Comparable year-ago period
Member Bank Reserve Position				
Excess Reserves		25	- 47	88
Borrowings		235	201	250
Net free (+) / Net borrowed (-)		- 210	- 248	- 162
Federal Funds—Seven Large Banks				
Interbank Federal funds transactions				
Net purchases (+) / Net sales (-)		+ 1,221	+ 913	+ 371
Transactions: U.S. securities dealers				
Net loans (+) / Net borrowings (-)		+ 257	+ 182	+ 3

*Includes items not shown separately.

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