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## Wage and Price Controls

The wage and price controls that were in effect from 1971 to 1974 had the perverse result of *raising* prices, a new National Bureau of Economic Research study finds. The controls did succeed in lowering prices temporarily, according to the study, but "catch-up" increases quickly wiped out the reductions after the controls were lifted, and actually carried prices higher than they would have been if controls had never been used. What is more, those catch-up increases were largely responsible for the acceleration of inflation to double-digit levels in 1974.

The new study, **The 1971-74 Controls Program and the Price Level: An Econometric Post Mortem**, Working Paper No. 279, is by **Alan S. Blinder** and **William J. Newton**, two Princeton University economists. Blinder and Newton use a new technique to estimate the impact of the 1971-74 controls and find that when controls were most effective prices were held only 1.66 percent lower than they otherwise would have been. Earlier studies had concluded that these controls held the price level 2 to 3 percent below what it would have been without them. Blinder and Newton estimate that the price-reducing effect of the controls reached its maximum in February 1974. By August 1974, catch-up increases had offset the reductions, and by early 1975, prices were almost 1 percent higher than they would have been if they had been allowed to move freely all along.

Economists are divided in their assessments of the potential long-run effects of controls. Opponents of controls argue that prices will not be affected over the long run. Controls may reduce prices for a while, they say, but catch-up in-

creases will reverse that effect after controls are removed. In other words, controls may deflect prices below their normal upward path, but they will return to the normal path when controls end. Proponents of controls, on the other hand, say that properly administered controls will hold down marginal costs, and that when they are lifted, there will be no excess demand at the controlled price. Therefore, proponents argue that there will be no need for a round of catch-up increases because the price path itself will have shifted downward.

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There are several reasons for suspecting that the 1971-74 controls did not shift the price path downward. First, previous empirical studies suggest that the controls were more effective on prices than they were on wages. Since that would mean that prices were suppressed more than marginal costs, it is reasonable to presume that there was a round of catch-up increases as the controls were lifted. In addition, the rate of growth of the money supply did not diminish during the controls period, and controls cannot affect the long-run prices without a reduction in money growth because there is no mechanism by which temporary controls can permanently alter the velocity of money.

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Furthermore, there is reason to suspect that controls may raise—not lower—the long-run price level. The basic arguments for controls assume that they do not affect potential GNP. But if controls discourage business investment, and thus reduce real output, they would give rise to catch-up increases of more than 100 percent. There is a broadly held suspicion, but no empirical evidence, that the 1971–74 controls did repress investment by holding prices down more than costs. Blinder and Newton surmise that lower investment probably was the reason that postcontrol prices rose above the level they would have reached if the controls had not been imposed.

The Blinder–Newton study differs from earlier ones in that it treats controls as a quantitative phenomenon. In addition, Blinder and Newton examine the fine structure of the various control phases by using monthly data in their econometric equations. Other researchers have estimated the effects of controls by using equations with dummy variables, or by using equations fitted to precontrol inflation in order to estimate postcontrol prices. In both cases, any divergence from the inflation rate predicted by the equations—including differences caused by random influences—are attributed to controls.

Blinder and Newton, in contrast, use data from within the controls period itself in their equations, allowing the controls to affect some of the variables that determine prices. To do so, they use a specially constructed series indicating the fraction of the economy that was controlled. The series was needed because both the nature of controls and the fraction of the economy that was subject to them varied from the initial phase one price freeze through the following three phases and the second freeze.

After estimating their equations, Blinder and Newton use them to generate two hypothetical price paths—the path predicted when the controls were “on” and the path predicted when they were “off.” The differences between the two paths are the estimated effects of the controls. This technique is not suitable for forecasting the results of any future controls program, but Blinder and Newton believe that it is useful for assessing the impact of past controls.

Blinder and Newton find that the price freeze and the early phase two controls reduced the rate of inflation by about 1.3 percentage points at an annual rate, so that the price level was deflected downward about 1 percent between August 1971 and April 1972. The controls were less effective in the latter portion of phase two, reducing the inflation rate by about 0.4 percentage points; by December 1972, the price level was 1.22 percent below the uncontrolled path.

During phase three—from January to June 1973—the effect of the remaining controls was almost exactly offset by catch-up increases in the decontrolled sector of the economy. The second freeze and phase four clearly had a net reducing effect on the inflation rate, so that by February 1974 prices had been deflected downward by another half percent or so to the maximum 1.66 percent below the uncontrolled path. After that, however, and particularly after the controls ended in April 1974, catch-up increases overwhelmed the price-reducing effects. The price level sprang all the way back to the uncontrolled path by August 1974, and then kept rising above it.

The typical industry's prices were depressed by 6.6 percent at the time it was decontrolled. (The overall price level was not depressed that much because the controls never applied to the entire economy.) On average, it took companies twelve months to make their catch-up increases. Blinder and Newton speculate that companies adjusted their prices so slowly out of fear of having controls reimposed.

Finally, Blinder and Newton estimate that the removal of the controls added 3.78 percentage points to the acceleration in nonfood, nonenergy inflation between the prepeak inflation period of June 1973 to February 1974 and the peak period of February to October 1974. That was 86 percent of the acceleration in the nonfood, nonenergy sector of the economy. Blinder and Newton compute the contribution to the acceleration in inflation as the amount by which the controls reduced the rate, on balance, in the prepeak period and increased it in the peak period.

## Floating Exchange Rates

An analysis by **Jacob A. Frenkel** of the demand for international reserves sheds new light on the practices of central banks. Because reserves are commonly held for the purpose of supporting exchange rates, it has seemed somewhat anomalous that central banks have continued to hold and use international reserves since the shift to a system of floating exchange rates in 1973. Frenkel, a University of Chicago economist, concludes that the demand for reserves has remained relatively stable because the actual change in the exchange rate system was not nearly as great as one might assume from the radical change in the legal arrangements regarding rates. That is, while the system legally shifted from a regime of fixed rates to one of freely floating rates, the actual change was from a regime of adjustable pegged rates to one of managed floating rates. In addition, Frenkel finds statistical evidence of a structural change in the demand for reserves by central banks. However, he concludes that the change in behavior had been completed by the end of 1972, even though the formal change in the legal arrangements did not come until early 1973. Frenkel's study, **International Reserves Under Alternative Exchange Rate Regimes and Aspects of the Economics of Managed Float**, is *Working Paper No. 287*.

Frenkel examines the behavior of central banks by empirically analyzing the demand for reserves of twenty-two developed countries and thirty-two less developed countries (LDCs). His analysis shows that central banks' demands for reserves depend on the variability of their countries' international receipts and payments, the countries' propensities to import, and the size of the countries' international transactions, as represented by the levels of national income. Frenkel finds that the demand for reserves differed between developed and less developed countries prior to 1973. In particular, the variability of international transactions was a more important determinant of demand for reserves and the level of national income a less important determinant in developed countries than in LDCs.

Once differences in variability of international transactions, openness to trade, and levels of national income are taken into account, the only significant difference since 1973 has been a general tendency for LDCs to demand relatively more reserves. Economic variables—national income, the variability of international transactions, and the propensity to import—have played a similar role in the two groups of countries. Demand for reserves by developed countries has been more sensitive to the variability of international transactions and less sensitive to national income. Frenkel suggests that the lesser sensitivity to national income stems from the fact that developed countries have more sophisticated financial systems, and thus more opportunities for economies of scale in reserve management (and, in turn, lower opportunity costs of holding reserves). Moreover, developed countries have greater access to world capital markets and swap agreements. Frenkel also suggests that developed countries have been more sensitive to the variability of international transactions because they are less willing to respond to variations by imposing trade restrictions.

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Frenkel's paper also includes an analytical framework for determining the degree of exchange rate management that countries should undertake. Exchange rates are affected by two types of shocks—monetary and real. Frenkel shows that central banks should not intervene to counter monetary shocks. However, it does make sense to counter real shocks. The optimal amount of exchange rate intervention thus depends on the nature of the various shocks affecting an economy. If monetary shocks are highly variable, the exchange rate regime should be one of relatively unmanaged, freely floating rates. On the other hand, if the variance of real shocks is high, the optimal exchange rate regime should be closer to one of fixed rates.

## Interest Rate Forecasters

A recent study by **Benjamin M. Friedman** of Harvard University and the National Bureau of Economic Research suggests that money market professionals could make better interest rate forecasts than they have in recent years by paying closer attention to readily available information. In **Survey Evidence on the “Rationality” of Interest Rate Expectations**, *Working Paper No. 261*, Friedman reports that professionals' interest rate predictions contain systematic errors (i.e., the errors are not random; the predictions for any one interest rate series tend to be consistently too high or too low). In addition, Friedman's study finds that the professionals do not fully exploit the information contained in past interest rate movements and macroeconomic and policy

variables, and that their predictions of rates three months and six months ahead are not consistent with one another.

Friedman made the study in an attempt to determine whether interest rate expectations are “rational” and “efficient” in the sense that market participants use all the information available to them to make the best possible estimates of future interest rates. His conclusions are based on a statistical examination of surveys of the interest rate expectations reported quarterly in the *Goldsmith-Nagan Bond and Money Market Letter*.

Since 1969, the *Goldsmith-Nagan Letter* has surveyed fifty market professionals every three months to discover their predictions for the level of interest rates three months and six months later, and has published the mean averages of these predictions. Friedman uses thirty such quarterly surveys, from September 1969 through December 1976, for his study. He includes the predictions of six different interest rates—federal funds, ninety-day Treasury bills, six-month Eurodollar certificates of deposit, twelve-month Treasury bills, new high-grade utility bonds, and seasoned high-grade municipal bonds.

Friedman gets mixed results when he examines the predictions for statistical bias (systematic errors). An ordinary least-squares regression analysis shows some bias in the prediction errors, but only the bias in the six-month predictions of municipal bond rates is statistically significant. However, the prediction errors appear to be serially correlated. That is, a prediction that was too high was likely to be followed by another too high, and a low prediction by another too low. Serially correlated errors are not unbiased.

For the six-month predictions, the serial correlation in the errors is statistically significant at the 99 percent level (i.e., there is a 99 percent chance that the correlation is due to systematic bias in the predictions, and not mere chance). For the three-month predictions, the serial correlations in the errors on the two long-term rates are significant at the 95 percent level. A second type of regression test tends to confirm the bias exhibited in the serial correlations. The second test finds that there is less than a 10 percent probability that the three-month predictions are unbiased, and less than a 1 percent probability that the six-month predictions are unbiased.

Friedman also tests whether the predictions correctly incorporated any information implicit in the past movement of interest rates, and whether the three-month and six-month predictions made at any given time are consistent with one another. In both cases, the statistical findings suggest that the professionals did not make “rational” predictions.

Finally, Friedman examines whether the professionals correctly took account of all freely available information. As a proxy for all the variables that affect interest rates, Friedman uses five macroeconomic variables that are commonly included in interest rate discussions. Three of them—the unemployment rate, the growth rate of industrial production, and the rate of inflation—contain information about the overall cyclical state of the economy. The two others—the rate of growth of the money supply and the federal deficit—contain information about the direction of monetary and fiscal policy.

The regression tests show that the market professionals efficiently incorporated the information in the five macro series in nearly all of their predictions of *short-term* interest rates (the six-month predictions of rates on ninety-day Treasury bills are the lone exception). Yet the findings about the predictions for the two *long-term* interest rates are the opposite. That is, the professionals could have made significantly better predictions of long-term interest rates if they had paid more attention to the macroeconomic and policy variables. There is one curious exception, however, in the long-term interest rate predictions. The professionals did efficiently incorporate the information on the money supply growth rate into their predictions of long-term interest rates.

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One possible interpretation of Friedman's findings is that the Goldsmith-Nagan survey data do not accurately reflect market participants' expectations. Another is that the data do reflect their true expectations, and that a better understanding of the role of macroeconomic variables in the determination of long-term interest rates would enable investors to make better predictions of future long-term interest rates.