

A TEST OF THE DEMAND RULE

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For nearly a decade at this annual conference, I have promoted a demand rule as the best rule for the conduct of U.S. monetary policy. My first article on this subject was published in 1992, but the basic case for a demand rule had been developed earlier by Robert Hall (1981), Ben McCallum (1984), and Robert Gordon (1985). In response to the common question before this panel, thus, I conclude that the Federal Reserve would best maintain a target path of total demand in the American economy.

The best measure of total demand, I suggest, is what the Department of Commerce calls "final sales to domestic purchasers." This aggregate is equal to nominal gross domestic product minus the change in private inventories minus exports plus imports. In recent years, given the increasing trade deficit, this aggregate has grown somewhat faster than nominal GDP. The primary reason for selecting this aggregate as the best measure of total demand is that the demand for money in the United States appears more closely related to final purchases by Americans than to the dollar level of total output by Americans.

It is important to recognize that a demand rule is consistent with any desired price-level path, including a stable price level. (My remarks today avoid the issues that bear on the choice of the desired price-level path.) My primary point is that a demand rule is potentially superior to a price rule, whatever the desired price-level path, because of the different response to changes in supply conditions. A central bank following a demand rule would not respond to either positive or negative supply shocks; such shocks would lead to a one-time change in the combination of price and output changes in that year, but would not lead to a long-term change in the inflation rate. A central bank following a price rule, in contrast, would increase the monetary base in response to a positive supply shock and would tighten the base in response to a negative shock,

thereby increasing the variance of output. Similarly, a demand rule is potentially superior to a money-supply rule because it accommodates unexpected changes in the demand for money. The general case for a demand rule, thus, is that it minimizes the variance in output in response to unexpected changes in either supply or demand.

The basic case for a demand rule has not changed over the years, but there have been continuing controversies about how best to implement this rule and whether the Federal Reserve would maintain this rule, given the political context in which they operate, in response to the various types of supply and demand shocks. Ben McCallum and others, for example, have endorsed a recursive procedure based only on prior data to implement a demand rule; other monetary policy analysts have proposed adding several types of forecasts to help implement this rule. My sympathies are with the McCallum position on this issue. The feasibility of maintaining a demand rule, I suggest, is likely to be dependent on a broader understanding of the case for this rule by both government officials and members of the financial community. But both of these controversies are likely to be resolved only if the Federal Reserve tests a demand rule for a while and both the Fed and the broader community learn from this experience.

Fortunately, the Federal Reserve has conducted just such a test, whether by accident or design. Shortly after my first presentation on the case for a demand rule, the Fed seems to have implemented such a rule, beginning in early 1992 and continuing through early 1998. The results of this rule are best summarized by the following regression, where LFSDP is the log of final sales to domestic purchasers by quarter at annual rates:

Sample range: 1992.IQ through 1998.IQ

$$\text{LFSDP} = 3.6549 + .0551 * \text{YEAR}$$

(.0306) (.0003)

Adjusted R-squared .9992

S. E. of the regression .0029

Durbin-Watson Statistic 1.4225

Over this sample period, the Federal Reserve maintained a target annual growth of demand at a remarkably steady 5.5 percent annual rate. The quarterly standard error of the regression was less than 0.3 of one percent from the target path, and the actual level of demand was never more than 0.7 of one percent from the target path.

The figure below presents the percentage difference between the actual and forecast level of demand over both the sample period and the forecast period through the second quarter of 2000.

Focus first on the sample period through the first quarter of 1998. It is important to recognize that this demand path was maintained over a period of two quite different shocks. Productivity growth was unusually high in 1992, 1996, and 1997 and unusually low in 1993 through 1995, but the demand path was maintained over this large change in productivity growth rates. And the demand path was also maintained over the Asian financial crisis of 1997. This figure also illustrates the effects of the major tightening of monetary policy in late 1994, a tightening that led to a temporary weakness in demand in 1995 but maintained the demand path. In retrospect, this was an extraordinarily successful period of monetary policy, marked by a very steady growth of demand and a continued decline in both unemployment and inflation.

Focus next on the very different record since the sample period. Starting in the second

quarter of 1998, demand has increased at a 7.8 percent annual rate and is now nearly five percent above the demand path established during the sample period. In 1998, the Federal Reserve appears to have responded to the near collapse of Long-Term Capital Management, the Russian default, and the Brazilian financial crisis with monetary stimulus that led to significantly higher demand growth, a rate of growth that the interest rate increases over the past year have yet to constrain. This has already led to an increase in the consumer price inflation rate by about two percentage points relative to the 1998 rate, and there is no realistic prospect that this higher rate can be reduced without reducing demand growth. Productivity is not likely to grow at more than a three percent annual rate on a sustained basis or total employment at more than a one percent annual rate. The implication is that restoring a demand growth rate of about 5.5 percent would be necessary to reduce inflation again to below two percent.

The issue whether monetary stimulus was a necessary or appropriate response to the several financial crises of 1998 (but not, interestingly, to those of 1997) will have to be deferred to a later discussion. For the moment, I will leave you with a personal episode that illustrates the bias of those who serve in the Federal Reserve. During the period that I served as acting chairman of the Council of Economic Advisers, I was "summoned" to the AEI office of the venerable Arthur Burns. He may have heard that I had opposed the bailout of Continental Illinois in the spring of 1984; in any case, his primary guidance to me was that I should never, under any circumstance, fail to support a bailout of a major financial institution. He claimed that the bailout of Franklin National Bank was the most important decision during his own disastrous experience as chairman of the Federal Reserve. Robert Rubin is reported to have had the same obsession about avoiding the collapse of a major financial institution. My point is that a fear that

the collapse of any major financial institution may lead to a general financial panic overwhelms any concern about the deferred moral hazard effects of bailouts and may introduce a bias in favor of a more expansive monetary policy. Avoiding the collapse of a major financial institution and the possibility of a more general financial panic may be worth a little inflation, but I do not know. I am skeptical about the alleged contagion effects of the failure of a major financial institution, but I simply do not know the answer to this question. In 1998, in addition, but not in 1997, the Federal Reserve seems to have been confused about whether it was the central banker for the world or only for the United States, and I hope that they have recovered from this confusion.

For the moment, given the acceleration of demand growth since early 1998, the important remaining issue before this panel is "What Should the Fed Do *Now*?" My position is that the Fed should *not* try to offset the high demand growth of the past two years. This would require unusually low demand growth for a period until demand was back on its prior trend; the future output costs of such a policy seem higher than any value of reversing the prior price effects of high demand growth. Maintaining a demand rule, I suggest, requires offsetting *small* differences from the target path but not as large a difference as has developed since early 1998. I realize this introduces an element of discretion in the conduct of monetary policy, and I would value your judgement on this issue.

Instead, I conclude, the Federal Reserve should try to establish and maintain a new 5.5 percent demand growth path based on the current level of demand. This may require more monetary restraint, or it may already be happening. Alan Greenspan may already have pulled off another miraculous "soft landing." I keep reading about a recent softening of demand but I do not yet see it in the data through the second quarter of this year. In any case, it is important to

restrain future demand growth to no more than a 5.5 percent rate if we are to avoid a new higher trend rate of inflation.

In summary, we have had an important test of the demand rule. It worked remarkably well for six years subject to various shocks. And it ended when the Federal Reserve chose to respond to several other shocks. Why did the demand rule work so well for so long? And why should the Federal Reserve depart from the target demand path by responding to some types of shocks but not others? We should learn from this experience.

References

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