

Consequently, in [8] the official minutes and staff memoranda of the Federal Open Market Committee for the years 1952-1960 were used to see how long it took the monetary authorities to recognize cyclical turning point in general economic activity (NBER reference dates were used as a benchmark). It was assumed that this would be a good indication of the length of time it takes the monetary authorities to recognize significant changes in any target economic variable. These records, reflecting policy decisions as well as statements on the economic outlook of policymakers, were also used to measure the action lag of monetary policy.

Comparable data are not available for the fiscal authorities, so an assumption was made that the recognition lag was the same for fiscal as for monetary policy. Also, no formal attempt was made to estimate the action lag of fiscal policy. The record of explicit attempts to take counter-cyclical fiscal action, especially on the tax side, is relatively short. This makes it difficult to say anything definite about the action lag of fiscal policy. Experiences of the 1962 and 1967 tax proposals suggest that the action lag may easily be a year or more. On the other hand, some excise tax legislation, the speed-up or slow-down of some Government procurements and expenditures, and other fiscal measures have been handled by the Congress or the President relatively quickly. In short, the nature of political and legislative processes gives little meaning to the idea of an average action lag for fiscal policy. A range rather than a point estimate gives a better indication of the length of this lag, and experience may be too limited to set a definite upper bound on this range.

*Outside lags.* Measurement of outside lags of monetary and fiscal policy is plagued by conceptual as well as methodological and statistical problems. It was noted in the accompanying article that the outside lag is not a discrete phenomenon. Rather, the effects of a policy change are *distributed* over a number of subsequent periods. Economic theory provides little help in deducing the precise shape of this distribution. It may well vary from one economic sector to another, and different policy actions might result in different distributions as well.

Some investigators assume a policy change has limited immediate effects on the economy but that these effects build up as time passes, reach a peak in some future time period and then subside. Others assume that a policy change has its greatest effect initially, and that these effects then become smaller in each subsequent period. Still other assumptions are possible. Depending on the assumption used and the statistical formulations employed, the shape of lag distributions can vary widely. Since the term "outside lag" is generally interpreted as meaning the time it takes for a policy action to achieve a certain percentage of its total effects, or to reach its peak effect, these different distributions can imply greatly different estimates of the outside lags of monetary and fiscal policy.

Numerous statistical formulations and techniques are used to try to estimate the distributed lags associated with policy changes. In [2], an adjustment coefficient for banks that can be converted into a lag distribution is estimated by correlating (in a multiple regression) changes in excess reserves (dependent variable) with the stock of excess reserves at the beginning of each period (independent variable). In [7], the distributed lag in bank adjustments is estimated by regressing deposit changes (dependent variable) against current and lagged changes in unborrowed reserves (independent variables). Coefficients of the independent variables describe the lag structure.

Lag distributions describing relationships between changes in interest rates or income and various types of expenditures have been estimated by the use of a variety of functional forms and statistical methods. Generally they involve including as independent variables in a multiple regression equation lagged observations of the dependent variable (e.g., plant and equipment expenditures) or lagged observations of the independent variable (e.g., interest rates or income). The resulting coefficients and lag distribution depend significantly on the functional form used, the constraints imposed on the coefficients, and the statistical estimating procedures followed. These factors account in part for the different estimates of the outside lag of monetary policy recorded in [4]. The results for fiscal policy contained in [1] reflect similar considerations.

Those who focus on the quantity of money as the main link between monetary policy and the economy generally do not actually estimate the shape of the entire lag distribution. Instead, they compare turning points in income with turning points in the money stock to see how long the former lags the latter [3], or they correlate lagged changes in the money stock with income or changes in income [6]. The assumption is that these procedures yield an estimate of the weighted