

Leadtimes will vary as the product mix of governmental purchasing fluctuates with changing needs and conditions. Studies of inter-industry economics have revealed that even technological leadtimes in specific industries are not invariant over time or with respect to changes in the level of activity. More distant sources of materials, the employment of less efficient labor, and variations in the precise nature or quality of the product may tend to increase the leadtimes.¹²²

Egle states that the so-called output lag is relevant in this connection (the lag of output behind a change in the volume of orders). He concludes that, for purposes of fiscal policy, this output lag will probably always defy reliable measurement because of the problem of determining the length of the lag with variable governmental outlays in goods.¹²³

The Navy Department has found that, in recent years, expenditure rates for the major categories of long-range procurement have many characteristics of the normal growth pattern—the logistics or S curve. By knowing or estimating the availability of funds for a given program and the expenditure rates experienced on similar programs in recent years, expenditure forecasts can be made for the next several years.¹²⁴

The rationale for the S curve is that production on long lead-time items is slow in getting started, then hits its stride with quantity production, and finally tapers off as the order nears completion. Such a method is more useful for procurement categories for which there is experience, rather than for such new items as missiles and space vehicles.

In a more general way, changes in the level of new authorizations and/or new commitments can be used to gauge the future course of expenditures in a somewhat similar manner that fluctuations in new orders are used by business analysts to estimate future sales trends. This is brought out in the following discussion of private orders.

When new orders have been received for several months at a rate exceeding sales, the indications are strong that sales will rise in the future. If, on the other hand, new business has been running below sales, a downward sales trend is indicated, except when backlogs are unusually high in relation to sales. Of course, in this case also sales must ultimately drop unless demand is stimulated, but with many months of unfilled orders on hand, a cut in output can be deferred for a considerable period. Finally, when incoming orders are about in line with sales and backlogs are normal, it is likely that sales will not be altered much for several months.¹²⁵

Similarly, when the current level of new obligational authority and/or obligations incurred exceeds the level of expenditures the indications are strong that expenditures will rise in the future and that if the lead series are lower than the level of payments, future expenditures will be lower. Unexpended balances play a role analogous to that of unfilled orders, because even during a cutback in new

¹²² Leadtime in input-output analysis covers only the time necessary to transform the input of an industry to an output. Leadtime in government spending refers to the entire period from ordering an object to delivery and payment. Jean Bronfenbrenner, *Lead Times in Interindustry Models: Concepts and Computations*, Washington, Department of Commerce, 1952, p. 3.

¹²³ Walter P. Egle, *Economic Stabilization: Objectives, Rules and Mechanisms*, Princeton, Princeton University Press, 1952, p. 193.

¹²⁴ For example, about 85 percent of the funds available for naval aircraft procurement in any one year will be spent over the next five years. U.S. Department of the Navy, *Statistical Approach to Forecasting Expenditures*, NAVEXOS P-1571, undated, pp. 2-3.

¹²⁵ Jacobs and Wimsatt, *op. cit.*, p. 20. "When a change in the trend of defense expenditures takes place, it nearly always results from a prior change in the same direction in appropriations and contracts. As was to be expected after the outbreak of the Korean conflict, appropriations and contract-letting initially expanded more rapidly than expenditures." Federal Reserve Bank of New York, *Selected Economic Indicators*, 1954, pp. 72-73.