

and Wormuth, in their discussion of World War II controls, conclude that, because of the failure to properly take into account the leadtime factors in Federal procurement, controls are likely to be applied later than an "objective and imaginative analysis" of the facts would dictate. Also, these controls are likely to be more limited in scope than is required to deal promptly and effectively with the necessary adjustment of the economy's resources. They point out that the economic setting increased the natural disposition to ignore the lag between the making of defense production plans and the actual output of munitions and related items at mass production levels.¹²⁰

Although beyond the general scope of this study, it would appear that the general phenomena of inflation and deflation need to be explored, not only in terms of the two poles of psychological expectations and actual cash flows, but also the intermediary stages during which plans are formulated and decisions are made.¹²¹ What may appear to be actions based merely on anticipations (such as buying sprees in advance of heavy war expenditures) can be really the early stages of the war expenditures themselves—such as necessary tooling up and business inventory accumulation.

ADMINISTRATIVE GOVERNMENTAL USE

The measurements of the early stages of the Federal spending process lend themselves to administrative use in forecasting future levels of expenditures, in gauging the progress made in the execution of Federal programs, and in controlling expenditures.

Forecasting expenditures. Forecasts of government expenditures can be prepared by making assumptions as to the availability of funds (new obligational authority and unused obligational authority granted in prior years), the extent to which they will be committed during the period under study, and expected delivery or expenditure rates resulting therefrom.

Algebraically, the relationship can be described in terms of a difference equation as follows:

$$X(t) = aA(t) + bA(t-1) + cA(t-2) + \dots + nA(t-n),$$

where

$X(t)$ = expenditures for a given year (from current as well as prior year appropriations).

$A(t)$ = appropriations and other new obligational authority granted for a given year.

$A(t-1)$ = appropriations for the previous year, etc.

a = the proportion of appropriations for year (t) to be spent in year (t) .

b = proportion of appropriations for year $(t-1)$ to be spent in year (t) , etc.

As the Government prepares estimates of appropriations for future periods, the major question involved is the extent to which the lead time coefficients— $a, b, c, \dots, n$ —remain constant over a period of time. Unfortunately, lead times vary for different types of programs and under different economic conditions. Hence, in the absence of a general degree of stability in government spending patterns, expenditures in a future period cannot be predicted simply by examining the total of new obligational authority.

¹²⁰ Anshen and Wormuth, *op. cit.*, p. 526.

¹²¹ Cf. Brown, *op. cit.*, "the expenditure approach to the phenomena of inflation, so enlightening in most circumstances, turns out to be sadly inadequate during the period under review" (p. 71).