

which may not call for operations to be at the optimum or preferred rates in each individual producing unit. Under dynamic conditions, some misjudgment of markets by firms is unavoidable and cannot quickly be corrected by shifting resources to other outputs.

(2) The optimum rate of operation for a dynamic economy such as ours will be affected also by the proportion of labor and capital which must be shifted annually to new uses or retired in order to adjust to changing demands and techniques. The higher the rate of turnover or shifting of resources in response to dynamic changes in the economy the lower the optimum rate of use productive resources which it is practical to aim for and vice versa.

(3) As a corollary to point (2), the more mobile resources are, the more rapidly and efficiently they respond to changes, the higher the preferred operating rate for the economy can be; while slow adjustments or shifts will lower the operating rate which can be on a sustained basis without inflation.

(4) For the total economy, it will be difficult to detect statistically valid evidence of increasing or decreasing returns under dynamic conditions, except those associated with wide cyclical swings in the rates of operation—recession or deep contraction and subsequent recovery, on the one hand, and periods of over-full demand, such as World War II, on the other. During other periods, the influence of technological progress on productivity of resources, and inevitable errors in estimating inputs and outputs, seem likely to conceal or gloss over any tendencies to increasing or decreasing returns between periods of similar rates of operation but different all-out output capabilities. This tendency will be reinforced by the offsetting occurring in putting together the aggregates from data on a myriad of individual units except in the unlikely event that all, or almost all units, experienced simultaneously either strongly increasing or decreasing returns.

(5) Measures of total inputs and output for a dynamic growing economy like ours are likely to exhibit, as a common characteristic, highly correlated growth trends. These correlated growth trends in output and inputs will be accompanied by a persistent, rapid time trend in total productivity of all inputs combined reflecting changes in the intangible contributions to production already mentioned including research, education, technological change, improved health, etc. These common time trends complicate the statistical problem of determining quantitatively the functional relationships between inputs and output that constitute the desired aggregate production function.

The design of an aggregate production function

In light of the preceding sketch, the required design of a production function incorporating relationships between inputs and outputs can be laid out in a way that make possible a statistical determination of the production coefficients relating each input to aggregate output for the economy. At this point, and in the following chapter, the overriding objective of this study must be kept constantly in view since it vitally affects the design and its implementation in chapter III.

The production function is sought as a means of estimating the economy's potential output under conditions of sustainable "maximum employment, production, and purchasing power," and, hence, estimating the rate at which this potential has grown in the past, is growing now, and could grow in the future. This means that our interest