Volume Title: Capital Consumption and Adjustment

Volume Author/Editor: Solomon Fabricant

Volume Publisher: NBER

Volume ISBN: 0-87014-034-5

Volume URL: http://www.nber.org/books/fabr38-1

Publication Date: 1938

Chapter Title: Introduction to "Capital Consumption and Adjustment"

Chapter Author: Solomon Fabricant

Chapter URL: http://www.nber.org/chapters/c4711

Chapter pages in book: (p. 1 - 6)

Part I

Scope and Basic Concepts

Chapter 1

Introduction

SCOPE AND BASIS OF OUR MEASURES

CHANGES in the value of the existing fixed capital stock of the nation we take to arise in three more or less distinct ways: through gross capital formation; through the consumption of capital; and through capital adjustment. The amount of gross capital formation we define as the current value of all new durable goods added to the capital stock.[1] The amount of capital consumption we define as the current value of all durable goods used up in the current production of commodities and services. In capital adjustment we include the value of durable goods used up in ways other than in the current production of goods and services, and value changes arising from revaluations of existing durable goods.

Gross capital formation has been treated in detail by Simon Kuznets in *Commodity Flow and Capital Formation,* Vol. I. In the present study we consider the other ways in which the value of the nation's capital stock is affected, namely, capital consumption and capital adjustment. Capital consumption is relevant also to the measurement of the national income: to determine the net income of the nation this quantity (among others) must be subtracted from the corresponding gross prod-

[1] By 'durable goods' we mean, in the present study, goods that are ordinarily employed in their ultimate use for more than one year. This is a more inclusive definition than Dr. Kuznets' (see *National Income and Capital Formation,* Part VI).

uct. Clearly capital consumption and capital adjustment are important economic quantities and call for measurement.

We restrict ourselves to the measurement of the consumption and adjustment of fixed capital. Of the various types of fixed capital we consider only tangible goods, including those in the hands of consumers and governmental bodies as well as business enterprises. We concentrate upon fixed capital because the determination of changes in this type of capital is peculiarly beset with difficulties. Circulating capital is commonly treated on a net basis: no attempt is made, nor is it felt necessary, to divide net changes in stocks of goods into gross additions to and subtractions from inventories. This is a consequence of the physical homogeneity of the goods added to and subtracted from any specific portion of stock. There is no great problem of obsolescence, no important problem of determining the percentage of depreciation. Goods taken out of inventories are taken out as whole units, not in bits by attrition. And because of the rapid rate of turnover they are replaced by substantially similar goods; there is no time for great change in quality, style, or complexity. To some extent changes do take place: even inventories may become obsolete, and price variation may be radical. But while there is a problem in the measurement of the consumption of circulating capital [2] the difficulties encountered are small relative to those involved in measuring the consumption of fixed capital. The determination of the latter quantity is so arbitrary and subject to error that it demands, and has received, separate and detailed consideration, and has been distinguished from other changes in fixed capital, namely, capital adjustments.

One of two courses is open to us in measuring the consumption of fixed capital. We may turn to the available estimates of capital consumed by individual economic units, as determined within these units. Or we may make independent estimates based on what we know of the amount of existing capital,

2 See the discussion of this problem in Volume I of *Studies in Income and Wealth*, Parts Three and Four (National Bureau of Economic Research, 1937).

the output of durable goods, rates of depreciation, and so on. Recourse to the first procedure speedily reveals the lack of estimates for certain parts of the economic system. For incorporated business concerns, however, it is possible to compile the estimates appearing in their accounts and to extend them to cover unincorporated firms. But before these estimates may be used it is necessary to examine their accounting basis and the manner in which the accounting concepts of capital consumption differ from those which broader economic analysis demands.

Owing to the absence of owner-estimates of the consumption of the capital goods held by farmers, consumers, and governmental bodies, it is necessary to prepare independent estimates of capital consumed in these segments of the economic system. This is done by using the available data on related economic quantities; for farm buildings and equipment such estimates have been prepared by the Department of Agriculture.

The amount of capital adjustments can be estimated only by reference to accounting records, which are available for business enterprises alone.

ORDER OF MAGNITUDE OF OUR FIGURES

Before plunging into the details of the discussion of concepts, sources, figures, and methods of estimate, it is well to mention briefly the order of the magnitudes with which we shall be concerned.

In 1929 the gross national product consisted of 93.6 billion dollars. To obtain a net figure, the national income, there was deducted 10.2 billion for depreciation, depletion, and losses by fire of the nation's fixed capital. In 1933 the corresponding figures (expressed in 1929 prices) were 60.5 and 9.5 billion dollars. In other words, in 1929 one-ninth, and in 1933 one-sixth of the gross product was accounted for by these items of capital consumption. The total of depreciation, depletion, and fire losses understates the amount of capital consumption: it does not include all items of depletion, certain losses arising from retirements of equipment, and depreciation on certain capital sums charged directly to current operations. In a depression it also omits a large sum representing under-maintenance through postponement of repairs, repainting, etc. (in prosperity there may be some over-maintenance, however).

The 10.2 billion dollars in 1929 represented 7.1 billion of consumption of fixed capital goods used for business purposes, 2.5 billion of depreciation on residential real estate, and 0.6 billion on depreciable governmental capital (excluding roads and sewers). The corresponding magnitudes for 1933 (in 1929 prices) were 6.3 in business, 2.4 on residences, and 0.7 on governmental property.

In comparison with gross capital formation the enumerated charges for capital consumption were less in 1929 (constituting three-fifths of the gross item) and more in 1933. In other words, 60 per cent of the total 1929 output of durable goods was used to replace consumed capital, while in 1933 this output fell short of the calculated consumption by 2.2 billion dollars.

The magnitude of the measures of capital adjustment are best realized in relation to the net changes in capital assets of corporations. In 1932, an extreme year, these adjustments accounted for more than half of the decline in book values during the year.