Chapter 6

THE CAPITAL-OUTPUT RATIO IN THE UNITED STATES: ITS VARIATION AND STABILITY

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I. CAPITAL COEFFICIENTS

If only a decade ago the demand for capital coefficients greatly exceeded the supply, recent empirical findings have rectified, if not reversed, the imbalance. Produced by Leontief and his associates in the Harvard Economic Research Project's dynamic input-output model on the one side, and by Kuznets and his associates in the National Bureau of Economic Research study of capital formation on the other, American capital coefficients are now reaching the market in such variety and numbers as to make the exercise of their consumers' choice a fascinating, if not an easy, occupation. It seems that the days of the good old general capital coefficient which could be so conveniently divided into the propensity to save to yield the warranted, required, equilibrium, or some other rate of growth are about over. A present-day American fisherman who is happy to have a box of modern flies each for a particular type of water, fish, season and even hour, may yet be nostalgic for the old-fashioned earthworm good for almost any kind of fish at any time. Similarly, the user of these coefficients must be grateful for the vast and useful amount of research done, and at the same time not quite certain how to pick the right coefficient for the right problem. Fortunately, in some instances the trends are so pronounced that the choice does not matter; but in others it does. Capital coefficients can be defined,

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F. A. Lutz et al., The Theory of Capital
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aggregated, and disaggregated in so many ways that the fate of a hypothesis may sometimes depend on the particular coefficients used, and what is proved by one set may yet be disproved by another.

A capital coefficient being the ratio between the capital stock and the output produced by it, each in a total or incremental sense, its meaning and significance depend on the nature of its numerator and denominator. The debates about the ‘correct’ measurement of capital and output have a long history and several papers at this Conference are devoted to it. Let me steer away from this subject and mention just a few questions which the capital coefficients presented in this paper specifically raise.

In defining capital and output I would place the emphasis on the expression ‘produced by it’, in the sense that the stock of capital should include all capital needed to produce a given output, while the latter should contain all output produced by a given stock of capital. Some applications of this requirement are easy. If residential buildings are included in the stock of capital, all rents, whether paid or imputed, should be included in output. If services derived from consumer durables are not imputed in output, consumer durables should not be included in the stock of capital. Similarly, if military expenditures are included in output, military assets have their place in the stock of capital, however uneasy Professor Kuznets is on this score. But other applications of this rule are not as easy. The inclusion of a public highway in the stock of capital seems perfectly proper. We do not, however, impute its services to consumers as a part of output (though maintenance expenses may partially compensate for this omission). The same holds true for a good deal of publicly-owned capital and its services. As the importance of government is increasing, these distortions can significantly affect the magnitude and behaviour of the capital coefficients.

Let us next examine the composition of capital. Existing estimates of capital include physical capital, that is, buildings, other structures, machinery, equipment, sometimes inventories in the hands of business units; agricultural land is usually but not always excluded. ¹ Non-physical capital, that is the stock of knowledge, is excluded not by design but because of lack of data, an omission to be, let us hope, rectified with time. The exclusion of land can be justified on the ‘gift of nature’ grounds, though it is hard to tell what part of the existing stock of agricultural land, particularly in an advanced country, is of that origin. It is probably an ever-diminish-