

The Measurement of Business Capital, Income and Performance

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Introduction

W. Erwin Diewert,
 Department of Economics,
 University of British Columbia,
 Vancouver, B.C.,
 Canada, V6N 1Z1
 Email: diewert@econ.ubc.ca

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Introduction to the Tutorial

The main purpose of this tutorial is to answer the following question: how should capital input be measured in the context of evaluating business performance over a number of accounting periods?

The fundamental problem associated with measuring the contribution of a capital input to the period by period economic performance of a business unit is the durability of capital: a capital input is purchased in an initial accounting period but its contribution to the production of outputs persists over several subsequent periods. Thus the initial purchase cost of the capital input cannot be entirely allocated to the period of purchase but it is difficult to know precisely how the initial cost should be allocated over subsequent periods. This problem of determining the period by period contributions to production and the associated costs is perhaps the fundamental problem in accounting theory. The difficulties associated with this fundamental allocation problem are greatly magnified if the price level is not stable. In the tutorial, we will not assume stability of prices. Once the initial purchase cost of a durable capital input has been allocated across accounting periods, period costs can be subtracted from period revenues and accounting period income or profits can be calculated. Thus the measurement of capital goes hand in hand with the measurement of business income: different measures for the period by period cost of capital will give rise to different income measures. A production theory framework will be used to answer the above questions.

The model of production that we will use for the most part is a one period model of production. It can be described as follows:

“We must look at the production process during a period of time, with a beginning and an end. It starts, at the commencement of the Period, with an Initial Capital Stock; to this there is applied a Flow Input of labour, and from it there emerges a Flow Output called Consumption; then there is a Closing Stock of Capital left over at the end. If Inputs are the things that are put in, the Outputs are the things that are got out, and the production of the Period is considered in isolation, then the Initial Capital Stock is an Input. A Stock Input to the Flow Input of labour; and further (what is less well recognized in the tradition, but is equally clear when we are strict with translation), the Closing Capital Stock is an Output, a Stock Output to match the Flow Output of Consumption Goods. Both input and output have stock and flow components; capital appears both as input and as output” John R. Hicks (1961; 23).

“The business firm can be viewed as a receptacle into which factors of production, or inputs, flow and out of which outputs flow...The total of the inputs with which the firm can work within the time period specified includes those inherited from the previous period and those acquired during the current period. The total of the outputs of the business firm in the same period includes the amounts of outputs currently sold and the amounts of inputs which are bequeathed to the firm in its succeeding period of activity.” Edgar O. Edwards and Philip W. Bell (1961; 71-72).

Hicks and Edwards and Bell obviously had the same model of production in mind: in each accounting period, the business unit combines the capital stocks and goods in process that it has inherited from the previous period with “flow” inputs purchased in the current period (such as labour, materials, services and additional durable inputs) to produce current period “flow” outputs as well as end of the period depreciated capital stock components which are regarded as outputs from the perspective of the current

period (but will be regarded as inputs from the perspective of the next period). The model could be viewed as an Austrian model of production in honour of the Austrian economist Böhm-Bawerk (1891) who viewed production as an activity which used raw materials and labour to further process partly finished goods into finally demanded goods. We will explore this model of production in more detail in section 9 of Chapter I below.

The reader will be able to gain an idea of the materials covered in the remainder of these lectures by looking at the above Table of Contents.

Much of the material in this tutorial has appeared in my published work and unpublished University of British Columbia Discussion Papers. However, the material in chapters II, III and VII is substantially new and is appearing here for the first time.

My thanks to the participants at the Tutorial for their helpful comments and to Emili Grifell for making the Tutorial possible.