Production Model Saari 1989

Seppo Saari

*Doctor of Science in Technology at MIDO OY, Finland, seppo.saari@mido.fi*

Copyright © Seppo Saari and MIDO OY, 1989

The accounting technique for this model has been developed from standard cost accounting. The model was used when the typology of production models was successfully explained (Saari 2000). The model gives identical accounting results to the Saari 2004 model.

The principle of this model is to convert a nominal price income statement of production into a fixed price calculation. In the fixed price calculation we can easily compute and analyze the effects of the real process and the distribution process. A conversion to the fixed price calculation is made by expressing the unit prices of outputs and inputs as price indices. The fixed price quantities of outputs and inputs can then be computed with help of the indices.

The accounting procedure is as follows:

1. Current unit prices of the basic example are expressed as indices. (col. 3 and 7). Prices of outputs and inputs in Period 2 are given the value 1.000 and price indices for outputs and inputs in Period 1 are computed.
2. The fixed price quantities (col. 1 and 5) of outputs and inputs are computed by dividing their current price values (col. 4 and 8) by the price indices (col. 3 and 7)
3. Fixed price quantities of outputs and inputs are now commensurate. The total output and input are computed by summing up the fixed priced quantities of outputs and inputs (col. 1 and 5)
4. Productivity factors are computed in columns 2 and 6. The productivity factor is on the output side “Output quantity / Total output” and on the input side “Input quantity / Total input.
5. Finally, the profit effects of income components are computed row by row using the following formulae:

*Effect of productivity change =* Δ *T x V 1 x H 2   
Effect of volume change = T 2 x* Δ *V x H 2Effect of price change = T 1 x V 1 x* Δ *H   
where:*

*T = Productivity factor  
V = Volume (input volume)  
H = Price  
indices refer to Periods one and two.*

This model also gives details of the income distribution. Note that income distribution is expressed row by row, that is, for each output and each input. A favourable change for the producer is shown by a plus sign and an unfavourable one by a minus sign. The effects of income distribution are shown by the producer’s production function in the subsequent period. In the article Saari 2011 the income distribution and its effects on the production function are analyzed in greater detail.

Saari, S. 2000. Tuottavuuden mittaus osana kannattavuuden mittausta teollisuusyrityksessä: Mittausmenetelmien vertaileva tutkimus. 164 s. Väitöskirja. (in Finnish)  
Productivity Measurement as a Part of Profitability Measurement: Comparative Study of Measurement Methods. 164 p. Doctoral Thesis.

Saari, S. 2011. PRODUCTION AND PRODUCTIVITY AS SOURCES OF WELL-BEING. MIDO. 25 p.

