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SPECIFICATION AND ESTIMATION OF MULTIPLE-OUTPUT PRODUCTION FUNCTIONS

Lecture Notes in Economics and Mathematical System.
Springer-Verlag, Berlin, Heidelberg, New York, 1976.

This work printed in Germany by the well-known Springer-Verlag publishing house approaches a field less treated in the speciality literature, namely: Multiple Output Production Functions.

One will first discuss a synthesis of the main results obtained by applying multiple-output production functions to optimum problems. There are studied the properties of these functions: cost-minimizing, revenue-maximizing and profit-maximizing. In developing this theory, the author plays attention to the case in which the output can be aggregated by a function, and the inputs can also be aggregated by a function. Using this assumption of separability of inputs and outputs in the multiple output production functions, one shows the results got for production functions in which the inputs and outputs are aggregated by Cobb-Douglas functions and (or) by C.E.S. functions.

Further on, it is suggested a stochastic framework and a procedure for estimating the parameters of multiple output production functions is presented.

Particularly, for exogeneous prices one shall propose and justify the use of the derived output supply system and input demand system for estimation purposes. The system for input demand functions, which we use for empirical work, is nonlinear in the parameters.

Using an estimating procedure suggested by Malinvaud, one obtains maximum-likelihood estimators under the assumption of normally distributed random variables.

The presented results are illustrated with examples of statistic data series of United States economy.

The book is firstly addressing to those people dealling with the applications of production functions in economic and financial analysis.

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