

Econometric Analysis of Managerial Decisions—T. V. S. Ramamohan Rao. (Oxford & IBH Publishing Co.) Price Rs. 11-75

It is commonplace amongst those who teach economics and management to complain about the poor use made by practicing managers and economists of the techniques developed or taught by them. The book under review similarly attempts to "inculcate in the managerial rank and file the necessity for a balanced analytical use of all the quantitative information readily available", and to "make the practical managers appreciate the full potential and use of the available techniques" (Preface). The book however, as the title suggests, is limited to the use of econometric techniques in managerial decisions.

The technique basically boils down to the use of regression for estimating correlations between variables under study, such as a set of independent variables which influence the study (dependent) variable. The guidelines for setting up the model are provided by the economic theory.

The first three chapters are introductory in nature and deal with the process of managerial decisions and provide a brief summary of the econometric method. The author has tried to sum up all these in mere 45 pages. Perhaps, the intention is not to explain in detail what is management science or the econometric method but to briefly review the literature on the subject. Still, one cannot help feeling, that exposition of the method (only the 'multiple regression method' is discussed in about two pages) is inadequate and ignores a whole host of problems, both

in the realm of economic theory and statistical methods of estimation. A student may be led to believe that all that is required is a 'correct' model in form of a functional equation specifying some kind of relationship between independent and dependent variables and estimating the parameters of the equation. The author tries to correct this by a chapter in the end titled "The Limitations of the Econometric Method" which too falls short of one's expectations. 'Specification' & 'identification' problems usually found in the first chapter of any econometric text are given brief mention but problems like multicollinearity, autocorrelation and different methods to tackle these problems as well as statistical tests of reliability of the results are ignored. These seem to have become the natural causality of the brevity exercised throughout the book.

After this brief introduction, the book plunges into the application of econometric to management problems. We shall briefly review this effort at applying the technique in some of the major areas and then try and assess our general impressions of this exercise.

The first of such chapters deals with the analysis of demand patterns. Though the author differentiates between consumer products and durables or intermediate products, it is assumed that the econometric method is suitable (and the best?) for all these products. Nor are the various methods for estimating demand of intermediate products discussed. The author discusses four major studies in demand forecasting and it is through these that he hopes to emphasise the need to "understand the institutional

structure under which a particular unit is operating before making any choice, of either the demand variable or the possible regressor." The studies cited are well known in the field like NCAER study on scooters & Johnston's work on steel. However, wherever end-use method is used (e.g. NCAER study on steel demand) the author has dismissed it in a one line footnote. In a country like India, with some degree of central planning, such end-use methods find greater applications, as is evident from the demand studies carried out by various Task Forces of Planning Commission. However, this chapter is one of the best in the book, partly because the wide application of econometric method is in the area of demand analysis.

In the following chapters, the author attempts to use econometric for almost every conceivable managerial problem. First the problems related with costs of production are taken up. The author discusses problems of analysis of costs & economic concepts like fixed and variable costs, and goes on to discuss difficulties faced by accountants. However there is no mention of the far greater difficulties and limitations of the econometric method. Examples cited refer to studies on economies of scale and econometric estimation of cost curves based on neo-classical theories of production. Similarly, production planning is discussed with the help of models where production in period t (P_t) is a function of production and inventories in period $t-1$, and sales in period t . Though, this is how economic theory explains fluctuations in production generally, production planning in a unit takes into account several other complex issues.

While discussing estimation of working capital, some of the well known methods of estimation in the field of finance, like operating cycle etc., are discussed. However, when the use of econometrics to estimate working capital is put forward, it is made to depend only on 'value-added' or/and 'sales'. Wage payments in the next chapter (chapter 9) are made a function of productivity, profit and cost of living etc. It is not clear, how a manager would decide on wage-payments using linear equations which estimate the wages as a function of profitability or union strength (how does one measure 'strength'?).

The next three chapters deal with financial problems like pricing policy, investment and dividend decisions etc. Pricing policy might be formulated on the basis of demand curves, where relation between price and demand might be useful, but perhaps estimating 'average cost curves', though regression might not be acceptable to managers. Similarly, investment and financial decisions to borrow and pay dividend are likely to be based on factors which would be difficult to capture with econometric techniques. A similar criticism would be levelled against the use of econometrics to decide on workforce, measure productivity, and profitability (chapters 13, 14 & 15).

In Chapter 16, the author presents us with two comprehensive cases where the working of an enterprise are described by a set of simultaneous equations covering market-share, average cost, investment, inventories, profitability etc. The case studies are indeed very interesting and resemble the 'management games' with the difference that functions are explicitly stated. However, they appear to be

very good econometric problems rather than managerial case studies.

Despite these shortcomings, each chapter of the book gives an excellent and brief summary of theoretical view of the problem as well as other methods and techniques used to tackle them. However it disappoints when it tries to apply econometric models to these problems. The usual method is to cite other studies or examples. Many of the examples cited have low coefficients of correlation (R^2) and very low values for 't' tests, making the coefficient not significantly different from zero. The pitfalls of using such dubious statistical results (though we are aware it is a 'fashionable' practice in econometrics) are not clearly mentioned.

The econometric method has two broad fields of application. Firstly it can help the manager understand his economic environment better through watching the performance of such exogenous variables that effect his enterprise. For example, he may want to keep track of or forecast such economic indicators as National Income, investments in particular sector/industry, consumer expenditure etc., or may want to know how these effect his enterprise. Secondly, econometric may be used by a social scientist to understand the working (amongst other things) of economic enterprises *in general*. For example, we may want to know what factors affect inventories, investment in a particular industry or sector. Using data from a set of firms, or over one firm over a number of years, we may be able to arrive at such a general conclusion.

It would be presumptuous, in our view,

for a social scientist to pretend that such a method of abstraction is the best way for a manager to decide on his investment, production, costs, wage policy etc. For each enterprise has its own concrete situation with many complex factors with a unique set of priorities and weightages, and any method of generalization or abstraction has little use for a manager who is already aware of his concrete situation (of course he may use it to understand the behaviour of other firms, say, his competitors). This is precisely the reason why managers talk about 'experience' rather than 'techniques' and refuse to take seriously such tall claims made on behalf of the techniques.

The author has failed to emphasise the limited use of such techniques. What might be the best method of abstraction for purposes of class-room teaching might not be the best method of tackling a concrete situation. It would be ridiculous to suggest that an econometric study of inventory or wages for a firm for a number of years, which is a must for a student removed from the concrete situation to understand its working, would also be the best method for a manager to decide on the inventory or the wage policy for his enterprise. For the latter, management science has better methods and techniques of analysis.

In our view, the only use which a manager can make of the econometric techniques is for the purpose of forecasting macro-economic variables or for demand projections. And though it might be interesting to estimate a model showing functional relationship between inventories & sales, it would be of little use to managers who knows exactly what factors influence his inventories.

It would be unfair to blame the author alone for some of the pitfalls of the book. The entire neo-classical school with its orientation towards empiricism has resulted in theories of dubious value. The author only attempts to 'apply' such theories to problems of firms.

Each chapter cites some examples or discusses a few studies in the field. The references cited are the better known works in the field of management, other than the numerous references to the other works by the author. The exercises given are good, with hints to solve them.

The book is cheap and well printed. It could be of use to students and teachers who think management is a 'technique'. For managers it will have limited use.

Sushil Khanna

Research Fellow, Economics Area, IIMC

Towards a New Managerial Order in Asia. ed. by P. K. Basu. Kuala Lumpur, 1977, U. N. Asian & Pacific Development Administration Centre.

1. The Projects

The U. N. Asian Centre for a Development Administration now re-named Asian & Pacific Development Administration Centre, has undertaken, among its other activities, a project called a 'Managerial Civil Service in Asia'.

This has been done in the context of the rapid increase in the number of public enterprises in Asian countries and the difficulties that the national Governments are facing in organising suitable managerial cadres for these enterprises.

Since this U. N. Body has been established to assist member countries in Asia and in the Pacific region in improving their administrative and managerial capability for national development, public enterprise management has come to be one of the important areas of its activities.

As a first step, several months of research were devoted to preparing a theme paper on this project as the basis for discussion at an intergovernmental forum. Then an Asian colloquium on Managerial Civil Services was held at Kuala Lumpur in November/December, 1976. Nine Asian countries participated in the colloquium. These were Malaysia, India, Indonesia, Iran, Japan, Nepal, Pakistan, Philippines and Sri Lanka. Bangladesh sent an observer to the colloquium. Two papers were presented for India—one by Dr. A. R. Kidwai, Chairman, Union Public Service Commission entitled 'Managerial Civil Service in India', and the other by Mr. R. K. Trivedi, then Secretary, Department of Personnel and Administrative Reforms, entitled, 'Managerial Cadres for Public Enterprises in India'.

The discussions at the colloquium brought out various gaps in policy issues which, it was felt, needed indepth study. So a series of country studies have been commissioned¹.

1. For India, one study is being prepared by the Director of the Bureau of Public Enterprises, Shri Bazle Karim, and the Dean of the Faculty of Management Studies, Delhi University, Dr. S. Neelamagham; and another by the author.