



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

BOOK REVIEWS

Risk Uncertainty and Agricultural Development. Edited by J. A. ROUMASSET, J. BOUSSARD and I. SINGH. (New York: Agricultural Development Council, 1979.) Pp. 453.

One of the undeniably important characteristics of the agricultural environment with which decision makers, whether they be peasants, commercial farmers, input suppliers, output processors or governments, must contend when making decisions is uncertainty or imperfect information on seasonal conditions, commodity prices and so forth. Recent years have witnessed a flood of literature designed to incorporate or allow for uncertainty in decision making. Several approaches have been taken to measure uncertainty, to assess whether and how it modifies behaviour as compared to models in which perfect and costless knowledge is assumed, and to develop normative analyses for use by both individual decision makers and by government. Not surprisingly a diversity of answers has been given. It was in this context that in 1976 a Conference on Risk and Uncertainty in Agricultural Development sponsored by A/D/C and CIMMYT was held in Mexico.

Over thirty agricultural economists who have been forerunners in the analysis of decision making under uncertainty attended. Arising from the conference, some twenty chapters were written to form the volume. As noted by Roumasset (p. 3), 'This book provides a survey of alternative methods in both positive and normative agricultural decision analysis. The authors of the various chapters survey existing methods of decision analysis and suggest new methods. We have not attempted to draw conclusions about which methods are correct or more useful but have attempted instead to draw readers' attention to the advantages and disadvantages of the various alternatives'. In fact, when comparing these chapters with previous work by the authors, one is struck by the drop in evangelical promulgations and by the greater level of humility and doubt. The book will disappoint those who seek easy-to-apply and non-controversial formulae for the solution of everyday problems. The state of the art demands a critical appraisal of the available techniques and the answers they give. To my mind, the book's balanced approach to the pros and cons of different ways of modelling decision making under uncertainty and to deriving policy recommendations is a welcome and substantial contribution.

A number of ways of incorporating uncertainty in decision models are described and evaluated. For my purposes, four categories will be considered (both Roumasset and Anderson provide different taxonomies). In the first, the objective function of a maximising model is modified to allow for aversion to (or preference for) uncertain outcomes. Despite its intuitive appeal, doubts were raised concerning the underlying axioms of and empirical methods of ascertaining utility functions, the great (and as yet largely unexplained) variation in utility functions both across time and across individuals, and the complexity of the decision process for most real life problems. It is interesting to note that several authors emphasised the diversity of farmer attitudes to uncertainty, with a sizeable proportion of surveyed farmers being risk preferers. Also, the ease of attributing risk aversion to imperfect and costly market knowledge and arbitrage costs was highlighted.

A second category of models adds additional restraints to the profit maximising model. These include the addition of safety-first constraints and focus-loss constraints in programming models. They pose a bounded rationality problem and in so doing reduce and simplify the search for the 'best' plan. While several authors have reported good explanatory properties with such models, there is an arbitrary element in specifying the safety level and the acceptable probability.

Efficiency analysis methods offer a third approach to modelling risk. They provide a partial ordering of risky prospects as opposed to a complete ordering inherent with maximising models. Examples are the stochastic dominance model and the E-V model and its variants used in the programming literature. In some cases they can sort out a number of options not needing further consideration.

The fourth category of decision models is based on arbitrarily specified behavioural decision rules, e.g. the adjustment constraints of recursive programming models and the satisficing model of Simon, Cyert and March. If the behavioural assumptions can be based on systematic observation, the model can have good explanatory power and several studies attest to this. However, such analyses are time consuming and one has to be careful in making extrapolations.

Unfortunately, none of the authors explicitly test the implicit theme of the book that it is preferable to include uncertainty in models and analyses of agriculture in developing countries rather than ignore it. Certainly there are some convincing affirmative empirical studies in the case of developed country agriculture, but it takes a heroic assumption to extrapolate such findings to people living on the brink of poverty and who are more subsistence oriented than commercially oriented. Since the various models that include uncertainty are themselves simplifying approximations to reality, are they more or less appropriate than the simplifications of the models which ignore uncertainty? Clearly, such a basic question is difficult to answer but it is one which deserves further investigation.

The book contains several interesting chapters which look into particular aspects of decision making under uncertainty. (However, the two chapters in Part VI on crop breeding and varietal selection can be easily ignored). Particularly stimulating is the chapter by Newberry and Stiglitz on choices of rural people between working for wages, renting land, and share tenancy in the context of interdependent labour and land markets, diversity of decision makers and resources, imperfect information and indivisibilities. Other chapters delve into implications for behaviour in, and performance of, the market for rural credit, price intervention policies, pest control and the specification and estimation of production functions incorporating uncertainty.

It is in the general area of suggestions for appropriate government policy that the book reveals a marked gap in our knowledge (see particularly the chapter by Binswanger). Since different decision makers have different attitudes to, and options for, handling uncertainty, there is no instrument which would meet all problems even if we could correctly model the situation. Further, potential gains vary with the assumed model. One problem not mentioned in the book is whether there would be gains from offering incentives to change individuals' behaviour towards a more 'socially optimal' level. Lipton seems to

presume that the answer would be yes. However, if society needs to offer a bribe to the individual, someone has to pay and it is not clear that society in net would gain. Beyond these and other conceptual concerns there remains the lack of supporting empirical evidence on required magnitudes. In fact, there is a consensus that only a very brave and possibly an ill-informed person would appeal to the existence of uncertainty as an argument for changes in credit, land tenure, input subsidy and output subsidy policies as means of increasing social welfare.

Overall, the book provides a stimulating and comprehensive collection of ideas on both the modelling of uncertainty in agriculture and implications of uncertainty for behaviour of agriculture in developing countries.

J. W. FREEBAIRN

La Trobe University

Anatomy of a Peasant Economy. By Y. HAYAMI in association with M. KIKUCHI, P. F. MOYA, L. M. BAMBO and E. B. MARCHIANO. (Los Baños: International Rice Research Institute, 1978.) Pp. 149.

Economic Consequences of the New Rice Technology. (Los Baños: International Rice Research Institute, 1978.) Pp. 402.

These two publications are products of the wide-ranging and fruitful research program in economics at the International Rice Research Institute (IRRI) in the Philippines. Both books relate to the impact of the new rice technology which was mainly developed at IRRI.

In the *Anatomy of a Peasant Economy*, Dr Hayami and his associates report the results of an intensive case study of a more or less typical rice village in the Philippines. The study involved intensive household record keeping over a period of a year, supplemented by interview surveys. Data were collected on production, consumption, investment and transaction activities, permitting the flows of goods and services within and without the village to be documented. Systems of household and social accounts were developed for this purpose.

After a general introduction and a description of the village studied, there are chapters on the pattern of labour utilisation, household income flows and household asset positions. The households are classified into three main groups: large farmers (with an average of about 3 ha of land); small farmers (with just over 1 ha, on average); and landless workers. A disappointing feature of the study is that the sample sizes in these three categories were very small, comprising 4, 3 and 4 households, respectively. Although the task of data gathering from even these few households must have been considerable, one wonders how much confidence can be placed in the reported results as being representative of the categories these were chosen from. These doubts are amplified by some evidence of sampling bias and by the failure generally to provide measures of dispersion around reported average values. Despite these limitations, however, the results of the household survey are generally both plausible and informative.

In Chapter 6, social accounts for the whole village are reported. These accounts were derived by scaling-up the stratified household data to the village level and by supplementing these results with addi-

tional data obtained by interviews. The derived social accounts include information on village income flows and asset positions.

The book concludes with a chapter summarising the structure of the village economy and drawing implications about policy and future research needs. The largely self-contained nature of the village economy is emphasised. It is noted that the landless workers in the village have gained nothing from recent land reforms and that the incomes of this disadvantaged group could be improved only by raising employment in the village. It is claimed that the key to the development of the village economy is to be found in policies that will permit the utilisation of labour of low opportunity cost for effective capital formation.

The conclusions of the study are perhaps rather limited and unsurprising and, in that sense, the book is disappointing. Detailed village-household level research of this kind is expensive and one would hope for more positive evidence of its value than is found here. On the other hand, there is little doubt that the study will prove an important mine of reference data for economists at IRRI and elsewhere working on the rural economy of rice production, and therein will lie its real value.

The Economic Consequences of the New Rice Technology is an edited version of papers presented at a conference held at IRRI in December 1976. The papers are grouped under six headings: output and supply; farm income structure; labour and mechanisation; fertiliser and water; social benefits; and policy. Under each heading but the last, there are two papers included, together with comments on each paper. Some of the comments really qualify as papers in their own right. On policy, three papers, with comments, are included, followed by two general comments containing some summing-up of the whole conference.

Inevitably in a collection of reference papers, the standard of material is variable. A frustrating feature of the format adopted in the book is that an interesting and perhaps contentious paper may be followed by a highly critical comment, but no reply by the author(s) of the main paper nor other resolution of the exposed difference of opinion is included. Presumably, the conference did reach conclusions on some of the issues discussed and it would have been useful to know what these were. The overview comments by C. H. Hanumantha Rao and G. Ranis at the end of the book, although interesting, are too general to provide a resolution of many of the detailed issues raised.

There are too many papers in the book to review them one by one and all that can be attempted here is to point to a few highlights. For example, the paper by Evenson and Flores and the comment by Scobie on the social return to rice research were two especially valuable contributions, not only because both showed very high rates of return to investments in research (with important policy implications) but also because of the interesting way in which the methodological issues of assessing social returns were tackled.

An important theme found running through a number of papers is the effect of new technology on the relative and absolute incomes of various groups in the society. The balance of the evidence presented is contrary to the conventional view that the new technology has been of most benefit to larger-scale producers and has led to falls in the

welfare of small farmers and landless workers. Several of the papers from IRRI, notably one by Hayami and Herdt, deal with observed correlations between the adoption of new technology in rice production and widening income disparities. It is argued that these correlations result from coincidences associated with rapid population growth provoking shifts in demand more rapid than the shifts in supply, and with inappropriate policies, such as distorted exchange rates, stimulating excessive levels of farm mechanisation. Hayami and Herdt offer evidence that the new technology applied to subsistence crops in semi-subsistence economies benefits both producers and consumers, and leads to a more equal income distribution. While this view does not go unchallenged, Duff offers the supporting view that there is no strong causal relationship between adoption of modern varieties and mechanisation, particularly tractors. Similarly, Barker and Cordova conclude that the new technology has produced an increase in labour input per unit area, particularly in the form of hired labour. Ranade and Herdt agree that there is little evidence to support the hypothesis of radical changes in shares of earnings of landlords, tenants and labourers, following adoption of new technology. The chief doubt to be raised in regard to these optimistic conclusions is that most of the underlying empirical work was conducted in the Philippines. As Ranis notes, there is an urgent need to extend these kinds of studies to other rice-growing countries.

Despite the inherent deficiencies of a published set of conference papers, this book is a valuable contribution to the literature on the economics of the new agricultural technology. It deserves a place on the shelves of students, teachers and researchers concerned with rural development.

J. B. HARDAKER

University of New England

Agricultural Development of India, Policy and Problems. By C. H. SHAH and C. N. VAKIL. (Bombay: Orient Longman, 1979.) Pp. 688, ISBN: 0 86131 075 6.

This is a collection of articles contributed by 28 writers including economists, administrators and scientists. The topics discussed are divided into six sections: planning and policy problems; food, marketing and prices; production modes and institutions; resources for production; technological change, extension and innovation; and the role of agriculture — looking ahead.

This is an important contribution to the literature on the agricultural development of India and much of the credit goes to the editors in achieving some degree of integration which is often absent in such joint efforts.

The compound rate of growth of agricultural output in India over the past two decades is estimated to be 2.5 per cent per annum. As George Blyn puts it, 'to have doubled agricultural production in a mere 25 years of nationhood in a land of low per capita income and already advanced density where agriculture over the past many centuries had already taken up the naturally suitable farm lands is surely a remarkable accomplishment' (p. 582). M. L. Dantwala, L. S. Venkataraman,

Gunvant M. Desai, and M. S. Swaminathan, for example, have dealt lucidly with some of the factors contributing to growth such as investments in irrigation, fertilisers and power, scientific advances in plant breeding, subsidised input prices and rising output prices. There is still a very big gap between the theoretical growth potentials and the actual achievement. Many of the policies suggested and discussed in the book are concerned with the future possibilities of bridging the gap further.

The benefits of the steady rise in output have accrued to the agricultural producers. Over the past 25 years, the tax revenue of the centre and the states has increased rapidly. The agricultural sector has escaped lightly — the poor because of their meagre consumption of purchased non-agricultural commodities and the rich because there is no direct tax on agricultural income comparable to the progressive income tax on non-agricultural income.

Has this rise in agricultural income made any significant dent in the abysmal poverty of the majority in the rural India? Have the vulnerable sections of the rural population — agricultural wage earners and small and marginal farmers who constitute nearly two-thirds of the rural population — become less vulnerable? Has unemployment and underemployment of the agricultural labour force declined with growth? If the answer to these questions is 'no', as the answer in the book seems to be, one has to seek a logical framework which could explain both the growth and the distributive aspects simultaneously. Such a framework of understanding the past is not to be found in this book.

G. Parthasarathy in his essay 'Land Reform and the Changing Agrarian Structure' emphasises that less than one-quarter of the rural households control more than 70 per cent of land and concludes, 'attempts at radical ceiling and wider diffusion of control over land are found to hit against the strong rocks of political constraints' (p. 373). The creation of small family farms is not feasible. Nevertheless, we must seek alternative policy measures to ensure a better deal for the majority whom the new technology has bypassed. Neither our pious hope nor our wishful thinking 'had the land reforms been more radical' will make the process of growth more equitable in the future.

It is the very economic rationality of the producers which, in the last analysis, helped for so long. The spread of new technology will encourage land concentration among bigger farmers ('big' in the Indian context), and demands for more subsidies for inputs (including tractors and harvesters) and for higher product prices. Each of these will worsen the economic position of the agricultural workers and small and marginal farmers. What happens to the quality of rural life in India is very much determined by what happens to the living standards of these sections of the rural population. What policies, if any, shall be effective to restrain these trends? The query remains.

S. DASGUPTA

University of Delhi

Financial Management in Agriculture. By PETER J. BARRY, JOHN A. HOPKIN and C. B. BAKER (Danville, Illinois: The Interstate Printers and Publishers, Inc., 1979). Pp. 529.

The first edition of this book (published in 1973) was reviewed in the December 1973 issue of the *Journal*. At first glance, this second edition appears similar to the first edition. It is divided into five major sections, as was the first. However, there has been considerable reorga-

nisation both within and between the sections, and much of the book has been rewritten.

The introductory section has received minor changes and updating. In Section Two, now entitled 'Financial Markets for Agriculture', two major changes have been made. A chapter on legal aspects of finance (for the U.S. environment) has been relegated to the appendix of a chapter on intermediation. A new chapter, mainly concerned with the influence of monetary policy on financial institutions dealing with agriculture, has been added.

Section Three is now called 'Concepts and Tools of Financial Management'. It is the core of the book and summarises some of the major contributions made by the authors to agricultural finance. These contributions are particularly reflected in the contents of Chapters 8 and 9 on 'Firm Growth, Leverage, and Financial Risk'; and 'Credit and Liquidity', respectively. Major changes to Section Three include the addition of chapters on managerial goals, financial analysis and control, and time preference.

Sections Four and Five on 'Alternatives in Resource Control' (including evaluation of financial feasibility) and 'Topics in Financial Management' (covering business structure, equity capital sources, tax and financial management) have also been reorganised and strengthened.

The first edition of this book has proved to be an excellent textbook for students of agricultural finance, and a good reference for those studying farm management. It has also been a useful reference book for agricultural economists conducting research into agricultural finance.

The new edition has been improved in content, writing and organisation. The major problem for the non-U.S. reader is obviously that it deals only with the U.S. environment. This is a particular problem in Sections Two and Five. However, the concepts of financial management developed in the book are broadly applicable to agriculture within most market environments. The book should challenge any student or researcher to apply these concepts in his own environment.

R. L. BATTERHAM

University of Sydney