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BOOK REVIEWS

Structural Interdependence and Economic Development—Proceedings of an International Conference on Input-Output Techniques, Geneva, 1961, Tibor Barna (Ed.), Macmillan & Co., London, 1963. Pp. x+365. 63s.

In 1930's when Leontief was experimenting with the idea of evolving a modified Walrasian system founded on the powerful theoretical idea of structural interdependence underlying economic relations, capable of empirical construction and application, the enterprise seemed to be meeting rough weather. Skepticism against its success was due to the fear that such a construct, in order to be meaningful, had to be statistically elaborate and would counter both inadequacy of statistical material and computational difficulties. However, over the last three decades, this analytical tool seems to have not only successfully overcome the initial skepticism but established itself firmly as a highly useful technique of analysis. On the purely empirical side, it has, in turn, stimulated search for statistics of the requisite type and the recent advances in electronic computers have facilitated the difficult task of computations. On the conceptual side, the tool has been adapted to new uses in planning and projections, by introducing certain elements of the linear programming models; thus, while retaining the basic inter-industrial relations scheme, it has been possible to introduce choice among alternative processes or to introduce constraints on resources. The third conference on the Input-Output Techniques, held at Geneva, the proceedings of which are published in this book, was remarkable for demonstrating the wide range of problems for which the tool could be profitably employed. The Conference also bore evidence to the widespread use made of the tool by various countries in evolving their plan frameworks, irrespective of their institutional backgrounds. It brought into focus the versatile nature of this analytical tool.

Part I of the volume where various models of economic development have been presented forms the most interesting feature from the point of view of the future theoretical progress of the input-output technique. All the five papers in this section are characterized by the effort of the authors to bring in considerations of planned optimization with Leontief's Consistency Model as the base for feasible decisions. Hollis Chenery presents a synthesis of the input-output and programming technique by introducing flexibility through iterative improvements in solutions. Thus he suggests various compromises between the mathematical programming and the input-output models; for example, by incorporating choice criterion in terms of profitability of projects reckoned on the basis of accounting prices for direct inputs, price calculations being made on the basis of exogenously determined accounting prices for foreign exchange, labour and capital and feasibility of quantity solutions being stated in terms of commodities (and primary factors).

The main difficulty which such an aggregative programming model would face is that aggregation might render the results practically useless for short run planning since the concepts of production constraints, material inputs, unit costs of production, etc., refer to specific goods rather than aggregates. Thus, logically the next step is in the direction of evolving workable and efficient schemes of decentralized decision-making. Considerable interest in this problem has been

aroused and the paper on "Decomposition and Optimization of Short-run Planning in a Planned Economy" by Mycielski, Rey and Trzeciakowski is a step in that direction. Since this paper has been published, there is growing literature available on this theme and the problems of convergence of the iterative solutions which is at the heart of the decentralization procedure have now been more squarely faced. P. N. Mathur's paper tries to evolve an efficient path for technological transformation of an economy, the initial technology and the terminal technology being pre-specified. The efficient path is defined under alternative definitions of the optimum solution. Interesting as the exercise is, the more fundamental problem, namely, the choice of the terminal technology itself is left out of the optimizing decisions and a straight forward transplantation of another country's (in his case, that of the U. S.) may not itself be an optimal decision.

Fox and Sengupta address themselves to a more or less similar problem, the former in the context of a developed and the latter in that of a less developed economy, namely, the interrelationships between the two broad aggregate sectors 'Agriculture' and 'Industry.' Both find that the coefficient matrices could be more or less triangularized and interesting policy implications can be drawn from this characteristic. Sengupta goes further to suggest that in view of the less predictability of agricultural coefficients, some allowance could be made for a stochastic element in them. However, as a growth model too much emphasis on the non-decomposability of the input-output matrix might vitiate results. For economic growth is not merely a matter of technological relations. Equally important are considerations of demand, income distribution which are not reflected in the technology matrix.

Part II of the book is devoted to papers on regional application of the input-output. This aspect has gained importance especially in countries of wide geographical expanse. The problem of defining a regional unit, however, poses many hurdles. Isard and Smolensky discuss the analytical framework for regional analysis and Leontief presents a multiregional system and investigates into the workability of certain simplifying assumptions. Hirsch has a more specific problem to present, namely, urban problems such as local finances.

Part III of the book deals with the practical application of the input-output system to planning in various countries. Nemchinov gives a detailed description of the use of statistical and mathematical methods in Soviet planning which brings into relief the recent technical advances in the methodology of planning in that country and brings out the full potentiality of the use of inter-industry analysis. Another country which has advanced considerably in evolving sophisticated planning techniques is France. Delange gives an account of the experience of French planners in the collection and organization of data. The rest of the three papers in this section are particular applications of the input-output technique to problems of development in Egypt, Israel and Latin American countries. Prominently placed in all these is the question of foreign exchange savings and import-substitution and the analysis of the consequences of alternative policies adopted in that connection.

Part IV concerns the micro aspect of the table construction—problems of estimation and statistics. Komiya and Uchida present a comparative study of

technical coefficients for large and small establishments and Anne Carter and Sevaldson consider the changes in the incremental input coefficients in relation to technological change. These are very painstaking empirical studies and should stimulate further efforts along their lines.

The volume ends with a debate on the desirability of adopting internationally standardized format for national input-output tables. The problems that are tackled and the discussions initiated in this volume touch upon a variety of themes which have now become subjects for more intensive research. If this volume would appear outdated within a couple of years, it would probably be because of the vigorous strides that research is making in this area.

K. R. BHARADWAJ

Socialist Transformation of Indian Economy, Gyan Chand, Allied Publishers, Bombay, 1965. Pp. 628. Rs. 21.00.

This review is confined to the two chapters of the book dealing with the Agrarian Relations and Patterns of Agricultural Development. The chapter on Agrarian Relations deals with various aspects of land reform legislations. The author starts with the statement that the land system, a problem in social dynamics, is interwoven with the whole economy in which money has become the ruling power. Quoting from the Rural Credit Survey General Report he concludes that no radical change in the balance of social forces has taken place and that the power of the trinity—the usurer, the merchant and the rich peasant—remains the dominant element in the villages. In emphasizing this he has not brought in any fresh facts but relied rather heavily on the Rural Credit Survey Report which was published a decade ago.

Although he gives credit to the success in abolishing a host of intermediaries, he points out that for position and power for doing evil the landlords are still a force to be reckoned with. With regard to the principle and practice of paying compensation, the main point he makes is that from the social standpoint no national criteria have been adopted or applied and that the variations observed in different States cannot be explained in terms of differences in conditions and circumstances of different States. The discussions relating to such aspects as leased land, fixation of fair rent and right of resumption by landlords lead to the general conclusion that the various provisions in the land legislations have been ineffectively implemented. He characterizes such aspects as mass eviction, illicit surrenders and transfers, abuse of the right of resumption, tampering with the records of right, etc., as the negative results of implementation of land policy and puts the blame on policy-makers and executants. He, however, makes no reference to the inherent difficulties involved in implementing the legislations. One of the suggestions, the author makes towards the end of the chapter for proper implementation and administration of land reforms, is that of associating organizations like panchayats and co-operatives with the development and working of land policy. He goes to the extent of suggesting that these agencies must be associated with improvement of land records, regulation of rent, land management, consolidation of holdings, etc. This indeed is a very far cry. These agencies need to be first strengthened before such additional responsibilities are entrusted to them.

In assessing the position and progress of legislations relating to ceiling on holdings he states that the delay in their implementation is deliberate and it has enabled the landed gentry to nullify their effect through such practices as nominal partition, fictitious transfers and other dishonest devices. Further the exemptions provided in the ceiling legislations, particularly for efficiently managed farms, have also, according to him, defeated the purpose. The general conclusion which he draws, is that it is impossible to assess the final outcome of the implementation of ceiling legislations and that the range of inequalities in the villages would not be materially reduced and that "the social framework within which the rural economy will operate would not be on that account favourable for the introduction or development of socialist society." (page 129.) The conclusions appear to be rather contradictory in the sense that if it is impossible to assess the final outcome and the social structure emerging after implementation of ceiling legislations, could it be categorically said that the range of inequalities will not be affected and the social framework will not be changed? His conclusions are based on very sketchy information relating to the implementation of ceiling laws and their effect. We may perhaps have to wait for some more time to make an evaluation of the ceiling laws and their impact. He also refers to the question of ceiling on non-agricultural income and wealth and points out that it should be an essential part of national social policy. Disparities in the distribution of holdings and stratification of agriculturists are also referred to in this chapter. The point he makes is that despite the abolition of intermediaries and passing of ceiling laws, the oligarchy in the village has not been affected.

The second chapter dealing with agricultural problems is entitled "Patterns of Agricultural Development." Here the author covers a wide variety of subjects like food policy, growth of output, community development, package programme, village plans, co-operative farming, *Bhoodan* and *Gramdan*. Quoting the figures relating to growth in output and growth in population during the period 1952-53 to 1961-62, he states that the output of food has kept pace with the growth of population. Despite this, prices have gone up sizably and there had been acute shortage of food. But the causal factors that bring about such a situation are not analysed in detail. The demand for food, it is estimated, increases at the rate of 3.2 to 3.4 per cent per annum if we consider the rate of growth of population and also the increase in annual per capita demand generated by rise in income. By overlooking the latter aspect, the author has not been able to analyse the supply and demand position of food, but instead presented only the simple relationship between growth of population and growth of output. To him the pressing problem is "not the production of more foodgrains but increase in the real purchasing power of the majority of our people and increase in the production and supply of vital protective foods....." (page 144.) The latter aspect is indeed valid but the former, to say the least, is contradictory. Will not the increase in purchasing power of the people generate more demand for food, and thus necessitate greater production? Broadly, it could be indicated that of the 3.4 per cent increase in annual demand for food, 1.3 per cent is due to the increase in annual per capita income. The two important points which the author makes in respect of food problem and policy are the need for a nutrition policy and the necessity for evolving a food production programme that takes into account the varying regional characteristics.

His analysis of the growth of agricultural output and of per acre yield is rather sketchy. The expansion of agricultural output by 35 per cent during 1951-60 is considered as a "source of real satisfaction" purely from the point of technological development. If we consider technological development to mean introduction of improved techniques of production and intensification of such inputs as fertilizers, etc., one will certainly hesitate to agree with the author. In fact, our progress in this respect has been slow. Referring to the growth in per acre yield rates, he quotes the figures covering the period 1931-32 to 1958-59, which had been analysed by Prof. Dantwala in his article published in the volume "Changing India" and repeats the latter's conclusions. But, what appears rather misleading is the statement that "in spite of heavy investment in agriculture and adoption of other measures..... there has been no significant improvement in yield per acre in agriculture not only in the last ten but [in] the last thirty years." (page 152.) To substantiate this he quotes only the figures relating to the period 1931-32 to 1958-59 which neither relate to "last ten years" nor to "last thirty years." Factors which he considers more important to achieve the objective of increasing agricultural production are organization, administration, drive and what is called mass resurgence than capital expenditure. According to him, in agriculture, finance and investment is not really the crux of the problem. The achievements of various developmental schemes would not have been commensurate with the financial outlay and investment, (even this statement is very general and not backed by any data or study) but from this to conclude that finance and investment is not really the crux of the problem is to overlook the economics of development of agriculture. What he pin-points as the most important limiting factors in development are the social structure and the forces that operate. To the author, the problem of development is a problem in social dynamics.

After stating that the community development programme has virtually failed to achieve the prime objective of integration of agricultural development and working of rural community, he elaborates a scheme of integrated development in which the pride of place is given to village and area plans. The scheme is what is generally known as planning from below in which the organs of community like panchayats, co-operatives, etc., actively participate in the preparation and execution of development programmes. He is, however, aware of the limitations of these institutions and states that full realization of the objectives and proper integrated development is possible only in the context of social revolution and action—a subject to which he draws frequent attention, but which is not clearly spelt out.

While examining the 'Package Programme' introduced in a few selected districts he is equally critical of the manner in which it has been formulated and implemented. His main criticism arise out of the fact that the whole concept is based upon "technological approach" which, according to him, cannot solve the fundamental crisis of the rural economy. Stating that the results achieved so far are not very encouraging, he goes to the extent of suggesting that "We should scrap the programme and make it the last time when we put our hopes in a purely 'technological' solution of the problem of breaking through the stagnation of rural economy." (page 172.) His prescription is that the whole rural economy should be basically and radically reorganized. It is here that one may find it rather difficult to reconcile with his line of argument. Indeed, the social aspects

and the social problems are limiting factors of development. But then to assert that programmes based on technological approach cannot solve our agricultural problem is again ignoring the economics of development. The need now is for innovation, diffusion and wider application of technological changes to ensure a higher and sustained rate of growth of our agricultural sector. The package programme itself is only a small beginning in this direction.

His proposal for the reorganization of the farming sector in point of fact repeats the plea for co-operativization and the ultimate development of co-operative village management—a theme referred to in the Five-Year Plan documents. He concludes the chapter on patterns of agricultural development by referring to the crisis in the food front and the rise in prices. The lesson he tries to draw out from the crisis is that it exposes very sharply the lack of integrity in our basic thinking and formulation and execution of our programmes and pleads for the introduction of real revolutionary measures in rural economy in particular and national economy in general.

On the whole, it may be pointed out that despite the weaknesses like repetition of facts and ideas, indulgence in generalization and absence of rigorous analysis of economic factors, the author's discussion of social and economic problems of agriculture and of rural sector has some contribution to make to the thinking on the subject.

A. P. KURIAN

Trade in Agricultural Commodities in the United Nations Development Decade, Food and Agriculture Organization of the United Nations, FAO Commodity Review 1964, Special Supplement, Vol. I, Parts I to III, pp. iv+287; Vol. II, Part IV, pp. xxiv+196; Rome, 1964. \$7.00.

The F.A.O. of the United Nations has rendered signal service by publishing this book. It is invaluable as a source book of facts on international trade for all research workers. Both the volumes are a veritable mine of data and contain descriptive material covering the period primarily from 1952-53 to 1959-61 and in some cases even from 1948 to 1961-62. Owing to the urgency of increasing the export earnings of developing countries to provide adequate support to their economic advancement, a radical change in the policies at the national and international level is desired. The United Nations' Conference provides an opportunity for initiating this change in the national and international policies for making international trade a factor of growth and prosperity.

The study is in two volumes. Volume I covers a very wide range, viz., the structure of world trade in agricultural commodities, trends in the exports of individual primary commodities, policy measures and the trend in the trade of the processed agricultural commodities, etc. Volume II is a compilation of statistical data covering the field of international trade in agricultural commodities.

An attempt has been made to isolate purely agricultural trade as far as possible excluding therefrom non-agricultural commodities such as crude minerals, fertilizers, synthetics and rubber. The trend in the trade of processed agricultural commodities has also been separately analysed. The importance of an expansion

of agricultural processing activities in the developing countries should be understood not so much in terms of balance of payments as in terms of their contribution to general economic growth.

Part I deals with the general analysis of the structure and the recent post-war trends in world trade of agricultural commodities. The world is principally divided into developed, developing and centrally planned economies. Discussion of the main trends in world trade in agricultural primary commodities throws light on the significance of the trend in volume, value and unit price, changing terms of trade to the slow growth of the export earnings of the developing countries. According to this study, the share of the developing countries in the total volume and value of world trade has contracted between 1952-53 and 1959-61. The volume of world trade in agricultural commodities increased by only 36 per cent while that of manufactured goods increased by 65 per cent during this period. The value of agricultural exports increased by 28 per cent during the same period at the rate of 3.3 per cent per annum while the value of the imports of manufactured goods expanded at 4.7 per cent a year. Even if the prices of agricultural exports remained constant, the growth of the developing countries' earnings from agricultural exports would have been much slower than that of their import requirements. The problem is further aggravated by the rapid growth of population in these countries. Average fluctuations in annual value of exports were about 16 per cent greater than the average fluctuations in the unit value of exports. Short term fluctuations continued to present an additional problem to developing countries.

An analysis of the commodity composition of agricultural exports brings out inter-trade relationship between two groups of countries, the developing and the developed countries. It also shows the increasing importance of non-commercial exports of foodgrains between developed and developing countries in the form of bilateral food aid. The conclusions drawn by a discussion on the terms of trade of agricultural commodities between 1920 to 1961-64 is that the purchasing power of agricultural exports in terms of manufactured goods fell by 19 per cent. The deterioration in the terms of trade of agricultural products has harmed more severely the developing countries because a large part of their trade consists of an exchange of agricultural commodities for manufactured goods.

The second chapter deals with international commodity problems and long-term projections for agricultural commodities and actions for the removal of obstacles and expansion of market opportunities and on policies and arrangements for agricultural commodities with reference to possible modifications of existing commercial and fiscal policies.

The problems underlying the trends of the agricultural commodities in Part II are heterogeneous. The commodities included are citrus fruits, tobacco, sugar, fats, oils, tea, coffee, rice, etc. The study comes to the conclusion that barring tea whose world supply would equate demand, in the case of other commodities, the world will be threatened with the problem of surpluses and the consequent instability in prices, especially of grain and dairy products.

A continuing trend towards surpluses in high income countries is likely if present national policies are not radically adjusted. An increased overall deficit

in low income countries is, however, to be expected unless very optimistic rates of economic and therefore, agricultural growth are achieved.

A review of the post-war record of individual commodity agreements is given and the conclusions point to the need for a broader framework of guiding principles and clear-cut objectives.

It contains a suggestion for redrafting of the International Sugar Agreement designed to meet the new circumstances and new problems. The primary purpose of the 1953-60 International Sugar Agreement was to cope with the burdensome surpluses on the world free market and the minimum prices concept was to provide a measure of insurance against disaster which would ruin producing countries.

According to this study, the most beneficial would be a Multilateral Contract Agreement, under which importing countries would undertake to purchase and exporting countries to sell specified quantities or percentage of sugar at negotiated minimum and maximum prices. This kind of agreement, it is hoped, would stimulate sugar industry in developing countries.

It may, however, be pointed out that there are weighty reasons for arguing that International Commodity Agreement designed to raise prices in a world market to a level which would give satisfactory incomes would be both impracticable and undesirable. To do so would involve output restrictions on a vast scale which would in turn reduce farm incomes and limit the freedom of farmers to make the best use of their resources, nor can a policy of high prices and increased production be justified for consumers who are too poor to pay for an adequate diet in the under-developed countries. It might be possible to extend to sugar one feature of International Wheat Agreement, viz., that of allowing countries with low national income per head to obtain at least some of their imports at especially low prices when a surplus situation arises. Any International Commodity Agreement should concern itself with the need to adjust total world production to probable world demand. There is no provision in the International Wheat Agreement to limit a country's freedom to fix a guaranteed support price at an excessively high level. It is essential that there should be provision for gradual reduction and eventual abolition of export subsidies. It should also cover non-commercial sales of wheat flour which nearly amounts to one-third of total world trade in wheat. It may not be possible for International Commodity Councils to have any authority over stocks, supplies and purchases of member-countries as can be exercised by Governments of the countries concerned.

The Third Part of this volume discusses the main trends in the trade of processed agricultural commodities under three broad headings, viz., (1) Processed Food, (2) Manufacture of Textile Fibres, and (3) Rubber, Forestry and Leather Products. It stresses the need for the diversification of the economies of the developing countries by the expansion of their processing industries.

B. SHARADA RAI

Agricultural Production Functions, Costs and Returns in India, C. H. Hanumantha Rao, Asia Publishing House, Bombay, 1965. Pp. xi + 499. Rs. 10.00.

Hanumantha Rao's book is a welcome addition to the growing volume of literature in the field of farm management and production economics in India. The book consists of essays on : (i) Production functions for Hyderabad farms, (ii) Farm costs and returns in India, and (iii) Relative profitability of crops and crop pattern in India.

Some general comments are called for before an attempt is made to review the results obtained by the author. The specification and estimational problems in production function analysis are well known. Production function analysis, at best, can yield some very broad inferences relating to the direction of change in farm operation and organization. The author has very rightly stated, "The results obtained by fitting such a function need, therefore, to be interpreted with a considerable degree of caution Problems of interpretation arise ... due to the exclusion of relevant explanatory variables from the function." (page 13.) Commenting further on the utility of production function analysis as a tool for evaluating the efficiency of resource use, the author states, "But marginal productivity as a tool for the guidance of farmers has certain limitations in the context of an under-developed economy The rigidities imposed by the resource-fixity leave very little freedom for (farmers) to maximize profit by equating marginal product with marginal cost Factor prices are not always determined by the free play of market forces." (page 21.) The results of the studies conducted by Rao have, therefore, to be looked at in the context of the above remarks.

The study on production functions for Hyderabad farms focuses attention on inter-farm comparison among three regions of Hyderabad, namely, Telangana, Marathwada and Karnataka. The study is based on the data collected from 345 farms, covering 43 villages, in 1953-54. Output-input ratio, factor-factor ratios and production elasticities have been calculated and compared as between different regions and between different size-groups of farms within Telangana area. A significant conclusion of the study relates to the marginal productivity of labour being positive and significantly different from zero in all ranges of labour input. The oft-pronounced hypothesis regarding negative or at best zero marginal productivity of labour in Indian agriculture, at least on certain categories of farms, has been convincingly refuted by the results of Rao's analysis. The analysis further points out that the abundant supply of family labour on smaller farms is utilized by the farmers to intensively cultivate the available land, thereby, raising the marginal productivity of land. The author states, "It is thus evident,... that, on the average, land is being cultivated more intensively among smaller farms through greater application of labour input, although labour still has positive returns, and that among larger farms, where production elasticity for land is very low, there is relatively greater scope for increasing output through a more intensive cultivation of land by applying increased labour inputs ..." (page 19.) The above inferences viewed in the context of the nature of land input as defined by the author are very significant indeed. Land input in the study under review was taken to be represented by the amount of land revenue paid by each farmer in the year of survey. Such a specification, the author argues, obviates the difficulties associated with the heterogeneity in the quality of land input among the different size-groups of farms.

The significance of the management input in the organization and operation of the farm business has also been discussed. It has been hypothesized that the managerial ability of a small farmer, where the farmer performs the function of management as well as of labour, to a large extent, is superior as compared to the big farmer. The author has sought to base several inferences on the foundation of this hypothesis. Management input, though very crucial in explaining inter-farm variations, has eluded efforts for its precise quantitative measurement. Management input is a complex input. The managerial ability of a farmer is reflected in terms of (a) input combination, (b) enterprise combination, (c) input-output ratios, (d) realized market prices for output, (e) market prices paid for farm inputs, (f) the motivation to take risk in the adoption of new technology, etc. One could argue, and perhaps convincingly, that given the asset structure and the institutional framework within which Indian farmers operate, owner-operators of large farms should have an edge over small farmers in terms of their managerial abilities.

A plea for land reforms with the objective of attaining a more even distribution of ownership of land has been made by the author. It has been argued that such an institutional setting would, due to greater identity between ownership, management and work, result in better utilization of agricultural resources. This inference is not based on the empirical findings of the study, since the sample of farmers studied excluded, "... all those farmers who either lease out or lease in land (partly or wholly) ..." (page 5.)

The second essay is devoted to study the efficiency of farm-firms, with a view "... to get an idea as to the distribution of net income or net value added in agriculture between farm business income, wages, rent, interest and tax payments." (page 28.) The concept of net income differs from the conventional concept. Net income has been computed by deducting the value of seeds, manures, fertilizers, irrigation charges, feed of bullocks and the depreciation on fixed equipment, e.g., bullocks, implements, machinery and farm construction, from the gross value of output. This measure, therefore, represents returns to land, labour, capital and management both *own and paid for*. The various conceptual problems involved in the use in the conventional net income measure, e.g., the evaluation of farm family supplied inputs, and the inadequacy of "income net of paid-out costs" concept, it is argued, have led the author to develop a new measure of net income. The new approach to some extent eliminates the need for imputing value to some of the family farm supplied inputs. However, the problem of imputation still remains for inputs like seed, manures and feed of bullocks. Moreover, the logic underlying the calculation of returns to some of the *own and paid for* inputs only is difficult to understand. The inferences drawn by the author on the basis of the data generated through Farm Management Studies are quite revealing. As in the case of the first study, the author lends his support to the cause of small farmers by stating, "These facts indicate that the 'smallness' of size has not proved a particular deterrent to capital construction through the application of surplus labour. Nor has it prevented the cultivators from realizing higher net income per acre. ... Thus, from the standpoint of efficiency the basic problem is not so much the 'un-economic' nature of small size as the insufficiency of inputs..." (pages 62-63.)

Once more the author makes a plea for alteration in the structure of land ownership in favour of a more even distribution. While there may be some merit

in this approach, it will be too hazardous to accept this prescription as a general cure for the ills infesting Indian agriculture. In the absence of variance estimates for the size-group averages presented in the essay under review, the results of the analysis have to be interpreted with due caution. Further, analysing the data for Bombay the author himself states, "The effect of tenancy on the behaviour of productivity with size cannot, therefore, be considered very significant." (page 68.)

The third essay is devoted to study the cropping pattern in relation to the relative profitability of crops. Profitability has been measured in terms of net income. The definition of net income, curiously enough, is at variance with the concept developed in the second essay. Net income here is considered to comprise of gross value of output net of variable costs excluding family labour. An attempt has been made to analyse the area-allocation among different crops in relation to the ranking of these crops in terms of their profitability. It has been hypothesized that a rational behaviour on the part of the farmers should lead to area-allocations in proportions as indicated by the relative profitabilities of different crops. While it is gratifying to note that the study reveals rationality on the part of the farmers, it may be pointed out that the level of net profitability is only a necessary but not a sufficient criterion in determining the optimality of resource allocation. Cropping pattern, to a large extent, depends on factors such as resource availability, input-output ratios, yield variability, etc.

A major shortcoming of the book under review, in so far as the policy implications of the results are concerned, relates to the time-period to which the data relate. Most of the data used by the author relate to the time-periods 1953-54 and 1954-55 to 1956-57. In the context of a rapidly changing farm technology, studies based on data having reference to some historical past may not have much to contribute in indicating directions of change. With the adoption and diffusion of the "New Strategy" for agricultural development, the production surfaces obtaining on farms might change radically. New input-output ratios are likely to emerge. New institutions are likely to crop up. The impact of these changes on different categories of farmers is difficult to be gauged in the absence of data that are reflective of new levels of farm technology.

The overall contribution of Hanumantha Rao's labour needs to be highly commended. He has given a new direction to analysing farm management data with a view to arriving at some meaningful guidelines for policy formulations. Within the framework of the limitations imposed by the tools of analysis, gaps in the data, and the assumptions made, the results of the studies are quite revealing indeed. The inferences relating to the productivity of family labour being positive over all ranges of family labour input and the absence of any significant handicaps to farmers due to the smallness of size cut through the foundations of the hypotheses professing zero marginal productivity for family labour and inefficient resource allocation on small farms.

The Economic Demand for Irrigated Acreage—New Methodology and Some Preliminary Projections, 1954-1980, Vernon W. Ruttan, Resources for the Future, Inc., Washington, D. C., Johns Hopkins Press, Baltimore, Maryland, U.S.A., 1965. Pp. ix + 139. \$ 4.00.

In recent years estimates of the future demand for irrigation in the United States have been made on the basis of what is called the "requirements" approach. "The typical procedure is to project the regional distribution of production and, then, on the basis of factor-product ratios or trends, to compute the resource inputs required for the output projection."

Ruttan finds this approach unsatisfactory, because "in its simplest form, (it) involves the implicit assumption that resource combinations and consumption patterns are technologically, institutionally, or psychologically determined, and are inelastic with respect to changes in the prices of resource inputs relative to each other, consumption items relative to each other, or resource inputs relative to consumption items." This is considered both undesirable and unwarranted by the empirical experience in the United States, where, he argues, "the historical experience clearly indicates that over periods as long as those typically employed in projections of resource requirements, resource or factor combinations are highly responsive to changes in both factor productivity and factor prices." So is it with consumption. Therefore, he feels, not only should projections of future requirements of resources take these factors into account, but also resource policy objectives should "include efforts to bring about resource input and product combinations which are superior to existing combinations and levels."

With this end in view he develops what he calls the elasticity approach. This is mainly based on estimating marginal value productivity of irrigated land (as also of current operating costs) with the help of production functions of the Cobb-Douglas type, for the region's agriculture. This is the essence of his productivity model. For projecting future requirements of irrigation, he has two alternative models. In the demand model the national farm output is projected on the basis of anticipated growth in population, per capita income and an estimated income elasticity of demand, and the regional projections are worked out from this with the help of historical relationships. This estimated output is fitted into the production function, and the model is solved to give the irrigated acreage at which marginal value product would equate the estimated cost of bringing an acre of land under irrigation. The regional balance in projection is brought about through the establishment of the above identity in each region.

The equilibrium model, on the other hand, estimates the total production as well as factor inputs simultaneously, with the help of the production model and two identities equating the marginal value products of each of the two factors, irrigated land and current operating costs, with their estimated annual average costs (=marginal costs, assuming perfect elasticity of supply of the two factors).

The rest of this long essay is given to an application of these models to the 1954 census data for the U.S.A., and projecting for 1980 with the help of the coefficients obtained.

The detailed empirical estimates, the sources of data, etc., will be of interest to a student of the U.S. agricultural economy. Here it may suffice to note that Ruttan's method shows the official U.S. projections for irrigated area to be on the higher side in the western regions and on the lower side in the eastern regions, which means mere availability of large sources of water supply is not enough justification for extending irrigation, if economically this is not warranted.

The author makes many observations about the limitations of his approach in course of his empirical exercise as well as in the last chapter where he evaluates his models, and these should be of greater interest to students in India. He is aware of the many limitations of the production function approach, of the difficulties involving technological change that might affect the production coefficients, of the changing relative price pattern, particularly the regional price pattern, of the need for a more realistic supply function for irrigated land, etc. He is also aware that the coefficients derived with the help of cross-section data for a single year may not be quite stable. He also shows that if the requirements approach errs one way, the elasticity approach might err in another, and therefore one has to be wide awake in using any such model for projections. For projection is a potentially difficult field where one may easily burn one's fingers.

This approach, essentially using basic economic logic, is likely to be taken up for more detailed and sophisticated model building. While this would be welcome, it is necessary to be aware of the limitations of this approach. For instance, in a region where existing irrigation is negligible, and where irrigation may help bring in other new and potent inputs like improved seed, chemical fertilizer, etc., might change the crop pattern, and affect the relative price structure, the approach based on production coefficients estimated with the help of the current farm data, may, for all practical purposes, be of very little use. While Ruttan mentions these difficulties, they would be of great relevance in India where the large plans of irrigation development are often concentrated in dry, unirrigated regions.

This compact essay presented in only 88 pages (excluding the appendices) is well written, and worth reading. There is a small printing error in Table 7 on p. 40 where the unit for the last two columns should be (\$/acre) and not (\$/acre).

NILAKANTHA RATH

Sectional Price Movements in India, Ayodhya Singh, Banaras Hindu University Press, Varanasi-5, 1965. Pp. xvii+496. Rs. 20.00.

Reading through this voluminous book the reader is bound to get an impression that price analysis still remains to be a statistical exercise catering to academic curiosity and nothing more. With the meticulous care taken by the author to explain each and every movement in prices, he takes the reader all along the zig-zag price paths but fails to lead beyond that. Neither the reader nor the author seems to derive any benefit after this gruelling exercise.

The author claims this study to be the first serious work on sectional prices in India. The sectional prices considered for detailed study are : (1) agricultural prices, (2) non-agricultural prices, (3) wage goods, (4) equities, (5) raw

materials, (6) consumption goods. The Economic Adviser's price series are used for the analysis of agricultural and non-agricultural prices. The cost of living indices are used for the wage good prices. But again there is the price index of consumption goods which overlaps with the cost of living index. The index of consumption goods ("the self-constructed index" as the author emphasizes) is comprised of only food articles and cotton manufactures. One is at a loss to understand the usefulness of using this index in addition to the cost of living index. The author has preferred an unofficial index series for the prices of stocks and shares while the official series with wider coverage is available for the same period. The explanation given for this preference is not adequate.

The sectional price movements are analysed or elaborately explained in six chapters for two periods : (1) from September 1939 to August 1945 and (2) from September 1945 to December 1950. The author has taken pains to gather a large amount of data extending from agricultural production and savings to factory employment, profits and interest rates. In the appendices to the first Part, there is a "Note on the History of Index Numbers of Prices in India." This is a very useful introduction to Indian price statistics. However, it does not appear to be exhaustive; the omission of any reference to the Calcutta Price Series (July 1914 =100) which is available till recently, is conspicuous enough.

The second part of the book deals with the price movements during the Plans, extending over another two hundred pages. This part of the book, as the author has stated in the Preface, has been written during the period 1954-1964. The skill and obviously the patience with which the author sets out to explain the course of the price movements during the two Plan periods, without ignoring any minor detail is indeed remarkable.

N. K. THINGALAYA

A Study of Land Reforms in Rajasthan, Dool Singh, Students Agency, Birla Vidyavihar, Pilani, Rajasthan, 1964. Pp. xvi+452. Rs. 22.50.

The work under review is an outcome of an evaluatory survey sponsored by the Research Programmes Committee of the Planning Commission. For the purposes of this study, 116 villages from 25 tehsils situated in 13 districts of Rajasthan State were selected. In each village, adequate number of tenants and ex-intermediaries were interviewed with the help of schedules. The large number of respondents in carefully selected villages spread throughout the State make the findings of the survey applicable for the State as a whole. However, the effort to present the results for three different tenurial systems—*Jagirdari*, *Zamindari* and *Khalsa*—separately, are not very convincing. This is because though the districts were classified according to the predominance in the pre-reform period of one or the other tenure systems, within the same district, a different tenure system might have been prevailing in different villages, and some times in the same village. In the absence of the information on the tenurial systems prevailing in the selected villages it is difficult to generalize on the basis of the predominant

tenure in the districts within which these villages are situated. This probably explains why no clear-cut picture emerges with regard to the direct as well as indirect effects of land reforms in different tenure areas. Again, the reliance on recall method for most of the information was not likely to yield significant results specially when the interval between the year for which information was sought and the time when the question was asked was more than seven to eight years. A third weakness in the methodology is the absence of counter-checking on the information which on the face of it would be coloured. For instance, it is but natural that the ex-intermediaries would give the exaggerated figures of the *khudkasht* (home farm) land they personally cultivated before the abolition of intermediary tenure. It is possible that the records maintained in most of these areas did not permit any form of cross-checking. Lastly, the author should have made greater efforts to isolate the class of the share-croppers which according to him does exist in large numbers in certain areas. Irrespective of these deficiencies the data presented in the report give significant indications to the changes that have taken place due to land reforms.

The impact of land reform in Rajasthan can be judged at four different levels; on the economy of the State, on the ex-intermediaries, on tenants-in-chief and, on tenants-at-will. As far as the impact on the State's revenue is concerned, from the account presented by Dool Singh it seems that the financial side of the reforms is quite sound. The compensation and other monetary benefits given to ex-intermediaries are likely to be recouped within a period of 12 to 15 years due to the increase in land revenue receipts, and income from forest areas surrendered by the intermediaries. This, together with the fact that the bewildering varieties of land systems were abolished and one major land tenure system, approximating to *ryotwari* system, came into existence throughout the State has its own administrative advantages.

From the report it is also clear that the terms on which the rights of former intermediaries were extinguished were generous. Apart from the liberal compensation, many of them were given rehabilitation grants as well as loans for production and social purposes. The most important benefit was the provision for the retention of the *khudkasht* land. The Government went a step further and provided home farm land to those intermediaries who did not own *khudkasht* land or owned only a small area. It is clear from the present survey that most of the intermediaries had retained their own *khudkasht* land and were not dependent on the Government for the allotment of land. In the sampled villages out of 216 intermediaries interviewed, only three did not have *khudkasht* land. Though it is maintained that there was a diminution in the average size of operational holding of the ex-intermediaries, from 30.17 acres in 1953-54 to 24.74 acres in 1960-61, the information which was collected from ex-intermediaries could not be considered wholly reliable. It is difficult to believe, for instance, that the holdings above 100 acres, which accounted for 47.1 per cent of the land of the intermediaries in 1953-54, were actually personally cultivated, as has been shown in the report. There are more chances of large parts of these lands being cultivated by tenants-at-will or by share-croppers, who were ejected on the eve of land reforms. The author could have probed into these details more carefully. From the available data it appears that *Zamindars* and *Jagirdars* invested substantially on the land and as compared to other tenants showed greater willing-

ness to adopt improved agricultural practices. Thus, with the abolition of intermediary tenures a new class of capitalist farmers came into being. This transformation was possible because of the retention of large areas in *khudkasht* and the aid and subsidy provided in generous measures for extinguishing the intermediary rights.

It is also revealed by the study that the former tenants-in-chief in the intermediary tenure benefited substantially. Before the amendment of 1959 which automatically conferred *khudkasht* rights on the tenants of non-resumable areas, the progress in the acquisition of ownership right by the tenants was tardy. Those who could hold on their own and resist the efforts of *Jagirdars* (and *Zamindars*) to resume land till the amendment of 1959, have benefited with the enactment of new provisions. But before that amendment was made, large areas of land were presumably resumed by the ex-intermediaries as their *khudkasht* lands. Otherwise it will be difficult to explain how only on 8 lakh acres *khatedari* rights for the ex-tenants were established. This would mean less than 20 per cent of the cultivated area of the State. Even if we add to this a small number of tenants who purchased their *khatedari* rights between 1955 and 1959—among the sample farmers their number was 11 out of 132—we come to either of the two unlikely conclusions : (1) that before the abolition of intermediary tenures, in 1955, there was no tenancy on more than 70 per cent of the cultivated area, or (2) that even after the amendment of 1959, on large areas tenants have not yet acquired ownership rights. More likely inference is that, as in several other States, large scale resumption of land must have taken place by the intermediaries in anticipation of the land reforms. However, the tenants who could escape these evictions and could acquire the *khatedari* rights, a few before 1959 and comparatively large number after 1959, have definitely benefited as could be seen from the investment they made on the land and the readiness with which majority of them accepted improved agricultural practices. A widespread feeling of security of tenure prevailed among these tenants.

The main sufferers were the tenants-at-will, most of whom in Rajasthan belong to the scheduled castes and scheduled tribes. They had to bear the major brunt of ejectments. The survey has failed to procure full information regarding these people because no attempt seems to have been made to study the nature and extent of share-cropping, though it is mentioned that roughly ten per cent of cultivators were sub-tenants or share-croppers. Another disturbing feature revealed by the survey is that the extent of sub-letting is on the increase. The study has not provided very firm basis for this conclusion but the trends displayed are unmistakable.

The author of this study has accomplished the difficult task of unravelling the changes in tenurial conditions in Rajasthan in recent years, with credit. In the circumstances prevailing in Rajasthan in 1961 and 1962 when the survey was undertaken this was not an easy task. Apart from the resistance from the vested interests, the author and his team of researchers must have faced all the physical difficulties, which is in the lot of any research worker conducting surveys in certain parts of Rajasthan. That the author could organize a large scale survey in comparatively less time and with limited resources is a credit by itself; what is still

more laudable is the collection of data and their presentation in a neat and extremely readable form.

V. S. VYAS

Forced Labour and Economic Development : An Enquiry into the Experience of Soviet Industrialization, S. Swianiewicz, Royal Institute of International Affairs, Oxford University Press, London, 1965. Pp. xi+321. 45s.

The title of the book only partially conveys its contents. It carries more than the contribution of forced labour to economic development of Russia. It is a critical treatise of Russian planning from the beginning of the Revolution to the end of Second Five Year Plan. The author examines the planning policies of the Soviet Union and describes the various phases and vicissitudes through which the economy passed till it attained a satisfactory growth rate towards the end of the period under review. A number of alternatives to progress that would have been open to the Soviet authorities have been discussed to ascertain whether the results that have been achieved could have been bettered or equalled without privation to which the people were subjected. Some of the alternatives were favoured by quite a few Russian leaders and experts themselves. One of them meant a liberal approach and a modest goal so that the targets and achievements would have been spread over a longer period. The author seems to favour foreign aid as a means of development. This alternative would have spared the country many sufferings and sacrifices. It would have also spared a large measure of compulsion and coercion which became inevitable in policy formulation and its execution in Russian planning. It is contended that such an approach would have also cleared many initial difficulties leading to erratic and unco-ordinated rates of growth in agriculture and industry and the alternating attractiveness of the conditions and levels of living in towns and cities and the villages, and which added to difficulties of rapid industrialization. Numerous bottlenecks cropped up both in industry and agriculture which produced halting migration and shortage of industrial labour. One would have anticipated a biased approach from the author who suffered considerably in a Russian concentration camp. The writer, however, commendably retains objectivity in analysis and presents an extremely interesting and stimulating account of the history of economic growth in Russia till almost the commencement of World War II.

There are a few points which are very relevant to the title of the book and which may be mentioned here before we proceed to deal with the other significant aspects of the study. The author contends that the forced labour camps helped economic development in Russia in a number of ways. The concentration camps relieved labour shortage in industries. They also promoted stability by freezing wages, standard of living and prices of essential commodities. This was achieved through reduced consumption which in its turn led to widespread starvation and death in the camps. The two major contributions to stability and growth of the technique were to reduce pressure of demand on limited supplies and to ensure a planned distribution of the limited quantum of consumer goods and other necessities to productive population of the towns and cities. One might, however, disagree about the origin and growth of the labour camps that they were planned and organized to a purpose. Actually, they were a bye-product of the policy of com-

bating resistance to official policies. They also absorbed the political and war prisoners that flowed from the Revolution and subsequent severity as well as from the wars in which Russia was a combatant. It has been rightly remarked at one place in the book itself that "in the Soviet Union the use of forced labour as a tool of economic policy was a 'chance discovery' and not a measure designed on the 'level of planning'." Similarly, the author's emphasis on foreign aid as an instrument of economic development might not sound quite appropriate in the situation of Russia. Quite a few historians have referred to deliberate non-co-operation by Western powers in economic aid to Russia. A few have even implied that this was a deliberate policy to throttle the Revolution. Similarly, the advocacy of a go slow policy with economic reorganization and planning and of voluntary co-operation of the people in official policies hardly takes account of the fact that the fountain source of friction was the imposition of an entirely new ideology totally alien to the psychology of the population. The people would hardly be expected to voluntarily and enthusiastically join hands with the Government in the fulfilment of a programme which was not to their liking. The fall in agricultural production, the dwindling marketable surpluses, increased consumption by the small farmers, holding back of grains by *kulaks* culminating in a policy of their eradication, slaughter of livestock in preference to their surrender to the collectives, etc., are all manifestations of this basic difference of ideology and attitude. Only when the author carries the logic too far with reference to decline in the number of horses but increases in the strength of hogs and in his reference to higher consumption and withholding of foodstuffs occurring simultaneously that the reader is confronted with an inexplicable situation. Likewise, the mention of an increase in the number of hogs at a time when the livestock numbers were generally declining due to large scale slaughter and the fall in the strength of horses without reference to changing technology in Russian agriculture will cause a little bewilderment in the otherwise logical analysis.

At one place the author refers to the co-operative spirit of the people as an essential ingredient of development and which was sorely wanting on the Russian scene. It has been mentioned that this co-operative spirit has been at the back of the phenomenal results of Western industrialization and economic progress. Capitalism, it is contended, gives scope for unconscionable gains through the profit motive and economic incentive, but nurtures, at the same time, popular co-operative spirit in official policies and measures. Unfortunately, some of the under-developed countries with free societies are precisely handicapped by the absence of such a co-operative spirit. Its prevalence in the Western societies, therefore, might be ascribed to an evolutionary process of enlightenment in civic sense and patriotic feelings, rather than to one or the other political or economic system.

Though a critic of regimented planning, the author concedes a few significant achievements in its favour. Keynes propounded an anticyclical thesis for the capitalist system. The technique has held the trade cycle in abeyance during the post-World War II era, despite frequent forebodings about it. The era, however, was marked by planning or programme of accelerated development, armaments and sporadic regional wars. The expansionist policies functioned through fits and starts leading to stagnation and recession occasionally. The Russian technique, however, has been an unqualified success in giving the system not only freedom from the cyclical process but also a good deal of built-in sta-

bility and strength. Russian planning likewise has been credited with a much more phenomenal growth rate than that achieved by Western countries during comparable periods in history.

But the most significant contribution of the book lies in the lessons that Russian experience provides for under-developed countries in planning and economic progress. The author has no answer to the problem posed by the absence of co-operative spirit which is a universal bane of these societies. If the application of coercion and force to straighten out the angularities in the economy and to lift subsistence agriculture to a market-oriented occupation as a method not only of cutting across the problem of co-operative spirit but also to bring the disguised labour force in agriculture to the surface, it would be useful to know other methods less painful and much more inviting that are available to these under-developed over-populated predominantly agrarian societies. Nurske's formula of utilizing the 'savings potential' in the form of the idle work force on land appears to throw up problems of delineation and mobilization, finding the supplemental marginal capital and of assuming a larger marketable surplus to flow from agriculture in syphoning off the surplus manpower from the sector. At one stage foreign aid was considered to be a solution to the difficulties of the developing countries. But foreign aid seems to perpetuate itself. There is also no denying that political philosophy conditions foreign aid. Frictions have grown recently in its even and adequate flow. Russia was not sure of foreign aid for her development. It was not sure of imports of capital and consumer goods either even against payment. The balance of payment problem is acute with most developing nations. They are not in a position to pay for consumer goods imports, including food. The author refers to the scope of 'voluntary collectivization' to the use of force and coercion to achieve change. The reference in this context is to community development and higher forms of co-operation as superior to compulsory collectivization. Both these alternatives in countries like India are at the crossroads. They seem to lead neither to a co-operative spirit nor to a superior form of economic organization. All these alternative techniques are confronted with socio-economic frictions. Developing countries are further inhibited by low savings and disequilibria in the process of development of agrarian societies. Nor have they thought of a process of change or reorganization that would help to measure and delineate the surplus labour force in agriculture by reorganizing the agrarian structure and providing for a matching non-agricultural growth rate to absorb it. The problems of freezing wages and standard of living to promote savings and generate an economic surplus appear intractable under a policy of planning without tears in over-populated countries. The periodic appearance of stagnation and the continuous under-current of inflationary pressures have been the constant companions of planning and development in under-developed over populated societies. Russian policy is marked by planning and growth based on internal resource mobilization. The achievements are matched by abilities to throw up a surplus through sacrifices though involuntarily imposed. Not merely the rate of growth which has been high but also the entry of the economy in a self-propelling stage early and at a cumulative rate are features at which the developing countries could usefully take a close look. Therefore, to those acquainted with the developments in India most of the alternatives might appear to have spent their utility. The book thus leaves quite a few issues before developing societies unanswered.

This is not to speak in disparagement of the contribution. It provides a stimulating account of Russian planning and the problems involved in it. The theoretical exercise preceding the alternatives framed for the developing economies for a painless growth is equally illuminating. Only if the loose ends had been tied up the value of the study would have been enhanced. Moreover, if the analysis had made allowance for changes and adjustments that took place in Russian policies in the 'fifties and 'sixties of this century, it would have been more rewarding. The book, however, should be a must reading on the Soviet system and planning and the problems of economic development in the predominantly agrarian societies.

M. B. DESAI