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## BOOK REVIEWS

*Bihar Population Problems*, S. R. Bose, A. N. Sinha Institute of Social Studies, Patna, Bihar, 1969. Pp. v + 87.

Regional demographic studies in depth are essential for formulating policies with a view to checking the population growth in a vast country like India. Unfortunately such studies are very few and far between. Consequently the population control policies pursued with vigour in the country show uneven success in different regions. It is in this context the study of population problems of Bihar by S. R. Bose should be welcomed by all those interested in India's population problems.

The book is divided into three sections. While in Section I Bose discusses the mechanics of population growth in Bihar, population movements in that State are discussed in Section II. In Section III the author analyses the levels of nuptiality, crude marriage rate and age and sex specific marriage rate in Bihar.

The author does not make any pretext of having collected basic data for his analysis. He depended entirely on the Census data available since 1901. This perhaps is both the strength and the weakness of his work. While the authenticity of the data used cannot thus be questioned, the motivating factors behind such phenomena as inter-State and intra-State movements of population, socio-religious "taboos" inhibiting birth control, etc., cannot be ascertained in such an inquiry.

The author limited his study "to find out how the growth rate (of population) has varied in different districts of a single State, *viz.*, Bihar, with special reference to the decade 1951-1961; to analyse the constituents of the variation, and to isolate, if possible, the causes which led to such variations from district to district." It is interesting to note that while in certain districts such as Darbhanga, Saran, Muzaffarpur, Champaran the rise in population during 1921-1961 ranged from 40 per cent to 55 per cent, *death rate* was also very high in these heavy density regions. On the other hand, low density regions of Hazaribagh, Purnea, Shahabad, etc., had low death rate. Another noteworthy feature of population growth in Bihar is that while districts with high population growth also had high birth and death ratios, districts with low population growth showed low birth and death ratios. Ranchi alone appears to be an exception to this. In spite of showing a high birth rate it had low death rate though the district itself showed low population growth.

The author has attempted to assess the impact of early marriages on fertility of women. Similarly, he has examined the hypothesis that working women would have low fertility. His conclusion is that, by and large, "neither early marriage promotes birth nor non-industrial work among women retards

birth" (p. 29.) However, it appears that "some kinds of industrial work (such as mining) has perhaps the effect of reducing their fecundity." (p. 27.) The study also revealed that densely populated areas with low per capita incomes had lower birth rates. Though no positive correlation could be established between poverty and high birth rate, it was found that tribal women (with the possible exception of Santals) who are generally poor showed a higher birth rate than the non-tribal females. (p. 31.)

Population mobility, according to the author, "is an indication of the adjustment attempted by persons to profit by the environmental conditions, within and outside the State, with a view to improve their economic position. An increase in mobility therefore means an improvement of economic status." (p. 45.) In this connection the author gives a rough idea of how migrants tended to improve their economic position by movement from a region of lower economic opportunities to regions where better opportunities of earning higher incomes were available. The average annual income per worker in 1961 was the lowest (Rs. 527) for those born at the place of enumeration while it was the highest (Rs. 1,309) for those born in other States of the Indian Union but resident in Bihar. It was found that the preference shown for different occupations by immigrants from other States also varied so much from State to State that the average income per worker coming from each State showed large variations. Uttar Pradesh, West Bengal, Orissa, Madhya Pradesh and the Punjab are the States from where immigrants were largely drawn into Bihar. While workers from the Punjab took largely to mining, manufacturing and trade and avoided agriculture, migrants from Madhya Pradesh showed preference to mining and manufacturing; workers from Orissa appeared to have no such preferences. Workers from Uttar Pradesh and West Bengal largely took to cultivation and/or worked as agricultural labourers. Trade and commerce were the main attractions for immigrants from Rajasthan. Income per worker for those born and enumerated in Bihar was very low at Rs. 540 per annum as compared with the immigrant worker which varied from Rs. 905 (from West Bengal) to Rs. 1,559 (from the Punjab).

The creation of Pakistan in 1949, slow growth of industries within the State, and high cost of movement were some of the factors that inhibited emigration from Bihar. The author is of the opinion that economic chauvinism raising its head in recent years in many States might further dampen the enthusiasm of the Bihari worker to emigrate to other States.

In conclusion it may be said that notwithstanding the limitations (which the author appears to be aware of), this brochure is a significant contribution to the study of India's demographic problems.

S. R. K. RAO



*Rural Credit in Western India 1875-1930: Rural Credit and the Co-operative Movement in the Bombay Presidency*, I. J. Catanach, University of California Press, Berkeley and Los Angeles, California, U.S.A., 1970. Pp. xi+269. \$8.75.

This book purports to be a study of the rural credit situation in the Bombay Deccan since 1875. It makes a detailed enquiry into the organization of the co-operative societies which have come into being in the Presidency after 1904 when the Indian Co-operative Societies Act became law during Curzon's viceroyalty. The societies have in fact come into existence not as a spontaneously evolved solution to the problems of rural credit. They have been superimposed on the Indian scene drawing from the experiences of the West. They have undergone changes therefore in scope and contents all through the years to make them adjust to our conditions. The commotion created in rural Deccan by the riots of 1875 was one of the earliest factors which induced the government to initiate some legal and institutional measures to check the multifarious activities of the village moneylenders. The co-operative movement in India therefore has been essentially a government sponsored movement. "This fact alone makes it inevitable," the author mentions in the introductory chapter, "that government officials as well as peasants, will figure largely in this study." (p. 3.) This would be certainly true in a volume of this type where an attempt is being made to trace the historical developments in the co-operative movement which are greatly influenced by the attitude and actions of those government officials who are at the helm of affairs and also the peasants who are directly involved in the co-operative movement. However, very little has been said about the peasants except by way of explaining the farm situation. The author has largely confined himself to the deeds and thoughts of the government officials who are directly connected with the co-operative movement in India in general and in the Bombay Presidency in particular. To a great extent thus this book has turned out to be a who-is-who of the co-operative administration in the Bombay Presidency. This includes besides the British Civil servants a few Indian officials also, as the author rightly says, "relations between 'state' and 'Co-operative Movement' in Bombay meant the interaction of British and Indian officials." (p. 4.) The study confines itself to the period 1875 to 1930 from the days of the Deccan riots to the beginning of the Depression. As regards the area, it is confined to three regions, Gujarat, Western Maharashtra and Bombay Karnatak.

Indebtedness has been a deep rooted malady of rural India and it has been growing with the vagaries of monsoon and the ruthlessness of the village moneylenders. The outbreak of riots against the moneylenders in Poona and Ahmednagar districts in 1875 has been therefore the manifestation of the peasants' grievances against their exploitation. The Deccan Riots Commission which was appointed at the instance of the Central Government conceded in its report that the riots were connected with agricultural indebtedness. The Commission felt that either some restraints should be put on the activities

of the moneylender or credit has to be provided in a large measure so as to compete with the professional moneylenders. The Deccan Agriculturists' Relief Act was therefore enacted in 1879 imposing some restrictions on money-lending. The Commission was shy about suggesting any new institutional credit agency to compete with the moneylender. But as early as in 1858 there was a suggestion made by an assistant district collector of Ahmednagar for setting up loan banks in conjunction with rural savings banks. Apart from this, there has not been any positive thinking about rural credit in the administrative circles in Bombay Presidency. The Government of India, however, was considering a few proposals made by some of the enthusiastic provincial administrators, regarding the establishment of government sponsored and controlled agricultural banks and co-operative societies. Finally, the Co-operative Societies Act of 1904 was enacted and imposed on an unwilling government of Bombay Presidency. Since then its success or otherwise was determined greatly by the interest taken by the registrars of co-operative societies from time to time.

The author has meticulously traced the progress of the movement during the tenure of different registrars since the enactment of the co-operative legislation in 1904. He has been successful in indicating the personal traits of the registrars who are mostly British Civil servants and the general performance of the co-operatives during their tenure. Whenever he refers to an official he gives in the footnote the bio-data and an account of the career of the persons concerned. His catalogue of the British officials directly connected with the co-operative movement includes the names of 12 persons notable among whom are Evely Baring (p. 28), Frederick Nicholson, (p. 42), C. S. Campbell (p. 61), R. B. Ewbank (p. 95) and G.F.S. Collins (p. 189). And among the Indian officers and some prominent co-operators he mentions Vithaldas Thackersey (p. 78), Lalbhai Samaldas (p. 78), K. B. Bhadrapur (p. 98) and Vaikunt Mehta (p. 103). As an historian, the author has examined the role played by these persons in fostering the co-operative movement in the Presidency. But he has not gathered enough statistical data to explain the tardy progress made by the movement at different times. In the absence of empirical data, the narration has turned out to be merely descriptive with very little analytical rigour. It should have been possible for the author who has taken enough pains to gather data relating to the views and opinions of the various persons connected with the co-operative movement, to cull out some useful data pertaining to the credit disbursement, resource position and default ratio from the official records. The author has no doubt tapped many sources including the official and non-official correspondences between the district level authorities and the higher ups. He has therefore only sprinkled his narration with a few figures which he could easily obtain. May be an historian cannot be blamed for not paying much attention to figures and statistical ingenuity

In the last chapter, the author makes a review of the co-operative movement, past and present. His plea that "statistics must be treated cautiously"

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(p. 222) is however not a sufficient excuse for his having not used them at all. But the conclusions which he has arrived at are fairly acceptable as they do not differ from what are well-known and unanimously accepted. The co-operative movement does not appear to have provided any decisive challenge in Bombay to the moneylender of either the "professional" or the "agriculturist" varieties, he concludes. This is true even today of many parts in India. There is no dispute that "the co-operative movement was "given" to India; without the British presence it could not have come into existence." (p. 230.) The co-operative movement therefore has been and continues to be mostly a State sponsored movement which cannot claim complete autonomy particularly since it seeks and receives financial, technical and other assistance from the State on an increasingly large scale. "The best hope for the co-operative movement in India," the author concludes, as quite a few studies have revealed, "would appear to lie with the middle peasantry, if the movement is to remain reasonably true to its ideals."

The book makes a good reading and introduces the reader to a variety of source materials on the co-operative movement mostly from an historian's angle, in Western India since the formative days of the co-operative movement

N. K. THINGALAYA

*Farm Production Credit in Changing Agriculture (Baroda District, Gujarat)*, B. M. Desai and D. K. Desai, Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad, 1971. Pp. + 104. Rs. 8.00.

The problem of farm production credit has assumed greater significance with the advent of technological break-through in Indian agriculture. With the entry of commercial banks in the field of agricultural finance, the problem of evolving effective credit policies and of implementation has become very crucial. It is in this context that the book under review which is the outcome of the study undertaken by B. M. Desai and D. K. Desai is welcome.

The main object of the study is to investigate into the farm production credit use by the farmers, the existing policies and arrangement for supply of institutional credit and to determine farmers' demand for additional credit in different phases of changing agriculture. The scope of the study was restricted to 48 sample farmers of eight villages in Sinor, Waghodia, Baroda, and Chhota Udepur talukas of Baroda district in Gujarat State. For empirical analysis, the techniques of budgeting and programming at the farm level were used as these techniques, according to the authors, are more suited to diagnose how credit demand is generated under different phases of changing agriculture. Both survey and case methods were used for collecting data.

The book is organized into seven chapters. After setting out the problem, discussing the methodology, sampling design, agro-economic charac-

teristics of sample taluks/villages and farmers in the first two chapters, the study proceeds to analyse in the following two chapters the existing credit use and demand for additional credit at different levels of farm technology in typical farming areas, the policy implications of the present and additional credit use by farmers and adequacy of institutional credit resources available to them. Two chapters are devoted to examine the attitudes and opinions of sample farmers regarding use of credit and working of credit agencies, and existing policies and arrangements for and supply of institutional credit. The concluding chapter summarizes the conclusions and implications of the study discussed in various chapters.

The findings of the study are quite interesting and raise certain questions regarding credit policies of institutional agencies engaged in catering to the needs of farmers in developing agriculture. In the study, the authors believe that to have a meaningful production-oriented credit policy the lending agencies have to understand the spectrum of varying crop conditions and use a disaggregative approach rather than restricting to aggregative norms of credit needs which have been evolved without giving adequate considerations to these variations. Keeping this in view, the authors have attempted their analysis of existing credit use and demand for additional credit within the framework of technology both for "non-programmed" and "programmed" crop conditions and of changing technology under "programmed" crop conditions at different levels of irrigation. It was observed that with the adoption of new technology, single cropping of long duration crops like cotton/tobacco were replaced by multiple cropping system with food crops and vegetables. The conclusion of the study in this connection is that, if the relative price structure for different crops remains at current level and new technology gets adopted, it is likely that the major shifts towards food crops may begin to take place. According to the authors, this effect appears to be similar to the "Sanskritization" effect observed in sociological factors. The existing credit programme which is oriented more towards food crops may be instrumental in accelerating this change.

The authors' examination of changes in cropping pattern in different groups of farmers classified according to available working capital has interestingly enough revealed a definite order of changes in the adoption process. The farmers with high working capital were found to be leaders followed by the farmers having smaller working capital in the same region. Further, it was found that the farmers with high amount of working capital in less developed region seemed to follow the farmers with the smaller amount of working capital in the more developed region.

The important and far-reaching finding of the study is that the increased credit use in changing agriculture resulted in increased farm incomes. The marginal value of productivity of working capital worked out to Rs. 1.44 and Rs. 1.40 for the sample farmers of the less developed region and the more

developed region respectively as compared to the total capital cost of Rs. 1.10 for every rupee of investment. The business of farm credit was found to be quite remunerative to farmers in changing agriculture. Further it was found that as the farmers moved from existing technology towards modern technology, the increase in per farmer as well as per acre farm business income was found to be substantial, nearly three and half times. The authors think that the changing conditions in agriculture would help decrease the inter-regional as well as intra-regional disparities in incomes of farmers. With this much return it can safely be assumed that repaying capacity is assured and the degree of risk in recovering loans is diminished by adoption of new agricultural technology. The authors, therefore, feel that the credit agencies can reduce the risk of recovering loans on time by helping farmers adopt better management of their resources with the aid of new technology. The credit agencies should be more than an agency for the supply of credit; they will have to be a catalytic agent of development by encouraging adoption of new technology by making available the desired dose of credit. Another important finding of the study is that there were quite a significant number of farmers who had excess available institutional credit and if the excess credit were re-allocated among the farmers who required additional credit, the scope for fresh pumping in of institutional credit would be limited. What is, therefore, needed is not merely the expansion of credit resources to finance the current level of technology but encouraging the adoption of new technology and thus create new demands for credit which may result into higher productivity and faster rate of agricultural development.

A major weakness of the book is the scope of the study itself. The sample size of the study is too small—only 48 farmers—24 farmers in the more developed region and 24 farmers in the less developed region. The districts selected for the study have achieved fairly high level of agricultural development. Apart from limited applicability, the conclusions derived and implications drawn are too general and call for vigorous empirical scrutiny. To illustrate one example on p. 38, it is stated that “the agricultural revolution would help to solve the problem of income disparities rather than aggravate it among farmers.” The increase in farm business income per acre as a result of change in technology is found to be to the extent of 48 per cent in the more developed region and 128 per cent in the less developed region. The green revolution no doubt can serve as a potent vehicle in reducing inter-regional income disparity by improving the production level depending on the potentialities of the area. However, agro-climate variation, distribution of farms, developmental skill, environmental variations may not allow solution of inter- and intra-regional income disparities to a great extent. Therefore, the above conclusion of the authors is of dubious validity.

Notwithstanding the drawbacks, the findings of the book are interesting and valuable. The study deals realistically with some of the perplexing problems faced by the credit agencies in financing the developing agricultural

sector. The facts are well organized and analysis is clearly and logically reasoned and lucidly presented. It is hoped that the book will prove equally useful to research workers in agricultural finance and the executives of credit agencies engaged in financing agricultural development.

S. M. PATHAK

*Potentialities for Mobilising the Investible Funds in Developing Agriculture (A Study in Baroda District, Gujarat State)*, B. M. Desai and D. K. Desai, Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad, 1971. Pp. 123. Rs. 8.00.

Probably no question today is more baffling to the nation than the problem of mobilization of savings from the agricultural sector. This problem has become still more important with the entry of commercial banks in financing agriculture with a view to increase productivity progressively and create a surplus which may be invested for other economic activities. The green revolution ushered in Indian agriculture has resulted in increased income to the agriculturists in the last five years but the gains of increased income has, however, not followed uniform pattern. It is, therefore, pertinent to know in this context which are the categories of farmers who are benefited by the green revolution, whether there is any scope for institutional agencies to mobilize the surplus generated in the farm economy and if there is scope, what should be the strategy for mobilization of savings in the rural areas.

The study under review attempts to assess the potentiality of mobilizing savings from the agriculturists and identify the characteristics of farmers having surplus potential that can be mobilized by the financing institutions. The study also examines the investment preferences of the farmers and their motivation for saving. The scope of the study is restricted to Baroda district in Gujarat State. The district selected has achieved sufficiently high level of agricultural development. The villages are classified into two categories according to the level of agricultural development, *viz.*, more developed region and less developed region. Ninety-six sample farmers are selected for study in eight villages.

The study has been divided into six chapters. In the introductory chapter, the authors outline in brief the importance of mobilizing saving from the agriculturists in the developing economy, definition of various concepts used and scope and methodology of the study. Chapter II examines the characteristics of sample talukas and villages selected, level of investible funds and socio-economic characteristics of the sample farmers. In Chapters III and IV, the authors set out to discuss the factors responsible for variation in investible funds, level and pattern of investment and dis-investment by the farmers. The attitudinal preferences in saving and investment and motiva-



tion for the same are examined in the Chapter V. The concluding Chapter summarizes the implication of the study and policy decision emerged thereon.

The investible fund has been defined in the study as the excess of farmers' current net household income (both farm and non-farm income) plus receipt from the sale of assets over the current consumption, purchase of assets and payment of past loans. The sample farmers were classified into two categories, the farmers having positive investible funds were called "surplus" farmers and the farmers who did not have investible funds were grouped into "non-surplus farmers." It is found that about 50 per cent of the farmers in the more developed region were surplus farmers while in less developed regions, nearly one-third of the farmers were found to have surplus investible funds. The average amount of the investible funds with the surplus farmers in the more developed region was estimated to be Rs. 3,532 as against the average amount of Rs. 1,756 in the less developed region. The characteristics of the surplus farmers in the more developed region and the less developed region, however, are found to be more or less similar. Strangely, being a surplus or a non-surplus farmer was not found to be directly related to the resource position in terms of size of operational land holding, land ownership, irrigation facilities and ownership of farm machinery and equipments. Similarly, age, education level and size of family were not found to be important in identifying surplus and non-surplus farmers. The authors believe that whatever the inter-farm differences observed in the level of investible funds were mainly due to the difference in management of farms.

According to the authors, the four important components of investible funds which are of operational interest to the credit agencies are farm business income, dairy income, consumption expenditure and investible funds. A Cobb-Douglas type of production function and regression functions were fitted to analyse the factors explaining the inter-farm variations observed in these components. The results of the function showed that gross cropped area, hired human labour, fertilizers and other modern inputs significantly contributed to farm business income. If the financing institutional agency aims at mobilizing the investible funds, their policy then, according to the authors, should be directed towards increasing farm business income by encouraging the farmers to adopt improved farm practices and thereby improving their managerial ability. This fact perhaps need not be analysed by sophisticated functional analysis as it is a well-known fact that if more and more productive inputs are used the productivity is bound to increase. Therefore, to suggest to financial institution based on this finding that it would be in their interest in terms of mobilizing investible funds to encourage farmers to use improved practices and provide funds for the same is quite superfluous. Perhaps, more probing in ought to have been made for finding the reasons as to how the investible funds are created by surplus farmers of various categories and the factors which govern the same rather than attributing inter-

farm variations observed to managerial factors only without proper empirical scrutiny.

As for investment preferences, the authors found in the study that the average amount of investment in working capital and human capital was larger in "surplus farmers" than in "non-surplus farmers." Working capital investment dominated the investment pattern of both the categories of farmers in both the regions. In general, the tendency on the part of the non-surplus farmers to invest more in low income generating assets such as, residential buildings, consumption durables, etc., than in high income generating assets such as wells, agricultural machinery and other farm assets is found to be very high.

The motivation to save for investment in financial assets such as bank deposits, postal saving deposits, etc., received the lowest priority among the farmers in less developed regions. In the more developed regions, the farmers' propensity to invest in the liquid assets is found to be considerably high. The willingness to invest in farm assets such as farm machinery, farm buildings, irrigation facilities, dairy animals, etc., was found to be higher among surplus farmers than among non-surplus farmers. Perhaps this tendency has enabled them to become surplus farmers. In the early stages of agricultural development, it is quite legitimate that the investment in farm assets which are income generating is preferred to that in liquid assets such as bank deposits so that the productive cycle starts moving faster. The authors believe that at the present juncture though there is scope for mobilizing investible funds from the surplus agriculturists, the investment in financial assets such as bank deposits has a very low priority. Therefore, any broad generalization that in more productive agriculture, a large potential of deposits may occur which can be simultaneously tapped will lead to over-ambitious programme of deposit mobilization unless we take a realistic view of the investment preference of the farmers.

The authors claim that not much research work has been done in this field. Their efforts in the study, therefore, should be viewed as an attempt to evolve a methodology which could be used for further research for helping the financing institutions to identify the surplus farmers having investible funds. The study, however, has failed to perform this function effectively. Though the method used by them was found to be valid in the case of the more developed region, it was not found to be applicable in the case of the less developed region. The variables selected by the authors for regression functions seem to be highly correlated which must have affected the findings. They should have discussed in the study the inter-correlation between the various variables for better clarification. The study does not discuss the measurement problem involved in estimating various items such as household expenditure, farm business income, etc. The authors have not made any effort to explain the findings of their study to derive meaningful and logical



conclusions. The authors' temptation to highlight the importance of managerial ability of the farmers in increasing investible funds without sound empirical evidence made the treatment of the subject too general and inferences drawn are of dubious validity. Notwithstanding these weaknesses of the study, the authors deserve compliments for probing into the problem and throwing some light on this which may help research workers to plan further studies in depth. The financial institutions may also use this to evolve some suitable strategy for deposit mobilization.

S. M. PATHAK

*Economics of Tube-Well Irrigation (A Study of Lift Irrigation Alternatives in Meerut District of U.P.)*, S. M. Patel and K. V. Patel, Faculty for Management in Agriculture and Co-operatives, Indian Institute of Management, Ahmedabad, 1971. Pp. x+100. Rs. 8.00.

Success in the cultivation of high-yielding varieties depends not only on the adequate supply of water but also on its timeliness. In large areas of our country construction of wells of different types is the easiest and quickest method of providing such controlled irrigation.

This study by the Indian Institute of Management, Ahmedabad was undertaken with the following objectives : (i) Comparative study of investment pattern and cost analysis of alternative equipments and sources of water for lift irrigation; (ii) comparative study of performance of farm business by different categories of farmers; and (iii) consumer behaviour of the farmer in the lift irrigation machinery market. The study was conducted in six selected villages of Meerut district, Uttar Pradesh. The farmers in these six villages were grouped as those having electric tube-wells (ETW), diesel tube-wells (DTW), peripatetic pumping-sets (PPS) and those buying water from State tube-wells (STW). From these stratified groups 96 samples were taken at random. The reference year of study was 1968-69. The results of the study are discussed under social and economic characteristics of the sample farmers, consumer behaviour of the farmers with respect to the lift irrigation equipment; investment pattern and cost analysis of the different systems and lift irrigation and farm business. The final chapter is devoted to presentation of summary and conclusions.

Peripatetic pump-sets were found to be economical where annual water requirement was only 400 acre-inches. Beyond this scale private electric tubewells had a distinct advantage. A State Tube-well could catch up with the Electric Tube-well only at a supply level of 4,800 acre-inches a year. If annual requirements in places where electricity is not available exceeded 400 acre-inches the use of light speed diesel engines will be slightly more economical than the high speed diesel peripatetic pump-sets. Many of these conclusions requires further examination.

The conclusion that STW farmers used more water per acre than other categories is not in line with the findings in another study.\* According to Table 4.5 none of the seven sample State tube-wells under study supplied more than 15.88 acre-inches per acre/season (average for all wells 13.49). This level of supply is much below the observed requirement of 20 acre-inches per acre as indicated in Table 4.10 and is in line with earlier findings. The data supplied in these tables are specific, therefore it is difficult to accept the computed quantity of water used by STW farmers at 34 acre-inches per acre/season (Tables 5.7, 5.12, etc.).

The conclusion that the type of irrigation source did not have an influence on the crop pattern adopted by farmers needs to be qualified. Not only the crops but the varieties adopted should have been analysed before coming to this conclusion. The trend noticed by others is that "a higher proportion of wheat area irrigated from private tube-wells was planted with high-yielding varieties compared to wheat area irrigated from State tube-wells." The impact of the new agriculture on production and income of farmers is not so much in the change of crops as in the change of varieties.

The conclusions regarding the effect of frequency of irrigation on production also needs reexamination. For sugarcane with an average of 12.5 frequencies 'B' group's gross output per acre is valued at Rs. 1,272, while for 'C' group with 14.2 frequencies the value is only Rs. 923. Wheat, *kharij* fodder, and potato also show the same trend. Optimum supply per irrigation and timeliness of the frequencies may also be factors to be determined.

Farmers in DTW and PPS groups made higher profits in all crops except sugarcane and potato than farmers in ETW group. In respect of potato, profits of DTW group were above those of ETW group. In respect of intensity of cropping, on the basis of either gross cropped area or land utilization in season, PPS group led the rest. In view of these facts it is difficult to sustain the conclusion that ETW farmers had shown better performance.

The statement on page 27 that "the state tube-wells and private tube-wells normally serve separate areas" is not supported by the reason given by 31 of the sample farmers for going for mechanized lift irrigation, namely, that availability of water from canal/state tube-well was not dependable (Table 3.2).

A more detailed analysis of the data collected, and where necessary collection of further data from the samples studied, should be undertaken before these conclusions are confirmed and sought to be used in policy making.

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\* See John W. Mellor and T. V. Moorti, "Dilemma of State Tubewells," *Economic and Political Weekly*, Vol. VI, No. 13, Review of Agriculture, March 27, 1971, p. A-40.

The small farmers appeared to have suffered most from the unreliable advice given by public agencies, which they were under pressure to accept to obtain financial assistance. A State level technical organization of the type recommended in the study may not be able to correct the malpractices. What is needed is the enforcement of a system, by which the manufacturers of pump-sets and their dealers exhibit continued interest and responsibility for the proper operation of the lift irrigation equipment by sharing in the risks of failure. An integrated supply and maintenance service should be promoted.

If, as is revealed, the economically and socially backward farmers paid the highest price for the agricultural fuel (HSD) and those economically and socially advanced paid the lowest price for agricultural fuel (electricity), there is every justification for the State Electricity Board to raise its tariffs to commercially feasible levels where market prices permit the same, and use the profits for more rapid extension of electricity to interior areas.

Numerous errors make the reading difficult. On page 25 the reference to 13 per cent of farmers in group C considered to be indispensable for village affairs, four totals given in Table 2.16, the numbers shown under FCD in Table 3.3 are examples. In Figure 4.2 the DTW line has not been brought down to the proper point. In the absence of any explanation as to how *rabi* areas under item 4, in Table 5.1 relating to land utilization by crops were arrived at, it had to be guessed, after comparison with Exhibit 5.1, that *kharif* cotton irrigated and unirrigated may extend into *rabi* season also. The figures in brackets in Table 5.14 show total acre-inches of water supplied per acre of crop.

This study undertaken by a premier Institute of Management has put off the examination of the problems of management in the functioning of State tube-wells. A review of work already done in this area and literature available is also not found.

P. RAJADURAI MICHAEL

*Studies in Agricultural Credit*, Economic Department, Reserve Bank of India, Bombay, 1970. Pp. iv + 210. Rs. 14.00.

*Studies in Agricultural Credit*, issued by the Reserve Bank of India contains findings of three field studies, *viz.*, study of Intensive Agricultural District Programme, study of medium-term agricultural credit and study of long-term agricultural credit, conducted by the Economic Department of the Reserve Bank of India, which has now emerged as an important source of authentic data on agricultural credit in India. Two of the studies published here, *viz.*, the first and the third were conducted at the instance of the All-India Rural

Credit Review Committee and the second study was undertaken at the request of the Agricultural Credit Department of the Reserve Bank.

The first is a 'general report' based on the field study of Intensive Agricultural District Programme (IADP) undertaken in seven districts, *viz.*, Pali, Raipur, Mandya, Shahabad, Ludhiana, Aligarh and Thanjavur. The main object of the study was to assess the farmers' participation in the IADP and the role played by the co-operatives in the implementation of the programme. The IADP is an important exercise in co-ordinated efforts to achieve a break-through in agricultural progress. The study has also thrown some interesting sidelight on the working of the Programme. As regards the use of modern inputs, the study reveals that the selected districts had become more or less self-sufficient in the supply of improved foundation seeds. Use of improved seeds by cultivators was slowly gaining ground. Consumption of fertilizers had also more than doubled in selected districts, though adverse seasonal conditions, lack of irrigation facilities and inadequate storage facilities were the main impediments in the spread of the use of fertilizers. Plant protection work was rather neglected as there was not enough extension work to popularise it. In some of the selected districts the average annual expenditure per acre on current agricultural operations was much lower than that envisaged under the recommended package of improved practices, which was due to partial implementation of the recommendations of Package Officers and non-availability of the necessary inputs.

The performance of the co-operative credit structure varied from district to district, mainly depending upon the progress achieved in respect of reorganization of primary societies on a viable basis. The central co-operative banks had not taken adequate interest in the formulation and implementation of IAD Programme. Inadequate interlinking of credit with marketing was also an important factor responsible for poor recoveries and higher overdues in some districts. Preparation of farm plans which serve as a means to educate the farmers in the adoption of the recommended improved package of practices based on the agro-economic conditions suitable to different crops is an important part of the Package Programme. In practice, however, partly because of the pressure of work on the Package staff and partly because of the lack of the required technical competence on the part of the village level worker, the preparation of farm plans had been reduced to a formality. Besides, there was lack of co-ordination between the central co-operative banks and Package staff and among the different departments concerned. This retarded the progress of the Programme.

The second study (on medium-term agricultural credit needs of cultivators) was undertaken so as to help formulation of a rational policy for advancing medium-term loans for agricultural purposes by co-operative credit institutions. The survey was in the nature of case studies conducted in selected

villages in one district each in the States of Kerala, Madras, Madhya Pradesh, Orissa and Maharashtra, which together accounted for the bulk of medium-term loans for agricultural purposes granted by primary agricultural credit societies in the country (in 1961-62). The reference period was the year ended 30th June, 1965. The results of the study indicated that the medium-term borrowings of farmers were not as large as they were believed to be. Short-term loans predominated the total borrowings of cultivators from all agencies.

The survey indicated that most of the repairs and maintenance expenditure, with the exception of purchase of bullocks for replacement, was being financed by cultivators out of their own funds. Expenditures for purchase of assets, however, necessitated credit assistance. Construction of wells, for example, had to be often postponed due to lack of finance. Another important finding of the survey was that it was not a common practice with small farmers to resort to seasonal purchase and sale of livestock to avoid expenditure on stall-feeding. Lending policies and operations of co-operatives studied in the survey showed that, by and large, they had not been designed to meet adequately the local needs and to assist agricultural development. There was often misuse of medium-term co-operative credit and in certain areas a sizable proportion of co-operative advances was used for non-agricultural purposes.

The third study relating to long-term agricultural credit was conducted in seven selected districts of the country, *viz.*, Poona, Krishna, Nalgonda, Coimbatore, Junagadh, Mehsana and Meerut. The objects of the survey were (i) to study the pattern of capital expenditure in farm business, (ii) to assess the extent to which capital expenditure in farm business was financed out of borrowings from various agencies, (iii) to examine the operational efficiency of Land Mortgage Banks (LMB) and Government in regard to provision of long-term agricultural credit, (iv) to ascertain the extent to which loans from the above two sources were actually utilized for the purposes for which they were borrowed, and (v) to study the repayment performance of cultivators in regard to long-term loans. The period of reference was three years ended 30th June, 1966.

The results of the study showed that except in very prosperous districts, capital expenditure on land was high mainly in the case of LMB and *taccavi* borrowers and in the districts where the LMBs were generally well developed. Capital expenditure was generally restricted to two or three items only—wells, purchase of agricultural machinery (mainly water-lifting), land-levelling and reclamation. It was observed that, by and large, *taccavi* loans served as a supplementary source of finance while LMB loans served as the major source of finance. It was also observed that annual repayment burden of LMB and *taccavi* debts was well within the repaying capacity of the borrowers on the basis of the net disposable income (*i.e.*, half the value of gross produce from

land). Short-term debts owed to co-operatives by LMB/*taccavi* borrowers were negligible. The major portion of LMB loans was used for irrigation purposes.

The proportion of smaller cultivators in the total number of borrowers was low. The procedures followed by LMBs were observed to be very dilatory and needed to be simplified and streamlined. The period of repayment could be shortened. Cultivators showed a tendency to prefer *taccavi* loans to LMB loans because of concessionary terms and simple and more expeditious procedure. There was some overlapping between medium-term loans and long-term loans given for wells and oil engines. Another shortcoming of LMBs was the lack of on-the-spot technical guidance for and supervision over the schemes financed by them.

The publication presents first hand data on the problems of short, medium and long-term agricultural credit and the performance of the credit agencies in the country and should be useful to all who are interested in the development of institutional finance for agriculture.

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