PATTERN OF LAND HOLDING AND AGRICULTURAL PRODUCTIVITY

A. Case Study Of Upper Brahmaputra Valley Of Assam

ABSTRACT

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A B S T R A C T

The Problem

The development of agriculture without structural changes is a difficult task. This difficulty is more pronounced in countries with high population growth and high pressure of population on land. All these contributed to a regional disparity or regional imbalances in the rate of growth of crop output and productivity. This aspect has drawn the attention of both the agricultural planners and scholars and it is now accepted that the various national level plans and programmes would be limping without proper location of specific schemes and plans on the basis of agricultural regions. Macro-economic magnitude and approaches do not give deeper insight into the problems of agricultural development in India and, therefore, planning should be extended to lower level, i.e., agro-climatic and agro-economic regions.

Assam has a strong agro-economic base yet its economy in general and agriculture in particular is not showing satisfactory performances. A low level

progress in the primary sector in this region has resulted in many socio-economic problems. Agriculture is the principal source of livelihood for a majority of the people of rural Assam. The agricultural sector is so important to the state's total economy that it alone contributes 56 per cent to the state's total income. It also acts as a main absorber of the working population as it engages as high as 77 per cent of the total working population in the state. In fact, the average yield of cereal and non-cereal crops in Assam is much lower compared to that of other states, the technology deployed in agriculture is traditiona and diffusion of innovation is insignificant. Although Assam ranks seventh out of the twenty-five states of India in terms of per hectare productivity, it is not an impressive record considering the potentiality of its arable land and natural endowment. It is obvious that the present agricultural potential of the state is highly under-utilised and much remains to be done.

The study, therefore, is undertaken with a view to reveal the existing landholding pattern with its related problems and to examine the various socio-economic problems along with the physical landscape of the region which are closely related to the existing agricultural productivity.

The Study Area

The present study pertains to the Upper Brahmaputra Valley of Assam which comprises of five plain districts (undivided), viz., Lakhimpur, Dibrugarh, Sibsagar, Jorhat and Golaghat. The mighty river Brahmaputra passes through the region making it very fertile. The total geographical area of the valley is 21.67 thousand sq. km. with a population of 5.78 million and with a density of 267 persons per sq. km. The state of Assam is divided into five agro-climatic zone. The study region, Upper Brahmaputra Valley, belongs to the Upper Assam zone whose physiography is characterised by plains and foothills and subject to flood and erosion. Soil is composed of both new and old alluvium and is highly acidic. In general, the climate is humid and the principal crops cultivated in the Valley are rice, sugar cane, mustard, robi pulses in some parts, and tea.

The Sources of Data

The data used for this study have mostly been obtained from secondary and primary sources through field survey. Altogether, 200 farm families of different size groups are taken into account for field survey which were well-distributed over all the

districts of the study region. The main source of the secondary information is published and unpublished reports on agriculture, Government of Assam.

The Methodology

To achieve the objectives, the present study has been completed through survey, direct observation, collection of secondary data from various sources, planned and designed within an environmental-cum-socio-economic framework.

For interpreting the result of production operations and to establish the input-output relationship, the output of principal crops have been considered for preparing the productivity index. Agricultural productivity per hectare is calculated by converting the total production of various crops into its money value. Similarly, the major inputs viz., labour, animal and non-land capital (technology) have also been calculated by converting into money value.

The relationship between the two, i.e. inputs and outputs, have been calculated by using 'Multiple Regression Model' of the following form :

$$Y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \alpha$$

where Y is production per hectare

X_1 X_2 X_3 are input variables

β_1 β_2 β_3 are the co-efficient of the model

and

α is the origin point of line.

The regression results have been also tested by using linear correlation method between farm size and productivity with three different inputs separately, viz., farm size and labour inputs, farm size and animal inputs and farm size and non-land capital inputs.

On the other hand, the distribution of production attributes and input variables are also depicted by the scatter diagram.

The landholding classification for 200 sample farms conforms to the land classification prescribed by the Farm Management Survey of India.

The Findings

1) The study area is characterised by variety of physiographic features offering potentialities for agricultural development. But at the same time, it is also imposing barriers to manpower efforts with unhealthy climatic condition for the inhabitants,

uncultivable wastelands, myriads of shifting water channels, extensive flood plains, etc. In such situations, easy development of agriculture is a difficult task.

2) The total area available for cultivation in the valley is only 35.16 per cent with a limited scope for further horizontal expansion. Area sown more than once is extremely low which is only 8.36 per cent to the total area.

3) The cropping pattern in the valley is characterised by high percentage of rice hectarage, low average yield and low intensity of cropping. More than 77 per cent of the total cropped area is occupied by foodgrains and rice alone occupied 72.3 per cent of the total cropped area in the region.

4) The rural settlement in the region is surrounded by innumerable operational holdings of different shapes and sizes. The average size of holding in the valley is 1.55 hectare which is slightly higher than the state average of 1.37 hectare. This is due to the existence of large number of tea gardens in the region. The average size of holding will go down below 1 hectare if the plantation estates are excluded from the total operated area.

The concentration of a large proportion of agricultural land in the hands of the minority owner, leaving more than 81 per cent of the bottom holding (below 2 hectares) to spread over only 41 per cent of the total operated area.

5) The intensity of cropping in the valley is extremely low. The average yield of rice in the valley is 1296 kg. Though winter rice (sali) is the dominating crop in the valley, the productivity rate is lower than the autumn (ahu) rice. But the area under autumn rice is extremely low. Therefore, scope for bringing more area under autumn rice is very high in the valley in view of the fact that most of the land under winter rice could be practised double cropping.

6) The various factors responsible for the low level of progress in the agriculture sector in the valley can be reviewed as :

a) Physical and biological factors (flood, draught, diseases, insects, weeds, damage caused by domesticated as well as wild animals, unhealthy condition of living, poor health of draught animals, etc.)

b) Socio-economic-cultural complexes (population pressure, peasant society, religion, law of inheritance, etc.).

c) Technological factors (fertilizer, HYV seeds, mechanical techniques, etc.).

7) The most important infrastructural needs for the development of agriculture in the region are irrigation, credit facilities, marketing facilities, rural electrification, etc.

8) The variations of land productivity in relation to various size of operational holdings indicate that agricultural productivity is increasing with the diminishing rate when the size of holdings is increased. But the degree of variation among the distribution in the various size of holdings increased with the increase of the size of holdings.

The productivity and labour input relationship shows that there is a negative relationship between them. The output and animal input relation are also insignificant in each and every sample farms.

The scatter diagram which is drawn by taking output and non-land capital attributes of agricultural production reveals that there is a positive

relationship with a clustered distribution of the points of samples.

This analysis firmly proved that agricultural productivity can only increase when the importance and investment in agricultural technology get the priority, i.e., rapid increase on non-land capital inputs may increase agricultural productivity at the same time.

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