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A NOTE ON THE CROP SPECIALISATION AND DIVERSIFICATION IN ANDHRA PRADESH

Y. V. Ramanaiah and N. B. K. Reddy, Tirupati

ABSTRACT : The Gibbs-Martin method is employed in the present study to measure crop diversification in Andhra Pradesh. The analysis reveals that the cropping system is clearly moving towards crop specialisation.

The term 'crop specialisation' indicates cultivation of fewer number of crops and 'crop diversification' implies raising a variety of crops from the soil. "The keener the competition, the higher the magnitude of the diversification, and lesser the competition, the greater will be the trend towards specialisation or monocultural farming where emphasis is on one or two crops" (Jasbir Singh, 1976). "In fact, it is obvious that greater the number of crops in a combination, greater will be the degree of diversification" (Ayyar, 1969). The study of crop diversification is necessary to understand the competition that exists among crops in a region as well as the crop geography in different environmental situations.

METHODOLOGY

A study of crop diversification was attempted by many geographers in their study of cropping patterns. Bhatia (1965) developed a simple formula to measure the degree of crop diversification. The index of diversification is obtained by dividing the sum total of percentages of cultivated area under a crop occupying more than 5.0 per cent of the sown area with the number of such crops. Here, the lower is the value of the index, the higher will be the diversification and vice versa. Ayyar (1969) modified Bhatia's method and took into account only those crops which occupy at least 1.0 per cent of the gross cropped area. Jasbir Singh (1976) adopted the crop diversification technique of Bhatia in a modified form by taking into account the gross harvested area of the crops which occupy more than 5.0 per cent of the harvested area.

The Gibbs-Martin Index of Diversification (1962) provides a useful alternative index for measuring the degree of diversification in the cropping pattern in an area, and the formula developed for calculating the index is as under:

$$\text{Index of Diversification} = 1 - \frac{\Sigma\ X^2}{(\Sigma\ X)^2}$$

where 'X' is the percentage of the total cropped area occupied by each crop or hectarage under individual crop. If the total cultivated area in a region is devoted wholly to one crop showing specialisation, the index value will be zero; and if it is evenly distributed among many crops showing maximum diversification, the index value approaches one. This method has an advantage over the other methods in that here (i) the statistics of the crops need not be reduced into percentages, and (ii) the indices indicate the magnitude of diversification in direct proportion.

Hence, the Gibbs-Martin method is employed in the present study to measure crop diversification. For selecting the major crops the procedure followed in this method is as follows: Divide 100 by 'N' number of crops grown in an area. Then consider only those crops as important if they cover an area larger than $\frac{100}{N}$. The rest of the crops which are grown in an area less than $\frac{100}{N}$ are are ignored. For instance, in Andhra Pradesh 17 crops are considered for the purpose of calculation. Hence, only those crops are considered as major crops if they are cultivated in more than $\frac{100}{N}$ th percentage of the total cropped land in the State. The rest of the crops are ignored. Later the index of diversification is calculated by using the formula

$$1 - \frac{\Sigma X^2}{(\Sigma X)^2}$$

CROP DIVERSIFICATION IN ANDHRA PRADESH

The degree of crop diversification in Andhra Pradesh is 0.69. It shows that the agricultural pattern in the State is more diversified. It is due to varied physical and socio-economic environments. The highest level of diversification is found in Chintapalle taluk (0.87) followed by Raydrug taluk (0.86). (Fig. 1)

Very high level of diversification (> 0.80) is noticed in 9 taluks distributed in some parts of the Agency areas, the upland areas and interior plateau. Paddy, jowar, bajra, maize, ragi, minor millets, pulses and grams, spices and condiments, cotton and groundnut are the crops cultivated here. Except paddy, all the remaining crops are grown on rainfed conditions.

The high (0.67–0.80) and moderate (0.34–0.67) crop diversifications are extensively found in more than three-fourths of the taluks in the State. The high and moderate diversification prevails mostly in Rayalaseema, Telangana and in the dry upland taluks of the coastal plain. The important crops cultivated here are paddy, groudnut, millets, pulses and grams and other oil seeds.

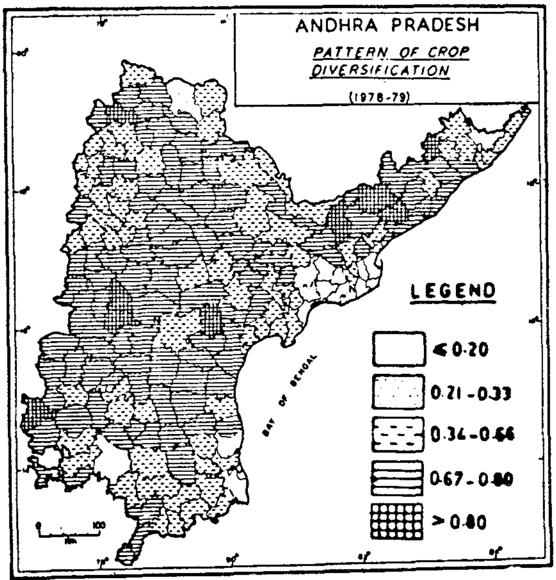

FIG. 1

The low (0.21–0.33) and very low (< 0.20) degree of crop diversification which means specialisation is found in three taluks and 16 taluks respectively. The specialisation of cropping is noticed in the Krishna, Godavari and Pennar deltas. Kakinada, Ramachandrapuram, Alamuru, Bhimavaram, Narasapur, Bandar, Kaikalur and Kovuru taluks have very high crop specialisation since their diversification index is almost zero.

It is obvious from the preceding discussion that cultivation is more intensive, stable and highly productive in the crop-specialisation and low diversification areas where irrigated farming is common. In the highly diversified cropping areas, agriculture is characterised by low productivity, uncertainity and inferior cropping systems because of rainfed farming.

CHANGES IN CROP DIVERSIFICATION IN ANDHRA PRADESH (1963-64 TO 1978-79)

The index value of the crop diversification in the State has decreased from 0.75 in 1963-64 to 0.69 in 1978-79 indicating that the cropping system is clearly moving towards crop specialisation.

About 12 taluks of the deltas in the coastal plain did not show any change in their level of diversification because they have reached stability long back.

An increase in the degree of crop diversification is observed in 87 taluks. High increases in diversification is found in 20 taluks distributed mostly in the coastal plain. In the paddy dominated area of the coastal plain, the emergence of cash crops like oil seeds, cotton, tobacco, spices and condiments and fruits have effected diversification of cropping.

Crop diversification has decreased in 90 taluks. A high decrease in diversification has taken place in the newly irrigated areas.

An increase in 'new seed-fertilizer-technology', irrigated farming and intensive agricultural practices have immensely contributed to lessen crop diversification.

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ADDRESS OF THE AUTHORS

Y. V. Ramanaiah
Lecturer, Deptt. of Geography
S. V. University, Anantapur 515 003

N. B. K. Reddy
Deptt. of Geography
S. V. University, Tirupati 517 502