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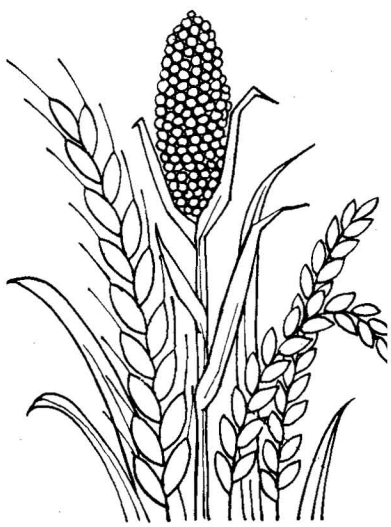

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# PROBLEMS OF ECONOMIC DEVELOPMENT IN TRIBAL AGRICULTURE OF TARAI

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Tarai area of Uttar Pradesh inhabited by the majority of progressive farmers is now well-known for its high agricultural productivity. However, within such agriculture one finds a large section of the population engaged in tribal farming. Tribal agriculture is characterized by low agricultural productivity, completely no response to adopt the new technology, particularly the high-yielding crop varieties, application of chemical fertilizers and almost no investment for having irrigation facilities. This indicates that economic development does not take place at the same rate throughout the economy of an area.

The study of the problems of economic development in tribal agriculture hinges basically on the study of the socio-economic factors which are responsible for low farm incomes and standard of living. An upward shift in the production function and thereby increase in farm income can be brought by use of the new technology through increased investment in inputs like improved seeds, irrigation water, fertilizers and plant protection measures. Whereas, the use of such inputs is common on other Tarai farms owned by settlers—refugees from East and West Pakistan, political sufferers and retired military personnels—the new technology has not diffused in the tribal areas inhabited by the native people.

These issues relate to the social factors which have been responsible for the low capital investment, low income and low savings—vicious circle in tribal agriculture. The related aspects of this vicious circle which may need investigation are the savings and consumption patterns which affect the disposable incomes on tribal farms. This paper attempts to study these problems of economic development on tribal farms of Tarai area with two specific objectives: (1) to study the social factor responsible for non-diffusion of the new technology requiring more capital investment than the traditional methods of farming and (2) to study the income, savings and consumption patterns leading to economic stagnation—low investment, low incomes and low savings—in tribal agriculture.

## DATA AND METHODOLOGY

To fulfil the above objectives, data relating to the farmers' attitude towards borrowing and their income, savings and consumption pattern were collected from 19 tribal and 20 non-tribal farms of Chinain, Bhojpuri, Kewalganj, Lalpuri, Buksaura, Khatola, Mudia and Madnapur villages of the Rudrapur and Bazpur extension blocks of Nainital district for the year 1968-69. The size of holding of these farms varied between 8 and 20 acres.

To test the divergence in attitude towards credit among the tribal and non-tribal farms, Chi-square ($X^2$) test was applied. A $2 \times 2$ independent contingency

Table I was prepared since the number of farmers in the tribal and non-tribal sample was 19 and 20 respectively with almost similar farm size and cropping pattern. Questions such as "to be in debt is bad," "borrowing brings down the social prestige," "borrowing discourages the habit of thrift," "borrowing often becomes a habit," "borrowing induces indiscriminate and lavish spending" and "other family members do not like borrowing" were asked to know the farmers' attitude towards borrowing.

TABLE I—A 2 × 2 INDEPENDENT CONTINGENCY TABLE

| Response | Obtained frequencies | | Both |
|---|---|---|---|
| | Tribal | Non-tribal | |
| Yes .. .. .. | $n_{11}$ | $n_{12}$ | $n_{1.}$ |
| No .. .. .. | $n_{21}$ | $n_{22}$ | $n_{2.}$ |
| Both .. .. .. | $n_{.1}$ | $n_{.2}$ | $n_{..}$ |

$$X^2 \text{ value} = \frac{(n_{11}\, n_{12})—(n_{12}\, n_{21})^2 n_{..}}{n_{.1}\ n_{.2}\ n_{1.}\ n_{2.}} \quad \text{with one degree of freedom.}$$

## EMPIRICAL RESULTS

### (*a*) *Attitudinal Analysis*

The statistical significance of the Chi-square values (Table II) at different probability levels shows that the tribal farms agreed with all the questions, meaning thereby, that they have strong bias against borrowing. The implications of this finding are social rather than economic. That is, in the attitude of the farmers of the tribal communities borrowing is considered to be a social stigma.

### (*b*) *Income, Savings and Consumption Pattern*

Table III shows saving and consumption on tribal farms. Column (2) shows the net saving that accompanies each level of disposable income. Most saving is done by farms with income above the average. Below this, as at Rs. 2,500 or Rs. 2,000, the tribal farms actually consume more than their incomes. Above Rs. 3,000 they begin to have positive saving. Column (3) shows the propensity to consume at each income level.

The findings in Tables II and III support the implicit hypothesis of this paper that economic stagnation on tribal farms is correlated with social and economic factors. Furthermore, this stagnation is primarily due to the non-diffusion of the new technology in the form of improved seeds, use of fertilizers, weedicides and pesticides and irrigation water. Since the tribal people have negative attitude towards borrowing, they have not been able to take advantage of the new techniques of production which require more capital investment than the traditional ways of farming. In addition, because of low income levels, the majority of tribal farms have negative savings.

TABLE II—INCOME, SAVINGS AND CONSUMPTION PATTERN* ON TRIBAL FARMS : 1968-69

(*in Rs.*)

| Disposable income | Savings (+) dis-savings (—) | Consumption |
|---|---|---|
| 500 | —1,390 | 1,890 |
| 1,000 | —1,070 | 2,070 |
| 1,500 | —750 | 2,250 |
| 2,000 | —430 | 2,430 |
| 2,500 | —110 | 2,610 |
| 3,000 | +210 | 2,790 |
| 3,500 | +570 | 2,970 |
| 4,000 | +850 | 3,150 |
| 4,500 | +1,170 | 3,330 |
| 5,000 | +1,490 | 3,510 |
| 5,500 | +1,810 | 3,690 |
| 6,000 | +2,130 | 3,870 |

*The income, savings and consumption patterns were estimated by fitting the following linear regression equation to the basic data:

$$C = 1710.08 + 0.361\ D,\ R^2 = 0.86$$

where

C = annual consumption expenditure (Rs.) per farm,
D = annual disposable income (Rs.) per farm.

TABLE III—FARMERS' ATTITUDE TOWARDS BORROWING TRIBAL FARM: 1968-69

| Sr. No. | Statement | Chi-square values |
|---|---|---|
| 1. | To be in debt is bad .. .. | 8.1046*** |
| 2. | Borrowing brings down the social prestige .. .. | 1.47* |
| 3. | Borrowing discourages the habit of thrift .. .. | 11.32*** |
| 4. | Borrowing often becomes a habit .. .. | 1.37* |
| 5. | Borrowing induces indiscriminate and lavish spending .. | 4.36** |
| 6. | Other family members do not like borrowing .. .. | 8.47*** |

* Significant at 25 per cent probability level.
** Significant at 5 per cent probability level.
*** Significant at 1 per cent probability level.

## CONCLUSION

Non-diffusion of the new technology in the form of use of improved seeds, chemical fertilizers, weedicides and pesticides and irrigation water on tribal farms is due to lack of capital investment which is due to the strong bias of the tribal farmers against borrowing. A majority of the farmers in the tribal areas having less than Rs. 3,000 as annual disposable income consume more than their incomes giving no margin for further investment. However, when incomes are about Rs. 3,300 or more there are positive savings on these farms which may be ploughed back to generate farm incomes.