

INDEPTH STUDY ON THE SURPLUS LEFT WITH RURAL BENEFICIARIES
AFTER MEETING THEIR FAMILY AND FARMING NEEDS

By

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partial fulfilment of the requirements for the degree of :

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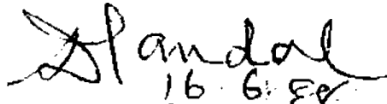
This is to certify that this thesis entitled, "Indepth study on the surplus left with rural beneficiaries after meeting their family and farming needs" submitted for the degree of M.Sc. in the subject of Agricultural Economics of the Haryana Agricultural University, is a bonafide research work carried out by Sh. Rajvir Singh Godara under my supervision and no part of this dissertation has been submitted for any other degree.

The assistance and help received during the course of investigation have been fully acknowledged.

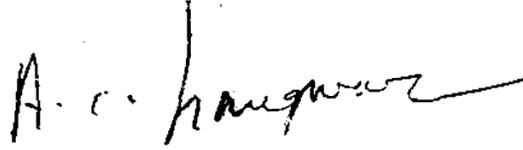

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This is to certify that this thesis entitled,
"In-depth study on the surplus left with rural beneficiaries
after meeting their family and farming needs" submitted by
Sh. Rajvir Singh Godara to the Haryana Agricultural
University in partial fulfilment of the requirements for
the degree of M.Sc., in the subject of Agricultural
Economics, has been approved by the Student's Advisory
Committee after an oral examination on the same, in
collaboration with an External Examiner.


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CHAPTER-ONE

INTRODUCTION

Agriculture is the mainstay of Indian economy. Indian agriculture, which used to be of subsistence nature, not so long ago, is continuously being transformed into a business proposition. This transformation of agriculture has presaged into a trend with the advent of green revolution in the mid-sixties, which has by now spread to some parts of the country (more than 15% of the total cultivable area). Various incentives are being offered to make farming a lucrative enterprise so that the agriculture sector grows faster and generates enough income and surpluses to sustain the tempo of planned development process which was initiated in 1951-52.

The performance of agriculture has been very promising particularly in recent years (1980 onwards). The food production, which was meagre 50 million tonnes in 1950-51 has jumped to 150 million tonnes in 1985-86. Notable feature of agricultural production during recent years was the limited impact of adverse weather during 1982-83 which if it presages in a long term trend, implies a substantial improvement in food security¹.

¹ Government of India, Seventh Five Year Plan, Vol. I, p. 1.

Haryana, which is one of the most flourishing States of India, has become advanced agriculturally owing to the introduction of green revolution, which has, by now, spread almost to the entire State. The agricultural production has gone up from 25.92 lac tonnes in 1966-67 to 81.46 lac tonnes in 1985-86. The State contributed 35 lac tonnes of food grains to the central pool in 1985-86. But the share of agriculture in the State's domestic product has decreased from 65.74 in 1966-67 to 44.82 in 1985-86 notwithstanding the increase in the contribution of agriculture from Rs.355.44 crores in 1966-67 to Rs.2392.85 crores in 1985-86 in State domestic product in absolute terms.

The State has successfully exploited its agricultural potential through the operation of different schemes/ programmes meant to benefit the farmers. The State and the farmers are incurring huge expenditure and investment for agricultural development. This has raised agricultural output, farmers income and their standard of living substantially. In the transformation process, it is important to examine the changing pattern of income, investment, expenditure and savings of farming community. It may provide useful indicators for the planners and policy makers to sustain agricultural development process with desired level of social justice. Now doubts are being raised about the fair and equal distribution of gains of new farm technology among

the farming community. Of late it has also become doubtful whether the rate of agricultural development can be sustained at the desired level. It is, therefore, important not only to observe the concentration of income and expenditure of farming community but also the savings left over with different categories of farmers after meeting their needs.

The economists have given much heed, in the past several decades, to the estimation of savings behaviour in high income countries. This has led to the development of several useful theories about saving behaviour in these countries. Only recently, however, some studies have been conducted in low income countries to this effect. The paucity of and deficiencies in data has come in the way of application of new and useful theories of saving behaviour to the rural households. This is due to the fact that farmers do not maintain any farm and household records. Those who engage themselves in this task of gauging rural household saving behaviour have to depend either on information collected about current income from farmers through personal interviews or on fragmentary cross-section information which may throw some light on rural savings behaviour.

Institutional credit agencies have to play an important role in the modernisation process of agriculture. However, these agencies need to be self-reliant through

effective collection of public deposits in order to take developmental activities without any financial bottlenecks. Also the urgency of raising financial resources of institutional credit agencies assumes added significance to provide protective cover against mounting overdues and also in view of the recent stipulation of minimum involvement of own resources of co-operatives for short term agricultural lending operation by the National Bank of Agriculture and Rural Development (NABARD)¹.

The aggregate saving rate of Indian economy from meagre 7.0 per cent in 1950-51 has gone upto 23.3 per cent in 1984-85 which gives encouraging picture for effective deposit mobilization. However, disaggregated data on returns and regional rural income and saving series are not available to indicate saving potential areas and potential depositors in rural areas. The availability of such information with institutional credit agencies is quite essential to plan for effective deposit mobilisation. These institutions need to take into consideration the socio-economic characteristics of farming/rural households interface with their income, savings and expenditure pattern.

¹ Report of the Study Group on "Norms for Involvement of Resources by State and Central Co-operative Banks in Agricultural Lending" Bombay: National Bank for Agriculture and Rural Development 1984.

Objectives

This study assumes new importance by way of empirically analysing the effect of new farm technology on income, expenditure and savings of farming community in an area where agriculture is moving moderately towards modernisation in one district of Haryana State. Specifically, the main objectives of the present study are as follows:

1. To estimate the current incomes of rural beneficiaries.
2. To estimate farm expenditure of the beneficiaries.
3. To estimate family consumption expenditure, and then,
4. To estimate the surplus left with them after meeting their needs.

CHAPTER - TWO

REVIEW OF LITERATURE

Only very few studies have been conducted to determine the farm saving behaviour in India and abroad. During the past one and a half decade, the economists- the agricultural economists in particular, have tried to estimate the farm saving behaviour in developing countries. The farm savings have been estimated by direct (income method) as well as indirect (asset accounting method) methods. An attempt has been made to review here critically the research studies conducted in India and abroad pertaining to income, expenditure and saving behaviour of farm households.

Kelley and Williamson (1968) provide an explanatory analysis of household saving behaviour in the Jogjakarta region of Indonesia (1958-59). It tries to examine the impact of occupation and source of earnings on savings. Life-cycle formulations are also investigated. The average saving ratio for entire Jogjakarta sample is only 1.6 per cent, but the range between occupational groups is large. The farmer, the government employee, and the urban wage-earners are found to be all negative savers, while the trader-craftsmen and the owner of business have average saving ratio of 7.5 and 5.8 per cent, respectively. A considerable variation within the farm class is found owing to its heterogenous nature.

Panikar (1970) from the analysis of some family budget studies in three widely dispersed regions of the country

showed that the gross rural savings ranged from 8 per cent upward of gross income per family. It was found that rural families have a higher propensity to save than their urban counterparts which lie in same income strata. A high degree of concentration of rural savings among the cultivating families, and among the 'big cultivators' in particular was observed. It was noticed that bulk of rural savings was invested by savers directly in their household enterprise and almost the entire in farm assets, especially land, buildings, etc.

Rask and Danny (1971) estimated a saving potential ranging from seven to fifty per cent of the net incomes of over 800 farm families in Southern Brazil.

Chauhan et al. (1972) studied the saving-investment behaviour of small farmers in Sangli district of Maharashtra. Some of the farmers selected were covered under 'Integrated Area Development Scheme (IAD)' and others were non-participants. They found that the average income of those small farmers who did not participate in IAD scheme was Rs. 3356.20. They found it to be significantly higher than the average income of the participants which was over Rs. 2800. This was due to the fact that farmers selected under the scheme were precisely the poorest among the small farmers. They also found that income-either absolute or relative is the single most important factor influencing

savings and consumption behaviour. As much as 63 per cent of variation in savings of participants was explained by variation in absolute or relative income, whereas it explained 66 per cent of variation in savings of the non-participants. The marginal propensity to save of the participants was about 34 per cent and of the non-participant it was found to be about 42 per cent.

Nandal (1972) attempted to study the extent of disparity in income and savings of progressive farmers in Haryana. A sample of demonstration farms was taken up for the purpose. A considerable variation in saving existed among the progressive farmers in all years covered by the study. The net saving ratios showed that the average saving-income ratio increased with increase in farm size, level of mechanisation and formal education of the head of the family. The marginal propensity to save was found to be about 34 per cent. The income elasticity of savings was obtained as 3.25 implying that one per cent rise in farm family income increased savings by 3.25 per cent. It was concluded that the new prosperity in agriculture had salutary effect on the propensity to save and invest among the progressive farmers of the State of Haryana.

Mikesell and Zinser (1973) reviewed the studies relating to savings in developing countries where they found no consensus in support of any of the major hypotheses formulated (and tested) for developed countries. They found

that most of the studies showed the average saving rate was positively related with the rate of growth of GNP. The validity of tests of income-saving relationship is impaired by the absence of reliable information on savings behaviour of households by income class and by type of saving.

They also found substantial agreement among the investigators that saving in developed countries was negatively related to net capital imports, and that measured saving was responsive to changes in the real rate of interest. They found no consensus on the effects of taxation on aggregate savings but this relationship undoubtedly varied among governments with different tax structures and fiscal policies. One general conclusion they gained from the studies was that aggregate saving was a function of a number of independent variables which together with saving propensities determined the course of economic development. Nevertheless, greater knowledge of saving propensities of different categories of transactors, e.g. households, private corporations, farmers, and unincorporated urban firms, was highly desirable for policy guidance in the areas of taxation, interest rate policy and financing policies generally.

Tuan (1973) estimated growth rate's of 22 per cent of farming saving from current cash income in the year 1969-70 from farm records, in a study of determinants of financial

savings in Taiwanese farmers' association.

Ong et al. (1976) provided information on rural household savings and some of its determinants in Taiwan during the 1960s. The household data from a farm record-keeping project were used in the study. Saving capacities were estimated through income-consumption relationships. Average propensity to save was found to increase with increase in farm size. In other words, average propensity to save increased with increase in income. The voluntary savings per farm family in Taiwan from 1960 to 1970 were estimated to increase from 13 per cent in 1960 to 28 per cent in 1968 followed by a decline to 12 per cent in 1969, and then an increase to 20 per cent in 1970. They concluded that very large voluntary rural saving capacities emerged in rural Taiwan during the 1960s.

Kalla (1977) estimated an average 17 per cent of saving of net farm family income of a sample of 140 farm families in Udaipur district of Rajasthan. The marginal propensity to save of sampled farm households was found to be 16 per cent. The direct as well as indirect methods of measurement of savings were used in his study.

Lluch et al. (1977) used time-series and cross-section data from a total of 26 countries spanning the development spectrum to investigate demand and savings pattern. It was concluded that the marginal propensity to save was markedly

larger for the farmers than ^{for} other socio-economic groups identified in the study-workers, urbanities, etc. Estimates based on cross-sectional data for farm household's indicated a marginal propensity to save as 0.54 in Korea and 0.75 in Yugoslavia. It was argued that the rural households as a whole exhibited savings responses very similar to those for urban households. The relative instability of farm income and permanent income hypothesis of consumption behaviour have been argued to jointly imply that the marginal propensity to save out of the current income was likely to be higher for farmers than for other socio-economic groups considered in the study. The basic tool in this study to model household decisions on savings was a single linear demand system with current disposable income and prices as explanatory variables.

Adams (1978) reported that substantial voluntary rural household savings capacities exist and that household savings were strongly influenced by rural financial markets. Development from below in his opinion was the only way to reach rural poor effectively. He outlined a saving programme, which might be the first step in a bootstrap approach to rural development in low income countries, which would stimulate rural poor to increase their own capital base, provide a more healthy environment for local organisation (to grow and allow local financial institutions to integrate) with national financial markets. He propounded that current

financial market policies in most less developed countries were an unmitigated disaster for most rural poor.

Suggestions were made for making policy adjustment so that rural poor could be more fairly treated by this most important instrument of rural financial markets.

Hyun et al. (1979) studied the savings behaviour of rural households in South Korea from 1962 to 1976. Their study arrived at two important conclusions. The first was that farm households in South Korea had saved voluntarily a remarkably large part of their incomes since the early 1960s. During the late sixties these households saved, on the margin, about one-fifth of their transitory incomes. The second conclusion was that useful measures of permanent and transitory incomes could be estimated from cross-section data and that these estimates could be helpful in understanding of saving behaviour. The results of their study are optimistic about mobilising voluntary rural savings in low income countries. Spurts in income may result in household incomes with significant transitory components which were highly susceptible to saving opportunities and incentives.

Shetty and Menon (1980) examined the economic growth vis-a-vis high rates of savings and investment. The rate of growth, during the period they covered, was below what the high rates of savings and investment would lead one to expect. They concluded that somewhat increase in domestic savings could

be due to extraneous factors like compulsory deposits and foreign inward remittances. Further, it was very likely that these savings had been absorbed by unprecedented increase in the financial costs of projects, whether in the agricultural sector or in the industrial sector. To this extent the economic system had failed to take advantage of the increased domestic savings. The present situation, they argued, was one where for want of effective demand for final goods - investment goods and mass consumer goods - the growth movement was contained.

Chase and Lerohl (1981) provided estimates of the economic well-being of Canadian farmers in aggregate and by provinces. Economic well being was measured by using the notation: Economic Well-being = $A(NW) + Y$, where A is the annuity formula, NW is total assets minus liabilities and Y is total money income (independent of assets). By using this approach, it was concluded that the economic well-being of the Canadian farmers had improved in real terms since 1967. However, the disparity in measures of well being among the provinces is found to have increased. Off-farm income and annuities of net worth seem to have increased in importance, relative to economic well-being measures, though at different rates in different provinces.

Krishna and Raychaudhuri (1982) reported on trends in a) rural household savings, b) net capital formation in agriculture and c) the growth and composition of tangible net

wealth in rural India during the -year period 1950-51 to 1973-74. They concluded that the general level of rural, cross-section savings/investment ratio varied between 10 per cent and 44 per cent which was clearly higher than the all-India time-series ratios which were of the order of 3 per cent. They reported that in the better-irrigated, more rapidly innovating regions, savings/investment rates tended to be higher than in the country as a whole. In spite of high saving/investment rate in some regions, the all-India saving/investment rate remained low because the poorer, drier, and less dynamic regions dominated it. According to them the technological improvement after the mid-sixties was the basic explanation of the rise of saving rate overtime after the mid-sixties.

Mody (1983) concluded that real saving rate had shown no perceptible secular tendency to rise during the last two decades (1961 to 1978). The saving rate has remained 8 to 9 per cent. Within the rural households, agricultural households have had a slightly higher saving rate. The capacity of rural households to save had clearly been limited. The economy-wide savings rate being significantly higher than the rural rate and had also been growing. There could be probably good reasons for a non-growing rural savings rate. The relatively steady rural savings rate was consistent with an almost stationary rural per capita income.

Also, at the all-India level, there was no acceleration in production during the last two decades (covered by the study).

Kumar et al. (1984) analysed the determinants of savings and capital formation in the farming sector. Specifically, their study examined the impact of terms of trade, and rural savings on the overall capital formation in farming, and also the impact of terms of trade and income on rural savings. The terms of trade and income were found to influence the level of savings. It was revealed that the terms of trade did not affect the rural savings in the 'pre-green revolution' period. However, the terms of trade factor was found to have a significant impact on level of rural savings in the 'post-green revolution' period. The terms of trade factor had an adverse effect on the rural capital formation in the 'pre-green revolution' period. However, the rural saving was the important factor determining the level of capital formation in the 'post-green revolution' period. The saving also contributed towards capital formation in the 'pre-green revolution' period.

Rao and Kumar (1984) showed that the marginal propensity to save and average propensity to save of rural household sector are 0.39 and 0.16, respectively. They found substantial evidence in current income playing a very important role in accounting for variations in saving. The strict version of Friedman's hypothesis did not appear to be

valid, though there existed a permanent income type of problem. The study also provided good evidence for the presence of "Pigou effect" and substantial support to Katona's habit persistence hypothesis. The interaction between income and wealth was found to be significantly different for professional and clerical groups from that of administrative groups. The same was true for matriculates as compared to illiterates. Interaction variable was significant for other groups classified by tenurial status and age. An unusual behaviour was observed in the case of postgraduates. The general behaviour of home-owners was observed to be different among the age group 30-59 households from that of below 30 and above 60 years age groups. They found an inverse relationship between level of saving and size of the household in rural India.

Saran (1984) analysed some of the major determinants of rural savings in India. Some of the factors were found to influence savings in a positive manner while others in a negative manner. Income was found to affect the saving in a positive direction. The saving income ratio in higher income brackets was not only large, but larger than those in the urban sector. The difference between actual wealth and normal wealth when sufficiently large people were tempted to save during their earning years to maintain their consumption standard during old age, the emergence of transitory income

facilitated savings. Low level of education and high dependency ratio tended to pull the savings downward.

Borah (1985) attempted to study the behavioural inter-relationships between income consumption, expenditure, savings and investment in rural areas of Assam. It was argued that for a study of household savings and expenditure in rural areas, it was the total income received by the households rather than the disposable income that could be more important. The arguments were based on the study of data from three villages of Assam. It was observed that the per household income from agriculture increased as the farm size increased although the increase was not proportionate. About 79.46 per cent of the variations in output were explained by variations of farm size. In general, a positive relationship was found between family size and annual income of the household, of course, with few exceptions. A relatively strong relationship between investment and income from all sources was also observed.

Lund and Derry (1985) attempted to identify the effects of various household characteristics - location (both country/region and type of area), income, household composition, age of housewife, housing tenure and freezer ownership on household food consumption. The results indicated that all the above said variables were important in the explanation of household's food consumption pattern. The

study also indicated that the relatively high (per capita) household food consumption and expenditure of some households could be explained by their associated characteristics (small household size, few children, few meals, etc.).

Pavaskar and Dhamodivala (1985) in their survey on agricultural savings concluded that the marginal propensity to save of the farm households was significantly high (between 0.64 and 0.72 in their case) for all income classes above Rs. 25,000, except for the income class of Rs. 1 lac to Rs. 1.5 lac. This testified to the fact that the affluent agricultural households value savings as much as, if not more than, their counterparts elsewhere, they claimed. Thus, they argued that growth in agricultural incomes had a beneficial impact on savings. They used the simple accounting technique in their study.

Henry (1986) tried to examine the variation of cost with farm output (and farm size) in a number of LDC's, in order to appraise the possibilities of land redistribution from large to small farmers. This question was addressed with respect to rice sector in Guyana. It was concluded that there existed significant economies of scale in rice production. These were found to diminish with increase in gross-output and value-added. A farm size of roughly 13 hectares was found to give optimal rice yields. All farm size above 13 hectares were inefficient and hence could be redistributed.

Kamaiah and Naidu (1986) tried to bring into focus the differences and similarities in respect of coverage, procedures, methods and approaches used by organisations like Reserve Bank of India, National Council of Applied Economic Research (NCAER) and other independent research institutes in compiling and generating data on savings in India. They also discussed some conceptual issues such as problem of measurement of consumption, inclusion of durables in savings, nature of currency component and contractual savings and investment in human capital. Their arguments were in the nature of a general review and no concrete conclusions had been arrived at.

Muzumdar and Menon (1986) presented an analysis of trends in savings and capital formationⁱⁿ the rural sector. They noted that the net-saving-rural income ratio tended to decline from 2.4 to 2.02 during the decade ending 1961-62; the ratio, however, improved steadily thereafter to reach 3.78 by 1966-67. In the early seventies the ratio rose significantly touching an all-time high of 4.10 in 1972-73. Even this level is^{below} what Arthur Lewis has characterised as the typical indicator of a backward economy. The saving-income ratio of household sector increased smoothly, on an average, from 10 per cent in the sixties to 14 per cent in the seventies. However, the savings of the rural households in relation to GDP recorded a much smaller rise from 4 per cent

in the sixties to 5.5 per cent in the seventies. The relative contribution of rural savings to aggregate savings of the household sector, as a whole, decreased from 37 per cent in 1972-73 to 21 per cent in 1978-79. They concluded that the prospects for improving the rates of savings and capital formation have brightened with the implementation of programmes such as IRDP, MNP, NREP, RLEGP, etc. in recent years specifically tailored to strengthen the socio-economic infra-structure of development in rural areas to ameliorate rural poverty and to narrow down regional disparities.

In the developing countries, the propensities to save have been found to be substantial. The rural saving behaviour of rural households in these countries have been estimated by using theories of saving behaviour developed in the advanced economies of the world-either by slightly modifying the theories or by adding few other variables to these models. The saving capacities have been measured by using income method or asset accounting method. The asset accounting method of measurement of savings is tedious owing to scanty information on related aspects in the developing countries.

CHAPTER - THREE

METHODOLOGY

I

The study is confined to Bhiwani district where the first Regional Rural Development Bank was opened in the State on October 2, 1975 even though the district is not an agriculturally advanced part of the State. The study is based mainly on primary data sources. Nevertheless some secondary data from published and unpublished documents of Bhiwani district have been collected and used in the study. A three stage stratified random sampling technique has been adopted for drawing the sample respondents in order to collect primary data for the study. The three stages of sampling consisted of i) the selection of blocks, ii) the selection of sample villages and iii) the selection of beneficiary households- the ultimate sample unit. A detailed procedure of sampling is explained below:

a) Selection of blocks

The first stage of sampling procedure involved the selection of blocks. There are eight blocks in the district namely Bhiwani, Bawani Khara, Loharu, Tosham, Charkhi Dadri I, Charkhi Dadri II, Badhra and Siwani. Out of these, Charkhi Dadri II and Bhiwani blocks were randomly selected for the study.

b) Selection of villages

The second stage of sampling procedure deals with the selection of villages. A complete list of villages in the two selected blocks was prepared. From the list of villages

of each block, three villages were randomly selected from each of the two blocks for the study. The selected villages were i) Chapar, ii) Dhoki and iii) Pantavas from block Dadri II, and iv) Prem Nagar, v) Nimriwali and vi) Kitlana from Bhiwani block.

c) Selection of respondent beneficiaries

The beneficiaries were those account holders in different credit institutions covering the selected villages who were advanced loans by these credit agencies. An effort was made to prepare a complete list of beneficiaries of credit institutions in respect of each of the selected villages even though credit institutions are supposed to maintain the secrecy of the names of the beneficiaries. From this list, a total of 100 beneficiary households were randomly selected from six selected villages. Village-wise break up of sampled beneficiaries was 20 each from two villages Chhapar and Kitlana and 15 each from the other four villages - Dhoki, Patanwas, Prem Nagar and Nimriwali. The beneficiaries were classified into three categories viz., small, medium and large, on the basis of the size of their operational holdings. The beneficiaries whose operational holdings not exceed 5 acres, 5 to 10 acres and above 10 acres were characterised as small, medium and large farmers, respectively.

Collection of primary data

The data on income and expenditure of selected beneficiary households were collected through personal interview with them and ^{through} discussion. A comprehensive schedule was developed and canvassed to the sample households to elicit the required data for the study pertaining to agricultural year 1986-87. The schedule sought information on farm family income from different sources say crops, dairying and other livestock, service, business, remittances and other miscellaneous sources, farm family expenditure including farm expenditure, domestic consumption expenditure and other adhoc expenditure on miscellaneous items. The difference between the current farm family income and current farm family expenditure provided the information on the magnitude of saving or dissavings for the respondents.

Analytical tools

The primary data collected from the respondents were mainly subjected to tabular analysis of averages and percentages to fulfil the stated objectives. However, the Lorenz curve and Gini concentration ratios have also been used to see the concentration of land holdings, farm family income and expenditure. Gini concentration ratio is used to indicate the relative distributional inequality.

Gini concentration coefficient can be viewed in terms

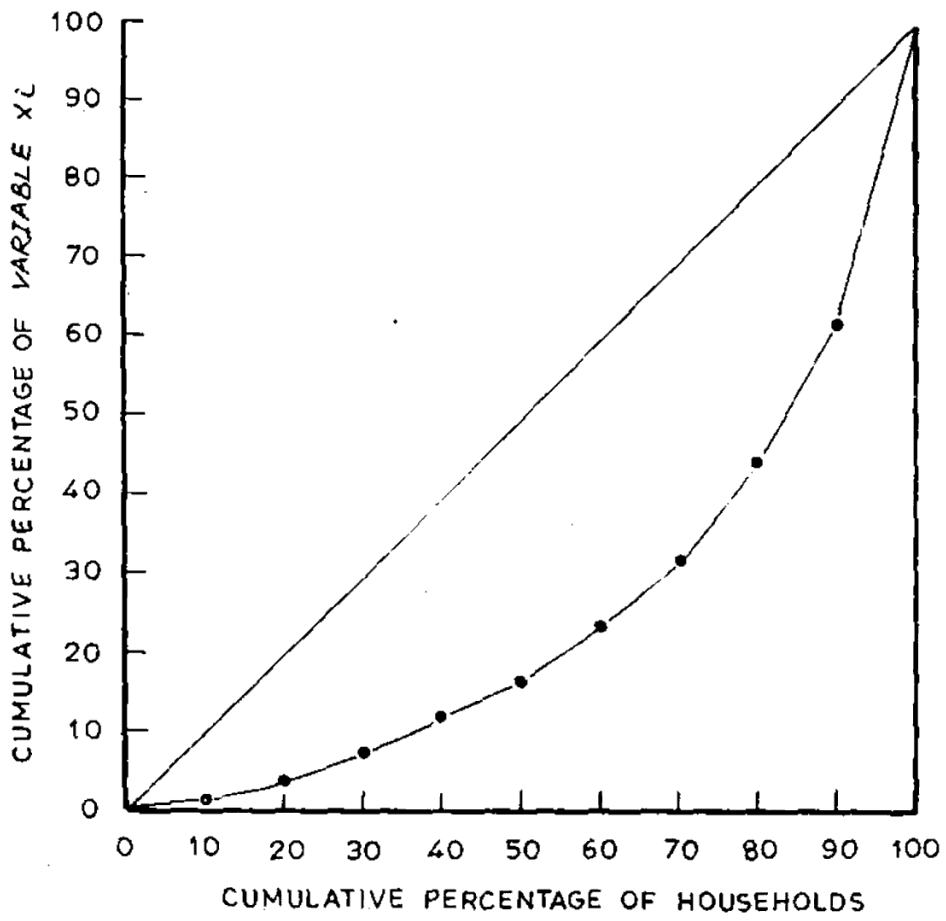


Fig. 3.1 LORENZ CURVE

of Lorenz curve where the percentage of the population units arranged in income classes from the poorest to the richest are shown on the horizontal axis and the percentage of income/expenditure, or any other variable, of each percentile group is shown on the vertical axis. When each population unit has the same percentage of income, the Lorenz curve will coincide the diagonal showing that income is distributed with perfect equality. In case, there is inequality in the distribution of income, the Lorenz curve will lie below the diagonal (Fig. 3.1). Severe the inequality, the farther away will be the Lorenz curve from the diagonal. Gini concentration coefficient is, then the ratio of the difference between the diagonal and the Lorenz curve to the region underneath the diagonal. If area inside the Lorenz curve is A and that outside the Lorenz curve is B, then Gini concentration coefficient is $A \div (A+B)$.

Gini coefficient is exactly one-half of the relative mean difference - arithmetic average of the absolute values of differences between all pairs of a variable, here, x_i . Equation for the Gini coefficient is derived as follows:

$$G = \left(\frac{1}{2n^2u} \right) \sum_{i=1}^{i=n} \sum_{j=1}^{j=n} (x_i - x_j) \dots \dots \quad (1)$$

$$G = 1 - \left(\frac{1}{n^2u} \right) \sum_{i=1}^{i=n} \sum_{j=1}^{j=n} \text{Min}(x_i, x_j) \dots \dots \quad (2)$$

$$G = 1 + \frac{1}{n} - \left(\frac{2}{n^2 u} \right) (x_1 + 2x_2 + \dots + nx_n) \dots \quad (3)$$

for $x_1 \gg x_2 \gg \dots \gg x_n$

The value of Gini concentration coefficient (GCC) is bounded by zero and one. Zero value of GCC shows perfect equality in income distribution. On the other hand, when GCC is one, there is perfect inequality in income distribution. The higher the value of GCC more the disparity in the distribution of income. Equation (3) is used to measure the extent of inequality in the distribution of income/expenditure.

II - GENERAL CHARACTERISTICS OF THE BHIWANI DISTRICT AND THE SAMPLE HOUSEHOLDS

In this section, a broad view of the Bhiwani district along with the socio-economic background of the sampled household is presented.

3.1 General characteristics of the Bhiwani district

Bhiwani district has four subdivisions - Bhiwani, Loharu, Charkhi Dadri and Siwani; five tehsils - Bhiwani, Bawani Khera, Loharu, Charkhi Dadri and Siwani and eight blocks - Bhiwani, Bawani Khera, Loharu, Tosham, Charkhi Dadri-I, Charkhi Dadri-II, Badhra and Siwani. The district spans an area of 5099 sq. km and has a population of the magnitude of 9,20,052 (according to 1981 census) out of which 83.98 per cent of the population live in the rural area

The average size of operational holdings was 4.09 hectares in 1980-81. The number and area of operational holdings by size groups in Bhiwani is given in Table 3.1.

Table 3.1: Number and Area of Operational Holdings by Size Groups in Bhiwani: 1980-81

S.No.	Size group (ha)	Number	%	Area (ha)
1.	0-2	44513	45.2	42718
2.	2-5	22702	23.1	69976
3.	5-10	19136	19.4	124447
4.	10-30	11633	11.8	148112
5.	Above 30	392	0.5	16723

Source: Statistical Abstracts of Haryana 1985-86.

Table 3.1 shows the extent of inequality of operational holdings in the Bhiwani district. A very large chunk of the population of district owns operational holdings of smaller sizes which are generally fragmented and thus, invariably, economically nonviable. The proportion of the population in the size group 0-5 hectares, i.e. 68.32 per cent has only 28.04 per cent of operational holding whereas only 31.68 per cent of population which owns above 5 hectares of operational holdings cultivates 71.96 per cent of the operational holdings. This pattern of distribution of operational holdings quite obviously triggers the inequality in the distribution of income. In the rural areas, this is primary factor which determines the extent of inequality of distribution of income and other assets. The inequality in the distribution of operational holding has increased over the years even after the carrying out the land reforms. ... land is gradually passing on to a new class of large farm entrepreneurs, ... particularly in agriculturally advanced regions of Punjab and Haryana. In 1970-71 in Punjab (including Haryana), even though only 9 per cent of households did not own any land, as much as 54 per cent did not cultivate any land... shows that inequality in the distribution has increased unambiguously between 1960-61 and 1970-71.¹

¹ Bardhan, P.K. (1984). Land, labor and rural poverty. Oxford Univ. Press, Oxford. p.46

3.2 Socio-economic background of the sampled households

3.2.1 Population structure

The population structure of the sampled households is given in the Table 3.2. It shows that the proportion of the population above 15 years of age is about 57.34 per cent. This segment is generally the productive constituent of the population. The proportion of the population in the age group below 15 is 42.66 per cent. This segment is unproductive and depends, for its consumption needs, on the productive segment of the population.

The ratio of adult male population is 32.96, of adult female population is 24.38 per cent, of the total sampled population. The ratio of the population in the age group of 8 to 15 is 24 per cent, and that of the age group below 8 is 18.66 per cent of total population of the sampled households. The proportion of the population of the sampled households which is employed outside is 6.34 per cent. This segment is a source of income for the household and generally does not depend on the household for the consumption needs. The proportion of college-going members in the population of the sampled households is only 2.24 per cent. This segment depends on the productive group for its consumption and other needs. Thus, about half of the population of the sampled households is unproductive.

Table 3.2: Population Structure of the Sampled Households

Particulars	Number	Percentage
Male } Above 15	265	32.96
Female } Above 15	196	24.38
8-15 } below 15	194	24.00
<8 } below 15	150	18.66
Above 15	461	57.34
Below 15	344	42.66
Members employed elsewhere	51	6.34
College-going members	18	2.24
Total	805	100.00

3.3 Distribution of operated area among the sampled households

The distribution of operational holdings among the sampled households is highly skewed. About 80 per cent of the households own only 43.87 per cent of the total operated area of the sampled households. On the other hand, only 10 per cent of the households own over 39.78 per cent of the operated area of the sampled households. In view of such uneven distribution of operated area, the inequalities of income among the households are bound to occur. The distribution of operated area in Haryana (and Punjab) is highly skewed even in the face of land reforms which have been carried out in the State.

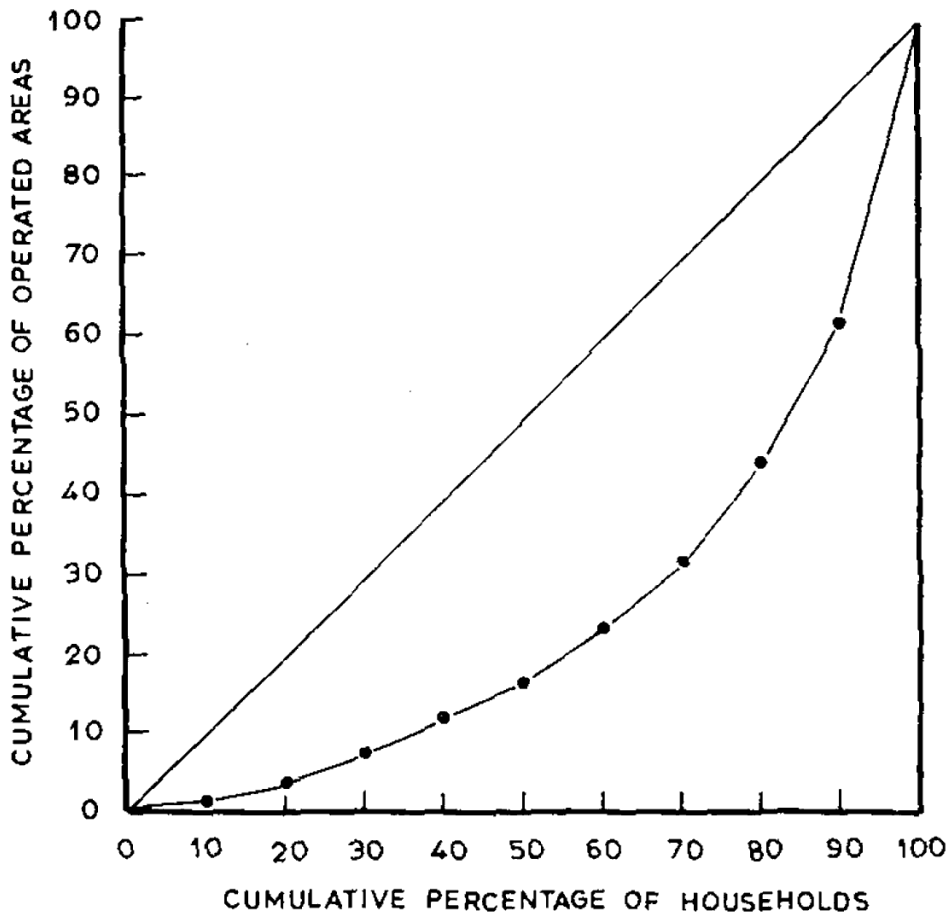


Fig.3.2 LORENZ CURVE FOR DISTRIBUTION OF OPERATED AREA AMONG THE SAMPLED HOUSEHOLDS

Table 3.3: Distribution of Operated Area Among the Sampled Households

Cumulative percentage of households	Cumulative percentage of operated area
10	1.20
20	3.70
30	7.27
40	11.64
50	16.63
60	23.23
70	31.61
80	43.87
90	61.12
100	100.00

CHAPTER - FOUR

RESULTS AND DISCUSSION

This chapter contains the main results of the present study. We discuss below the magnitude and distribution pattern of farm family income of respondents, the expenditure incurred on farming and allied activities; the consumption pattern and savings of the selected households.

4.1 Current income of the beneficiary households

Income sources have been categorised into three groups namely, (i) the crop sector, (ii) livestock/dairying and (iii) non-farm activities and miscellaneous sources. A brief description of each source is given below:

Income from the crop sector

The imputed value of total product-main- and by-products of crops produced at the farm that were consumed at home and value of the product sold in the market less cost A_2 accounted for the income from the crop sector for the beneficiaries. In other words, it is the farm business income from crop farming.

Income from livestock/dairying sector

Livestock is the next important source of income after crop farming for rural households. Dairying is the most important livestock activity of farming households. The imputed value of milk and milk products produced at the farm that was consumed at home and value of milk and milk products sold less expenditure on milk products. Feed

cost, cash and hire charges for labour and other expenses for the upkeep of other livestock were deducted from the gross income for other livestock if any.

Income from non-farming activities and miscellaneous sources

The income from services rendered by the family member(s), the pension received by the family member(s), the remittances by other family member(s) serving out of the farm, income from renting out of a piece of land, building, draft animals and all kinds of machinery etc., income from any household enterprise and income from gifts etc. are included in this group of income source.

4.1.1 Sources of the current income of the beneficiaries

The respective share of the current income of the beneficiaries from different sectors is given in Table 4.1.1.

Table 4.1.1: Average Current Income from Various Sources

Category	Crops (Rs.)	Livestock/ dairying (Rs.)	Non farm & misc. sources (Rs.)	Total (Rs.)
Small	4327.82 (51.96)	1129.11 (13.56)	2871.63 (34.48)	8328.56
Medium	9200.78 (65.75)	1951.16 (13.95)	2841.20 (20.30)	13993.14
Large	17468.55 (73.56)	2181.33 (9.18)	4098.80 (17.26)	23748.68
All beneficiaries	9619.69 (66.23)	1660.81 (11.43)	3244.44 (22.34)	14524.94

Note: The figures in the brackets indicate the percentages.

Table 4.1.1 reveals that crop sector contributes the highest share of the current income of the household for all categories of households. On an average crop sector accounts for 66.23 per cent of the total income followed by the non-farming and miscellaneous sector (22.34%) and livestock/dairying (11.43%). The close examination of the table also reveals that as the farm size increases, so does the share of crop sector's contribution to the households' current income. On the other hand, the share of non-farm income declines with the increase in farm size. The break-up of non-farm income has not been furnished for individual non-farm activities providing supplementary income and employment opportunities to the farming community because the number of reporting households for the individual non-farm activities is small. However, non-farm income constitutes more than one third of the farm family income for small farmers. They derive non-farm income mainly from salaries, pensions, remittances, sale of labour etc. Livestock particularly dairying constitutes the single most important source of non-farm income for almost all types of farmers because almost all farmers of different farm sizes have some milch cattles. Therefore, sale of livestock milk and milk products has been taken as a separate source of income. The relationship between farm size and relative share of livestock/dairying in current income appears to be negative

but not monotonic. Thus livestock constitutes a major form of non-land farm assets for smaller farmers which provide them a regular source of income.

The crop sector contributes 51.96 per cent, livestock/dairying 13.56 per cent and non-farm miscellaneous sources 34.48 per cent of the current income of small beneficiary households. The medium beneficiaries get 65.75 per cent of the current income from the crop sector, 13.95 per cent and it from livestock/dairying and 20.30 per cent of it from non-farm and miscellaneous activities. The crop sector, the livestock/dairying and non-farm and miscellaneous sources contribute 73.56 per cent, 9.18 per cent and 17.26 per cent, respectively, of the current income of large beneficiaries. Thus smaller a farm size, more diversified are the sources of income.

4.1.2 Per capita current income

The per capita current income as well as per capita farm business income of beneficiary households was also worked out (Table 4.1.2). The per capita farm business income of beneficiaries was 1194.99 rupees while the per capita current income was of magnitude of Rs. 1804.34. The per capita current income of small beneficiaries was lowest while those of large beneficiaries were found to be highest. The per capita farm business income and per capita current income of small farmers were Rs. 689.54 and Rs.1327.74, respectively.

While the medium farmers enjoyed Rs.1122.05 and Rs.1706.48 per capita income, respectively. In case of the large farmers per capita farm business income and current income further increased to Rs.1631.37 and Rs.2272.25, respectively. The average family size for small, medium and large farmers households was 6.27, 8.20 and 10.45, respectively showing a direct relationship with farm size. But current income had much more stronger positive relationship with farm size as compared to family size. Therefore, per capita income increased with the increase in farm size.

Table 4.1.2: Per Capita Current Income and Per Capita Farm Business Income of Rural Beneficiary Households

Category	(Rupees)	
	Per capita farm business income	Per capita current income
Small	689.94	1327.74
Medium	1122.05	1706.48
Large	1671.37	2272.25
All beneficiaries	1194.99	1804.34

4.1.3 Concentration of the total current income of beneficiary households

The information regarding the concentration of the total current income of the household is contained in the Table 4.1.3. The perusal of the table reveals that bottom

10 per cent of the beneficiary households share only 2.48 per cent of the total current income of the beneficiaries, whereas the highest share of income, i.e. 22.65 per cent is enjoyed by the top 10 per cent of the households. Moreover, the bottom 50 per cent of the households are having only 26.95 per cent share of the total current income of the rural beneficiaries. The Gini coefficient to show the extent of inequality of distribution of the current income of the beneficiary households was found to be 0.3182. This extent of inequality can be, to some extent, explained by the fact that land, which is the main productive asset of the rural community, is unequally shared and also by the fact that as the farm size increases, in general, so does the household income.

Table 4.1.3: Distribution of Total Current Income of Rural Beneficiary Households

Cumulative percentage of beneficiary households	Cumulative percentage of total current income
10	2.48
20	6.86
30	11.95
40	18.67
50	26.95
60	36.48
70	47.53
80	61.31
90	77.34
100	100.00

$$G_{ci} = 0.3182$$

Where G_{ci} = Gini coefficient of distribution of current income of the beneficiaries.

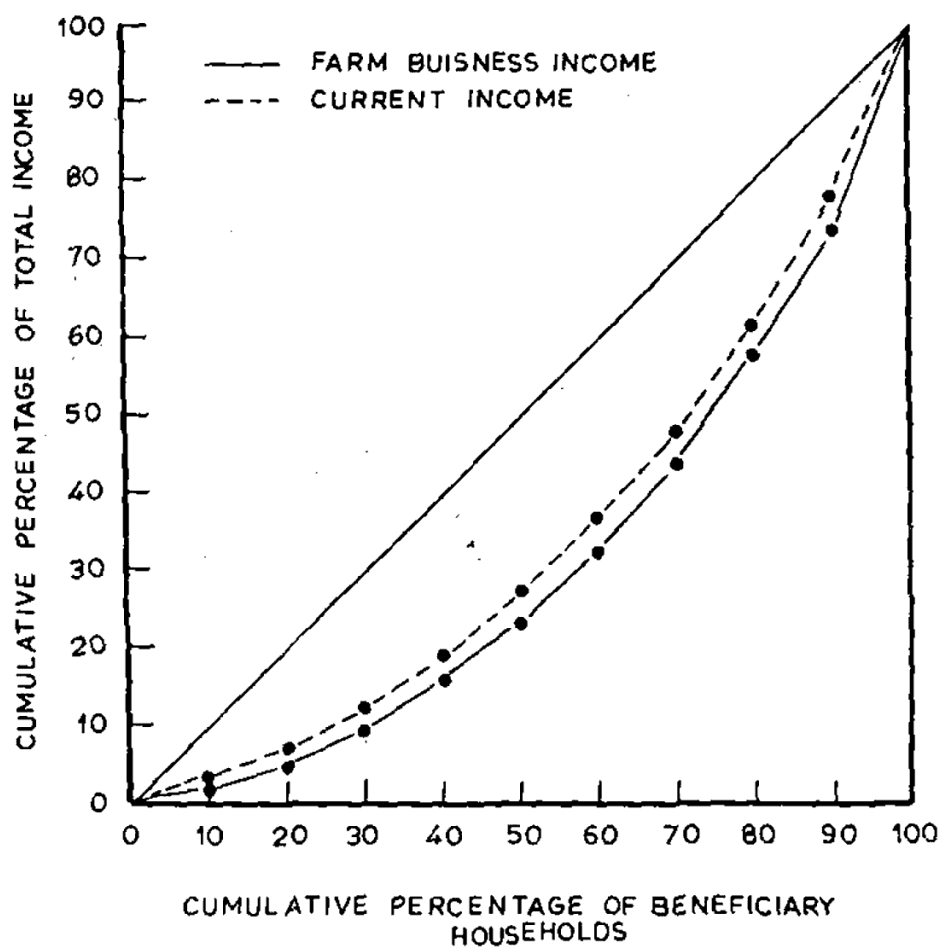


Fig.4.1 LORENZ CURVE FOR DISTRIBUTION OF TOTAL CURRENT INCOME AND FARM BUISNESS INCOME OF RURAL BENEFICIARY HOUSEHOLDS

4.1.4 Distribution of farm business income

The farm business income is the most important source of current income of the rural beneficiary households. Its distribution among rural beneficiaries is more skewed in comparison to that of current income of the beneficiaries. The distribution of farm business income is shown in the Table 4.1.4. The bottom 10 per cent of the beneficiaries accounted for only 1.53 per cent of the total farm business income of the beneficiaries. Also the bottom 50 per cent of the beneficiary households accounted for less^{than} one-fourth, i.e. 22.77 per cent, of the total farm business income. On the other hand, the top 10 per cent of the beneficiaries enjoyed about 25.84 per cent of the total farm business income of the beneficiaries. Top 50 per cent of the households cornered more than three-fourth (77.33%) of the total farm business income. This was so due to the fact that first the distribution of operational holdings was skewed and secondly, the other sources contributed more towards the current income of the beneficiaries whose operational holdings were smaller. The higher value of Gini coefficient (0.3768) confirmed higher extent of inequality in the distribution of farm business income as compared to total current income.

Table 4.1.4: Distribution of Total Farm Business Income of Beneficiary Households

Cumulative percentage of households	Cumulative percentage of total farm business income
10	1.53
20	4.58
30	9.34
40	15.67
50	22.77
60	32.18
70	43.77
80	57.07
90	74.16
100	100.00

$$G_{fbi} = 0.3758.$$

4.1.5 Ratio of income of different categories of farmers

Table 4.1.5 shows the ratios between different size categories of farmers in respect of farm business income, total current income, per capita farm business income and per capita current income reflecting the magnitude of disparity in the income of different categories of farmers.

Table 4.1.5: Ratio of Income of Different Categories of Farmers

Farm size groups	Farm business income	Total current income	Per capita farm business income	Per capita current income
Large/Small	4.04	2.35	2.42	1.71
Large/Medium	1.90	1.70	1.49	1.33
Medium/Small	2.13	1.68	1.63	1.29

It is apparent from the above table that the disparity between different categories of farmers is the widest in respect of farm business income followed by total current income, per capita farm business income and per capita current income, respectively. The income gap is least pronounced when income from all sources are taken into account on per capita basis. This can be explained on two counts. Firstly smaller farmers have a more diverse income pattern than larger ones and secondly larger farmers have relatively larger family size. As expected the income gap between large and small farmers is the widest as compared to other categories of farmers.

Expenditure pattern

Having analysed the current farm family income of sample households in the last section, it is proposed to examine the expenditure pattern in this section. The expenditure pattern

includes the domestic expenditure and farm expenditure.

4.2 Domestic consumption expenditure

Here the domestic consumption expenditure, its composition, the relative share of its different constituent components, the extent of inequality in distribution of total domestic consumption expenditure and also of the per capita domestic consumption expenditure has been discussed.

4.2.1 Composition of domestic consumption expenditure

The expenditure incurred by the household on food and non-food items is included in domestic consumption expenditure. The food items included cereals, pulses, milk and milk products, edible oils, meat and eggs, vegetables, sugar/gur, salt and spices, beverages-alcoholic and non-alcoholic. The expenditure on non-food items was taken to be composed of expenditure on fuel and light, footwear and clothing, education, durable goods and miscellaneous expenses and it also included taxes and conveyance expenses.

4.2.2 Relative share of components of consumption expenditure

The relative share of various items of domestic consumption expenditure is shown in Table 4.2.1. The food items accounted for as much as 71.21 per cent of total consumption expenditure. The non-food items accounted for the remaining 28.79 per cent of total domestic consumption

Table 4.2.1: Average Domestic Expenditure on Various Consumption Items per Beneficiary Household

	Small (Rs.)	Medium (Rs.)	Large (Rs.)	All benefi- ciaries (Rs.)
Cereals	2132.48 (24.27)	3171.93 (22.83)	4035.21 (18.26)	3082.19 (21.02)
Pulses	265.36 (3.02)	367.85 (2.65)	671.51 (3.05)	417.63 (2.94)
Milk and milk products	2542.85 (28.94)	4342.65 (31.26)	7214.68 (32.65)	4441.05 (31.30)
Edible oils	135.00 (1.54)	175.10 (1.25)	182.22 (0.82)	159.66 (1.13)
Meat and eggs	9.54 (0.11)	35.76 (0.27)	72.90 (0.33)	35.74 (0.25)
Vegetables	284.69 (3.24)	465.60 (3.35)	815.32 (3.69)	494.44 (3.48)
Salt and spices	315.27 (3.59)	502.85 (3.62)	813.10 (3.68)	516.50 (3.64)
Sugar/gur	362.88 (4.13)	586.08 (4.22)	954.51 (4.32)	602.09 (4.24)
Beverages	327.00 (3.72)	533.40 (3.84)	574.11 (2.50)	455.20 (3.21)
Fuel and light	438.27 (4.99)	638.96 (4.60)	914.71 (4.14)	636.14 (4.48)
Footwear	206.48 (2.35)	336.82 (2.43)	541.29 (2.45)	342.87 (2.42)
Durable goods	30.68 (0.35)	98.40 (0.71)	242.12 (1.10)	113.15 (0.80)
Clothing	847.16 (9.64)	1347.40 (9.70)	2185.16 (9.89)	1387.00 (9.78)
Taxes	8.00 (0.09)	8.00 (0.06)	8.00 (0.04)	8.00 (0.06)
Education	545.80 (6.21)	775.63 (5.58)	1909.03 (8.64)	1025.86 (7.23)
Conveyance charges	178.68 (2.03)	228.52 (1.65)	309.35 (1.40)	231.65 (1.63)
Miscellaneous	156.40 (1.78)	275.04 (1.98)	648.62 (2.94)	338.66 (2.39)
Total	8786.64 (100)	13890.68 (100)	22094.93 (100)	14188.22 (100)

Note: The figures in the brackets indicate the percentages.

expenditure. Among the food items, the expenditure on milk and milk products was the highest (31.30%) followed by cereals (21.02%), sugar/gur (4.24%), salt and spices (3.54%), vegetables (3.48%), beverages (3.21%), pulses (2.94%), edible oils (1.13%) and meat and eggs (0.25%). While clothing constituted the highest expenditure (9.78%) among non food items, followed by expenditure on education (7.23%), footwear (2.42%), miscellaneous expenses (2.39%), conveyance charges (1.63%) and durable goods (0.80%), respectively.

The milk and milk products accounted for highest expenditure of domestic consumption expenditure in all the categories of the beneficiary households, i.e. 28.94 per cent, 31.26 per cent and 32.65 per cent for small, medium and large beneficiaries, respectively. The relative higher expenditure on home produced milk may be partly due to the general tendency of sample households to avoid reporting sale of milk. Further milk expenditure figures for higher farm size categories are bound to be relatively more overestimated since they produce a much larger quantity of milk. The expenditure on cereals in relative terms declines with the increase in farm size owing to increasing share of costly protective food as we move higher on the farm size ladder. Cereals accounted for 24.27 per cent of domestic expenditure of small beneficiaries, 22.33 per cent of medium

beneficiaries and 13.26 per cent of consumption expenditure of large beneficiaries. The expenditure on clothing constituted almost uniform share of 9.89 per cent of consumption expenditure of large beneficiaries, 9.70 per cent of medium beneficiaries and 9.64 per cent of consumption expenditure on small beneficiaries. Not only the absolute expenditure but also the relative share of education expenditure was directly related to farm size. The expenditure on beverages showed that even small farmers were spending quite a lot on costly drinks (soft as well as hard) indicating that quite a big part of rural Haryana has become an addict of alcohol. On relatively costly non-food items like clothing, footwear and miscellaneous goods and services, expenditure tends to increase with farm size even in relative terms. The share of expenditure on education was 8.64 per cent, 6.21 per cent and 5.58 per cent of consumption expenditure of large, small and medium beneficiaries, respectively.

In view of the above analysis, it becomes fairly evident that even small farming households are in a position to arrange a square meal. For essential food items like cereal, salt and spices, milk, pulses, vegetables, sugar/gur etc. they are not much behind higher categories of farm families. Also the nutritional standards of their basic food basket are not much inferior. Only for superior

foods, other luxury items, clothing, footwear and miscellaneous goods and services, the lower strata of farm families were at some disadvantage. To the extent that some part of the expenditure promotes human capital formation, poor families need to be saved from further erosion in their consumption standard through a policy of active state intervention.

4.2.3 Distribution of total domestic consumption expenditure

The information regarding the distribution of domestic consumption is contained in Table 4.2.3. An examination of the table reveals that the bottom 10 per cent beneficiary households incurred 3.06 per cent of the total household consumption expenditure. Moreover, the bottom 50 per cent beneficiary households accounted only for 27.05 per cent of total domestic consumption expenditure. This is intended to show the extent of inequality in household consumption standard of beneficiary families. The extent of inequality of household consumption expenditure distribution is slightly less skewed in comparison to that of the current income of beneficiaries. This can be on account of two reasons. Firstly the consuming households with limited land base and total current household income are obliged to spend more than their current earnings. On the other hand, the consuming units with big land base are consuming less than their current

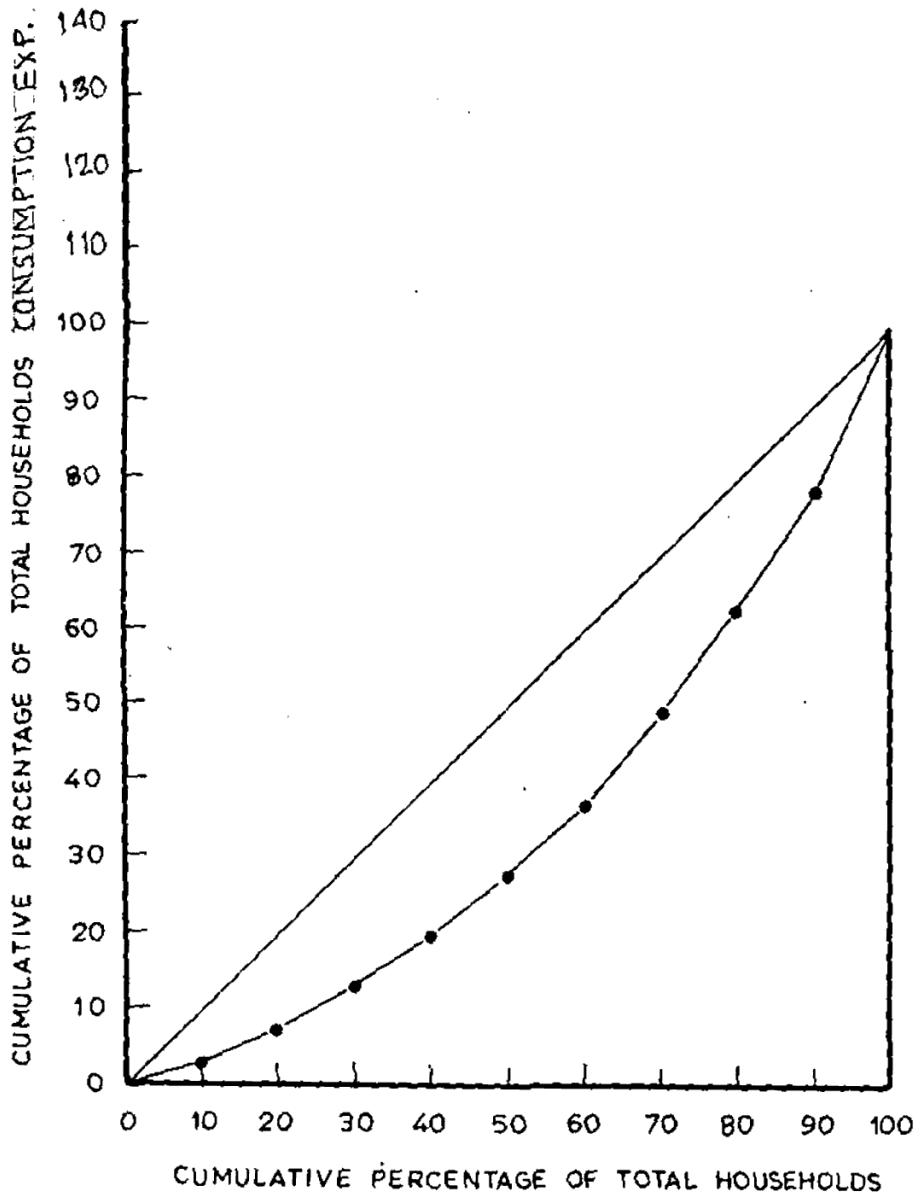


Fig.4.2 LORENZ CURVE FOR DISTRIBUTION OF TOTAL CONSUMPTION EXPENDITURE

earnings. Deficit in a year or two may be a normal feature with small farmers but if deficit occurs year after year, it can lead to many serious consequences. They are compelled to mortgage or sell their land, jewellery or other assets when debt obligations pile up over time.

Table 4.2.3: Distribution of Total Consumption Expenditure

Percent of total households	Percent of total consumption expenditure
10	3.06
20	7.51
30	13.06
40	19.46
50	27.05
60	37.03
70	48.92
80	62.62
90	78.80
100	100.00

Table 4.2.4 contains the information concerning the distribution of per capita/domestic expenditure of beneficiary households. We see from the table that about 6.15 per cent per capita domestic expenditure is shared by bottom 10 per cent of population of beneficiary households. Also the bottom 50 per cent of the population

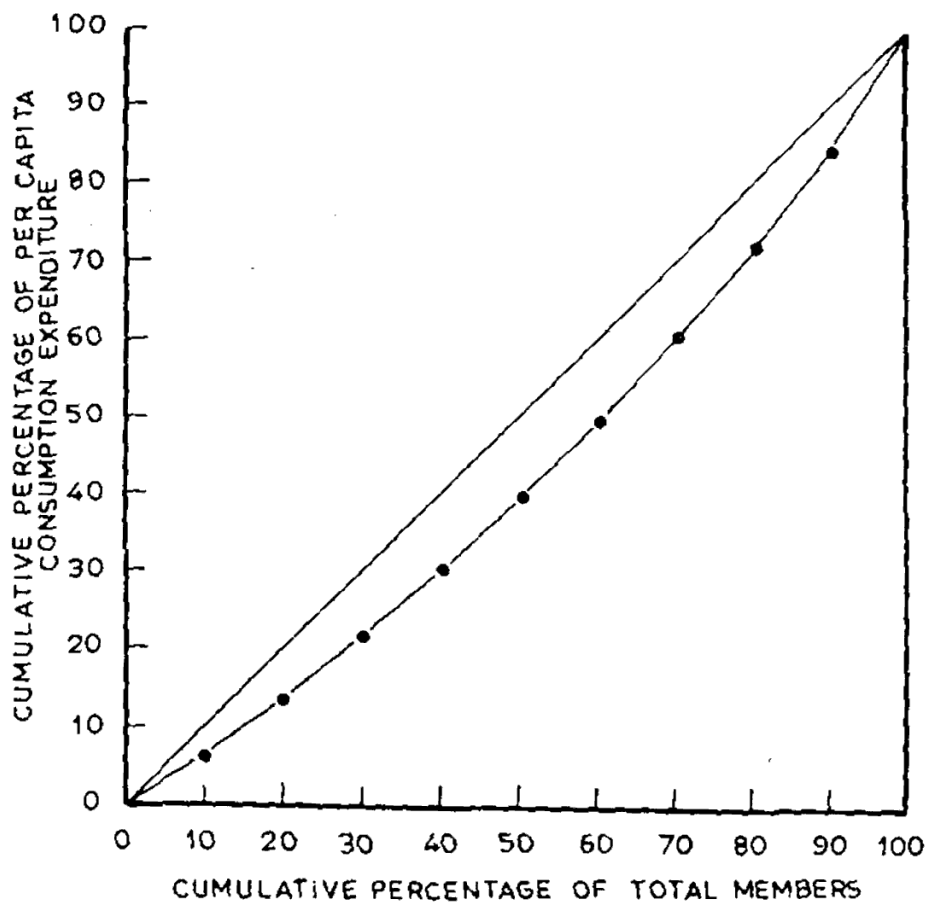


Fig.4.3 CORENZ CURVE FOR DISTRIBUTION OF PER CAPITA CONSUMPTION EXPENDITURE

accounts for 39.59 per cent of per capita domestic consumption expenditure. It may be noted at this stage that the distribution of per capita expenditure is less skewed as compared to the distribution of total domestic consumption expenditure of beneficiary families. This is due to the fact that per capita consumption expenditure distribution is free from the effect of family size.

The Gini coefficients for concentration of total consumption expenditure and per capita consumption expenditure further confirm the narrowing down of disparity in consumption expenditure on per capita basis. This is mainly because family size is directly related to farm size and per capita expenditure is farm size neutral to some extent.

Table 4.2.4: Distribution of Per Capita Consumption Expenditure

Percent of total members	Percent of per capita consumption expenditure
10	6.15
20	13.39
30	21.35
40	30.16
50	39.59
60	49.59
70	60.22
80	71.41
90	84.19
100	100.00

Gini coefficient of distribution of total consumption expenditure = 0.3082.
 Gini coefficient of distribution of per capita consumption expenditure = 0.16.

4.3 Farm expenditure of the beneficiary households

The farm expenditure includes the cost of cultivation of crops (cost A_2) grown at the farm of beneficiary households as well as the expenditure on maintenance of milch animals, drought animals and other livestock if any.

4.3.1 Composition of farm expenditure

The following items were included in it:

- i) Value of hired human labour
- ii) Value of hired bullock labour
- iii) Value of owned bullock labour
- iv) Hired machinery charges
- v) Value of owned machine labour
- vi) Expenses on manure
- vii) Expenses on fertilizer
- viii) Expenses incurred on insecticides and pesticides
- ix) Depreciation of implements and farm building
- x) Irrigation charges
- xi) Land revenue and rent paid for leased-in land
- xii) Interest on working capital
- xiii) Miscellaneous expenses, and
- xiv) Cost of feed and fodder for the maintenance of livestock.

The items from (i) to (xiv) constituted cost A_2 of crop cultivation of the rural beneficiaries.

4.3.2 The relative share of different component items of cost A_2

The information regarding the share of different

Table 4.3.2: Break-up of Average Farm Expenditure (Cost A₂) per Sampled Holding

Items/category	Small (Rs.)	Medium (Rs.)	Large (Rs.)	All beneficiaries (Rs.)
Value of bullock labour and owned machinery charges	1133.13 (38.96)	2008.33 (36.89)	5067.48 (29.65)	2572.22 (32.40)
Irrigation charges	508.69 (17.49)	1031.11 (18.94)	3173.80 (18.57)	1465.58 (18.46)
Seed expenses	431.90 (14.85)	568.36 (10.44)	1948.37 (11.40)	936.00 (11.79)
Expenditure on insecticides and pesticides	24.72 (0.85)	60.97 (0.12)	201.68 (1.18)	88.64 (1.12)
Expenditure on manure	109.06 (3.75)	110.52 (2.03)	184.58 (1.08)	133.37 (1.68)
Fertilizer expenses	269.90 (9.28)	685.96 (12.60)	1799.68 (10.53)	847.88 (10.68)
Hired-in labour and machinery charges	81.44 (2.80)	166.05 (3.05)	991.28 (5.80)	384.64 (4.84)
Interest on working capital	106.45 (3.66)	190.54 (3.50)	440.95 (2.58)	231.16 (2.91)
Land revenue and rent on leased-in land	59.04 (2.03)	288.54 (5.30)	505.90 (2.96)	254.94 (3.21)
Miscellaneous expenses	32.58 (1.12)	66.42 (1.22)	316.18 (1.85)	128.96 (1.62)
Depreciation of implements and farm buildings	151.53 (5.21)	267.30 (4.91)	2461.10 (14.40)	896.44 (11.29)

Note: The figures in the brackets indicate the percentages.

Components of cost A_2 of crop cultivation of rural beneficiaries is contained in Table 4.3.2. The examination of the table reveals that share of expenditure on bullock labour owned and hired and owned machinery charges in cost A_2 of crop cultivation is highest (32.40%) followed by irrigation charges (18.46%), seed expenses (11.79%), depreciation charges (11.29%), expenditure on fertilizers (10.68%), expenses on hired-in labour and machinery (4.84%), land revenue and rent paid for leased-in land (3.21%), interest on working capital (2.91%), expenditure on manures (1.68%), miscellaneous expenses (1.63%) and finally by expenditure of insecticides and pesticides (1.12%). The Bhiwani district, which is not an agriculturally advanced district of Haryana, this pattern of farm expenditure can be expected.

The small beneficiaries incurred as much as 38.96 per cent of total cost A_2 crop production on bullock labour and owned machinery charges, followed by irrigation charges (17.49%), seed expenses (14.85%), fertilizer expenses (9.28%), depreciation charges (5.21%), expenditure on manures (3.75%), interest on working capital (3.66%), hired-in labour and machinery charges (2.80%), land revenue and rent on leased-in land (2.03%), miscellaneous expenses (1.12%), and expenses on insecticides and pesticides (0.85%). The pattern of expenditure on different items of cost A_2 in case of medium beneficiaries is as follows: Highest

expenditure on bullock labour and owned machinery charges (36.89%) is followed by irrigation charges (18.94%), fertilizer expenses (12.60%), seed expenses (10.44%), land revenue and rent on leased-in land (5.30%), depreciation charges (4.91%), interest on working capital (3.50%), hired-in labour and machinery charges (3.05%), expenditure on manures (2.03%), miscellaneous expenses (1.22%) and expenses on insecticides and pesticides (1.12%), respectively. On the large farms the share of expenditure on bullock labour and owned machinery charges was the highest (29.65%) followed by irrigation charges (18.58%), depreciation charges (14.40%), seed expenses (11.40%), fertilizer expenses (10.53%), hired-in labour and machinery charges (5.80%), land revenue (2.96%), interest on working capital (2.58%), miscellaneous expenses (1.85%), insecticides and pesticides charges (1.18%) and finally by expenses on manures (1.08%), respectively.

4.3.3 Average cost A_2 per holding

The average cost A_2 per household was worked out to be Rs.7938.94. As expected, the average cost A_2 increased with increase in farm size. The average cost A_2 for small beneficiary households was found to be Rs.2908.44. It was Rs.5444.10 for the beneficiaries characterised as medium. For the beneficiaries classified as large, the average cost A_2 was of the magnitude of Rs.17091.00 (Table 4.3.3).

The large beneficiaries incur huge cost A_2 of crop cultivation owing to the fact that they operate big operational holdings. The small beneficiary household incur small expenditure on cost of cultivation of crops due to the fact that their operational holdings are rather small and sometimes even economically unviable.

Table 4.3.3: Category-wise per Beneficiary Household Farm Expenditure (Cost A_2 only)

(Rupees)	
Category	Average cost A_2 per household
Small	2908.44
Medium	5444.10
Large	17091.00
All beneficiaries	7938.94

4.3.4 Average cost A_2 per hectare

The average cost A_2 as well as farm business income was calculated and the information regarding this is shown in Table 4.3.4. The per hectare cost A_2 was very close on each sized farm. It was the highest i.e. Rs.1098.78 in case of medium beneficiary households and lowest i.e. Rs.1077.75 per hectare in case of large beneficiaries. Similar was the trend observed in case of per hectare farm business income which was found to be highest i.e. Rs.743.20 for the medium beneficiaries and lowest i.e.

Rs.604.04 for the large beneficiaries. This suggests better management exploiting more economies of scale by medium-sized farm. It appears the old inverse relationship of average cost/return per unit of land with farm size is not only neutralised but also reversed by medium farms in the study area. However, it does not provide conclusive evidence of reversal of this old relationship with the changing technology.

Table 4.3.4: Average Farm Business Income and Cost A₂ per Hectare of Various Categories of Beneficiary Households

(Rupees)		
Category	Farm business income per hectare	Cost A ₂ per hectare
Small	645.60	1086.35
Medium	743.20	1098.78
Large	604.04	1077.75
All beneficiaries	641.10	1082.68

The cost A₂ accounted for 54.54 per cent of the total farm expenditure of the beneficiary households whereas the cost of maintenance of livestock accounted for as much as 45.46 per cent of the total farm expenditure. The cost of maintenance of livestock included the imputed value of feed and fodder which was produced at the farm and the market value of feed and fodder which was purchased from the market.

4.4 Surplus left over with the beneficiary households after meeting farm and family needs

Here we discuss the savings potential of rural beneficiaries after meeting farming and family needs. This will give us an idea about the financial viability of beneficiaries of different farm size categories. The net surplus of the beneficiaries was obtained by deducting domestic consumption expenditure from current income of the rural beneficiaries. The current income, in turn, was obtained by adding farm business income, net income from livestock and income from non-farm activities and miscellaneous sources. In eventuality, the study of the savings potential of the beneficiaries assumes importance to the financial institutions to mobilise savings to the policy makers, administrators and farmers to plough back into farm capital formation for the rapid development of the agriculture sector which is so vital to the Indian economy.

4.4.1 Surplus left over - Category wise

The surplus left with various size groups of beneficiaries is shown in Table 4.4.1. The viability of various farm size categories can be established if their farm business income is more than their corresponding domestic consumption expenditure. Agricultural surplus is negative on all farm type categories of the beneficiary households. However, it does not mean that all the farmers of the above mentioned

Table 4.1 : Surplus left With the Rural Beneficiaries

Category	Farm business income (Rs.) (1)	Current income (Rs.) (2)	Consumption expenditure (Rs.) (3)	Agricul- tural surplus (Rs.) (4)	Total surplus (Rs.) (2)-(3)=(5)	Average propen- sity to save	Negative savers (%)	Positive savers (%)
Small	4327.82	8328.56	8786.64	-4458.82	-458.08 (19)	-0.0550	43	57
Medium	9200.78	13993.14	13890.68	-4689.90	102.46 (10)	0.0073	40	60
Large	17468.55	23748.68	22094.93	-4626.38	1653.75 (11)	0.0696	35	65
All bene- ficiaries	9619.69	14524.94	14188.22	-4568.53	336.72 (40)	0.0232	40	60

Note: The figures in the brackets indicate the number of beneficiaries with negative surplus.

categories have negative agricultural savings only. About 81.82 and 68.00 per cent of small and medium farmers and even 48.39 per cent (not shown in the table) of large farmers have negative agricultural surplus/savings. On the whole agricultural surplus for all farm size groups was negative to the tune of Rs. 4568.53 per household in the year 1986-87. Agricultural surplus does not seem to show any relationship with farm size. It may be seen from the table that as the size of farm increases, so does the total surplus left with the rural beneficiaries. The small beneficiaries rather dissaved to the tune of Rs. 458.08 per household. The medium beneficiaries enjoyed a somewhat positive surplus of the magnitude of Rs. 102.45. The large beneficiaries saved to the extent of Rs. 1653.75 per family in the year 1986-87. The overall surplus per beneficiary household was found to be Rs. 336.72. It is rather encouraging as the 1986-87 year was sluggish and not a normal year. This means that moderate saving capacities exist in the rural areas of Bhiwani district in normal years. As much as 40 per cent of all the rural beneficiary households were dissavers. The remaining 60 per cent of them enjoyed somewhat positive surplus. In case of small beneficiaries, as much as 43 per cent of the beneficiaries dissaved. The medium beneficiaries to the tune of 40 per cent were observed with negative surplus capacities. On the other hand, only 35 per cent of the large beneficiaries

dissaved and the remaining 65 per cent of large beneficiaries were positive savers.

The average propensities to save of different categories of beneficiary households were also worked out. The average propensity to save of small beneficiaries was negative and was -0.0550. In other words, the small beneficiaries, dissaved 5.50 per cent of their current income. The medium beneficiaries saved meagrely and their average propensity to save was found to be 0.0073, i.e. only 0.73 per cent of the current income was saved by the medium beneficiaries. The average propensity to save of large beneficiaries was of the order of 0.0696. It means the large beneficiaries save 6.96 per cent of their current income.

4.4.2 The surplus left over - income-group-wise

The surplus left with the rural beneficiaries was also worked out income-groupwise. The beneficiaries in the income group below Rs.6000 dissaved about 42.65 per cent of their current income. The dissaving (deficit) for this group was worked out to be Rs.2012.20 per household. The beneficiaries in the income group 6000-12000 saved a bit of their current income. The average propensity to save was only 0.0076, in other words, they could save only 0.76 per cent of their current income. The average propensity to save was 0.0156 of the beneficiaries lying in income group of Rs.12000-18000. The saving per household was Rs.239.82 per

Table 4.4.2: The Surplus Left With the Beneficiaries - Income-Groupwise

Income group	Number of beneficiaries	Current income per household	Consumption expenditure per household	Surplus per household	Average propensity to save
0-6000	13	4747.75	6702.95	-2012.20 (9)	-0.4265
6000-12000	31	7746.41	7687.33	59.08 (15)	0.0076
12000-18000	25	15367.80	15127.98	239.82 (8)	0.0156
18000-24000	17	20631.51	19882.94	748.57 (5)	0.0363
24000-30000	8	24753.94	22653.12	2100.82 (2)	0.0849
30000-36000	3	32825.61	29892.93	2932.68	0.0893
36000-42000	3	39861.84	35421.20	4440.64 (1)	0.1114

Note: Figures in the brackets indicate the number of beneficiaries with negative surplus.

household for these beneficiaries. The saving per household came to be Rs.748.57 per beneficiaries in the income group 18000-24000. The average propensity to save was worked out to be 0.0363, i.e. they saved 3.63 per cent of their current income. The beneficiaries lying in the income group of 24000-30000 saved to the tune of Rs. 2100.82 per household. Their average propensity to save came out to be 0.0849. The saving per household of the beneficiaries in the income group 30000-36000 came out to be Rs. 3932.68 per household. Their average saving propensity was worked out to be 0.0893, in other words, 8.93 per cent of the current income of these households was saved. The beneficiaries lying in the income group of 36000-42000 saved to the magnitude of Rs. 4440.64 per household and the average propensity to save was observed to be 0.1114. We see that as the income goes up so does the savings left with the households. This means that savings are influenced by the income of the households.

CHAPTER - FIVE

SUMMARY AND CONCLUSIONS

This study aims at evaluating the surplus capacities of the rural beneficiaries, their consumption expenditure, farm expenditure and current income. The reference year is 1986-87.

The sampling design adopted consisted of multistage random sampling technique with block as the first stage sampling unit and beneficiary households as the third and ultimate sampling unit. The district Bhiwani of Haryana was purposively selected. Two blocks from the Bhiwani district were randomly selected. From these two blocks, six villages were randomly selected - three from each block. A list of beneficiaries from each of the selected village was pooled and a sample of 100 beneficiaries was randomly drawn - 15 from each of the four villages and 20 from each of the remaining two villages.

The data as income, expenditure and saving was collected through personal interviews with the selected beneficiaries with the use of a pre-tested schedule. For purpose of economic analysis, the use of simple tabular analysis and percentages was made in general. The use of Lorenz curve and Gini coefficient was also made to study the extent of inequality in the distribution of income and expenditure among the beneficiary households.

It is observed in the study the crops contributed maximum share towards current income of the rural beneficiary households on all farm size categories. The per cent share of crops in the current income of the beneficiary households varied from 51.96 per cent to 73.56 per cent on various farm categories of the beneficiaries. The next highest contribution to the current income of the beneficiary households came from the sector characterised as non-farm and miscellaneous sources of current income of beneficiaries, ranging from 17.26 per cent to 34.48 per cent. The contribution of livestock dairying sector to the current income of the beneficiary household varied from 9.18 per cent to 13.95 per cent on different farm categories of rural beneficiaries. The share of farm business income increases while that of non-farm income declines as one move up the farm size

The per capita income was the highest on farms characterised as large and lowest on small farms. The concentration of current income of beneficiaries is also studied. The Gini coefficient to show the prevalence of inequality in the distribution of current income among beneficiary households is observed to be 0.3182. Thus, it

can be argued that the distribution of income is not highly skewed. But the impact of new farm technology on income distribution of farming community could not be ascertained as

the study was based on one year data only. Land is the most important source of income in the countryside and is most inequitably distributed followed by farm business income, current farm family income, per capita farm business income and per capita current income, respectively.

The average domestic consumption expenditure per beneficiary household increased with increase in farm size. The skewness in the distribution of total domestic consumption expenditure is observed to be high in comparison to that of the per capita domestic consumption expenditure. This is due to the fact that per capita distribution is free from the size effect of the family. The Gini coefficient of distribution of total domestic consumption expenditure and per capita domestic consumption expenditure are worked out to be 0.3082 and 0.16, respectively. However, domestic consumption expenditure is relatively less inequitable than current farm family income. But quite a substantial number of farming households are not able to meet their domestic consumption needs out of their current farm family income. It is a disquieting feature of our agrarian structure that even in the heartland of green revolution so many farming households are not able to earn income to meet their consumption needs. However, small farm households also are in a position to arrange a square meal. Also the nutritional standards of their meals are not much inferior to those of large farmers.

It is observed in the study that the farm expenditure had positive relationship with farm size but the relationship was reversed on per hectare basis. Returns per unit of land showed similar relationship with farm size as that shown by farm expenditure.

The agricultural and total surplus left over with the rural beneficiaries was obtained by deducting the domestic consumption expenditure from farm business income and the current income of the beneficiaries, respectively. Agricultural holdings alone are not financially viable entities for almost all small farmers, majority of the medium farmers and quite a few large farmers of the study area have been observed with negative agricultural surplus. Thus all problems of rural poverty can not be solved within agricultural sector itself. It is observed that the surplus increased with the increase in the farm size as well as the current income. The beneficiaries characterised as small are observed as negative savers. All other categories of the beneficiaries showed positive surplus. The beneficiaries with current income less than Rs. 6000 dissaved and the beneficiaries with current income of Rs. 6000 or more showed positive surplus capacities but saving rate was quite low. The year 1986-87 was unfavourable in the study area while the year 1987-88 is the worst drought year of the last one century. Negative savings, negative surplus for a year or two for the poor farmers may be the normal feature of

the study area. But if deficit occurs year after year it can lead to more serious consequences with the piling up of their debt obligations.

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