

**SOCIO-ECONOMIC STATUS OF FARMERS
DURING PRE AND POST LIBERALIZATION:
A CASE STUDY FROM PUNJAB**

**A THESIS SUBMITTED IN
PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE
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**MASTER OF PHILOSOPHY
(ECONOMICS)**

**Under the Supervision of:
Dr. (Ms) Ravi Kiran
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Dedicated

To

My

Parents

And

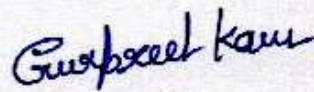
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CERTIFICATE

I hereby certify that the work which is being presented in this thesis entitled 'Socio-Economic Status Of Farmers During Pre And Post-Liberalization' in partial fulfillment of the requirements for award of the Degree of Masters of Philosophy in Economics, submitted in School of Management and Social Sciences, Thapar University, Patiala, is an authentic record of my own work, carried out under the supervision of Dr (Ms) Ravi Kiran, Associate Professor, and Dr Naresh C. Sahu, Lecturer, School of Management and Social Sciences.

The matter presented in this thesis has not been submitted for the award of any other degree of this or any other University.



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Abstract

This study attempts to deal with socio-economic status of farmers of Punjab during pre and post-liberalization period. Privatization, liberalisation and globalization phase was initiated by the major reforms introduced in July 1991. Socio-economic status depends on occupation, education, income, wealth and place of residence. The study uses primary data collected for 150 households from district Muktsar Punjab and also secondary data on Agricultural credit, and agricultural productivity during the period 1981-2005. Analysis has also been done for pre- liberalisation period, i.e., 1981-82 to 1991-92 and post liberalisation period, i.e., 1992-93 to 2004-05.

The findings of our study show that farmers have been debt ridden because of high interest rates charged by money lenders. They are dependent only on two crops, viz. wheat and paddy. Income wise relation depicts that more of farmers with low income are producing wheat and cotton, while the large farmers with higher income produce paddy, cotton and wheat. Relationship between size of holding and cropping pattern depicts that more number of farmers with small sized holdings are producing wheat and cotton, while the farmers with large land holdings prefer to produce paddy, cotton and wheat. The others predominant characteristics are: illiteracy of farmers, excess spending on social ceremonies like marriage etc. 40.66% farmers are having small land holdings and are unable use modern machinery resulting in low productivity and low income.

73.33% households rely only on income from only agriculture and 26.66% farmers get income from other sources like diary, business, labour and live stock. 76.66% of farmers selling crops in nearby market and 23.33% of farmers are selling their crops in their own village or to private money lenders to repay previous loans. 63.33% households reported that they possess all housing facilities like separate kitchen, bathroom within have, source of lighting, source of water. For 48.66% farmers irrigation source are tube wells, 25.33% depend on canals and 26% have access to all irrigation sources like tube wells, canals and others.

There is a strong incidence of indebtedness. 16% farmers pay 6% rate of interest, 52% of farmers pay 6-10% rate of interest and 32% farmers are those who pay 18% and above rate of interest. The results of secondary data reveals that the growth rates for agricultural credit are higher than that of agricultural productivity for the entire period as well as in the pre as well as post- liberalisation period. Growth rates for indirect finances from commercial banks for both the number of accounts and for amount outstanding are higher than that for direct finances. The increasing costs of inputs, unfavorable support prices, high interest rates, low size of holdings, illiteracy are the predominant factors leading to low productivity and low agricultural incomes.

Steps have to be initiated to reduce excessive reliance on agriculture and rather induce shift to allied activities such as dairying, piggery, poultry farms, vegetables garden to supplement income from agriculture. Women should also support by doing business like spinning, making mats, clothes etc. Banks should provide soft loans to farmers to save them from falling into the clutches of money-lenders. Focus also needs to be given to proper marketing of the produce.

CHAPTER-I

INTRODUCTION

This study deals with socio-economic status of farmers during pre and post liberalization period in Punjab. Socio-economic status is an individual's or group's position within a hierarchical social structure. Socio economic status depends on a combination of variables, including occupation, education, income, wealth and place of residence. Sociologists often use socio-economic status as a means of predicting behavior.

Organizational diversity, often called the 'socio-economic aspects' includes diversity in the manner in which farmer own, operate and use the resource endowments. It underpins and helps explain management diversity and its variation between particular farms. Explanatory elements include: labour, household size, diversity in recourse endowment of households and reliance on off-farm employment. Also included are: the age groups and gender relations in farm operations, dependence on the farms as against the external source of support, the spatial distribution of the farm and differentials between farmers access to land.

Recently there has been an increase in the number of suicides in Punjab. Suicide, an act of terminating one's own life, or the 'willful destruction of one's self interest may occur for a number of reasons often related to depression, shame, pain, financial difficulties or other undesirable situations. Socio-economic risk factors include indebtedness, crop failure, asset erosion (like scale of bullocks), decline in social position, burden of daughters or sister's marriage, suicide in a nearby village, addictions, dispute with neighbours and others, health problem, a death in the family and history of suicide in the families etc.

Farmers have been committing suicide or eating rat meat! This is what we have been hearing from different parts of the country over the last five years. Why does this happen? Why do farmers take this extreme step? Is income from cultivation not enough to meet consumption

and other expenditure? Are farmers heavily indebted due to lower income from cultivation and increased cost of cultivation? Or are farmers not able to cope up with the competitive environment after economic reforms? Answers to these questions have been attempted by the survey initiated by the union Ministry of Agriculture, which is known as the Situation Assessment Survey (SAS). The Situation Assessment Survey of the farming community, commissioned by the Ministry of Agriculture carried out by the National Sample Survey Organization, brings out the pathetic condition of Indian farmers, be it in terms of income, expenditure or indebtedness.

For the first time, as a part of the millennium study, the Ministry of Agriculture initiated a comprehensive socio-economic survey of the farmers covering educational status, levels of living, farming practices, possession of productive assets, awareness and access to modern technology, resource availability, indebtedness and other relevant issues. The national sample survey organization (NSSO) carried out the SAS of farmers during 2003(January- December) covering 51,770 households spread over 6,638 villages across the country. The survey reports have already been released in five different volumes, namely, (1) indebtedness of farmer households, (2) access to modern technology for farming, (3) some aspects of farming, (4) consumption expenditure of farmer households, and (5) income, expenditure and productive assets of farmer households.

The results of these surveys have thrown light on the dreadful condition of farmer households in terms of income, expenditure or indebtedness. Though the survey brought out various aspects of the farmer households across the states in India, but this demonstrates only the income and expenditure status of the farmer households at all India level. According to the survey, at the all- India level, the average annual income of the farmer household was Rs 25,380, which includes cultivation, wages, farming of animals and non farm business income. What is interesting here is that the income from cultivation accounts for only about 45 percent of the total income and the remaining receipts are from other sources including wage income which alone accounts for almost 39 percent. Clearly, the annual income from cultivation comes to only about Rs 11,628 per farmer households, after excluding the other sources.

The condition of the individual states is not very much different from the national level average. The highest average annual income of Rs 65,856 was reported in Jammu and Kashmir followed by Punjab and Kerala. The lowest income was reported in Orissa preceded by Madhya Pradesh, Rajasthan and Andhra Pradesh. Surprisingly, the income in the relatively developed states like Tamil Nadu and West Bengal is below the national level average. Obviously, the low income of the farmer noted across the states would provoke anyone to ask questions such as: can the farmers survive with this level of income? Do farmers have any incentive to remain in farming? Is it possible for farmers to meet the consumption expenditure with this income?

Apart from providing the sources of income, the survey also provides the average annual expenditure on cultivation per farmer holding. One would be able to see whether farmers get any profit from cultivation by comparing the annual income from cultivation with the annual expenditure on cultivation. The average annual expenditure on cultivation is Rs. 8791/- per house hold at the all India level. As in the case of income, there is a wide variation in the expenditure on cultivation across states. As expected, the highest expenditure on cultivation was reported in agriculturally developed states like Punjab followed by Haryana and A.P. Understandably, the lowest expenditure was reported in Orissa.

While deducting from the average cultivation income (Rs 11,628) of the farmer households the expenditure on cultivation (Rs 8,791), the annual net income (i.e., farm business income) of a farmer household comes to only Rs 2,837 at the all-India level. It is worse when we look at each state. Shockingly, the net income is negative in AP, Haryana, Rajasthan and Tamil Nadu, i.e., the annual expenditure on cultivation is higher than the annual income from cultivation. Except for states like Assam, J and K and Punjab households this is less than Rs 4000/- in all other states. In fact, it is less than Rs 1,000 per farmer households in Orissa, UP and West Bengal.

The situation is bleaker while comparing the annual income with the average annual consumption expenditure of the farmer households (ACEFH). The average ACEFH for the

country as a whole was Rs 33,240 .The highest annual ACEFH was reported in Punjab followed by Haryana and Kerala, the lowest annual consumption was in Orissa. It is shocking that except states like Assam, J and K .Karnataka and Punjab, the ACEFH has exceeded the annual income of the farmer households in all other states. The worst-affected states in terms of expenditure exceeding the income are Rajasthan, Haryana, UP, MP and AP. This clearly suggests that the farmers are in severe distress and the income that they get from all sources is not even enough to meet the consumption expenditure of the households. How do farmers manage other expenditure when the income is not even enough to meet their consumption needs? Farmers must be possibly taking loan from various sources so as to meet the consumption as well as productive expenditure of the households.

Investigations were done further to see whether this inadequate income of the farmer households has any relationship with the indebtedness of the same households across the states. One of the SAS reports is on indebtedness. Though there is no one-to-one correlation between indebtedness and income-expenditure of the farmer households. The increase of indebtednesses (proportion of households reporting debt either to Institutional or non-Institutional sources), as well as the extent of indebtedness (Debt per farmer household in Rs) is found to be higher in all states where consumption expenditure exceeds the income of farmer households. It has been observed that the consumption expenditure is relatively higher than income of the farmer households in all the states except Assam and J and k. This is clearly reflected in the indebtedness status of the households, where the debt per farmer household is very high almost in all the states, except Assam and J and K. Farmers from AP, Haryana, Karnataka, Kerala, MP, Maharashtra, Punjab, Rajasthan, Tamil Nadu and UP are heavily indebted possibly because the income of the households is not even enough to meet the consumption expenditure. In fact, the average debt per household varies from Rs 24,000/- to Rs 42,000/- in the relatively developed states like AP, Haryana, Karnataka, Kerala, MP, Maharashtra, Punjab, Rajasthan, Tamil Nadu and UP. There is an incidence of heavily indebtedness possibly because the income of the households is not even enough to meet the consumption expenditure. Infact, the average debt per household varies from Rs. 24000/- to Rs. 42000/- in the relatively developed states like AP, Haryana, Karela, Punjab and Tamil Nadu.

A detailed analysis on the indebtedness of farmer households clearly provides adequate answers to the question as to why farmers commit suicide. One of the SAS reports also indicates that given a choice 40 percent of the farmers would quit agriculture and take up some other career. All these clearly suggest that the farmers are in great distress. The situation can aggravate further, if adequate measures are not taken immediately to improve the income level of the farmer households, potentially, this can harm the growth of agriculture and food security of the country as well well. The results of the SAS sufficiently prove that farmers are not getting enough remuneration for their produce. This could possibly be because of a sharp deceleration in the growth of prices of many agricultural commodities and increase in the cost of cultivation after the introduction of reforms. Therefore, government needs to regulate both input and output markets in an effective manner so as to raise the income levels of farmer households. It is reported from various parts of the country that the use of spurious inputs (seeds, fertilizers and pesticides) in cultivation is one of the major reasons for crop failure and low output, the sale of spurious inputs must be stopped by all possible means. The minimum support prices being announced every year for various crops should be linked to the wholesale price index, besides considering the cost of cultivation data of different regions so as to protect the farmers from the possible disaster.

Another reason for the low income of farmer households could be the dominant role played by the middleman in the market. Studies show that farmers were not able to get even 40 percent of the money that the consumer pays for various agricultural commodities in the market. The role of middleman can be controlled considerably by involving producers in the market activities. The weekly periodic markets under the direct control of Panchayat Raj Institutions (PRISs) should be upgraded and strengthened. As underlined in the National Agricultural Policy: 2000 producers' markets on the lines of 'Ryatu Bazaars' should be encouraged throughout the country so as to cut down the role of middlemen and improve incomes of farmers. Despite the significant increase in the flow of Institutional credit, the SAS data shows that still over 42 per cent of rural credit supply comes from the non Institutional sources like moneylenders, where the rate of interest is not only exorbitant but the terms and conditions of the loans are also not favourable.

The confusing reality behind farmer's suicides prompted Doug to put his thoughts together on the issue of farmer suicides and see if there is a possibility of tying together various stands of thought being expressed. 'At times, I wonder why is that everyone seems to have been opinionated reaction when it comes to farmer suicides and not so opinionated ones on farmer murder's or something like 'non farmer suicides' (economists studying crime or epidemiologist aside!). Are we still unable to identify and solve some fundamental problems affecting our socio-economic or gro-political systems when we come across regular news items on farmer suicides or a not so regular glance through some touching statistics indicating these mortality trends? From a policy perspective, to arrive at alternative solutions (at least workable ones) there is a need to decipher the problem at hand with an unprejudiced mind. But the increasingly popular debate of 'farmer suicide' poses some formidable challenges and it becomes even more complicated given some concealed realities and some analytical tricksteries.

There have been 1, 56,562 farmer suicides during 1995-2004. From these, more than four-fifths are males. The suicide mortality rate (SMR, suicide death per 1, 00,000 persons) for male farmers nearey doubled in ten years from 9.7 in 1995 to 19.2 in 2004. SMR for male non farmers has veered around 13; it increased from 12.6 in 1995 to 14.2 in 1999 and then decreased to 13.4 in 2004. [Source of SMR data is the National Crime Records Bureau-(NCRB) and SMR for farmers are normally based on interpolated, extrapolated population for cultivations (even age adjusted) using 1991 and 2001 census]. In 2004, states with SMR for male farmers higher than the national average were: Kerala (183.0), Maharashtra(57.2), Andhra Pradesh (44.5), Tamil Nadu (43.7), Karnataka (35.4), Goa (32.1), undivided MP(27.7), Sikkim (40.5), Dadar and Nagar Haveli (42.5), Delhi (49.4) and interestingly, Pondicherry (1495.4). Pondicherry is special because of low population as well as lower share of farmers in the population. Together these states account for nearly four-fifth of farmer suicides in 2004. More than half were from the states of Andhra Pradesh, Karnataka, Kerala and Maharashtra.

Farmer suicides are clearly symptomatic of the agrarian crisis ailing India. It is not only the marks that have bypassed the low income farm households, but also the flippant and ill designed public policies. Vidarbha is just another popular example. The issue of farmer's suicide has indeed become ubiquitous. Suicides being at the intersection of physico-psychological drivers, the socio-economic reality brings in a host of differential conditioning. Suicides stand at a critical juncture between defined rationality and perceived irrationality and are an outcome of choices made under complex conditions.

Suicide mortality rate (SMR) which is expressed as a ratio of number of reported suicidal deaths per 100000 population tends to be 14 for India on an average. But for some sub-groups of the population, for instance SMR among male farmers in some areas happens to be 150. Then this is symptomatic of some serious problem, which needs to be analyzed.

Although farmer's suicide data in most states face credibility issues and measurement errors are rampant, but still the situation is so alarming that it needs immediate attention. If unnatural deaths are reported as suicides, then we can easily increase SMR in a community and if there lies some vested political interest or other incentive structures that promote this, then things get even more complex. One reference can be made for the compensation mechanism which the state has in place for families of those farmers, who reportedly committed suicide; on the other hand the Indian penal code has provision to punish those who attempted it thus requiring a different reference. In case of Vidarbha, the incidence or persistence of extreme weather shocks like famines is low, compared to several drought-prone areas in the Western Maharashtra area, but the SMR are higher. What exactly is driving these farmers to commit suicides? In places like Vidarbha reporting the highest density of pesticide consumption in India, proximally to highly subsidized state provided pesticides are rampant and in such conditions there is bound to be the higher incidence of suicides by pesticide consumption for the distressed farmers.

Apart from acute depression out of socio-economic and physico-psychological realities, one fact that remains hidden in most of these discussions is the proximity to nearest hospital for treatment and the poor infrastructure in some parts of rural India. When someone attempts

suicide, in the absence of immediate and appropriate medical attention, it might well turn out to be a fatal. This seems to be consistently transforming 'would have been attempts' in to an addition to the already non authentic SMR figure.

Coming back to the state of Punjab, social factors like perception of status among affluent farmers in Punjab have been observed. Indebtedness and correlated issues like forceful recovery models of the lenders are also being studied for possible causation. Lack of awareness and break down of social support structures like joint family system and inefficiency of limited distress help lines are also indicative of the larger malice in the agrarian sector. It is also very important to explore the connection between weather events, commodity prices and agricultural outcomes (from a production risk and price risk sense). These have been the different issues involved and need a deeper analysis. Farmers' suicides and plight of farmers have become burning issues and there seems to be no end to the suicides and depression. The Suicide Mortality Rate (SMR) has increased manifold during 1995 onwards. Is it a reflection on the Govt policies of liberalization and privatization?

Especially, coming to the credit issue the banking sector has become totally indifferent especially to the needs to small and marginal farmers, leaving them at the mercy of private moneylenders. Over 4500 rural branches of various PSBs have been closed in the past decade or so. This further aggravates the problem where the farmers are faced with, increasing input costs and un remunerative prices from farm produce. The indignities at the hands of private moneylenders and loss of social status (the only thing worth the name any farmer can possess these days) are the main reasons for the suicides and depression of farmers. Various studies conducted on Vidarbha case point out that in 93 percent cases 'indebtedness' is the main reason for suicides. And this indebtedness arose mostly from the private moneylenders. Govt can mitigate at least this cause by compelling the banks to undertake 100 percent financial inclusion for lending the farmers on warfooting.

The expert committee for the study of farmers' suicides made several recommendations, which can be grouped into four important sub-systems, namely, those supporting (1) production sub -system, (2) input sub-system, (3) welfare sub-system, and (4) support sub-

system. These recommendations can help farmers to enhance their production capabilities. It includes strengthening of Raitha Samparka Kendres (centres providing information to the farmers). Diversifying farm activities, promotion of agro-processing, and upgradation of technology are steps suggested in the input sub-system. The committee emphasized amendments to land reforms, low input sustainable agriculture, and regular supply of electricity for agricultural purposes. The input support system also requires information to be supplied to farmers on a day-to-day basis through Raitha Samparka Kendras. The committee recommended a welfare sub-system for the farmers through the creation of a farmers' welfare fund, a nodal department for the farmers and a wide social security system with facilities for pension for aged farmers. The committee emphasized on support sub-system through facilities for health care, awareness of the harmful effects of alcohol, crop insurance and rationalization of credit system. It needs to be seen how far the state governments translates these recommendations into action.

There is a need to adopt a holistic approach to address the socio-economic problems of the rural people of India. Given the limited capacity of agriculture to absorb additional labour force, the development of rural non farm sector is sine-qua-non for transforming the rural society and economy. The rural education and health must be the top most agenda of Indian democracy.

Objectives of the Study

All these stark realities show and this topic needs to be covered at all levels, so that proper steps can be taken to provide solution to the problem. This study is a small step in this direction. The present research is an attempt to study the socio-economic status of farmers during the pre and post liberalized scenario in the district Muktsar of Punjab. The study has been undertaken with following broad objectives:

1. To study the overall change in the standard of living of the farmers during pre and post-liberalization era.
2. To find out the relationship between the cropping pattern and income of the farmers in the study area.
3. To identify the major factors responsible for the farmer's miseries after liberalization.

Scope of the Study

The findings of the study would be helpful for policy makers and academicians to understand the impact of liberalization on farmers in Punjab in terms of generating income, consumption and employment opportunities.

The results of the study will also unravel the various problems faced by farmers in Punjab so that adequate steps can be taken to solve them and thus improve the status of farmers in Punjab.

Chapterisation

The present study has been divided in to five chapters. Chapter I is introductory in nature providing a brief overview of the socio-economic status of farmers in India. It also covers the definition of socio-economic status of farmers, factors responsible for farmer's miseries and suicides and also provides a brief overview of the expert committee's recommendations for helping farmers to enhance their production capabilities by providing them requisite information. This chapter discusses objectives of the study, the scope of the study and the sequence of chapters.

Chapter II covers the reviews of empirical literature related to the socio-economic status. This chapter presents results from different empirical studies about socio-economic status of farmers in India and in Punjab. The spurt in the suicide rates in Punjab is a cause of concern

and the review will help in understanding the problems the farmers are facing in Punjab and in other states of India.

Chapter III discusses the methodology of the study. The study uses both primary and secondary data to understand the factors influencing the socio-economic status of farmers. Primary data has been collected from district Muktsar for the period 2008. The secondary data has been used to understand the changes in credit scenario as well as agricultural productivity during the period 1981-2005. In this chapter methodology used for both secondary data and primary data analysis has been described. The chapter deals with the conceptual issues with regards to meaning and measurement of agricultural productivity, agricultural income, agricultural expenditure and profile of the district.

Chapter IV provides estimation and results and profile of farmers of Punjab in district Muktsar in the post- liberalisation period. The farm status in terms of net sown area, the changes in agricultural credit and agricultural productivity have been examined in the period 1980-2005 as well as two sub periods , period I, the pre-liberalisation period from 1980-1991 and Period II, the post liberalisation phase from 1992-05.

Chapter V covers the conclusion, findings and policy implications along with limitations of the study. This chapter also suggests the directions for further research in this area.

CHAPTER-II

REVIEW OF LITERATURE

This chapter provides a brief overview of research done in this area. A review of study helps in giving a proper direction to the research.

According to Singh and Grewal (1961) an important problem confronting the Indian farmer has been farm indebtedness. Indian agriculture has so far not been able to make the desired progress mainly due to heavy indebtedness of the cultivators. The mounting burden of farm debts resulted primarily from the low productivity of the agricultural sector and unfavorable products. The situation changed after the mid sixties, as there occurred a major break through in agricultural production in some parts of the country, triggered by the introduction of hybrid seeds. As a result the agricultural situation started changing in several regions of the country including Punjab. With higher incomes, farmers have made substantial improvements in creating farm assets of durable nature, such as pumping sets, tube wells, tractors and alienated machinery. There has been an increase in capital formation on the farms, and farmers are spending more on socio-religious ceremonies, education of their children and are living in better houses.

The study was carried out in the Sangrur district of Punjab state. Reserve bank included this district in its all India rural debt and investments survey of 1961-62, which made the data available for carrying the current study on indebtedness in the pre-green revolution period. Two development blocks, viz, Malerkotla and Ahmedgarh from within the district were selected for the study since the impact of green revolution here was more noticeable, compared to other parts of the district because of better irrigation facilities. Three villages were selected at random from each of the blocks and operational holding in these villages were classified into three groups viz small, medium and large. 20% farmers from each size

category with a minimum of two cultivators from each village were studied. The total sample comprised of 109 farmers of which 36 were small, 49 medium and 24 were large farmers. This period was taken with a view to represent the green revolution period as by this time the new technology had become fairly stabilized. Data for the pre green revolution period could not be ascertained from the cultivators. This gap was filled by using information already available in the all India rural dept and investment survey 1991-92, which was taken to represent the period of pre-technological transformation in agriculture. The data obtained from the cultivators covered the aspects of money borrowed, repaid over dues and investments made etc.

Prasad (1981) attempts to study the socio-economic characteristics of the different categories of small farmers, viz, the pure tenants, pure owners and part owners, in an agriculturally progressive area of Kapileswarapuram and Vrayavaram blocks in the East Godavari district of Andhra Pradesh. The data relates to 59 households collected in 1971-72. The results highlight that in agriculturally progressive area, the small farmers have a more diversified economic activity. Those who have more labor power, limited occupation diversification but have little or no land, take up cultivation on leased land, since agriculture in a progressive area is a profitable occupation. The small farmers have more intensity of cropping. They also depend on activities allied to agriculture like dairying, poultry, etc. This is more the case with pure tenants and part owners. They raise commercial crops to the extent possible. Live stock, more particularly milch cattle, occupies a prominent place in their agricultural assets. In order to better the economic conditions they have willingness to work hard and save more. The only drag that is holding them below the poverty line is the low proportion of workers to non-workers made up of children.

Garg *et al.* (1987) study the impact of high yielding varieties in various sectors of agricultural economy –land utilization, cropping pattern, employment of human and bullock labor and the levels of earning of farmers in the green revolution period. The present study confined to income distribution as influenced by the high yielding varieties programme with the objective to determine the impact of high yielding varieties of crops on net income per farm and per hectare .The results of the study depict that there is an overall increase in the area

under high yielding varieties in almost all the size farms, especially large sized farms. The simple reason for the same might be that the farmers of large size groups could afford to invest and bear greater risk.

The analysis presented in this research clearly indicates that the adoption of high yielding crop varieties had helped in increasing the income proportionately to the percentage of adoption in all the size groups. The area under high yielding crop varieties has shown an increasing trend. The study suggests that the investment made for augmenting production on the farm was less than the required one. Therefore, for increasing the farm productivity and income, the farmer should spend a major portion of his additional income for the utilization of more inputs.

Chattopadhyay and Sen Gupta (1988) stress on the availability of irrigation resources as a factor that increase efficiency for both owners and tenants. While several attempts have been made to explain the inefficiencies of sharecropping systems found in developing economies, they have been marked by certain definitional flaws. A more rigorous analysis of sharecropping that incorporates size class differences among owners and tenants thus becomes necessary. Earlier studies had also stressed on land productivity and intensity of farm resource utilization as indicators of efficiency, but they are seen as measures of relative efficiency only under restrictive assumptions.

This research work has taken in to account the size class differences among owners and tenants in the context of measuring sharecropping efficiency. The analysis shows that the medium sized farms belonging to both owner and tenant categories are efficient. Among the factors that help them to be efficient, the availability of irrigation seems to be very important. Use of machine has no positive role, while non irrigation material cost provides very little support. Benefits of irrigation facilities, however, are mostly enjoyed by the medium sized farms. It is obvious that poor small farmers cannot bear such cost, while larger sized farmers are plagued by scale diseconomies. Thus, emergence of medium sized farmers as efficient allocates of resources seem to be the reality of the present day economy of rural West Bengal.

The study by Singh and Mann (1988) looked into the pattern of regional distribution of national agricultural credit vis-à-vis the regional growth of agriculture. The study has revealed that on the whole, the distribution of agricultural credit is not based on the parameters of agricultural growth. It found that the states in the low growth rate zone, total advances were not on account of total cropped area, gross and net irrigated area. In most of the cases there were states, which were agriculturally more advanced, and the farmers might be financing their farm needs from their savings. As the commercial banks were getting experience in dealing with the agricultural sector, the distribution of all kinds of agricultural credit advanced by the commercial banks has tended to be more egalitarian. This is a healthy and favorable trend from the point of view of rural development.

Sidhu (1989) examines the finance gap literature relating to farmers in general and specially in India. The study reviews the financial provision and investigates the lending policies of financial Institutions. The study investigates the relationship between education, level of income, social class and the relationship between farmers and financial Institutions. The results show that credit limits adversely impact the efficiency of smaller farmers. Information asymmetry and under development of financial markets for small farmers leads to financial exclusion and negatively impact economic development.

According to Sain and Bagchi (1989) economic development and commercialization of farms go hand in hand. The degree of commercialization varies between different size groups of farms. But the majority of the farms investigated have been found to offer more than 40% of their total products for sale in the market. Commercialization has also a bearing on per hectare yield of crops, though not very significantly. The area under non food crops as a percentage of the total cropped area has increased along with commercialization. The farmers recorded increases in percentage of sale of food crops as a result of an increase in the degree of commercialization. The sale of crops in the peak of harvest and immediately post harvest period by the farmers in general appeared to have been somewhat checked, although the bigger farmers were found to have utilized the advantages of commercialization more and sold a major portion of their marketable surplus over the lean months. The farmers belonging

to different size groups could record better performance with respect to both the spread of their sale and prices received for their products as a result of commercialization. The findings of the studies are corroborated by similar studies done elsewhere.

Prabhu (1989) on the basis of empirical evidence tries to analyse the actual costs of the farmers adopting high yielding varieties of seeds (HYVs) and the resulting benefits. An attempt has been made in this research to determine viable and potential viable units and to suggest a strategy for adopting the HYVs through which the farmers while minimizing the increase in costs, gets substantial gains to induce him to continue cultivating the HYVs. A computer model of the village was made and experimented upon to study the consequences in terms of additional costs and returns of the various changes made. The results of the experiment showed conclusively that an immediate complete switch over to the HYVs will result in huge increase in the small farmer's working capital requirements. Making a trade off between additional costs and additional benefits, the adaptation of HYVs in one of the two seasons would be ideal at the present stage. Co-operative farming will get the small farmer gains not only in terms of revenue but also solve the problem of getting Institutional recognitions.

Shah and Aggarwal (1989) attempt to view the disparities in the levels of income, consumption and investment of progressive farmers in relation to the less progressive ones and also between the different size groups in each category. It is hypothesized that inequalities in income distribution have widened due to the impact of the new technology and these are likely to increase further with the advancement of a new technology.

The results depict that with the introduction of a new technology the income levels of progressive farmers have considerably increased. There is a significant difference in the income levels of progressive farmers in the different size groups of holdings; a significant proportion of the gross income of progressive farmers is ploughed back into agriculture by the use of new inputs as HYV seeds, fertilizers and irrigation. Considerable capital formation, unprecedented in the annals of Indian agriculture is going on especially in farm machinery and owned means of irrigation by the progressive farmers. There are variations in

the investment between progressive and less progressive farmers and also on different size groups of holdings. This analysis shows that the new technology has created inequitable distribution of income as is evident from the variations between the incomes of the progressive and less progressive farmers and also in the form of inequalities emerging on the basis of pattern of working expenditures in new inputs and capital investments by these farmers.

Chakravarty and Pattnaik (1989) examine whether the absolute income level of households or its income trend is more significant in determining its consumption and investment pattern in:

- i. Expenditures on durable consumer goods, luxury goods and valuable assets such as, gold, jewellery etc. As this represents the saving side of the household beyond the essential consumption expenditures, the income elasticity of this particular item may be quite high.
- ii. Increase or decrease in the net burden of indebtedness of the household.

It follows from the foregoing analysis of income level and income trends that investment has stronger relation with the income trend than with the income level. In the upper income class cultivators may spend a large amount on investment, but in percentage terms it hardly exceeds investments in the lower income group. But with increasing income, a cultivator raises his investment not only in absolute terms but also as a percentage of income. The expenditure on durable consumer goods and luxury goods has strong relation with both the income level and the income trend. Thus a cultivator goes on adding to his investment so long as it is also increasing. Borrowing and sale of assets have also a stronger relation with income trend than with income level.

According to Joshi (1990) significant early successes of the green revolution in Punjab have given way to stagnating farm household incomes and consumption since the 1990s. The low investment in education has also resulted in a failure to diversify into non farm employment avenues in rural areas. The period of green revolution caused a significant increase in farm family incomes. However, during the 1990s farm family incomes appeared to be stagnating.

The non farm income could not keep up its earlier momentum. These issues need to be addressed properly. There is a need to diversify the rural economy, not only in farm diversification but also to non farm avenues. The increased production and income caused by the green revolution have resulted in higher farm investment and farm household consumption also increased. The consumption basket has undergone a significant change over time. Encouraging both public and private investment in education will surely help the rural economy in diversifying.

Sale and Yadav (1991) examine the employment, income and expenditure pattern of tribal farm families in Jalgaon district of Maharashtra. The study reveals that the extent of unemployment in case of both male and female workers of the large farm, small farm and farm labour families was substantially large. The expenditure exceeded the income in all these families forcing them to borrow money from the money lenders. Ways of increasing income levels are indicated that would help the tribals' along with technical know how, to derive additional returns, enabling them to enjoy a higher level of living. The study concludes that the present occupations of tribals are in capable of providing adequate employment and income opportunities. On the other hand, the consumption expenditure of the tribal families exceeded the family income and tribal families had deficits in their economy. This deficit is the result of the traditional nature of production activities and absence of gainful employment. To sustain this deficit, the tribals' helplessly opted mostly for the private money-lenders even in the face of exorbitant rates of interest and thus they were heavily indebted. The vast illiteracy among the tribals further helped their own exploitation, due to lack of knowledge about money transactions and new developments in science and technology. The improvements in employment opportunities coupled with knowledge of better management and allied activities will help the tribals' to derive additional income and thereby enjoy a higher level of living.

Pandey *et al.* (1992) study the effect of increase in income owing to the adoption of new technology of agriculture by the different categories of cultivators on the magnitude and patterns of savings and investments in the rural areas of Eastern Uttar Pradesh. The net savings of an economic unit during an accounting period is defined as the difference between

current disposable income and current consumption. The results of the analysis highlights that the income of the cultivator is affected by the total saving of the family and by the pattern of investment. The agricultural income differential between two different districts (progressive and less progressive ones) and by the size group of holdings in each category was significant. The consumption level per farmer of the progressive area was higher than that of the less progressive one by type and by size group of cultivators. Moreover the study reports that there were dis-savings on the smaller farmers and savings were positive for the progressive and less progressive medium and large farmers. The marginal propensity to consume was negatively correlated with the disposable income and marginal propensity to save was positively correlated. The marginal propensity to save was higher in the progressive area than in the less progressive area.

Moorthy (1993) suggests relief package for the six districts affected by farmer's suicides in the Vidarbha region of Maharashtra, which was finally announced by Prime Minister Manmohan Singh on July 1, 2006. Similarly a package was proposed to be announced for Karnataka, Andhra Pradesh and Kerala soon. While the total package appears to be large, it is not going to provide any immediate relief to the farmers. The core problems of unremunerative prices and indebtedness underlying farmers suicides and ground realities are still ignored. This package the total amount of the relief package is Rs 3750 crore which include waivers of Rs 712 crore of over due interest and Rs 2177 crore for irrigation under the accelerated irrigation benefit programme. The rest is going to be spent on water shed programmes, for a seed replacement programme, on attending the problems, in orange cultivations and for cattle and fisheries development. In additions to this, the center will also ensure an additional credit flow of Rs 1275 crore for the six drought hit districts of Vidarbha. While arguing why this package would not stop farmer's suicide, the study makes an attempt to suggest short and long term measures to solve farmers' distress.

Farmer's suicides are the result of the agrarian crises, which can be solved only with fire fighting techniques. Concerted strategy both for short and long term is needed. In the short run, the government should first of all, immediately announce remunerative prices for different crops and restart the scheme of cotton procurement. Private players should be allowed to procure cotton in Vidarbha region at the prevailing market prices. Prices should

not be fixed only on the basis of the cost of cultivation, but should be linked with the wholesale price index. If the market price of a crop is higher than the fixed MSP, the government should not hesitate to pay the market prices to farmers. The cost of cultivation data collected under the comprehensive scheme for principal crops should be checked periodically by an independent agency so as to make the system fool proof.

The long term measure should focus mainly on developing rural infrastructures such as: irrigation, water shed development, roads, markets, schools, credit institutions and extension network. Many researchers suggest that the present agrarian crisis can be mitigated by doubling Institutional credit to agriculture. The government also appears to be moving on these lines. But one should know that an increased flow of Institutional credit is necessary for agricultural development, but not sufficient to solve the present crisis. The supply of Institutional credit alone would not help farmers to increase their income generating capabilities unless significant improvement takes place in the availability of rural infrastructure. Farmers may also not be willing to invest in agriculture, if it does not provide any remuneration. Therefore, the government should focus more on increasing rural infrastructure by stepping up public investment in agriculture, which has been declining since the mid 1980s. Farmers who committed suicides had taken loans from non institutional sources like money lender, traders, etc. The package does not provide any hope to this group. The main problem is that the income from crop cultivation is not enough to even cover consumption expenditure and farmers therefore, need remunerative prices for crops like, cotton and others.

Dev and Rao (2000) analyse various problems faced by the food processing sector in Andhra Pradesh especially case instance of contract farming, with a focus on oil palm and gherkin. While contract farming has largely solved the problem of supply of quality raw material, cultivators of both the crops have their own needs. Oil palm growers, for instance, are keen on an assured minimum price while gherkin growers are totally dependent on export demand. Processors have also neglected the smaller farmers. Hence, some form of government invention to ensure contracts should be enforced and complied with. This is the urgent need of the hour.

The participation of small farmers in oil palm cultivation is almost negligible. However, it is surprising to note that the crop was introduced in the state with an intention to help the small farmers get additional income. There are instances in other countries where the processors favored small farmers for contract farming, because of low cost production in some crops and areas, directions of the government and availability of family labor. It was found that the participating large farmers in gherkin have higher family size. The study of contract farming in these crops are creation of insurance facilities for these crops, supply of adequate power, provisions of power connections to new growers and extending drip subsidy for these growers. There is also a need to bring in transparency in the method of price fixation. The oil palm growers need an assured minimum price to increase the area under the crop. The imposition of variable tariffs on imports of palmolein based on the average of past few years international price is one solution. In oil palm the participations of small farmers can be increased by allowing them to grow the crop in government waste lands under 'tree patta' scheme. Provision of separate line of credit and a package for growing of intercrops in the first three years as done in case of coconut is also recommended. As far as the working of contracts is concerned, it is desirable to have a direct link between the processor and the farmer. A public sector undertaking working as a facilitator, as in Punjab, is another alternative solution. In oil palm, research must be intensified to develop drought tolerant varieties to suit the Indian conditions and a sophisticated harvesting tool must be developed and supplied to the farmers. In case of gherkin, efforts may be made to develop local demand for the product and to solve the problem of rejects during grading at the factory. The state should make laws to enforce the contracts and also provide for trustworthy and effective arbitration.

The study by Gill (2006) reveals that there is a lot of potential between two Punjab's (India and Pakistan) for economic co-operation. There is also considerable enthusiasm among the people on both sides. The SAARC platform can considerably accelerate the process of co-operation but it is not working well as yet. The people of two Punjab's- the researchers, intellectuals, social workers, journalists, and enlightened politicians would have to play an active role to enhance co-operation within this region. There are some achievements in this

direction but more needs to be done. The efforts need to be continued and one day they would surely fructify. The flow of economic progress would become Punjab centric and this region has the potentials to be one of the most advanced regions in the world. On the basis of co-operation within this region, economic integration the pattern of European Union can be built among countries of South Asia. The bright future of South Asia as a region is visible in the form of regional economic integration while maintaining the political sovereignty of countries involved in this task. This would ensure fast economic progress and consolidate socio-economic co-operation among the confident sovereign countries and their natural economic regions like those of the Punjab.

Mukherjee *et al.* (2001) examine the recent field evidence from some villages in Haryana. The study substantiates documented findings from the world over about the impact of air pollution on agriculture and livelihood. Air pollution from industries is a proximate source of major damage to farming systems in adjacent areas thus disrupting the main source of livelihood of many small and marginal farmers. In Faridabad, farmers face a number of problems. Though there is a need to carry on agricultural practices and live stock for securing livelihood. It is increasingly becoming difficult over time. The constraints to farming are multiple such as: fall in size of land holding and the policy of land acquisition by Haryana Urban Development authority (UHDA), increase in input prices, infrastructure-related problems (electricity and irrigation) , increase in pests and crop diseases and impact of air pollution. Procuring seeds, fertilizers and pesticides is problematic due to poor quality and adulterated agricultural inputs, non availability in proper time, high costs, etc. Farmers almost stopped growing mustard due to air pollution, which is perceived to cause damage to mustard flowers.

Effective ways for offsetting damages from industrialization and urbanization, enhancing agricultural support system and strengthening agriculture policy support can help the farmers of Faridabad. Farmers opined that polluting factories should not be permitted near agricultural fields and the construction of public roads near crop field should be banned as it leads to dust deposit on leaves along with pollution. There is a need to formulate policies that promote sustainable agriculture with agro-economic processes that reduce the impact of air

pollution on crop production. Community awareness building about the impact of air pollution and ways of mitigating them are essential. There is a clear need for policy dialogue amongst the policy-makers, people and other actors on the impact of industrial pollution on agriculture and health. Consumer courts should also be strengthened so that community is empowered to demand compensation for the damage done to their livelihood and farming systems from local polluting units. Construction activities on agricultural land by HUDA should be discouraged / stopped and the farmers displaced must be compensated through alternative employment.

Gill (2005) highlights that increased cases of suicides by cultivators and agricultural labour have been reported in Punjab since the mid 1980s. According to this study the unprecedented phenomenon is caused by a multidimensional crisis of the rural economy in the post green revolution phase of agricultural development. A combination of economic factors such as, economic hardship of the pauperized peasant households, crop failure, and unemployment and indebtedness has pushed the victims to end their lives. This is happening in wake of decline of community sense support mechanism as the result of the emergence of new production relations. This phenomenon can be checked through appropriate policy measures, such as, debt moratorium of the debt trapped households and creation of safety nets for marginalized rural households.

According to Deshpande (2002) Andhra Pradesh, Karnataka and Punjab have been rocked by the suicides of a large number of farmers, posing a serious challenge to policy makers. This study attempts to identify the agro-economic situations faced by the farming community, as well as other factors, as reflected by the case studies of the suicide victims, and suggests remedial measures to avert such solutions.

Agrarian distress caused in some districts of Karnataka is a fact, and the situation that has led to such distress needs to be squarely tackled. But connecting the spate of suicides directly to any single cause would not be entirely correct. Suicides are strictly a personal decision and the post suicide search for causes gives only circumstantial evidence. There are events, actors, stressors and triggers that finally lead to the fateful decision. As it could be seen from

the suicide and control cases, the agricultural situation was more or less similar and therefore multiple causes leading to such decisions gets credence. Understanding the unfortunate process that led to suicides at a micro level is one stage and the second stage involves following these both at the micro as well macro levels through policy initiatives. In a pragmatic sense one needs to give more importance to the second stage.

The concentration of victims in the backward regions may be incidental, but backwardness as a challenge cannot be overlooked and ignored. This gives rise to an important requirement for these areas, and that is to facilitate private and public investments in the backward areas of the state. While designing and initiating such schemes, it is essential to understand the resource endowments and economic advantage of these regions to participate in the mainstream growth pattern. The loss of crops due to inferior quality of inputs and inadequate knowledge of technology has been quite common. This needs to be dealt with using a proper input. Crop insurance has operated for a long as crop credit insurance and did not provide a sufficient safety net cover to the farmers. Market inadequacy and crash in prices were reported as major reasons for farmer's distress. The time lag between price crash and market intervention is long enough to cause severe distress in the farming community. Revamp of the market discipline, providing proper infrastructure, price monitoring and providing quick information could go a long way in removing market imperfections.

Shouriedavid and Yvstsai (2002) conducted a field study in the last week of September and first week of October 2002 in 15 mandals of the two districts of Warangal and Khammam. About 90 farmers were contacted and individual responses elicited through questionnaire on various issues related to BT cotton farming. It was difficult to contact more farmers because BT cotton cultivation was widely dispersed and only 3 or 4 farmers per village in select villages were supplied with BT cotton seeds for cultivation over an area of 1 or 2 acres each. The number of the farmers contacted constitutes about 4% of the total numbers of farmers, who are cultivating BT cotton and experience shows that the responses of other farmers may not be much different. Farmers cultivating cotton in Warangal and Khammam show that considerations of yield are still the primary concern. Propaganda is the major force in decision making and seed dealers act as effective crop counselors. It may also be stated that

damage to crop due to bollworm is considerable less in BT cotton than non BT cotton only under conditions of severe pest attack. Further, there is not much reduction in pesticide expenditure because farmers still do not distinguish between BT and non BT at the time of spraying pesticides. None of the farmers are opposed to BT cotton on technical considerations and they would like to grow BT cotton even for the coming seasons, if it is a commercially viable proposition. This shows that the feelings of environmentalists are not in tune with the feelings of farmers.

Regarding monitoring of norms set by GEAC, none of the government officials visited any farm to ascertain whether the norms were complied with or to study the impact on the environment. The seed dealers are the only occasional visitors. Therefore, it may be stated that although there may be a vast potential for cultivation of BT cotton, but at present, the space is fully dominated by the MNC alliance of Mahyco–Monnsaaanto. Farmers are eager to take up BT technology and the government should take immediate measures to release Indian varieties of BT cotton so that farmers can enjoy the fruits of the technology at low cost. A field study in Andhra Pradesh elicited the views of farmers in two districts, Warangal and Khammam in the state on the efficacy of BT cotton in withstanding pest attacks, use of pesticides, compliance with government norms, and farmers' willingness to continue with cultivation of BT cotton in the coming seasons.

The study by Ghuman and Dua (2008) highlights that National Rural Employment Guarantee Act (NREGA) 2005 is a unique policy intervention by the state for providing “livelihood security” to the resource poor people in rural India. Under the Act, the governments are legally bound to provide 100 days guaranteed manual employment on local Public works to every rural unskilled adult (job card holder) who is willing to work at the prevailing minimum statutory wage rate. In the absence of employment they would be paid unemployment allowance. The study is also an attempt to examine the socio-economic background of the job sector households and of those who got employment under the Act. The entire primary data and information has been collected through a questionnaire from 10 villages and 10 development blocks were randomly selected. Out of each village, 10 beneficiaries were randomly selected from each of the sampled village. The study thus

pertains to 100 households. It is important to note that there is a widespread impression that Punjab is a very prosperous state. However, all is not well with Punjab. The sheen of green revolution is no more there. Rather the adverse affects of the green revolution had started surfacing since the last two decades. As such the rural Punjab in general and agrarian economy in particular, is passing through a serious crisis.

The performance of NREGA in district Hoshiarpur has not been very encouraging during the first two years its implementation. Most of the employment was generated in 2006-07. The achievement of the Act in terms of annual average days of employment household has been nearly 1/4th of the minimum 100 days employment. Out of 126 workers who were called for work, only 17 could complete the 100 days norms of employment in two years period. Amongst the 100 sampled households 93 were below poverty line and 75 were scheduled caste. Clearly, the resource poor households in the rural area are the most targeted group under NREGA. Nerve the less, the program can be a great agent for socio economic upliftment and providing livelihood security to the poorest of the rural India, if implemented earnestly. The employment and earnings under NREGA should be treated as additional avenues for such households. The existing rural employment should not be transferred under NREGA. The executing machinery and the beneficiaries under NREGA need to be sensitized about the fundamental objectives of NREGA. The state government must appoint whole time program officers who must be dedicated committed and honest persons.

While commenting on the failure of NREGA in Maharashtra, Datar (2007) pointed out that the scheme could not get momentum because government machinery is paralyzed. Such schemes can only work if there is organized social and political pressure from the rural poor on the executing machinery. The people need to be educated in the new ethos and built their capacity to manage funds assets with an opportunity to create livelihood for themselves. In fact for NREGA to be able to realize its potential, the rate of civil society organizations is critical. But this calls for a new self-critical politics balance and restraint (Shah, 2007).

Dhaliwal (2008) has pointed out that almost freezing of the minimum support price of wheat and paddy from 2000-01 to 2004-05 was one of the reasons of an increase in economic

distress among farmers. The official report on suicide by farmers may put the SAD-BJP government in an awkward situation at the political level in the state. The report, which has enlisted 2,990 cases of suicide by farmers and farm labour starting from 2000 to 2008 in Bathinda and Sangrur district, was recently submitted to the state government by Punjab Agriculture University (PAU), Ludhiana. The government had asked the university to pursue the study.

Already, the level of debt is highest in Punjab. Further the share of the non- Institutional debt is higher and the rate of interest on these is very high and is around 57 percent. Various studies conducted by the PAU have estimated the level of debt to be around Rs 24,000 crore in 2006, out of which Rs 12,000 crore was from non-Institutional sources. The recovery methods of non-Institutional sources of credit are considered coercive in nature causing psychological and social distress. The study was conducted on 875 villages in both districts. The results highlight that Punjab agriculture is passing through a difficult phase since 1997. First, failed cotton crop put the entire cotton belt under distress. Then during 2000-01 to 2004-05, the MSP of wheat and paddy were almost frozen due to falling international prices. The MSP of wheat was increased by about 1.5 % per annum and that of paddy about 2.5 % per cent during this period (2000-01 to 2004-05), whereas the cost of production of wheat and paddy went up by about 8 to 9 percent per annum. Further the productivity of wheat declined during 2001-05.

Interestingly, the number of cases of suicide came down following a good increase in the MSP in 2005. However, it increased in 2008. In Bathinda district, 85 farmers committed suicides in 2000, 84 in 2001, 92 in 02 in'05, 63 in 2006, 76 in'07 and 109 in'08. In Sangrur district, 134 farmers committed suicide in 2000, 123 in 2001, 81 in 2005, 82 in 2006, 105 in 2007 and 118 in 2008. Of the 2,990 cases of suicide, 1,757 were farmers and 1,113 farm labours and reason for suicide in case of 1,288 farmers and 671 labours was indebtedness and in the rest of the cases other reasons such as family conflict, marital discord, drug addiction and long illness, etc.

Although a number of studies have been done to cover the socio-economic status of farmers, the situation still is quite alarming and demands more of work at field level. The present work tries to study the socio-economic status of farmers in district Muktsar in Punjab. The above review provides a basis for laying down the objectives of the present study.

3.1 Introduction

In the preceding chapter, an attempt has been made to review some of important existing studies pertaining to the socio-economic status of farmers and other factors, which are influencing the farming practices and farm productivity in Punjab. This chapter covers the data sources, the scope of the study and describes the research tools and techniques to be applied so as to achieve the objectives of the study. The aim of this chapter is to clarify the methodology of the research as well as to outline the logic and methodology in undertaking the study for the achievement of the research goals. The present research is based on both the primary and secondary data. Primary data has been collected from 100 households in district Muktsar. Secondary data has been collected for net sown area, agricultural credit and agricultural productivity the period 1980-2005. The analysis has been done for two sub - periods, period I, 1980-1991, and period II, the post liberalisation period, 1992-05.

3.2 Profile of the District

The study relates to Muktsar district. Muktsar city, the district headquarters of Muktsar district is a historical city. Muktsar district is located in South Western Zone of Punjab. It is bounded by states of Rajasthan and Haryana in the South, district Faridkot in North, Ferozpur in West and Bathinda in the East. Muktsar district was carved out of Faridkot district on 7.11.1995 with its headquarter at Muktsar city. It covers an area of 2615 sq km. It covers 5.19% area of Punjab.

3.3 Climate of the District

The Western Himalayas in the North and the Thar Desert in the South and Southwest mainly determine the climate conditions. The South-Western monsoon brings the much needed rain bearing depression during summer (July to September). Nearly 70% of rainfall is received during three months (July to September), when South Western monsoons are active in the region. There is a wide seasonal temperature variation with mean monthly maximum temperature being as high as 45° C in June and mean monthly minimum temperature as low as 2° C in January. The major part of the district qualifies for Aridic (Torric) moisture regime according to the criteria laid in soil taxonomy. Soil moisture regime computations employing the Newhall mathematical model indicate that the area has 'weak Aridic' moisture regime (Vain Wambeke, 1985). In the Aridic (Torric) moisture regime, the moisture control section in the most of the year is dry in all parts for more than the time (cumulative).

According to census of 2001, Muktsar has total population of 7,77,493. The percentage of rural population to the total population is 74.46%. Muktsar has population density of 297 persons per sq. km compared to 484 persons per sq.km of the Punjab, which is the lowest in Punjab. There are 891 women for every 1000 men in the district. The scheduled castes form 37.75% of the total population in this district. The population of Muktsar district has increased at the rate of 18.80% from 1991 to 2001 against 20.10% for the whole state. Since there is a dominance of rural population, the district is ideal for studying the problems of farmers' distress.

3.4 Data Sources

The study uses both the primary and secondary data. The main source of secondary data has been Indiastat.com, NABARD, Punjab Agricultural University, Ludhiana, Punjab and Haryana regional office, Chandigarh. Data covering profile of Muktsar district has been collected from the statistical department, district of Muktsar.

The growth rates have been calculated as:

$$Y = ab^t$$

$$Y = \log a + b \log t$$

3.5 Data Sources

The Primary data has been collected with the help of well designed and well structured questionnaire. The Primary data for the study was collected in two phases-Pilot survey and field study. In the present study a concerted effort has been made to make sure that the questionnaire contains a representative sample of the subject matter under study. To increase the validity of the questionnaire and to pre-test the data collection procedure, a pilot study has been conducted for 15 respondents. This procedure has been performed to reduce confusion and misunderstanding by the respondents answering the survey. Two villages were selected to participate in the pilot survey. The aim has been to prepare the final questionnaire and to note the level of difficulty for each question. The respondents from the pilot survey noted those questions which are difficult to answer or unclear in intention and suggested guidelines to improve these questions. Some questions have been deleted, others expanded, and still others added. After the pilot study, further refinement has been made according to the comments received to prepare the final questionnaire for the survey. A pilot survey was carried out in these two villages of the selected district. On the basis of the response and feedbacks obtained from these interviews and some village elders and the academicians the questions were corrected and updated for the final administration.

The primary data has been collected to analyze the socio-economic status of the farmers. In order to collect the primary data purposive sampling method was adopted in which first the state (Punjab) was selected and then district Muktsar out of 20 districts. At the third stage block Malout was selected and in the last stage villages Kabarwala, Kabarwala Dhani and Swran Bodla were selected for sampling. Through the questionnaire an attempt was made to get the response of the members of these villages. In this questionnaire two types of questions were used:

- i. closed ended questions in which options, were given.

- ii. open ended questions where the respondents can give answer in his/her way.

After designing the questionnaire it was administered to different households in three villages under the district Muktsar. These villages are Kabarwala, Kabarwala Dhani and Swran Bodla. Out of 180 house holds surveyed, 150 questionnaires complete in all aspects and useful according to the information required were selected.

Agriculture income, agriculture expenditure and agriculture productivity were calculated and these have been taken for analysis. The methodology used for calculating Agriculture income, agriculture expenditure and agriculture productivity has been explained below:

3.6 Agriculture Income

Each acre of paddy gives normally yields 22Qtls, 24 Qtls and 26 Qtls. Therefore total income per acre of paddy is calculated by multiplying it with the price of paddy, adding to it the bonus of Rs 50. Therefore total income from per acre of paddy for 22Qtls, 24Qtls and 26Qtls at Rs.930 comes out to be Rs 20460/-, 22320/- and 24180/-.

Each acre of cotton gives normally yield of 7Qtls to 8Qutls. The price of cotton lies between Rs 2700 to Rs 2800. Therefore the total income from per acre cotton for 7 Qtls at 2700 price and 8 Qtls at 2800 price is Rs 18900/- and Rs 22400/-.

Each acre of wheat gives normally yield 20 Qtls, 22Qtls and 23Qtls. The price of wheat is Rs 1000/-. Therefore the total income from wheat comes out to be Rs 20000/-, Rs 22000/- and Rs 23000/-.

3.7 Agriculture Expenditure

Agriculture expenditure has been calculated as given below.

The paddy expenditure have been calculated by taking the following (i) preparation of soil (Rs 800/-). (ii) plant seedling (Rs800/- to Rs 1000/-) .(iii) D.A.P +Urea + Potash are (Rs 467.59/-, 241.50/- and 200/-), (iv) Pesticides (spray) + watering (Rs 800/-), (v) marketing expenditure (200/-).

Cotton expenditure has been also calculated in similar way by taking the following:

(i) Preparation of soil (Rs 800/-) (ii) seeds (Rs 2200/-) (iii) spray, godi and labour etc (Rs 2500/- per acre) (iv) Gining Rs 200*7/-acre= Rs 1400/-.

Similarly wheat expenditure has also been calculated by covering: (i) Preparation of soil (Rs 800/-) (ii) seeds (Rs1200/-) per acre (iii) labour expenditure and including water Rs 930/- per acre (iv) cropping (Rs 650/-) per acre and marketing per acre @ Rs 150/-.

Next step was to calculate the agriculture productivity.

3.8 Agriculture Productivity

Productivity has become the buzz word of our times. The term productivity has been used in such a variety of senses, that it is exceedingly difficult to find out whether the term 'productivity' is synonymous with 'efficiency', be it a plant, a firm, or a farm. Productivity is a subject surrounded by considerable confusion and people employ the same term but mean different things. Productivity is a word which is often used to broadly express the overall efficiency relating to performance of industries, firm, farm etc. Productivity per acre is important for the study. The present study uses the term net productivity.

Net productivity per acre=Agriculture income-Agriculture expenditure

3.9 Methodology

Methodology is considered to be an important parameter of empirical study such as ours in that it constitutes the ultimate yardstick of ascertaining if a research project has succeeded or

otherwise, in exploring the various issues it sought to addresses to. It however needs to be pointed out that every empirical research effort has to evolve its own methodology. As observed earlier, the present study has been undertaken with the following the objectives: To study the overall change in the standard of living of the farmers during pre and post-liberalization era, for finding out the relationship between the cropping pattern and income of the farmers in the study area and to identify the major factors responsible for the farmer's miseries after liberalization.

It is in tune with these considerations that in the present study, the analysis of socio-economic status of farmers has been studied with the help of some statistical and economic tools and procedures generally employed in this regard. In precise terms, our search kit in the present study, comprises the following: growth rates has been calculated as:

$$Y = ab^T$$

$$\text{Log } Y = \text{log } a + T \text{ log } b$$

The study uses chi-square, factor analysis and step-wise regression technique for analysis. A Data was analyzed with the help of SPSS (Statistical Package for Social Sciences) package. Chi-square (χ^2) test is popularly known as test of independence of two categories and test of goodness of fit for the reason that enables us to ascertain how appropriate the distributions from the sample data empirical. Moreover the test is good and strongly recommended for demographic variables (such as age, gender, marital status, educational level and income) measured on nominal scale. The test of concordance (goodness of fit) can be made just by inspection of the sample data, but such a test is obviously is inadequate. Hence chi-square (χ^2) test was used to get the precision. The formula for the chi square is:

$$\chi^2 = \sum \frac{(\text{Observed Frequency} - \text{Expected Frequency})^2}{\text{Expected Frequency}}$$

Where O refers to the observed frequencies

E refers to the expected frequencies.

Factor analysis is a very useful method of reducing data complexity by reducing the number of variables being studied. Factor analysis seeks to resolve a large set of measured variables in terms of a relatively few categories, which are known as factors. In other words, the factor analysis emphasizes on investigating the interrelationships among all the relevant variables. In simple words it is a technique whose purpose often consists of data reduction and summarization. Broadly speaking, it addresses the problem of analyzing the structure of the inter relationships among a large number of variables (e.g. test scores, test items, questionnaire responses) by defining a set of common underlying dimensions known as factors.

This technique has a great utility in summing and simplifying a large number of factors. At the same time one of the fundamental aims is to classify similar factors together. In the present study the second and third part of the questionnaire is analysed with the help of factor analysis.



INTERPRETATION AND DISCUSSION OF RESULTS

This chapter discusses the results of primary data covering the relationship between land holdings, cropping pattern, agricultural income, agricultural expenditure and agricultural productivity in section 4.1, 4.2 and 4.3. Section 4.1 covers the Profile of Farmers of Punjab in District-Muktsar. The reliability coefficient alpha is 0 .78. The value indicates that the reliability of the questionnaire is high. Section 4.2 deals with data analysis of primary data. Section 4.3 covers the Factor influencing Factors Influencing Socio-Economic Status of Farmers. Section 4.4 covers the results of regression analysis of determinants of agricultural income, and agricultural productivity. Section 4.5 covers the analysis of secondary data, i.e., Net sown area, Agriculture Credit and Agriculture Productivity for the period 1981-82 .to 2004-05. Analysis has also been done for pre- liberalisation period, i.e., 1981-82 to 1991-92 and post liberalisation period, i.e., 1992-93 to 2004-05.

4.1 Profile of the Farmers of Punjab (District-Muktsar)

- i. **Level of Education:** In this study 37% of the farmers were below matriculation. 24% have done matriculation, 18% are plus two or higher secondary, 13% are graduate and only 8 % are post graduate. It is clear that majority of the farmers involved in agriculture are either not very well educated or those who have higher education are leaving farming. Lack of education is also a major factor in the selection of right loan provision for the right purpose.
- ii. **Type of House:** Type of house is an indicator of standard of living of farmers. In the sample all farmers have their own house, 36% of respondents live in thatched house, 48% of tiled house and only 16% have terraced house. Although the respondents have there own house, yet they are percentage living in terraced houses is less.

- iii. **Land Holding Pattern:** Land holding pattern in this study shows, a shocking picture. The farmers are classified on the basis of land holding. The percentage of land holding on the basis of size is given below:
 Small farmers- 1<5 hectare (40.66%)
 Medium farmers- 5-10 hectare (33.3%)
 Large farmers- 10 and above (26%)
- iv. **Caste:** Caste is also a major indicator of the status of the farmers. 87% farmers are Jat Sikh and only 13% farmers belong to other castes.
- v. **Tenancy Status:** In this study, 68% of farmers have been own cultivatable land and 32% of farmers who have no land and do farming on Govt land or have taken land on lease.
- vi. **Labour Type:** In the study, 38% of the farmers have their own family labour and 62% of farmers depend on hired labour. This indicates that most of the farmers depend upon hired labour. Farmers are not interested to work on their own hand. Mostly they depend on hired labour.
- vii. **Cropping Pattern:** The study depicts that 48.66% of farmers produce cotton and wheat, 36% farmers grow paddy, cotton and wheat and only 15.33% farmers produce paddy and wheat. Large farmers prefer to produce paddy, wheat and other crops.
- viii. **Agriculture Expenditure:** For 21.33% farmers' agriculture expenditure is <20 thousand, 12% farmers have agriculture expenditure in the range of 20-40 thousand. 15% of farmers reported that their agriculture expenditure is in the range 40-60 thousand, 10.66% have expenditure less than 1 lakh and 24.66% of farmers' agriculture expenditure is more than 1 lakh.
- ix. **Credit Borrowing:** A high percentage of farmers take loan from banks. 78.66% of farmers are borrowing money and only 21.33% of farmers depend on their own resources.
- x. **Support Price:** Support price is considered to be a factor responsible for farmer miseries. Only 26.66% of farmers do agree with support price, but 74% farmers do not agree with support price.
- xi. **Cost covered:** In this study, 70% of farmers are those farmers have covered the cost and 30% of the farmers are not able to cover the cost.

- xii. **Rate of Interest:** 52% farmers pay 6-10% rate of interest and 32% of the farmers pay a high interest rate of 18% rate of interest and 16% farmers are those farmers who pay even more than 18% rate of interest. Rate of interest is very high. This interest pushes the farmers into the debt trap.
- xiii. **Means of Agriculture:** 82% respondents have their own means of agriculture. Means of agriculture included tractor, harvesting machine, oxen and any other. It means that these farmers do not pay any rent on these implements. 17.33% of respondents pay rent on means of agriculture. They take these implements on rent.
- xiv. **Increase in Status:** 40% of the respondents report an increase in status.

Section 4.2 Data Analysis

Table 4.1 Relationship between Land Holdings and Cropping Pattern

Land Holding	Cropping Pattern				Chi-square 46.149*** df: 4
	Cotton and wheat	Paddy, cotton and wheat	Paddy, wheat and other crops	Total	
1 to 5 acre	41	6	3	50	
% within Landholding	82.0%	12.0%	6.0%	100.0%	
5 to 10 acre	23	15	12	50	
% within Landholding	46.0%	30%	24.0%	100.0%	
10 acre and above	10	33	7	50	
% within Landholding	20.0%	66%	14.0%	100.0%	
Total	74	54	22	150	
% within Landholding	49.3%	36.0%	14.7%	100.0%	

*** Significant at .1 percent level

Analysis of cropping pattern depicts that 74 respondents (49.3%) produce cotton and wheat, 54 respondents (36%) produce paddy, cotton and wheat and 22 respondents (14.7%) produce paddy and wheat.

From the 74 respondents producing cotton and wheat, 41 are small farmers, 23 are medium farmers and 10 are large farmers. From the total of 54 respondents 6 growing cotton and wheat are small farmers, 15 are medium farmers and 33 are large farmers. In paddy and wheat category 3 from a total of 22 respondents are small farmers, 12 are medium farmers and 7 are large farmers. This area is dominated by farmers who grow cotton and wheat.

Size wise relation depicts that more no. of farmers with small sized holdings are producing wheat and cotton, while the farmers with large land holdings prefer to produce paddy, cotton and wheat. The value of chi-square is 46.194 (df: 4). Chi-square is significant at .1% level. The results depict that there is a relationship between cropping pattern and land holding.

Table 4.2 Relationship between Cropping Pattern and Caste

Caste	Cropping Pattern				Chi-square 0.377 df: 2
	Cotton and wheat	Paddy, cotton and wheat	Paddy, wheat and other crops)	Total	
Jat, Sikh	64	48	20	132	
% within Cast	48.5%	36.4%	15.2%	100.0%	
S.C,B.C. & other castes	10	6	2	18	
% within Cast	55.6%	33.3%	11.1%	100.0%	
Total	74	54	22	150	
% within Cast	49.3%	36.0%	14.7%	100.0%	

The results of analysis of relation between cropping pattern and cast are depicted in the table 4.2. The results highlight that out of 74 respondents growing cotton and wheat, 64 respondents belong to Jat Sikh family and 10 respondents belong to other castes. From the 54 respondents reported producing cotton, wheat and paddy, 48 respondents belong to Jat Sikh and 6 are from other castes. In the last category 20 respondents belong to Jat Sikh family and 2 to other castes. From the total same 132 respondents belong to Jat Sikh family. Clearly there is an indication of dominance of jat sikh in the compel sample. The value of chi-square is .377 (df: 2) depicts that there is no relation between cropping pattern and caste.

Table 4.3 Relationship between Cropping Pattern and Tenancy Status

Tenancy Status	Cropping Pattern				
	Cotton and wheat)	Paddy, cotton and wheat)	Paddy and wheat	Total	
Owner cultivator	62	28	13	103	Chi-square 15.894** df: 2
% within Tenancy Status	60.2%	27.2	12.6%	100.0%	
Part owner and landless	12	9	9	47	
% within Tenancy Status	25.5%	19.1%	19.1%	100.0%	
Total	74	54	22	150	
% within Tenancy Status	49.3%	36.0%	14.7%	100.0%	

** Significant at 1% level

The analysis shifts to finding out whether there is a relationship between cropping pattern and tenancy status. The analysis of relation between ownership of land and cropping pattern is depicted in table 4.3. The result depicts that out of 74 respondents growing cotton and wheat, 62 respondents possessed their own land. From the 54 respondents reported producing cotton, wheat and paddy, 28 possessed their own land and in the last category 13 reported possessing their own land. From the total sample 103 possessed their own land. The value of chi-square is 15.894 (df: 2). It depicts that there is a relation between ownership of land and cropping pattern.

Table 4.4 Relationship between Cropping Pattern and Size of the Family

Family Members	Cropping Pattern				
	Cotton and wheat	Paddy, cotton and wheat	Paddy, wheat and other crops	Total	
2 members	5	0	0	5	Chi-square 16.189 df: 12
% within Family Members	100.0%	0.0%	0.0%	100.0%	
3 members	24	12	5	41	
% within Family Members	58.5%	29.3%	12.2%	100.0%	
4 members	25	23	10	58	
% within Family Members	43.1%	39.7%	17.2%	100.0%	
5 members	11	7	5	23	
% within Family Members	47.8%	30.4%	21.7%	100.0%	
6 members	5	10	1	16	
% within Family Members	31.3%	62.5%	6.3%	100.0%	
7 members	4	1	1	6	
% within Family Members	66.7%	16.7%	16.7%	100.0%	
7 members and above	0	1	0	1	
% within Family Members	0.0%	100.0%	0.0%	100.0%	
Total	74	54	22	150	
% within Family Members	49.3%	36.0%	14.7%	100.0%	

Out of 74 respondents reported producing wheat and cotton, 24 have three members in a family and 25 respondents have 4 members in a family. Similar trend is observed for the other two categories of farmers producing wheat, paddy and cotton and those producing only wheat and paddy. The value of chi-square is 16.19 (df: 12). The results don't depict any relation between cropping pattern and size of the family.

Analysis of relation between cropping pattern and agricultural means of production is depicted in table 4.5. The results depict that in category one 74 respondents growing cotton and wheat, 59 respondents possessed their own means of agriculture. From the 54 respondents reported producing cotton, wheat and paddy, 44 possessed their own means of agriculture and in the last category, 20 reported possessing their own means of agriculture.

From the total 123/150 possessed their means of agriculture. The value of chi-square is 14.51 (df: 2). The results highlight the relation between cropping pattern and means of production.

Table 4.5 Relationship between Cropping Pattern and Agriculture Means of Production

Means of Agriculture	Cropping Pattern				Chi-square 14.51* df: 2
	Cotton and wheat	Paddy, cotton and wheat	Paddy, wheat and other crops	Total	
Tractor, harvesting, oxen and others	59	44	20	123	
% within Means Of Agriculture	48.0%	35.8%	16.3%	100.0%	
Tractor, harvesting, oxen and others on rent	15	10	2	27	
% within Means Of Agriculture	55.6%	37.0%	7.4%	100.0%	
Total	74	54	22	150	
% within Means Of Agriculture	49.3%	36.0%	14.7%	100.0%	

*Significant at 5 percent level

Table 4.6 Relationship between Cropping Pattern and Agriculture Income

Cropping Pattern	Agriculture Income						Chi-square 34.711*** df :8
	1 lakh	1-3 lakh	3-5 lakh	5-7 lakh	7 and above	Total	
Cotton and wheat	25	27	14	6	2	74	
% within Cropping Pattern	33.8%	36.5%	18.9%	8.1%	2.7%	100.0%	
% within Agriculture Income	78.1%	58.7%	40.0%	35.3%	10.0%	49.3%	
Paddy, cotton and wheat	5	9	18	8	14	54	
% within Cropping Pattern	9.3%	16.7%	33.3%	14.8%	25.9%	100.0%	
% within Agriculture Income	15.6%	19.6%	51.4%	47.1%	70.0%	36.0%	
Paddy, wheat and other crops	2	10	3	3	4	22	
% within Cropping Pattern	9.1%	45.5%	13.6%	13.6%	18.2%	100.0%	
% within Agriculture Income	6.3%	21.7%	8.6%	17.6%	20.0%	14.7%	
Total	32	46	35	17	20	150	
% within Cropping Pattern	21.3%	30.7%	23.3%	11.3%	13.3%	100.0%	
% within Agriculture Income	100.0 %	100.0%	100.0%	100.0%	100.0%	100.0%	

*** Significant at .1%level

Analysis of relation between agricultural income and cropping pattern is depicted in table 4.6. The results show that from 32 respondents in the category of < twenty thousand income, 25 grow cotton and wheat, 5 grow paddy, cotton and wheat and 2 grow paddy, wheat and other crops.

From the 46 respondents in the category of twenty to forty thousand income, 27 respondents produce cotton and wheat, 9 produce paddy, cotton and wheat and 10 grow paddy, wheat and other crops. From 35 respondents in the category of forty to sixty thousand income, 14 grow cotton and wheat, 18 grow paddy, cotton and wheat and 3 respondents are growing paddy, wheat and other crops.

From 17 respondents in the category sixty to eighty thousand income, 6 produce cotton and wheat, 8 produce paddy, cotton and wheat and 3 are growing paddy, wheat and other crops. 20 respondents are having agricultural income more than 1 lakh. In this category 2 respondents grow cotton and wheat, 14 are growing paddy, cotton and wheat and 4 are growing paddy, wheat and other crops.

Income wise relation depicts that more farmers with low income are producing wheat and cotton, while the large farmers produce paddy, cotton and wheat. The value of chi-square is 34.711 (df: 8). Chi-square is significant at .1% level. The results depict that there is a relationship between agriculture income and cropping pattern.

The results show that as agricultural income is increasing there is a change in cropping pattern and the farmers are shifting from growing cotton and wheat to growing paddy, cotton and wheat. In terms of overall percentage the farmers growing cotton and wheat (49.3%) is higher than those producing paddy, cotton and wheat and those producing paddy, wheat and other crops.

Table 4.7 Relationship between Cropping Pattern and Agriculture Productivity

Productivity Per Acre	Cropping Pattern				
	Cotton and wheat	Paddy, cotton and wheat	Paddy, wheat and other crops	Total	
1-20,000	1	0	2	3	Chi-square 14.751 df: 8
% within Productivity	33.3%	.0%	66.7%	100.0%	
20-40,000	11	17	4	32	
% within Productivity	34.4%	53.1%	12.5%	100.0%	
40-60,000	43	30	13	86	
% within Productivity	50.0%	34.9%	15.1%	100.0%	
60-80,000	15	5	3	23	
% within Productivity	65.2%	21.7%	13.0%	100.0%	
80 and above	4	2	0	6	
% within Productivity	66.7%	33.3%	.0%	100.0%	
Total	74	54	22	150	
% within Productivity	49.3%	36.0%	14.7%	100.0%	

Out of 74 respondents reported producing wheat and cotton, the productivity per acre was in the range of 40-60 thousand for 43 respondents. The productivity per acre was in the range of 20-40 thousand for 11 respondents. The similar trend has been observed for the other two categories of farmers producing wheat, paddy, cotton and these producing only wheat and paddy where 34.9% and 15.1% had productivity in the range of 40-60,000. The value of chi-square is 14.751 (df: 8). The results depict that there is no relation between cropping pattern and agriculture productivity.

4.3 Factors Influencing Socio-Economic Status of Farmers

Factor analysis was conducted for the study to understand the factors influencing Socio-economic status of Farmers. The results reveal that there are three factors, viz. Basic Facilities, Govt. support and Agricultural mode. These three factors explain 61.465 percentage of variance. These factors along with their Eigen values, percentage of variance and item loadings have been explained below:

Table 4.8: Results of Factor Analysis

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.452	30.647	30.647	2.452	30.647	30.647	2.244	28.054	28.054
2	1.368	17.105	47.753	1.368	17.105	47.753	1.571	19.632	47.686
3	1.097	13.712	61.465	1.097	13.712	61.465	1.102	13.779	61.465
4	.943	11.783	73.248						
5	.794	9.922	83.170						
6	.736	9.194	92.364						
7	.472	5.904	98.268						
8	.139	1.732	100.000						

- i. **Basic Facilities:** This is the most important factor which explains the maximum percentage of variance 28.054. The basic facilities covers (i) the type of house they live in with item loading of (.934), (ii) the type of land they hold (.576) and (iii) the tenancy status (.909).
- ii. **Govt Support:** This factor indicates the govt support. It explains 19.632 the percentage of variance. The two components of this factor are: (i) support price (.815) (ii) rate of interest (.739).
- iii. **Agricultural Mode:** The study reveals that often means of agriculture and irrigation sources also influence on farming status and farm productivity. Farmers rely a lot

upon credit. This component along with means of agriculture and irrigation source has been the third factor explaining 13.779% of total variance. The third factor covers the following components (i) credit borrowing (ii) means of agriculture (iii) irrigation source. This factor explains 13.779 percentage of the variance.

Table 4.9 Factor Names and Factors Components

S. No	Factor Name	Factors components	Eigen Values	% of Var.	Item loading
1	Farmer Status	i. Type of house	2.244	28.054	.934
		ii. Size of Land holding			.576
		iii. Tenancy status			.909
2	Govt Support	i. Support price	1.571	19.632	.815
		ii. Rate of interest			.739
3	Agricultural Mode	i. Agriculture Credit	1.102	13.779	.577
		ii. Means of agriculture			.541
		iii. Irrigation Source			.671
Cumulative Variance				61.465	

4.4 Determinants of Agricultural Income, Cropping Pattern and Productivity

- i. **Determinants of Agricultural Income:** Regression technique was used to find out the determinants of agricultural income. The independent variables used in the model are: land holdings (X_1), tenancy status (X_2), family members (X_3), Rate of borrowing (X_4) and Agriculture productivity (X_5)

$$Y_1 = 0.509 + 1.314 X_4^{***} + 0.164 X_5^*$$

$$t = (1.810) (18.543) (2.209)$$

$$R^2 = 0.71$$

Agriculture income is positively related to land holding and agriculture productivity. Both variables are significant. Other variables have been removed from the model. The

model explains 71 percent of variation in the model. Rate of borrowing (X_4) and Agriculture productivity (X_5) are statistically significant at .1% and 5% level.

Determinants of Agricultural Expenditure:

Step wise regression resulted in choosing only land holdings and agricultural income as important determinant agriculture expenditure. The model explains 72 % percentage of variance.

$$Y_E = 0.36a + 1.97X_1^{**} + 1.314 X_6^{**}$$

$$t = (-1.752) (19.794) (7.987)$$

$$R^2 = 0.72$$

Land holding (X_1) and agricultural income (X_6) are significant at 1 percent level and other variables have been removed from the model. These variables are: tenancy status (X_2), and credit borrowing (X_5).

Determinants of Agricultural Productivity:

$$Y_P = 2.918 + 0.117 X_6^{**} + 0.140 X_7^* - 0.228 X_8^{**}$$

$$t = (14.985) (2.535) (2.403) (3.984)$$

$$R^2 = 0.88$$

Agricultural Productivity is positively related to agricultural income (X_6) and irrigation source (X_7) but negatively related to agriculture credit (X_8). Agriculture income and agriculture credit (X_8) both are statistically significant 1% level and irrigation source (X_7) at 5 percent level. Other variables have been removed from the model. These variables are land holdings (X_1) and tenancy status (X_2), and. The model explains 88% of the variance.

Section 4.5: Agricultural Scenario

Punjab State which has earned a name 'Food Basket of Country' and 'Granary of India' has been containing 40-50 percent of Rice and 50-70 percent of Wheat for the last two decades. Punjab State produces 1 percent of Rice, 2 percent Wheat and Cotton each of the World. Per hectare Consumption of Fertilizer is very high and is 196 Kg. as compared to 85 kg. at National Level. Punjab State Consumes 9 percent of total Fertilizer Consumption in India. Punjab State has been awarded National Productivity Award for Agricultural Extension service since 1991-92 to 2003-04 except 1999-2000.

Area under Crop

During the year 1980-81 there was 40.89 lakh hectares area under cultivation, which increased to 42.01 lakh hectares in 2004-2005, showing an increase of 3.6 percent. Cropping intensity, which reveals percentage of gross cropped area to net area shown, has been enhanced from 145 in 1980-81 to 189 during 2004-2005. The present agriculture cropping pattern in the State is dominated by the wheat-paddy rotation causing degradation in soil fertility and fall in the underground water table. It is also creating serious market problems. Wheat and paddy cover major portion of the gross cropped area. During 2004-2005, area under these crops increased to 78 percent over the area under these two crops which was only 49 percent in 1980-81.

Agricultural Production

The total food grain production in Punjab has increased significantly over the last few decades, especially in the post of Green Revolution period. In 1980-81, production of food grains was 85.02 lakh tones, which increased to 266.78 lakh metric tons in 2004-2005 registering more than three fold increase. At the beginning of the decade (1990-91) production of food grains was 192.18 lakh tons which increased to 247.24 lakh tons in 2003-2004 and 266.78 lakh metric tons in 2004-2005. Wheat and rice played a major role in pushing up agricultural production. The production of rice, which was 65.06 lakh metric

tons in 1990-91, increased to 98.66 lakh metric tons in 2004-2005 showing an increase of 49 percent. Similarly, the production of wheat which was 121.59 lakh metric tons in 1990-91 rose to 146.09 lakh metric tons during 2004-2005 registering an increase of 20 percent.

Agricultural Credit

Table 4.10 Advances to Agriculture Sector by Scheduled Commercial Banks in Punjab

Year	Finance for Dis. of Fertilizer and Other Input		Indirect Finance to Farmers		Direct Finance to Farmers		Total	
	No. of Acc.	Amount Outst.	No. of Acc.	Amount Outst.	No. of Acc.	Amount Outst.	No. of Acc.	Amount Outst.
1996	1562	3654	2843	5764	60813	16550	61263	175254.72
1997	1905	7224	6620	8528	54308	18234	55499	198715.24
1998	1987	9060	3145	14054	52659	19815	53404	225529.22
1999	25306	10961	3314	26104	51534	22298	52304	274521.4
2000	1811	11800	3918	40730	54128	25279	54888	316953.75
2001	2009	10674	3431	23985	57688	31202	58703	370563.22
2002	1875	9321	5051	44230	60191	34755	60888	428065.75
2003	2751	12164	6215	60860	65360	44248	66270	540379.33
2004	1966	17242	8236	80856	70029	55669	71056	672397.71
2005	1835	22493	8404	98547	71669	66442	72697	861055.6
R _G	4.38	4.91	4.98	4.66	4.06	3.17	3.89	3.21

A look at the table 4.10 highlights that advances to Agriculture Sector by Scheduled Commercial Banks in Punjab has increased from 1995 -2005. Finance for Distribution of Fertilizer and Other Inputs in terms of number of accounts has increased at a rate of 4.38 per cent per annum. In terms of amount outstanding there is an increase at a rate of 4.91 per cent per annum. The increase is higher for indirect finances for both the number of accounts as well as for amount outstanding.

Table: 4.11 Net sown area, Agriculture Credit and Agriculture Productivity

Year	Net sown area	Agriculture Credit	Agriculture Productivity
1980-81	4191	13351	11890
1981-82	4199	18204	11966
1982-83	4202	22034	13325.8
1983-84	4212	26412	14170.9
1984-85	4189	31858	15678.2
1985-86	4197	42462	17187.1
1986-87	4202	67410	17984.6
1987-88	4157	77016	17065.4
1988-89	4178	82340	17075.1
1989-90	4194	85076	18985.6
1990-91	4218	112452	19248.7
1991-92	4215	149393	19344.2
1992-93	4139	201733	19248.7
1993-94	4214	201733	20006.7
1994-95	4129	22108	21518.7
1995-96	4139	248925	20718.2
1996-97	4139	225529	20017.7
1997-98	4139	247060	21564
1998-99	4238	302927	21143.2
1999-00	4239	375846	22906.7
2000-01	4250	485681	25197.8
2001-02	4254	627439	25323.6
2002-03	4224	669695	24886.9
2003-04	4243	752100	24808.2
2004-05	4254	844500	24729.4

Table 4.11 Growth Rates of Net Sown Area, Agriculture Credit and Agriculture Productivity

	Entire period 1980-2005	Period-I 1980-1991	Period-II 1992-05
Net sown area	9.68	4.98	6.67
Agriculture Credit	6	2.29	3.48
Agriculture Productivity	2.33	2.01	2.67

Growth rates have also been calculated for net sown area, agriculture credit and agriculture productivity for the entire period, i.e., from 1981-82 to 2004-05. The entire period is classified further into two periods, period-I 1981-82 to 1994-95 and period-II 1995-96 to 2004-05. The second period is associated with liberalization and globalization.

The rate of growth has increased in the post-reform era. The rate of growth of credit has increased from 2.29% per annum to 3.48% per annum in the post 1991 period. This has been due to the favourable bank and credit policy for loan in the post-reform period. The growth rate of credit has the entire period 6.00% per annum. The net sown area has grown at the rate of 4.98% per annum to 6.67% per annum. The growth rate of entire period of net sown area has 9.68% per annum.

The growth rates of the agriculture productivity are also presented in the table. The productivity of the agriculture has increased at the rate of 2.67% per annum in the post-reform period against the growth of 2.01% per annum pre-reform period. The entire period the growth rate of the agriculture productivity has increased at 2.33% per annum.

One of the objectives of this study has been to identify the factors responsible for the farmer's depression miseries (such as suicides) after liberalization. The results reveal that small farmers are still borrowing money from village, money lenders to fulfill their domestic needs and to buy farm equipments. They charge high rates of interest for money lent. Mostly the farmers are borrowing for productive purpose, but in actual reality they are using loans

for unproductive work, like spending on marriage and social ceremonies. As the earnings from the small holdings is only covering the cost and fulfilling only half of their needs and nothing is left with them which results in delay in the repayment of loan. A high percentage of farmers take loan from banks. 78.66% of farmers are borrowing money and only 21.33% of farmers depend on their own resources. Thus they are getting into debt trap. This is a main reason for the miseries of farmers. 16% farmers pay 6% rate of interest, 52% of farmers pay 6-10% rate of interest and 32% farmers are those pay 18% and above rate of interest. The high interest rates push the farmers into the debt trap.

To make the matter worse, the support price is not sufficient. Support price is considered to be another factor responsible for farmer miseries. Only 26.66% of farmers agree with the support price, and there are 73% farmers who do not agree with the support price.

CONCLUSION AND POLICY IMPLICATIONS

This chapter covers the key findings of the study. The present research has been undertaken to analyze the socio-economic status of farmers during pre and post-liberalization period in Punjab. The study uses both primary and secondary data for analysing the standard of living of farmers, factors influencing agricultural income and agricultural productivity, the status of advances given to farmers in the liberalized era. The study examines the agricultural scenario in Punjab in terms of Net sown area, Agriculture Credit and Agriculture Productivity from 1980-2005 and also for two sub periods, i.e., the pre and post-liberalisation phase.

5.1) Findings of the Study

The demographic profile of the famers represents that 40.66% are small farmers, 33% are medium farmers and 26% are large farmers. Starting the analysis with the factors influencing standard of living, it is reported that all farmers have their own houses, 36% of respondents lived in thatched house, 48% in tiled houses and only 16% have the privilege of residing in terraced house. So the study depicts that farmer's houses are not of high standard. They live only in simple houses. There is scarcity of electricity. Some farmers do not even have the basic needs such as gas, cycle etc.

There is high incidence of indebtedness as 16% farmers pay 6% rate of interest, 52% of farmers pay 6-10% rate of interest and 32% farmers are those who pay 18% and above rate of interest. Lack of education is a major factor hindering the selection of right loan for the right purpose. Majority of farmers (62%) of farmers depended on hired labour, rather than working themselves on their fields. Only 40% of the farmers responded of an increase in standard of living after liberalisation.

Relationship between size of holding and cropping pattern depicts that more number of farmers with small sized holdings are producing wheat and cotton, while the farmers with large land holdings prefer to produce paddy, cotton and wheat. Chi square results depict a relationship between cropping pattern and land holdings. Income wise relation depicts that more of farmers with low income are producing wheat and cotton, while the large farmers with higher income produce paddy, cotton and wheat. Chi-square (34.711, df: 8, p=.001) highlights a relationship between agricultural income and cropping pattern.

The results of factor analysis highlights that the factors influencing Socio-economic status of Farmers are: Basic Facilities, Govt. Support and Agricultural Mode. These three factors explain 61.465 percentage of variance.

Farmers have been facing a lot of problems. There are many causes of these problems. To get rid of these problems of debt ridden farmers, an attempt has been made to analyse the causes of these problems.

Analysis of primary data as well as secondary data throws light on the fact that credit borrowing has increased in the post-liberalized and globalised era. The growth rates for agricultural credit are higher than that of agricultural productivity for the entire period, i.e., 1980-2005, as well as in the pre and post-liberalisation period. Growth rates for indirect finances from commercial banks for both the number of accounts as well as for amount outstanding are higher than that for direct finances.

Farmers take loan from the private money lenders at high interest and by compounding interest, the loan goes on increasing. When the loan becomes large and the production comparatively low, then the repayment of loan becomes difficult. In such circumstances, it becomes very difficult for the farmer to repay even the interest, what to talk of the principal amount. The basic reasons for the indebtedness are: illiteracy, higher interest rates, excess spending on social ceremonies like marriage age, etc.

More over the Agriculture department is a white elephant for the poor and uneducated farmers. Branches of agriculture departments are in cities and the villagers are deprived off

the services which they could offer in terms of advice on the choice of crops, good seeds and the right quantities of manure to be used for the crops,.

The results highlight that 37% of the farmers are below matriculation, 24 percent have done matriculation 18 percent are plus two or higher secondary, 13 percent are graduates and only 8 percent are postgraduates. The survey results are consistent with a prior observation in that it is quite clear that majority of the farmers involved in agriculture are not very well educated and those who are educated are leaving farming. Education rather than helping in agriculture is making them shift to other professions. There is not much foresight to introduce modern technology or high quality seeds. 40.66% of farmers possess small holdings and hence are unable to use the modern techniques of agriculture and still rely on the old method of agriculture. This results in low productivity and hence low agricultural income.

The finding of the study also highlights that due to demonstration effect the farmers are spending more money on cars, bikes, jewellery, cloths rather than spending on machinery.

Another finding is that some of the farmers are borrowing for productive purpose but in reality they are using loans for unproductive purposes like spending on marriage and other social ceremonies. The matters are complicated further by increasing costs of inputs and unfavorable support prices.

5.2) Policy Implications

The present study recommends the following steps for improving the socio-economic status of farmers.

Farmers in India are under debt trap and to relieve them from burdens, the commercial banks should give soft loans to these farmers to help them pursue their agriculture activities with easy terms and conditions. National agriculture development council has ear marked Rs 25000 crores in India for the well being of farmers so that can take loan on very low interest rates. When loan to these farmers' will be available at low rates, they will be able to use better seeds, better fertilizers, better techniques of production. These will boost agricultural

productivity and hence agricultural income. Also the government should assist by means of other banks as cooperative banks, gramin banks and mortgage bank to give loan to farmers on easy terms and conditions. So that they can pursue their agriculture activities by taking loan from these banks at a very nominal interest rate. In addition, local and state governments should create awareness among the poor farmers to spend less on social ceremonies.

Farmers should adopt allied activities as dairying, piggery, poultry farms, vegetables garden and other commercial crops so that they can supplement their income. Women should also assist by doing business like spinning, making mats, clothes etc.

The farmers should avail the opportunity of NREGA (National Rural Employment Guarantee Act). Drug addiction is a common problem. Steps should be taken to uproot it. Education is the best step to solve all problems. More focus needs to be given to education to both males and females. We know that education is the key to development and development leads to prosperity.

Agriculture is dependent on nature. Some times rain, storm, hail storms and natural calamities play havoc with their ripened crops. Such distressed farmers bear huge losses. The governments should reserve money in their pool to help such farmers so that they can pursue agriculture activities for the next crop and maintain their household activities and give their loans taken from the bank.

Farmers should seek instructions from the agriculture department about their well being and subsidies etc. Government should take steps to give subsidies on fertilizer, seeds, implements, irrigation system, dairying, poultry farms. Spurious seeds and fertilizers should be checked by the government. Small and illiterate farmers should make use of the subsidies which the Government announces from time to time.

Moreover minimum support prices should be maintained. While fixing minimum support prices, total costs of agriculture and benefit to farmer should be taken in to account. Although India is poor country and gives subsidies on food, it should not forget the interest of farmers

while fixing minimum support price. Government should help in providing loans on easy interest rates.

For a vast majority of farmers, there seems to be genuine case for help. The government, no doubt, has launched special programmes like SFEDA and MFALA for the upliftment of petty farmers, but this is not enough. The other down-trodden groups like the scheduled castes and backward classes get several special privileges from the government. This is due to the fact that they are socially and economically handicapped. Such socially under privileged groups do deserve some special concessions. But there is a case for extending, at least, some concessions to farmers as well.

5.3) Limitations of the Study

The limitations of the study are regarding the selection of sample area. The results of this study can not be applied to the other parts of the country and are true for Muktsar district only. Areas like impact on family relations, difficulties faced by members for taking the loans not been covered in this study. Sample size of this study is small and that is the major limitation of our study.

5.4) Scope for Further Research

There is scope for further research in this field. Large sample can be used by randomly choosing and the samples from various districts of Punjab. In addition, an all India study on the above mentioned topic can be made and a comparative study can be done by taking socio-economic status of farmers on different states.

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**Socio –Economic Status of Farmers during Pre and Post- Liberalisation: A Case Study of
Punjab**

Household Survey Questionnaire Jan. 2009

Note: A household is defined as all individuals sharing the same place for cooking (sharing food From the same pot) The information furnished by the respondents shall, however, be used for the Academic purpose only and kept confidential.

Name of the Investigator: Miss Gurpreet Kaur (M.Phil. Economics, Thapar University, Patiala)

Household code:.....

Date:

Name of Village:

District:

Name of the Panchayat:

Name of Block:

Name of the Forest division:

1. Identification Particular

a) Name of village:.....

b) Name of person:.....

c) Name of the Head of the Household:.....

d) Age:.....

e)Relation with Head:.....

f)Address:.....

g)Date:.....

h)Distt.:.....

i)Name of Block:.....

j) Religion and caste:.....

k)Tenancy status of the household: Owner Cultivator/Tenant Cultivator/Party owner Party tenant/Agriculture labourers/landless

2. Details of family members

Name	Relation	Sex	Age	Marital	Edu	skill	current income
H.H First	with H.H			Status	comp.	Sec.	Farm non-farm

- i.
- ii.
- iii.
- iv.
- v.
- vi.
- vii.

3. Land Holdings

- i. Amount of land in possession (in Biswa/Guntha/Sq feet/acre)
- ii. Land Owned (acres) Agri Non-Agri Irri Non-Irri Net Income generated(Rs.Per annum)
- iii. In cultivating land type of labour used: Own labour/Family Labour/Hired Labour
- iv. Do you cultivate any government/Public Land Y/N
- v. If yes please state: Area(acres):

4. Cropping Patterns and crop yield for total land cultivated:

Crops	Area under crops in acre	yield rateQtl/acres	Total	Amount sold	Rate(Rs.)
Grown			(in Qtls)	(in Qtls)	(inQtls/per year)

- _Paddy
- Pulses
- Vegetables
- Cotton
- Wheat
- Chara
- Other crops

(b) Expenditure Related to Agriculture

5. Unemployment and employment particulars

Particulars about educated unemployed/Non working persons (18-45 yrs)

- i. No. of Male members unemployed:
 - ii. Details about unemployment:
- Yrs of Any effort vocational skill what skills how the skill acq. What assistance required

Unempl. Made (Y/N) Self/forest dep/microplan to start self emp

iii. How many days per person get employment in Agricultural activities?

Person No. of days employed/year

Before After

6. Housing Details: Area (in Biswa/Guntha/sq feet/acre)

i. Do you own a house? Yes/No, if yes, No. of rooms.....

ii. Type of house Pakka/Kachha/Thatched/Azbestos/Tyles

7. Housing Facilities

i. 1) Separate kitchen Y/N

ii. 2) Bathroom within house Y/N

iii. 3) Source of lightening kerosene/electricity

iv. 4) Source of water supply courtyard/outside

8. Possession of Material Assets (in numbers)

TV Radio Refrigerator Cycle Motor cycle four wheelers stove cooking Gas Others

9. Details of Credit Facilities:

a) Have you borrowed money? Y/N

b) If yes, then where from you borrowed: Bank/Co-operatives/private money lenders/others (specify)

c) Cause of borrowing:

i. Agricultural investment ii. Business iii. House construction iv. Education/others

9) Details of Income and Expenditure Particulars 1) income particulars

S. No. Source of income No. of persons Engaged Per Annum Income (in Rs.)

i. Agriculture

ii. Livestock

iii. Dairy

iv. Service

v. Business

vi. Labour

Expenditure particulars (in quantity/rupees)

i. Monthly expenditure on food: Rice.....Flour/Atta.....Pulses-----veg:-----

ii. Monthly expenditure on education-----

iii. Monthly expenditure on medical

iv. Annual expenditure on clothing-----

v. Annual expenditure on social ceremonies

- vi. Annual expenditure on housing activities
 - vii. Annual expenditure on lighting and cooking
10. Is there any increase in income in previous year: Yes/No?
11. Source of irrigation
- i. Tube wells
 - ii. canals
 - iii. others
12. Use of fertilizers per acre
13. Productivity of crop per year
14. Any subsidies they got
15. Road communications
16. Supply of electricity or power they are getting per day
17. Where you are selling
- i. In own village
 - ii. Any other place
18. What is the support price
19. Do you satisfied with minimum support price
20. Is the M.S.P covering the cost Yes/No?
21. Saving from agriculture Income per year
22. Name of the bank from which loan is borrowed
- SBI PNB Corporate Bank RRB Any other
23. Rate of interest on loan
- i. 1-5% per month
 - ii. 6-10%-----
 - iii. 11-15%-----
 - iv. Above 16%
24. Which activity is started with loan?
- i. Dairy farm
 - ii. Cattle
 - iii. Any other
25. How many installments have been paid taking loan
26. How much time has passed after taking loan?
- i. 1 yr
 - ii. 2

- iii. 3
- iv. 4
- v. 5 and above

27. Means of agriculture

- i. Tractor
- ii. Harvesting machines
- iii. Oxen
- iv. Any other

28. Do you think that your status or income are changed

29. Regarding farming/Agriculture that kind of personal and problems you generally face. State in detail:

- i.
- ii.
- iii.
- iv.