Agriculture plays a strategic role in the process of economic development and growth of the country. The developing economies still have the dominance of agriculture which contributes a major proportion of national income and accommodates a large segment of workforce. Agriculture is the major occupation supporting about 60 per cent of the population for their livelihood and about 17 per cent of gross national products is derived from this sector of our country. The agricultural model of modernisation in Punjab was based on a set of measures aimed at technological up-gradation of traditional modes of production along with a set of compatible institutional and policy changes following which the agricultural production process of the state became highly mechanized and capital intensive. There are 4.77 lakh tractors, 14 lakh tube wells, 1.23 lakh threshers and about 13 thousand harvesting combines in the state. The heavy farm investment made by farmers in the state is facilitated by easy availability of institutional credit through a widespread network of cooperatives and commercial banks. Having just 1.53 per cent geographical area of the country, the state has become the backbone of the food security of the country by contributing about 34 to 75 per cent of wheat and 24 to 45 per cent of rice to the central pool of foodgrains. The state known as the ‘Food Basket of India’ enables the food production to keep pace with the growing population by pioneering the process of agricultural modernization. In the economic context, Punjab is one of the progressive states of India and the agricultural sector influences the pace of growth and development of its economy.

But over the time, the farming sector of the Punjab state has witnessed large changes in its land structure, costs and productivity. The period of 1970s and 1980s was the golden period for the agricultural economy when the productivity of important crops grew significantly, the income of farmers’ improved, agricultural employment increased and the national food economy turned from being deficient to self sufficient. The growth rate of agriculture sector of Punjab, which was 6.63 per cent per annum in the first decade of green revolution, decelerated to 4.74 per cent per annum during the 1970s and 1980s. It further came down to 3.87 per cent in the mid-eighties. During the period 1997-98 to 2001-02 the Punjab agriculture grew at a
rate of 1.90 per cent per annum, which was less than the overall average growth (3.84%) of Punjab economy.

During the era of high growth, the farmers acquired high living standards, which enhanced their financial liabilities towards social and cultural obligations. Little wonder, the indebtedness of the farmers, particularly of the marginal and small ones, due to the non-institutional borrowings and poor economic base, increased faster than their repaying capacity. As a result, the burden of their debt continued to increase. There is a decline in the proportion of cultivating workers in the total workforce of the state that have added to the unemployed or semi-employed force which has in turn built a pressure on an already overcrowded agricultural labour market. During last two decades, the overall decline was observed in the number of marginal and small holdings in the state. This indicates that the marginal and small farmers are either leasing out or selling their land. Further, the state has been also passing through the phase of degradation of natural resources. The two most crucial resources, soil and water are under stress because of excessive use of chemical fertilizers and over pumping of ground water for frequent irrigation especially to paddy crop. The cost of cultivation per unit area of principal crops, i.e., wheat and paddy is the highest in the country. As a result, the farmers, particularly the small farm holders are witnessing increase in costs and decline in profitability. This hints the reasons for leaving farming by the marginal and small farmers in the state.

Although the state of Punjab has achieved a higher rate of productivity and consequently changes in rural economy, the benefits of green revolution have not percolated to the marginal and small farmers. Keeping this in view, the present study examines the status of marginal and small farmers in the context of prevailing agrarian crisis in the state. More specifically, the study has been focused on the following objectives:

**Objectives**

i) To study the characteristic features of agrarian economy of the Punjab state;

ii) to examine the socio-economic profile of marginal and small farmers in different regions of the Punjab state;
iii) to assess the income and consumption level of marginal and small farmers in different regions of the state;
iv) to study the incidence of poverty and indebtedness and factors affecting thereof among marginal and small farmers of the state; and
v) to spell out policy implications of the study.

**Sampling Design and Methodology**

Multistage stratified random sampling technique was adopted for the study. District was selected as the first stage-sampling unit, block as the second stage unit, village the third stage sampling unit and the farmer household as the fourth and ultimate stage sampling unit. There are 22 districts in Punjab, comprising of 4 districts in Sub-mountainous zone (zone I), 12 in Central zone (zone II) and 6 in South-western zone (zone III). Two blocks from each district were randomly selected. Two villages from each selected block, away from the periphery of the main town of the block were selected randomly. A sample of 100 farmers (marginal and small) from zone I, 300 from zone II and 200 from zone III were selected. On the basis of proportion at the state level, marginal farmers (up to 1 hectare) and small farmers (1.01 to 2.00 hectares) were selected in the ratio of 1:1.4. Thus, in all 600 respondents were selected for the purpose of the present study. The primary data were collected on a specially structured questionnaire through personal interview method. The collected data were analyzed by simple tabular technique such as frequencies, percentages, averages and advance statistical techniques like regression analysis, discriminant analysis, t-test and Gini coefficients were also used.

**Agrarian Economy of Punjab: Growth of Punjab Agriculture**

Punjab has made tremendous progress in agriculture in terms of cropping intensity, irrigation, state gross domestic product, use of chemical fertilizers, use of insecticides/pesticides, area, production and yield of major crops, workforce and land utilization pattern. The data shows that total cropped area increased from 4723 thousand hectares in 1960-61 to 4876 thousand hectares in 1969-70 at a significant compound growth rate of 1.60 per cent per annum. The growth rate, though, was significantly positive during 1980s but it declined after it. The rate of growth further declined to 0.64 per cent compounded annually during 1990s. It is worth mentioning
here that total cropped area witnessed a decline at the rate of -0.02 per cent during 2000 to 2013. This shows that 1970s was a golden period for the total cropped area as it increased at a much faster rate than that during 1980s and 1990s where it. It continuously registered a slow pace of increase.

The expansion of irrigated area played a major role in the development of agricultural sector in Punjab. Irrigation is complementary to the other inputs like HYV seeds, fertilizers, pesticides etc. in boosting agricultural production. The proportion of irrigated area to total cropped area increased from 3382 thousand hectares during 1980-81 to 4070 thousand hectares during 2012-13. The share of tube-well irrigation area has increased from 1939 to 2982 thousand hectares, whereas the share of canal irrigation has declined from 1430 thousand hectares to 1133 thousand hectares during the same period. Due to a large irrigated area in the state, about 98 per cent, the consumption of other inputs like fertilizers and chemicals is comparatively high which led to higher productivity of crops in Punjab. The State Gross Domestic Product increased from Rs 1509 crores in 1970-71 to Rs 285165 crores in 2012-13 at current prices. Similarly the gross domestic product from agriculture (crops only) also increased from Rs 649 crores in 1970-71 to Rs 53140 crores in 2012-13, and the gross domestic product from agriculture (crops & livestock) increased from Rs 863 crores in 1970-71 to Rs 76122 crores in 2012-13. But the share of agriculture (crops only) in gross domestic product of agriculture declined from 43.01 per cent to 18.63 per cent during the same period and that of crops & livestock from 57.19 per cent in 1970-71 to 26.73 per cent in 2012-13. The data shows that in spite of consistent increase in gross domestic product from agriculture, the importance of agriculture in state gross domestic product has declined over time.

In order to achieve optimum productivity of different crops, the consumption of chemical fertilizers in Punjab agriculture remained on the increase since 1970s. Total consumption of chemical fertilizers was 213 thousand ton nutrients in 1970-71 which increased to 1972 thousand ton nutrients in 2012-13 i.e. an increase of more than 8 times. The maximum proportion of fertilizers consumption was secured by nitrogen which increased from 175 thousand ton (82.16%) in 1970-71 to 1486 (75.35%) thousand tons in 2012-13. The consumption of NPK was 38 kg per hectare
in 1970-71 which increased by 6.55 times i.e. 249 kg per hectare in 2012-13. This shows that in order to maintain the soil fertility the consumption of fertilizers has increased manifolds.

The contribution of the Punjab state to the central pool is quite appreciable. The green revolution not only made the state food surplus but also it contributed in making the state the food granary of India as the state was contributing a large chunk of the pool of total food grains of the country. The share of the state of the total wheat stock of the country was 29.38 lakh tons (57.60%) during the year 1970-71. This share reduced marginally during the year 1980-81 but still the state contributed 57.13 per cent of the total wheat crop pool. The share of wheat crop pool was maximum during the year 2005-06 as it was 75.29 per cent. Further, for the years from 2007-08, this contribution declined and was recorded to be 33.60 per cent in 2012-13. Punjab also contributes to the central pool of rice crop and accounted for 25.10 per cent of total rice pool in 2012-13.

The area under wheat crops in the state increased from 2299 thousands hectares in 1970-71 to 3512 thousand hectares in 2012-13. The compound rate of growth in area under wheat declined from 2.33 per cent during 1970-71 to 1979-80 to 0.33 per cent during 2000-01 to 2012-13. The production of wheat increased from 1725 thousand metric tons in 1960-61 to 16591 thousand metric tons in 2012-13. The growth rate of wheat production declined from 4.70 per cent in 1970-71 to 1979-80 to 2.24 percentile during 1990s. But during 2000-01 to 2012-13, the growth rate of wheat production turned to be non-significant. The yield of wheat increased from 1237 kg per hectare in 1960-61 to 4724 kg per hectare in 2012-13. The growth rate of yield of wheat was 2.31 percent during 1970-71 to 1979-80 which declined to 1.98 percent during the period of 1990s. However, the growth rate of yield of wheat turned to be non-significant after 2000. Virtually the rate of increase in yield of wheat started declining since 1990s. Overall, it can be concluded that the growth rates of area, production and yield started declining since early 1980s. This indicates that 1970-71 to 1979-80 was a golden era for growth of wheat crop in Punjab.

The area under rice crops in the state increased from 228 thousand hectares in 1960-61 to 2894 thousand hectares in 2012-13. It can be observed that the rate of
growth of area under rice declined from 12.69 per cent during the period 1970-71 to 1979-80 to 1.17 per cent during 2000-01 to 2012-13. The production of rice increased from 688 thousand metric tons in 1970-71 to 3052 thousand metric tons in 1979-80 at a significant compound growth rate of 18.66 per cent per annum. During 1980s, it increased from 3233 thousand metric tons in 1980-81 to 6697 thousand metric tons in 1989-90 at a significant growth rate of 6.70 per cent compounded annually. The production of rice was 6506 thousand metric tons in 1990-91, which increased to 8716 thousand metric tons in 1990-91 at the rate of 2.54 per cent compounded annually. During 2000s, the growth rate of rice production was 2.26 per cent compounded annually. As far as yield of rice is concerned, it increased from 1765 kg per hectare in 1970-71 to 2604 kg per hectare in 1979-80 at a significant growth rate of 5.29 per cent compounded annually. During 1980s, the yield of rice increased from 2733 kg per hectare in 1980-81 to 3510 kg per hectare in 1989-90, but the growth rate of increase was found to be non-significant. Similarly, the yield of rice increased at a non-significant rate from 3229 kg per hectare in 1990-91 to 3347 kg per hectare in 1999-2000. However, the growth rate of yield of rice again turned to be significant after 2000. Virtually the rate of increase in yield of rice declined during 1980s and 1990s, but it could not fetch the pace of growth of 1970s in 2000s. Overall, it was observed that the growth rates of area, production and yield of rice started declining since early 1980s. This indicates that 1970s was the period of growth of rice crop in Punjab. However, the area under maize crops in the state decreased from 555 thousands hectares in 1970-71 to 131 thousand hectares in 2012-13.

The area under total cereals crops in the state increased from 2160 thousand hectares in 1960-61 to 6513 thousand hectares in 2012-13. It can be observed that the rate of growth of increase in area under total cereals declined from 2.81 per cent during 1970s to 0.53 per cent during 2000s. The growth rate of production of the cereals declined from 6.02 percent during 1970s to 1.46 percent during 2000s. The growth rate of yield of total cereals declined from 3.12 percent during 1970s to 1.56 percent during 2000s. It can be safely concluded that the rate of increase in yield of total cereals declined during 1980s and 1990s, but it could not fetch the pace of growth of 1970s in 2000s.
The area under total pulses crops in the state decreased from 948 thousands hectares in 1960-61 to 20 thousand hectares in 2012-13. The area under total pulses declined continuously since 1970s to 2000s. The production of total pulses decreased from 308 thousand metric tons in 1970-71 to 188 thousand metric tons in 1979-80, but the decline was non-significant. During 1980s, the decline was again non-significant. The production of total pulses was 105 thousand metric tons in 1990-91, which decreased to 41 thousand metric tons in 1999-2000 at a significant rate of -7.72 per cent. During 2000s, the production of total pulses declined sharply at the rate of -9.47 per cent compounded annually. As far as yield of total pulses is concerned, it remained stagnant during 1970-71 to 1999-2000 ranging from 598 thousand metric tons in 1980-81 to 895 thousand metric tons in 1994-95. The yield of total pulses increased from 722 kg per hectare in 2000-01 to 600 kg per hectare in 2012-13.

The area under total foodgrains in Punjab increased from 3063 thousands hectares in 1960-61 to 6533 thousand hectares in 2012-13. The rate of growth of increase in area under total foodgrains declined from 2.44 per cent during 1970s to 0.49 per cent during 2000s. Similarly, the production of total foodgrains increased from 7305 thousand metric tons in 1970-71 to 11906 thousand metric tons in 1979-80 at a significant compound growth rate of 5.79 per cent per annum. During 1980s, it increased from 11921 thousand metric tons in 1980-81 to 18961 thousand metric tons in 1989-90 at a significant growth rate of 4.46 per cent compounded annually. The production of total foodgrains was 19218 thousand metric tons in 1990-91, which increased to 25197 thousand metric tons in 1999-2000 at the rate of 2.26 per cent compounded annually. But during 2000s, the growth rate of total foodgrains production was only 1.45 per cent compounded annually. The yield of total foodgrains in the state increased from 1860 kg per hectare in 1970-71 to 2500 kg per hectare in 1979-80 at a significant growth rate of 3.27 per cent compounded annually. During 1980s, the yield of total foodgrains increased at a significant compound growth rate of 3.06 per cent per annum. Similarly, during 1990s the yield of total foodgrains increased significant growth rate of 1.34 per cent per annum. However, the growth rate of yield of total foodgrains turned to be non-significant after 2000. It is clear that the rate of increase in yield of total foodgrains started
The area under sugarcane crop remained almost stagnant from 1960-61 to 1999-2000 ranging from 133 thousand hectares in 1970-71 to 71 thousands hectares in 1980-81. It decreased from 121 thousand hectares in 2000-01 to 82 thousand hectares in 2012-13. The production of sugarcane again in the state remained almost stagnant during 1970s, 1980s and 1990s. However, it declined sharply from 777 thousand metric tons in 2000-01 to 483 thousand metric tons in 2012-13. The yield of sugarcane in the state increased significantly from 4117 kg per hectare in 1970-71 to 5099 kg per hectare in 1979-80 at the rate of 3.47 per cent compounded annually. After that the yield of sugarcane remained stagnant during 1980 to 2010 ranging from 6425 kg per hectare 2000-01 to 5890 kg per hectare in 2012-13. This shows that the yield of sugarcane in the state could not register any improvement after 1980s.

The area under oilseed crops in the state declined from 295 thousand hectares in 1970-71 to 199 thousand hectares in 1979-80 at a significant rate of -4.74 per cent compounded annually. It again declined from 1980-81 to 1989-90 at the rate of -4.53 per cent. During 1990s the area under oilseed crops remained almost stagnant. However, it again declined from 2000-01 to in 2012-13 at the significant rate of -5.27 per cent per annum. The production of oilseed crops declined significantly during 1970s at the rate of -5.21 per cent compounded annually. However, it was found to be stagnant during 1980s, 1990s and 2000s. The yield of oilseed crops remained stagnant during 1970s, 1980s and 1990s. But it increased significantly from 1023 kg per hectare in 2000-01 to 1372 kg per hectare in 2012-13 at the rate of 3 per cent compounded annually. This shows that the area under oilseed crops in the state could not improve during 2000s despite of an increase in the yield of oilseed crops.

Overall, the analysis reveals that by and large, there was a growth of major crops in the state during 1970s. Though the growth was there during 1980s and 1990s, but the rate of growth witnessed a decline as compared to that during 1970s. More clearly, it can be said that the crisis in agricultural production and productivity has been glaring since mid 1990s which is deepening till day. Punjab is an
agriculturally developed but land scarce economy. The number of operational holdings in the state has declined over a period of time.

**Agrarian Crisis in Punjab**

In rural Punjab, about 78 per cent workers were engaged in agriculture in 1981, which declined to 75.6 per cent in 1991 and to 53.8 per cent in 2001 whereas in urban areas of the state, the proportion of workers engaged in agriculture was 11.3 per cent in 1981 and was about the same (11.6 per cent) in 1991 but declined to 6.53 per cent in 2001. It is also significant to note that the workforce participation increased significantly in 2001, particularly more so in rural areas where it also became distinctively higher than the urban sector. The workforce participation rate was around 29 per cent in 1981 and 30 per cent in 1991, and almost the same in rural and urban sectors. But in 2001, the workforce participation increased to 39.5 per cent in rural areas and to 33.5 per cent in the urban sector. However, the percentage of cultivators to the total workforce witnessed a decline from 31.66 in 2001 to 29.8 in 2011 in rural Punjab. Similarly, it declined from 3.09 to 2.5 in urban areas. In this way the proportion of total cultivators in Punjab declined from 22.98 per cent in 2001 to 19.5 per cent in 2011. The scenario of agricultural rural labourers was slightly different as it increased from 22.14 per cent in 2001 to 23.9 per cent in 2011. However, in the urban areas, the percentage of agricultural labourers slightly declined from 3.44 per cent in 2001 to 3.1 per cent in 2011. In this way, the overall percentage of agricultural labourers declined from 16.45 per cent in 2001 to 16 per cent in 2011. The work participation rate in the rural areas declined from 39.5 per cent in 2001 to 35.6 per cent in 2011. However, the work participation rate in urban areas increased from 33.5 per cent to 35.8 per cent. Overall the work participation rate declined from 37.5 per cent in 2001 to 35.7 per cent in 2011.

In the rural Punjab, between 1981 and 2001, the cultivators and agricultural labourers declined by 14.5 and 9.7 percentage points respectively; and that in allied activities and manufacturing, servicing, processing & repairing increased by 10.0 and 5.6 percentage points respectively. In contrast, the maximum change was 3.6 percentage points in the construction activity. During the decade 1991-2001, there were significant shifts in the rural areas, where cultivators and agricultural labourers declined by 12.4 and 9.4 percentage points respectively. The increasing population
and increase in rate of work participation due to distress, increased the total number of workers in rural Punjab by 47.8 per cent during 1991 to 2001 but the labour absorbing capacity of agriculture sector of Punjab has saturated, which absorbed hardly 5.2 per cent more workers in 2001 compared to 1991. This shows that the employment elasticity of Punjab agriculture has become very low.

In Punjab, about 88 per cent farmers were indebted to the tune of Rs 218092 per household. The incidence of debt was higher to the order of the 89.29 and 90.91 per cent among marginal and small farmers respectively. The amount of debt per household was directly related to the farm size. It was also found that on the whole 14.39 per cent of the farmers left farming in the state since 1991. This proportion was very high in case of marginal (26.49 per cent) and small (18.27 per cent) farmers. Of the total sampled farmers who left farming, about 28 per cent started working as labourers. This proportion was very high among marginal (about 47 per cent) and small (22 per cent) farmers. The agrarian crisis has imprint deep and multiple effects on rural society, in general, and farmers and agricultural labourers in particular. The debt burden and negative capacity to repay the debt resulted in accumulation of debt. In this way total 6926 farmers and agricultural labourers committed suicide in Punjab out of which 74.43 per cent of farmers and 58.65 per cent of agricultural labourers committed suicide due to debt. This indicates that the farmers are unable to repay the debt.

**Socio-economic Characteristics of Marginal and Small Farmers**

Age structure of family is the main factor as it determines the number of working persons and income of the family. In our study, the highest proportion i.e. 48.50 per cent of the total selected heads of the marginal farm families was in the age group of 30-45 years, followed by 37.20 per cent in the age group of 45-60 years and the remaining 14.80 per cent in the age group of above 60 years. Among small farmers, the majority (68.28 per cent) belonged to the age group of 45 to 60 years, followed by 20.29 per cent in the age group of 30-45 years and only 11.43 per cent in the age group of above 60 years. The analysis showed that the vast majority of the selected marginal and small farmers was in the working age group. Of the average family size of marginal farmers in the state, as much as 2.41 were adult male members and 1.55 adult female members. This showed that there were 3.96
adult members in the families of marginal farmers in the state. Similarly, in case of small farmers, 2.24 were adult male members and 1.88 were adult female members. In this way, total adult members in a family were 4.12. In case of small farmers, 2.18 were adult male members and 1.83 were adult female members i.e. a total of 4.01 adult members. The remaining 1.79 members were children.

So far as education level and dependency ratio of marginal and small farmers are concerned, it was observed that as much as 44 per cent heads of marginal farm families and 37.43 per cent of small farm families of the state were illiterate. This shows that a large chunk of marginal and small farmers were illiterate in the so called developed state of India. The average family size of marginal farmers of the state was 5.74, out of which 1.50 (26.13 per cent) were working in the farm sector and 0.72 (12.54 per cent) were working in the non-farm sector. The dependency ratio among marginal farm families was 1.59. Similarly, the average family size of small farmers in the state was 5.96 out of which 27.52 were working in the farm sector and 13.76 per cent were working in the non-farm sector. The dependency ratio among small farm families was 1.42.

The joint family system is suffering under the impacts of modernisation. On an average 58 per cent of the marginal farm families were having a joint family set up while 42 per cent were living in nuclear family system. Of the total small rural households 56.57 per cent had joint family set up while 43.43 were a nuclear family set up. The marginal farmers of the state possessed household assets worth Rs 244822 while same was Rs 338995 in case of small farmers. The house itself secured a large share in total household durable assets. It was Rs 225571 for marginal farmers and Rs 313213 for small farmers.

Income of Marginal and Small Farmers

On an average the total farm income of marginal farmers, which includes income received by the farming family from crops and dairying, was Rs 107494. Zone III recorded the maximum (Rs 117220) while zone I recorded the least (Rs 74478) income. The income from the individual activities of farming of crops, constituted the imputed value of the main product from all crops except fodder crops grown on the farm and the value of the by-product was Rs 52141 and that from
dairying, which means the imputed value of total milk produced on the farm including both the cash and non-cash income from this enterprise was Rs 55353. The average non-farm family income of the marginal farmers that was recorded in the state was found to be Rs 27074. Dairy farming was found to be the most common source of income generation for the marginal farmers in the state as of the total farm income 41.13 per cent was generated by it. Of the total income of marginal farmers in zone I, the major share i.e., 39.50 per cent came from dairy farming, followed by 32.87 per cent from crop farming and 27.63 per cent from non-farm sources of income. The contribution of these sources of income was found to be similar for zone II as the major share i.e., 43.58 per cent was contributed by dairy farming, followed by crop farming (35.47 per cent), and the share of non-farm income was 20.94 per cent. In case of marginal farmers of zone III, the major share of the income was generated from crop farming, followed by 37.99 per cent from dairy farming, and by 16.06 per cent from non-farm income.

The total farm income of the small farmers in the state was recorded to be Rs 215282 of which Rs 119371 was the contribution of crop farming and Rs 95911 was the contribution of dairy farming. The average annual family income of the small farmers in the state was found to be Rs 250620. Unlike the marginal farmers, crop farming was found to be the most common source of income generation for the small farmers as 47.63 per cent of the total family income of small farmer in the state, was generated from crop farming, followed by 38.27 per cent from dairy farming. The size of landholding of marginal farmers was too small to be the only source for generation of family income from crop farming; hence, the marginal farmers resort to dairy farming for income more than the small farmers.

The per farm income comparison of marginal and small farmers reveals that the total annual farm income, both from crop and dairy farming, of small farmers was higher than that of marginal farmers in total and individually in all the zones of the state as it was Rs 215282 for the small farmers and Rs 107494 for the marginal farmers. This relationship of income was directly related to farm size. The total annual per hectare farm income from both crop and dairy farming, of marginal farmers was higher than that of small farmers as it was Rs131090 for marginal farmers and Rs 128912 for small farmers. Also, the zone wise analysis reveals that
the total per hectare income of marginal farmers was higher than the small farmers. The highest per hectare income was recorded for marginal farmers in zone III and the minimum was recorded for small farmers in zone I.

The per farm net income of marginal and small farmers reveals that the net annual farm income, both from crop and dairy farming, of small farmers was higher than that of marginal farmers in total and also individually in all the zones of the state as it was Rs 123349 for the small farmers and Rs 61102 for the marginal farmers. The net farm income of small farmers was twice that of marginal farmers. This was in direct relation to the farm size. It was analyzed that the net per hectare annual farm income, both from crop and dairy farming, of marginal farmers was higher than that of small farmers as it was Rs 73862 for small farmers and Rs 74515 for marginal farmers. Also, the zone wise analysis reveals that the total income of marginal farmers was higher than the small farmers, except in zone I where small farmers recorded a higher income than marginal farmers. For the marginal farmers, the per capita farm income was lesser as compared to the small farmers, as it was Rs 10645. So far as the relationship between per capita net farm income and the size of the farm is concerned it bore a positive relationship. This corresponds with the pattern of per farm family net farm income.

The lowest 10 per cent of the total sampled marginal farm families shared only 4.30 per cent of the total net family income against the top 10 per cent with 17.37 per cent of the total net family income in the state. The bottom fifty per cent of these farm families shared only about 28 per cent against the share of upper fifty per cent with about 72 per cent of the total net farm income. The zone-wise analysis shows that only 3.57 per cent, 4.21 per cent and 5.23 per cent of the total net family income was shared by the poorest 10 per cent of the marginal farm families against the share of upper 10 per cent with 17.84 per cent, 16.76 per cent and 15.89 per cent in zones I, II and III, respectively. So far as the share of lower fifty per cent of these farm families is concerned, it was as low as 26.74 per cent, 25.49 per cent and 28.61 per cent against the share of upper fifty per cent with 73.26 per cent, 74.51 per cent and 71.39 per cent in zones I, II and III respectively. Similarly, the lowest 10 per cent of the total sampled small farm families shared only 4.17 per cent of the total net family income against the top 10 per cent with 17.13 per cent of the total net
farm income in the state. The bottom fifty per cent of these farm families shared only 27.61 per cent against the share of upper 50 per cent with about 72 per cent of the total net farm income in the state. The zone-wise analysis shows that only 4.11 per cent, 3.98 per cent and 4.41 per cent of the total net farm income was shared by the poorest 10 per cent of the small farm families against the share of upper 10 with 18.37 per cent, 15.69 per cent and 17.13 per cent in zones I, II and III, respectively. So far as the share of lower fifty per cent of these farm families is concerned, it was as low as 28.65 per cent, 27.55 per cent and 26.64 per cent respectively. The magnitude of Gini ratios reaffirmed the distribution pattern.

Consumption Expenditure of Marginal and Small Farmers

The consumption basket is presumed to constitute consumer non-durables, consumer durables, services, marriages and other socio-religious ceremonies. The constituents of consumer non-durables are foodgrains, edible oils, milk and milk products, sugar, clothing, footwear, intoxicants, fuel and light, tea leaves and other items of daily use. The durables include house construction and repairs, electric fans, coolers, watches, televisions, radios, bicycles, utensils and so on. Services cover consumption expenditure on education, healthcare, conveyance, communication and recreation.

The non-durable items accounted for maximum of the total household consumption expenditure of the marginal farmers in the state as they spent about 66 per cent of their total consumption expenditure on these items, followed by 12.50 per cent on socio-religious ceremonies, 11.53 per cent on services and 9.86 per cent on durable items. The analysis of the per family household consumption expenditure of the marginal farmers in the state showed that the major share of the total consumption expenditure was spent on non-durable food items of which about 19 per cent was spent on milk & milk products, followed by about 12 per cent on cereals. Among the item-wise distribution of consumption expenditure of marginal farmers in the state, on various services, health care accounted for 5.38 per cent of the total expenditure, followed by 5.03 per cent on education of the children.

The analysis of per family household consumption expenditure of the small farmers in the state reveals that the major share of the total consumption
expenditure, about 60 per cent was spent on non-durable items, followed by 15 per cent on durable items, 13 per cent on services and 12.44 per cent on socio-religious ceremonies. The analysis of concentration of household consumption expenditure of marginal farm families shows that the share of the lower 10 per cent of the marginal farm families of the state in total household consumption expenditure was 1.93 per cent. Correspondingly, the share of upper 10 per cent of the farming families was 19.59 per cent during the same period. This shows the disparities in the distribution of household consumption expenditure at the extreme ends of the distribution. The share of the lower 10 per cent of the marginal farming population of the state in total household consumption expenditure was 1.86 per cent in the state. Correspondingly, the share of upper 10 per cent of the marginal farming population was 28.09 per cent during the same period. This again exhibits the disparities in the distribution of household consumption expenditure at the extreme ends of the distribution. The zonal picture in this respect revealed a quite consistent trend with the state level scenario.

It was found that on the whole the marginal farmers of the state spent Rs 12144 per capita per annum as consumption expenditure. These farmers spent about Rs 6021 per capita per annum on non-durable food items, Rs 2008 on non-durable non-food items of which about Rs 627 was spent on clothing & bedding and Rs 352 on fuel & light. Similarly, these farmers also spent about Rs 1197 on durable items like housing, electronic media, watches, sewing machine, furniture, utensils, water pump, refrigerator, etc. Services like that of education, health care, conveyance, communication, recreation, etc. accounted for Rs 1399 of the annual per capita consumption expenditure of the marginal farmers. The per capita annual consumption expenditure of small farmer in the state was about Rs 13239 of which maximum, about Rs 7876, was spent on non-durable items, followed by Rs 1988 on durable items, Rs 1727 on services, and Rs 1647 on socio-religious ceremonies.

On study of the per household farm expenditure of marginal farmers in the state it was observed that the total cost turned out to be Rs 46392 of which the total fixed cost was 47.64 per cent, i.e., Rs 2210; and variable cost was 52.36 per cent, i.e., Rs 24291. Among the per household farm variable costs of the marginal farmers, feed & fodder accounted for the maximum share of total cost as the
percentage of the same was 14.18 per cent, followed by land revenue/land rent/crop cess, hired-in-labour and fertilizers that shared 13.61 per cent, 7.06 per cent and 6.13 per cent of the total cost. The study of the per household farm expenditure of the small farmers in the state observed that the total cost turned out to be Rs 91933 of which the total fixed cost was 47.65 per cent, i.e., Rs 43802; and variable cost was 52.35 per cent, i.e., Rs 48131. Among the per household farm variable costs of the small farmers, feed & fodder accounted for the maximum share of total cost as the percentage of the same was 14.47 per cent, followed by land revenue/land rent/crop cess, hired-in-labour and fertilizers that shared 13.94 per cent, 6.61 per cent and 5.65 per cent of the total cost.

The study found that the lower 10 per cent of the marginal farm holdings accounted for only 1.78 per cent, 1.45 per cent and 2.76 per cent of the total farm expenditure in zones I, II and III, respectively. In case of pooled situation the share of lower fifty per cent of the farm holdings in the total expenditure was 28.10 per cent. Contrary to this, the share of upper 10 per cent of the farm holdings in the total farm expenditure at the state level was about 24.86 per cent. The share of lower 10 per cent of the farm holdings when compared with the share of upper 10 per cent brought out wider disparities in the distribution of farm expenditure. Among the marginal farmers, the share of lower 10 per cent of the farm holdings when compared with the share of upper 10 per cent brought out wider disparities in the distribution of farm expenditure. In terms of magnitude, the share of lower 10 per cent of the farm holdings was by and large less than two per cent in all the zones whereas the upper 10 per cent were having more than 25 per cent over the study period. The value of Gini coefficient also confirmed this phenomenon. However, it emerged from the analysis that the degree of inequality was less in zone II in comparison to the other zones of the state.

It can be seen that the lower 10 per cent of the small farm holdings accounted for only 1.94 per cent, 2.10 per cent and 2.52 per cent of the total farm expenditure in zones I, II and III, respectively. In case of pooled situation the share of lower fifty per cent of the farm holdings in the total farm expenditure was 31.53 per cent. Contrary to this, the share of upper 10 per cent of the small farm holdings in the total farm expenditure at the state level was about 28.45 per cent over the same period.
The share of lower 10 per cent of the farm holdings when compared with the share of upper 10 per cent brought out wider disparities in the distribution of farm expenditure. On the other hand, among the small farmers of the state the share of lower 10 per cent of the farm holdings when compared with the share of upper 10 per cent brought out wider disparities in the distribution of farm expenditure. In terms of magnitude, the share of lower 10 per cent of the farm holdings was by and large less than three per cent in all the zones whereas the upper 10 per cent were having more than about 20 per cent over the study period. The value of Gini coefficient also confirmed this phenomenon. However, it emerged from the analysis that the degree of inequality was less in zone II in comparison to the other zones of the state. The per hectare total farming cost of the marginal farmers of the state was Rs 56575 of which Rs 26953 was cost of fixed factors and Rs 29623 was cost of variable factors. Expenditure on depreciation on machinery was the main component of fixed costs, whereas feed & fodder was the main component of variable costs. The per hectare total farming cost of the small farmers of the state was Rs 55050 of which Rs 26228 was cost of fixed factors and Rs 28821 was cost of variable factors. Among the variable costs, feed & fodder was the main component as its cost was Rs 7965, followed by land revenue/land rent/crop cess and hired-in-labour, fertilizers as the costs of the same were Rs 7676, Rs 3638 and Rs 3112 respectively.

**Poverty among Marginal and Small Farmers**

On an average, a marginal farmer was estimated to be earning an economic surplus of Rs 18474. It is worth mentioning here that economic surplus of the sampled marginal farmers from agricultural activities alone turned out to be negative to the tune of Rs -8600. This highlights the plight of the farmers that were dependant on agriculture alone to make a living as it was hardly possible to survive without earning additional income from non-farm. On an average, a small farmer was estimated to be earning an economic surplus of Rs 79780. The economic surplus with small farmers was the highest to the order of Rs 90661 in Zone-III, followed by Rs 85579 in Zone-II and Rs 40338 in Zone-I. The economic surplus from agriculture alone was the highest i.e. Rs 59080 in Zone-III, followed by Rs 48069 in Zone-II and as low as Rs 3975 in zone-I. This indicates that small holdings though better off than marginal holdings, are still highly dependent on non-farm earnings.
In Punjab, 24.00 per cent of families of marginal farmers were living below the poverty line (BPL) and the average size of BPL families was 5.95 members. The zone-wise analysis indicates that in zone-I 30.95 per cent of marginal farm families, in zone-II 21.60 per cent marginal farm families and in zone-III 24.10 per cent of marginal farm families were living below poverty line. Though relatively less severe but the situation of small farmers was no better than the marginal farmers. At the state level 12.86 per cent of families of small farmers were living below the poverty line and the average size of BPL families was 6.18 members. Zone-wise analysis indicates that in zone-I 15.52 per cent of the small farm families were living below the poverty line. Similarly, in zone-II 12.00 per cent of the small farm families and in zone-III 12.82 per cent of small farm families were living below the poverty line.

**Indebtedness among Marginal and Small Farmers**

In Punjab, as high as 84.00 per cent of marginal and 81.14 per cent of small farmers were indebted. The zone-wise situation reveals that indebtedness among marginal farmers was estimated to be 69.05 per cent in zone-I, 81.60 per cent in zone-II and 95.18 per cent in zone-III. Similarly, the incidence of indebtedness among small farmers of Punjab was 63.79 per cent in zone-I, 78.29 per cent in zone-II and 94.02 per cent in zone-III. This clearly portrays that a vast majority of marginal and small farmers were reeling under debt. Also, this was one of the plausible reasons for low or negative economic surplus for these categories of farmers. The average amount of debt per household was Rs 215669 on marginal farmers and Rs 263011 per household on small farmers of the state. Among marginal farmers, the per household debt was the highest to the tune of Rs 252474 in zone-III, followed by Rs 211741 in zone-II and Rs 154624 in zone-I. Similarly, among small farmers, per household debt was the highest, i.e. Rs 315421 in zone-III, followed by Rs 287114 in zone-II and Rs 178264 in zone-I. The analysis shows that the marginal and small farmers were heavily indebted in zone-III and zone-II. Per hectare debt on marginal and small farmers was Rs 263011 and Rs 166790 respectively at the state level. However among marginal farmers, it was the highest of Rs 300564 in zone-III, followed by Rs 258221 in zone-II and Rs 195727 in zone-I. Similarly, per hectare debt was the highest to the tune of Rs 183384 in zone-III, followed by Rs 172960 in zone-II and Rs 110723 in zone-I. Per hectare debt was inversely related with the farm size.
Among marginal farmers, out of total debt of Rs 215669 per household, Rs 96426 (44.71%) was borrowed from institutional sources while the remaining Rs 119423 (55.29%) was borrowed from non-institutional sources. In case of small farmers, the share of institutional sources in the total debt was Rs 132362 (47.52%) and of non-institutional sources was Rs 146177 (52.48%). The analysis reveals that no matter the wide network, low rate of interest and other benefits of the institutional debt, the marginal and small farmers were still heavily dependent on non-institutional sources of loan that charge exorbitant rate of interest and compulsive terms and conditions. The loan taken for productive purposes was Rs 93040 (43.14%) of the total loan on marginal farmers while the loan taken for non-productive purposes was Rs 122629 (56.86%). In case of small farmers, the loan taken for productive purposes was Rs 126122 (45.28%) and for non-productive purposes was Rs 152417 (54.72%) of the total loan. Among productive purposes the highest loan of the order of Rs 21845 was taken for development of irrigation structure which came to be 10.13 per cent on marginal farms while the same was Rs 31670 (11.37%) on small farms.

The regression analysis brought out that in case of marginal and small farmers dependency ratio and ratio of non-institutional loan to institutional loan caused an increase in indebtedness. On the other hand, non-farm income leads to a decline in the indebtedness of marginal farmers in Punjab. However, the role of farm income and education in determination of indebtedness came to be non-significant.

Policy Suggestions

Agriculture sector of Punjab in general and small farmers in particular have been facing large number of problems. To ameliorate these problems, various options are being suggested. These include the corporatization of farming, diversification, state farming, cooperative farming, contract farming, etc. An effort has been going in this direction since 1986, when first expert committee for diversification of agriculture was instituted, but significant results have not been achieved so far. Moreover, within the given socio-economic and political structure of our economy, the possibilities of corporatization and state farming seem to be limited. If the marginal and small farmers are forced to sell their land without their adjustment in the non-farm sector, it will further depress their already deplorable
economic situation. At the same time, in the absence of alternative employment opportunities, the shift of the marginal and small farmers out of agriculture may result in social chaos. Therefore, in the given circumstances, the following remedial measures should be taken:

- Punjab agriculture is highly mechanized. Even marginal and small farms are mechanized to a large extent. Per unit fixed costs on marginal and small farms are high due to small size of land holding. It is of utmost importance to reduce these costs. For this purpose, co-operative farm machinery service centres should be set up at every village so that these farmers may use heavy farm machinery on custom hiring basis.

- The variable costs of production per unit of area are also high on marginal and small farms. Therefore, it can be recommended that the marginal and small farmers should be given the farm inputs at nominal prices to reduce the cost of production and to raise the farm income level.

- Non-farm income improves the economic status of the farmers and reduces their poverty. Therefore, rural industrialization and non-farm sector should also be developed so that gainful employment opportunities could be generated in order to reduce the extent of dependency among farm families.

- Educational level of small farmers also contributes significantly towards alleviating poverty. Therefore, free and quality education as technical training should be imparted to these sections of farmers.

- The reduction in family dependency and increase in non-farm income will curtail the need of borrowed funds. The major proportion of the reduced requirement of debt can be met through the institutional sources which may prevent their financial exploitation at the hands of the non-institutional sources.

- More than half of the debt taken by marginal and small farmers is from non-institutional sources that charge exorbitant rate of interest on the borrowings. Therefore, the flow of institutional credit should be increased among these farmers so that the requirement of debt should be met by the institutional sources at subsidized rate of interest to check their exploitation at the hands of moneylenders and ahritiyas.
• Dairy contributes major share of farm income of marginal farmers and considerable share of small farmers. Therefore, it is desirable to formulate and implement special schemes for encouraging production and marketing of milk and milk products.

• Agriculture is known as gamble of nature. Crop failure is one of the major reasons of economic hardness of the farmers. Therefore, effective crop insurance scheme should be launched at low premium cost and high maturity value among the marginal and small farmers.

• Marginal and small farmers spend considerable part of their income on socio-religious functions and intoxicants. Therefore, mass campaign should be launched in the rural areas to create awareness against fake social status, drugs and extravagancies. This may be very effective if the society as a whole becomes aware of these evils.

Thus, supply of inputs at nominal prices, cooperative machinery service centres at village level, employment generation, enhanced inflow of institutional credit, encouragement of dairying enterprise, spread of education, effective crop insurance scheme and awareness campaigns against social evils are the major policy measures need to be initiated and implemented. These policy suggestions will go a long way to enhance employment and income of marginal and small farmers in an effective manner.