

**MAGNITUDE AND DETERMINANTS OF
INDEBTEDNESS AMONG FARMERS
IN PUNJAB**

Thesis Submitted For the Award of the Degree of

**DOCTOR OF PHILOSOPHY
in
ECONOMICS**

**By
Gurmeet Singh
Registration No: 41800415**

**Supervised By
Dr. Tanima Dutta (UID- 23591)
Associate Professor
Department of Economics
Mittal School of Business**



**LOVELY PROFESSIONAL UNIVERSITY
PUNJAB
2023**

DECLARATION

I, hereby declared that the presented work in the thesis entitled “**MAGNITUDE AND DETERMINANTS OF INDEBTEDNESS AMONG FARMERS IN PUNJAB**” in fulfilment of degree of **Doctor of Philosophy (Ph.D.)** is outcome of research work carried out by me under the supervision **Dr. Tanima Dutta**, working as Associate Professor in the Department of Economics of Lovely Professional University, Punjab, India. In keeping with general practice of reporting scientific observations, due acknowledgements have been made whenever work described here has been based on findings of other investigator. This work has not been submitted in part or full to any other University or Institute for the award of any degree.

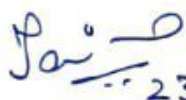

23591
(Signature of Supervisor)


Gurmeet Singh

Registration No.: 41800415
Department of Economics
Mittal School of Business
Lovely Professional University,
Punjab, India

CERTIFICATE

This is to certify that the work reported in the Ph. D. thesis entitled “**MAGNITUDE AND DETERMINANTS OF INDEBTEDNESS AMONG FARMERS IN PUNJAB**” submitted in fulfillment of the requirement for the reward of degree of **Doctor of Philosophy (Ph.D.)** in the Economics, is a research work carried out by Gurmeet Singh, 41800415, is bonafide record of his/her original work carried out under my supervision and that no part of thesis has been submitted for any other degree, diploma or equivalent course.


23591

(Signature of Supervisor)

Dr. Tanim Dutta

Associate Professor

Department of Economics

Mittal School of Business

Lovely Professional University

Phagwara, Punjab, India

Magnitude and Determinants of indebtedness Among farmers in Punjab

ABSTRACT

Agriculture is the main stay and backbone of world economy. No sector can develop without taking help of this sector. Agriculture sector provides food and feed to the masses and helps the world in reducing poverty and hunger. No economy can achieve sustainable development goals especially eradicating poverty and removing hunger without help of this sector. Agricultural development is one of the most important socio-economic tools to end extreme poverty and hunger from the world. According to Cervantes and Dewbre (2010) people in developing countries who were engaged and occupied in agriculture sector are poorer than those who work in secondary and tertiary sectors. There is widespread importance of agriculture in economic development and economic growth. According to the latest reports by FAO (2021), world hunger increased in 2020 under the shadow of Covid-19 pandemic. It is projected that between 720 to 811 million people in the world faced food scarcity in 2020. Nearly 12 per cent of the global population was severely food insecure in the world representing 928 million people and more than half of the worlds undernourished can be found in Asia (FAO 2021). As the global hunger index 2022 placed India at the 107th position among 121 countries therefore it is going to be very difficult to achieve 'Zero hunger' by 2030 and will need socio-economic reforms for overall sustainable agriculture and food security in the country. The growth of agriculture can be effective in raising income amongst the poorest (FAO & UNICEF 2021).

Now if we talk about India, agriculture sector shot in to prominence due to various social, political and economic reforms adopted by the Government. The advent of Green Revolution in the early 1960's proved that agriculture was a strong pillar of the Indian Economy. The performance of agricultural sector has been quite impressive as it has made the country self-reliant in food production. The country became net exporter from net importer of food grains, thanks to the Green Revolution. As per labour source report, employment in agriculture sector as percentage of the total employment was approximately 44 per cent in the year 2018.

The preceding part establishes that the study of agriculture is important to understand the intricacies of Indian economy. Punjab is known as bread basket of India and was part of the first agricultural experiment and major policy initiative (Green Revolution) of the country. It is the largest contributor to the central pool of food grains in the country (Economic Survey of Punjab 2021-22). However, in recent times it became plagued with certain issues that had detrimental impact on the growth of agriculture in the state. The production became stagnant in the early 80s, in the 90s indebtedness became a major problem. During all these happenings credit comes out to be crucial inputs that keep the engine of growth well oiled. But due to unavailability of institutional credit and dominance of non-institutional sources farmers have become entangled in the vicious cycle of debt trap. The main aim of this research work is to find out the Magnitude and Determinants of Indebtedness among Farmers in Punjab. The main thing we have discussed in this study is the Extent and nature of debt being taken by the Punjab farmers from different sources and for different purposes. Similarly we have also discussed various factors or determinants which affect the farmers' decision to take less or more debt.

Punjab is still considered to be the 'Granary of India' and Punjab's economy has remained one of the most prosperous economic states of India since ushering in the Green Revolution and made India food self-sufficient. Agricultural development in Punjab helped India to achieve the much desired food security. While Punjab's share in total geographical area of India is 1.53 per cent but it contributes nearly 24.56 per cent of rice and 30.50 per cent of wheat in central pool as per the economic survey of Punjab 2021-22. Punjab has the highest yield of wheat and rice across states and is rightly called 'Bread Basket' of country. It contributed 29.47 percent of the GSVA between 2011-12 and 2021-22 and it employed more than one fourth of the state's workforce according to Periodic Labour Force Survey (PLFS) 2019-20. Because of the increasing profitability in agriculture and finding it lucrative, farmers in Punjab have started to invest more in the scientific techniques to fetch more profit out of it. In Punjab total land holding are 10.93 lakh hectares out of which 2.04 lakh hectares (18.7%) belongs to marginal farmers, 1.83 lakh hectares (16.7%) belongs to small farmers and 7.06 lakh hectares (64.6%) are those farmers who have more than two hectares of land (Government Of Punjab). The fragmentation of land holding increases cost of cultivation and because of uncontrollable factors like natural, social

and political factors leads to low profitability. In this situation farmers were forced to get loan from non-institutional sources, who not only charges high rate of interest but also keep an eye on their land holdings. The loans at high rate of interest cannot be repaid easily which leads to rural indebtedness.

As the rural indebtedness and farmer distress is the main problem in hand so extensive literature survey is being carried out by understanding the problem from experts in the field and by including all important research studies done in the past. Various government reports, research papers, news articles and other published material have been taken into consideration. Problem of rural debt started with the occurrence of large scale starvation deaths during numerous famines in India. The spread of indebtedness at the time of enquiries of famine commission of 1880 in the different parts of India confirm the existence of high degree of indebtedness among the farmers. It has drawn the attention of economists, scholars and policy makers. Malcolm Darling undertook one of the first systematic studies on this subject in the 1920s. He further quoted, “it is not enough to know how much a man is in debt. We must also find out, if we can, whether he is seriously involved.”(Darling,1925). Some Economists and researchers have defined “*Indebtedness as the state of being in debt*” Historically Agricultural indebtedness is not a peculiar phenomenon to India, it is in fact universal.

According to NABARD, the term ‘indebtedness’ may be understood as, ‘*the state of being under obligation*’ which is financial in nature. Indebtedness may be restricted to a household or may also extend to an organization. “*Indebtedness has been described as impoverishment by debt*” (Guerin et al, 2013), or as a situation where a household is caught in spiral debts (Taylor, 2011). He further described it as a situation where there are a large number of standing loans, a high rate of interest, and no real hope of clearing the principal amount. Under NABARD, All India Rural Financial Inclusion Survey (NAFIS), a household was considered indebted if it had any outstanding loan on the date of survey. According to the latest reports of Government of India, Magnitude and burden of debt on Indian farmers were nearly 18 lakh crores and farmers of Punjab share 81,112 crore out of that.

When the farmers are not able to repay the debt, they feel ashamed and sometime their situation become so much distressed that they are forced to commit suicide.

Everyday newspapers were full with news related with farmer distress and farmer suicide, the situation sometimes become so panicky that government has to take some serious reforms to accommodate the farmers. Loan waivers are the most probable solution brought out by the governments to rectify this serious problem. All these things force us to undertake this research and our study is concentrated in three agro-climatic zones of Punjab namely Sub mountainous zone, Central Plain Zone and South Western zone. We have included those farmers in our survey which are indebted or taken any type of formal or informal loan. First of all we have analysed socio-economic characteristics of the indebted farmers as these socio-economic factors play very important role in taking more or less debt. The socio-economic variables included in this study are dependency ratio, sex ratio, literacy rate and family size, age and category, economic status and ownership of farm and non-farm assets play very important role in the life of farmers. These characteristics force farmers to take more or less debt and impact the economic condition of the indebted farmers.

We have analysed primary and secondary data to check extent and nature of indebtedness among farmers in Punjab. Various NSSO All India Debt and Investment Surveys were scrutinised to fortify our argument and our primary data collected from indebted farmers were inline of this secondary data as it shows that magnitude of debt increases as the land size increases. The nature and sources of debt has also been discussed showing that the debt was being taken from formal and informal sources and used for productive and unproductive activities. As the most of the farmers take loan for productive reasons but end up in using for unproductive activities, making them incapable of repaying the debt in time and the loans continue to pile up, resulting in making the farmers debt- trapped. When the farmers become helpless and not able to repay, then the pressure literally mounts and sometimes they take the harsh step of ending their life. Farmer suicide which is a societal problem and need to be solved as soon as possible, various state governments announced different loan waivers schemes but the recent SBI research study proves that only half of the indebted farmers were able to get access of these loan waiver scheme. This study strengthens the case of Punjab also where out of 17.30 lakh farmers only 5.64 lakh farmers were being benefitted by the Punjab Government's Loan waivers scheme

started in 2017. These loan waiver schemes more often than not prove to be the political gimmicks as it only increases NPAs of the commercial banks.

The factors or determinants of indebtedness has also been discussed, which make the farmers more indebted than before, these factors include rising consumer expenditure, hereditary debt, crop failure, low land holding size, rising medical and educational expenditure, weak government policies, litigation and family dispute, rising input cost and low profitability, increasing use of alcohol and intoxicants, demonstration and lack of financial literacy, exploitation by commission agents and using loan for unproductive expenditure. These factors are the main determinants extracted from the previous studies, which prove that these factors affect the indebtedness manifold and this was proved by our Likert scale questions. The qualitative study also discussed that why the farmers mostly prefer non-institutional sources like indigenous money-lenders like Arhtiyas, who although provide easy loan but charges very exorbitant rate of interest. Some economic factors were also being taken for further study to find out the relationship with dependent factor indebtedness. For this multiple regression technique was used and its result proves that 51 per cent of the independent variables explain the variability among the model being used. The independent variables which are significantly positive are institutional and non-institutional loan, operational cost of production, operational land area and magnitude of farm machinery. These economic factors increase indebtedness among farmers. So farmers should use these factors more judiciously so that these factors or determinants should not impact the level of indebtedness much. We have also discussed about the problems being faced by the farmers in marketing their products and the reforms being adopted by the Government.

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ABBREVIATIONS

AERC	Agro Economic Research Centre
AIDIS	All India Debt and Investment Survey
ATM	Any Time Money
CACP	Commission for Agricultural Costs and Prices
CMIE	Centre for Monitoring Indian Economy
CGWB	Central Ground Water Board
CSO	Centre Statistics Office
DAFW	Department of Agricultural and Farmers Welfare
ESOPB	Economic and Statistical Organisation of Punjab
FAO	Food and Agricultural Organisation
FDI	Farmer Distress Index
GDP	Gross Domestic Production
GNDU	Guru Nanak Dev University
GSVA	Gross State Value Added
GSDP	Gross State Domestic Product
HYV	High Yielding Variety
IELTS	International English Language Testing System
IHDS	Indian Human Development Survey
NABARD	National Bank for Agriculture and Rural Development
NAFIS	National Financial Inclusion Survey
NCRB	National Crime Records Bureau
NPA	Non-Performing Assets
NSSO	National Sample Survey Organisation
OECD	Organisation for Economic Cooperation and Development
PLFS	Periodic Labor Force Survey
RBI	Reserve Bank of India
SLBC	State Level Bankers Committee

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CHAPTER - I

INTRODUCTION

In the words of Gunnar Myrdal, *“It is in the agricultural sector that the battle for long term Economic development of India will be won or lost.”* (Myrdal 1972)

In the words of MS Swaminathan, *“If agriculture goes wrong, nothing else will have a chance.”* (National Commission on Farmers 2006)

1.1 Introduction

Agriculture undoubtedly is the foremost profession of the people living in South Asian countries particularly India. It is evident as every aspect of economic and social life is influenced by agriculture and its allied activities.

“Agriculture can help reduce poverty, raise incomes and improve food security for 80% of the world’s poor, who live in rural areas and work mainly in farming.”

World Bank (2022)

There was evidence from England, the birth place of industrial revolution, show that agricultural revolution preceded industrial revolution. Agricultural development has helped to a greater extent in the process of industrialization in countries like U.S.A and Japan too. Similarly various developing countries such as India invested significantly for developing its economy through agriculture and it proved what World Bank reiterated.

Agricultural development is one of the most important economic and social tools to end extreme poverty and hunger from the world. According to Cervantes and Dewbre (2010) people in developing countries who were mostly engaged and occupied in agriculture sector were far poorer than those who work in other sectors such as secondary and tertiary sector. It is pertinent to mention the latest reports by FAO (2021). After the emergence of the Covid-19 pandemic, the number of people experiencing hunger increased significantly. Projections indicated that individuals between 720 to 811 million worldwide would face hunger in 2020. It is notable that 928 million individuals, which is equivalent to 12 percent of the global population, experienced severe food insecurity worldwide. Additionally, over half of the world's undernourished population was located in Asia (FAO 2021). The global hunger index 2022 placed India at the 107th position among 121 countries. Therefore, it will be an

uphill task to achieve 'zero hunger' by 2030. If we want to achieve the target by 2030 then massive changes are required at the policy level and the ground level. According to The World Bank (2022) reports that 65 percent of poor people made a living through agriculture and with over two third of the world's poor living in rural areas, higher rural income is a pre-condition for sustainable poverty reduction. Poverty eradication in the developing country is possible if the farm productivity is increased which would automatically increases farm income.

Today share of agriculture sector in Gross Domestic Product (GDP) all across the world is declining at a much faster rate resulting in the structural transformation of economies across the globe. Lewis (1954) explained structural transformation of an economy with its dual character model. Similarly other economists like Johnston & Mellor (1961) term the decline of agricultural sector as the 'general transformation model'. This process of structural transformation will lead to a 'world without hunger' (Timmer, 2009). This is evident today in OECD countries as the contribution of agriculture in Gross Domestic Product and employment fell below 3 per cent.

Now if we talk about India, agriculture sector got its due in various social, political and economic reforms. The advent of Green Revolution in the early 1960's proved that agriculture was a strong pillar of the Indian Economy. The agricultural sector has shown impressive performance as it has helped the country to become food sufficient. Thanks to Green Revolution the country became net exporter from net importer. As per labour source report 2021, contribution of agriculture in providing employment share in 2018 was approximately 44 percent. As per the agriculture Census 2015-16, there was a total 146 million operational holdings in India, with small and marginal holdings accounting for 86.21 percent. These holdings comprised 47.34 percent of the operated area, and the average size of land holdings in that year was 1.08 hectares. However, the agricultural sector's share in the country's GDP has declined considerably, from 52 percent in the 1950s to 16.14 percent currently.(RBI Sep. 2019)

The preceding part establishes that the study of agriculture is important to understand the intricacies of Indian economy. The study of Indian agriculture is incomplete without the reference to the bread basket of the country Punjab, thanks to the first agricultural experiment and major policy initiative (Green Revolution) of the country. It makes Punjab the largest contributor to the central store of grains in the country (Economic Survey of Punjab 2021-22). Sadly today it became plagued with certain issues which have been detrimental to the growth of agriculture in the state. One of

the major determinants of growth in agriculture is the availability of capital. Indebtedness became the stumbling block and continuous to be the same impediment since early 1980s, where it is coupled with decline in agricultural production. Agriculture, being a state subject, where every crop needs due attention, due to unavailability of institutional credit and dominance of non-institutional sources, farmers became tangled in the vicious cycle of debt trap.

The structural transition in India has followed the theoretical base which is visible from the data that shows the contribution of agriculture to GDP has declined from 50 percent in 1950 to nearly 20 percent in the present. The employment situation is also similar where less number of people is now dependent on agriculture for their livelihood. However this decline has not resulted in the increase of productivity or in the improvement in the financial condition of the farmers as the number of marginal farmers is highest in India which is 86 percent as per the economic survey 2022, the suicide attempted by the indebted farmers showed that paucity and availability of credit is the main issue.

The study of agriculture in India had to be phase wise so have to fully comprehend the various dimensions of the sector. The different phase wise analysis was to find out the main issues which helped in its growth or became a stumbling block in its growth. We have divided this chapter in to four parts; in the first part we have discussed the importance of agriculture in human life and evolution of different agricultural policies in India. In the second part we have tried to figure out the loopholes behind rural indebtedness and how to address this state wise. Then in the next part we have analyzed magnitude and extent of rural indebtedness in India as well as in Punjab which brought the land of Green Revolution to agrarian distress. Then in the fourth and last part issue of farmers' suicide and the policies of loan waivers adopted by the government and its impact on the situation of farmers has been discussed

1.2 Evolution of Agricultural Policies in India

In the mid-1960s, the agricultural sector adopted key policies such as input subsidies, minimum support prices, storage, procurement, distribution of food grains, and protective measures. The usage of improved crop technologies and High Yield Variety Seeds (HYV) of wheat and rice led to Green Revolution (Pingali 2012). But Green Revolution was limited to wheat & rice in particular which experienced very

high yield (Briggs 2009). Agricultural sector has been continuously controlled and regulated by both central and state governments. The central government makes important policy changes and the state government continues to retain the constitutional responsibility of the agricultural sector. Throughout the last decades after independence, India pursued a food self-sufficiency policy in food grains. The main policy reforms adopted by the Government of India included the expansion of cultivated area, introduction of land reforms, ensuring remunerative prices to producers and restructuring of rural credit institutions. The new economic policy and reforms make India Self-sufficient in the food grains, and enforcing India to reduce its subsidies. The advent of WTO and Signing of AOA had liberalized Indian Agricultural sector.

1.2.1 Phase I Pre Independence Period

In the late 19th and 20th century there was inadequate agricultural production. The rural agricultural sector only gave base to the colonial economy. Agriculture Sector at that time employed almost 75 percent of the workforce and contributed 50 percent in the national income between the 1860s and 1940s. Gradually it led to severe limitations of capital shortage and investment in other capital inputs. There were also low wages and low profits in the rural economy, which in turn weakened the base which was required to take-off to wide reaching economic growth based on mass consumption in the domestic market (Tomlinson, 1996). Using the acreage yield Blyn argued that during 1890s there was a little increase in per capita which fell by about one percent per annum between 1911 and 1947 (Blyn 1966). According to Roy (1999) with the Industrial Revolution and Colonial Rule, the dynamics of buyers changed when trade in mass produced inputs became important and capital became more mobile. It was here that need for credit becomes utmost priority as the local shopkeepers were more prevalent at that time in providing credit to the cultivators(Singh et al., 2016).

1.2.2 Phase II after Independence Period

After independence the main objective was to enhance food production and improve food security through increasing crop productivity and through agrarian reforms. During 1950s, the state Government implemented the Zamindari Abolition act, it was termed as major land reform as enacted by the Government to eliminate the

intermediaries and consolidation of fragmented and scattered land holdings. Other policy measures during this period included market access to credit and extension services to farmers.

The second phase was very important for the Indian agricultural sector as it led to Green Revolution with the adoption of new and improved cropping technologies. Several important institutions were setup during this period for strengthening infrastructure for agricultural sector such as Agricultural Prices Commission now known as Commission for Agricultural Costs and Prices (CACP), the Food Corporation of India (FCI) in 1965 and setting up of various state agricultural universities. The origin of the Green Revolution can be traced back to the early 1940s, when Henry Wallace, the Vice President of the United States, visited Mexico to examine the country's struggling agriculture industry. Following his visit, he approached the Rockefeller Foundation to explore new and innovative ways to assist the Mexican people. To improve the agricultural sector, the Rockefeller Foundation established the Mexican Agricultural Program (MAP) with the help of a team of four committed scientists, one of whom was Norman E. Borlaug. In 1954, Borlaug developed miracle wheat, which was distributed worldwide, including in India, by the Rockefeller and Ford Foundations during that era (Paroda, 2018). The mid 1960s marked by beginning of the green revolution, was like a watershed moment in the growth of the Indian agriculture (Prakash, 2011).

Various policies to support agriculture in most developing countries were initiated during the beginning of Green Revolution in 1960s. Green Revolution was one of the greatest technological achievement and innovation of the 20th century that allowed India to transform from a country struggling with food scarcity to become food sufficient nation (Pingali 2012). The improvement of income in rural India during the 1980s was mainly credited to the agricultural technologies, which was important for the economic development (Fujita 2010). All these changes helped India to significantly enhance its food grain production between 1968 and 2000. It also helped reduce food insecurity and poverty by half percentage points. The credit requirements of farmers are closely tied to changes in cropping pattern and trends in agricultural growth. Recognizing the importance of rural credit, the government took measures to expand institutional lending by nationalizing major commercial banks in 1969 and

1980. Additionally, financial institutions such as NABARD were established in 1982, along with the creation of Regional Rural Banks (RRBs) in 1975.

1.2.3 Phase III Economic Reforms Period

In the third phase, the green revolution technology was disseminated to different societies and regions, resulting in rapid increase in agricultural productivity. The emphasis of this phase is primarily on expanding diversification in agricultural sector and implementing strategies to encourage investment in this sector. The new economic policy of 1991 shifted the focus towards liberalization and globalization.

These economic reforms initially left the rural sector untouched, but the trade policy aimed to liberalise various restrictions and abolish controls on agricultural trade. The agricultural sector has faced several policy changes, including the need to reverse a sharp decline in agricultural production where liberalization and globalization policies had hit the agricultural sector hard, associating it to the agricultural product pricing in the global markets and led to reduction in the farm subsidies, over mechanization and increased production cost that reduced farmers' profitability.

1.2.4 Phase IV Post Economic Reform Period (2000 onwards)

Farming was very profitable until the early 1990s, encouraged by the profit, farmers started to invest more capital by taking loan from non-institutional like commission agents, money lenders, and big landlords etc. at higher interest rates as the institutional sources are not easy to avail. Their terms and conditions along with higher rate of interest forces farmers to remain trapped under vicious circle of debt trap (NABARD 2018 and NSSO 2013). A study by NSSO (2013) showed that 56 percent of cultivators' received credit from institutional sources and 44 percent from non-institutional sources. It shows that 44 percent of farmers in India do not have access to formal credit, demonstrating a lack of financial inclusion in India and in Punjab.

The National Agricultural Policy (NAP) was prepared in 2000, which inclined to achieving more than 4 percent agricultural growth rate based on efficient use and conservation of natural resources. The other main objectives of the policy include growth with equity and inclusiveness. The National Policy for Farmers (NPF), initiated by Government of India in 2007, concentrated on farmers' economic

prosperity than just production. The Eleventh and Twelfth Five Year Plan, covering the period 2007-12 and 2012-17 aimed to accelerate the agricultural growth to 4 per cent. The New Agricultural Policy also mentioned private sectors' contribution through contract farming, increased flow of rural credit, assured markets for crops, and strengthening and renovating the rural credit and cooperative structure.

1.3 Evolution of Agriculture in Punjab

Punjab is a case study for agriculture in India because this state led the Green Revolution in movement and it is also the first state which came under stress. This journey from being the bread basket to becoming the hub of farmers' suicide is worth studying. We have chosen this state as our study area and we discuss various facets of agriculture of this state in the subsequent parts.

India's price support policies largely achieved its goal of increased food grain production, with the result that wheat production in Punjab almost tripled between 1965 and 1972. In India, support prices in paddy and wheat have met their targets but not without lowering the water table and limiting the success in other crops. (Briggs 2009). This increased the monoculture of rice and wheat, even in environmentally weak areas coming under further environmental damage. Punjab although a landlocked state, had been a stellar performer in food production during Green Revolution. Agricultural GDP grew by 5.7 per cent per year during the period 1971-72 to 1985-86, nearly double from 2.3 percent growth rate achieved at national level. Punjab makes the Food deficient India into Food surplus because of its superb performance during Green Revolution. But Green Revolution faded off after 1985-86 and Punjab's growth rate reduced to 3 percent during 1985-86 to 2004-05. But the real shock happened during the period 2005-06 to 2016-17 where its growth rate declined to 1.6% per annum (Gulati et al., 2021).

Punjab has some strong points in favour of its agricultural growth as it has strong irrigation facilities, well connected and all weather roads to provide ruralistic as well as secured market connectivity for agricultural produce. These policy interventions play a crucial role in the development of agricultural growth. The climatic condition in Punjab are not conducive to rice production and the over exploitation of the water

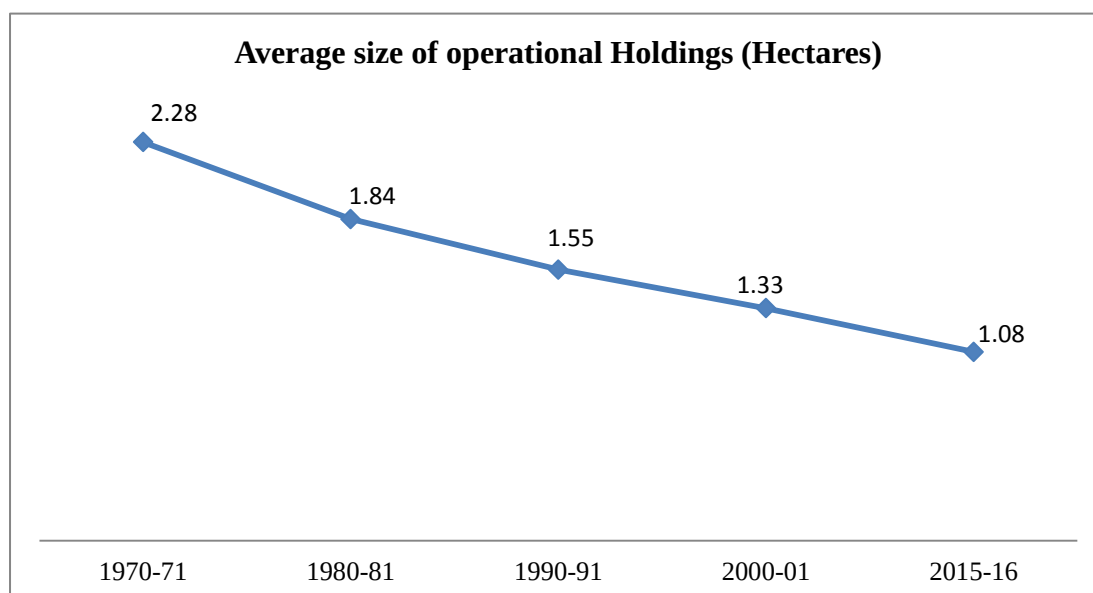
table in 80 percent state blocks, which has resulted in a deceleration of agriculture. (CGWB 2016-17).

Punjab is known as the ‘Granary of India’ because of its tremendous growth in food grains. The economy of Punjab has remained one of the most prosperous economies of India. The innovation of Green Revolution made India self-sufficient. Punjab’s share in total geographical area of India is 1.53 percent but still it contributes nearly 24.56% of rice and 30.50% of wheat in central pool as per the economic survey of Punjab 2021-22. The state has the highest wheat and rice yields across states and is rightly called ‘Bread Basket’ of the country. It contributed 29.47 percent to GSVA during 2011-12 and 2021-22 and according to Periodic Labour Force Survey (PLFS 2021), it gives employment to more than 25 percent of the state’s workforce in 2019-20.

In Punjab total land holding are 10.93 lakh hectares out of which 2.04 lakh hectares (18.7%) belongs to marginal farmers, 1.83 lakh hectares (16.7%) belongs to small farmers and 7.06 lakh hectares (64.6%) are those farmers who have more than two hectares of land (Economic survey of Punjab, 2022). As the population increases, partition of land leads to small land holdings and further fragmentation of land holding increase cost of cultivation. Agriculture which was more prone to diminishing returns because of uncontrollable factors like natural, social and political factors, low profitability and low income forced farmers to get loan from non-institutional sources, who not only charges high rate of interest but also kept an eye on their land holdings. The loans at high rate of interest cannot be repaid easily which led to rural indebtedness.

As the profitability and productivity in agriculture declined, it led to agrarian distress. However, despite decades of investment in new agricultural techniques, poverty and indebtedness continued to effect rural areas. Marginal and small farmer’s land holding had gone up from 38 percent in 1953 - 54 to over 80 percent of all land holdings. The average holdings in India had decreased from 2.28 hectares in 1970-71 to 1.84 hectares in 1980-81, to 1.41 hectares in 1995-96 to 1.08 hectares in India and 3.62 hectares in Punjab in 2015-16 as shown in figure below

Figure 1 Average size of operational Holdings (Hectares)



(Source: Agricultural census 2015-16, Ministry of agriculture)

1.4 Rural indebtedness- meaning and definitions

Problem of rural debt in India was not a new concept in India. Occurrence of large scale starvation during numerous famines in the past was the extreme form of the manifestation of the problem. The spread of indebtedness in different parts of India at the time of famine commission of 1880 confirmed the existence of a high level of indebtedness among the peasants. It caught the attention of economists, intellectuals and policy makers. Malcolm Darlings wrote the first systematic study on the subject in the 1920s “*It is not enough to know how much a man is in debt. We must also find out, if we can, weather he is seriously involved.*”(Darling, 1925). Some Economists and researchers have defined “*Indebtedness as the state of being in debt*”. In general terms, rural indebtedness arose due to the shift from a feudal and patriarchal society to a modern and commercial one where barter system was shifted towards modern and competitive economy (Chand 2017). It was not a phenomenon related to India only rather it was universal. According to NABARD 2018 the term indebtedness can be understood as, “*The state of obligation that is financial in nature. Debt can be limited to a household or it can extend to an organization*”. Many scholars have measured indebtedness in different methods. Some have used a self-reported sense of indebtedness using indicators such as attitudes towards earning; saving and spending while others have used frequency of borrowing (Kandikuppa 2021). Some other scholars looked at the extent at which households sacrificed their basic needs and erosion in the household’s ability to repay the loan. According to NSSO the

indebtedness can be defined in three ways; the number of standing loans, the average amount of outstanding at the time of survey, and the ratio of the total amount outstanding to the total value of assets called debt to asset ratio (NSSO 2013).

“Indebtedness has been described as impoverishment by debt” (Guerin et al, 2013), or as a situation where a household is caught in spiral debts (Taylor, 2011). He explain it as a situation, where there is a higher amount of outstanding loans, a high rate of interest, and no real hope of paying off the principal amount. All India Rural Financial Inclusion Survey 2017, a household was considered indebted if he had any outstanding loan at the time of survey. The NSSO on the other hand defined indebtedness for any outstanding loan beyond 30th June.

The problem of rural indebtedness has been estimated by various committees. The Deccan Ryots Commission in 1875 and The Famine Commission in 1880 and 1901 concluded that nearly thirty three percent of the landholding classes were deeply in debt. Sir Edward Maclagan based his estimation in Nicholson’s estimate for Madras and Concluded in 1911 that the total agricultural debt for British India was about 300 crore (Chand 2017).

Darling (1925) writing about the Punjab explained that during the period of 1880 to 1910 bankers and moneylenders prospered and multiplied so much that their number increased from 53,263 in 1868 to 193,890 in 1911. The Government enquiry committee and researchers asserted that the under developed rural financial markets in the country, exploitative practices of informal resources such as moneylenders and shahukars who charges very high rate of interest is the reason behind indebtedness among poor farmers. The National Income Committee calculated the total rural debt at Rs. 1913.8 crore in 1951. According to All India Rural Credit Survey Committee 58.6 percent cultivators and 39.6 percent of the non-cultivators were resorting to borrowing and the quantum of total rural debt was Rs. 750 crores.

1.5 Magnitude and Extent of Rural Indebtedness

The extent and nature of indebtedness was impacted by the source and use of credit. Rural credit was both productive and unproductive, but mostly expenditure was spent on unproductive activities and social functions. Actually, the amount of debt was not significant. In fact here volume of debt did not matter, but it was the nature or purpose of debt that matters and if it was taken for productive purpose than it was not considered problematic (Shergill 1998; Singh and Toor 2005; Singh 2006). These provisions are not there in institutional borrowing, Hence people have to borrow from

non-institutional borrowers like landlords, money lenders, friends etc. who charges very high rate of interest, if the borrower is not able to repay the debt his miseries increases and he remains under debt trap (NABARD 2018).

Many recent studies have shown that the unproductive consumption of loan amount led to non-payment of debt, and after some time if this debt remains unpaid lead to indebtedness. Studies such as Singh et al., (2017), Sajjad & Chauhan, (2012) had shown that magnitude of debt increased with farm size. Actually there were different factors responsible on account of which an agriculturist increased amount of debt and remain indebted forever. It was his social condition and unmet demands, which compel him to borrow more and more. Stagnant technology, rising input costs and lowering profitability have made cultivation a highly dangerous and unremunerated occupation. Studies across the globe have recognized farming as one of the most threatening occupation (Behere and Bhise 2009). Several researches indicated that cause of high indebtedness in the country is frequent crop failures, fragmentation of land holdings and excessive unproductive expenditure on social ceremonies (Singh et al., 2017; Shergill 1998; Singh et al., 2014).

The National Statistical Office carried out All India Debt & Investment Survey-26th round (1971-72), 37th round (1981-82), 48th round (1992), 59th round (2003), 70th round (2013) and 77th round (2019) with the objective to gather information relating to assets and liabilities of the households. The latest survey analysed the share of agricultural households in rural areas had decreased by almost 4 percent point from 57.8 percent to 54 percent from 2013 to 2019, even percent of indebted households declined from 51.9 to 50.2. Similarly average monthly income of the agricultural households in India increased from Rs 6426 to Rs 10,218. Average amount of debt was Rs 59,748 among rural household and Rs 74,460 for cultivator households, Rs 40,432 for non-cultivator households. Average amount of Debt per indebted household was Rs 1,70,533 among rural households, Rs 1,84,903 for cultivator households and Rs 1,43,557 for non-cultivator households. According to the household surveys the number of households under debt had risen to 35 percent in rural India from 31.4 percent. Similarly the latest Situation Assessment of Agricultural Households (2019) reported the average amount of outstanding loan at Rs 74,121 and percentage of indebted agricultural households was 50.2 per cent. As far as the source of the debt has concerned 66.1 per cent of the outstanding loans were borrowed from institutional sources (Commercial banks, Cooperative banks,

Government etc.) and 33.9 percent from non-institutional sources (Money lenders, Arhtiyas, relatives and friends etc.)

As institutional sources are not easily available, so farmers go for non-institutional sources such as money lenders, arhtiyas and commission agents etc. (Bharti, 2018; Golait, 2007; Mishra & Mohapatra, 2017; Mohan, 2006) Although these sources are easily available but they charge very high rate of interest. The farmers who mostly took loan for unproductive activities were not able to repay the loan either intentionally or un-intentionally. As the loan increased, it created physical as well as mental pressure which led to agrarian crisis and severe mental distress (Merriott, 2016; S. Singh, 2006; S. Singh et al., 2014, 2021; Nair, 2021). The rising debt situation and farmer suicide are drastically correlated and leads to severe agrarian distress (Barah & Sirohi 2011; Assadi 2006; Vaidyanathan 2006, Jeromi 2007, Nagaraj 2008, Behere & Bhise 2009, Deshpandey et al., 2010 and Mishra 2014). This distress among the rural community, led to farmers suicide, which was commonly a result of debt trap and crop failure.

Table 1.1: Source of Debt Distribution of Households Cash loans by Credit Agency- All India 2003-2019

	2003	2012	2019
Credit agencies	Rural All Households		
institutional Agencies	57.1	56	66.1
Government	2.3	1.2	
Cooperative society/Bank	27.3	24.8	9.9
Commercial Bank including RRBs	24.5	25.1	47.6
Insurance	0.3	0.2	0.1
Provident fund	0.3	0.1	0
Financial institutions	1.1	0.6	1.9
Financial company	0.6	1.1	2
Self Help Groups- bank linked		1.9	3.5
Self Help Groups- NBFC		0.3	0.4
other institutions	0.7	0.7	0.7
Non-Institutional Agencies	42.9	43.9	33.9
Landlord	1	0.7	1.1
Agricultural Money Lenders	10	5	6.3

Professional Money Lenders	19.6	28.2	16.5
Traders/input supplier	2.6	0.1	0.3
Relative and Friends	7.1	8	6.8
Doctors, Lawyers etc.	0.3	0.5	0.1
other sources	2.3	1.4	2.8

(Source: All India Debt and Investment Survey, Various issues and Report no 588/77, NSSO)

Table No 1.1 shows the source of debt distribution of households by various credit agencies and the highest indebted states in terms of farmer indebtedness. From the first table it is clear that the share of non-institutional sources is almost half and though the per cent share has considerably come down in 2019, it is still at a worry some level. If we look at the indebted states then the Punjab ranks third as shown in table below.

Table 1.2: Magnitude of indebtedness in selected states

S. No	State	% of indebted households			Average amount of outstanding (Rs)		
		2003	2012	2019	2003	2012	2019
1	Andhra Pradesh	82.0	92.9	93.2	23,965	1,23,400	2,45,554
2	Kerala	64.4	77.7	69.9	33,907	2,13,600	2,42,482
3	Karnataka	61.6	77.3	67.6	18,135	97,200	1,26,240
4	Tamil nadu	74.5	82.5	65.1	23,963	1,15,900	1,06,533
5	Punjab	65.4	53.2	54.4	41,576	1,19,500	2,03,249
6	Maharashtra	54.8	57.3	54	16,973	54,700	82,085
	India	48.6	51.9	50.2	12,585	47,000	74,121

(Source: Data compiled from NSS report no 587, Situation Assessment of Agricultural Households and AIDIS various issues)

New economic policy of liberalization and the advent of WTO started the fall of Indian Agriculture where prices of agricultural commodities started to decline due to international pressure and competition. Sidhu and Gill (2006) explained that the proportion of indebted farmer was highest in agriculturally advanced states like

Haryana, Punjab and Maharashtra, because these states changing their cropping pattern towards commercial crops. As the agrarian distress in India has been worsening day by day as most of the farmers (40%) wanted to quit agriculture as it had become highly unprofitable occupation (NSSO, 59th 2005 and 70th round 2013). According to NSSO (2019), the numbers of indebted agricultural household in the country are estimated at 50.2 per cent and proportion of Maharashtra (54 per cent) and Punjab (54.4 per cent) was still more than the overall average.

Punjab was the biggest contributor in ushering in Green Revolution and made India self-sufficient. Punjab farmers intensively used capital intensive technique and reduced the role of laborers. Punjab also suffered from various socio-political and geographical disturbances. Small and marginal farmers and the landless labourers were severely affected by crop failure and fall in profits of agricultural product (Pandey et al., 2018).

Some of the studies had also discussed the relationship between agrarian distress and farmer suicide. There are several factors or determinants which affect indebtedness or farmer distress. Studies like Assadi (2006), Gill & Singh (2006), Vaidyanathan (2006), Nagaraj (2008), Mishra (2008) and Singh et al., (2009) had discussed various factors which influence farmers' decision to take more and more debt. Kaur (2012) conducted a study at all India level to examine the indebtedness and the factors responsible for it. According to Singh et al., (2008) rising medical expenditure and rising educational expenditure also led to indebtedness as the expenditure on these two activities in modern times increased manifold. High farm input prices and frequent crop failure were other major causes of indebtedness (Dandekar & Bhattacharya 2017; Sajjad et al., 2016). Studies like Padmaja & Ali (2019), Datta et al., (2018), Pandey et al., (2018) also witnessed various factors like uncertainty, lack of credit availability besides these factors we have discussed before. Singh et al., (2020) conducted their study on agrarian distress and its causes and concluded that it led to stressful behavior. There were other factors also that cause distress like shame of debt, flawed cropping pattern, rising input costs and falling profitability are the important and key factors. Rahman et al., (2020) added another factor like lack of financial literacy among the borrowers which further aggravated the problem by

putting more pressure on them. Similarly recent study done by Petrov (2021) analyzed that more importance has been given to check the effect of certain behavioral factors on indebtedness, such as financial imprudence, the level of financial literacy and the inability to manage family budget. Sometimes litigation and family disputes like divorce, bad family relations and rising medical expenses on chronic diseases may compel the farmers to take more debt than before. Exploitation by commission agents and Arhtiyas also pushed the farmers in deep trouble as farmers remain in paradox and can provide them credit at any odd times.

Various studies had discussed relationship between farmer suicide and Agrarian crisis. These studies stressed that suicides are constituted in regions such as Karnataka, Andhra Pradesh, Maharashtra and Punjab (Vaidyanathan 2006; Dandekar & Bhattacharya 2017; Behere & Bhise 2009; Mishra 2008). These studies basically discussed the factors influencing farmer suicide. Agrarian crisis had begun in Punjab in the second half of 1990s, when agricultural growth stagnates and profitability declines. Bharti (2011) and Singh (2006) conducted their research in the cotton-producing region of Southern Punjab, where they examined the situation of small and marginal farmers, as well as landless laborers. They also discussed their plight in their study.

Some of the studies used stratified random sampling technique to access the severity of the problem. Studies like Satish (2006), Assadi M (2006), Singh (2006), Jeromi (2007), Nagaraj (2008), Mishra (2008 & 2014), has analyzed the difficulties and challenges of rural indebtedness and its relationship with suicides. Although these studies were concentrated in different parts of the country, yet their motive was same to study the extent and magnitude of indebtedness and its relation with suicides. It was not only the severity of indebtedness that led to suicide but there are several farming related factors like crop failure, natural calamities, lack of input resources and socio-economic factors led to farmer distress (Guha & Das 2022). According to the NCRB latest report on suicide, on an average over 29 farmers and laborers commit suicide in India every day.

Table 1.3: Total suicides in Agriculture sector in selected states

S.no	State	Farmer suicide		Labourer suicide		Total suicide	
		2019	2020	2019	2020	2019	2020
1	Andhra Pradesh	628	564	401	325	1029	889
2	Telangana	491	466	8	5	499	471
3	Kerala	22	57	128	341	150	398
4	Karnataka	1331	1072	661	944	1992	2016
5	Tamil nadu	6	79	421	398	427	477
6	Punjab	239	174	63	83	302	257
7	Maharashtra	2680	2567	1247	1439	3927	4006
	India	5957	5579	4324	5098	10281	10677

(Source: NCRB 2019, 20)

As the magnitude of farmer suicide in the country increased and the situation of agrarian distress became critical, most of the state governments resorted to loan waiver scheme to subside the pressure created by the media and farm unions. The first major program on the farm loan waiver was Agricultural Debt Waiver and Debt Relief Scheme, 2008. The first scheme included short term loans and overdue investments of public sector banks and Regional Rural Banks as on 2nd Oct, 1989. Then there were several schemes started by the state governments mostly in the election years. As the loan waiver was one time settlement and it mounted the financial burden on the exchequer, so various economist suggested states to refrain from adopting such type of loan waiver measures as they can increase Non-Performing Assets (NPA) of the commercial and cooperative banks.

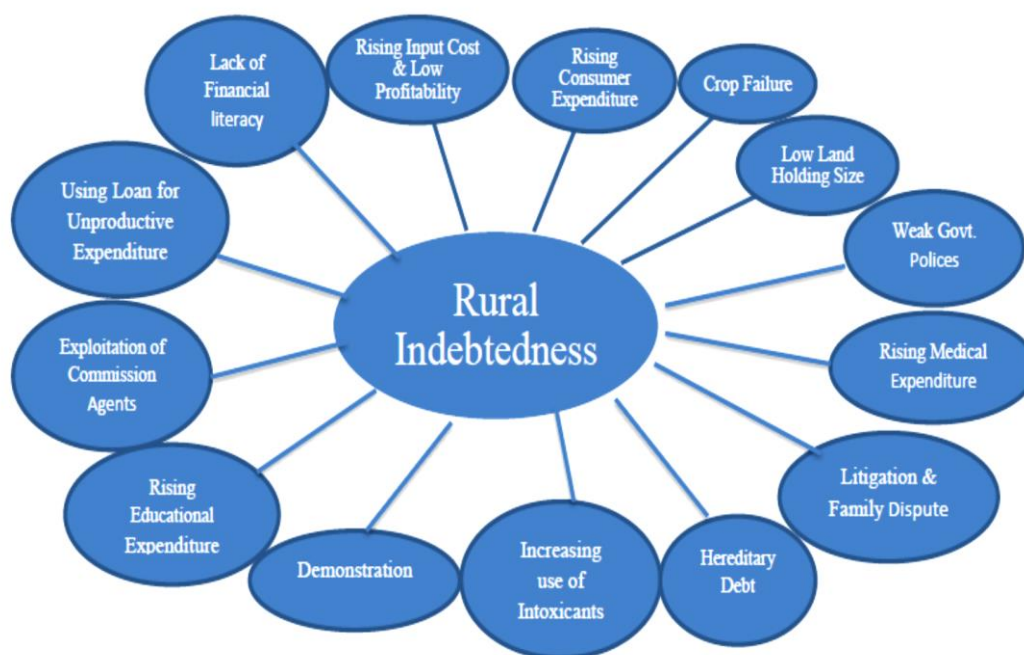
Critics believe that it was faulty to waive off loans without writing off a culture of judicial borrowing and repayment (Kanz 2012). Benefit of this facility was also provided to the landless laborers (Kumar et al., 2020). The issue of small and marginal farmer has been highlighted by Banik (2018) whose study showed that indebted farmers were not the real beneficiaries of loan waivers. Recent State Bank of India Research study 2022 published by various leading newspapers highlighted farm loan waivers benefitted just 50 Percent of the indebted farmers since 2014 but made financial institutions wary of further landings. The loan waiver scheme was

introduced by the then Punjab Government in 2017 due to severe indebtedness among small and marginal farmers. The Punjab government is now boasting about waive off farm loans worth Rs 4624 crore of 5.64 lakh farmers but in reality only a total 17.30 lakh farmers in Punjab had taken loan from institutional sources and then too only one third or 5.64 lakh were found to be eligible who had a loan amount less than Rs 2 lakh and have less than 5 acre land holding (Economic Survey, 2021-22).

1.5 Determinants of indebtedness

There were various socio, economic, demographic and behavioral factors which influence the magnitude of indebtedness. It was not the incidence which mattered the most, it was how many farmers were indebted and were not able to repay the loan. These factors include level of education, non-farm income, farm size and high expenditure on house, crop failure and natural calamities were also among the main cause of high level of indebtedness. According to Nagaraj (2008), litigation and family disputes like divorce also unsettled the mental peace of the farmers who took more debt to come out of the distressed situation, which then accelerates and led to severe debt trap. Various studies related with this topic were carried out in three agro climatic zones of Punjab which discuss indebtedness and factors affecting indebtedness and cover most districts of Punjab.

Figure 1.2: Determinants of Rural Indebtedness



The thesis has been organised in the different chapters explained below

1.6 Plan of the thesis

The result of the empirical investigation carried out in the present thesis is organized as follows:-

Chapter I	Introduction
Chapter II	Review of Literature
Chapter III	Research Methodology
Chapter IV	Socio Economic profile of indebted households
Chapter V	Extent and Nature of Indebtedness
Chapter VI	Borrowing and Repayment Behavior of the Rural Households
Chapter VII	Factors Responsible for Rural indebtedness Among Farmers of Punjab
Chapter VIII	Summary, Conclusion and Policy Recommendations

As review of literature is an important part of any study, second chapter was thoroughly dedicated to literature review. Several research papers related with the topic agrarian distress, rural credit, farmer's suicide were discussed in detail. In the Next chapter socio economic characteristics of Punjab state as well as socio economic profile of indebted households were discussed. The life of a farmer can be good or bad depending on several factors, it's not only the destiny that matters but also the decisions he takes at the various levels. Most of the Indian population lives in rural areas and their main occupation is farming and its allied activities. Farming is one of the riskier and hardworking occupations, where a farmer has to take risk and toil hard to meet his both ends. In India a farmer is classified into several categories like small, marginal, semi medium, medium and large farmers depending upon the land holding they have. The larger the land he owns lesser will be his difficulties and hardships, studies have shown that large landholdings leads to economies of scale which leads to less financial stress and high profitability. It purely depends upon how he utilizes his limited and scarce resources. The farmers with bigger land can use it better technically and can produce his crops more efficiently. But on the other hand those farmers can be more vulnerable to the risk and uncertainties who are having small and marginal land holdings.

The problems of Indian farmers are not only related with farming but also with their daily routine activities. As the farmers are not able to save their money as much hence they need credit at every step of field production. Not only have they needed credit for farming activities but also for other occasions starting from birth to death. Their needs are plenty but their resources are limited, so they totally depends upon the rain god as only half of Indian land is under irrigation, that is why farming sometimes is also called gamble of Monsoon. Punjab is well endowed as more than ninety per cent of its land is under irrigation system working with more than 190 per cent capacity. But even than nature plays important role in getting returns.

When we discuss the extent and nature of indebtedness in the fifth chapter then we analyses the quantum and size of debt. Some studies proved that larger the land size, larger will be the amount of loan. Larger farmers take large amount of loan, but small and marginal farmers' ends up in a vulnerable situation as the institutional sources show no interest in giving them loan. When we discuss nature of debt we discuss that either debt is taken for productive purposes or for unproductive purposes. Most of the farmers consume their debt mostly on unproductive activities which lead them to debt trap proving the old proverb of M.L. Darling right that "Indian farmers born in debt, lives in debt and dies in debt".

Similarly for studying borrowing and repayment behavior of the households in the sixth chapter we discuss why at all farmers take debt and from which sources they prefer to take debt. Under institutional sources Commercial banks play an important role in distributing loan to the farmers. Then cooperatives play the second fiddle after commercial banks in providing loan at subsidized rate of interest. Moneylenders and arhtiyas plays very important role under non-institutional category. Although these agencies charges very high rate of interest but their flexible terms and conditions lured farmers into their debt trap. Farmers mostly consume their money on unproductive activities hence they were not able to repay the principal amount. Sometimes, they end up paying only rate of interest as they are not able to cover all their expenses.

In the seventh chapter we have discussed the factors influencing rural indebtedness as there are several factors which influence the behavior of the farmers to take debt for productive and unproductive resources. There are several requirements of farmer households which cannot be fulfilled without taking debt. Rising consumer

expenditure, crop failure, rising input costs, medical expenditure and exploitation by commission agents are the important determinants which pushes the farmers to take more and more debt. In case of lack of financial literacy and weak Government policies also led to farmer indebtedness. The farmers when use debt for unproductive expenditure then it increases the indebtedness as the farmers are not in condition to repay the borrowings.

In the last and final chapter summary and policy implications have been discussed, where attempt has been made to sum up the entire thesis and bring conclusions. Policy recommendations have also been given so that government can use them in the near future as it's the need of the hour to give farmers an ample opportunity to get out of the distress. Many suggestions have been made in this chapter so that farmers can improve their productivity and get higher profits. There is need of some economic reforms to be adopted by the government to enhance and simplify the loan procedure of institutional credit.

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CHAPTER – II

REVIEW OF LITERATURE

CONCEPT, POLICIES AND LITERATURE OF REVIEW

2.1 REVIEW OF LITERATURE

A literature review is a critical analysis of published sources on a specific research topic. It involves searching for, recalling and evaluating the existing literature to identify the key gaps in research and potential areas for further investigation. Overall a literature review is an important component of the research process, as it helps to establish the current state of knowledge on a particular topic and can suggest future research directions. A good literature review is an important tool for researchers and scholars to understand the problems or research gaps in the study. The present study in hand includes studies related to rural debt, agrarian crisis, and farmers' suicide in particular and studies on the role and importance of agriculture and rural credit in general.

Due to their impoverished state Indian farmers have need credit at each and every step. The outreach, availability and amount of agricultural credit have increased in recent years. Various shortcomings have also crept in and have ultimately affected the effective working and efficiency of financial agencies. As agricultural development is the backbone of rural as well as Indian economy, the importance of agricultural credit has also been seriously felt. The Indian government and Reserve Bank have acknowledged the significance of the agricultural sector in India and have thus created and periodically reviewed various agricultural policies to cater to the evolving needs of this crucial sector.

The present study is all about rural indebtedness, its magnitude and its determinants. Indian agriculture is plagued with low productivity and low profits, which leads to agrarian crisis and distress. This distress became more complicated when the farmers were not able to repay their debt and remain indebted forever. The situation of debt trap led farmers into deep trouble and later on pushed farmers taking extreme step of ending their life known as farmer suicide. To study the nature and Incidence of Rural Indebtedness in India, Government established an expert group in 2007 under the Chairmanship of Prof. R. Radha Krishna. It mainly discussed the situation of indebtedness in various states of India and recommended several solutions to solve

this problem. In order to gain insight into the aims of the study, it was considered essential to examine existing research and the methodology used by previous researchers. This chapter gives an overview of articles and studies that highlight the existing knowledge in the field of interest. A thematic literature review has been done to understand the various facets and problems related to Indian and Punjab agriculture, various themes are as follows:

2.1.1 Agriculture and its importance in India and Punjab

Agriculture is the main occupation in India as well as in South East Asian countries, which are thickly populated and need food and feed for their people. Agriculture growth is important for raising the income of the population depending upon the linkages between this sector and the industrial sector. The unbalanced theory by Hirschman, (1958) indicated weak and backward linkage. Contradictory to this theory some studies like Kalecki, (1960) and Kuznets, (1968) emphasized that agricultural development is essential for industrial development. In India agriculture remains important contributor to economic development as explained by (Cagliarini & Rush, 2011), who discussed the major developments in the primary sector in India. The study concluded that although the share of agriculture in the Indian economy had reduced over the past fifty years, in recent decades it made significant advances. The study discussed various policies and programs adopted by the Government to improve this sector, it also explained that India after Liberalisation and Privatisation became more open to agricultural trade in recent times. Agriculture in India plays a significant role as it is a vital contributor to employment and international trade, as explained by Arjun (2013), who not only explain the status and importance of agriculture but also discussed its role in the Indian Economy. According to him, this sector employs approximately 52 percent of people.

A study by Ahluwalia (1978) explained that there is a negative relationship between agricultural growth and rural poverty. It pointed out that as agricultural growth increased it removed poverty in the country. Gulati et al., (2021) also explained the importance of Indian agriculture and showed that although the overall Gross Domestic Product in the country increased by 7.2 percent per annum, GDP in agriculture increased by 3.2 percent per annum between 2000-01 and 2018-19. The study concluded that Indian agriculture contributes to food security and poverty

alleviation and also tries to explain the relationship between agriculture performance and poverty.

Bhalla (1995), in his presidential address, attempted to examine the implications of the globalization of Indian agriculture and its impact on Indian exports and imports. The impact of the World Trade Organisation has been seen later on when the Indian Economy opened to the world. Globalization of Indian agriculture offered both opportunities and challenges to policymakers and economists. Kalamkar & Narayanamoorthy (2003), made a study to understand the different impact of liberalization on domestic prices of agricultural commodities. The study analysed the growth trends in domestic agricultural prices among 11 crops across two decades during the pre-liberalization and post-liberalization periods. The study discussed the growth in agricultural productivity in India after liberalization. Bhalla and Singh (2009) analysed the performance of agriculture during the pre and post reform period and concluded that progress has been characterized by the declining productivity in the crop yield as well as agricultural production in most states. Some studies like Rao (2001) concluded that there is a negative impact of trade liberalization and on the overall growth of Indian agriculture and even the lack of public investment has dampened the agricultural growth.

Agriculture has been a fast emerging sector in Punjab, due to large investments in irrigation equipment in pre and post-independence Bhalla (1995). Agriculture in Punjab always remains the main occupation among the farmers as it remains a stellar performer in the days of the Green Revolution and contributed heavily to the Indian economy. After the reorganization of Punjab in 1966, a set of policies was undertaken by the state to become a major agricultural-producing state which coincided with the Green Revolution. The state which has the highest yield of wheat and rice across states is rightly called the 'Bread Basket' of the country. Gill (1983) wrote in his study that the success of Punjab agriculture was due to the efforts of Borlaug and the state administration who have taken the advantage of all the possibilities that came their way. It was Punjab's excellent performance that made India food Surplus from food scarce country but Green Revolution faded off after 1985-86, Chand (1999) and Gulati et al., (2021). Although Punjab's share in the total Indian geographical area is 1.53 percent still it contributes nearly 24.56% of rice and 30.50% of wheat in the central pool as per the Economic Survey of Punjab (2021-22). The Punjab state was

the leader in the adoption of new agricultural technology, which led to a large increase in the use of new production equipment, but negative impacts of technology has also been felt Sidhu et al., (2010). According to Chand (1999) crop diversification is being suggested to solve the problems faced by farmers in Punjab. Farmers in Punjab also look forward to rural credit institutions to fulfill their requirements, hence rural credit became of utmost importance to the farmers as they rely heavily on non-institutional sources. Different aspects and issues related to agrarian distress and rural indebtedness were discussed thoroughly in different studies and research papers which were analysed under different topics.

2.1.2 Importance of Rural credit in the Indian Context

The utilization of modern technology in rural areas has been significantly aided by institutional rural credit. The primary aim of the policy governing rural credit was to provide farmers with access to credit at lower interest rates. Rural credit has undergone many changes after the rural credit survey (1954) recommendations. Nationalization of commercial banks, the strengthening of cooperative credit institutions, the establishment of Regional Rural Banks (RRBs) and National Bank for Agricultural and Rural Development (NABARD), and the launching of Kisan Credit cards were the major landmark changes in rural credit as explained by (Mohan 2006; Thorat 2006; Mishra & Mohapatra 2017; Kishore 2012).

Now as farmers are shifting towards modern technology for their development and growth, it became important to use credit sources for their development. The financial needs of the farmers in India are all more pressing because of their poverty. The outreach and availability of rural credit have increased in recent years (RBI, 2019). Farmers can take loans, particularly from two types of financial sources such as formal and informal. Formal or institutional sources include commercial banks and Government resources and informal or non-institutional sources include local moneylenders and shahukars who provide credit to the farmers at any time. (Gulati & Juneja 2019). Besides this various studies discussed nature and source of rural credit in detail, most of these studies analysed if the debt is taken for a productive purpose or unproductive purpose (Singh et al., 2014; Datta et al., 2018; Mishra & Mohapatra 2017).

Agricultural credit is the backbone of modern agriculture as technology transfer and mechanization are directly related to productivity and depend heavily on available credit. In the Indian context it is necessary to identify the need for finance for farming as it is known as a priority sector and 18 percent of the credit is to be provided to the farmers and out of this 10 percent of the credit is prescribed for small and marginal farmers (RBI) and Pandey et al., (2019). The lending to the agriculture sector will be used to purchase inputs and develop the facilities which may propel the productivity level. Numerous studies have been conducted to explore the evolution of rural credit like Bharti (2018) and RBI (2019) which also explains the importance of rural credit in the Indian context. These studies recognized the increasing importance of the agricultural sector where Government institutions played an important role in improving institutional credit activities Agricultural policies were being revived and changed continuously to reform the Indian agriculture.

Though the performance of rural credit and availability of agricultural credit has multiplied over the year, various problems emerged like insufficient availability of rural credit for small and marginal farmers, and lack of funds affecting the viability and sustainability of credit institutions Rajeev et al., (2011). Some studies concluded that strong and viable agricultural financial facilities were required for building the necessary institutions and market infrastructure. Some studies such as Golait (2007) also attempted a study to analyze the challenges being faced by rural credit in India. The study divided the institutional loan to agriculture broadly into four different phases. In the first phase (1904 –1969), there was a predominance of cooperatives, and the establishment of RBI took place. In the second phase (1969–1975) nationalization of commercial banks and establishment of Regional Rural Banks took place, in the third phase (1975–1990) NABARD was started and in the last phase (1991 onwards) financial sector reforms took place (RBI 2019). The study revealed that credit delivery to the agriculture sector continues to be insufficient. It also recognized that the banking system was reluctant to lend money to tiny farmers who hold less than 2 hectare. Hence, the promotion of microfinance on a widespread basis was more strongly needed. (Shah et al., 2007)

Some studies discussed the status, performance, and determinants of institutional credit as a large number of agencies are distributing credit to the farmers. The research study conducted by Kumar et al., (2010) used secondary data and covered

the period from 1970-71 to 2008-09 and revealed that during the last four decades the share of institutional credit has increased immensely. The main source of rural credit recently has been commercial banks for the farmers. The size of rural credit has been concerned with socio-demographic factors which are based on several other factors. The effect of literacy level and training has also affected the capacity building of the farmers. The study by Samantara and Badatya (2012) and Kishore (2012) explained the important role played by formal credit in the development of the agriculture sector. The farmers preferred short-term credit to buy inputs and long-term credit for investment purposes. Credit plays an important role in the commercialization of agriculture. The research papers also discussed the role of the agricultural credit delivery system to enhance the agriculture sector.

Recent studies such as Raja Kumar et al., (2019) explained and concluded that rural credit has been mostly used on unproductive activities and institutional sources do not provide loans for these types of activities which is why the farmers have to move towards non-institutional sources. Mishra and Mohapatra (2017) discussed the evolution and need for agricultural credit in India and it concluded that rural credit was needed by farmers for productive as well as unproductive purposes. Pandey et al., (2019) analysed the impact of different credit sources on creating extreme distress for farmers in India. The study examined which source of credit made farmers more distressed. The study also concluded that farmers do not take loans from formal sources due to corrupt bureaucracy and lengthy documentation, etc.

Some of the studies are also related to Punjab and have discussed the impact of institutional credit on farmers of Punjab (Singh et al., 2008; Singh et al., 2019; Sharma 2014) who examine the deficiencies of institutional credit in Punjab. The institutional sources contributed about 62 percent of the total debt. They have taken a research to study the growth in institutional rural credit in the Punjab state. The research study was established on secondary data collected through various sources.

Financial inclusion has become important and includes all categories of people especially those households who are not able to get loans from institutional sources, here role of Self Help Groups and Microfinance institutions became more important (Dev, 2006). Some studies revealed need for financial inclusion from the Indian Point of view. According to D'Souza (2020), to rescue farmers from the debt trap and for doubling their income financial inclusion is a must. On average only 50 per cent of

the total farmers have access to institutional credit. The researcher explained the importance and need of rural credit in India and the reforms to be adopted in this sector. According to different studies rural credit and indebtedness in India are interrelated. The study by Maurya and Vishwakarma (2021) aimed to assess the situation of rural credit and debt in India. It compared the amount of institutional agricultural credit and indebtedness across various categories of farmers in major Indian states. The findings indicated that a significant proportion of short and medium-term loans were obtained by marginal farmers for land development purposes. The authors recommended that the government should prioritize providing short-term loans to marginal and small-scale farmers.

There are different studies such as Guerin et al., (2013) Singh et al., (2008), and Padmaja and Ali (2019) which discussed socio and economic profiles and factors that may also affect farmers' decision to take loans and the quantum of loans. They argued that social regulation and variables such as caste, class, and geographical location impacted the use of debt transactions which led to debt fragmentation and discrimination. Social characteristics, interactions, and processes shaping debt clearly define that debt is highly dependent on certain conditions. They believe that debt has a social meaning but somehow the existing literature shows that debt was more often viewed as purely an economic transaction.

2.1.3 Extent, Nature and Magnitude of indebtedness

According to NABARD 2018 the indebtedness can be understood as *“the state of being under obligation”* which is financial in nature. It can refer to an individual, to a household or it extend to an organisation. Some Economists and researchers have defined *“Indebtedness as the state of being in debt”*. *“Broadly speaking, rural indebtedness was the result of the complete transition from a feudal patriarchal to modern and commercial society. It involved a change from a system of barter and payment in kind to money economy, from custom to competition, from dispersion and isolation to concentration and centralization”* (Chand 2017).

Indebtedness in the Indian context finds its origin in borrowing for certain requirements like consumption, for religious and social functions such as marriage, etc. some past studies focused on the importance and necessity of rural credit in Indian context. When we discuss the extent and nature of the debt, we discuss how

much debt has been taken and for which purpose, and for what time period, as most of the farmers take debt for a short period and for unproductive purposes.

Rural credit and its use can impact the level of magnitude of Indian farmers, which can vary depending upon different situations. Various studies measure the extent, nature, and magnitude of debt and also discussed the impact of debt on farmers' life (Rao & Tripathi, 2001; Narayanmoorthy, 2001; Borbora & Mahanta 2005; Datta et al., 2018; Batra & Savita, 2021). Lenka (2005) has analysed the nature and extent of indebtedness among rural farmer households in India. It has been concluded that almost 50 per cent farmer households in the country are indebted. The maximum number of distressed farmer households is related to the agriculturally developed states in comparison to the least developed states. Small and marginal farmers and downtrodden excluded social groups are the most indebted farmer households. The author has also revealed that indebted households borrow almost 60 per cent for productive purposes and 40 per cent for non-productive activities. Some studies also discussed the impact of debt on small, marginal farmers and Scheduled cast farmers.

Studies like Rajeev et al., (2011) have also discussed the magnitude of farmers' indebtedness in India. He writes small and marginal farmers were much more left off by the institutional sources of credit and as a result, they were forced to pay higher rate of interest to non-institutional sources at 36 percent. Chander et al., (2020) conducted their study on small and marginal farmers in the Mewat and Palwal districts of Haryana and concluded that rural indebtedness is one of the crucial issues of the Indian economy and hinting towards weak financial infrastructural facilities provided by the financial institutions in India.

Narayanmoorthy (2001) assessed the magnitude of indebtedness and the level of burden among labour households belonging downtrodden farmers. Sharma and Meher (2001) attempted a study taking 1981 and 1991 to check the problem of indebtedness among farmers at an all-India level. The comparative study of two surveys found that indebtedness was higher in those states which are thickly populated with scheduled caste labour households. They also claimed a positive association between debt per household with farm labour productivity and negative relation with the incidence of poverty.

A similar study by Sharma (2002) has also analysed the magnitude of indebtedness among the tribals and non-tribals in Himachal Pradesh. It was found that in the case of tribals, the repaying capacity was higher among the small-size holders in absolute terms. But relatively, the burden of debt on tribals was increasing continuously as they repay loans to village moneylenders taken at an exorbitant rate of interest. Most of the studies explained that rural credit was mostly taken for productive purposes, but most of the time farmers' end up using it for unproductive activities. It was due to the reason that institutional sources do not provide loans for social and cultural activities such as marriage, and religious ceremonies which are part and parcel of human life. Some of the studies discussed and analysed the extent and magnitude of debt at the national level such as Rajeev et al., (2011), Sajjad and Chauhan (2012), Datta et al.,(2018), Raja Kumar et al., (2019) and Batra and Savita (2021) but only a few studies are region based. Most of these studies have taken panel data from various NSSO rounds to analyse the situation of farmers' indebtedness. Few studies have used primary data from their region to find out the level of indebtedness, and most of these studies used stratified random sampling techniques to conclude.

Several studies are Punjab based, such as (Shergill 1998; Singh and Toor 2005; Singh et al., 2008; Singh et al., 2009; Singh et al., 2014; Sajjad Haroon et al., 2016; Singh et al., 2017; Kingra et al., 2018; Singh et al., 2020) who have taken stratified random sampling technique to reach at their results. Most of these studies have been conducted in three agro-climatic Zones such as Sub-mountainous region, the Central region, and the South-Western region. Most of these studies concluded their results either zone-wise or category-wise or both. Singh and Toor (2005) examined the social and economic factors influencing the debt in Punjab during 2002-03. The authors have chosen a sample of 250 households from three different regions. It has been found that the average debt per sampled farm households was highest in South-Western Region with Rs.1,25,616 followed by the Central Region with Rs.85,128 and the semi-hilly Region with Rs. 62,946. Further the study concluded amount of debt per acre was also highest in the South-Western Region despite having the highest farm size. This was due to the failure of the cotton crop in Punjab.

Singh (2006) in his discussion paper clearly defined that the farmers of Punjab spend too much on unproductive activities. These crop failures and the high cost of modern inputs are the main factors behind farmer suicides. Crop failure has repeatedly

happened in the cotton belt. Outside farming, large expense on medical facilities, and social ceremonies were also some significant reasons behind farmer suicide. The diversification program of the state is also underperforming and the farmers were not able to take full benefit of the program.

The study by Singh et al., (2009) was based on primary data with three stages of random sampling technique with the sample consisting of 600 farm households. The study found that the total debt from formal and informal sources was estimated to be Rs. 1,78,934 in the year 2005 –06. The study by Singh et al., (2014) has also attempted a research study to discuss the magnitude and determinants of borrowing among farmers in Punjab, the research is based on primary data under the research project sponsored by NABARD. According to the study, the total magnitude of debt in Punjab was calculated to be Rs 22,943 crores and the average debt per farm household is Rs 2, 18,092 and in Punjab, nearly 88 percent of the surveyed farmers were indebted. About 57 percent of the total debt was taken for productive activities and was to the tune of Rs 13,158 crores and 43 percent of it was used on unproductive activities which could not help to repay their long pending borrowings.

Singh et al., (2017) in an important study conducted in three different regions of Punjab found that the magnitude of debt per indebted household increases as the farm size goes up. The debt per indebted agricultural labour household was Rs. 68,329, while the average amount of loan per indebted farming household was Rs. 5,52,064. When they calculated the debt on an average farming household then they found that the amount of debt per owned and operated acre was Rs. 1,16,801 and Rs. 71,203. Kingra et al., (2018) discussed and highlighted the depreciating condition of small and marginal farmers as the incidence of debt among them was found to be 84 and 81 per cent respectively. They studied a sample of 600 farmers in a multistage stratified random sampling technique. The magnitude of debt per indebted household was Rs 2, 15,669 for marginal farmers and Rs 2, 63,011 per household for small farmers of the state. Almost 55 per cent of marginal and 52 per cent of small borrowers are still borrowing loans from informal sources. The authors have explained the exploitation of small and marginal farmers by commission agents.

Besides these studies, various reports of NSSO and NABARD have also been analysed to get thorough knowledge of the extent and nature of the indebtedness. Comparative analysis has also been made in last three decades to check the magnitude

of debt between different states. The secondary data has been taken to fortify the study and to make the study more interesting. Table 1 represent the magnitude of debt or outstanding debt on farmers of Punjab calculated by different studies in past.

Table 2.1: Magnitude of Debt on farmers of Punjab

S. no	Authors	Debt per Household	Remarks
1	Situation Assessment Survey, 2003 (AIDIS)	Rs 41,576	
2	Singh & Toor 2005	Rs 92,934	
3	Singh et al., 2008	Rs 1,78,934	
4	Situation Assessment Survey, 2012 (AIDIS)	Rs 1,19,500	
5	Singh et al., 2014	Rs 2,18,092	
6	Singh et al., 2017	Rs 5,52,064	
7	Kingra et al., 2018	Rs 2,15,664 Rs 2,63,011	• Marginal farmer • Small farmer
8	Situation Assessment Survey, 2019 (AIDIS)	2,03,249	

(Source: Author)

2.1.4 Borrowing and repayment behavior of the rural households

As we have discussed the Extent, Nature and Magnitude of debt in our review of literature, now when credit has been mostly used for unproductive activities and as the cost of production is increasing day-by-day, farmers were not able to pay back their loans and end up in remaining indebted forever. Hence we have taken several studies which are discussing the borrowing and repayment behavior of indebted farmers (Swain & Swain 2007; Gandhimathi & Vanitha 2010; Kanz 2012; Chakraborty & Gupta 2017; Kaur 2018; Ramprasad 2019; Chandran 2020)

Swain and Swain (2007) conducted a study to check the borrowing and repayment behavior of 139 farmers from the Balangir district of Orissa. Farmers belonging to Marginal and small families are dependent upon informal sources who charge exorbitant rate of interest in the region which was under drought. The authors also

observed that the major causes of loan default were crop failure, unproductive expenditure, the hope of loan waivers, etc. there is a need for simplification of banking operations and providing fiscal incentives to the banks for providing high-cost lending to the poor farmers who are living in the drought-prone areas. Gandhimathi and Vanitha (2010) have discussed the determinants of the borrowing behavior of farmers in their study. They also discussed various socio-economic factors which affect the borrowing behavior of cultivators towards commercial and cooperative banks. The study concluded that the farmers with large land holdings and high costs of production borrowed mostly from institutional sources such as commercial banks.

Kaur (2012) conducted a study at all India level to examine the indebtedness and the factors responsible for the problem of indebtedness in India. The study used data from the National Sample Survey Organization (59th round). The study concluded that the probability of a household being indebted declined first with increasing household size and rose after a certain stage. The probability of a household being indebted decreased with an increase in the size of land ownership, irrigation, and mechanization reduced the risk of indebtedness among rural households. The problem was higher among those who borrowed from institutional agencies and the risk of indebtedness was significantly higher among scheduled caste households. The study by Chakraborty and Gupta (2017) has analysed the loan repayment behavior of farmers. This study has used the India Human Development Survey 2009-10 to analyse the nature and size of the indebtedness of Indian households. It also studies loan utilization of loan taken from institutional versus non-institutional sources. The study analyses repayment patterns and identified the features of individuals who were defaulting. The study concluded that people who borrow from formal sources will have higher consumption, higher social spending and lower investment.

Kaur (2018) the researcher undertook a study on how farmers in rural areas borrow money and repay it. The study found that having more skills and resources, both human and physical, can reduce reliance on borrowing while also increasing the ability to borrow and repay loans among rural households. On the other hand, high interest rates have a negative impact on the ability of rural households to borrow money. However, improved access to resources and better economic conditions can improve their ability to repay loans. Lastly, rural credit is hindered by the increased

risks and uncertainties associated with borrowing, which can discourage both borrowing and repayment.

The study by Chandran (2020) evaluated loan utilization patterns and repayment behavior of farmers in Kerala. The study concluded that the majority of the borrowers have diverted their loan use from productive purposes to unproductive purposes. His study revealed that the borrowings were used for the renovation and restructuring of houses, marriage ceremonies, medical expenses, etc. The repayment behavior of farmers was also analysed and found that the variables such as age and economic status had statistical significance in the repayment behavior of the farmers.

Most of these studies concluded that the farmers spend too much on unproductive activities. Crop failure and the high cost of agricultural production are the main factors behind agrarian distress and that is why farmers are not able to repay the amount of debt. Even the farmers are using loan amounts for renovation and restructuring of houses, celebrating social ceremonies and rising medical expenditures are the main causes that make farmers' situation worse and mostly they are unable to repay their borrowed amount and remain indebted. The high rate of interest was the other reason which multiplies the debt amount and led farmers into distressed situations.

2.1.5 Agrarian distress and farmer suicide

As the farmers are living in deep distress and not able to sustain the pressure leading to farmer suicide, hence the Government has started many schemes such as loan debt waiver schemes to pacify the situation. Various studies have discussed agrarian distress and its causes and also discussed the issue of farmer suicide and the factor influencing it.

The studies such as (Assadi 2006; Vaidyanathan 2006; Jeromi 2007; Nagaraj 2008; Mishra 2008 and Mishra 2014) have discussed the relationship between agrarian distress and farmer suicide. These studies discussed the causes of distress and the magnitude of suicide in India. Assadi (2006) has analysed the relationship between agrarian distress and farmer suicide mainly in the state of Karnataka. Somehow many factors were affecting or causing farmer distress, which later on converted to farmer suicide. Globalization and the capitalistic approach of the farmers also pushed them into this crisis. According to the author, the issue of farmer suicide began in Andhra

Pradesh and then later on it becomes prevalent in Punjab, Maharashtra, Kerala and Karnataka. In addition to that crop failure, the increasing cost of production, declining revenue, lack of formal credit for small and marginal farmers and withdrawal of subsidies to the agricultural sector can be the reasons for rural indebtedness. A study by Vaidyanathan (2006) has discussed farmer suicides and agrarian crisis in detail. According to their study suicides are concentrated in a few regions of the country where there is a lack of rain and low irrigation facilities such as Karnataka, Andhra Pradesh, Maharashtra, parts of Kerala and Punjab. Farmer suicide is the main societal problem of the Economy and should be removed as soon as possible. Jeromy (2007) has discussed the magnitude of farmer suicides in Kerala. The study concluded the result that the incidence of indebtedness in distressed areas of the state was more than the national average. Nearly 60 percent of the farmers who have less than one acre of land have committed suicide.

Nagaraj (2008) studied the magnitude and trends in farmer suicide in between 1997 and 2006. He also checked the regional pattern in the incidence and trends in farmer suicide. According to his study farm suicides were not attributable to the agrarian crisis only but also due to the unsustainable lifestyles of farmers along with factors including alcoholism, high expenditure on marriages and medical and health issues. Similarly, Mishra (2014) has taken National Crime Record Bureau (NCRB) data from 1995 to 2012. He concluded that suicide was a multifaceted and complex phenomenon. More than 90 per cent of suicides are likely to be associated with neurobiology distress. According to the author, suicide data on police records by NCRB are underreported. He concluded there was a need to reform the quality of debt associated with the reporting of suicides in India.

Kennedy J & King (2014) analysed an article published by Lancet that reported the first formidable estimates of suicide rates in India. They tested whether differences in the structure of agriculture production led to variations in suicide rates. Their study suggested that the majority of marginal farmers were related to the problem of higher suicide rates in those states where farmers were reliable on cash crop cultivation and indebtedness. According to their study, Punjab was an exception because there were a higher proportion of indebted farmers but a low suicide rate, because the farmer has the lowest proportion of marginal farmers. Their findings concluded that states can reduce the farmer suicide if the number of marginal farmers producing cash crops

decline significantly and to reduce agrarian distress socio and economic reforms should also be adopted by the government. Some of the studies found that farmers' were exposed to a high degree of distress, Merriot (2017) conducted a literature review to identify the factors related with farmers' suicide in India. According to him, farming is a dangerous occupation, and there was evidence that worldwide, farming was an occupation that is heavily risky and uncertain. He found that socio-economic factors related to their psychological health problems with increased indebtedness were related to farmer distress and suicide. According to the study, indebtedness has been increasing recently and the agrarian crisis has affected the most vulnerable farmers.

The study entitled "*Farmer suicide: An all India study*" by Manjunatha & Ramappa (2017) conducted study in 13 states and concluded various reasons behind farmer suicide. The foremost reason includes indebtedness was due to crop loan (44.3%), s due to non-institutional loan (37.1%), lack of access to institutional credit (33.1%), crop failure (32.2%), an expectation of loan waiver (31.1%), indebtedness was also due to non-agricultural Loan (27.5%) and drug abuse and alcohol addiction (26.5%). These are the major reason which led to indebtedness and later on converting into farmer suicide.

Some of these studies concluded that in India, farmer suicides remain concentrated in various states such as Punjab, Andhra Pradesh, Maharashtra, Kerala and some other states with different cultures and cropping patterns. From 2001 to 2011, around two-thirds of all farm suicides in India occurred in five states: Maharashtra, Karnataka, Andhra Pradesh, Chhattisgarh, and Madhya Pradesh. Surprisingly, however, the agriculturally advanced states of Punjab, Haryana, Gujarat, and Karnataka, which have high levels of irrigation facilities and productivity, also experienced a significant increase in farm suicides.

Some of the studies concluded that suicide among the women cultivator was also increasing day by day and women in farming have under high levels of stress and because of these causes they were depressed. This makes female farmers a high-risk category for suicide (Behere & Bhise 2009). Deshpandey et al., (2010) have discussed the agrarian crisis and farmer suicide in detail. They have reviewed various papers discussing these problems. During the decade of the nineties, the situation of agrarian crisis aggregated due to natural calamities and market failures. This situation

compounded due to economic reforms and Globalization. The situation of the agrarian crisis was alarming in those states where the situation of farmer distress was at the higher end like Andhra Pradesh, Karnataka, and Maharashtra. As the price of agricultural products fall due to the competition, net income flow to the households also started to stagnate. To meet their expenditure they have to take loan from different credit sources. But as the profitability falls, the farmers were unable to return the debt which increases the indebtedness. To analyse the causes behind the issue of farmer suicide, we require an understanding of four factors events, stressors, actors and triggers. Because of the complicated phenomenon, it was not easier to concentrate on a single reason related to the suicides.

2.1.6 Factors influencing agrarian distress and farmer suicide

Some studies like Mukherjee (2009) have also discussed the factors influencing indebtedness and farmers' suicide and the most affected region has been Vidharbha in Maharashtra; Deccan in Karnataka; Telangana and Rayalaseema in Andhra Pradesh; Wayanand and Kannur in Kerala and Chhattisgarh. Padmaja and Ali (2019) have studied agrarian indebtedness in rural India and found that various factors affecting indebtedness could be identified as socio-economic determinants. Different studies have proved that characteristics like age, education and gender have a positive relationship with indebtedness. There is direct and positive relationship between large landholdings and the incidence of indebtedness. Some farm characteristics also play an important role in impacting farmer distress and agrarian crisis. Further, they have empirically analysed and discussed the positive correlation between different sources of credit and size of indebtedness, which clearly shown that farm households that have taken loans from formal sources are having a higher extent of indebtedness and those who availed loans from other sources were not likely to have higher indebtedness. The research study found that there were different factors that more or less affected the level of indebtedness and led to the agrarian crisis.

Rahman et al., (2020) conducted a study to assess how certain behavioral and demographic factors affect indebtedness, and created a model using particular determinants. This study has taken four factors from the literature review which may impact the indebtedness level and those factors include financial literacy, emotional well-being, risk perception and materialism. The research used a confirmatory model to check the relationship between independent factors like financial literacy, Risk

perception, materialism and emotional quotient with dependent factor indebtedness and the study found that risk perception had a highly significant relationship with both materialism and emotion, while indebtedness correlated with emotion and materialism. The research study explained the significant difference between indebtedness and behavioural factors. The study shows that behavioural factors impact the level of indebtedness.

Singh (2020) has also analysed the factors which were responsible for agrarian distress and farmer suicide in India. According to his study, the problem was a reflection of the nationwide unity and strength of farmers because of various reasons. Increasing agrarian distress in India was directly linked with farmer suicide in India. The majority of farmer suicides exist in six states namely Andhra Pradesh, Madhya Pradesh, Maharashtra, Tamil Nadu, Chhattisgarh and Karnataka. The study conducted panel data from 28 states and covered the time period covering 2001 to 2018. The study concluded that some poor decision-making policies of the Government were responsible for farmer distress and farmers' suicide. Thorat et al., (2020) evaluated the nature and determinants of farmers' indebtedness with the help of NSSO data from the 70th round. They used descriptive statistics and a binomial regression model to access determinants associated with indebtedness. The study concluded incidence of indebtedness was more in the case of large farmers as they take more loans because of their goodwill. The different analysis done in different regions shows that non-institutional source was more proactive in the advancement of credit in the south eastern region. According to this study, various socio-economic factors play major role in influencing indebtedness.

Majumdar (2021) has conducted a thorough review of the literature on the factors related to farmer suicide and concluded various causes and factors behind farmer suicide, the study has been conducted on 125 affected families through purposive sampling across different districts of Andhra Pradesh and Telangana. The study concluded that farming occupation was very risky because of increasing input costs. Farmers who have committed suicide have both agricultural-linked and family-linked problems. High rates of interest from moneylenders and inaccessible banking systems were affecting the farmer's decision to look towards the distressed situation related to agriculture-linked problems. Major family problems substantial family crisis and lack of support from their community members affect the farmers to take this tragic step.

This agrarian crisis which was prolonged and not going to end soon led to the farmer's suicide as well. Recently growth of Punjab agriculture is going southwards due to several factors like increasing cost of production, frequent crop failures, low level of profit, and lowering the water level, which is playing a significant role in pushing the state into deep agrarian distress. The study by Chand (1999) explained the agrarian crisis and diversification of agriculture which may prove to be fruitful to the state of Punjab, which was heading towards an agrarian crisis. The crisis in this sector led farmers' to quit agriculture and look for any other alternative occupation, which may prove to be more beneficial and profitable.

Some of the studies related to agrarian distress and farmers' suicide have also been conducted in Punjab and discussed various factors associated with it, these studies include (Gill and Singh (2006); Singh (2006); Kaur (2010); Bharti (2011); Thatai (2015); Dhandekar and Bhattacharya (2017); Singh et al.,(2020) and Singh et al.,(2022)). Authors in their research study attempted to examine the agrarian crisis and some of its consequences. According to their study, the maximum numbers of suicides were reported among distressed farmers related to the small and marginal categories. Several causes of suicides and indebtedness were predominant and main factors along with economic distress, crop failure, marital discord and alcoholism. Singh (2006) in his discussion paper clearly defined that the farmers of Punjab spend too much on unproductive activities. Crop failure and the high cost of modern inputs are the main factors behind farmer suicides. Crop failure has repeatedly happened in the cotton belt. Outside farming, large expense on medical facilities, and social ceremonies were also some significant reasons behind farmer suicide.

Kaur (2010) discussed the issue of farmer suicide in Punjab in her study. She along with an NGO conducted her study in one village in the worst-hit district of Punjab. She interviewed 31 suicide-hit families and suggested various policy measures for the Government to help the distressed farmers. Bharti, (2011) conducted his study in and around 20 villages in Sangroor, Bhatinda, Barnala and Mansa districts especially the cotton belt of Punjab to investigate the problems and conditions of the landless labourer. The agrarian crisis had begun gaining ground in the second half of 1990 in the state when farmer's agitation and struggles started intensifying and being the biggest sufferers of Punjab agrarian crisis, they were forced to commit suicide along with landless agricultural labourers of Punjab. He has also discussed the plight and

struggle of suicide victim families who have survived. They have to face bitter experiences as they were not able to recover their losses and have to take debt to solve their problems. According to Singh et al., (2014), due to several factors and insufficient earnings, farmers were not being able to survive. As a result, around 2 lakh small farmers left farming from 1991 to 2011.

A study by Thatai (2015) discussed the critical situation of rural indebtedness and farmer suicide in Punjab. He analyzed secondary data and government reports to explore the causes of farmer suicides. The suicides in Punjab were the result of mental trauma caused by poverty and indebtedness. This mental stress forced the farmers to take this step, where he feels that their debt was never ending and they were not able to fulfill their family needs, so farmers with no extra income are bounded to take a loan from non-institutional sources like money lenders and Arhtiyas who more often than not exploit them. Dandekar and Bhattacharya (2017) discussed farmer suicide which is the result of the agrarian distress in India, based on their field study in Punjab and Maharashtra. Nearly 2568 farmers ended their life in Maharashtra in 2014, out of which 1052 farmers were due to agriculture-related issues and 475 due to medical reasons. This mainly occurred in the cotton belt areas where a poor harvest and crop damage led to a crisis that further resulted in such tragedies. Many other factors like the shame of debt, faulty cropping pattern, rising input costs and the lack of subsidiary sources of income provoked them to take this step.

The recent study by Singh et al., (2020) has discussed the agrarian distress situation and farmer suicide in Punjab. They have done their study in the three worst-hit Malwa districts of Punjab namely Mansa, Bhatinda and Sangrur. Their study surveyed 1020 farmers and 372 labourers. The socio-economic characteristics which can impact the respondents' decision-making have been identified and in the primary survey, those factors have been analysed to see the difference between diseased and control groups of farmers. The magnitude and determinants of indebtedness have also been analysed. Most of the deceased farmers belong to the Malwa region and a maximum number of the farmers related small and marginal farmers and they were facing severe agrarian distress. During 2000-13, 3885 peasants in Punjab died due to suicide, and out of these 97.45 percent were from the Malwa region. Toor et al., (2016) has also analysed the indebtedness in Malwa region of Punjab.

Singh et al., (2022) conducted a study on the critical and important topic of farmer suicide in six distressed states of Punjab for the time period from 2000 to 2018. They thoroughly discussed the condition of distressed farmers in Punjab, who was distressed due to certain reasons. They also discussed the magnitude and determinants of the deaths of peasants in Punjab. Their research was concluded in four phases where they surveyed Bhatinda and Sangroor in the first phase, Barnala, Ludhiana, Mansa and Moga in the second phase surveyed all six districts again in the third and fourth phase. The study concluded interesting facts related to farmer suicides, a total of 9291 deaths were reported from 2000 to 2018 in Punjab. Maximum deaths were reported from Sangroor (2506) followed by Mansa (2098). The study also discussed the magnitude of suicides yearly and according to different farm sizes and concluded that a maximum number of suicides were reported by marginal farmers (46%), which was followed by small farmers (32%). Gender-wise classification of suicide represented that male farmers (92%) dominated female farmers. The most important point discussed by the study was the reason for death and nearly 88 percent of farmers take this dreaded step because of heavy debt burden.

2.1.7 Agrarian distress and farm Debt waivers

As the magnitude of farmers' suicides in the country increased and situation of agrarian distress became critical, most of the state Governments resorted to loan waiver schemes to subside the extreme pressure created by the social media and farm unions. The first major program on the farm loan waiver was Agricultural Debt Waiver and Debt Relief Scheme, 2008. Various studies discussed these schemes and also tried to check their feasibility. Kanz (2012) examined the impact of different schemes offered to small and marginal farmers related to loan waivers schemes started in India in 2008. It was the largest debt waiver scheme in history and it provided hundred percent debt reliefs to farmers who pledged an area of 2 hectares or less and 25 percent debt relief to those who have pledged land for it. The scheme covered loans from cooperative institutions as well as commercial banks between 1997 and 2007 and the loans that remained overdue at the end of 2007 and in default till the end of February 2008. The study showed that contrary to the debt overhang theories, debt relief did not promote new investment. It only reduced debt and failed to increase the production and productivity of the beneficiaries after debt relief.

According to the study by Banik N (2018) the marginal and small farmers were not the real beneficiaries of loan waiver schemes as only 15 Per cent of these farmers have access to the banking system. The real beneficiaries were large and medium farmers as they were active enough to get the benefits. Small farmers were not able to get loan waiver benefits because of lower access to formal loans, and falling agricultural profits.

Narayanan and Mehrotra (2019) have evaluated and summarized secondary resources on the implications of loan waiver schemes and the role of institutional sources. This paper highlighted the need for loan waivers adopted in India to help indebted farmers. This study concluded that no doubt loan waivers were given by many state governments to check the degree of agrarian distress but still, it has been an appropriate strategy to support the ailing agricultural sector. It played a negative role on the balance sheet of the institutional sources. Overall loan waivers were not good for the fiscal health of the states concerned as they keep on mounting as the well-to-do farmers also wanted the debt waivers and sometimes succeeded in doing so. Even the beneficiaries want that they should get loan waivers more frequently as they started to pile up the debt themselves.

Kumar et al., (2020) have undertaken a study with the help of the Agro Economic Research Centre, Punjab Agricultural University to check the working and impact of 'Farm Debt Waiver Schemes' mostly implemented in Punjab and Uttar Pradesh in 2017 and impacted the livelihood of beneficiary farmers in both states. The data collected was analysed before and after a period for debt waiver schemes by selecting 180 beneficiary farmers each from selected states. The study concluded that due to loan waiver of institutional credit indebted farmers in Punjab were able to return a good part of non-institutional loans also. These loan waiver schemes resulted in a fall in indebtedness on the sampled household farms in Punjab.

NABARD (2021) has conducted a research study focused on the development of loan waiver schemes in India and concluded that agricultural indebtedness was the main reason for agrarian crisis in India. Recent study emphasized on providing systematic monetary help to needy farmers. The study focuses on three states Punjab, UP and Maharashtra and analysed their working and efficiency in providing loan waivers to the farmers. The study also emphasized measuring the farmer's distress with a tool called the farmers' distress index which will help to locate and find out the most distressed farmers. With the help of this index needy and victim families can be traced

and provided financial help like loan waivers which can prove fruitful to them. The policy of loan waivers has been basically more sociological as it has been justified on social welfare grounds but economic conditions of state governments and banks dwindled.

These studies concluded that in India the most developed regions have a high level of indebtedness such as Andhra Pradesh, Kerala, Karnataka, Maharashtra and Punjab and most of the suicides also take place in these states. These studies also concluded that there are several factors such as crop failure, high input cost, increasing medical expenditure, lack of credit availability and rising rate of interest which push farmers to take more and more debt. The studies which are related to Punjab concluded that Punjab although instrumental in ushering in Green Revolution still facing agrarian distress from the last two decades or so. The situation of farmers' suicide was not new in Punjab, but most of these suicides were concentrated in the cotton belt of Punjab. Small and Marginal farmers were the worst affected category which needs special attention from the center as well as the state.

2.2 Summary and Research Gap

There is vast empirical literature that examined the dimensions, extent, and factors influencing indebtedness in India as well as in Punjab. The extensive survey of literature in the above sections of this study provides a clear picture that agrarian distress is the main cause of rising miseries and indebtedness in the life of Indian farmer. Indian agricultural situation goes from bad to worse after the advent of Globalization and privatization. More and more farmers were not able to survive this severe battle and became victims of a debt trap. This situation becomes more alarming when the farmers are not able to payback their outstanding debt and were forced to take the severe step like suicide. The different studies show that farming is a dangerous occupation and has to be wisely dealt with as more farmers take debt from Informal sources and for unproductive activities. It was because our farmers' believe that indigenous money lenders like Arhtiyas and shahukars can provide them a loan at any odd time.

As the farmers are taking loan for different time period to fulfill their needs, most of the time they end up using this loan on unproductive activities. As their income and revenue does not increase at the fast rate, they mostly end up bankrupt and this situation leads them to be indebted forever. When the situation became worse, they

feel depressed and most of the time not able to handle the pressure and end their precious life known as farmer suicide.

The theoretical and empirical review of the available literature on this topic provides enough food for thought that rural credit is the most important input for farmers, because of the ever-increasing use of mechanization and capitalization. As the number of commercial bank branches increases, financial inclusion also increases so as time passes by more and more credit has been provided by formal institutions. As most of the studies were mainly confined to the cotton belt of Punjab, we have tried to cover all three Agro-climatic Zones through stratified random sampling. The review of the literature concludes that if we analyzed Zone wise then Zone III is the most indebted one which consists of Bhatinda and Faridkot, because of the prevalence of the cotton belt and it includes a southwestern region which is the least fertile region of all the three Zones. If we analyzed its category wise then it concludes if the land area increases, the amount of debt also increases. So it becomes important that how much debt is on different categories of the farmers. Different empirical studies were also reviewed to check the borrowing and repayment behavior of indebted households, and also to see which factors affect them the most to take more and more debt. As more than seventy percent of the people living in the villages and most of them are earning their living from agriculture and allied activities so it became necessary to discuss Agrarian distress and the situation which arises out of it rural Indebtedness among farmers. The following table has been given to show the studies which have either region-based or category-based, only a few studies have been done to check the *Magnitude and Determinants of indebtedness among the farmers in Punjab*.

Table 2.2: Research Gap

S.no	Authors and studies	Main Characteristics/ Research Gap
(a)	<i>The studies which have taken only secondary data</i>	<i>The studies which have taken only secondary data</i>
1	Rajeev, M., Vani, B. P., & Bhattacharjee, M. (2011) at page number 60	Measured Magnitude of debt taking Secondary data of NSSO 59 th Round
2	Sajjad H and Chauhan C (2012) at page number 60	Analysed causal factors and pattern of indebtedness covering NSSO 59 th Round
3	Bhoi, B. K., & Dadhich, C. L. (2019) at page number 55	Analysed secondary data of NSSO 2003 and 2008
4	Kaur K (2014) at page number 57	Analyse Burden of debt among rural households using NSSO 59 th Round
5	Thorat, V. S., Garde, Y., & Arhant, A. (2020) at page number 62	Evaluated the nature and determinants of farmers' indebtedness using NSSO 70 th Round
(b)	<i>The studies which have taken Cotton Belt area</i>	<i>The studies which have taken Cotton Belt area</i>
6	Satish, P. (2006) at page number 60	The study covered Sangroor district in Punjab

7	Singh, L., Bhangoo, K. S., & Sharma, R. (2020) at page number 61	The study covered Malwa region only for example Mansa, Bhatinda, Barnala and Mansa district
8	Bharti, V. (2011) at page number 55	The study covered 20 villages in Sangroor, Bhatinda, Barnala and Mansa district
9	Sajjad, H., Chauhan, C., & Jamil, M. (2016) at page number 60	Covered 380 farmers of different villages in Sangroor district of South western Punjab
10	Toor, J. S., Tiwana, B. S., & Singh, S. (2016) at page number 62	The study revealed that households belonging to Western Malwa are under High burden of debt
c)	<i>The studies which have included small and marginal farmers only</i>	<i>The studies which have included small and marginal farmers only</i>
11	Kingra HS, Singh Sukhpal and Kaur M (2018) at page number 58	The study covered small and marginal farmers in Punjab
12	Chander, S., Kathpalia, J., Tyagi, R., & Malik, J. S. (2020) at page number 56	The study covered small and marginal farmers in Haryana
13	Sharma, R. (2018) at page number 61.	The study discussed magnitude of indebtedness among small and marginal farmers in Patiala district of Punjab

14	Pal Dharam and Singh Gian (2012) at page number 59	The study analysed magnitude of indebtedness among small and marginal farmers in district Patiala
15	Singh, K., Singh, S., & Kingra, H. S. (2009) at page number 62	The study has analysed small and marginal farmers who left farming in Punjab

1. As most of the studies used secondary data especially different rounds of NSSO to find the magnitude and extent of indebtedness, very few studies used primary data to analyse the problem of indebtedness in India as well as in Punjab.
2. As most of the studies are area specific as they have analysed indebtedness in South-Western Punjab known as the cotton belt of Punjab.
3. As most of the studies are category specific as these studies have been conducted on small and marginal farmers, very few studies have been conducted covering all the categories of farmers.

To plug this research gap in various studies and considering all these factors, the current study has been taken to cover all three agro-climatic Zones covering the whole Punjab using a stratified random sampling technique. Then we used primary data to get important information from different categories of farmers.

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CHAPTER-III

RESEARCH METHODOLOGY

A scientific research methodology is necessary for conducting a research study that helps to gain clarity of the research questions in hand. The scientific methodologies help in solving and validate the findings related to the research problem. The sampling plan, analytical and descriptive tools used to achieve the objectives of the study entitled, “***Magnitude and Determinants of Indebtedness Among Farmers in Punjab***” has been basically explained in this chapter. The methodological framework used to attain the different objectives of this study is mentioned below:

- Description of the Study Area
- Nature and Sources of Data
- Need and Scope
- Research objectives
- Methodological Framework
- Analytical Tools and Techniques

3.1 DESCRIPTION OF THE STUDY AREA

The study was conducted in Punjab state which is presently located in north-western India and has an area of 50,362 km² and is sharing with Himachal Pradesh to its east, Haryana to the south and southeast and Rajasthan to the southwest as well as the Pakistani province of Punjab to the west. Jammu and Kashmir bounded it from the north side. Most of the Punjab has highly fertile plain with extensive irrigation and canal system in place. This is the reason why Punjab has irrigation intensity of more than 90 percent. On the basis of agro-climatic conditions, the state is divided into three regions called Zone I, Zone II and Zone III, the main characteristics of which are mentioned below.

Zone I known as **Sub-mountainous Region**, and popularly recognized as the *Kandi* belt, accounts for nearly (13%) of Punjab’s total area. This zone with undulating topography is well covered with ample rainfall to the tune of more than 1100 mm per annum. The zone was characterized by low water table and rocky soil, pumping out of water by sinking of tube wells which is more or less uneconomical proposition.

Because of its demographic features the major crops produced in this zone are wheat, rice, maize, oilseeds, fruit and vegetables.

Zone II, is known as Central **Region** of Punjab and is also known as sweet water region and covers almost half (57 %) of the state's area. The average annual rainfall of this zone is about 760 mm. The main sources of irrigation are tube wells and are having a well organised system of irrigation which has got positive appreciation for its productive performance. This zone is characterized with the feature of rice-wheat rotation. The excessive use of land and natural resources for producing water galloping crops over the years has been resulted in fall in the ground water level and the water table is falling at an alarming speed, which can become problematic in the near future. The declining productivity and profitability is warning signal for this zone.

Zone III, the **South-Western Region** is often known as the cotton belt and accounts for nearly (30%) percent of state's overall cultivated area. This area is characterized by deep and brackish groundwater, has sandy soil and is much drier in comparison to other two zones. The average annual rainfall of this region is 360 mm. Over the last decade, there were fluctuations in the area used to produce cotton crop. Due to the shift in the cropping pattern in favor of paddy, this necessitates the continuous use of ground water for irrigation resulting in to water logging and land degradation.

3.2 NATURE AND SOURCES OF DATA

To fortify our arguments both primary as well as secondary data were taken for attaining the objectives of the study. For attaining the first objective, primary as well as secondary data on pertinent variables was accumulated primarily from the web sources as well as published sources like National Sample Survey Organization (NSSO) Decennial Surveys, NABARD etc. The primary data collected through Questionnaire were being used for studying the rest of the objectives, to carry out the magnitude and determinants of the indebtedness among agricultural households or farmers of Punjab living in three agro climatic Zones. We have collected primary data from the Farmers pertaining to the cropping year 2020-21. An especially structured interview schedule was used for the purpose of data collection. Content validity of the schedule was carried out by sending it to the various subject experts and detail

discussions with agriculturists and academicians. The interview schedule was pre-tested during our pilot survey on non-sampled households and before actual administration the necessary improvements and alterations were incorporated so as to bring out the valid responses.

3.3 NEED AND SCOPE

The problem of rural indebtedness in Punjab is a serious concern for the state. The problem of rural indebtedness exists because cost of production is increasing day by day and price of production is decreasing leading to low margin. All this harms the farmer's socioeconomic status and compels them to commit suicides. Although, many studies had worked on rural indebtedness to find its nature and extent in Punjab, but most of the studies had been conducted in the cotton belt of Punjab, used secondary data only and were category specific. In view of the seriousness of the issue, the selection of the present study is taken.

3.4 RESEARCH OBJECTIVES

- 1 To analyze socio economic characteristics of the indebted households.
- 2 To study the extent and nature of indebtedness among the rural households.
- 3 To analyze the borrowing and repayment behavior of the rural households.
- 4 To identify the factors responsible for rural indebtedness.

3.4.1 RESEARCH HYPOTHESIS

H1: There is no significant relationship between social or economic standing of the farmers on indebtedness.

H2: There is no significant impact of landholding size and nature of debt on indebtedness.

H3: There is no significant impact of source of loan on indebtedness

H4: There is no significant impact of indebtedness on future borrowing of farmers.

3.5 METHODOLOGICAL PROCEDURES

3.5.1 Sampling Design and Technique

The current study has been based on multistage stratified random sampling technique i.e. Agro Climatic Zones (first stage), Districts from each zone (second stage), development blocks (third stage), villages (fourth stage) and farmers (fifth stage). For the purpose of primary data collection, a pre tested structured Questionnaire has been prepared.

3.5.2 Selection of Districts

In the beginning three agro climatic zones were selected and out of these agro climatic zones, one-fourth of the districts in each zone were selected randomly, hence one district from Zone I (Sub-Mountainous Region) and three districts from Zone II (Central Plain Region) and two from Zone III (South Western Region) were randomly selected thus total six districts were selected for the study namely Hoshiarpur district from Zone I, Ludhiana, Patiala and Barnala district from Zone II and Bhatinda and Faridkot district from Zone III were selected. Table 3.1a and 3.1b explain the selection of districts and number of blocks, villages and farmers selected.

Table 3.1 a: Selection of Districts from Each Zone

Zone	Agro Climatic Zone	Districts Covered
I	Sub Mountainous region (4)	Gurdaspur, Hoshiarpur , Pathankot, and Rupnagar
II	Central Plain Region (10)	Amritsar, Tarn Taran, Kapurthala, Ludhiana, Patiala , SAS Nagar, Shaheed Bhagat Singh Nagar, Jalandhar, Barnala and Sangrur
III	South- western region (8)	Ferozepur, Fazilika Bhatinda, Faridkot , Mansa, Fatehgarh Sahib, Moga and Mukatsar

(Source: State Focus Paper 2020-21, NABARD)

Table 3.1 b: Selection Process

Zones	Zone I	Zone II	Zone III	Total
Number of Districts selected	1	3	2	6
Number of Blocks selected	2	6	4	12
Number of Villages selected	2	6	4	12
Number of farmers selected	84	252	168	504

(Source: Author's Estimation)

3.5.3 Selection of Blocks

Two blocks were selected according to its literacy rate according to the data given on <https://www.esopb.gov.in/> i.e. one most literate and one least literate from each of the selected six districts, having total of twelve blocks. The identified blocks taken for current study are mentioned in the table 3.2 below

Table 3.2: Selection of Blocks

Zone I	Zone II			Zone III	
Hoshiarpur	Ludhiana	Patiala	Barnala	Faridkot	Bhatinda
Talwara	Ludhiana-I	Patiala	Barnala	Faridkot	Sangat
Hoshiarpur-I	Ludhiana-II	Ghanaur	Sehna	Kotkapura	Bhatinda
Hoshiarpur-II	Samrala	Rajpura	Mehal Kalan	Jaitu	Goniana
Tanda	Sudhar	Shambhu Kalan			Talwandi Sabo
Mukerian	Machhiwara	Nabha			Phool
Bhunga	Pakhowal	Samana			Maur
Mahilpur	Malod	Bhuner Heri			Rampura
Garh Shankar	Dehlon	Sanaur			Nathana
Hajipur	Sidhwan Bet	Patran			Bhagta Bhaika
Dasuya	Jagraon				
	Khanna				
	Raikot				

(Source: Author's Estimation)

3.5.4 Selection of Villages

In the Fourth stage, list of all villages has been prepared from Village directory available at Punjab Government Website then bigger Villages among the most populated villages, population wise, which were located away from the Periphery of nearby towns selected randomly. The villages which were selected mentioned in the table 3.3 and number of farmers divided in to 12 villages below:

Table 3.3: Selection of villages

	Districts	Blocks	Village	Farmers
Zone I	Hoshiarpur	Talwara	Namoli/Bhatoli	42
		Garhshankar	Ror Majara	42
Zone II	Ludhiana	Sudhar	Tusse	42
		Jagroan	Akhara	42
	Patiala	Rajpura	Chamaru	42
		Patran	Shergarh	42
	Barnala	Mehal Kalan	Mehalkalan	42
		Barnala	Hamidi	42
Zone III	Bhatinda	Nathana	Kalyan	42
		Maur	Kuttianwali	42
	Faridkot	Kotkapura	Wander Jatana	42
		Faridkot	Tehna	42
			Total	504

(Source: Author's Estimation)

3.5.5 Selection of Respondent farmers

Finally we have selected 42 agricultural households with equal representation of standard land holding categories, from each block and each village thus making a total sample of 504 agricultural households from Punjab. Sample size has been calculated with the help of formula used by Krejcie and Morgan in 1970. “A household is known as an agricultural household, if it receives some value of produce from any of the agricultural activities like cultivation of crops (field/horticultural/ fodder/ plantation), animal husbandry, poultry, fishery, piggery, bee-keeping, vermiculture, sericulture, etc.” For collection of data, list of indebted farmers have been made with the help of

Agricultural development officers, Village Patwaris and Village panchayat members. One respondent especially head of the family who was primarily engaged in agriculture, was chosen from the selected households, from each land holding category making a total of 504 respondents, synonymously referred to as farmers. Among farmers those farmers were selected who have taken any type of loan either from institutional or from non-institutional sources. The farmers who have outstanding loan as on 30th June 2020 are considered as indebted (NSSO 77th Round).

Table 3.4: Selection of Respondents Category wise

Included land holding categories	Land area in acres	Total no of farmers selected
Marginal	0 to 2.5	72
Small	2.51 to 5	96
Semi medium	5.01 to 10	168
Medium	10.01 to 25	144
Large	>25	24
Total	ALL	504

Equal representation has been given to the each category as given in the **statistical Abstract of Punjab 2020**.

Table 3.5: Selection of Respondents Zone wise & Category wise

Category	Land area in acres	Zones			
		I	II	III	Total
Marginal	0 to 2.5	12	36	24	72
Small	2.51 to 5	16	48	32	96
Semi medium	5.01 to 10	28	84	56	168
Medium	10.01 to 25	24	72	48	144
Large	>25	4	12	8	24
Total		84	252	168	504

(Source: Author's Estimation)

3.5.6 Analytical Tools and Techniques

Indebtedness is a multifaceted problem and it is generally measured by its extent nature and incidence. The data was available and extracted from secondary sources such as various National Sample Survey Organization (NSSO) Decennial and Situation Assessment Surveys. This data has been further analysed to make comparison between India and Punjab along with different states. Further to attain and fulfill the objectives of the study, the data so collected was statistically analyzed by using descriptive analysis. To analyse the influence of various socio economics factors on the borrowing and repayment behavior of the rural households, descriptive statistics were used. Averages and multiple regression analysis and then appropriate statistical software such as SPSS has been further used to calculate and analyze the primary data to draw conclusion.

3.5.7 Dependency ratio

It is the ratio of the economically dependent category of the population to the productive category. Those people are known as economically dependent, recognized as children who are younger to work, and people who are in the old age. It includes population under the age of 15 and over the age of 64. That part of population is known to be productive which comprises the age group of 15 to 64 years. This technique is important for analysis from the fact that as this ratio increases, there is high level of stress on that productive part of the people who are able to support the economically dependent ones.

Dependency Ratio:

$$\frac{\text{Number of people below 15 years of age and above 64 years}}{\text{Number of people aged between 15 years and 64 years}} \times 100$$

3.5.8 Calculating Income and cost

While calculating the income part, we multiplied the operational area with the agricultural yield of the farmers and then multiplied it by the Minimum support price of the said crop for e.g. 1925@ wheat and 1868@rice.

Total Income from crops = Total operational area X Minimum Support Price

Total income of the farmer = Total income from crops + Total income from dairy farming.

Total cost has been calculated by multiplying total input cost with the operational area as per the information provided by the farmers and calculated accordingly. Total Profit has been calculated by deducting Total Revenue with Total cost and then by reducing other expenditure from Revenue, we calculated Net disposable income with them. From there we have calculated that debt service capacity or Severity of debt by deducting total outstanding debt from Net disposable income.

3.5.9 Calculating Extent, Nature and Magnitude of debt

We have collected information from the indebted farmer that how much debt has been taken by farmers and from which sources, institutional or formal sources as well as from non-institutional or informal sources. Under institutional sources we have included Commercial banks, Cooperative banks and societies, Regional Rural banks and Microfinance institutions and under non-institutional sources we have included landlords, professional moneylenders, Arhtiyas and commission agents, relative and friends. All those who have taken loan from these resources were included in our study. We have also analyzed that how much debt farmers have taken loan for productive purpose or for unproductive purpose.

We have analyzed borrowing and repaying capacity of the indebted farmers, that how much debt they have repaid and how much debt was left. The information obtained was further analyzed by calculating outstanding debt with the help of rate of interest charged. Finally with the help of calculations we were able to get information regarding outstanding debt which was known as **magnitude of indebtedness**.

CHAPTER-IV

SOCIO ECONOMIC PROFILE OF INDEBTED HOUSEHOLDS

One of the major problems of Indian agriculture is the lack of inputs and socio economic factors affecting productivity. The size of farms is small, which means the use of modern technique is problematic as the cost of cultivation goes up but productivity does not increase in the same proportion. However, the Government of India since the late 1960s has encouraged scientific interventions with the use of advanced seeds, fertilisers, insecticides, pesticides and machinery like sowing machine, harvesters, thrashers etc. These interventions have enabled Indian agriculture to become self-sustained and to maintain larger buffer stock. This is one side of the analysis as the other side shows problems of disguised unemployment, indebtedness, farmer suicide, negative returns on land, falling groundwater level and health issues like cancer, *asthma* and other skin diseases. To check the socio-economic features impacting agriculture in terms of indebted farmers is the main focus of this chapter, as these factors impact the production as well as the profitability of the farmers. Better amenities and better opportunities make farmers more efficient and these socio-economic factors definitely effect the farmer's decision to take more or less debt. This chapter will also discuss the agricultural profile of Punjab state along with the socio and economic conditions of the indebted households.

The Green Revolution and nationalization of banks are two major and historical changes which have deep impact on the Indian Economy (Mohan 2006). Fourteen major banks were nationalized in one go, which directly or indirectly impacted green revolution in India. One of these policies was exclusively for agriculture and the second played a crucial role in developing agriculture, especially the marginal farmers. Important structural reforms in the agricultural sector were taken in the mid-1960s when it included the major inputs affecting indebtedness. The adoption of improved crop technologies and use of High Yield Variety Seeds (HYV) of wheat and rice led to Green Revolution (Pingali 2012). But somehow Green Revolution is limited to wheat & rice in Particular which experienced the astonishing yield increase (Briggs 2009).

Priority sector lending is the policy initiatives which mandated banks to allocate 18 per cent of the priority sector loans for agriculture. The main aim of this policy was to liberate farmers from the clutches of moneylenders. It is now more than half a century

since nationalization of banks but farmer's indebtedness remains a massive problem. The manifesto of every political party has a section dedicated to waiver of loan taken by farmers which shows the severity of the problem. It has to be remembered that farmer indebtedness is not an economic problem but social characteristic and environment has a deep impact on the size of debt. However, the broader economic, social and behavioral environmental consequences of debt remain surprisingly under-theorized (Gerber 2014). The present study was related to Punjab state, brief details of agro-climatic features of the state has been presented with the purpose of providing basic information related with Punjab state.

4.1 Geographical and Demographical profile of Punjab

Punjab which is known as one of the prosperous states is situated in the northwestern parts of India. It is the bread-basket of India, known for its Wheat- Paddy and Cotton-Sugarcane cultivation. In terms of milk production also it is the major state of the country, encompassing an area of 50,362 sq. km, nearly 1.54% of India's geographical area consist of about 2.5% of India's population (Census 2011). When we discuss the geographical state of Punjab, it is imperative to take a historical background so as to have the discussion in the right perspective. Punjab bears the scars of the bloodiest partition in the history of undivided India. In 1947, the major chunk of Punjab which was productive with regard to business went to the other part that is Pakistan. There is massive literature available which chronicles this partition. After independence, there was a huge clamor on the basis of language. Central government succumbed to this pressure and reorganised it on the basis of languages. In 1966 the trifurcation took place with Himachal and Haryana becoming two different states under The Punjab Reorganisation Act 1966 and Punjabi Suba became a reality (Wallace 1986). At present we have total 23 districts in the state basically classified into three cultural zones; Majha, Malwa and Doaba and five agro-climatic zones; sub-mountain undulating zone, undulating plain zone, central plain zone, western plain zone and western zone. But broadly speaking state is divided in three agro climatic zones; Sub mountainous Zone, Central plain Zone and South Western Zone.

The demographic profile of the state helps us to understand the social structure of the state. Components like Sex ratio, literacy rate and dependency ratio tell us about the concentration of population and also the level of economic development. Table 4.1 discusses the population data of the state of Punjab from the last two censuses.

The sex ratio of the state improved marginally but it still shows the total bias against females. In terms of agriculture, this is a negative sign as it shows agriculture will remain male dominated in future also. Koride and Gurtoo (2019), Anthony and Horne (2003), Calcagnini et al., (2015) point out the fact that there is wage discrimination and yet gender differences in terms of repayment of loans. Females are more cooperative when it comes to loan repayment. The literacy rate in the state has improved for both the genders. This is a positive sign for a state because it reflects that the people would now be more aware of the disadvantages for taking loan from indigenous money lenders.

Table 4.1: Demographic Profile of Punjab state

Population	2001	2011
Total state population	24358999	27743338
Male population	12985045 (53.31)	14639465 (52.77)
Female population	11373954 (46.69)	13103873 (47.23)
Population density/sq. km	484	551
Decennial population growth (%)	20.10	13.90
Sex ratio (no. of female per 1000 male)	876	895
Percentage to the total population of India	2.37	2.29
Literacy rate (%)	69.65	75.80
Male literacy rate (%)	75.23	80.40
Female literacy rate (%)	63.36	70.70
Child sex ratio (no. of female per 1000 male)	798	846

(Source: Statistical Abstract of Punjab)

Table 4.1 represents that Punjab is rightly known as progressive state and having one of the maximum numbers of development indicators and because of these indicators Punjab performs better than other states. Punjab also improves and showed improved performance on various indicators like literacy rate, gross and net enrolment ratio. Human life is the most important and depends upon several social and economic factors. To understand the progress of economy various research studies has been analysed. The rank of Punjab in overall National Income is 17th and one of the primary reasons for the decline in Punjab's share in country's GDP, as there is

emphasis on mono-farming since green revolution. The number of industries has also declined as the business environment is not conducive enough. The districts like Jalandhar, Ludhiana, and Hoshiarpur were industrially developed at one point of time but now barring Ludhiana and Mohali no other districts are showing positive growth in industries. In terms of agriculture there has not been any major impetus after the green revolution. Water level is also depleting regularly because of excessive paddy cultivation. There is increase in problems such as unemployment and rising incidence of drug addiction among the youth, which also impacted the economic growth of the state.

The research study in hand make an attempt to check the growth and progress of the state of Punjab and for this available recent secondary data have been used and analysed. Although Punjab is contributing in the central pool at the highest level, still farming in Punjab has not been remained lucrative at all. Farmers in Punjab although getting highest per capital income still because of falling productivity and profits farmers in Punjab are under severe debt, According to Singh et al., (2014), approximately 89 per cent of Punjab farmers are under debt. The study concluded that Punjab farmers were under debt of Rs 1 lakh crore and if one goes by the total number of farm households, which is around 10.53 lakh in Punjab as per 2015-16 agriculture census, there was debt of Rs 10 lakh on single farm household in Punjab. Small and marginal farmers of Punjab somehow are quitting farming because of non-profitability and mounting debt on them. According to the door to door survey done by the three prominent universities of Punjab, Panjab University Chandigarh, Punjabi University Patiala and GNDU, Amritsar, which completed the findings in 2018, revealed alarming situation that almost in 17 years of distressed farming, nearly 9,300 farmers and 7,300 farm Labourers deceased by suicide in Punjab and 88 per cent out of these occurred due to heavy debt, which constitutes 35 per cent of the farming households in the state. Agricultural indebtedness has always been a major issue in India as well as in Punjab as most of the farmers take loan from informal sources as they are not able to get easy loan from formal sources.

Punjab is the biggest contributor in ushering Green Revolution and has made India self-sufficient. Punjab farmers have intensively used capital intensive techniques and reduced the role of laborers. Therefore, Punjab agriculture turned towards highly commercial approach and it became heavily dependent on loan amount. The farmers

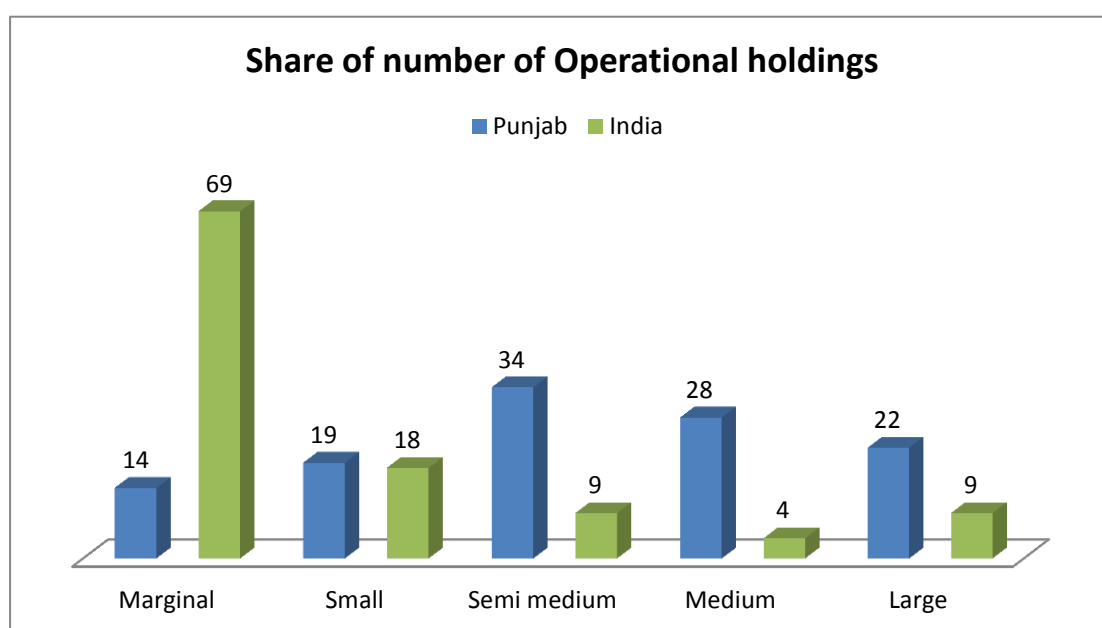
mostly take loan from commission agents who do not hesitate to exploit them (Singh et al., 2014; Shergill 1998; Sidhu & Gill 2006). Punjab also suffered from various socio-political and geographical disturbances and whereby indebtedness increased multiple times resulting out of this situation. The farming community which is related with small and marginal farmers are the mostly affected by increasing crop failure and decline in price of agricultural product and agricultural revenue (Pandey et al., 2018). The NSSO data also represented that nearly 85 percent of the operational farm household in the country are smaller than 2 hectare in size.

Mohan (2006) recognized the importance of agricultural sector, where the Government and RBI played significant role in reforming the institutional credit. Research study discussed the historical circumstances leading to the evolution, development and progress of rural credit. Though performance of rural credit and availability has multiplied in the past years, but even then there are different problems emerged like lack of provisions of rural credit to distressed small farmers, paucity of funds and heavy dependence on loan amount which affected the profitability and sustainability of credit institutions remains a grey area. Studies like Sidhu & Gill (2006) and Golait R (2007) discussed the role of agricultural credit and indebtedness in India. Both these studies used the secondary data and concluded that to strengthen and improve agricultural conditions, rural credit and village level cooperative societies should be increased and revival of cooperative credit structure is also the need of the hour. Singh et al., (2008) and Singh et al., (2009) conducted their research to access the situation of debt of farmers in Punjab and identify the determinants influencing their indebtedness. The studies also examined the inadequacies of institutional credit in Punjab. The institutional credit especially commercial banks had contributed maximum share in the total debt. The studies also suggested various policy measures and reforms related to rural credit.

Different studies have been conducted to examine and analyse the situation of rural distress and indebtedness among farmers in Punjab. Most of the studies have used multi stage stratified random sampling technique to access the incidence of indebtedness. These studies have characterised the farmers into different strata. Studies like Shergill (1998) and Singh and Toor (2005) examined the agrarian distress with special reference to indebtedness among Punjab farmers. Shergill in his research paper on small and marginal farmers found that small farms in Punjab were more

under debt in comparison to big farms. The proportions of farmers with a severe debt trap situation belong to small farms and this resulted in mortgaging out some of their land. Singh and Toor showed that in Punjab 78.40 per cent of farmers were under debt. The percentage of indebted household was 88.57 per cent for semi medium farmers whereas it was 45 per cent in case of large farmers. When we discuss comparative number of operational holdings in India and Punjab that it represented contrasting numbers as India has more small and marginal farmers in comparison to Punjab.

Figure 4.1: Share of number of Operational holdings, by size of land



(Source Agricultural Census 2015-16)

The diagram depicts that Punjab has lesser number of marginal and small farmers in comparison to India where number of these farmers have been more than 86 per cent. Punjab has 33 per cent farmers who were related to this category, but it has more than 62 per cent semi medium and medium category farmers in comparison to 13 per cent in India. This represent why Punjab has lesser indebtedness when compared with states such as Andhra Pradesh, Kerala, Maharashtra and Telangana.

The Studies conducted by Kumar et al., (2010) and Sharma (2014) to check the status, growth and determinants of formal credit. The size of rural credit has been impacted by a number of socio-economic and demographic factors which are based on several other factors. The authors also felt that procedure for loan disbursement should be made simpler for the farmers so that they can easily get the loan. The studies

suggested that effective measures should be taken by government to implement inclusive financial system in order to reduce the growth of informal source of credit.

Studies like Mishra & Mohapatra (2017) and Bharti (2018) discussed the evolution of rural credit in India, its sources, magnitude of rural credit and its growth. Some studies also made an attempt to study the relation of earlier policy initiatives with the current micro finance institutions. According to these different studies, micro finance can be an alternative option of rural credit to alleviate the hardships of marginal and small farmers and connect them effectively to the self-help groups (SHGs). Pandey et al., (2019) and D'Souza (2020) studied the impact of different rural credit sources in rural distress in India. According to D'Souza to rescue farmers from debt trap and for doubling their income, financial inclusion is necessary. On an average only 50 per cent of farmers can avail institutional credit. So most of the farmers have to depend upon non-institutional sources to get rural credit, who in return charges very high interest rate and when they are not able to repay the borrowed funds, they reel under the burden of debt trap which later on lead farmers to commit suicide.

Samantara and Badatya (2012) evaluate the role of agriculture credit in 2020. According to this study formal credit institutions played vital role in the development of agriculture sector. Many farmers go for short term loans to purchase seeds, inputs, pesticide and they have chosen long term loans for investment. Thus the role of credit institutions and availability of credit in mechanization and modernization of agriculture is very important. It also discussed the role of agricultural credit delivery system to enhance agriculture sector. The thrust area identified for immediate attention for augmenting output in agriculture sector were irrigation, waste land development, soil and water conservation, animal husbandry and rain-fed farming.

4.2 Comparative study of indebtedness between India and Punjab

The comparison has been made in the following tables between India and Punjab, which clearly shows that although Punjab is a prosperous state but indebtedness has been more than the average limit. In the table 4.2 and 4.3 comparison has been made between India and Punjab, showing percentage of indebted farmer households were 54.4 percent and average amount of outstanding debt was Rs 2,03,249 which is well above the national average.

Table 4.2: Estimated number of indebted farmer households

	NSSO 59th Round %age	NSSO 70th Round %age	NSSO 77th Round %age
Punjab	65.4	53.2	54.4
India	48.6	51.9	50.2

(Source: NSSO 59th, 70th & 77th Rounds)

Table 4.3: Average amount of outstanding loan per farmer households**(In Rs)**

	NSSO 59th Round	NSSO 70th Round	NSSO 77th Round	Increase/Decrease in 70th & 77th
Punjab	41,576	1,19,500	2,03,249	+83749
India	12,585	47,000	74,121	+27121

(Source NSSO 59th, 70th & 77th Rounds)

In the table 4.4 comparative study of agricultural household's indebtedness among different size class of land possessed has been made and it shows that as the possession of land increases, indebtedness also increases among households. Indebtedness among all categories increases from 2003 to 2019 as 50.2 per cent of farmers were indebted in 2019 compared to 51.9 per cent in 2013 and 48.6 per cent in 2003. Table 4.5 explain overall summary of the sampled farmers at glance.

Table 4.4: Comparative study of Indebtedness of Agricultural Households (All India) in Different size class of land Possessed

Land Possessed (Hectare)	%of Indebted Agricultural Households 2003	% of Indebted Agricultural households 2013	% of Indebted Agricultural households 2019	Average Outstanding Loan Amount 2003	Average Outstanding Loan Amount 2013	Average Outstanding Loan Amount 2019
Less than 1	45.1	45.8	42.6	7096	30133	77114
1.01- 2.00	51.0	55.7	57.4	13762	54800	94498
2.01-4.00	58.2	66.5	69.7	23456	94900	1,75,009
4.01-10.00	65.1	76.3	79.3	42532	182700	3,26,766
10 and above	66.4	78.7	81.4	76232	290300	7,91,132
All India	48.6	51.9	50.2	12585	47000	74,121

(Source: (NSSO 59th, 2003,(70th Round, 2013),(77th Round,2019) and Situation Assessment of Agricultural Households)

4.3 Socio Economic Profile of sampled Households

Table 4.5: Socio Economic Profile of Indebted farmers

Particulars	
Total No. of Farmers surveyed	504
Types of Respondents	
Gender	
Male	499
Female	5
Social Status	
1.SC	13
2.ST	0
3.OBC	38
4.General	453
Total	504
Age Group (%ge of total Sample)	
less than 30	54(11)
30 -50	251(50)
50 and above	199(39)
Educational Qualification (%ge)	
1.Illiterate	44(9)
2. up to Primary	53(10)
3.up to Matric	223(44)
4.up to secondary	123(24)
5. upto graduate	48(10)
6. Post graduate and above	13(3)
Land Holding Size	
less than 2.5 acres	72
2.5 to 5 acres	96
5 to 10 acres	168
10 to 25 acres	144
25 acres and above	24
Total	504

Average Experience in farming (years)	22
Housing Conditions	
Pucca	484
Kutcha	20
Subsidiary occupation	
less than 2.5 acres	15
2.5 to 5 acres	12
5 to 10 acres	30
10 to 25 acres	16
25 acres and above	2
Total	75
Members Gone Abroad	71
out of total families	47
Description of Family	
Earner dependent	270
Dependent	363
Average Family Size	4.25

(Source: Author's Estimation)

4.4 Result Analysis

4.4.1 Social Economic Profile of Indebted sampled Farm households: Category wise

To discuss the socio and economic and demographic profile of the indebted farmers we have used the methodology mentioned in the third chapter especially under topic 3.5 onwards and required information has been accumulated with the help of questionnaire.

To discuss the socio economic profile of indebted farmers we have identified the following variables from the literature survey.

1. Dependency ratio
2. Sex ratio
3. Literacy rate and family size
4. Age wise distribution

5. Category wise distribution
6. Experience of farming
7. Economic status
8. Farm and non-farm assets

The data related with these variables have been accumulated from the sampled farmers with the help of a questionnaire, the information extracted was then segregated and analysed with the help of descriptive statistics like average and tables. The data pertaining to sex ratio, literacy rate and family size of sampled indebted farm households in Rural Punjab is shown in Table below. Sex ratio is explained to define number of females per 1000 males, sex ratio affects various aspects of social and economic factors of human being. In case of sex ratio which was 895 in case of Punjab in 2011, but in our study sex ratio was found to be 820 overall and 847 in case of large farmers, which was highest among farmers and lowest around 809 in case of those farmers who belong to semi medium strata of farming. The point which needs to be highlighted is disparity between sex ratio as per the land size, which shows that people with more resources have high ratio as the awareness level is more and they are also aware of the various government policies, which give benefit to the female agriculturist.

Dependency ratio has also been calculated to estimate the population which is dependent on the income of the earning household. It shows how much burden is on the household, higher the dependency ratio higher the burden of debt will be. It has been calculated with the following formula:-

4.4.1.1 Dependency ratio

It is the ratio of the economically dependent proportion of the population to the productive proportion. The economically dependent proportion is recognized as children who are too young to work, and individuals who are too old. That is, it includes individuals under the age of 15 and over the age of 64. The productive population comprises the age group of 15 to 64 years. This ratio is important for analysis from the point of view that as the ratio increases the burden on productive class also increases.

Dependency Ratio:

$$\frac{\text{Number of people below 15 years of age and above 64 years}}{\text{Number of people aged between 15 years and 64 years}} \times 100$$

This ratio is highest in case of small land holding size with very little difference between large and medium land holding size. This dichotomy points out to two extremes in social status and level of development. In case of small households the number of children under the age of 15 is very high as the family size is very large. The basic reason is Malthusian theory of population, which says, “*When the child is born, he brings two arms to work but one mouth to feed.*” This is one extreme in the development paradigm, on the other end in case of medium and large farmers, where the population above sixty is high as the life expectancy goes up with better medical facilities

Table 4.6 is representing overall family size, female sex ratio and Dependency ratio which is found to be 28.26 and in case of small farmers it is highest showing they have more dependent relying upon them as in other categories.

Table 4.6: Sex ratio and Dependency ratio of indebted farm households

Characteristics						(Numbers)
Family Composition	Marginal	Small	Semi-Med	Medium	Large	Total
Male	162	212	405	340	59	1178
Female	132	179	328	277	50	966
Average Family Size	4.08	4.07	4.36	4.28	4.54	4.25
Size wise Composition of Family						
Male: Female	1:814	1:844	1:809	1:815	1:847	1:820
Dependency Ratio	26.66	35.69	20.24	35.23	35.48	28.26

(Source: Author's Estimation)

A literate person is more enlightened than the illiterate one; he can easily adapt to new and modern technology and can take the decisions more efficiently. The literacy rate in Punjab according to the Census 2011 is 75.80 per cent. The table 4.7 also

represents the literacy level and average schooling in years; it also shows that how much experience the farmer in question has. The overall data represent that nearly 44 per cent farmers has education level up to Matric and nearly 36 per cent farmers are above matric. There are more illiterate persons among marginal and small farmers as nearly 73 per cent farmers belong to these two categories, from this one thing is clear that although the Government is boasting about the increase in the improving the standard of primary school education for the poor people but still in the villages most of the population is still illiterate. Farmers belonging to large farms are literate which helps them in better understanding of loan procedure and mode of payment. They pay back their loan on time as they know that increase in tenure would lead to increase in interest and hence the increase in standing debt because of compounding interest. In case of large farmers average year of schooling was highest, this depicts that these category of farmers is more literate. When we discuss age wise distribution of indebted farmers then nearly 50 per cent of them belong in the range of 30 to 50 years and approximately 11 per cent belong to less than 30 years range as shown in table 4.8

Table 4.7: Literacy levels and Average years of schooling of indebted farm households

						(Numbers)	
Literacy Level	Marginal	Small	Semi-Med	Medium	Large	Total	(%)
Illiterate	16	16	3	9		44	8.73
Up to Primary	6	11	22	12	2	53	10.52
Up to Matric	38	30	80	67	8	223	44.25
Up to Sen. Sr.	9	26	39	41	8	123	24.4
Up to Graduate	3	12	16	13	4	48	9.52
Post Graduate	0	1	8	2	2	13	2.58
Total	72	96	168	144	24	504	100
Average School Year	7.81	9.23	10.62	10.22	12.08	9.992	
Experience in Farming (Year)	24	20	23.33	21.33	20.66	21.864	

(Source: Author's Estimation)

Table 4.8: Age wise distribution of indebted farm households

						(Numbers)	
Characteristics	Marginal	Small	Semi-Med	Medium	Large	Total	(%)
Age (year)							
Less Than 30	4	13	19	15	3	54	10.72
30 – 50	37	50	74	78	12	251	49.8
50 and above	31	33	75	51	9	199	39.48
Total	72	96	168	144	24	504	100
Average Age	49	46	47	44	44	46	
Range	26-85	24-72	22-75	21-85	27-68	21-85	

(Source: Author's Estimation)

As per Census 2011, the state of Punjab has the highest percentage of Schedule caste population amongst all the state of the country. Punjab has 2.3 per cent of the total population of India and Schedule caste population contains 4.3 per cent out of it. There are total 31.94 per cent SC's in Punjab, but in our study total number of sampled farmers approximately 90 percent farmers are related to General category and remaining 10 percent are related to SC and OBC categories as shown in table 4.9, and impact of caste system on indebtedness was not the part of our study, any other researcher can take up this issue later on.

When we discuss Economic status of indebted farmers than 16.1 per cent farmers also have subsidiary occupation, it means they are also earning by other self-employed means and some are also working as daily wagers. Out of the sampled farmers mostly belong to the semi medium Category who are engaged in some subsidiary occupation. Table 4.10 further points out the fact that maximum per cent age of family members who migrated abroad are belonging to semi medium category. Data points out that as nearly six lac students appeared in International English Language Testing System (IELTS) according to the Tribune, the number of IELTS coaching centers has quintuple in the past five years and making it 1100 crore industry (The Tribune, 23rd Feb 2019). Overseas migration is becoming craze among the students of Punjab. As

per the information received from Lok sabha, Punjab has maximum number of students 859 per lakh who have gone abroad for studies. Most of the indebted farmers have borrowed money to send their children abroad. Large farmer's category has maximum number of family members gone abroad as shown in tables below, even small and marginal farmers have taken huge debt to send their children abroad.

Table 4.9: Category wise distribution of indebted farm households

Characteristics	Marginal	Small	Semi Med	Medium	Large	Total	(%)
Categories							
Gen	56	83	153	137	24	453	89.88
SC	10	9	13	6	-	38	7.54
OBC	6	4	2	1	-	13	2.58
Total	72	96	168	144	24	504	100

(Source: Author's Estimation)

Table 4.10: Economic Status of indebted farm households

Characteristics	Marginal	Small	Semi Med	Medium	Large	Total	(%)
Subsidiary occupation	16	14	29	19	3	81	16.1
Members gone abroad	5	12	23	19	12	71	14.09

(Source: Author's Estimation)

Table 4.10 also explain that nearly 16 percent farmers are doing subsidiary occupations like labour, running grocery and pesticide shops and any private job where they can get extra income to fulfill their unending wants. This shows that agriculture sector is not remunerative enough to fulfill their needs.

The Agricultural Census 2015-16 shows that average land size per holding in Punjab was at 3.62 hectare, which has come down from 3.77 hectares. Overall Indian average is 1.08 hectare, which declined from 1.15 hectare in the agricultural Census. When we discuss the land holding pattern of indebted households then we found that average operational holding are 1.875 acre for marginal farmers, 4.02 acre for small farmers

which represent that modern technique is not easy and efficient to be used in smaller land holdings. It is 7.96 acre for semi medium category and in case of medium and large farmers it has 16.25 and 39.35 per acre respectively. Overall average land holding for all the farmers under debt in the given sample were 10.2 acre which is far above national average which is 2.7 acres and even from state average which is 8.9 acres leading to higher productivity level in Punjab as shown in the table 4.11 and table 4.12 below.

Table 4.11: Comparative analyses of Operational Land Holdings

Characteristics	Marginal	Small	Semi-Medium	Medium	Large	Overall (in ha)
Punjab	0.60	1.40	2.67	5.67	14.85	3.62
India	0.38	1.40	2.69	5.72	17.07	1.08

(Source: Agricultural Census 2015-16)

Table 4.12: Operational Land Holding with Ownership across sizes

Characteristics						(in acres)
	Marginal	Small	Semi-Medium	Medium	Large	Total
Owned	1.87	3.37	6.8	10.25	20.22	7.07
Leased in	2	2.31	4.29	10.54	28.65	9.12
Leased Out	-	-	-	-	-	-
Operational Holding	1.875	4.02	7.96	16.25	39.35	10.2

(Source: Author's Estimation)

Farm equipments are other important part of the inputs required for progressive farming as Punjab has maximum number of tractors according to the latest Statistical Abstract of Punjab (2021), there are nearly 5 lac tractors, 3.5 lac combines and 13.15 lac agricultural pump sets. Our field survey shows that approximately 82 per cent farmers have their personal tractors and 67.5 per cent has trollies as well, it is because

banks provide subsidies to the farmers or provide loan at low rate of interest leading to more expenditure on tractors. Interestingly large farmers have more than one tractor and trolley for their disposal and out of marginal farmers only 44 per cent have owned tractors because it is not easy for them to take loan, as they have lesser quantity of land and low level of credit worthiness. This percentage increases with the increase in the landholdings as 74 per cent of small and 85 per cent semi medium and 96 per cent of medium farmers possess tractor which was the important source of input and necessary for cultivation as shown in table no 4.13. As irrigation facilities are a pre-requisite for productive farming, Punjab have a very developed and interlinked river system and widespread 14500 kms long canal system, the total number of tube wells has increased to 14.76 lakh in 2018-19 from 10.73 lakh in 2000-01 according to Punjab economic survey 2020-21. Our survey showed that approximately 81 per cent of the sampled farmers have tube wells for their irrigation need. As usual large farmers have full irrigation facilities whereas it falls to almost 75 per cent for farmers belonging to small and marginal categories. For semi medium farmers this rate goes up to 91 per cent as mentioned in the table 4.14

Table 4.13: Ownership pattern of farm equipments across sizes

						(Numbers)	
Characteristics	Marginal	Small	Semi Med	Medium	Large	Total	%
Farm Machinery							
Tractor	32(44.44)	71(73.99)	142(84.52)	139(96.52)	29(120.83)	413	81.9
Trolley	12(16.66)	42(43.75)	127(75.52)	133(92.36)	26(108.33)	340	67.5
Leveler	1(1.38)	1(1.04)	4(2.38)	7(4.16)	5(20.8)	18	3.57
Rotavator	4(5.55)	3(3.125)	15(8.92)	17(11.80)	5(20.8)	44	8.73
Cultivator	14(19.44)	36(37.5)	47(27.96)	37(25.69)	7(29.16)	141	27.97
Seed Drill	--	2(2.08)	3(1.78)	1(.694)	3(12.5)	9	1.78

(Source: Author's Estimation)

Table 4.14: Ownership Pattern of Irrigation Equipments across sizes

Characteristics	Marginal	Small	Semi Med	Medium	Large	Total	%
Irrigation Inventories							
Submersible Pump	12(16.66)	35(36.45)	52(30.95)	82(56.94)	20(83.33)	201	39.9
Tube wells	54(75)	73(76.04)	154(91.66)	102(70.83)	25(104.16)	408	80.9
Diesel Engine	--	7(7.29)	13(7.74)	17(11.80)	2(8.33)	39	7.74

(Source: Author's Estimation)

When we discuss the investment pattern of sampled respondents on Non-Farm Equipments then most of the farmers have average two and more buffaloes and cows because most of the respondent farmers believe that it's the need of the hour that they should earn extra income as well for their subsistence. Even large category farmers have more than four buffaloes on an average as they have more capacity to bear their expenditure. Most of the farmers were earning some money by selling milk on daily basis. Most of the farmers have two wheelers and only one third of them have possession of four wheelers such as car and Jeep etc. Almost 96 per cent of the respondents are living in pucca house and only 4 per cent have living in Kucha house as shown in the table 4.15 and most of these farmers related to marginal category as they have lesser number of resources to fulfill their basic needs.

Table 4.15: Ownership pattern of Non-farm assets in Punjab

						(Numbers)
Characteristics	Marginal	Small	Semi Med	Medium	Large	Total
Non-Farm Assets						
Buffaloes	75	162	410	348	104	1099
Cows	12	35	85	116	15	263
Calves	2	9	34	28	2	75
Two wheeler	63	100	178	150	30	521
Four wheeler	5	36	44	68	17	170
Pucca House	57	93	158	152	24	484
Kucha House	15	3	2	0	0	20

(Source: Author's Estimation)

When we discuss Economic status of indebted sampled farmers, we found that nearly 38 per cent of them are either earning their living on farm fields or on other activities and nearly 62 per cent are dependent on these persons. This number is highest in case of marginal farmers (63.47%) and large farmers (64.65%). High level of dependency leads to more indebtedness among farmers. More money and lesser yielding pattern of agriculture results in more dependent in these two categories as shown in table 4.17

Table 4.16: Agricultural machinery and implements in Punjab (in ‘000’)

Machinery/Implements	2000-01	2019-20
Tractors	395	477
Disc- harrow	255	262
Seed Drills	180	145
Combine Harvester (Self operated)	2.9	8
Combine Harvester (Tractor driven)	5.1	4.3
Threshers	285	88
Tube wells	1062	1475

(Source: Directorate of Agriculture and Farmers Welfare, Punjab, Economic Survey of Punjab 2021)

Table 4.17: Economic Status and Operational Holdings across sizes

Characteristics						(Numbers)
Economic Status	Marginal	Small	Semi Med	Medium	Large	All Sampled Farmers
Earners	72	96	168	144	24	504 (24.07)
Earners Dependents	31	58	110	81	17	297 (14.18)
Dependents	179 (63.47)	238 (60.71)	427 (60.56)	374 (62.44)	75 (64.65)	1293 (61.75)
Total	282	392	705	599	116	2094 (100)
Average size of Operational Holdings (acres)	1.875	4.02	7.96	16.25	39.35	10.2

(Source: Author's Estimation)

4.4.2 Socio Economic Profile of Indebted sampled Farm households: Zone wise

In this section we have discussed the Socio economic profile of the indebted farmers across region. As we have distributed Punjab in three different Zones, Zone I which is sub mountainous zone mainly produces wheat and Paddy/Maize along with sugarcane as irrigation facilities are not much developed in this zone, Zone II represent Central Plain Zone which is the most fertile and mainly wheat and paddy are produced, although productivity in this region is also high but the wheat-paddy mono cropping has adversely affected the underground water table in this region. The declining water table trend has pushed the farmers to use alternative mechanisms such as submersible pump which has further increased the cost of cultivation, South Western Region of Punjab represent Zone III which is cotton belt but due to declining productivity it contributed to water logging.

We have compared the different zones with regard to average family size Zone III has average family size of 4.55 and smaller in case of Zone II which has average family size of 4.059 and in case of Zone I, average family size is 4.24. Interestingly Zone III has highest male female ratio as it has 903 females against 1000 males and lowest in case of Zone I which has only 754 females per 1000 males. Similarly Zone III has highest dependency ratio of 29.84 which can be the cause of more indebtedness and lowest in case of Zone I which has 27.1 dependency ratios as shown in the table 4.18.

Table 4.18: Sex ratio and Dependency ratio of indebted farm households across Zones

(Absolute numbers)

Characteristics			Zone I						Zone II						Zone III				
Family Composition	M	S	SM	M	L	Total	M	S	SM	M	L	Total	M	S	SM	M	L	Total	Over All
Male	28	36	78	52	9	203	78	99	200	168	28	573	56	77	127	120	22	402	1178
Female	22	31	44	48	8	153	59	79	159	125	28	450	51	69	125	104	14	363	966
Average Family Size	4.17	4.19	4.35	4.17	4.25	4.24	3.8	3.71	4.27	4.07	4.67	4.059	4.46	4.56	4.5	4.66	4.5	4.55	4.25
Size wise Composition of Family																			
Male: Female	1:786	1:861	1:564	1:923	1:888	1:754	1:756	1:798	1:795	1:744	1:1	1:785	1:911	1:896	1:984	1:866	1:636	1:903	1:820
Dependency Ratio	26.66	24.39	17.5	38.18	62.5	27.1	23.17	30	22.22	38.13	22.2	27.86	30.16	52.7	20.99	29.41	21.74	29.84	28.26

(Source: Author's Estimation)

As Hoshiarpur which belongs to Zone I is the most literate district in the Punjab it was also shown in our field survey as average literacy rate was more than 82 per cent in this Zone, more than 76 per cent in Zone II and more than 70 per cent in Zone III. Similar trend which was shown in Census 2011 was shown in our study as Zone III has maximum number of illiterates (12%), Followed by Zone II (8 %) and Zone I (6 %). In Zone I nearly 37 per cent farmers are having education up to Matric, in Zone II nearly 46 per cent and in Zone III nearly 45 per cent farmers are having education up to matric. Similarly average year of schooling was highest in case of Zone I which was 11.13 and lowest in Zone II and this average is 9.6 in Zone as shown in the table 4.19.

When we discuss age wise distribution then we have divided farmers among three groups, less than 30 years, between 30 to 50 years and 50 years and above. 56 per cent of the farmers belong between range of 30 to 50 years in Zone III, this percentage falls to 46 per cent in case of Zone I and Zone II respectively. In Zone I range of age is between 26 to 75 and 26 to 72 in case of Zone II and 22 to 70 in case of Zone III showing more people in the working age group as shown in the table 4.20. Land holding is important for progressive farming as low land holding leads to low production and increasing cost, hence we have collected the figures of those farmers who have either owned land or leased in and leased out land and then operational land which is the most important. Our study found that in Zone II average operational land holding is highest at 10.66 acre representing that farmers have bigger farms in this region and lowest in Zone III where it was found to be 9.76 per acre as shown in the table 4.21

Table 4.19: Literacy level and average years of schooling of indebted farmers across Zones

(Absolute numbers)

			Zone I						Zone II						Zone III				
Characteristics	M	S	SM	M	L	Total	M	S	SM	M	L	Total	M	S	SM	M	L	Total	Over All
Literacy Level																			
Illiterate	3	1		1		5	8	7	3	3		21	5	8		5		18	44
Upto Primary		2	1	2		5	2	5	15	8	2	32	4	4	6	2		16	53
Upto Matric	7	1	15	7	1	31	21	18	35	37	5	116	10	11	30	23	2	76	223
Upto Sen. Sr.	2	10	8	11	2	33	4	11	17	18	4	54	3	5	14	12	2	36	123
Upto Graduate		2	3	3		8	1	6	10	5	1	23	2	4	3	5	3	17	48
Post Graduate			1		1	2		1	4	1		6			3	1	1	5	13
Total	12	16	28	24	4	84	36	48	84	72	12	252	24	32	56	48	8	168	504
Average School Year	7.83	10.6	11.2	10.7	12.8	11.1	7.86	9.25	10.1	10	10	9.58	7.75	7.81	10.6	9.91	13.3	9.6	9.92
Experience in Farming (Year)																			
Average Year	24	20	23	20	17	20	24	17	21	21	21	21	24	23	26	23	24	24	22

(Source: Author's Estimation)

Table 4.20: Age wise distribution of indebted farm households across Zones

(Absolute numbers)

	Zone I						Zone II						Zone III						
Characteristics	M	S	SM	M	L	Total	M	S	SM	M	L	Total	M	S	SM	M	L	Total	Over All
Age (year)																			
Less Than 30		1		3	1	5	2	8	18	11	0	39	2	4	1	1	2	10	54
30 – 50	5	9	9	14	2	39	18	25	32	35	8	118	14	16	33	29	2	94	251
50 and above	7	6	19	7	1	40	16	15	34	26	4	95	8	12	22	18	4	64	199
Total	12	16	28	24	4	84	36	48	84	72	12	252	24	32	56	48	8	168	504
Average Age	51	49	51	44	41	47	51	42	45	44	44	45	45	47	46	45	46	46	46
Range	37-70	26-70	26-75	26-63	27-59	26-75	28-66	26-72	27-72	27-70	28-68	26-72	26-85	24-70	22-75	21-85	28-67	22-70	21-85

(Source: Author's Estimation)

Table 4.21: Operational Land Holding with ownership across Zones

(Average)

Characteristics	Zone I						Zone II						Zone III						Over All
	M	S	SM	M	L	Total	M	S	SM	M	L	Total	M	S	SM	M	L	Total	
Owned	1.625	3.3125	5.55	11.65	36.5	7.8	1.74	3.57	7.17	10.52	8.21	6.72	2.27	3.16	6.89	9.29	30.06	7.22	7.07
Leased in	-	1.67	3	8	24	6.52		2.55	4.6	11.9	32.17	11.3	-	2.34	4.75	9.64	12.25	6.87	9.12
Leased Out	-	-	-	-	-	-				-	-		-	-	-	-	-	-	-
Operational Holding	1.625	3.625	7.19	14.97	48.5	10.56	1.74	4.05	8.42	17.08	40.45	10.66	2.27	4.18	7.92	15.54	33.12	9.76	10.2

(Source: Author's Estimation)

The number of tractors was between 5 lakh to 5.25 lakh in Punjab, out of which nearly one third was owned by big farmers and remaining are owned by medium, semi-medium or even by small farmers according to Punjab agricultural department. Punjab boasts of having owned 8 per cent share of country's total number of tractors against meager 1.53 per cent of total land. When we have discussed Ownership pattern of farmers under debt on different farm equipments then we found that in Zone III nearly 89 per cent of farmers have owned Tractor, but in case of Zone I nearly 73 per cent and in Zone II nearly 62 per cent owned it. As Punjab has nearly 15 lakh tube well sets and when we discussed investment on irrigation facilities, we found that in Zone I and II more than 90 per cent of famers have tube wells as their main source of irrigation equipment, but in Zone III 85 per cent have tube wells. In case of Zone II nearly 49 per cent farmers and 44 per cent in Zone I have installed submersible pumps as the water level is depleting in these areas because of heavy dependence on wheat-paddy cropping pattern as shown in the table 4.22

In the next tables we have discussed investment pattern of indebted farmers on non-farm equipments then we found that in each zones average number of buffaloes are nearly 2 in Zone II and III, it means that most of the farmers are having productive animals. In each of the zones almost all the farmers have two wheelers in their possession and in Zone II almost half of the farmers have four wheelers as well as cars and Jeeps etc. All the farmers in Zone I are having pucca houses and more than 94 per cent in Zone II and 97 per cent in Zone III has pucca house in their possession as shown in the table 4.23

In the next section we discussed the economic status of the indebted households and found that in Zone I nearly 63 per cent of the family members are dependent on the bread winner of the family. This percentage declined to 59 per cent in Zone II but again increased to 65 per cent in Zone III. The total earners are 37 per cent in Zone I, 41 per cent in Zone II and 35 per cent in Zone III. It shows that in Zone II there are more earning members than other Zones, average size of operational holding was also highest in this Zone when compared to other Zones as shown in the table 4.24

4.22: Ownership pattern of farm and irrigation Equipments across Zones

(Absolute numbers)
(Figures in brackets represent percentage)

	Zone I						Zone II						Zone III						
Characteristics	M	S	SM	M	L	Total	M	S	SM	M	L	Total	M	S	SM	M	L	Total	Over All
Farm Machinery																			
Tractor	3	10	22	21	5	61 (73)	12	36	68	71	16	203 (79)	17	25	52	47	8	149 (89)	413 (82)
Trolley	1	6	17	19	5	48	7	23	67	69	14	180	4	13	43	45	7	112	340
Leveler							1	1	4	1	2	9	—	—	—	6	3	9	18
Rotavator	2	—	7	8	2	19	1	2	7	—	1	11	1	1	1	9	2	14	44
Cultivator	3	8	17	17	5	50	10	23	17	5	—	55	1	5	13	15	2	36	141
Seed Drill	—	—	—	—	—	—	—	2	3	—	2	7	—	—	—	1	1	2	9
Irrigation Inventories																			
Submersible Pump	4	5	9	15	4	37	7	26	37	53	12	135	1	4	6	14	4	29	201
Tube well	8	16	26	21	5	76 (90)	23	40	82	72	13	230 (91)	23	17	46	49	7	142 (85)	448 (81)
Diesel Engine	—	—	4	1	1	6	—	3	4	6	1	14	—	4	5	10	—	19	39

(Source: Author's Estimation)

Table 4.23 Ownership pattern of Non-farm assets across Zones

(Absolute numbers)

	Zone I						Zone II						Zone III						
Characteristics	M	S	SM	M	L	Total	M	S	SM	M	L	Total	M	S	SM	M	L	Total	Overall
Non-Farm Assets																			
Buffolows	8	20	32	36	13	109	30	103	215	218	67	633	37	39	163	94	24	357	1099
Cows	5	6	22	22	7	62	5	19	46	58	6	134	2	10	17	36	2	67	263
Calves	2			6	2	10		5	31	19		55		4	3	3		10	75
Two wheeler	12	17	31	24	6	90	27	51	90	76	17	261	24	32	57	50	7	170	521
Four wheeler		2	9	10	4	25	4	25	24	46	11	110	1	9	11	12	2	35	170
Pucca House	12	16	28	24	4	84	25	46	82	72	12	237	20	31	48	56	8	163	484
Kucha House							11	2	2			15	4	1				5	20

(Source: Author's Estimation)

Table 4.24: Economic Status of sampled indebted farmers across Zones

(Absolute numbers)

Characteristics	Zone I						Zone II						Zone III						
Economic Status	M	S	SM	M	L	Total	M	S	SM	M	L	Total	M	S	SM	M	L	Total	Over all
Earners	12	16	28	24	4	84	36	48	84	72	12	252	24	32	56	48	8	168	504
Earners Dependents	4	10	17	10	3	44	18	26	65	42	8	159	9	22	28	29	6	94	297
Dependents	37	40	67	64	12	220	72	110	198	174	38	592	70	88	162	136	25	481	1293
Total	53	66	112	98	19	348	126	184	347	288	58	1003	103	142	246	213	39	743	2094
Average size of Operational Holdings	1.625	3.625	7.19	14.97	48.5	10.56	1.74	4.05	8.42	17.08	40.45	10.66	2.27	4.18	7.92	15.54	33.125	9.76	10.2

(Source: Author's Estimation)

4.6 Summary and Conclusion

As we have to analyze socio economic behavior of indebted farmers, here our null hypothesis is rejected and our alternative hypothesis is accepted which shows that socio and economic characteristics play significant relationship with regard to debt, some factors can increase or decrease the level of indebtedness as the geographical area and category of farmers surely impacted the level of indebtedness. In our field study we have found very interesting trends which are given below

Category wise analysis

- **Sex ratio** (847) is maximum in case of large farmers among other farm categories.
- **Dependency ratio** (35.69 per cent) is maximum in case of small farmers.
- **Average year of schooling** (12.08 years) is highest in case of large farmers.
- **Maximum numbers of indebted farmers (44.25 Per cent) have** been qualified **up to matric** and 8.73 per cent are **illiterate** and maximum numbers of indebted farmers (49.8 per cent) are in the **age group** between 30 to 50 years.
- Total indebted farmers (16.1 Per cent) are doing **subsidiary occupation** and total 14.09 Per cent family members have gone abroad and interestingly 50 Per cent of them belong to large farmers.
- Average operational land holding of sampled farmers is 10.2 Acre in comparison to 8.9 Acres in Punjab and 2.7 Acres in India.
- 81.9 Per cent of sampled farmers households have **tractors** and 81 per cent have **tube wells** at their disposal.
- On an average there are two buffaloes per indebted farmers.
- On an average 61.75 Per cent people are dependent on the households.

Zone wise analysis

- Average family size (4.55), Sex ratio (903), Dependency ratio (29.83 Per cent) is highest in Zone III (South Western Zone)
- Literacy rate was highest in Zone I (94 Per cent)
- Maximum number of illiterates (10.71 Per cent) in Zone III (South Western Zone)
- Average operational land holding (10.66) is max in Zone II (Central Plain Zone)

- Average number of tractors (88.69 Per cent) is Highest in Zone III (South Western Zone), but average number of Tube wells (91.26 Per cent) is highest in Zone II (Central Plain Zone)
- Maximum numbers of total family members (64.73 Per cent) are dependent in Zone III (South Western Zone)

In the end we can say that socio economic characteristics play vital role in the life of a household. It becomes more important for the indebted households as magnitude of indebtedness depends upon these factors. Important variables like sex, age, dependency ratio, ownership of agricultural tools, irrigation equipments and cattle also contribute effectively to the productivity. Some of these factors like age show that almost half of the indebted farmers come under the age of 30 to 50 range, which is the most productive age. Similarly dependency range which shows that how many persons are dependent on the household and higher dependency represents higher burden and higher level of indebtedness. Small farmers which have higher level of dependency ratio are more prone to indebtedness.

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CHAPTER-V

EXTENT AND NATURE OF INDEBTEDNESS

Agriculture is the major contributor to National income in India for several decades. The advent of the Green Revolution and later on WTO and its policies pushed the farmers towards mechanization and commercialization. The increasing pressure of the market economy also forced the Indian farmers to take risks and invest more in commercial crops. To accelerate the growth rate there was an urgent need for modern inputs and machinery, and to purchase these inputs and for short-term and long-term investment there was a dire need for credit availability. Availability of a timely and adequate supply of credit to farmers is one of the basic prerequisites. Various studies like Mohan (2006), Golait (2007), Bharti (2018), and Pandey et al., (2019) discussed the evolution and importance of agricultural finance in India. They have also studied the impact of these different sources of credit on farmer's life and on recent agrarian distress.

Farm indebtedness is not bad if it's taken for productive Purposes, it helps to boost economic activity (Singh et al., 2014) These types of debts which are utilized in the right manner are not at all evil; they can prove a virtue. But if it is used for unproductive activities as the modern farmers are doing, then these debts are like a vicious debt trap, which can prove fatal for the indebted farmers, who are not able to repay both capital and its interest. Then as these debts keep on increasing, their pressure also increases and pushes the farmers to take the dreaded step of suicide. It proves the wording of M.L. Darling (1925) that "*Indian Farmer born in Debt, lives in Debt and also dies in Debt*". The burden of debt is also dependent upon its cost or rate of interest; generally costlier borrowing ends up with a heavy burden. Therefore nature and sources are important dimensions of debt. The concern about indebtedness is not new and its impact has been seen in the past decades. Punjab was the first to use new techniques in agriculture which yield good results and resulted in the green revolution, but after the implementation of liberalization and its policies, the debt burden in Punjab started to pile up.

This chapter has basically discussed the Extent and Nature of indebtedness among farmers in Punjab as well as in India. A comparative study has also been made to see

the size and quantum of debt being taken by rural households. This chapter will basically discuss the extent, nature and source of debt, and also discuss the purpose and need of debt. In this chapter, we will basically discuss the Extent and Nature of rural indebtedness and discuss the quantum of debt on farmer households. We have discussed rural indebtedness in India making comparisons with different states. Then a detailed study of Punjab was undertaken to understand the issue of indebtedness among the farmers there. The time period taken from 2003-2019 for the present analysis as consistent information on various aspects of indebtedness is available for this period only.

Previously when there was a lack of institutional agencies, the need for credit was fulfilled by the non-institutional agencies, particularly moneylenders who charged very high rates of interest, which ultimately drove the farmers into a perpetual state of indebtedness. The institutional agencies were being set up to pull out the farmers from the debt trap laid by the moneylenders.

This chapter has been divided into five parts, where we first defined the term indebtedness and then the nature, source and Extent of indebtedness. In the next part, we have discussed the features of the household as per the 77th round of NSSO popularly known as the All India Debt and Investment Survey (AIDIS). In the third section, we made a comparative study of the debt situation of India and Punjab respectively. In the fourth part, we look at the nature and source of the debt taken at the all-India level as we have taken secondary data and in the last part we discuss the Result analysis of the farmer survey done by the scholar.

5.1 Indebtedness: Definition, Nature, Extent and Source

According to NABARD the term ‘indebtedness’ may be understood as ‘*the state of being under obligation*’ which is financial in nature. Indebtedness somehow may be restricted to a household or may also extend to an organization”. “*Indebtedness has been described as impoverishment by debt*” (Guerin et al., 2013), or “*it is a situation where a household is caught in spiral debts*” (Taylor 2011). He explained indebtedness, where there are a large number of standing loans, a high rate of interest, and no real hope of clearing the principal amount.

According to the NABARD's All India Rural Financial Inclusion Survey (NAFIS) study, a household was categorized as having debt if it had any unpaid loans on the

day of the investigation. In contrast, the NSSO defined indebtedness as having any unpaid loans after the 30th of June. Several scholars have measured indebtedness in different ways. Some have used their self-reported sense of being indebted, using indicators such as attitude towards earning, saving and expenditure, some others have taken the times and frequency of borrowing (Kandikuppa S 2021). Some other scholars examined the extent to which households sacrificed their basic needs and the erosion of the household's ability to repay the loan. The NSSO evaluates indebtedness in three distinct perspective; the number of standing loans, the average amount of outstanding at the time of the survey, and the ratio of the total amount of outstanding to the total value of assets called debt to asset ratio. Basically, it depicts how much money a household owes to other institutions for every Rs 100 worth of assets that it owns (NSSO 2013)

There are various studies that have examined the extent, nature, and burden of farmer's debt (Rao & Tripathi 2001) they have analyzed the nature and pattern of indebtedness among all the households during the years 1981-1991. (Narayanmoorthy 2001) has examined the magnitude and extent of indebtedness of agricultural rural households belonging to scheduled caste category. (Sharma 2002) examined the indebtedness among the tribal and non-tribal in the state of Himachal Pradesh. Similarly (Lenka 2005) has examined the magnitude of indebtedness among rural farmer households in India. The study has concluded that nearly fifty percent of the rural people in the country are under indebtedness.

In the above paragraph, we looked at the studies conducted at the all-India level and this section focuses on the farmers of Punjab. The following studies show the indebtedness in Punjab state. (Shergill 1998) discussed the borrowing and repayment behavior of the different segments of the cultivators in Punjab. According to this study about one-third of the cultivators in Punjab were caught in the vicious circle of indebtedness. The author concluded that the burden of short-term debt was more critical among marginal and small farmers. Singh and Toor (2005), Satish (2006), Singh et al., (2014), Sajjad Haroon et al., (2016) and Singh et al., (2017) concluded that most of the farmers in Punjab have taken loans from institutional sources and they have been charged a very high rate of interest by money lenders. These studies also concluded that most of the farmers have taken loans for unproductive purposes. (Singh and Bhogal 2020) have conducted their longitudinal study on the situation of

an agricultural labourer in Punjab. The study concluded that the magnitude of the debt on agricultural labourers has been increasing over the three decades.

Nature of indebtedness will discuss the source of credit from where debt has been taken and the purpose of debt, whether it has been taken for productive or unproductive purposes. Rural debt in Punjab is estimated to be Rs 35000 crore (Niti Ayog 2015); it was the root cause of the grave human tragedy. As per the latest NSSO survey, 77th round about 50.2 percent of rural households were indebted. The outstanding loans per agricultural households was Rs 74,121 on an average in 2019, which has increased by 57.7 percent compared with data from 2012-13. The share of indebted agricultural household in the country was highest in the state of Andhra Pradesh (93.2%) followed by Telangana (91.7%) and Kerala (69.9%) among the major states of India and Punjab with 54.4 percent is at eighth position in the country. The average per agricultural household amount of outstanding loans is highest for Andhra Pradesh (Rs 2, 45,554) followed closely by Kerala (Rs 2, 42,482) and Punjab (Rs 2, 03,249) respectively.

Different studies and researches show different numbers in case of quantum of debt. According to (Shergill 1998), the total amount of debt during the 1990s was Rs 5700 crores with an average of Rs 51,029 per farm household. Because of the failure of the cotton crop during 1997-2002, the most affected area was under the cotton producing belt as 90 percent of the farmers were reeling under indebtedness with an average debt of Rs 1,12,636 per farm household (Sidhu et al., 2000). In 2002-03, the debt burden on Punjab farmers swelled to Rs 9,886 crores and on an average per farm household debt was Rs 92,394 (Singh and Toor 2005).

The NSSO found that farmers of Punjab were severely indebted (65.4 percent) as the average debt was highest among all the states (NSSO 2005). During 2005-06, 89 percent of the farmers were under extreme debt in the state and average debt per household was Rs 1,78,934. The total debt of Punjab farmers was Rs 21,064 crores, out of which 38 percent was taken from informal sources (Singh et al., 2007). The estimate size of debt on the total 10.52 lakhs agricultural household in Punjab was estimated to be Rs 22,943 crores during the year 2012-14 and nearly 57 percent of debt has been taken and spent on productive activities.

Various studies like Sidhu & Gill (2006), Mishra and Mohapatra (2017), Pandey et al. (2019), Samantara and Badatya (2012), RBI (2019) and D'Souza (2020), have discussed the relationship between agriculture and rural credit. They have discussed various sources from where a loan can be taken. According to the studies source of debt represents that it can be taken from formal or informal sources. There are various credit agencies that provide loans to rural households. The credit agencies are also classified as 'Institutional agencies' and 'non-institutional agencies'.

5.2 All India Debt Situations (2003-2019)

The NSSO conducts an All India Debt Survey to find out the extent of institutional credit and to find out the success of formal channels. This survey was started in 1951-52 but it was limited to rural areas and was conducted by the RBI at that time 1971 NSSO has undertaken this survey and so far six AIDIS Survey has been conducted to check the overall indebtedness in the country. This section discusses the results of the 2019 survey which was published in 2021. All India results are discussed so as to have an idea about the indebtedness in the other states vis-à-vis Punjab.

According to the latest survey, agricultural households were mainly dependent either on cultivation or on labor for their livelihood. The agriculturist households who were doing cultivation consisted of 63.5 percent of the total households and about 22 per cent showed that wages and salary was their main source of income. It shows that farmers are not only earning from cultivation but also working on other activities to earn their living.

The survey also estimated that almost half of the farmer households in the country were indebted. The outstanding loan per agricultural household was Rs 74,121 (Table 5.1 and 5.2) among the major states, Andhra Pradesh had the maximum share of indebted agricultural household in the country (92.9%) followed by Telangana (89.1%) and Tamil Nadu (82.5%). The outstanding debt was maximum for Andhra Pradesh (Rs 2, 45,554) followed by Kerala (Rs 2, 42,482) and Punjab (Rs 2,03,249) according to the latest NSSO survey. The debt was at the highest level in the case of Andhra Pradesh and lowest in the case of Nagaland. The average value of assets owned by households in rural areas in Andhra Pradesh is very low compared to those in other states. The reports also show that the reach of institutional credit was less

than 50 per cent and access to farmers of credit availability is not adequate which lead to higher farmer suicide in these states like Andhra Pradesh and Telangana.

Based on all India levels, about sixty per cent of the outstanding loans were taken from formal sources, which included Government (2.1%), co-operative society (14.8%) and banks (42.9%). Among the informal sources, agricultural/ professional money lenders (25.8%) had the major share in terms of outstanding loans. The share of institutional loans increases with an increase in land possessed. For the agricultural households having less than .001 ha land, they have taken only about 15 per cent of the outstanding loans from formal sources (government, cooperative society, bank), whereas the share was about 79 per cent for the households belonging to the larger category farmers who have large size of land possessed (more than 10 ha). It also represents that higher loan was taken by larger farmers from institutional or formal sources and the lesser loan was taken from these sources by smaller farmers.

Table 5.1: Average amount of outstanding loan per agricultural households and Indebted Agricultural Households of selected states

State	Average amount of outstanding loan (Rs) 2003	Average amount of outstanding loan (Rs) 2012	Average amount of outstanding loan (Rs) 2019	% of Agricultural Household Indebted 2003	% of Agricultural Household Indebted 2012	% of Agricultural Household Indebted 2019
Andhra Pradesh	23,965	1,23,400	2,45,554	82.0	92.9	93.2
Assam	813	3,400	16,407	18.1	17.5	31.0
Bihar	4,476	16,300	23,534	33.0	42.5	39.7
Chhattisgarh	4,122	10,200	21,443	40.2	37.2	31.2
Gujarat	15,526	38,100	56,568	51.9	42.6	42.5
Haryana	26,007	79,000	1,82,922	53.1	42.3	47.5
Jharkhand	2,205	5,700	8,415	20.9	28.9	25.3
Karnataka	18,135	97,200	1,26,240	61.6	77.3	67.6
Kerala	33,907	2,13,600	2,42,482	64.4	77.7	69.9
Madhya Pradesh	14,218	32,100	74,420	50.8	45.7	48.4
Maharashtra	16,973	54,700	82,085	54.8	57.3	54.0
Odisha	5,871	28,200	32,721	47.8	57.5	61.2
Punjab	41,576	1,19,500	2,03,249	65.4	53.2	54.4
Rajasthan	18,372	70,500	1,13,865	52.4	61.8	60.3
Tamil Nadu	23,963	1,15,900	1,06,533	74.5	82.5	65.1
Uttar Pradesh	7,425	27,300	51,107	40.3	43.6	41.9
Uttarakhand	1,108	17,800	48,338	7.2	50.8	46.6
All India	12,585	47,000	74,121	48.6	51.9	50.2

(Source: Situation Assessment Survey of Agricultural Households, (Jan – Dec 2003), (Jan-Dec 2013) and (2019). National Statistical Office (NSO) report no 587),

Table 5.2: Indebtedness of Agricultural Households (all India) in different size classes of land possessed

Land Possessed (hectare)	% of Indebtedness Agricultural Households to Total			Average Outstanding Loan Amount (Rs.)		
	2003	2012	2019	2003	2012	2019
< 0.01	45.3	41.9	38.5	6,121	31,100	26,883
0.01 – 0.40	44.4	47.3	40.8	6,545	23,900	33,220
0.41 – 1.00	45.6	48.3	48.4	8,623	35,400	51,933
1.01 – 2.00	51.0	55.7	57.4	13,762	54,800	94,498
2.01 – 4.00	58.2	66.5	69.7	23,456	94,900	1,75,009
4.01 – 10.00	65.1	76.3	79.3	42,532	1,82,700	3,26,766
10 & above	66.4	78.7	81.4	76,232	2,90,300	79,1132
All India	48.6	51.9	50.2	12,585	47,000	74,121

(Source: Situation Assessment Survey of Agricultural Households (Jan – Dec 2003),(Jan – Dec 2013),, report no 587,(2019) National Statistical Office (NSSO)

5.3 Comparative study

We have also made comparative study between India and Punjab for the year 2002 to 2019, which represented that average debt has multiplied from Rs 16,502 in 2002 to Rs 98,000 in 2019 in the case of rural households in Punjab and this amount has also multiplied from Rs 7,539 in 2002 to Rs 60,000 for the same year in India. The burden of indebtedness among rural households has also increased from 25.7 % in 2002 to 35.1 % in 2019 in case of Punjab and during that same year it has increased from 26.5 % to 35 % in case of India as shown in table 5.4 onwards.

Table 5.3: Average Amount of Debt per Rural and Cultivator Households**(in Rs)**

State	2003	2012	2019	2003	2012	2019
	Rural Households			Cultivator households		
Punjab	16,502	64,548	98,000	25,211	2,16,524	1,98,000
India	7,539	32,522	60,000	9,261	70,580	74,000

*(Source: NSSO (2005), NSSO (2013) and NSSO (2019))***Table 5.4: State-wise Incidence of Indebtedness (IOI) Among Rural Households: 1971 – 2019 (%) of Indebted Households**

States	Categories of farmers	1971	1981	1992	2003	2012	2019
Punjab	Rural households	54.40	18.92	25.10	25.70	33.10	35.1
India		41.30	19.40	23.40	26.50	31.4	35.0
Punjab	Cultivator households	58.00	22.46	30.00	28.50	31.80	51.0
India		44.30	21.69	25.90	29.70	35.0	40.3

(Source: NSSO (1976), NSSO (1986), NSSO (1996), NSSO (2005) , NSSO (2013)and NSSO(2019))

5.4 Nature and Source of Loan Taken

To further explore the problem of indebtedness, we classified the debt by nature and Source of debt. As credit is the basic need of rural households, they utilize various kinds of resources, which can be mainly classified into institutional and non-institutional sources.

The extent is higher among institutional sources and lesser in case of non-institutional sources such as Agricultural and Professional money lenders, relatives and friends etc. Different studies have analyzed the relationship between landholding size and the indebtedness of agricultural households. According to the secondary data taken from various All India Debt and Investment surveys, the share of institutional agencies has increased from 57.1 percent in 2002 to 66.1 percent in 2019 as shown in the Table 5.5 and 5.6 It was because of the more proactive role played by the commercial banks and

other institutional agencies people are taking more loan from these agencies, even if we take data of cultivator households than share of institutional agencies is 67 percent.

Table 5.5: Distribution of Cash loans to households by Credit Agency- All India 2003-2019 (%)

	2003	2012	2019
Credit agencies	Rural All Households		
Institutional Agencies	57.1	56	66.1
Government	2.3	1.2	
Cooperative society/Bank	27.3	24.8	9.9
Commercial Bank including RRB	24.5	25.1	47.6
Insurance	0.3	0.2	0.1
Provident fund	0.3	0.1	0
Financial institutions	1.1	0.6	1.9
Financial company	0.6	1.1	2
Self Help Groups- bank linked		1.9	3.5
Self Help Groups- NBFC		0.3	0.4
other institutions	0.7	0.7	0.7
Non-Institutional Agencies	42.9	43.9	33.9
Landlord	1	0.7	1.1
Agricultural Money Lenders	10	5	6.3
Professional Money Lenders	19.6	28.2	16.5
Traders/input supplier	2.6	0.1	0.3
Relative and Friends	7.1	8	6.8
Doctors, Lawyers etc.	0.3	0.5	0.1
other sources	2.3	1.4	2.8

(Source: All India Debt and Investment Survey, Various issues and Report no 588/77, NSSO)

Table 5.6: Share of outstanding debt (%) of cultivators Households from institutional and Non-institutional sources

Year	Institutional	Non-institutional
1951	10.2	89.8
1961	20.9	79.1
1971	32	68
1981	56.2	43.8
1991	66.3	33.7
2003	61.1	38.9
2012	64	36
2019	67	33

(Source: All India debt and Investment Survey, various issues NSSO)

5.5 Extent of indebtedness

Result Analysis

To discuss the Extent and nature of indebtedness we have used the methodology mentioned and explained in the third chapter especially under topic 3.5 onwards and required information has been accumulated with the important tool known as questionnaire. In the past sections, the secondary data were analysed to understand the nature, extent and sources of funds at the all-India level. Our study is based on primary data collected from 504 farmers from six districts covering three zones namely Zone I, II and III.

As we have collected data from our indebted farmer households, we have analysed the data and found very interesting results in our study. We have analysed our data first Zone wise as we have taken three agro-climatic zones from Punjab, Zone I is known as Sub mountainous region where Hoshiarpur is our sampled District. Then we have Zone II which is known as the Central plain region which is the largest region in the state our study includes the following three districts that are Ludhiana, Patiala and Barnala districts, then we have Zone III known as South Western region consisting of Bhatinda and Faridkot districts. Then we have analysed our data as per the

landholding size. The farmers are categorised into five group's namely marginal farmers, small, semi-medium, medium and large farmers.

We have discussed zone wise results in table 5.7 and represents that average amount of debt was Rs 5, 55,978 per household, and if we discuss it in zone I then it was Rs 3, 63,273, in zone II it was Rs 5, 37,884 and In Zone III it was Rs 6, 79,470. The result shows that the debt was highest in Zone III as this south-western zone is the zone which produces the cotton and is known as Cotton Belt of Punjab and average productivity was also less in this zone leading to more incidence of indebtedness. It also shows that the average amount of debt was lowest in zone I as this zone consists of more literate and skilled people as the literacy rate is highest in Hoshiarpur, who are hardworking and believe in taking a secure risk from Institutional sources rather than non-institutional one. When we discuss source wise average than institutional average was 66.81 per cent which was almost double than non-institutional average which was 33.19 per cent.

Table 5.7: Extent of indebtedness across Zones

(Average amount of debt in Rs per household)

	Zone I	Zones II	Zone III	Total Average All Zones
Total Average	3,63,273	5,37,884	6,79,470	5,55,978

(Source: Author's Estimation)

Table 5.8: Extent of indebtedness across Zones & Categories

(Average amount of debt in Rs per household)

Categories of Farmers/Zones	Zone I	Zone II	Zone III	Average amount of debt
Marginal	2,36,666	2,50,361	2,71,000	2,48,708
Small	2,11,875	4,05,708	4,66,625	3,93,708
Semi Medium	2,39,107	4,93,035	5,93,678	4,81,880
Medium	5,51,666	7,03,819	11,02,354	8,05,750
Large	10,87,500	12,47,500	8,19,500	10,78,166
Average	3,63,274	5,37,884	6,79,470	5,55,978

(Source: Author's Estimation)

Our category-wise analysis was also in line with the result of most of the studies cited above which proves that there was a direct relation between the size of land holding and amount of loan taken, it depicts that as the size of the landholding increases the amount of debt also increases. Large farmers take more loans as they have more lending capacity than small and marginal farmers. If we discuss the debt category wise than average amount of debt was Rs, 2,48,708 for marginal farmers, Rs 3,93,708 for small farmers, Rs 4,81,880 for Semi medium farmers, Rs 8,05,750 for medium farmers and Rs 10,78,166 for large farmers as shown in Table 5.8. Similarly, we have explained the average amount of debt in each Zone, which explain that how much average debt is being taken from different agencies in different Zones.

Table 5.9: Extent of Indebtedness with respect to Socio Economic Status
(Rs per household)

Characteristics	Extent of debt
1) Educational level	
a) Illiterate	5,74,154
b) Literate	5,37,565
2) Size of Family Members	
a) Up to 4 members	5,27,245
b) More than 4 members	5,93,443
3) Age	
a) Up to 50 years	5,23,245
b) More than 50 years	5,78,414
4) Economic Status of Farmers	
a) Subsidiary occupation /Yes	4,81,431
b) Subsidiary occupation/No	5,49,388
5) Family members gone abroad	
a) Yes	7,33,475
b) No	5,21,865

(Source: Author's Estimation)

Table 5.9 has explained impact of socio economic factors on indebtedness as illiterate farmers have taken more debt than literate farmer. Similarly farmers with large families have more debt as their needs and expenditure is more when they have more members in their family. Information in the table also explains that as the farmer is getting older have larger amount of debt on him. Interesting information has been

obtained that farmers who are not doing any subsidiary occupation has more debt on them as they do not have any other source of income. Similarly farmers who have sent their children abroad have taken more debt to meet their expenditures.

5.6 Nature and Source of debt

The table shown below represent the source of debt being taken by the indebted farmer as there are two main sources from where a loan can be taken known as institutional and non-institutional, we have taken average loan being taken from these sources first Zone wise and then category-wise. A research study done by NABARD in 2021 concluded that compared with Maharashtra and UP, Punjab farmers borrowed the largest amount and they have been taking more debt from Non institutional sources. An average amount of money borrowed by marginal farmers was Rs 84,000 and for small farmers about Rs 73,000. We have analysed our primary survey data first average-wise and then the total amount being taken as loan from all these sources. Table 5.10 represent the average amount of debt being taken from different sources first zone-wise as we have analysed our zone I data whose total average from all the sources comes out to be Rs 3,63,273, similarly average of zone II was 5,37,884 and Rs 6,79,470 for zone III. Similarly, table 5.11 represent average amount of debt category wise.

Table 5.10: Nature and Source of Debt across Zones

(Average Amount of Debt in Rs per household)

Sources	Zone I	Zone II	Zone III	Total Average All Zones
Institutional				
Commercial Banks	4,59,827	4,32,027	5,53,950	4,77,272
Cooperatives	71,219	1,21,287	78,761	84,515
Non-Institutional				
Arhtiyas	77,083	3,12,630	3,88,318	3,32,554
Relative and Friends		400000		4,00,000
Average	3,63,273	5,37,884	6,79,470	5,55,978

(Source: Author's Estimation)

Table 5.11: Nature and Source of Debt across Sizes

(Average Amount of Debt in Rs per household)

Categories/Agencies	Marginal	Small	Semi medium	Medium	Large	Total Average
Institutional						
Commercial Banks	2,84,585	3,67,712	4,15,658	6,16,409	9,51,176	4,77,272
Cooperatives	44,684	53,500	89,520	1,17,338	1,86,909	84,514
Non-Institutional						
Arthiyas	1,60,833	2,55,888	2,67,912	4,59,659	5,46,428	3,32,554
Relative and Friends			2,00,000	8,00,000		4,00,000
Average	2,48,708	3,93,708	4,81,880	8,05,750	10,78,166	5,55,978

(Source: Author's Estimation)

When we have taken total amount of debt in consideration than we have found that total 66.81 per cent of loan has been borrowed from institutional sources in which Commercial bank plays very important role where more than 61 per cent loans were given by them and only 33.19 per cent were borrowed from non-institutional sources in which contribution of Relative and friends is marginal one.

Large farmers take more than **70 per cent** loans from **institutional sources** and in case of non-institutional sources the percentage of debt taken was 30 percent.

When we have analysed this from Zone wise than we have found that under **Zone I** nearly **97 per cent** loan amount was taken from institutional sources, but it was nearly 63 per cent from the remaining Zones.

Table 5.12: Frequency of Loan taken

(Numbers)

Loan Amount taken (Rs)	Arthiyas	Relative/Friends	Commercial Banks	Cooperatives	Total (in %)
0-100000	74		29	133	236 (29.3)
100001-200000	75		53	29	157 (19.4)
200001-400000	70	1	156	6	233 (29)
400001-600000	29		40		69 (8.6)
600001-800000	9	1	20		30 (3.7)
800001-1000000	15	1	28		44 (5.4)
1000001-3500000	9		28		37 (4.6)
Total	281	3	354	168	806 (100)

(Source: Author's Estimation)

We have analysed number of loan taken from different sources which shows that 49 per cent of loans up to 1 lakh have been taken from cooperatives and 31 per cent have been taken from Arhtiyas. Loan ranging between 2 lakh to 4 lakh has been mostly taken from commercial banks (67 %). On aggregate maximum number of farmers take loan from Commercial banks (44%), and then from Arhtiyas (35%) and Cooperatives (21%) respectively.

5.7 Demand and purpose of debt

In this Section we have discussed the demand for borrowing by the farmers, who mainly take loan for productive and unproductive purposes as their needs are unlimited but their resources are limited. For productive purposes, farmers mainly take loans for crop production and then purchase agricultural machinery and farm equipments like tractor, Rotavator, and machinery for crop seeding. Farmers take cash as well as kind loans from cooperative societies who give kind loans for seeds, pesticides, insecticides etc. Under unproductive purposes, farmers mostly use loans for conducting social ceremonies like marriage and religious functions. Sometimes farmers also use their loans for constructing and renovating their houses. As there is a big craze among youngsters to go abroad, first they give IELTS exam and after getting a good band they try to get a study visa. Some farmers also take loans to send their children abroad for higher studies and to get better opportunities for their wards. Farmers also take loans for medical emergencies as some areas like south-western Zone are prone to chronic diseases like cancer. So farmers basically take loan for their daily needs and for meeting and fulfilling all their family requirements.

Farm indebtedness is not an issue when the borrowed loan is used and taken for productive activities such as current and capital expenditure. It helps to boost the economic activity of rural households as they use the debt to enhance their productivity. But it becomes evil when farmers take debt for productive purpose but use it for unproductive purposes, then it becomes dangerous for them as they are not having much-repaying capacity and not able to pay back. When the credit outstanding becomes too much and their repaying capacity is also not as much as they are able to repay the entire loan and sometimes they take a new loans to pay their outstanding debt. The burden of debt becomes too much for them and because of this debt trap they came under severe psychological distress and sometimes leading to suicide.

Table 5.13 shows the composition of debt due to various institutional and non-institutional sources in rural households during 2002-2019. In 1971 when the rural credit system was not much developed than the role and importance of non-institutional sources are greater. But slowly and steadily rural institutions saw a rapid expansion with the help of commercial banks under the mandatory priority sector lending to the agricultural sector. As a result share of financial institutions increases rapidly. According to the latest data nearly 53 percent of loans were used for constructive and productive purposes and 47 per cent for wasteful and unproductive expenditures as per the NSSO data.

Table 5.13: Purpose-wise outstanding debt among rural households: 2002-2019

(Per cent)

Purpose	2003	2012	2019
Farm Business	41.0	28.6	44.5
Capital Expenditure	27.00	13.2	19.5
Current Expenditure	14.00	15.4	25.0
Non-Farm Business	12.0	11.4	8.7
Capital Expenditure	9.00	8.7	6.5
Current Expenditure	3.00	2.6	2.2
Productive Purposes	53.00	40.00	53.2
Non-Productive Purposes	47.00	60	46.8
All	100.00	100.00	100

(Source: All India Debt and Investment Survey, Various issues)

5.8 Result analysis

Nature and purpose of debt

Our primary study shows that approximately 88 per cent of the total farmers who have borrowed loan, have used loan it for productive purposes means that they have either used it for producing crops or improving productivity but nearly 12 per cent have used it for unproductive purposes like they have used it for social functions, sending their children abroad or for consumption purposes. Here we have taken number of responses of sampled farmers who have taken loan from multiple sources which represent that those who have been using loan for unproductive purposes used maximum for domestic needs (34%), Sending children abroad (27%), marriage and

social ceremonies (21%), house renovation (9%) and on medical expenses (3%) as shown in Table 5.14 onwards.

Table 5.14: Nature and Purpose of Loan Taken

(Figures in brackets represent per cent age)
(Multiple responses)

Nature and purpose of Loan taken	Institutional Source	Non-Institutional Sources	Total (Both)
Productive	467 (89.46)	246 (86.62)	713 (88.46)
Un Productive	55(10.54)	38 (13.38)	93 (11.54)
Total	522 (100)	284 (100)	806 (100)

(Source: Author's Estimation)

Table 5.15: Nature and Purpose of Loan Taken across Zones

(Figures in brackets represent per cent)
(Multiple responses)

Zones	Zone I	Zone II	Zone III	Total	Percentage
Agencies Institutional					
Commercial banks	58	180	116	354	
Productive	52	145	106	303	(85.59)
Unproductive	6	35	10	51	(14.41)
Cooperatives	41	66	61	168	
Productive	41	62	61	164	(97.76)
Unproductive	0	4	0	4	(2.24)
Non-Institutional					
Arhtiyas	12	155	114	281	
Productive	11	126	108	245	(87.89)
Unproductive	1	29	6	36	(12.81)
Relatives and friends		3		3	
Productive		1		1	(33.33)
Unproductive		2		2	(66.67)

(Source: Author's Estimation)

Table 5.16: Nature and Purpose of Loan taken across Sizes

(Multiple responses)

Characteristics	Marginal	Small	Semi Med	Medium	Large	Total	Percentage
Agencies							
Institutional							
Commercial banks	41	68	124	111	10	354	
Productive	38	58	105	93	9	303	85.59
Unproductive	3	10	19	18	1	51	14.23
Marriage and Social Ceremonies	2		2	2		6	11.76
House construction and Repair	1		1	4		6	11.76
Medical		1	2			3	5.88
Education			1			1	1.96
Domestic need		8	4	5	1	18	35.29
Sending Children abroad		1	7	7		15	29.41
Cooperatives	19	31	46	58	14	168	
Productive	19	31	46	58	14	164	97.6
Unproductive						4	2.4
Non-Institutional							
Arhtiyas	36	45	93	90	17	281	
Productive	33	40	82	75	15	245	87.19
Unproductive	3	5	11	15	2	36	12.81
Marriage and Social Ceremonies	3	3	4	4		14	40
House construction and Repair			1	1		2	5.55
Medical							
Education				1		1	2.77
Domestic need			5	5		10	27.77

Sending Children abroad		2	1	4	2	9	25
Friends and Relatives			2	1		3	
Productive			1			1	33.33
Unproductive			1	1		2	66.66
Marriage and Social Ceremonies							
House Renovation							
Medical							
Education				1		1	33.33
Domestic need							
Sending Children abroad			1			1	33.33

(Source: Author's Estimation)

Table 5.17: Per Acre Debt Zone Wise & Category wise (Aggregate)

					(Per acre debt in Rs)	
Categories	Marginal	Small	Semi medium	Medium	Large	Total
Zone I	1,80,638	58,477	36,284	35,744	22,530	60,234
Zone II	1,37,063	1,01,691	58,789	41,456	31,009	71,749
Zone III	1,20,747	1,15,270	74,614	69,269	26,858	85,147
Total	1,39,095	1,00,560	60,568	50,203	28,212	74,902

(Source: Author's Estimation)

If we discuss per acre debt Zone wise then per acre debt is Rs 85,147, which is highest in case of Zone III, then Rs 71,749 in Zone II and lowest in Zone I which is Rs 60,234. In case of category wise analysis per acre debt was maximum in case of marginal farmers Rs 1, 39,095 than Rs 1,00,560 in case of small farmers, Rs 60,568 in case of semi medium, Rs 50,203 in case of medium and Rs 28,212 in case of large farmers respectively and on aggregate it was Rs 74,902 for the whole Punjab.

5.9 Summary and Conclusion

As we are heading towards development our consumption and demand is also increasing at a faster rate. This increase in consumption puts more pressure on agriculture and its production. To increase productivity farmers' use modern types of equipments and inputs, which are no doubt, are costlier and out of reach. To fulfill their needs farmers have to take more and more debt from formal and informal sources such as commercial banks and moneylenders. When we discuss the extent and size of debt we found that on an average Punjab's farmers are under debt of Rs 5,55,978 per household. Past studies related to measuring the magnitude of debt in Punjab like Singh et al., 2005 and Singh et al., 2014 represent that per household debt increased from Rs 1,17,849 to Rs 2,18,092 respectively. The latest Situation Assessment Survey Report 2019 by NSSO shows that farmers of Punjab were indebted by Rs 2,03,249 which is almost three times more than all India level of Rs 74,121. Our recent study also shows that as the land size increases amount of debt also increases, as it is obvious that large farmers have to take more debt as they have large debt-paying capacity. Here we have hypothesized that land holding size and nature of debt have no significant impact on indebtedness but our null hypothesis has been rejected as we found that as the land holding size increases people tend to take a higher amount of debt, smaller category of farmers although take a lesser amount of debt but on average they have mostly not able to repay the debt. When we discussed the nature of debt even then we found that most of the farmers take debt for productive purposes.

Our Zone wise result represents that on Aggregate, the average amount of debt was **Rs 5,55,978** per household, and if we discuss it in **Zone I** then it was **Rs 3,63,273**, in **Zone II** it was **Rs 5,37,884** and In **Zone III** it was **Rs 6,79,470**. The result shows that average amount of debt was highest in Zone III as this south western Zone was facing more crop failure and the average productivity was also lesser in this Zone leading to more incidence of indebtedness. Then in the second Zone which is the largest area-wise and population wise it was above 5 lakh and in zone I which is known as the more literate zone, farmers take lesser loans as they have limited needs.

Our source-wise result shows that institutional sources contribute nearly 67 per cent of total debt and 33 per cent of loan was contributed by non-institutional sources. Our study also shows that nearly 88 per cent of the total farmers who have taken the loan,

have used loans for productive purposes means that they have either consumed it for producing crops or improving productivity but nearly 12 per cent have used for unproductive purposes like they have used it for social functions, sending their children abroad or for consumption purposes. Our detailed analyses represent that those who have been using loans for unproductive purposes used maximum for domestic needs (34%), Sending children abroad (27%), marriage and social ceremonies (21%), house renovation (9%) and on medical expenses (3%). So this chapter clearly discusses the extent, nature and source of debt being taken by the indebted farmers and our most of the results are in line of NSSO survey.

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CHAPTER-VI

BORROWING AND REPAYMENT BEHAVIOUR OF THE INDEBTED HOUSEHOLDS

Rural credit is a vital instrument for the farmers as it is helpful not only in production but also in their day-to-day activities. Most of the farmers preferred to borrow money from institutional or formal sources as well as from non-institutional or informal sources. It is not too difficult to avail loans from these sources, especially from Arhtiyas and moneylenders but the critical thing is if the farmers can repay these loans. Once the loan amount increases the farmers found it difficult to repay as their income level did not increase in the same proportions. Here the role of mounting agrarian distress also plays an important role in increasing their problems, although farmers preferred to take loans from government sources but because of cumbersome processes they end up taking loans from nearby money lenders.

In this chapter, we tried to analyze the borrowing and repayment behavior of rural households. The majority of the population is living in the villages, hence it became important for policymakers to know the behavior and thinking of the people toward lending institutions. This chapter will also discuss the severity of agrarian distress and its impact on the farmers which led to farmer suicide, afterwards we have discussed the role and impact of farm loan waivers on the farming community. Indian farmers cannot go without taking the agricultural loans as this works like fuel for increasing their productivity. They need credit for their productive and unproductive needs which cannot be fulfilled without borrowing as they don't have enough resources to complete their wants. Indian farmers want suitable and adequate credit agencies from where they can take loans. But in India there were not enough resources before independence.

The All India Debt and Investment Survey reported that non-institutional sources like Arhtiyas and moneylenders were more powerful in 1951, contributing 90 percent of the debt of cultivator households, Indian farmers use to take loans from non-institutional resources like local moneylenders and commission agents who use to give loan at easy terms and conditions but charged an exorbitant rate of interest. The trend of diversification and commercialization in agricultural has almost shifted cropping production from traditional crops to cash crops (Samantara & Badatya

2012). The emergence of the Green Revolution in Indian agriculture has intensified the need for institutional credit support to farmers for using modern inputs and High Yielding Variety Seeds (HYV). The rural market that was lacking in development received a significant push forward following the nationalization of banks in 1969, the strengthening of cooperatives, the establishment of regional rural banks and the remarkable growth of microfinance initiatives in the rural regions. The channel of institutional credit in the first two decades was the cooperative sector, and as a result of this situation, two significant programs, the lead bank scheme and priority sector lending, were introduced to facilitate the flow of credit and promote rural development. These were historic initiatives that played a key role in directing financial resources towards the rural sector (RBI, 2019).

We have discussed some critical issues in this chapter besides borrowing and repayment, if the farmers are not able to repay the credit what happened, they have to face various types of mental traumas and pressures which some farmers were able to survive and some were not. This leads to farmer's suicide and to overcome this distress and critical situation, some states provide help to the farmers by giving them loan waivers which were more or less political gimmicks as they make the farmers lethargic and encourage them not to repay the loan hoping that they will get another loan waiver in every election year.

Various studies have been conducted in India as well as in Punjab to discuss the issue of farmer distress and farmer suicide. Some of them have used stratified random sampling technique to access the severity of the problem. (Satish 2006; Assadi M 2006; Singh 2006; Vaidyanathan 2006; Jeromi 2007; Nagaraj 2008; Mishra 2008 & 2014 and Dandekar & Bhattacharya 2017) has analyzed the challenges & extent of rural indebtedness and its connection with suicides. Although these studies were concentrated in several parts of the country, their motive was the same to study the extent and magnitude of indebtedness and its relation with suicides. It was not only the severity of indebtedness that led to suicide but there are several farming-related factors like crop failure, natural calamities, lack of input resources and socio-economic factors that led to farmer distress (Guha & Das 2022). Due to increasing agrarian distress in Punjab, the issue of farmer suicide has more often become a debatable question when on average 18 farmers and 18 laborers commit suicide per lakh per annum (Singh 2018). According to the report conducted by Punjab

Agricultural University, Ludhiana, Punjab accounts for almost 1000 suicide by farmers in a year. At least 16,606 suicides were reported during 2000-15 by farmers and farm labourers. Sangrur, Bathinda, Mansa, Barnala, Ludhiana and Moga are six districts where at least three farmers commit suicide every day and almost 88% of these suicides are because of debt.

A high level of household debt in developing countries is a widely recognized problem and different models have recommended that a high magnitude of household indebtedness may lead to deadweight misfortune in the aggregate economy (Myers 1977, Krugman 1988). Some of these factors initiated several debt relief measures for poor developing economies like India. Whether these debt relief measures would prove to be beneficial or not, was long awaited and debatable question. So far some debt relief measures are must as they improve the productivity of rural households. But its critics believe that it was not easy to waive off loans without changing a culture of judicial behavior relating to borrowing and repayment (Kanz 2016). This benefit of debt waiver was also extended to landless labourers (Kumar et al., 2020). The issue of small and marginal has been highlighted by (Banik N 2018) whose study showed that depleted farmers were not the real beneficiaries of loan waivers as this has been used to take the political mileage by the state governments.

6.1.1 Severity of Debt

In our survey we have tried to measure severity of debt or Debt servicing capacity with the help of self-explained formula

Severity of Debt = Net Disposable Income – Total Outstanding debt

a) Net Disposable income= Total Annual income/Total Revenue from farming and allied activities - Total household Expenditure

b) Total Outstanding debt= Total debt taken –Repayment with interest

*Total annual Income/Total Revenue is obtained by deducting all type of production cost.

6.1.2 Total outstanding defined/Magnitude of indebtedness

The value of outstanding loan amount is a stock variable and includes “*past outstanding amounts (principal + interest + other bank charges), loans disbursed*

during the year, interest charged on this loan, and additional charges less amount repaid during the year” (NABARD 2021). As we have already discussed Extent of debt in the previous chapter in which we have taken average loan amount taken by the farmers’ zone wise and category wise respectively. But in this chapter we have calculated outstanding amount with the formula adopted by the NABARD research study where we have included Principal amount of loan taken plus interest and amount repaid by the farmers has been deducted from the total. Then we have analyzed zone wise and Category wise average amount of outstanding debt. The study also concluded that most of the outstanding loans (77%) in Punjab are procured from formal sources and remaining (23%) from informal sources.

6.2 Result Analysis

6.2.1 Magnitude of indebtedness: Zone Wise

To discuss the magnitude of the indebted farmers we have used the methodology mentioned in the third chapter especially under topic 3.5 onwards and required information has been accumulated with the help of questionnaire.

As we have already discussed the Extent and nature of indebtedness in our previous chapter and we have seen that increase in the land size leads to increase in the magnitude of debt, now in this chapter, our study was related to the borrowing and repayment behavior of indebted farmers. We have discussed how much debt was still outstanding on the farmers, which they have not been able to pay and how many farmers are severely indebted.

Our primary data analyzed that the overall average amount of outstanding on all the indebted farmers was Rs 5,40,759. We have also discussed Zone wise and Category wise result of indebted farmers and analyzed that in Zone III which consist of Bhatinda and Faridkot districts which are more prone to cotton crop failure, where farmers’ outstanding amount was highest among all the Zones i.e. **Rs 6,93,670** and farmers in this zone have been facing more problems than in the other zones. During our survey, while interacting with the farmers we also come to know about their dissatisfaction regarding soil quality and the problem of salinity, as the water level is also lower in this area so farmers have to use more tube wells and which leads to an increase in their cost of production. Punjab’s groundwater is already depleting at a

very fast rate and policies like free electricity and subsidies encourage farmers to go for monocropping. Zone III is also known as a cancerous zone as their water is having more uranium, all this lead to more dangerous and deadly diseases which makes them more and more indebted (Kumar and Kaur 2014). While in the other zones like in Zone II it was Rs 5,12,504, and in Zone I it was Rs 3,19,702 respectively as shown in the table below.

6.2.2 Magnitude of indebtedness: Category wise

Our category wise result shows that on aggregate basis our outstanding debt was Rs 5,40,759 per household in Punjab. The outstanding debt was highest in case farmers belonging to large category which is Rs 9,10,416 and in case of marginal farmer it was lowest that is Rs 2,36,299 as their repayment capacity was lesser. It clearly shows as the land size increases amount of outstanding debt also increases as shown in the tables below. If we make comparative study of three zones and category wise both, we found that in case of marginal farmers average outstanding debt is highest in Zone III and Lowest in Zone I as farmers are more literate as the literacy rate is around 85 % in Hoshiarpur (Census 2011) so the farmers in that zone take more debt from institutional sources. Similarly more debt is outstanding in Zone III in case of small, medium and semi medium farmers but in case of large farmers Zone III has lesser outstanding debt.

Table 6.1: Total Outstanding Debt Category and Zone wise both

(Average amount of debt per household)

Operational holding in Acres	Zone I	Zone II	Zone III	Total
less than 2.5	2,21,333	2,29,820	2,55,600	2,36,999
2.51 to 5	2,01,000	3,82,756	4,71,756	3,82,130
5.1 to 10	2,12,892	5,02,759	6,26,365	4,95,650
10.1 to 25	4,74,833	6,53,354	11,50,782	7,89,410
25 and above	9,06,500	11,02,666	6,24,000	9,10,416
Total Average	3,19,702	5,12,504	6,93,670	5,40,759

(Source: Author's Estimation)

Table 6.1 represents that total outstanding debt was highest in the third zone as it is a cotton belt and farmers have been facing more problems than other farmers. As the

water level is also lower in this area so farmers have to use more tube wells and it lead to rise in their production cost. Farmers in this zone were also not happy because of the problem of soil salinity and residual alkanity (Baweja et al., 2017) this area is also known as cancerous zone as their water is having more contaminated pollutants. Our category wise result was in line of other studies which shows that as the land size increases, amount of indebtedness also increases as the large farmer has more debt paying capacity as well as have more assets to mortgage. (Sajjad et al., 2016, Singh et al., 2014)

6.2.3 Severity of Debt Zone wise and Category wise

In this section we have tried to calculate severity of debt because it can easily tell us that how many farmers were under severe debt, and how they came under this peculiar situation, for this we have adopted a formula where we have calculated their disposable income after deducting all types of costs of production and household expenditures and then we have deducted their outstanding debt from their annual disposable income. If the amount is in negative it means their expenditures are too high and they will not be able to repay these debts with their current income, so either they have to generate extra income or they have to borrow more money, which means they will be under severe debt trap and has to borrow more money to repay their old debt.

Table 6.2: Severity of indebtedness among farmers

Severity of Debt	Total Number of indebted farmers	Percentage
1) Number of farmers who have more outstanding debt than their annual disposable income	269	53%
2) Number of farmers who have less outstanding debt than their annual disposable income	239	47%
Total	504	100

(Source: Author's Estimation)

Table 6.3: Severity of Indebtedness across Zones (in percent)

Zones	Total	Severely Indebted	Percentage
Zone I	84	30	36
Zone II	252	126	50
Zone III	168	113	67
Total	504	269	53

(Source: Author's Estimation)

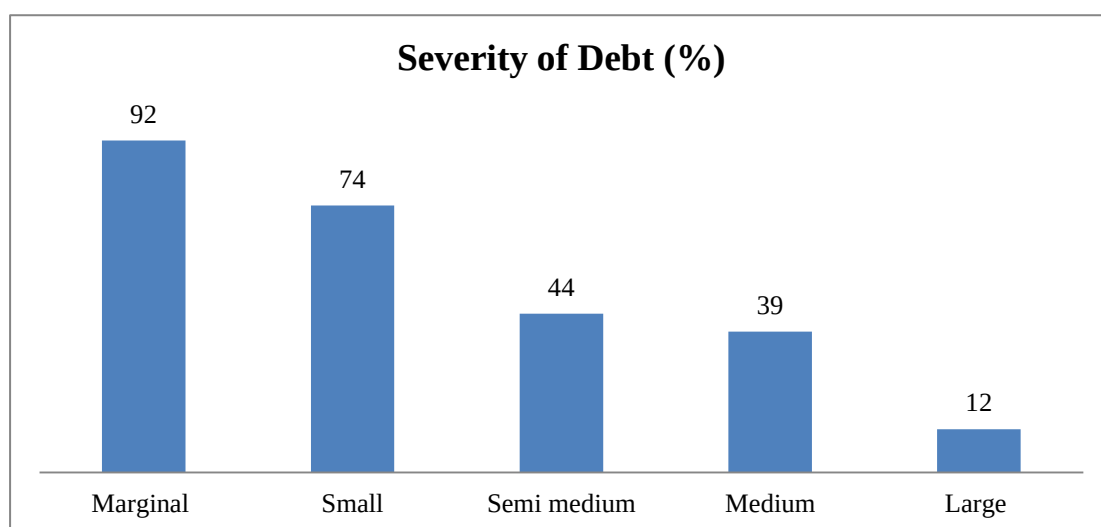
Table 6.4: Severity of Indebtedness across Sizes (in percent)

	Total	Severely indebted	Percentage
Marginal	72	66	92
Small	96	71	74
Semi medium	166	73	44
Medium	144	56	39
Large	24	3	12
Total	504	269	53

(Source: Author's Estimation)

In Table no 6.3 and 6.4 we have calculated severity of debt, where severity was measured category wise and zone wise respectively, when the peasants were not in the position of payback their loan because of this severity, in that case they have to take a fresh loan to repay their old loan or has to sell their assets and in our study 53 per cent of the indebted farmers were found to be in this critical situation. In case of marginal farmers 92 per cent of them were severely indebted, which clearly show that these farmers take more debt than their original assets and their annual income. This was the reason why the commercial banks have always avoided giving loan to marginal and small farmers.

Figure 6.1: Severity of Debt Category wise



(Source: Author's Estimation)

6.2.4 Frequency of outstanding Debt: Frequency of debt explained that how much amount of debt was outstanding on the farmers.

Table 6.5: Frequency of Outstanding Debt (in percent)

Amount outstanding (in Rs)	Per Cent age of farmers
0 to 2lakh	35
2.01lakh to 4lakh	20
4.01lakh to 6lakh	16
6.01lakh and above	29

(Source: Author's Estimation)

Table 6.6: Frequency of Debt according to Source (Absolute numbers)

Loan Amount taken	Arthiyas	Relative/ Friends	Commercial Banks	Cooperatives	Total
Up to 1lakh	74		29	133	236 (29.3)
1lakh-2lakh	75		53	29	157 (19.4)
2lakh -4lakh	70	1	156	6	233 (29)
4lakh-6lakh	29		40		69 (8.6)
6lakh-8lakh	9	1	20		30 (3.7)
8lakh-10lakh	15	1	28		44 (5.4)
10lakh and above	9		28		37 (4.6)
Total	281	3	354	168	806 (100)

(Source: Author's Estimation)

Table 6.7: Borrowing and Repayment

(Multiple responses)

Source of debt	Arhtiyas & Relatives and Friends	Commercial Banks	Cooperatives	Total
Repaid partially	280 (98)	350 (99)	118 (70)	748 (93)
Repaid interest only	158 (56)	155 (44)	96 (57)	409 (51)
Total loan taken	284	354	168	806

(Source: Author's Estimation)

Table 6.6 shows frequency of loan taken by how many farmers, as approximately 49 per cent of indebted farmers have borrowed up to 2 lakh and 78 per cent farmers take loan up to 4 lakh. It clearly shows that most of the farmers take lesser amount of loan as they borrow money for their daily requirements. This table also represent that nearly two third of the farmers have taken loan from formal sources and one third from informal sources.

6.2.5 Trends of Farmer suicide in India

As the farmers are not in the position to repay their loan, so they have to take loan from informal sources as these sources are more convenient and easily approachable. So the farmers are struck in the debt trap and agrarian distress is no longer good for them and their situation became more miserable than before. When the farmers are not able to payback their debt, then they took this dreaded step to end their life. Some state like Andhra Pradesh and Maharashtra are center point of this problem. So to analyze the problem of famer suicide we have discussed this issue in the following topic.

Table 6.8: Trends of Farmer Suicides in India

Year	Total number of Suicides	Suicides by farmers and agricultural laborers	Percentage
2010	1,34,599	15,963	11.86
2011	1,35,585	14,207	10.48
2012	1,35,445	13,755	10.16
2013	1,34,739	11,772	8.74
2014	1,31,666	12,360	9.39
2015	1,33,623	12,602	9.43
2018	1,34,516	10,349	7.7
2019	1,39,123	10,281	7.4
2020	1,53,052	10,677	7.0

(Source: National Crime Records Bureau 2021, Government of India)

According to the NCRB data for the year 2020, nearly 7 percent of the total suicides belong to farmers and rural laborers and these farmers are those who have more or less stressed because of falling productivity and declining profits. Although the percentage share of farmer suicides has declined marginally in India from 2014 to 2020 states like Maharashtra continue to have the most number of reported suicide cases. Agrarian distress is critical in nature as the farmers are reeling under pressure and they are not able to survive this situation. Increasing Indebtedness, Crop failure, loss of livelihood and farmer suicide indicate the multidimensional nature of agrarian distress where loan waiver is only a short-term measure and as the tiny farmers having lesser land in the country getting a rough deal regarding the farm loan waivers, the NABARD is also looking to create a farmer distress index (FDI) with the aim of finding out and locating the real distressed and needy farmers in India.

As the loan waivers are more political as most of the needy farmers are not able to get the desired help and the people actually remain distressed for longer duration of time. According to the study, this index will not be the same across the nation and will be changing according to the stress levels. The distress levels of the farmers will be checked by this index and will include high-frequency data like climatic conditions.

Marketing conditions, the debt burden on the farmers, the productivity of the soil, area under irrigation etc. Then after checking all the results of the farmer distress index, Government will decide how much support should be given to the farmers according to their stress levels. If all things go correct, then this index will definitely be helpful to the policymakers and Government who can use this index to identify the magnitude of rural distress. Even the precious lives of the farmers can be saved with this stress index by locating the farmers and giving them the much-required monetary and psychological help.

When a question has been asked to the respondent farmers if there is any death because of suicide in their family or the near ones than only 8 farmers said yes and when the cause or reason of suicide has been asked than most of the farmers said it is due to heavy debt as well as mental stress. Even family problems and disputes play very important role in the indebted farmer's suicide. When suggestions have been taken to solve this problem than most of the farmers suggest that the government should start giving counseling to the targeted farmers and give them the much-needed help they require. Their income level should also be increased by improving their productivity and adequately increasing the Minimum support price of the Rabi and Kharif crops.

Table 6.9: Death Due to suicide

Death Due to suicide	
Yes	No
8	496

(Source: Author's Estimation)

Farm loan waiver is a fiscal burden and falls in the category of public policy decision. Agriculture is a state subject so the problem of agrarian distress and loan waiver need to be addressed at the state level. The first important program on the farm waivers was the Agricultural Debt Waiver and Debt Relief Scheme, 2008, which covered short-term loans and overdue installments of term loans outstanding to public sector banks and RRBs as of 2nd Oct 1989. The relief amount under the program was Rs 1000 per farmer regardless of the size of their landholding. But the Debt relief scheme in 2008

was broader in its coverage as it includes scheduled commercial banks, Regional Rural banks, cooperative credit institutions and local area banks. The program waived outstanding agricultural loans taken from March 1997 to 31st March 2007. The scheme provided higher relief for small and marginal farmers as they received a full loan waiver while other categories received a 25 percent waiver on payment of the remaining 75 percent amount. From an overall perspective, this scheme of debt waivers helps the beneficiary by enabling and empowering them to invest in productive activities and boost their standard of living.

As per the latest State level bankers committee Report the total institutional debt on Punjab farmers increased to Rs 77,753 crore as on June 2021 which was 74,878 crore when the Loan waiver scheme was launched by Punjab Government. This shows although the state government is boasting about waiving farm loans worth Rs 4624 crore of 5.64 lakh farmers but in reality there were total 17.30 lakh farmers in Punjab who had taken loan from institutional sources but out of it only 5.64 were found to be eligible had a loan amount less than Rs 2 lakh and have less than 5 acre land holding (The Tribune Sep 9, 2021) lack ness of financial awareness has affected the growth and progress of agriculture financial institutions. The research study proves that the debt waivers somehow reduce household debt, but it was not able to open new avenues of investment opportunities. The study concluded that beneficiaries of debt waivers use the amount on unproductive expenditure rather than on enhancing crop productivity.

6.3 Loan waiver in Punjab

In India, farmers are mostly taking short-term credit and most often than not they are unable to pay back the loan amount and arrears keep on accumulating. The feature of the loan waivers initiated by state governments was that there is a greater focus on cooperative credit institutions and the most programs covered short term crop loans. Thanks to the Green Revolution, India was able to attain food security, with certain states experiencing remarkable advancements in productivity during that period. However, productivity growth was not uniform across all states and regions in the country. In the reform era of 1990, the agricultural situation deteriorated, resulting in

a decline in agricultural productivity. The situation in Punjab was also deteriorated as the farmers here were mostly engaged in the commercialization of agriculture. They take higher loans to invest in the modern technique. Stagnation in agricultural production has increased the overdependence of farmers on borrowing to meet the increasing cost of production and decreasing returns have increased the indebtedness of farmers in the state.

The situation of agrarian distress and rising numbers of farmer suicide forced the State Government to announce the “Farm Debt Waiver Scheme” for marginal and small farmers in 2017. Those marginal farmers will be eligible for debt relief who have total outstanding liability of up to Rs 2 lakh was to be provided Debt Relief by different institutions like Cooperative credit institutions, commercial banks and RRBs. According to the latest Economic survey, total of 5,63,198 farmers were benefitted from this scheme until January 2022. The Punjab Agricultural University study conducted by (Kumar et al., 2020) revealed that due to loan waiver in Punjab, the farmers can repay the higher amount of informal loan also. There was a reduction in level of indebtedness due to this scheme.

The benefit of loan waiver scheme was also extended to the landless laborers in Punjab as the Congress Government had announced to waive off the debt taken by 2.85 lakh landless laborers, who have taken loans from Primary Agricultural cooperative societies. It proves that only small percentages of farmers’ loan were waived off by the Government as our data also showed that only 4 percent of the sampled farmers’ loan was waived off. The various loan waivers schemes most of the time proved to be fruitful to the landless farmers as they do not have enough income sources and need help in any type of negative circumstances.

Our interaction with the indebted farmers proved that loan waiver benefit was mostly taken by the medium and semi medium farmers who were able to get the benefit from the government. They have used their links and friendship to get their names in the beneficiary list. The table below shows that nearly 22 person have taken the benefit of this scheme.

Table 6.10: Loan waivers taken Category wise

Categories	Number
Marginal	4
Small	4
Semi Medium	6
Medium	6
Large	2
Total	22

(Source: Author's Estimation)

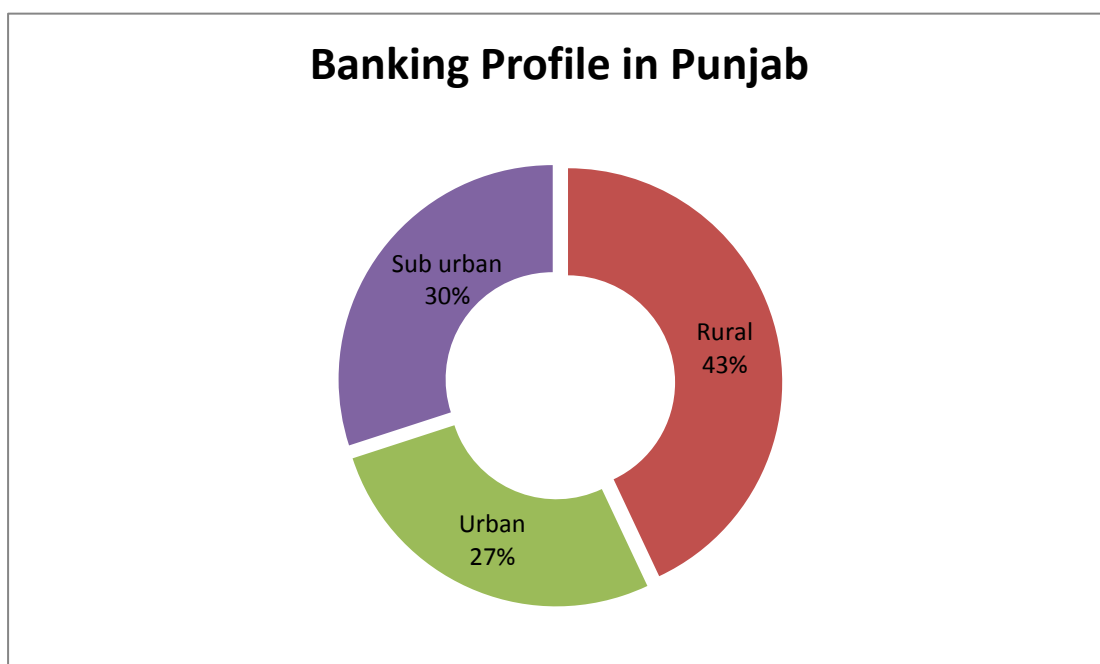
The issue of small and marginal has been highlighted by (Banik 2018) whose study showed that depleted agriculturists are not the actual beneficiaries of loan waivers as this has been used to take the political mileage by the state Governments. The insufficient knowledge and understanding of financial matters have had an adverse effect on the expansion and advancement of agricultural financial markets. The studies suggest that small farmers mostly used loan waiver amount for making unproductive expenditure rather than using it to enhance farm productivity.

The waiving off loans can affect both borrowers and bank behaviors because repeated waive offs encourage farmers for voluntary default as part of expectations of more loan waivers. As most of the farmers intentionally and willfully don't want to repay their current outstanding loans as the state government most often are expected to announce Debt waivers at the time of Elections to get political mileage. This may make banks and financial institutions more jittery and conservative in terms of credit allocations. This was aptly proved by the latest SBI research report Published in Business standard (July 17th,2022) that explained that only 50 Percent of the indebted farmers were got the benefit of loan waivers since 2014 and the marginal and small farmers were the most neglected one. Even the scheme started by Punjab Government benefitted only 5.64 lakh farmers (33%) out of total 17.30 lakh farmers recently. It strongly criticizes the farm loan waiver schemes as it do not distributed the benefits to small and marginal farmers and strongly advocated that farmers should get enhanced MSP of their products as it definitely increase their income positively.

6.4 Problems and challenges faced by the farmers in borrowing from institutional loans

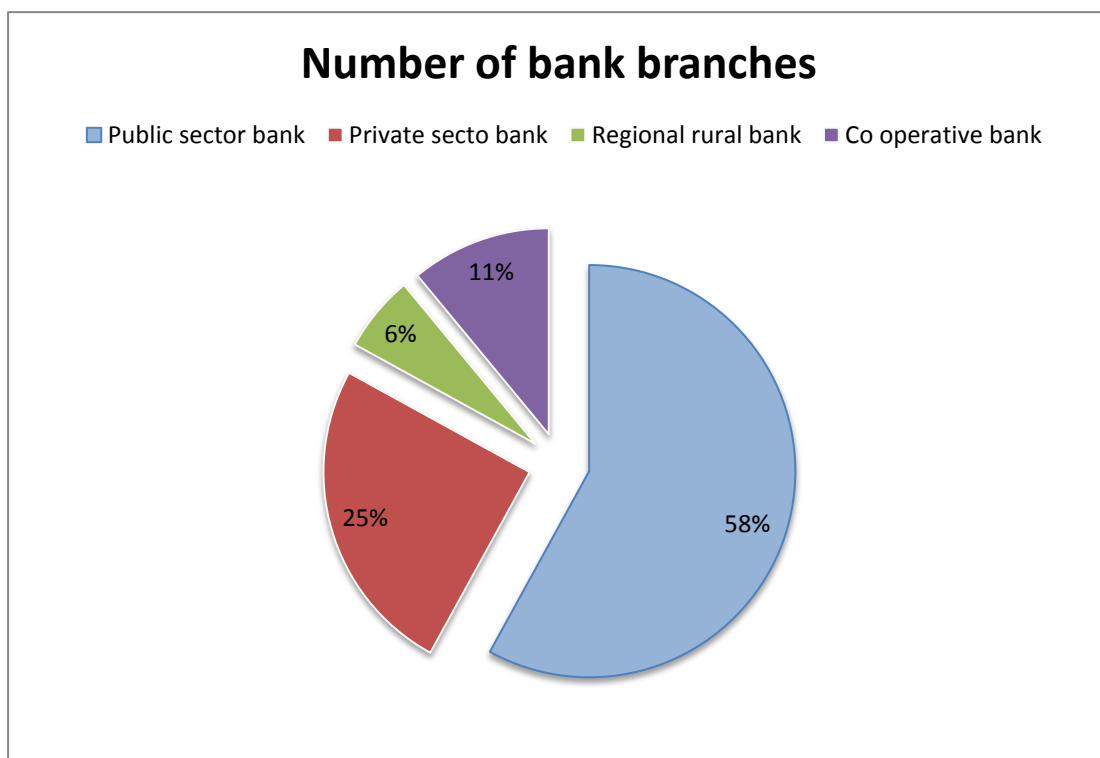
The Financial sector may prove to be beneficial to the overall growth of an Economy. Rural finance and rural financial institutions also play a vital role in the development of the rural sector. According to the Economic survey of Punjab 2021-22, as on Dec. 2021, Punjab has 12 public sector banks, 20 private sector and 7 small finance banks, 1 Regional Rural Bank and 1 cooperative bank with a total of 7346 branches and Rural area has 43 percent of bank branches as shown in figure 6.2 below. The state boast of having the highest numbers of commercial bank branches for the dispersal of rural credit among the selected states. Public sector bank branches constitute 58 per cent (4259 branches) of total branches with 1564 branches in rural areas (Economic Survey of Punjab 2021-22). All these factors represent that Punjab which has been instrumental in achieving and attaining the objective of the Green Revolution. Punjab farmers after the advent of the agricultural revolution needed more credit so that they can employ the modern technology and use more and more natural resources. People in Punjab are more aware of the availability of rural credit and the loan facilities provided by banking institutions. As more bank branches are catering to the need of villagers than more and more credit has been taken.

Figure 6.2: Distribution of bank branches by region and category in Punjab



(Source: Reserve Bank of India)

Figure 6.3: Number of bank branches in Punjab (%)



(Source: Reserve Bank of India)

According to department of finance there are 20 lakh PM-Kisan beneficiaries in Punjab. As against this, banks are having about 21.34 lakh KCC accounts and they were able to collect about 3.99 lakh applications for KCC and sanctions about 1.66 lakh KCCs. There is dire need to stream line the procedures related with the loans and advances.

There are various problems which are restricting the farmers in getting institutional loans, it's not easy to get loans from these agencies, so different problems have been faced by the indebted farmers, who then recorded their response on likert scale of 5. Then result obtained from them has been compiled and represented in the tables below.

Table 6.11: Farmers Perceptions regarding Difficulty in getting institutional Loans

(Responses in Percentage)

Constraints	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
No Loan without Security	91	9	-	-	-
Time Consuming & Complicated	33	65	2	-	-
Lack of Financial Literacy	38	61	1	-	-
High Transaction Costs	12	67	1	-	-
More Paper Work	52	47	1	-	-
Bribery to middlemen	3	47	45	5	-
Non availability of bank officials	-	2	45	33	-
Sometimes Unapproachable	-	3	40	57	-

(Source: Author's Estimation)

In table 6.11 when the question asked from the indebted farmers, if they were facing any problem in getting an institutional loan more than 91 per cent strongly agree that they do not get the **loan without security** and they have to pledge certain security especially their land for getting loan. Sometimes they have to give blank cheques also to the banks as security. Almost 98 per cent of the indebted farmers believe that institutional loans are hard to get because the loan procedure is **very time consuming and complicated**. But the response from large farmers was subdued as most of them believe that they get loan easily because of their goodwill.

Lack of financial literacy is important to avail easy loan but most of the farmers are either illiterate or have less financial knowledge. Although there are 71 financial literacy centers being run under the support of NABARD which promotes digital banking among students, women, senior citizens and others. Most of the small and marginal farmers believe that lack of financial knowledge is a big constraint for them as they are not able to understand the terms and conditions of debt easily and have to take the help of agents who charges some commission from them.

Sometimes there are some hidden charges called **transaction charges** or file charges which each and every borrower have to pay to the banks ranging from 1.25% to 2%. Agricultural loans up to 25000 are exempted from any type of processing fees and almost all the farmers either agree or strongly agree on this. Similarly most farmers believe that there is more **paperwork** and complications because of which farmers are forced to take the help of **middlemen** who charges commission or bribe depending on the amount of loan to be sanctioned.

Under the problems related with financial connectivity and financial inclusion, we got very contradictory result as most of the farmers believe that there is not much issue of **availability of bank officials** as they are easily available in the bank branches. Similarly as more and more bank and cooperative branches are opening in the rural areas under NABARD, so banks are easily available in the territory of 10 kms.

6.5 Reasons for taking loan from Non-Institutional Sources

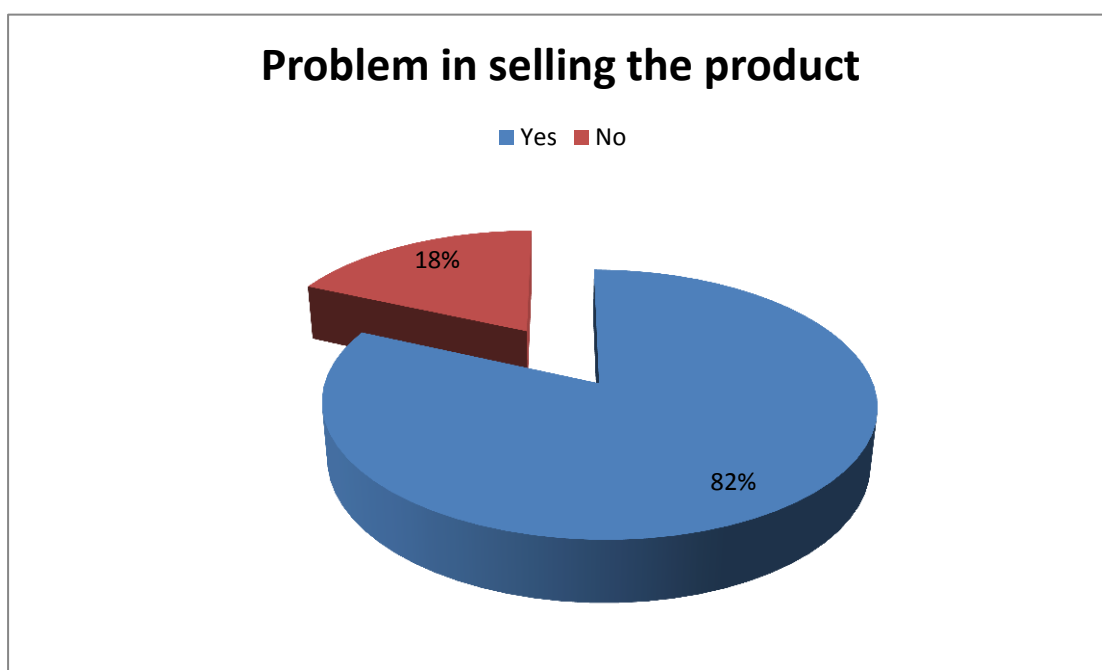
Although institutional loans are less costly and available at a low rate of interest because of several problems and restrictive approaches, most of the farmers prefer to get loan from informal sources such as Arhtiyas or commission agents as they are easily approachable and have easily accessible. Commission agents and Arhtiyas are preferred over institutional sources as these sources play a very significant part in the procurement of crops as they provide a platform for the farmers to unload their products and then provide them a different type of facilities so that they can easily sell their product and charges 2.5 per cent commission on the Minimum Support Price. The informal credit markets made things difficult for the farmer, which encourages the governments for making different laws. In the year 1901 the British government made the Land Alienation Act for restricting the non-agricultural classes from taking land from the farmers. The Co-operative Societies Act was also passed in 1904, to tackle the problem of rural indebtedness, but these acts were not enough to solve these problems. Some more laws and legislations were enacted in 1930s like the Punjab Regulations of Accounts Act 1930, the Punjab Relief of Indebtedness Act 1934, The Punjab Alienation of Land (Amendment) Act 1938, and the Punjab registration of Moneylenders Act 1938. The laws and regulations were implemented to supervise and manage the operations of moneylenders in the rural economy. However, despite the efforts of the British government, these measures were unable to protect farmers from falling prey to moneylenders, and the issue of rural indebtedness was steadily worsening (Singh 2006).

As there are 28000 registered commission agents known as Arhtiyas in Punjab, who are active in nearly 1858 mandies and provide suitable infrastructure to the farmers to easily sell their products. In the year 2021, there were 154 regulated agricultural markets in Punjab and 152 were principal markets and 284 were submarket yards. Beside this Punjab has 1390 rural private markets and 488 markets called Apni mandies, where farmers can sell their products directly to retail customers (Economic survey of Punjab 2021-22). According to the latest information 37 mandies are already linked to the platform. There were 2417 traders, 8700 commission agents/Arhtiyas and 2, 17,423 farmers of Punjab were registered under e-NAM as on 31st January 2022, (Economic survey of Punjab 2021-2022).

Almost 82 per cent indebted farmers have to face problems in selling their products in the market. Most of the farmers have the common problem that they are not getting adequate price of their product and think that MSP should be further increased by the Government. Almost one third of farmers have faced moisture problem or weighing problem as most of the time they have to wait for two to three days for their turn.

Figure 6.4: Problem in selling the product

(Percentage)



Some questions have been asked that why they prefer to go to non-institutional sources to borrow the loan. First question was if loan is available for all purposes than more than 88 per cent strongly agree to it because non-institutional sources give loan for all the purposes whether it's productive or unproductive but commercial banks do not provide money for other reasons such as social functions, medical emergencies and for other urgent requirements. In case of large farmers 100 per cent of them believe that these institutions give loan for all the purposes.

Table 6.12: Farmers perception towards preferring non-institutional sources

(Responses in Percentage)

Constraints	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Loan available for all purposes	88	11	1	-	-
Flexibility in repayment of loan	86	14	-	-	-
Less stringent collateral Conditions	33	65	2	-	-
No bar on amount of loan	19	64	3	14	-
Borrowing remain secret	1	70	19	10	-
Non availability of loan from institutional institutions	86	13	-	1	-

(Source: Author's Estimation)

Table 6.12 represents the farmer's perceptions towards preferring non-institutional sources as more than 88 per cent of farmers strongly believe that these sources give **loan for all the purposes** may it be productive or unproductive. Farmers also believe that they can easily repay their loans as there is no hard conditionality and there is **flexibility in the repayment of loan**. Most of the farmers are either strongly agree or agree that there are less stringent collateral conditions as there is easy accessibility of loans from Arthiyas and commission agents. Even there is **no bar on the magnitude of loan** being taken by the farmers from these sources as they want to provide loan to the maximum number of farmers. Most of the farmers believe that loan taken from them remain secret and sometimes their family members remain unaware of that. In the last when the question was asked that if non-availability of loan from formal sources forces them to move towards informal sources such as local moneylenders than almost everyone gave the answer in assertive, this represent that institutional

loans should be made more flexible and approachable to them so that they should not move towards non-institutional sources.

6.6 Summary and Conclusion

Rural credit was no doubt instrumental in helping farmers in most of the difficult times, but credit sometimes become cause of concern for the indebted farmers as their wants were unlimited and their resources were scarce. Hence if they use it for unproductive purposes, it becomes difficult for them to repay the loan and this amount multiplies very quickly and they come under a severe debt trap. In our study where we first analyzed Zone wise results and our study proved that in the third zone farmers were more indebted because they have to face difficult conditions for production. Here we have hypothesized that there is no significant impact of source of debt on indebtedness, but this null hypothesis has also been rejected as our study shows that the farmers who take debt from institutional sources, tend to repay the debt more frequently as they know that they will not be able to get the future loan if they become defaulters, but in case of non-institutional debt because of high lending rates they most of the times not able to repay the full amount and loan keep on compounding and for years remain idle and keep on mounting. Similarly, our category-wise result proved that as the land area increase the amount of debt also increase. Here we have hypothesized that there is no significant impact of indebtedness on the future borrowing of farmers. But our null hypothesis has been rejected because we found that Most of the indebted farmers were only been able to repay the interest amount only as they know that sooner or later loan waivers policy will be announced. Most of the farmers have to take more loans to repay their existing loans as there is mounting pressure on them to repay the existing debt. Most of the farmers believe that institutional sources prefer to give priority loans to the farmers, but sometimes they are not easily approachable and because of strict terms and conditions, farmers take the easy route and go towards informal sources like commission agents, Arhtiyas and local money lenders, If commercial banks and institutional sources should make the lending procedure easier for the borrowers, then perhaps more farmers take loan from them. Even the paperwork should be simple and banks should provide awareness to the farmers.

In Punjab cooperative banks on an average cover 1761 persons and commercial banks cover 11720 people. In the End we can conclude that farmers face various problems and challenges in getting institutional loans, but it's the lack of financial literacy which is the root cause of all the evils. Because of lack of knowledge and illiteracy the farmers are more prone to overburdened and abused by the middlemen and non-institutional sources. Even most of the farmers know that institutional sources are safer and credit worthy, but they still prefer an easy route and go towards the informal sources like money lenders and Arhtiyas, who first of all give them easy loan at exorbitant rate and later on tighten the screws when they are not able to repay the borrowed amount.

So the Government should make the institutional loans more approachable and easier to the farmers. Financial awareness and financial literacy is the key here as the banks as well as the other institutions should hold awareness camps among the rural people. Schemes related with them should be made accessible to them, so that the farmers should benefit from the lower rate of interest. The only problem being faced by the banks is the non-repayment of borrowed amount as maximum number of the farmers intentionally don't pay the installments as they might be thinking of the other loan waiver by the state Government, hence this thinking need to be changed. NABARD was also working on the stress index which may prove fruitful for the distressed and severely indebted farmers, who will then get the desired monetary help from the Government. Loan waivers should be made more judicious and efficient so that it should not go waste and the needy and poor farmers should get the desired help to come out of the situation of severe debt trap.

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CHAPTER-VII

FACTORS RESPONSIBLE FOR RURAL INDEBTEDNESS AMONG FARMERS OF PUNJAB

Indian agriculture was in distress and this sector was not able to give desired results that were being expected from this sector. Even the agricultural transition was slow in India and one of the important indicators was workers employed in agriculture and agro-based industries (Byres 2003). There has been decline in the proportion of workers employed in agriculture, in 1980 from 70 percent to 45.6 percent in 2019-20 (PLFS 2021). The importance of agriculture has declined recently as it was not able to supply cheap raw material, capital to industry and food and feed for the masses. The existence of agrarian crisis and falling productivity in Indian agriculture lead to its worse situation than before.

The primary sector of the nation agriculture has experienced a significant transformation during the New Economic Policy, where farmers started to produce commercial crops which resulted in concentration of land and the division of small farming (Haque, 1996). The current situation of the agrarian crisis pushed the farmers into deep trouble. As the productivity and profitability was declining, the marginal and small farmers who consist of nearly 86 percent (Economic Survey of India 2021) of the total farmers are unable to make both ends meet. They have to borrow money for meeting productive as well as unproductive demand and needs. They were taking debt from institutional and non-institutional sources. As the institutional or formal loans are not easy to avail so they have to move towards informal sources like money lenders, Arhtiyas, shahukars etc. who although easy to access but still charges a very high rate of interest.

Rural households take debt for their present needs and as their needs increased the incidence and magnitude of debt also increased. After a few years their debts piled up and they were not able to repay even its rate of interest. In this chapter, those factors will be discussed which influence the farmers' decision to take more and more debt and pushes them to agrarian distress, which after some time leads to farmer suicide. Our main focus in the present chapter was to identify those factors which make households indebted in rural India. Even natural and economic factors were responsible for the crisis as some of these factors are uncontrollable.

Some of the past studies were analysed in three agro-climatic zones of Punjab to discuss indebtedness and factors affecting indebtedness. According to Singh and Toor (2005) and Singh et al., (2014), there are several socio-economic factors that influenced farmers' decision to take debt. The factors influencing indebtedness include literacy level, land area, non-farm income, high renovation expenditure etc. were identified during studies. According to Sidhu and Gill (2006) proportion of indebted farmers is highest in agricultural advanced states like Punjab, Haryana, Karnataka, Maharashtra and Andhra Pradesh and Crop failure and natural calamities are the main cause of the high level of indebtedness. According to him and Nagaraj (2008) Litigation and family disputes like divorce also unsettle the mental peace of the farmers which take more debt to come out of the distressed situation, which then accelerates and leads to a severe debt trap for them.

Assadi M (2006) has discussed the relationship between agrarian crisis and farmer's suicide and concluded that there are various factors affecting or causing farmers' distress which end up in farmer suicide. Globalization and commercialization of crops also pushed them in to this crisis. Satish P (2006) concluded in his study that the largest proportions of farmers (36.10 per cent) were indebted because of excessive expenditure on household consumption and social functions. Costlier farm inputs and frequent crop failure were other two main causes of farmers' indebtedness. Studies like Padmaja and Ali (2019), Datta et al., (2018), and Pandey et al., (2018) have witnessed that various factors like High Medical expenditure, uncertainty, increasing cost of inputs, lack of credit availability and land holding size were other major variables which affect the indebtedness and its nature. Studies like Singh et al., (2008), Sajjad et al., (2016), Assadi M (2006) has also concluded that rising input cost and falling profitability has influenced the level of indebtedness significantly. Some of the studies concluded that some of the individual characteristics such as age, literacy level and gender have positive relationship with indebtedness.

Kaur (2012) conducted a study at all India level to examine the indebtedness and the factors responsible for it. The study used Logit and Probit model to identify the factors and that compelled a household to be indebted. Dandekar and bhattacharya (2017) has conducted their study in Maharashtra and Punjab districts where number of

farmer suicide was really high.. Singh L et al., (2020) conducted their study on agrarian distress and its causes and concluded that agrarian distress and stressful behavior has come out of several social, economic and psychological factors. Other factors which lead to agrarian distress and farmer's suicide are failure of crops, constantly falling price of their farm product and unavailability of quality inputs which ultimately led them to debt trap and later farmer suicide. There were various other factors that cause distress for the farmers like shame of debt, flawed cropping pattern, rising input costs and falling profitability are the key and important factors. According to Petrov (2021) during the first two decades of 21st century there was much impact of certain behavioral factors on the level of indebtedness, such as financial imprudence, financial literacy and the inability to manage family budget. Several factors taken from the past studies have been included in our study to check which are the most influential factors affecting indebtedness.

To discuss the factors affecting indebtedness among indebted farmers we have used the Research methodology mentioned in the third chapter especially under topic 3.5 onwards and required information has been attained with the help of questionnaire.

We have prepared a questionnaire which was pre tested and then after all the amendments and suggestions we have prepared a final questionnaire. Then this questionnaire work as an instrument to get the desired information regarding the factors which can affect indebtedness, as some of the farmers got 90 percent acceptance about some factors which definitely influence the indebtedness. We have asked the respondents questions on likert scale of five and analyzed the data afterwards.

Farmers or rural people mostly take loans from institutional as well as from non-institutional sources for their daily chores. Loans taken for various purposes were often used for unproductive purposes like spending money on marriages and religious functions and on the show-off. This spending makes the person indebted forever as he was not able to return the said amount. Small and marginal farmers who remain in severe poverty, have to take loan not only for purchasing the inputs and seeds for their production, but also have to take loan for unwanted diseases and medical expenditures. Some farmers who have a good piece of land prefer to send their

children in English medium schools which charge heavy fees leading to rising educational expenditure. Even the demonstration effect plays a very impressive role in rural areas, as the farmers want to imitate others to maintain their standard of living at par with the other farmers. From taking hint from various studies and an intense literature review we have selected some important factors in our study and asked from the farmers if they think these factors affect their Incidence of indebtedness.

7.1 Factors affecting indebtedness

These factors were rising consumption expenditure which includes day-to-day expenditure, which increases due to inflation. Crop failure also plays a very important role as the farmers mostly face natural calamities like drought and floods. Sometime due to low land holding size also farmers have to take loan for purchasing inputs which are mostly costlier but due to urgency they have to purchase those inputs. This was the cause as the farmers cost of production was increasing due to the rise in the input cost of raw material and diesel. As their costs of production increase their profitability decline, which most of the time pushed farmers into deep distress.

Litigation and family disputes like Divorce, bad family relations and rising medical expenditures also pressurize farmers and they have to take more loans to cover these expenses. Some interesting factor has been included in the study like Demonstration and lack of financial literacy as because of these causes farmers tend to consume unproductive goods, which increases their expenditure many folds and because of lack of financial awareness, they end up taking more loans than before. Exploitation by the commission agents and Arhtiyas also pushed the famers into deep distress. But because they mostly charge high rate of interest between 18 to 24 percent, and because of this farmers were not able to repay them easily and remain indebted forever. Unproductive expenditures like expenditure on social and religious ceremonies and increasing expenditure on show off lead the farmer to take more and more loans than before. All these factors and determinants were included in the study from our literature survey and our field study so that we can easily identify that which were the factors that impact the farmers' thinking to take more and more debt.

- Factor I : **Rising Consumer Expenditure** (Nagaraj 2008, Singh 2006 and Singh et al., 2008)
- Factor II : **Hereditary Debt**
- Factor III : **Crop Failure** (Dandekar & Bhattacharya 2017, Singh et al., 2008)
- Factor IV : **Low land Holding Size** (Singh et al., 2014)
- Factor V : **Rising Medical Expenditure** (Singh et al., 2008, Nagaraj 2008, Singh 2006)
- Factor VI : **Weak Government Policies**
- Factor VII : **Rising Educational Expenditure** (Singh et al., 2008)
- Factor VIII : **Litigation and Family disputes** (Gill & Singh 2006, Nagaraj 2008)
- Factor IX : **Rising Input cost and low profitability** (Gill & Singh 2006, Assadi M 2006, Singh et al., 2008, Sajjad et al., 2016, Dandekar & Bhattacharya 2017)
- Factor X : **Increased use of Alcohol and Intoxicants** (Gill & Singh 2006, Nagaraj 2008)
- Factor XI : **Demonstration leads to Indebtedness**
- Factor XII : **Lack of Financial literacy leads to indebtedness** (Rahman et al., 2020)
- Factor XIII : **Exploitation by Commission Agents** (Gill & Singh 2006)
- Factor XIV : **Using Loan for Unproductive Expenditure** (Kaur 2012)

7.2 Result analysis - Chi Square Test

There were various factors which directly or indirectly affect the farmers' decision to take loan or not, these factors also sometimes compel farmers to take more and more debt for agriculture as well as for fulfilling their day to day needs. We have used likert scale test which was psychometric scale and try to assume that the strength and intensity of the attitude was linear. We have asked these questions at scale of five that is strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5). We have used Chi Square test to see significance level and strength of these factors if they can affect indebtedness or not.

Table 7.1: Factor 1 Rising Consumer Expenditure

Rising Consumer Expenditure	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Disagree	5	0.99	5	0.99	Chi-Square	701.6190
Neutral	27	5.36	32	6.35	DF	3
Agree	95	18.85	127	25.20	Pr > ChiSq	<.0001
Strongly Agree	377	74.80	504	100.00		

(F= Frequency, CF= Cumulative Frequency, %= per centage in all the table)

The result show it was significant at 1 per cent level, as it show that rising consumer expenditure because of inflation and increasing demand of the farmers and their family members lead to indebtedness. Here we have founded that nearly 94 per cent of the farmers answered that they either agree or strongly agree that rising consumption expenditure led to farmer indebtedness. As their demands were rising and they use to spend on these lavishly, more than or not lead to indebtedness. Most of the studies like (Nagaraj 2008, Singh 2006 and Singh et al., 2008) also concluded that farmers demand and needs are regularly increasing and hence they will have to look for other sources of expenditure.

Table 7.2: Factor 2 Hereditary Debt

Hereditary Debt	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Disagree	25	4.96	25	4.96	Chi-Square	381.2857
Neutral	255	50.60	280	55.56	DF	3
Agree	214	42.46	494	98.02	Pr > ChiSq	<.0001
Strongly Agree	10	1.98	504	100.00		

The result shows that it was significant, showing that hereditary debt lead to further increase in indebtedness as some time the farmers have to take fresh loan to repay the previous loans. As the farmers were indebted from so many years they more often than not pass their debt on their younger generations. Even the historical study done

by Darling (1925) very rightly concluded that “Indian farmer born in debt lives in debt and ultimately dies also in debt.” So role of hereditary debt has been clearly mentioned in this quotation. But in our result nearly half of the indebted farmers were neutral on this that they were not sure if hereditary debt impacts the indebtedness or not.

Table 7.3: Factor 3 Crop Failure

Crop Failure	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Disagree	1	0.20	1	0.20	Chi-Square	535.7619
Neutral	10	1.98	11	2.18	DF	3
Agree	178	35.32	189	37.50	Pr > ChiSq	<.0001
Strongly Agree	315	62.50	504	100.00		

The result of this table represent that it was significant that crop failure due to various natural and unnatural reason lead to deterioration in Economic condition of the farmers which lead to Indebtedness. Some of the natural calamities like draught and floods are the regular feature of Indian agriculture, so it's more often than not leads to agrarian crisis. Crop failure has been the most common factor behind indebtedness (Dandekar & Bhattacharya 2017, Singh et al., 2008) as the most of the economists and researchers. As nearly 98 per cent of sampled farmers believe that as the agriculture sector mostly dependent on natural factors, so most of the time these factors play negative role and increase indebtedness a lot.

Table 7.4: Factor 4 Low land holding size

Low land holding size	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Strongly Disagree	2	0.40	2	0.40	Chi-Square	710.7817
Disagree	11	2.18	13	2.58	DF	4
Neutral	25	4.96	38	7.54	Pr > ChiSq	<.0001
Agree	314	62.30	352	69.84		
Strongly Agree	152	30.16	504	100.00		

Indian agriculture and land was more scattered and divided in to smaller parts, even the law of inheritance play major role in the life of the farmer. As land holding was small, indebted farmers were not able to use ultra-modern technique and their productivity remain low hence lead to more debt than before (Singh et al., 2014).The Result of this table represents that it was significant as 92 per cent farmers believe that low land holding size leads to fragmentations which further leads to indebtedness.

Table 7.5: Factor 5 Rising medical expenditure

Rising Medical Expenditure	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Disagree	1	0.20	1	0.20	Chi-Square	603.2222
Neutral	25	4.96	26	5.16	DF	3
Agree	350	69.44	376	74.60	Pr > ChiSq	<.0001
Strongly Agree	128	25.40	504	100.00		

The Result of this table represent that it was significant and rising medical expenditure makes the farmers indebted as they were not able to meet their cost of Treatment. As there were new diseases and some areas were known as cancerous zone, hence cost on medical treatment was increasing day by day and leading farmers to take more debt for the treatment (Singh et al., 2008, Nagaraj 2008, Singh 2006). Our result shows that nearly 94 per cent believe that this factor surely impact the indebtedness

Table 7.6: Factor 6 Weak Government Policies

Weak Government policies	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Neutral	20	3.97	20	3.97	Chi-Square	197.9048
Agree	228	45.24	248	49.21	DF	2
Strongly Agree	256	50.79	504	100.00	Pr > ChiSq	<.0001

The Result of this table show that it was significant as Weak government policies lead to distress in the life of the farmers as this finally led to indebtedness. Some-time the policies made by the government were not accepted by the farmers as these policies were not discussed first with the stakeholders like other policies. Stakeholders should be taken under confidence before implementing the policies if possible.

Table 7.7: Factor 7 Rising Educational Expenditure

Rising Educational Expenditure	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Disagree	15	2.98	15	2.98	Chi-Square	320.1111
Neutral	67	13.29	82	16.27	DF	3
Agree	282	55.95	364	72.22	Pr > ChiSq	<.0001
Strongly Agree	140	27.78	504	100.00		

Result of this table shows that it was significant as Rising Educational Expenditure also lead to indebtedness as farmers have to borrow more for sending their children abroad for quality education. As most of the students were coming from villages and heading towards abroad after passing IELTS exam, their parents especially farmers have to take more debt to send their children abroad. As the education was becoming costlier, farmers have to spend heavily on this (Singh et al., 2008). Most of the farmers believe that they have to send their children in English medium school who charges hefty fees and other charges also. Our result shows that nearly 83 per cent farmers believe that this factor also lead them to take more debt than before.

Table 7.8: Factor 8 Litigation or Family dispute

Litigation or family disputes	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Disagree	59	11.71	59	11.71	Chi-Square	351.3175
Neutral	277	54.96	336	66.67	DF	3
Agree	166	32.94	502	99.60	Pr > ChiSq	<.0001
Strongly Agree	2	0.40	504	100.00		

The result of this table represent that it was also significant as litigation need lot of money and farmers mostly have their cases under courts which lead them to borrow money from various sources and lead to indebtedness. It was but oblivious that farmers can do or die for their land and land disputes were common in villages, hence it become fashion that most of the farmers in Punjab has litigation or family disputes (Gill & Singh 2006, Nagaraj 2008). This table represent that most of the farmers believe that litigation or family dispute were not sure to impact indebtedness.

Table 7.9: Factor 9 Rising input cost & low profitability

Rising input cost and low Profitability	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Agree	137	27.18	137	27.18	Chi-Square	104.9603
Strongly Agree	367	72.82	504	100.00	DF	1
					Pr > ChiSq	<.0001

The result of this table represent that it was significant and it show that Rising input cost of production definitely lead to indebtedness as this was the case now a days as farmers were not getting good profits. Their cost of production was cutting their profits which ultimately lead to more borrowing than before. As the prices of inputs like fertilizers, manures, seeds and irrigation equipments were heading northwards, it become difficult for the farmers to survive and that was why most of the farmers were quieting from agriculture (Gill & Singh 2006, Assadi M 2006, Singh et al., 2008, Sajjad et al., 2016, Dandekar & Bhattacharya 2017).

Table 7.10: Factor 10 Increased use of Alcohol & Intoxicants

Increased use of Alcohol	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Disagree	62	12.30	62	12.30	Chi-Square	381.5238
Neutral	302	59.92	364	72.22	DF	3
Agree	128	25.40	492	97.62	Pr > ChiSq	<.0001
Strongly Agree	12	2.38	504	100.00		

The Result of this table represent that at 1 per cent it was significant and shows that even increasing use of alcohol and intoxicants leads to indebtedness. As most of the farmers were neutral that they were not sure that consuming alcohol and intoxicants can impact indebtedness.

Table 7.11: Factor 11 Demonstration leads to indebtedness

Demonstration leads to indebtedness	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Neutral	7	1.39	7	1.39	Chi-Square	253.9643
Agree	292	57.94	299	59.33	DF	2
Strongly Agree	205	40.67	504	100.00	Pr > ChiSq	<.0001

This table shows that our value was significant, representing that demonstration lead to more demand and farmers spend higher level of Expenditure which ultimately leads to indebtedness. Demonstration was more prevalent in the villages as small and medium farmers mostly try to imitate their neighbors and purchase luxuries by spending too much on expensive two or four wheelers. The current example observed in our study that most of the young farmers mostly modify their tractors and prefer to drive on roads rather than in the fields. As our survey shows that nearly 98 per cent farmers believe that demonstration surely leads to indebtedness.

Table 7.12: Factor 12 lack of financial literacy

Lack of financial literacy	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Disagree	3	0.60	3	0.60	Chi-Square	531.9206
Neutral	7	1.39	10	1.98	DF	3
Agree	312	61.90	322	63.89	Pr > ChiSq	<.0001
Strongly Agree	182	36.11	504	100.00		

This table represent that the value was significant, hence shows that if farmers did not have enough financial knowledge they will take more loan at higher rate of interest, which later on lead to indebtedness. Most of the time farmers (98 per cent) were trapped under debt because of lack of financial awareness (Rahman et al., 2020).

Table 7.13: Factor 13 Exploitation by commission agents

Exploitation by Commission agent	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Disagree	150	29.76	150	29.76	Chi-Square	94.3968
Neutral	79	15.67	229	45.44	DF	3
Agree	204	40.48	433	85.91	Pr > ChiSq	<.0001
Strongly Agree	71	14.09	504	100.00		

This table shows that variable was significant as it depicts that even exploitation at the hands of Commission agents also lead to indebtedness. Lack of financial literacy pushed farmers to take help from those commission agents who take 1 or 2 percent commission from them to clear the loan file (Gill & Singh 2006). Our survey result shows that nearly 55 percent of the farmers believe that some-times exploitation by commission agents leads to indebtedness. Overall farmers believe that commission agents are more or less part of their life as they can borrow money from them at any odd times

Table 7.14: Factor 14 Using loan for Unproductive Expenditure

Using loan unproductive expenditure	F	%	CF	Cumulative Percent	Chi-Square Test for Equal Proportions	
Neutral	6	1.19	6	1.19	Chi-Square	594.7500
Agree	75	14.88	81	16.07	DF	2
Strongly Agree	423	83.93	504	100.00	Pr > ChiSq	<.0001

This table analyses that here in this table variable was significant, and strongly accept that mostly farmers spend their money on unproductive activities like consumption on luxury activities and showing off leads to more borrowing and indebtedness (Kaur 2012). Our survey result represent that nearly 98 per cent of the farmers believe that farmers mostly use loan for unproductive activities which lead to indebtedness.

Our survey finally inferences that factors like Rising consumer expenditure, Crop failure, Low landholding size, Rising medical Expenditure, Weak Government policies, Rising educational expenditure, Rising input cost and low profitability, Demonstration, Lack of financial literacy, Exploitation by commission agent and Using loan for unproductive expenditure are significant and positively affect the level of indebtedness. But factors like hereditary debt, litigation and family dispute and increased use of alcohol and intoxicants does not impact the level of indebtedness according to the farmers. Hence out of 14 factors only 3 factors found to be not impacting the indebtedness much.

7.3 Results Analysis -Multiple Regression

As we have discussed rural indebtedness in our previous chapters and also discussed its extent, nature and magnitude. There were various factors or determinants which also impact the farmer's decision to take more and more debt. These factors sometimes compel farmers to take greater amount of debt and use it for their day-to-day needs as well. There are several socio-economic and demographic factors which play important role in influencing farmers' decision to take debt. Once the debt was

taken and not easily repaid then it keeps on mounting, making the farmer indebted. Some of these factors were so powerful that they make sure that farmers remain indebted forever. As we have identified 14 factors from our literature survey and field study, which more or less impacted the level of indebtedness. Almost each of the respondents believe that rising consumer expenditure due to inflation, making their disposable income shrink and forcing them to take debt as they are not able to make their both end meet with their meager income. Crop failure and low land holding size were the other factors which due to unpleasant weather resulted in lowering productivity and falling profitability. Several socio economic factors like rising medical and educational expenditure, litigation and family dispute and more use of alcohol make their problems worse as they have to spend heavily on these activities. Lack of awareness and financial literacy are the other factors which pushes the farmers to take loan from those informal sources who more often than not exploit them by charging high rate of interest. The demonstration effect has a major role in villages as the farmers spend heavily on luxuries and most of the time ends up in spending their borrowed money on unproductive expenditure, which makes their situation more critical. All these factors make their life difficult to live and they prefer to end their life if emotionally broken. So it was very important that these factors should be controlled accordingly and should be worked upon and farmers should be made aware of these factors. Some of these factors influence farmers' decision to take more and more debt as they were more or less inspired by these factors. Some factors like crop failure, increasing expenditure on unproductive expenditure, rising input cost of production and rising consumer expenditure was the most powerful factors which impact indebtedness the most.

7.4 Economic factors responsible for rural indebtedness

As our study focuses on to find various factors affecting indebtedness, we try to identify factors quantitatively also which force farmers to take higher debt. Various studies such as Singh and Toor (2005), Singh et al., (2014), Sajjad et al., (2016) and Kingra et al., (2018) has taken the same topic and to check relationship between factors and indebtedness used multiple regression analysis. For finding the relationship between various factors we have used a multiple log-linear regression

model to examine the impact of several independent variables on our dependent variable which is loan outstanding or indebtedness. The study has tried to measure the impact of several factors on rural indebtedness and we have used a multiple log linear regression model on our 504 observations, which is our sample size, we have used Spss software to find out our results.

A farmer in the Punjab state has been reeling under heavy debt recently due to the falling productivity of crops from time to time. Our research study mainly focused on to find various factors affecting rural indebtedness. We wanted to analyse the relationship between total outstanding loans which was known as indebtedness and with variables that were most likely expected to impact indebtedness. As most of the literature was surveyed which have tried to find out the relationship between indebtedness and various explanatory variables. The review of existing literature has revealed that most of the past studies used exploratory nature of research methodology. The studies like (Singh & Toor 2005; Singh et al.,2014; Singh et al., 2008; Kaur 2012; Sajjad et al., 2016; Pandey 2016;Padmaja and Ali 2019) and various other studies have mostly used descriptive tools as well as Regression models and its advanced techniques which fit their models. Some studies also used logit and Tobit models as well but on secondary data like NSSO data. As we have also used a multiple log-linear model with the assistance of statistical software SPSS to infer the results. We have taken nine different independent factors which might affect our dependent factor indebtedness. We have taken null and alternative hypotheses given below.

H0: There is no significant relationship between factors and outstanding loan

H1: There is significant relationship between factors and outstanding loan

In order to identify the Economic factors affecting indebtedness among farmers, multiple log linear regression model has been used on our 504 observations, which is our sample size and we have used SPSS software to find out the results.

$$\text{Log } Y = \log a + b_1 \log X_1 + \text{_____} b_n \log X_n + e$$

Y = Dependent variable

a = intercept

X_1 to X_n = independent variables

b_1 to b_n = Regression coefficients of X_1 to X_n

e = random error term

We have taken nine factors which might affect our indebtedness the most, these factors include operational cost of production which include all type of expenditures born by the indebted farmer, institutional and non-institutional loan amount were directly related with indebtedness as more loan amount leads to more indebtedness, total household expenditure which include all the expenditures like productive and non-productive expenditure (Datta et al., 2018) then we have taken income from other sources which may also affect indebtedness. The operational land area or farm size (Sidhu & Gill 2006; Singh et al., 2014) was also taken because it can also play very important role in determining indebtedness. Magnitude of farm machinery (Pandey 2016) like investment on farm equipments like tractors and irrigation equipments was also included in our model. Besides these we have also taken two dummy variables like combine dummy and loan taken from formal sources.

Table 7.15: Descriptive Results

	Mean	Std. Deviation
Total outstanding loan	12.67	1.10
Operational cost per Acre	10.25	.27
Institutional loan	10.80	4.41
Non institutional loan	6.62	6.18
Total HH expenditure	11.96	.57
Income from other sources	.85	2.82
Operational land Acres	1.99	.85
Combine	.008	.09
Magnitude of farm machinery	1.03	.44
Loan formal	.72	.45

(Source: Author's Estimation)

Table 7.16: Coefficients and Collinearity results

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
	Beta Value	Std. Error	Beta	t value		Tolerance	VIF
(Constant)	6.354	1.559		4.075	.000		
Operational cost per acre	.287	.137	.071	2.094	.037	.848	1.179
Institutional loan	.142	.011	.567	12.788	.000	.502	1.991
Non institutional loan	.066	.007	.368	9.161	.000	.612	1.633
Total HH expenditure	.084	.064	.043	1.309	.191	.910	1.098
Income from other sources	-.015	.013	-.037	-1.117	.265	.895	1.117
Operational land Acres	.266	.049	.205	5.391	.000	.683	1.464
Combine	.529	.399	.043	1.324	.186	.953	1.049
Magnitude of machinery	.184	.092	.073	1.992	.047	.742	1.348
Loan formal	-.415	.123	-.169	-3.379	.001	.395	2.534
Total sample (N)	504						

(Source: Author's Estimation)

(Note: Dependent variable is Total outstanding loan and other independent variables are known as Predictor variables Such as Operational cost per acre, Institutional and Non-institutional loan taken, Total Household Expenditure, income from other sources, Operational land in acres, combine, Magnitude of machinery and Formal Loan, B=Intercept values, t=t value, VIF=Variance inflation factor to check multi-collinearity)

Table 7.17: Model Summary and Durbin Watson test

Dependent variable: Total outstanding loan

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.716	.512	.503	.78	1.802

(Source: Author's Estimation)

(Note: a) R is multiple correlation coefficient, b) R Square is coefficient of determination which tells the magnitude of explanation provided by the independent variables, c) Adjusted R Square d) Durbin Watson Test is to check autocorrelation)

The multiple linear regression model, comprising nine independent variables, exhibits an R-squared value of .512, indicating that 51.2% of the variation in outstanding loans can be accounted for by the model.

Table 7.18: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	312.44	9	34.72	57.58	.000
	Residual	297.83	494	.60		
	Total	610.27	503			

(Source: Author's Estimation)

Total outstanding loan is a dependent factor and model has significant relationship with independent factors as shown by the Anova table.

A multiple regression model was run to predict outstanding debt from nine independent variables, out of these six variables are found to be significantly predicting outstanding debt $F(9,494)=57.58$, $p<.0005$, $R\text{ Square}=.512$

Table 7.19: Coefficients and Results

S No	Independent Factors	Sign Value	Hypothesis Testing Results at 95% confidence level	Interpretation
1	Operational cost per acre	.037*	Null Hypothesis rejected (.037<.05)	Result of the model depicts that there is a significant positive relationship between amount of cost of operational land per acre and outstanding loan as 1% increase in operational cost of production increases indebtedness by .287%
2	Institutional loan	.000**	Null Hypothesis rejected (.000<.05)	Result of the model depicts that there is a significant positive relationship between amount of institutional loan and outstanding loan as 1% increase in institutional loan increases indebtedness by .142%
3	Non-institutional loan	.000**	Null Hypothesis rejected (.000<.05)	The study depicts that we have significant positive relationship between amount of Non-institutional loan and outstanding loan as 1% increase in non-institutional loan increases indebtedness by .066%
4	Total HH expenditure	.191	Null Hypothesis not rejected(.191>.05)	We have no significant relationship between Total HH Expenditure and indebtedness.
5	Income from other source	.265	Null Hypothesis not rejected (.265>.05)	We have no significant relationship between Income from other sources and indebtedness.
6	Operational land Acres	.000**	Null Hypothesis rejected (.000<.05)	We have significant positive relationship between operational land area and

				outstanding loan as 1% increase in operational land area increases indebtedness by .266%
7	Magnitude of farm machinery	.047*	Null Hypothesis rejected (.047<.05)	We have significant positive relationship between Magnitude of farm machinery and outstanding loan as 1% increase in magnitude of farm machinery increases indebtedness by .148%
8	Combine	.186	Null Hypothesis not rejected(.186>.05)	We have no significant relationship between combine variable and indebtedness.
9	Loan formal	.001**	Null Hypothesis rejected (.001<.05)	There is a significant Negative relationship between loan taken from formal sources and outstanding loan as 1% increase in formal loans decreases indebtedness by -.415%

(Source: Author's Estimation)

** Significant at .01 confidence level and

* Significant at .05 confidence level

The theoretical model here is :

Total Outstanding Debt = 6.354+.287(Cost operational) +.142(Institutional loan) + .066(Non-institutional loan) + .266(Operational land acres) +.184(Magnitude of Machinery) -.415(Loan Formal)

7.5 Results and Discussion

As our study basically wants to show the relationship between indebtedness and various socio-economic factors which might affect indebtedness in general. As we have selected nine different factors which may have a direct or indirect relationships with indebtedness among farmers. These economic factors were identified which may affect the outstanding debt the most. We have used a multiple log-linear regression model to see the influence of these variables and found that our R square come out to

be .512 representing that our selected variables represent 51.2% variance or it explained more than 51% of the variance in the model.

Out of nine factors selected six of them namely a) operational cost per acre b) Institutional loan and c) Non- Institutional loan, d) operational land area, e) the magnitude of farm machinery or investment on farm machinery, f) loan taken from institutional sources and g) operational cost of production has a significant relationship. All these factors have been showing a positive relationship except loan taken from formal sources which shows a negative relationship, representing that as we borrow loan from formal sources we tend to pay back the loan more often than not. Even formal sources like commercial banks and cooperative institutions provide subsidized rate of interest and loan waivers to the indebted farmers, which partially helped to reduce their indebtedness.

- a) If operational cost expenditure increases by one percent than it will positively increase indebtedness by .287 percent
- b) If the Institutional loan amount increases by one percent that indebtedness or outstanding debt will increase positively by .142 percent
- c) If the Non-Institutional loan amount increases by one percent that indebtedness or outstanding debt will increase positively by .066 percent
- d) If the operational land area increases by one percent than our outstanding debt increases positively by .266 percent
- e) If the Magnitude of farm machinery which include all the farming equipments like tube wells, tractors and different tools will increase by one percent than outstanding debt will positively increase by .148 percent
- f) If the loan is taken from formal sources than it will have negative impact on the outstanding debt as one percent increase will reduce indebtedness by .415 percent, showing if the farmers will take loan from formal or institutional sources than they tend to repay on time and their outstanding debt reduces

Out of these six positive and significant factors, operational cost per acre will have the maximum impact on indebtedness. So farmers should try to check their operational cost and should try to reduce their cost as much as possible so that their indebtedness should also decline.

The institutional loan amount was the loan amount taken from commercial banks, cooperatives and other organised sources which provide loans to the agriculturists at a reduced rate of interest. These sources provide cheap loans but their loan procedure was very time-consuming and cumbersome. This encouraged farmers to go for non-institutional sources such as money lenders, commission agents and Arhtiyas who provide them with easy loans. But these loans increase the magnitude of indebtedness among farmers in Punjab. As the operational land area or the cropped area increases, farmers have to take more loans to fulfil their production needs as they have to spend heavily on seeds, manure, and pesticide and on other necessary equipments. Similarly, farmers have to spend on farm machinery such as tractors, Rotavators and on irrigation equipments. To purchase these equipments they have to borrow more credit which leads to indebtedness. As the farmers take more loans from formal sources they are bound to repay them and they take fresh loan by repaying the old one lead to lower amount of indebtedness. The other variable was increasing cost of production as the cost of operation increases it lead to more indebtedness than before as it was not easy to repay the loan as farmer's profitability and margin declines when the cost of production increases than before.

All these factors were showing a significantly positive relationship with indebtedness and more or less these factors were contributing in indebtedness as the relationship with these factors was most of the time was positive and contributing to the amount of indebtedness. So these factors should be taken care of so that farmers should take fewer loans and make their production more remunerative.

7.6 Summary and Conclusion

As we have discussed rural indebtedness in our previous chapters and also discussed its extent, nature and magnitude. There were various factors or determinants which also impact the farmer's decision to take more and more debt. These factors sometimes compel farmers to have a greater amount of debt and use it for their day-to-day needs as well. There were several socio-economic and demographic factors

that may impact the farmer's decision to take more or less debt. Once the debt was taken and not easily repaid and it keeps on mounting, making the farmer indebted. Some of these factors were so powerful that they make sure that farmers remain indebted forever. As we have identified 14 factors from our literature survey and field study that more or less impact the level of indebtedness. Almost each of the respondents believes that rising consumer expenditure due to inflation makes their disposable income shrink and forces them to take debt as they are not able to make both ends meet with their meager income. Crop failure and low land holding size were the other factors which due to unpleasant weather resulted in lowering productivity and falling profitability. Several socio-economic factors like rising medical and educational expenditures, litigation and family dispute and more use of alcohol make their problems worse as they have to spend heavily on these activities. Lack of awareness and financial literacy are the other factor that push the farmers to take loan from those informal sources who more often than not exploit them by charging high rate of interest. Demonstration effect plays a major role in villages as they spend heavily on luxuries and most of the time end up spending their borrowed money on unproductive expenditure, which makes their situation more critical. All these factors make their life difficult to live and they prefer to end their life if emotionally broken. So it was very important that these factors should be controlled accordingly and should be worked upon and farmers should be made aware of these factors. Some of these factors influence farmers' decision to take more and more debt as they were more or less inspired by these factors. When we have applied OLS method to find relationship between outstanding debt and 9 economic independent factors, then out of these, 6 factors have found to be having significant relationship with dependent variable. The model concluded that increase in operational cost and operational land area increases outstanding debt immensely. Increase in institutional and non-institutional loan amount, magnitude of machinery also increases indebtedness. One factor Loan taken from formal sources have significantly negative relationship showing that if farmers take more loan from these sources then their indebtedness tend to decrease immensely.

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CHAPTER-VIII

SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

The life of a farmer can be prosperous or distressed depending on several factors, it's not only the destination that matters but also the decisions he took at the various levels. The majority of the Indian population lives in rural areas and their primary source of employment is farming and allied activities. Farming is one of the risky and dicey occupations, where a farmer has to take the risk and toil hard to meet both ends. In India, a farmer is classified into several categories like small, marginal, semi-medium, medium, and large farmers depending upon the ownership of land. The more land he owns lesser will be his difficulties and hardships. It purely depends upon how he utilises his limited and scarce resources. Farmers with bigger land can use better and technically sound resources to produce their crops efficiently. But on the other side, marginal and small farmers can be vulnerable to the risk and uncertainties attached to farming. As per the Government of India 86 per cent of farmers were either marginal or small and the National Crime Record Bureau data shows that on average 29 farmers and labourers commit suicide every day due to agrarian distress.

The problems of Indian farmers were not only related to farming but also to their daily activities. As the majority of the farmers were not able to save money, they need credit at every step of production. They not only need credit for farming activities but also for other occasions starting from birth to death. His needs are plenty but his resources are few, so he totally depends upon the rain god as only half of the Indian land is under irrigation, that's why farming sometimes is also called the Gamble of Monsoon. Punjab is well endowed with fertile land and enough sources of water with 90 per cent irrigated land and with more than 190 per cent capacity, but even then nature plays important role in getting profits or loss.

8.1 Rationale of the study

Punjab is among the prosperous agricultural-based state of India, where not only per capita income but per capital expenditure was also at the highest level. The advent of the Green Revolution in 1966 encouraged farmers to use High Yield variety of seeds and modern equipment to earn higher profits. It was Punjab that contributed

maximum in the central pool and it was because of food grains produced in plenty that India became a net exporter from a net importer in case of food grains. But increasing profits also made farmers go for commercial crops where they can get higher returns. As the farmers wanted to get higher returns, their investment increased which led to more demand for credit. As most of the Indian farmers do not have easy access to credit, they were pushed to borrow money from indigenous money lenders who charged exorbitant rate of interest. The institutional agencies are reluctant to give them easy loans so they have to go the easy route. Sometimes the farmers were not able to get loans for their medical emergency requirements and for other needs, they were pressurised to sell their piece of land or borrow at exorbitant rate of interest. This situation basically pushed the farmers into agrarian distress. This distress was more or less related to debt or it can be concluded that the problem of Indian farmers start with the debt and end with debt.

The topic '*Magnitude and Determinants of Indebtedness among the farmers of Punjab*' has been taken for the study as rural indebtedness was one of the most important societal problems in India including Punjab. As in the last decade or so the Minimum Support prices has increases by approximately 2 percent but the cost of cultivation increased by 8 percent. Every day we read and hear about the farmer's life being lost due to crop failure, mental stress and, mounting debt. So the need was felt to take up this study and look at the reasons why farmers were going into this critical and cumbersome situation. It's like a debt trap in which farmers were not able to rescue themselves and remain indebted forever as they were not able to repay the mounting debt.

Four objectives or research questions have been undertaken to achieve

- 1) First of all we wanted to analyse socio economic characteristics of the indebted households.
- 2) Second was to study the extent and nature of indebtedness among the rural households.
- 3) Third was to analyse the borrowing and repayment behaviour of the rural households
- 4) Fourth was to identify factors responsible for rural indebtedness.

In the first objective, we have analysed **Socio and Economic characteristics of the indebted households**, where we have collected information like dependency ratio, sex ratio, literacy rate and family size, age-wise and category-wise distribution, Economic status, and possession of farm and non-farm assets among the farmers. These were those characteristics that definitely affect the economic well-being of the farmers. So the information collected from the sampled farmers was presented in the tabular form to be analysed category-wise and zone wise respectively.

Our category-wise result proves that the sex ratio was highest (847) in the case of large farmers depicting that they were more educated and know that there was no difference between boys and girls. As disguised labour was more prevalent in villages, most of the rural people were dependent on the head of the family. Our other variable dependency ratio which depicted how many people were dependent on the household shows that it was more in the case of small farmers where it was 35.69. Level of education helps the person to take the right decision and now there were schools in almost all the 12581 villages of Punjab. Our other socio-economic variable like literacy rate was nearly 91 per cent as most of our sampled farmers were educated and more than 44 per cent of them were having education up to matric. The average year of schooling was nearly 12 years showing that farmers were more aware of education now. When we discussed age-wise and category-wise classification than we concluded nearly 50 per cent of farmers aged between 30 to 50 years and approximately 90 per cent of them belong to the general category.

When we have analysed their economic status we found that nearly 16 per cent of the farmers were also doing some subsidiary occupation such as labour, running grocery shop, pesticide shop, dairy farming, etc. as they know that farming was a seasonal occupation and they have enough time left for other occupation. Our study also shows that nearly 14 per cent household families members have gone abroad for work or for higher education and in case of large farmers almost 50 per cent of their family members have gone abroad recently depicting that now more and more rural people were heading towards western countries for better future.

Three agro climatic zones have been taken for the study as most of the previous studies distributed Punjab in these zones, Zone I is known as Sub Mountainous region and is represented by Hoshiarpur in our study, Zone II known as Central Plain Zone

represented by Ludhiana, Barnala and Patiala and Zone III is known as South Western Zone represented by Bhatinda and Faridkot. When we analysed the socio-economic data zone-wise, we found very interesting results that average family size (4.55), sex ratio (903) and dependency ratio (29.84 per cent) and maximum number of people in the age group 30-50 (55 per cent) was in Zone III, showing that south western zone has been more populous and people were highly dependent on the household leader. As expected literacy rate (94 per cent) was highest in Zone I as it was represented by Hoshiarpur where the literacy rate (85.4 per cent) was in Punjab. The average operational land holding (10.66) and maximum ownership of tube wells (91 per cent) were in Zone II. When we discuss ownership of farm machinery than the maximum number of tractors (89 per cent) was owned in Zone III, followed by Zone I (73 per cent) and Zone II (62 per cent).

When we discuss the next objective of study **Extent and Nature of indebtedness**, then we discuss the quantum and size of the debt that how much loan farmers have. According to certain studies as the land size goes up, the amount of loan also goes up and vice versa. So there is a positive relation between land area and amount of debt. Large farmers took large amount of loan, but small and marginal farmers end up in a vulnerable situation as the institutional sources shows no interest in giving them the loan. When we discuss the nature of debt we discuss either debt is taken for productive purposes or for unproductive purposes. Most of the cultivators take loans for productive reasons (88 per cent) but end up using them for unproductive activities. All this leads them into a debt trap proving the old proverb right, “*Indian farmers born in debt, live in debt, and die in debt*”. Most of the peasants take loans for farming activities but use them for social and cultural activities, for sending children abroad, for renovating and reconstructing houses and for medical reasons.

In our research study, when we discussed *the Extent of indebtedness* in Punjab, the average amount of debt on our sampled indebted farmers was found to be **Rs 5, 55,978** and when we discuss it Zone wise than maximum debt has been taken by the **Zone III** farmers **Rs 6, 79,470** because this Zone consists of cotton belt areas such as Bhatinda and Faridkot. It was obvious that this area has low fertile land and productivity was low due to several reasons. The amount of debt was Rs 5,37,884 in Zone II and Rs 3,63,273 in Zone I. Zone I has more literate people and even they were

aware of their rights and take lesser debt. When we analysed category wise results we found that **large farmers** have a maximum amount of debt of **Rs 10, 78,166**, and the minimum amount of debt was **Rs 2, 48,708** taken by **marginal farmers** as they have less repayment capacity.

Similarly, when we have analysed the nature and source of debt taken, our results were in line as nearly 67 per cent farmers take debt from formal sources and 33 per cent from informal sources. When we discussed the purpose of debt taken then we found that nearly 88 per cent of the farmers take debt for productive purposes and 12 per cent for unproductive purposes. Our detailed analyses represent that those who have been using loan for unproductive purposes used maximum amount on domestic needs (34 per cent), Sending children abroad (27 per cent), marriage and social ceremonies (21 per cent), house renovation (9 per cent), and on medical expenses (3 per cent) .

Similarly for studying the third objective **borrowing and repayment behaviour of the households**, we discuss why all farmers took debt, and from which sources they prefer to take debt. Under institutional sources, Commercial banks are the major player in distributing loans to the farmers. Then the cooperatives play the second fiddle after commercial banks in providing loans at subsidized rates of interest. Moneylenders and Arhtiyas play very important role under the non-institutional category. Although they charges high rate of interest but their rules and regulations are so soft that agriculturists can easily be lured into their debt trap. Farmers mostly consume their money on unproductive activities hence they were not able to repay the principal amount. As the loans keep on piling, the magnitude of indebtedness or the outstanding debt also increases. Sometimes, they end up repaying only the rate of interest as they are not able to cover all their expenses.

While interacting with the indebted farmers we came to know that most farmers preferred to delay the loan repayments as they think that loan waivers will be coming shortly. As most state governments try to lure farmers by assuming that they will give loan waivers when they will come into power. Most of the well-to-do farmers, who have enough resources, prefer to hold back and wait for loan waivers. The state government always wants to get political mileage as they consider the farmer's community as their bigger vote bank. But although these schemes look good socially

but is not at all good for the balance sheet of commercial banks as their NPAs pile up. We have already mentioned the Extent of debt as we have analysed the amount of debt being taken by the farmers, but in this objective we have tried to calculate Magnitude of debt or outstanding debt by deducting repayment done by the farmers, we have also considered the rate of interest into consideration. Most of the farmers took short-term loan as they mostly preferred to take limits and most of the time after six months they repay the interest amount and take a fresh loan. Most of the farmers repay the interest amount only as their loan amount mounts further in expectation of loan waivers coming up in the near future.

The Zone-wise result shows that the average amount of outstanding loans per household was **Rs 5,40,759** and the outstanding debt was highest **Rs 6,93,670** in **Zone III**, followed by Rs 5,12,504 in Zone II and Rs 3,19,702 in Zone I. The Result clearly shows that in Zone III (Bhatinda and Faridkot) farmers were having more outstanding debt as this area was related to the cotton belt area and even the problem of salinity also persists there leading to lower productivity compared with other zones. Zone I which represent Hoshiarpur district is the most prosperous zone as most of the farmers during the interaction admitted that they took loan only in an emergency as they know that it becomes difficult to repay the outstanding debt. In this zone most of the farmers were doing other subsidiary occupations as well, the farmers in this zone also diversified with other crops. They were also running general shops, selling vegetables, give tools on rent to earn extra income. The farmers in this zone were found to be more aware and hardworking when compared with other zones.

The category-wise result shows that the average amount outstanding was **Rs 9, 10,416** in the case of large farmers and **Rs 2, 36,999** for marginal farmers as it depicts that large farmers have more repayment capacity and marginal farmers have low repaying capacity. Our study also concluded that overall in Punjab 53 per cent of the indebted peasants were severely indebted, here severity of debt has been taken into account when we compared outstanding debt with their disposable income. If the annual disposable income of the farmer after deducting all the household expenditures was less than the loan outstanding it means that the farmer will not be able to repay the debt amount easily as their debt repaying capacity was less so he has to borrow a fresh loan to repay the old one. When we analysed Zone wise result than Zone III (Bhatinda, Faridkot) was found to be highly indebted, where 63 Percent indebted

farmers were severely indebted. In case of marginal farmers, 92 Percent of them were severely indebted, this clearly shows that these farmers take more debt than their original assets and their annual income. This was the reason why commercial banks always avoid giving loan to marginal and small farmers. This also rejected our hypothesis that there is no significant impact of landholding size on indebtedness.

In the fourth objective, we have identified the **factors affecting indebtedness** or determinants. We have identified fourteen such factors from our field study and literature survey which can impact the farmer's decision to take more or less debt than before. These factors include rising consumer expenditure, hereditary debt, crop failure, low land holding size, rising medical expenditure, weak government policies, litigation and family dispute, rising education expenditure, rising input cost and low profitability, increased use of alcohol and intoxicants, demonstration effect, lack of financial literacy, exploitation by commission agents and using the loan for unproductive expenditure.

There are various factors that may affect the farmers' decision to take loan or not, these factors also sometimes compel the farmers to take more and more debt for agriculture as well as for fulfilling their day-to-day needs. We used the likert scale which was a psychometric scale and try to assume that the strength and intensity of the attitude were linear. Out of the total indebted farmers, 74.8 per cent of the farmers answered that they agree that rising consumption expenditure leads to farmer indebtedness. Similarly, 98 per cent of indebted farmers believe that because of crop failure their magnitude of indebtedness increases. Rising input cost and low profitability was the major factor as the day-by-day cost of production which includes input and labor cost was escalating, an inflationary trend also lead to reducing margins for the farmers as sometimes they were not able to cover their cost either. Another important and significant factor that strongly impacted the level of indebtedness was using the loan for unproductive purposes as 98 per cent of the indebted farmers believe that most of the time farmers used loan for unproductive purposes which was taken for productive purposes. The unproductive purposes for which loans are used are celebrating social ceremonies, using it for household and medical expenditure as well. As we have used the chi-square test to check the significance of these factors and found that all the fourteen factors or determinants were significant and definitely impact the level of indebtedness positively.

We have checked these fourteen factors qualitatively on the Likert scale, but we have also used multiple log-linear regression models to check other economic factors which may impact the level of indebtedness and can establish a relationship between those factors. As we have also used a multiple log-linear model with the help of the statistical software SPSS to infer the results. We have taken nine different independent factors which might affect our dependent factor indebtedness. We have taken those factors which might affect our indebtedness the most, these factors include the operational cost of production, which include all type of expenditures born by the indebted farmer, institutional and non-institutional loan amount were directly related to indebtedness as more loan amount leads to more indebtedness, total household expenditure which includes all the expenditures like productive and non-productive expenditure, then we have taken income from other subsidiary sources which may also affect indebtedness. The operational land area or farm size was also taken because it can also play a very vital role in determining indebtedness. The magnitude of farm machinery like investment in farm equipment like tractors and irrigation equipment was also included in our model. Besides these, we have also taken two dummy variables like combine dummy and loan taken from formal sources.

We have used a multiple log-linear regression model to see the impact of these variables and found that our R square comes out to be .512 representing that our selected variables represent 51.2 per cent variance or it explained more than 51 per cent of the variance in the model. Out of nine factors selected six of them namely **Institutional loan, Non- Institutional loan, operational land area, the magnitude of farm machinery or investment on farm machinery, loan taken from institutional sources, and operational cost of production** have a significant relationship. All these factors showed positive relationships except loans taken from formal sources. Even formal sources like commercial banks and cooperative institutions provide a subsidized rate of interest and loan waivers to the indebted farmers, which more often than not helped to reduce their indebtedness.

All these factors showed significantly positive relationship with indebtedness. So these factors should be taken care of so that farmers should take fewer loans and it will be only possible if the farmers take a lesser loan and make their production more remunerative.

Similarly, we have asked some Likert scale questions to know the behavior of the farmers related to problems and challenges being faced by the farmers in borrowing from institutional sources and why non-institutional sources were being preferred by the indebted farmers. Most of the farmers believe that they get no loan from institutional sources without security and almost 98 per cent of farmers agree that getting a loan from these formal sources was time-consuming and complicated. Sometimes because of their financial illiteracy and more paperwork, they have to give some commission to the middlemen, which more often than not try to exploit them. So because of these difficulties and challenges more often than not farmers were not ready to take a loan from institutional sources and prefer to get a loan from moneylenders and commission agents/Arhtiyas.

Most of the farmers believe that these Arhtiyas were a lifeline for them as their terms and conditions were so flexible that they can repay the loan amount as and when possible. Even the unavailability of loans from institutional sources forces the farmers towards these sources. Although Government has set a target for institutional agricultural credit every year, which has increased consistently over the years from Rs 16.50 lakh crore in 2021-22 to Rs 18 lakh crore in the 2022-23 fiscal. Even then farmers found it hard to get loans from these sources as these sources were not flexible enough and they found it hard to get loans from them.

Then some general question has also been asked from the indebted farmers, when a question has been asked to the respondent farmers that if there is any death because of suicide in their family or the near ones then only 8 farmers said yes, and when the cause or reason of suicide has been asked then most of the farmers said it is due to heavy debt as well as mental stress. Even family problems and disputes lead an important role in the farmer's suicide. When suggestions have been asked to solve this problem than most of the farmers suggest that the government should start giving counseling to the targeted farmers and give them the much-needed help they require. Their income level should also be increased by improving their productivity and adequately increasing the minimum support price of the food grains. As we have visited several villages we found that most of the suicides are either under-reported or manipulated, as we have enquired from the villagers and officials they said some times farmer's suicidal death happened due to mental stress or family dispute but shown as farmer suicide due to indebtedness. So indebtedness and mounting debt

pressure were not always the cause of concern. When the other question about the awareness regarding Government schemes has been asked then nearly 71 per cent of farmers responded positively. It showed that most farmers were aware of schemes being run by the Government at the central level as well as the state level. When in the end the most important question has been asked the indebted farmers if they want to quit agriculture then only 13 per cent answered in affirmative but the NSSO Situation Assessment Survey showed that 40 per cent of farmers want to quit agriculture if better employment opportunities were made available. So there is a dire need to make this occupation more fruitful for the farmers by giving suitable Minimum Support Prices for their output.

8.2 Policy recommendations

We have conducted our study in three agro-climatic zones of Punjab and analysed five categories of indebted farmers so it was obvious that our results will mainly concentrate on these categories of farmers. In our study, we concluded that Zone III which includes Bhatinda and Faridkot districts mainly had low productivity and profitability and farmers in this area were severely indebted. Our results were matching with previous studies which represent that as the land area increases the magnitude of debt also increases (Singh & Toor 2005; Singh et al., 2014; Sajjad et al., 2016; Singh et al., 2017). It shows that large farmers were having a high amount of outstanding and marginal farmers have a low outstanding amount of debt.

Agrarian distress is critical as the farmers were reeling under pressure and they were not able to survive this situation. Increasing Indebtedness, Crop failure, loss of livelihood and farmer suicide indicate the multidimensional nature of agrarian distress where loan waiver was only a short term measure and the marginal and small farmers in the country getting a rough deal regarding the waivers of farm loans. Even the precious lives of the farmers can be saved by locating the farmers and giving them the much-required monetary and psychological help.

- 1) South western region or Zone III was mostly indebted in Punjab due to low fertile land, low productivity, crop failure and illiteracy so the Government should make special policies for this region.
- 2) Cooperative farming among the small and marginal farmers needs to be encouraged, so that they can derive the benefits of scale economies.

- 3) As a long term measures the Government should promote crop diversification and promote coarse grains/ millets which will lead to micro management.
- 4) More and more financial awareness camps should be organised by the Government institutions so that farmers should become financially literate.
- 5) Reintroduction of loan mela or loan camps so that bureaucratic interventions are minimized and farmers are required to comply with less paper work.
- 6) Arthiyas/Commission agent's loan procedure needs to be regulated and brought under the ambit of formal credit.
- 7) Farmer distress index should be made and used to identify and locate the actual distressed farmers.
- 8) Psychological and monetary help should be provided to the distressed and severely indebted small and marginal farmers.

8.3 Limitations of the study

- 1) The research was carried out in Punjab state; result may vary for other states.
- 2) Some of the respondents are illiterate or may not provide accurate data.
- 3) Some of the respondents were hesitating in providing their monetary information.
- 4) Due to paucity of funds primary study has been conducted, census study can be more effective.
- 5) The situation of Covid pandemic creates several challenges during data collection of primary data.

8.4 Scope for Future Research

- 1) As the present study has not discussed impact of caste on indebtedness, future researchers may take up this issue.
- 2) Census study if possible can be taken by the future researchers.
- 3) Impact of indebtedness on farmer suicide can be checked.

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ਮਿਤੀ Date of filling _____

ਲੜੀ ਨੰ. Sr. No. _____

ਕਿਸਾਨਾਂ ਦਾ ਸਰਵੇ/FARMER'S SURVEY SCHEDULE

ਜ਼ੋਨ/Zone _____

ਜ਼ਿਲ੍ਹਾ/District _____

ਬਲਾਕ/Block _____

ਪਿੰਡ/Village _____

Title of the problem: Magnitude and Determinants of Indebtedness among Farmers in Punjab

1. ਆਮ ਜਾਣਕਾਰੀ/General Information

- a. ਨਾਮ/Name of respondent _____ ਉਮਰ/Age _____
- b. ਵਿੱਦਿਅਕ ਯੋਗਤਾ /Education of respondent _____
- c. ਕੈਟੇਗਰੀ/Social Category _____ Gen/SC/Oth
- d. ਫ਼ੋਨ ਨੰਬਰ/Contact number _____
- e. ਮੰਡੀ ਤੋਂ ਦੂਰੀ/Distance from market _____ km
- f. ਆਮਦਨ ਦਾ ਮੁੱਖ ਸਾਧਨ/Main source of Income: _____ ਖੇਤੀਬਾੜੀ/ਹੋਰ Agriculture/Non Agriculture
- g. ਹੋਰ ਵਿਵਸਾਇ/Subsidiary Occupation if any

2. ਹੋਰ ਵਿਵਸਾਇ ਦਾ ਵੇਰਵਾ/Subsidiary occupation

Secondary Occupation	Income/ ਆਮਦਨ
Self Employed/ ਆਪਣਾ ਕੰਮ	
Dairy farming/ ਡੇਅਰੀ ਫਾਰਮਿੰਗ	
Poultry, Bee keeping, Piggery/ਮੁਰਗੀ ਪਾਲਣਾ, ਮਧੂ ਮੱਖੀ, ਸੂਰ ਪਾਲਣਾ	
Pension/ ਪੈਨਸ਼ਨ	
Remittance/ ਦਿੱਤੀ ਗਈ ਰਕਮ	
Interest on lending Money/ਵਿਆਜ ਤੋਂ ਆਮਦਨ	
Daily wages Employment/ਲੇਬਰ	
Others/ਹੋਰ	

3. ਖੇਤੀਬਾੜੀ ਵਿੱਚ ਤਜਰਬਾ/Experience in farming _____ ਸਾਲ/Years

4. ਪਰਿਵਾਰ ਮੈਂਬਰਾਂ ਦੀ ਗਿਣਤੀ ਅਤੇ ਵਿੱਦਿਅਕ ਯੋਗਤਾ/ Family size and education details:

Particulars	Relation to Head ਮੁਖੀ ਨਾਲ ਰਿਸ਼ਤਾ	Males/ Female ਮਰਦ/ ਔਰਤ	Age ਉਮਰ	Marital status* ਕੁਆਰਾ/ ਵਿਆਹ ਹੋਇਆ	Education** ਵਿੱਦਿਅਕ ਯੋਗਤਾ	Occupation Primary/ Secondary ਕੰਮ	Annual income ਸਾਲਾਨਾ ਆਮਦਨ	Member gone Abroad ਵਿਦੇਸ਼ ਜਾਣ ਵਾਲੇ ਮੈਂਬਰ
Adult/ਬਾਲਗ								
Children/ਬੱਚੇ								
ਜੋੜ/Total								

*Marital status: Never married-1, Married-2 Widower-3, Divorced/Seprated-4

**Educational Level: Not Literate-1, Up to Primary-2, Up to Matric-3, Up to Sen. Secondary-4, Up to Graduate-5, Post graduate and above-6

5. ਜੋਤਾ ਦਾ ਆਕਾਰ/Size of Land Holding (Acres)

Particulars	Area (Acres) ਜਗ੍ਹਾ ਏਕੜ ਵਿੱਚ	Source of Irrigation* ਸਿਜਾਈ ਦਾ ਸਾਧਨ	Rental value (₹) ਕਿਰਾਇਆ ਕੀਮਤ	Type of Soil ਮਿੱਟੀ ਦੀ ਕਿਸਮ
ਆਪਣੀ ਜ਼ਮੀਨ/Owned Land				
ਪੱਟੇ ਤੇ ਲਈ ਜ਼ਮੀਨ/ Leased in land				
ਪੱਟੇ ਤੇ ਦਿੱਤੀ ਜ਼ਮੀਨ/ Leased out land				
ਕੁੱਲ ਵਾਹੀ ਯੋਗ ਜ਼ਮੀਨ/ Operational land				

*(a) - canal system, (b) - Electric motor, (c)- Submersible Pump (d) Diesel engine (e)-C+EM (f)- C+SP (g)- C+DE (h)- C+EM+SP (i) C+EM+DE (j) C+SP+DE (k) ALL

6. ਫ਼ਸਲੀ ਚੱਕਰ/Cropping pattern

Season ਸੀਜਨ	Name of crop ਫ਼ਸਲ ਦਾ ਨਾਂ	Sown area (acre) ਬਿਜਿਆ ਖੇਤਰ	Yield (Qtl/acres) ਉਤਪਾਦਨ ਪ੍ਰਤੀ ਏਕੜ	Price (Qtls) ਕੀਮਤ / ਕੁਵਿੰਟਲ	Cost of production (Total Per Acre) ਲਾਗਤ ਪ੍ਰਤੀ ਏਕੜ	By product
ਖਰੀਫ਼/Kharif (July-Oct) (Rice) ਚਾਵਲ						
Cotton ਕਪਾਹ						
Maize ਮੱਕੀ						
Sugarcane ਗੰਨਾ						
Rabi/ਰਬੀ (Oct-Mar) (Wheat) ਖਣਕ						
Potatoes ਆਲੂ						
Vegetables ਸਬਜ਼ੀਆਂ						
Zaid ਜੈਦ						

7. ਫਾਰਮ ਅਤੇ ਨਾਨ-ਫਾਰਮ/ Farm and Non-Farm Assets

Sr. no.	Type ਕਿਸਮ ਫਾਰਮ ਐਸਟਸ	Number ਗਿਣਤੀ	Year of Purchase ਖਰੀਦਣ ਦਾ ਸਾਲ	Value ਕੀਮਤ	Type ਕਿਸਮ ਨਾਨ-ਫਾਰਮ	Number ਗਿਣਤੀ	Year of Purchase ਖਰੀਦਣ ਦਾ ਸਾਲ	Value ਕੀਮਤ
1	Tractor ਟਰੈਕਟਰ				Television ਟੈਲੀਵਿਜ਼ਨ			
2	Trolley ਟਰਾਲੀ				Refrigerator ਫਰਿਜ			
3	Diesel Engine ਡੀਜ਼ਲ ਇੰਜਨ				Two Wheeler ਦੋ ਪਹੀਆਂ ਵਾਹਨ			
4	Submersible Pump ਸਬਮਰਸੀਬਲ ਪੰਪ				Four Wheeler ਚਾਰ ਪਹੀਆਂ ਵਾਹਨ			

5	Electric Motor ਬਿਜਲੀ ਦੀ ਮੋਟਰ				Gas connection ਗੈਸ ਕਨੈਕਸ਼ਨ			
6	Tube Well ਟਿਊਬਵੈੱਲ				Kuccha House ਕੱਚਾ ਘਰ			
7	Leveler ਲੈਵਲਰ				Pucca House ਪੱਕਾ ਘਰ			
8	Rotavator ਰੋਟਾਵੇਟਰ				Others ਹੋਰ			
9	Disc Harrow ਡਿਸਕ ਹੈਰੋ							
10	Cultivator ਕਲਟੀਵੇਟਰ							
11	Seed Drill ਸੀਡ ਡਰਿਲ							
12	Thresher ਥਰੈਸ਼ਰ							
13	Combine Harvester ਕੰਬਾਇਨ ਹਾਰਵੈਸਟਰ							
14	Generator ਜੈਨਰੇਟਰ							
15	Other ਹੋਰ (specify)							

8. ਪਸ਼ੂਆਂ ਤੋਂ ਆਮਦਨ/ Livestock Income

Herd size (No.)..... ਪਸ਼ੂਆਂ ਦੀ ਸੰਖਿਆ	Number ਗਿਣਤੀ	Total income ਕੁੱਲ ਆਮਦਨ	Total Expenditure ਕੁੱਲ ਖਰਚ
Buffalos/ ਮੱਝਾਂ			
Cows/ ਗਊਆਂ			
Calves/ ਵਛੜੇ			
Milch animals/ ਦੁਧਾਰੂ ਪਸ਼ੂ			
Horse/Camel ਘੋੜਾ/ਊਠ			

9. ਘਰੇਲੂ ਖਰਚਾ ਪ੍ਰਤੀ ਸਾਲ/ Household Expenditure Per Annuam

Consumption Expenditure ਉਪਭੋਗਤਾ ਖਰਚਾ	Amount (Rs) ਕੀਮਤ	Source of Finance if any
ਭੋਜਨ/ Food		
ਘਰੇਲੂ ਵਸਤਾਂ ਦੀ ਖਰੀਦ/ Purchase of household items		
ਘਰ ਦੀ ਉਸਾਰੀ ਤੇ ਮੁਰੰਮਤ/Construction and repair of house		
ਵਿਆਹ ਤੇ ਖਰਚਾ/ Marriage ceremonies		
ਮੌਤ ਹੋਣ ਤੇ ਕੀਤਾ ਖਰਚਾ/ Funeral ceremonies		
ਪੜ੍ਹਾਈ/ Education		
ਬੀਮਾਰੀ ਤੇ ਖਰਚਾ/ Medical expenses		
ਬੱਚੇ ਦੇ ਜਨਮ ਤੇ ਖਰਚਾ/ Birth ceremonies		
ਕਾਨੂੰਨੀ ਖਰਚਾ/ Litigation		
ਸਹਿਕਾਰੀ ਸਭਾ ਦੀ ਸ਼ੇਅਰ ਖਰੀਦ/ Purchase of shares of co-operatives		
ਪੁਰਾਣੇ ਲੋਨ ਦੀ ਅਦਾਇਗੀ/ Repayment of old debt		
ਸਿਹਤ ਸੰਬੰਧੀ ਖਰਚਾ Health related expenses		
ਹੋਰ/ Others		

10. ਫ਼ਸਲ Crop_____

ਖੇਤਰ Area_____

Variety_____

Operations		Material		Human Labour			Machinery					
				Family labour ਪਰਿਵਾਰਕ ਮਜ਼ਦੂਰੀ	Hired labour ਕਿਰਾਏ ਤੇ ਮਜ਼ਦੂਰੀ		Owned ਆਪਣੀ			Hired ਕਿਰਾਏ ਦੀ ਇੱਕ ਦਿਨ ਦੀ ਲਵਾਈ		
		Quan tity Unit/ acre	Price Rs/kg	Hrs	Hrs	Rs/H rs	Type	Hrs/acre	DC/acre	Man hrs/day/ acre	DC/Hrs	Value (Rs/acre/hr)
Preparatory Tillage (Ploughing +Planking+ Levelling) ਸ਼ੁਰੂਆਤੀ ਖਰਚਾ												
Sowing/ Broadcasting ਬਿਜਾਈ ਦਾ ਖਰਚਾ	Seed ਬੀਜ											
	Seed Treatment ਬੀਜਾਂ ਦੀ ਸੁਧਾਈ											
Fertilization (Urea+Dap+Pot ash+Others) ਖਾਦਾ ਦਾ ਖਰਚਾ												
Pesticides ਕੀਟ ਨਾਸ਼ਕ												
Harvesting ਕਟਾਈ ਦਾ ਖਰਚਾ												
By Product												

DC-Diesel Consumption

Price of Diesel (Rs/ltr)_____

Wheat retained for home consumption_____ for Animal consumption_____

11. ਕਰਜ਼ੇ ਦੀ ਜਾਣਕਾਰੀ/ Borrowing and Repayment

ਸ੍ਰੋਤ Sources			Amount of Loan Taken ਕਰਜ਼ੇ ਦੀ ਰਕਮ		Rate of interest ਵਿਆਜ ਦੀ ਦਰ	Purpose Code * ਕਰਜ਼ੇ ਦਾ ਉਦੇਸ਼		Amount Returned ਰਕਮ ਵਾਪਸੀ	Amount out-standing ਰਕਮ ਬਾਕੀ	Loan Waiver ਕਰਜ਼ਾ ਮਾਫ਼ੀ
	Nature of Loan ਕਰਜ਼ੇ ਦੀ ਕਿਸਮ	Loan Duration* ਕਰਜ਼ੇ ਦੀ ਹੱਦ								Y/N
	Cash/Kind	S/M/L	Year ਸਾਲ	Amount ਰਕਮ		P	UP			*Amount ਰਕਮ
A. Non-institutional ਗੈਰ-ਸਰਕਾਰੀ										
ਜ਼ਮੀਂਦਾਰ Land lords										
ਮਨੀਲੈਂਡਰ Professional Money lenders										
ਆਰਤੀਆਂ/ਕਮਿਸ਼ਨ ਏਜੰਟ Arhtiyas/Commission Agents										
ਰਿਸ਼ਤੇਦਾਰ/ਦੋਸਤ Relative/friends										
ਹੋਰ Other(Specify)										
B. Institutional ਸਰਕਾਰੀ										
Commercial banks ਸਰਕਾਰੀ ਬੈਂਕ										
Co-operative credit societies/banks ਸਹਿਕਾਰੀ ਸੰਸਥਾਵਾਂ/ਬੈਂਕ										

Regional rural banks ਖੇਤਰੀ ਪੇਂਡੂ ਬੈਂਕ										
Micro Finance ਮਾਈਕਰੋ ਵਿੱਤ										
ਹੋਰ Others(specify)										

Loan Duration: S- less than 1 year, M- 1 to 3 years. L- More than 3 years

***Productive:** Crop loan-1, Machinery & farm loan-2, Dairy & poultry loan-3, Small business-4,.Rent of leased-in land-5

Un Productive: Marriage, Social religious ceremonies-6, House construction, Repairing, renovation-7, Health care-8

Education loan-9, Repayment of old debt-10, Domestic needs-11, Sending children abroad 12.Court disputes 13. Others-14

12. ਪੇਂਡੂ ਕਰਜ਼ੇਦਾਰੀ ਨੂੰ ਪ੍ਰਭਾਵਿਤ ਕਰਨ ਵਾਲੇ ਤੱਤ/ ਆਪਣੀ ਰਾਏ 1 ਤੋਂ 5 ਦੇ ਮਾਨਕ ਦਿਉ। **Factors responsible for Rural Indebtedness. Give your preferences from 1 to 5**

	Constraints	Incidence ਪ੍ਰਭਾਵ				
	ਪ੍ਰਭਾਵਿਤ ਕਰਨ ਵਾਲੇ ਤੱਤ	Strongly disagree ਜ਼ੋਰਦਾਰ ਅਸਹਿਮਤ (1)	Disagree ਅਸਹਿਮਤ (2)	Neutral ਠੀਕ ਠਾਕ (3)	Agree ਸਹੀ (4)	Strongly Agree ਬਿਲਕੁਲ ਸਹੀ (5)
1.	Rising Consumer Expenditure ਵੱਧਦਾ ਹੋਇਆ ਉਪਭੋਗੀ ਖਰਚਾ					
2.	Hereditary debt ਜੱਦੀ ਚਲਦਾ ਹੋਇਆ ਕਰਜ਼ਾ					
3.	Crop failure ਫ਼ਸਲਾਂ ਦਾ ਨਸ਼ਟ ਹੋਣਾ					
4.	low land holding size ਜ਼ੋਤਾ ਦਾ ਆਕਾਰ ਛੋਟਾ ਹੋਣਾ					
5.	Rising Medical expenditure ਵੱਧਦਾ ਹੋਇਆ ਮੈਡੀਕਲ ਖਰਚਾ					
6.	Weak Government Policies ਸਰਕਾਰ ਦੀਆਂ ਕਮਜ਼ੋਰ ਨੀਤੀਆਂ					
7.	Rising Educational expenditure ਵਿੱਦਿਆ ਤੇ ਵੱਧਦਾ ਖਰਚ					
8.	Litigation or Family disputes ਪਰਿਵਾਰਕ ਝਗੜੇ ਅਤੇ ਕੋਰਟ ਕੇਸ					
9.	Rising input Cost and low profitability ਵੱਧਦੀ ਲਾਗਤ ਅਤੇ ਘੱਟਦੀ ਆਮਦਨ					
10.	Increased use of Alcohol and intoxicants ਨਸ਼ਿਆਂ ਤੇ ਵੱਧਦਾ ਖਰਚ					
11.	Demonstration leads to Indebtedness ਦੇਖਾ-ਦੇਖੀ ਵੱਧਦੇ ਖਰਚੇ					
12.	Lack of Financial literacy leads to Indebtedness ਘੱਟ ਵਿੱਤੀ ਜਾਣਕਾਰੀ ਵੀ ਕਰਜ਼ੇਦਾਰੀ ਨੂੰ ਵਧਾਉਂਦਾ ਹੈ					
13.	Exploitation by Commission Agent ਆੜੂਤੀਆਂ ਵੱਲੋਂ ਕਿਸਾਨਾਂ ਦੀ ਕੀਤੀ ਜਾ ਰਹੀ ਲੁੱਟ					
14.	Using loan for Unproductive Expenditure leads to indebtedness ਅਣਉਤਪਾਦਕ ਖਰਚਿਆਂ ਤੇ ਕਰਜ਼ੇ ਦਾ ਖਰਚ					

13. ਸਰਕਾਰੀ ਸੰਸਥਾਵਾਂ ਤੋਂ ਕਰਜ਼ਾ ਲੈਣ ਵੇਲੇ ਆਉਣ ਵਾਲੀ ਸਮੱਸਿਆ ਬਾਰੇ ਆਪਣੀ ਰਾਏ 1 ਤੋਂ 5 ਤੱਕ ਦਿਓ।

Problems faced by you in getting institutional loans. Give your preferences from 1 to 5

	Constraints	Incidence ਪ੍ਰਭਾਵ				
		Strongly disagree ਜ਼ੋਰਦਾਰ ਅਸਹਿਮਤ (1)	Disagree ਅਸਹਿਮਤ (2)	Neutral ਠੀਕ ਠਾਕ (3)	Agree ਸਹੀ (4)	Strongly Agree ਬਿਲਕੁਲ ਸਹੀ (5)
1.	No loan Without Security ਬਿਨਾਂ ਸਕਿਊਰਟੀ ਤੋਂ ਕਰਜ਼ਾ ਨਾ ਮਿਲਣਾ					
2.	Time consuming and Complicated ਜ਼ਿਆਦਾ ਸਮਾਂ ਲੱਗਣਾ ਅਤੇ ਮੁਸ਼ਕਿਲ					
3.	Lack of Financial literacy or illiteracy ਘੱਟ ਵਿੱਤੀ ਜਾਗਿਰਤੀ ਦਾ ਹੋਣਾ					
4.	High Transaction cost ਵੱਧ ਲਾਗਤ					
5.	More Paper work ਜ਼ਿਆਦਾ ਕਾਗਜ਼ੀ ਕਾਰਵਾਈ ਦਾ ਹੋਣਾ					
6.	Bribery to middlemen ਰਿਸ਼ਵਤਖੋਰੀ ਅਤੇ ਵਿਚੋਲੇਦਾਰੀ					
7.	Non availability of Bank officials ਬੈਂਕ ਅਫਸਰਾਂ ਦਾ ਨਾ ਮਿਲਣਾ					
8.	Sometimes Unapproachable ਕਦੇ ਕਦੇ ਨਾ ਪਹੁੰਚ ਪਾਣਾ					

14. ਨਿਜੀ ਸੰਸਥਾਵਾਂ/ਆਤਮੀਆਂ ਤੋਂ ਕਰਜ਼ਾ ਲੈਣ ਲਈ ਪ੍ਰਭਾਵਿਤ ਕਰਨ ਵਾਲੇ ਤੱਤਾਂ ਬਾਰੇ ਆਪਣੀ ਰਾਏ 1 ਤੋਂ 5 ਵਿਚ ਦਿਓ।

Reason of taking loan from Private Moneylenders/ Commission Agents. Give your preferences from 1 to 5

	Reasons or Factors	Incidence ਪ੍ਰਭਾਵ				
	ਪ੍ਰਭਾਵਿਤ ਕਰਨ ਵਾਲੇ ਤੱਤ	Strongly disagree ਜ਼ੋਰਦਾਰ ਅਸਹਿਮਤ (1)	Disagree ਅਸਹਿਮਤ (2)	Neutral ਠੀਕ ਠਾਕ (3)	Agree ਸਹੀ (4)	Strongly Agree ਬਿਲਕੁਲ ਸਹੀ (5)
1.	Loan available for all purpose ਹਰ ਜ਼ਰੂਰਤ ਲਈ ਕਰਜ਼ੇ ਦਾ ਮਿਲਣਾ					
2.	Flexibility in repayment of loan ਕਰਜ਼ੇ ਨੂੰ ਵਾਪਸ ਕਰਨ ਵਿੱਚ ਸੋਖ					
3.	Less stringent collateral conditions ਘੱਟ ਸ਼ਰਤਾਂ ਤੇ ਲੋਨ ਹੋਣਾ					
4.	No bar on the amount of loan ਕਰਜ਼ੇ ਦੀ ਜਿੰਨੀ ਮਰਜ਼ੀ ਰਕਮ ਦਾ ਮਿਲਣਾ					
5.	Borrowings remains secret ਕਰਜ਼ੇ ਦਾ ਲਕੋ					
6.	Non-availability of loan from institution sources ਸਰਕਾਰੀ ਸੰਸਥਾਵਾਂ ਤੋਂ ਕਰਜ਼ੇ ਦਾ ਆਸਾਨੀ ਨਾਲ ਨਾ ਮਿਲਣਾ					

15. ਕੀ ਤੁਹਾਡੇ ਪਰਿਵਾਰ ਵਿੱਚ ਕਰਜ਼ੇ ਕਰਕੇ ਕੋਈ ਮੌਤ ਜਾਂ ਆਤਮ ਹੱਤਿਆ ਹੋਈ ਹੈ/Has there been death/suicide due to indebtedness – ਹਾਂ Yes/ਨਹੀਂ No

ਜੇ ਹਾਂ ਤਾਂ ਇਸਨੂੰ ਕਿਵੇਂ ਦੂਰ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ/If yes, how to avoid it_____

Suggestions Tick Any

- ਕਰਜ਼ੇ ਤੇ ਘੱਟ ਨਿਰਭਰਤਾ/Less dependence on debt
- ਅਣਉਤਪਾਦਕ ਖਰਚੇ ਨੂੰ ਘਟਾਇਆ ਜਾਏ/ Cut in non-productive Expenditure
- ਕਿਸਾਨਾਂ ਪੱਖੀ ਸਕੀਮਾਂ/ Farmer friendly Schemes
- ਘੱਟੋ ਘੱਟ ਕੀਮਤ ਨੂੰ ਵਧਾਇਆ ਜਾਵੇ/Increase in Minimum Support Price
- ਮੁਫਤ ਸਲਾਹ /Free Counseling

f. ਕਰਜ਼ੇ ਦੀ ਮਾਫ਼ੀ/ Loan debt Waivers

16. ਕੀ ਤੁਹਾਨੂੰ ਸਰਕਾਰ ਦੁਆਰਾ ਕਿਸਾਨਾਂ ਦੀ ਮੱਦਦ ਲਈ ਚਲਾਈਆਂ ਜਾ ਰਹੀਆਂ ਕਿਸਮਾਂ ਦਾ ਪਤਾ ਹੈ/

Are you aware of various Government Schemes started and run by Government for the help of farmers?

ਹਾਂ Yes/ਨਹੀਂ No

ਜੇ ਹਾਂ ਤਾਂ ਕਿਹੜੀਆਂ-ਕਿਹੜੀਆਂ ਸਕੀਮਾਂ/ If yes, then Which Scheme _____

Tick any

- a. Pradhan Mantri Fasal Bima Yojana
- b. Pradhan Mantri Krishi Sinchai Yojana
- c. Kisan Credit Scheme
- d. National Mission for Sustainable Management
- e. Agricultural Debt Waiver and Relief scheme
- f. Crop Residue Management Scheme

17. ਕੀ ਜੇ ਤੁਹਾਨੂੰ ਮੌਕਾ ਜਾਂ ਅਵਸਰ ਮਿਲੇ ਤਾਂ ਤੁਸੀਂ ਖੇਤੀਬਾੜੀ ਛੱਡਣਾ ਚਾਹੋਗੇ/ If given other option will you want

to quiet Agriculture? ਹਾਂ Yes/ਨਹੀਂ No

18. ਕੀ ਤੁਹਾਨੂੰ ਆਪਣੀ ਫ਼ਸਲ ਨੂੰ ਮੰਡੀ ਵਿੱਚ ਵੇਚਣ ਲਈ ਕਿਸੇ ਸਮੱਸਿਆ ਦਾ ਸਾਹਮਣਾ ਕਰਨਾ ਪੈ ਰਿਹਾ ਹੈ।/Do you

face any problem in selling your Product? ਹਾਂ Yes/ਨਹੀਂ No

ਜੇ ਹਾਂ ਤਾਂ ਕਿਹੜੀਆਂ-ਕਿਹੜੀਆਂ

- a. ਮੰਡੀਆਂ ਦਾ ਦੂਰ ਹੋਣਾ/Markets are Far away
- b. ਵਿਚੋਲੇਦਾਰਾਂ ਦਾ ਹੋਣਾ/Middlemen and Agents
- c. ਚੰਗੀ ਕੀਮਤ ਦਾ ਨਾ ਮਿਲਣਾ/Not Getting Good Price
- d. ਸਿੱਧੀ ਫ਼ਸਲ ਨਾ ਵੇਚ ਹੋਣਾ/Not able To sell Directly
- e. ਭੰਡਾਰਨ ਦੀ ਸਮੱਸਿਆ/Storage Problem
- f. ਰਕਮ ਦਾ ਲੇਟ ਮਿਲਣਾ/Delay in the payment



CERTIFICATE OF PUBLICATION OF PAPERS FOR PH.D.

This is to certify that Mr./Ms. Gurmeet Singh pursuing Ph.D. (**Part Time**) programme in Department of Economics with Registration Number 41800415 under the Guidance of Dr. Tanima Dutta has the following Publications / Letter of Acceptance in the Referred Journals / Conferences mentioned thereby fulfilling the minimum programme requirements as per the UGC.

S no.	Title of paper with author names	Name of journal / conference	Published date	Issn no/ vol no, issue no	Indexing in Scopus/ Web of Science/UGC-CARE list (please mention)
1.	Problem of Rural indebtedness and Agrarian distress in India	International Journal of Research and Analytical Reviews	January 2019	E-ISSN 2348-1269, P-ISSN 2349-5138/ Vol 6, issue 1	Yes
2.	Agrarian Distress and Sustainable Development Goals: An Overview	Indian Journal of Economics and Development	June 2020	Volume 16, No SS, 2020, 462-466/DOI: https://doi.org/10.35716/ijed/NS20-037	Yes (Scopus)
3.	Problem of indebtedness and farmer suicide in Punjab	Two day Ugc seminar on the topic Contemporary issues in Punjab Economy at GNDU Amritsar	Feb 21-22, 2020	A book Published having ISSN number Paper presented on the topic Problem of indebtedness and farmers suicides in Punjab.	Conference 1
4.	Covid-19 and its impact on Agriculture and Rural Distress in Punjab	Two Day UGC National Seminar on the topic impact and challenges of	March 16-17, 2021	Paper presented on the topic impact and Covid-19 and its impact on Agriculture and	Conference 2

		Covid-19 on Punjab Economy at GNDU Amritsar		<i>Rural Distress in Punjab</i>	
5.	Experimental approach on merger and acquisitions in Indian Banking sector	3 rd International Conference on development through skill and innovations at GGNIMT Ludhiana	Feb 15, 2020	A book Published having ISSN number Paper presented on the topic “Experimental approach on Merger and Acquisitions in Indian Banking Sector”	
6.	Digital Revolution in Indian Banking Sector	National Seminar on Digital transformation for sustainable Development	Feb 18, 2020	Paper Presented on the Topic Digital Revolution in Indian Banking Sector	
7.	One week faculty Development workshop By HRDC LPU	Workshop on data analysis using SPSS for social sciences	Jun 6-14, 2022		
8.	International Conference on Business Agility in volatile Times at LPU Phagwara	International Conference on Business Agility in volatile Times at LPU Phagwara	Nov. 7-8, 2019		

Signature of Candidate with Date, Registration No, Email ID

Signature of Guide with Date & UID

Signature of Co-Guide with Date & UID

Problem of Rural Indebtedness and Agrarian Distress in India

Gurmeet Singh Assistant Professor, GCG Ludhiana

Tanima Dutta, Associate Professor, Lovely Professional University, Phagwara

Abstract

Agriculture is the backbone of Indian Economy and every economic activity is related with this occupation. India has been an agrarian economy and due to several types of social and economic reforms it got importance. But after 1990s Indian agriculture starts declining and due to increasing cost of inputs farmers' takes loan from the formal as well as from informal sources. But due to lack of profitability and diminishing productivity farmers are fallen in the debt trap. The impact of rising debt is so severe that it forces them to take the dreaded step of farmer suicide. Debt Relief and loan waivers schemes are therefore used by the Center and State Governments as a quick means to help farmers to restore productivity and improve their credit needs.

Key Words: *Indebtedness, productivity, farmer suicide, loan waivers*

INTRODUCTION

Agriculture always plays an important role in the overall economic and social well being of our country. India has been an agrarian economy and due to various social and economic reforms. It got importance because of green revolution in the early 1960's due to High Yield Variety of Seeds. Agriculture have been the strong pillar of the Indian economy, not only it is providing employment directly or indirectly to almost half of its population but also contributes nearly 17% in the national Gross Domestic Product. It is because of increasing profitability in agriculture and finding it lucrative farmers started to invest more in scientific techniques to fetch more profits out of it. They started to produce those crops which are commercially viable. Till the early 1990's, farming appear to be very profitable so buoyed by the profits farmers started pumping in more capital by procuring loan from non institutional sources, such as commission agents, local money lenders, big landlords etc., at higher rate of interest as the institutional loan is difficult to avail. Not only rate of interest is high, their terms and conditions are also so tricky that once the farmers take loans from these informal sources, they are trapped under vicious circle of debt trap. (NABARD 2017 and NSSO 2013) The agrarian crisis in India has been spatial and institutional. The long term spatial features show that there is a declining trend in the agricultural productivity.

A study by NSSO 59th and 70th round shows that out of total number of cultivators only 56% received credit from formal sources and rest 44% of farmers have no access to formal credit in India. Money lenders were the only source of credit to agriculture till 1935 and they used to charge higher rate of interest resulting in burdening the farmers with debt. (Mishra et al, 2017). Thus somehow rural credit plays pivotal role in agriculture which acts as an enabler in purchasing different types of techniques (Pandey et al, 2018).

IMPORTANCE OF RURAL CREDIT

Indian farmer is mostly poor and lives in misery conditions, they are having lack of credit and most of the time they feel like handicap to purchase inputs like good variety seeds and modern equipments. While discussing the importance of agriculture and its development, the role of agricultural credit plays an important role. Indian agriculture has always been in need for credit and farmers got credit at high rate of interest. Various studies like (Mohan 2006) and (Goliath 2007) analyses the issues in agricultural credit in India. The studies revealed that overall supply pattern of agricultural credit continuous to be inadequate. The studies show that banking sector is still hesitant to supply credit to small farmers as they lack the ability to provide collaterals for their loans. As a result of this it has been observed that though, both, institutional and non-institutional credit facilities are available to small farmers, they tend to prefer the money lenders as they are known to them and do not require much paper work.

Historical analysis of credit in India shows that the cooperatives were entrusted with providing credit to the rural areas and the commercial banks were concentrated in the urban areas. Banking was always considered to be a service for the elites and they were the ones who used this service. The cooperatives are not a new phenomenon to India as they started providing cheap and institutional credit to the people, though this system was further strengthened in 1930 when the three tier system was introduced on the basis of the recommendations of the Maclagen committee. The next step in giving more power to the cooperatives was the setting of The Reserve Bank of India in 1935 through the statute of 1934. Section 17 of the Reserve Bank of India Act, 1934 empowered the cooperative banks to allocate and disburse credit to agricultural sector. The All India Rural Credit Survey (1954) concluded in their study that agricultural credit was inadequate and not able to cover the right people at right time. The cooperative movement was further strengthened after independence as the then Prime Minister of the country was impressed by the cooperative system of USSR and its achievements in the field of credit provision.

The sixties and the seventies have been an interesting phase in the Indian economy and especially in Indian agricultural sector. Green Revolution was brought about in the sixties, first as a pilot project in 1964 and then by 1966 it was launched pan India. In the banking sector too, the need was felt to bring in changes so as to facilitate the diffusion of the benefits of Green Revolution at the ground level. The idea of priority sector was introduced in 1969, which included agriculture credit through Lead Bank Scheme in which it was mandated that 40 percent should be allocated to the Priority Sector and out of it 18 percent had to be earmarked for agriculture. The commercial banking system was encouraged to extend rural credit to the farmers after their nationalization by Government in 1969 and in 1980. However, in spite of the efforts of the state, the agriculture credit remained a problem as there was a constant tussle between the policy makers and the implementers. The Narsimham Working Group (1975), recommended that an agrarian economy like India required a specialized, dedicated institution for rural credit and hence the Regional Rural Banks were set up in 1976. The committee

also recommended that a multi-pronged system was required and as a result by the end of 1977, there were three different institutions for providing rural credit.

The next epoch was the period of eighties when further decentralization was carried out in by establishing National Bank for Agriculture and Rural Development (NABARD) in 1982 which was dedicated to agriculture and rural credit. It became the umbrella organization or agricultural credit over the years and in 1995-96 it also administered the Rural Infrastructural Development Fund (RIDF). Then various committees working groups and task groups were set up since 1991 to improve the poor performance of rural financial institutions, which made several recommendations to improve rural credit delivery system. To boost formal credit to the agricultural sector, an internal working group has recommended revisions to priority sector lending limits for deploying credit to small and marginal farmers. Out of 12.56 crore small and marginal farmers only 5.14 crore or 41 percent have accounts in schedule commercial banks under priority sector in 2015-2016 according to the internal working group report submitted in September 2018. The role of commercial banks is nearly 76 percent as against RRBs and Cooperatives which is 12 percent each in supplying rural credit to the agriculturists in the year 2018-19.

RURAL INDEBTEDNESS

Rural indebtedness is vital in our social structure as it has drawn attention of various sociologist, economist, policy makers, bureaucrats and others. Indebtedness of Indian rural household often finds its threshold in the borrowing for various requirements like accident, illness or social needs like marriage etc. most of which is for economically unproductive activity. There is no provision for institutional borrowing in these cases except money lenders if the borrower is not able to repay the debt, which increases his miseries to remain in the vicious circle of poverty (Nabard 2017). The available literature on rural indebtedness have mainly focused on the importance of rural credit, its magnitude and the factors determining rural indebtedness. As the rural debt is both productive and unproductive, households mostly used for unproductive purposes such as consumption expenditure, social ceremonies such as marriage, litigation and on health expenses and it become more important in case of petty farmers but if it is taken for agricultural purpose than nothing is wrong in it (Shergill 1998; Singh and Toor 2005; Sukhpal, 2006). Recent studies shows that non-productive use of debt leads to non-repayment of debt, which after passage of time resulted in indebtedness. Studies such as (Singh 2017; Merriott 2016; Sajjad et al. 2016; Pandey 2016 and Singh et al. 2014) shows that debt burden has escalated with the increase in farm size.

There are several factors responsible for indebtedness which forces Indian farmer to increases debt and remain indebted forever. It is his social character which compels him to borrow more and more from institutional as well from non-institutional source. Here volume and size of debt does not matter but it is the purpose of debt that matters a lot. It is visible from past studies that cause of high indebtedness in the country are frequent crop failures, fragmentation of land holdings, excessive expenditure on social ceremonies, rising cost of farm inputs and expenditure on unproductive expenditure. The flawed cropping pattern is also responsible for it as rightly

observed by Committees such as by Johl Committee (1986), which was submitted to the Punjab Government had highlighted the issue of the existing cropping system in Punjab. The reinvention of the committee (Johl, 2002) emphasized that depleting water table can be checked if farmers should shift to other crops rather than Wheat and Paddy.

MAGNITUDE AND DETERMINANTS OF RURAL INDEBTEDNESS

New economic policy of liberalization in 1991 led to the fall of Indian agriculture, where because of increasing competition at international level prices of agricultural commodities started to decline. The new LPG policy of 1991 has been adversely affecting profitability from agriculture. Similarly some of the factors like crop failure, intoxication, poor industrial growth and less employment opportunities in the non-farm sector increases the vulnerability among farmers. The study by Sidhu and Gill (2006) have also founded that the proportion of indebtedness among farmer is highest in progressive and agriculturally developed states like Punjab, Haryana, and Maharashtra etc. The report of these states has shown high level of per farmer debt. Agrarian distress in India is worsening day by day as most of the farmers want to quit agriculture if they have been given any other option. About 40% of farmers wanted to quit agriculture because it has become a highly unprofitable occupation (NSSO, 59th 2003 and 70th round, 2013). According to Dhandekar and Bhattacharya (2017) and NSSO (2013), the figures of indebted agricultural house hold in the country are estimated at 52 percent. The average outstanding loan per agricultural house hold is Rs. 47000 and the proportion of indebted households in both Maharashtra and Punjab is higher than the national average of 52 percent. The state wise incidence of indebtedness shows that Telangana (79 percent). Andhra Pradesh (77 percent) and Karnataka (74 percent) show high levels of indebtedness across states (NABARD 2017). The average outstanding loan in India has been enhanced 3.5 times from Rs. 12585 in 2002 to Rs. 47000 in 2012.

Small and marginal farmers among the farming community are badly affected by crop losses and falling profitability of agricultural product (Pandey et al 2018). The NSSO data also represent that nearly 85 percent of all the operational farm households in the country are smaller than 2 hectares in size. The landholding owned by the marginal farmers has increased from 38 percent in 1953-54 to over 80 percent of land holdings (Ministry of Agriculture, 2014). The marginal, small, semi medium farmers and agricultural laborer have almost been excluded from giving loan because they are not considered credit worthy (Amandeep & Sidhu 2012).

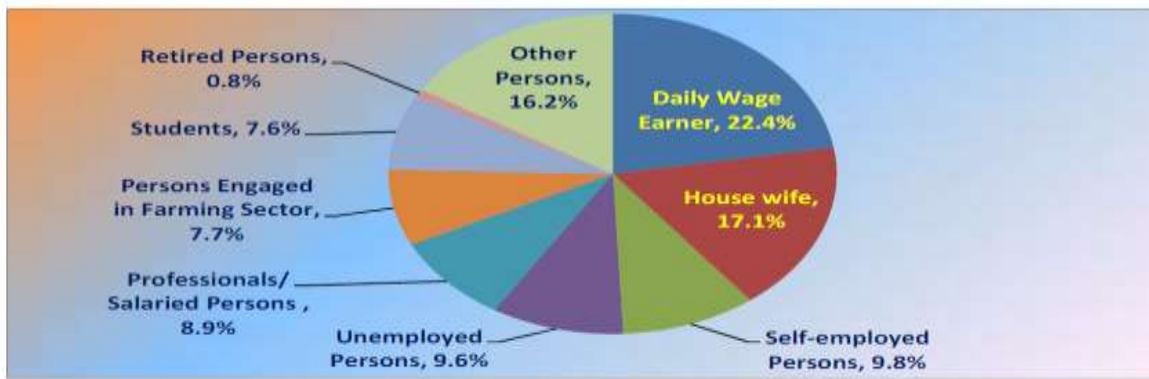
Kaur (2014) has found that there is low risk and high extent of indebtedness among the households in different occupations in the country by assessing NSSO data. A study has also been conducted in three different agro climatic zones of Punjab by Singh & Toor (2005) who founded that in Punjab, the amount of debt per indebted household was highest in case of large farmers and lower in case of marginal farmers.

Farmers often take loan for various productive and non-productive purposes but most of the time they use amount of debt on non-productive uses such as social ceremonies, health issues, purchasing luxury items and for sending children abroad. Various studies have pointed out various economic and non-economic determinants which influence indebtedness. The factors which determine the amount of debt are size of family,

ratio of credit from non-institutional sources, earnings from subsidiary occupation, expenditure on unproductive activities and educational level (Singh & Toor 2005, Pal & Singh 2012, Singh et.al 2014). Some studies like (Sidhu & Gill 2006) have investigated the degree of indebtedness and factors leading to it and farmer suicide at an all India level. The study founded that the number of indebted farmers are more in agricultural developed and progressive states. Studies such as (Shiva et.al 2005) have founded that even in the most developed states like Punjab, 78 percent of farmers have availed credit from non-institutional sources at very high rate of interest. Studies such as (Jeromy 2007 and Padmaja & Ali 2017) studies farmer indebtedness in rural India and major reason of agrarian crisis is trade liberalization, natural calamities and decline in production and productivity. Several studies have shown that main occupation, mechanization, medical expenditure, rate of interest are the important factors affecting debt and has positive relationship with indebtedness. (Datta et al. 2016), conducted his study in the state of Telangana and concluded that there is also a negative correlation between mechanization and incidence of indebtedness.

ISSUE OF FARMER SUICIDE

Suicide is a multifaceted and complex phenomenon. “Suicide is a universal Phenomenon resulting in thousands of deaths each year. Suicide is often attributed to mental disorders or movements of crisis with a breakdown in the ability to deal with life stresses.” (WHO 2014) Suicides are basically mostly seen in low and middle income countries. With regard to differences in occupational groups, it has been seen that farmer constitute a high risk group (Behere and Bhise 2009; Milner et al. 2013). Comparatively higher suicide rates for farmers are also seen as symptoms of larger socio economic divide (Mishra 2014). The dwindling condition of Indian farmers is reflected in the unending stream of farmer suicide in recent years. Data from the national crimes record bureau (NCRB) reveals that the farmers constitute the most distressed group in the country, there suicide rate are higher than that of all others (Kumar et al.). The NCRB data made available since 1995, show that approximately 3 lac farmers had committed suicides by 2016, but the actual number could be more than double of this figure (Sainath 2015). Some studies like (Nagaraj 2008) show that farm suicides are not only because of agrarian distress but also due to causes like unsustainable lifestyle of farmers, alcoholism and due to rising medical expenses. Similarly various studies shows that small and marginal farmers are worst affected by crop losses and fall in the price of their agricultural product. Pressure to repay loans borrowed from formal finance institutions, extreme poverty and high level of indebtedness are the main causes behind farmer suicide (Pandey et al. and Singh 2006). Dhandekar and Bhattacharya (2017) situated farmer suicide on the larger context of agrarian crisis in India and his fieldwork is based on the two most suicide prone districts of Maharashtra and Punjab. In the last decade or so the couple of remarkable studies show the relationship between debt and suicide among agricultural laborers (Bharti V, 2011). Thatai (2015) discussed the relationship between rural indebtedness and farmer suicide in Punjab. Almost 10,349 persons involved in agricultural sector (consisting of 5,763 farmers/cultivators and 4586 agricultural laborers) have committed suicides during 2018, accounting for 7.7 percent of total suicide victims in the country as shown in the figure below as per NCRB’s recent data.

Percentage Distribution of Suicide Victims by Profession During 2018

• As per data provided by States/UTs.

POLICIES RELATED WITH LOAN WAIVERS

As the agricultural crises and number of farmers suicide are increasing the Centre and State Government is compelled to announce various schemes like doubling farmer's income and announcing farm loan waiver schemes. These schemes have emerged as the important policy for addressing the issue of agricultural crises. But different studies showed that loan waivers tend to benefit better off farmers and led to lower future investments and productivity (Phadnis et al.). It may provide temporary relief to farmers, but is definitely not a permanent solution as non-institutional credit still plays important role in rural credit (Kumar et al.).

The NABARD study of 2015-16 reflects that only 30 percent of the farmers benefited from loan waivers as only sixty percent farmers took loan from institutional sources. NSSO data also reveals that rise in indebtedness over the last few decades is given by indebtedness from non-institutional sources. Agrarian distress in India is deep rooted as the farm loan waiver is a short term solution. It distorts credit culture because disruption in credit flow encourages farmer to depend more on informal sources, which may aggravate the situation going forward. So the present government should take those steps which can make agriculture sector more profitable. The farmers who are providing food to the masses should get suitable remuneration for their work. Government should make policies which should not only help farmers but should make agriculture more viable so farmers should not think of quieting it.

The important program on farm loan waiver was started in 1990 at National level called Agriculture and Rural Debt Relief Scheme, followed by another nationwide loan waiver in 2008 known as Agricultural Debt Waiver and Debt Relief Scheme 2008. The program targeted higher relief for small and marginal farmers than large farmers. The unprecedented increase have been seen in the farm loan waivers since 2014-15 and currently more than ten states have approved loan waivers of nearly 2.4 trillion since 2014-15. Although many people have justified National loan waiver programs because of rural urban divide in growth, social unrest and rise in the cases of farmer's suicide. But from economic point of view these schemes are having negative impact on commercial banks' lending capacity as well as on state finances. The borrowers some time default intentionally in anticipation of future bailouts. There is also problem of identification of beneficiaries and proper

implementation of the scheme. It also does not cover informal lending which mostly prevail in agricultural sector. Although the scheme of loan waiver is seen in the rationale of alleviating the debt burden and undertake productive investment and activity. But the working group recommends that Government of India and State Governments should start an extensive review of the agricultural policies and their implementation and If it does not suit the agricultural policies and does not help to improve the conditions of farmers than loan waivers should be avoided.

CONCLUSION

Rural credit is lifeline of all the people related with agriculture like farmers, agricultural laborers, landless farmers and rural households. They cannot do away without rural credit as their needs are unlimited and their resources are limited. So they have to borrow from institutional sources such as Commercial Banks, co-operatives, Regional Rural Banks and non-institutional sources such as money lenders, shahukars etc. They both provide credit but the former is more reliable due to low rate of interest and less risky affair, but the non-institutional sources are more risky and exploitative because of its demanding approach. These sources always look for the weak point of the farmers to exploit them. They charge very high rate of interest although their conditions are mostly flexible. It's like day and night approach meaning thereby if you urgently need the credit with no time at your disposal then you will prefer moneylenders and if you have time and patience to wait then commercial banks and co-operatives are the best suited to your equation. The mounting debt on the farmers led to debt trap like situation because to repay one debt they have to take another debt at higher rate of interest. The average outstanding loan was highest in the progressive states like Maharashtra and Punjab. Mostly farmers take loan for productive purposes but end up using it for unproductive purposes such as on building house, on health, on education of their children and for their consumption purposes. Small and marginal who represent nearly 80 percent of total landholding are the worst sufferers. The amount of debt per indebted household is directly related to farm size, it was highest for large farmers and lower for marginal farmers. Various studies have shown that there are several economic and non-economic factors which influence indebtedness. As the rural crisis and farmer suicides are increasing both Centre and state Government is compelled to announce various schemes like Doubling farmer's income and announcing farm loan waiver schemes. But studies showed that loan waivers tend to benefit better off farmers. It provide temporary relief to farmers but not the permanent one as non-institutional sources still plays an important role in rural credit market institutions. The working group formed by RBI to Review Rural Credit recommends that Government of India and regional Governments should take review the policies related with agriculture and its successful implementation. So there is dire need of strengthening the rural credit system and improving the supply chain of institutional credit agencies.

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Agrarian Distress and Sustainable Development Goals: An Overview

Gurmeet Singh^{1*} and Tanimu Dutta²

¹Assistant Professor in Economics, Department of Economics, Government College for Girls, Ludhiana-141001

²Associate Professor, Lovely Professional University Phagwara-144411 (Punjab)

*Corresponding author's email: Gsk_372@rediffmail.com

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ABSTRACT

The number of undernourished people dropped by almost half in the past two decades because of rapid economic growth and increased agricultural productivity. Unfortunately, extreme hunger and malnutrition remain a huge barrier to development in many countries as there are still 821 million people estimated to be chronically undernourished as of 2017 because of environmental degradation. The second sustainable development goal to attain zero hunger by achieving food security can only be achieved by improving agricultural productivity and providing suitable opportunities to the farmers and producers to enhance production in this sector. But in India after liberalization and globalization Indian agricultural profitability starts declining and the Indian farmers because of mounting agrarian distress comes under severe debt trap. Several paradigm shifts in governmental policies although it helped them in improving their economic position still the farming community was not able to help the global world to attain second sustainable development goals.

Keywords

Debt trap, globalization, sustainable development goals.

JEL Codes

Q01, Q14.

INTRODUCTION

It is in the agricultural sector that the battle for long term economic development of India will be won or lost, Gunnar Myrdal said. As the whole global community wants to achieve 17 SDGs and 169 targets by 2030, but even after four years of its implementation progress is not on the right track. To eradicating hunger and food insecurity and to achieve sustainable agriculture is an important theme of sustainable development goals. No Doubt Improvement in agricultural productivity was recorded over recent decades to satisfy the food demand of the masses, but its progress comes with severe social and environmental costs such as soil degradation, water scarcity, biodiversity loss and high level of greenhouse emissions. Our natural resource base was damaged by compromising the future fertility of the planet. Currently, 821 million people are hungry and every third person is malnourished and people in the world are facing food insecurity. According to UNDP by 2030, end hunger and ensure access by all people, in particular the poor people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

The second sustainable development goal to attain

zero hunger by achieving food security improved nutrition and promote sustainable development agriculture can be achieved only by increasing agricultural productivity and improving the condition of rural masses, but the current situation of rural distress in India is making it difficult for the Government and administration to fulfill this goal.

Agriculture is the main and important occupation for the population living in South Asia especially in India. With a nearly six-fold increase in food grain production from 50 million tonnes in 1950-51 to more than 283.37 million tonnes in 2018-19, India's performance to expand food production and build up stocks of food grain has done well. The granaries are overflowing in the country when agrarian distress is quite pronounced, and India ranks dismal 102 among 117 countries in the Global Hunger Index, 2019. The implementation of the revamped public distribution system (PDS) under the National Food Security Act (NFSA), 2013 is an important change in the approach towards the issue of food security at the household level. The schemes like Antyodaya Anna Yojana and Mid-Day Meal are providing food security to downtrodden. In India, approximately every rural Indian

is covered under PDS and the Government is making all the efforts to achieve the first and second sustainable development goal which ensure eradicating poverty and Hunger by improving agricultural productivity. To increase productivity, the Indian Government took several institutional and technical steps. Several schemes were started such as the National Mission for Sustainable Agriculture (NMSA) which is looked like one of the eight missions outlined under the National Action Plan on climate change; it aims at promoting sustainable agriculture through climate change adaption measures.

Every aspect of human life in India is influenced by agriculture and related activity. As per the Labour Bureau Report 2015-16, 46.1 percent of the working population was employed in agriculture. Agriculture has been a strong pillar of the Indian Economy and despite rapid industrialization agriculture still occupied a place of pride, but during the past few decades because of the opening up of new markets and liberalization, there was a distinct slowdown in the agricultural sector. Several Risks and uncertainties in production, marketing and access of institutional credit to downtrodden small and marginal farmers were quite low. Small and marginal farmers' problems included the absence of collaterals for getting bank loans, increased expenditure on collection and marketing and having low returns. Therefore, typical Indian farming is all about poor farmers, fragmented land holdings, minimum farm mechanization, traditional agriculture practices, low inputs, and poor market linkages. It results in the declining performance of the sector as well as the farmers leading to agrarian distress which leads to depression and suicides (Dhandekar & Bharracharya, 2017).

The agrarian crisis in India was both structural and institutional. The structural changes showed a declining trend in the contribution share of agriculture in the gross domestic product accompanied by the comparatively low rate of urban diversification which forced them away from agriculture. It resulted in the declining relative productivity of agriculture vis-à-vis that of the non-agriculture sector. On the credit front, the weakening of the rural co-operative credit institution had taken a toll on the farming community in many portions of the country. Targeted and priority lending are under pressure because of weakening performance of the commercial banks and regional rural banks and it resulted in growing dependence on non-institutional sources which provide credit at very high rates of interest. Several efforts were made recently to improve the credit system in the country. Even the procurement system did not serve the purpose of ensuring minimum prices to agricultural production in many parts of the country. Agrarian distress in India is deep-rooted and deteriorating day by day. According to the 59th round of NSSO, 2003, about 40 percent of farmers wanted to abandon agriculture mainly because it became a highly unviable occupation. A repeated survey of NSSO, 70th round 2013 revealed the worsening of the

situation. The main causes of the agrarian distress are many but here the role of rural credit and its impact on rural indebtedness was discussed.

Evolution of Rural Credit

As the importance of rural credit is immense and it plays a very important role in the development of agriculture so it is important to discuss the role of rural credit in Indian agricultural scenarios. Various studies by Mohan, 2006; (Golait, 2007) analysed the issues in agricultural credit in India. The studies revealed that the overall supply pattern of agricultural credit continues to be inadequate. The studies showed that the banking sector is still adamant to supply credit to the small and marginal types of farmers. It was suggested that special efforts were required to increase the flow of credit to the agriculture sector through better use of technology and related processes. Although rural credit markets in India were characterized by the co-existence of both institutional and non-institutional credit agencies even than traditionally farmers depend on local money lenders for their credit needs. Cooperative loans were the major source of agriculture credit in India since independence. The credit activities of the commercial banks were mainly concentrated in urban areas. The problem of providing cheap and institutional credit began with the cooperatives act in 1904, based on the report of the MacLagen committee on cooperatives in 1915; by the end of 1930, a three-tier cooperative credit structure was established. The Reserve Bank of India Act was passed in 1934 which led to the establishment of the Reserve Bank of India in 1935 under Section 17 of the Act which gave it the power to provide Agriculture credit through state Co-operative banks. The Reserve Bank had taken various steps until the 1950s to strengthen the co-operative societies to provide institutionalized credit to the rural community. The All India Rural Credit Survey of 1954 had examined in its study that agricultural credit fell short of the adequate quantity and right type and even did not serve the right purpose to cover the right people. Although the performance of co-operatives in the agricultural credit was lacking in more than one way, at the same time, co-operatives had an important role in purveying credit to the farmers and therefore it is rightly said that cooperation has failed, but cooperatives must succeed.

The weakness of rural credit continued to engage the attention of the Reserve Bank and the Government throughout the 1950s and 1960s. Since 1968, cooperative societies were the main source of providing loans in the rural sector, but they did not develop fully in many parts of the country. The concept of priority sector was introduced in 1969 which included agriculture through the Lead Bank Scheme. In the late 1960s, the Green Revolution followed necessitating adequate availability of credit to meet the demand of Indian farmers. The nationalization of commercial banks in 1969 and 1980 encouraged the commercial banking system to involve in extending agricultural credit, but despite all efforts, the flow of

credit to the agricultural sector failed to show any improvement. Following the recommendation of the Narsimham Working Group (1975), Regional Rural Banks were set up. Hence by the end of 1977, there were three separate institutions for providing rural credit, which is often described as the multi-agency approach. After the recommendation of the committee to review arrangement for institutional credit for agriculture and rural development the National Bank for Agriculture and Rural Development (NABARD) was set up in 1982 for the promotion of agricultural credit, which also administers the Rural Infrastructural Development Fund (RIDF) set up in 1995-96. The poor performance of rural financial institutions since 1991 resulted in setting up various committees, working groups, and task forces to look into their operations, which made several recommendations to improve the rural credit delivery system. Although the Indian Government strengthened the institutional credit in many ways a study by NSSO showed that out of the total number of cultivators only 56 percent received credit from institutional sources and 44 percent from non-institutional sources such as money lenders, landlords, rich farmers, and friends, etc. The role of commercial banks was nearly 76 percent against RRBs and cooperatives which is 12 percent each in supplying rural credit to the agriculturists.

Rural Indebtedness

In India agrarian distress has perhaps never been as bad as it was today, it can be felt from the latest report of NCRB which showed that there were 7.7 percent of people out of total suicides, which were associated with agriculture and committed suicide in 2018. The main problem of agrarian distress in rural indebtedness, which is vital in our social structure as it had drawn the attention of various sociologists, economists, policymakers, bureaucrats and others. The term indebtedness may be understood as it is financial in nature and indebtedness was restricted to an individual, to a household or may also extend to an organization. Indebtedness of Indian rural households often finds its genesis in the borrowing for certain requirements like accident, illness or social needs like marriage, etc. There was no provision for institutional borrowing in such cases except money lenders. The borrower was not able to repay the debt, which increased his miseries to remain in the vicious circle of poverty (NABARD, 2017). Empirical studies related to rural indebtedness mainly focused on the importance of rural credit, its nature and magnitude and the factors affecting rural indebtedness. The extent of indebtedness of a household was determined by the source and use of credit. As the rural debt is both productive and unproductive, households mostly used it for unproductive purposes mainly consumption expenditure, social ceremonies such as marriage, litigation and on health expenses and it became more important in case of marginal and small farmers but if it is taken for agriculture purposes than nothing wrong in it (Singh & Toor, 2005; Singh, 2006).

The recent studies showed that the non-productive uses of credit led in non-repayment of debt, which after the passage of time resulted in indebtedness. Studies conducted by Singh, Anupama, Kaur and Kaur (2017); Merriott (2017); Sajjad, Chauhan and Jamil (2016); Pandey (2016) showed that debt burden had increased with the increase in farm size. There are several factors responsible for the account of which an Indian farmer increases debt and remain indebted forever, his social status compels him to borrow more and more. Jeromi (2007); Padmaja and Ali (2019) reported that agrarian indebtedness in rural India and according to the major reason for the agrarian crisis was trade liberalization, natural calamities, and decline in production and productivity.

Agrarian Distress and Magnitude of Rural Debt

The new economic policy of liberalization in 1991 led to the fall of Indian agriculture, where because of increasing competition at international level prices of agricultural commodities started to decline. The new economic reforms were adversely affecting the cost of production and net income generated from the farm business. Similarly, marital discord, crop failure, addiction of intoxicants, stagnant industrial growth and reduced employment opportunities extended the vulnerability among farmers. Sidhu and Gill (2006) found that the proportion of indebted farmers was highest in agriculturally developed states like Punjab, Maharashtra, and Haryana, etc. These states had a high level of per farmer debt. Agrarian distress in India is worsening day by day as most of the farmers wanted to quit agriculture if they were given any other option. About 40 percent of farmers wanted to abandon agriculture mainly because it became a highly unviable occupation (NSSO, 59th 2003 and 70th round, 2013). According to Dhandekar and Bhattacharya (2017) and NSSO, 2014 the numbers of indebted households in the agriculture sector in the country are estimated at 52 percent. The average outstanding loan in India has increased 3.5 times from ₹12585 in 2002 to ₹47000 in 2012 and the proportion of indebted households in both Maharashtra (57 percent) and Punjab (53 percent) is higher than the national average.

The small and marginal farmers among the farming community are the worst affected by crop losses and fall in the price of agricultural products (Pandey, Bandyopadhyay, Kadam, & Singh, 2018). The NSSO data showed that nearly 85 percent of the operational landholding were smaller than 2 ha in the country. The percentage of land owned by marginal farmers increased drastically from 38 percent in 1953-54 to 70 percent in 2003 and over 80 percent of landholdings were small and marginal. These farmers are not able to take the stress and they often took the dreaded step of committing suicide.

The increasing size and magnitude of rural indebtedness led to farmer suicide in India. There are several causes responsible for farmer suicide but the

major causes are poverty, marriage related issues, family problems and illness, drug abuse and addiction. These are some of the social causes and economic causes such as lack of institutional credit resources; pressure put by money lenders and commercial banks to repay the loan on farmers definitely ignited the spark and force farmers to take this dreaded step. Even the bad monsoon and crop failure played a very important part in making the farmers' life more difficult. As per the latest data made available by NCRB, almost 10,349 persons involved in the agricultural sector (consisting of 5,763 farmers/cultivators and 4586 agricultural laborers) committed suicides during 2018, accounting for 7.7 percent of total suicide victims in the country (Table 2).

Policies Related to Farm Loan Waiver Scheme

As the agriculture distress and number of farmers' suicide are increasing the Centre and State Government was compelled to announce various schemes like doubling farmer's income and announcing farm loan waiver schemes. These schemes emerged as an important policy for addressing the issue of agricultural crises. Various studies showed that loan waivers tend to benefit better-off farmers and led to lower future investments and productivity (Phadnis & Gupta, 2019). It may provide temporary relief to farmers, but is definitely not a permanent solution as non-institutional credit still played an important role in rural credit (Kumar & Dadich, 2019).

NABARD'S study of 2015-16 reflected that only 30 percent of farmers were benefited from loan waivers as only 60 percent of farmers took a loan from institutional sources. NSSO data also revealed that the rise in indebtedness over the last few decades was mainly caused by the indebtedness from non-institutional sources. Agrarian distress in India is deep-rooted as the farm loan waiver is a short term solution. It distorted credit culture because disruption in credit flow encourages the farmer to depend more on informal sources, which may aggravate the situation going forward. So the present government should take steps which turn the agriculture sector more profitable. The farmers who are providing food to the masses should get suitable remuneration of their work.

Table 2. Trends in farm suicides in India

Year	Total suicides	Of which suicides by farmers and agricultural laborers	Percentage
2010	1,34,599	15,963	11.86
2011	1,35,585	14,207	10.48
2012	1,35,445	13,755	10.16
2013	1,34,739	11,772	8.74
2014	1,31,666	12,360	9.39
2015	1,33,623	12,602	9.43
2018	1,34,516	10,349	7.7

Source: National Crime Records Bureau, Government of India.

The government should make policies which would not only help farmers but also make agriculture more viable so farmers should not think of quitting it.

The start of the farm loan waiver program, Agriculture and Rural Debt Relief Scheme 1990 was undertaken at the national level, and followed by another nationwide loan waiver Agricultural Debt Waiver and Debt Relief Scheme 2008. This scheme was broader in its coverage of institutions such as Scheduled Commercial Banks, Regional Rural Banks, Local Area Banks, and Co-operatives Credit institutions. The program targeted higher relief for small and marginal type farmers than large farmers. The impact of farm loan waivers was an unprecedented increase since 2014-15. Nearly more than ten states announced loan waivers aggregating 2.4 trillion since 2014-15. Although many people justified National loan waiver programs because of the rural-urban divide in growth, social unrest, and rise in the cases of farmer's suicide (Reddy & Sundaram, 2019), but from an economic point of view, these schemes had a negative impact on commercial banks' lending capacity as well as on state finances. The borrowers some time default intentionally in anticipation of future bailouts. There is also a problem with the identification of beneficiaries and the proper implementation of the scheme. It does not cover informal lending which mostly prevailed in the agricultural sector

Table 1. Agency-wise ground level credit flow

Agency	(₹ Crore)				
	2014-15	2015-16	2016-17	2017-18	2018-19 (P)
Commercial Banks	6,04,376	6,42,954	7,99,781	8,71,080	9, 49,622 (76.00)
RRBs	1,02,483	1,19,260	1,23,216	1,41,216	1, 51,258 (12.00)
Cooperatives	1,38,469	1,53,295	1,42,758	1,50,321	1, 53,882 (12.00)
Total	8,45,328	9,15,509	10,65,755	11,62,617	12, 54,762 (100.00)

Source: NABARD (2017).

Figures in parentheses are percentages.

but the working group recommended that the Government of India and State Governments should undertake a systematic and positive review of the agricultural policies and their implementation. If it did not suit the agricultural policies and did not help to improve the conditions of farmers than loan waivers should be avoided.

According to the report submitted by the internal working group (Reserve Bank of India, 2019), there was regional disparity in agricultural credit as some states were getting major share out of total agricultural credit than the other states. Loan waivers were not successful when some borrowers intentionally withhold the repayment, in anticipation of the loan waiver. This further led to the deterioration of credit culture as observed from the high level of gross NPA of 8.44 percent in 2019.

CONCLUSIONS

There are five key principles for attaining sustainable agriculture which are increasing productivity, employment and value addition in the food system, protecting natural awareness, improving livelihoods for faster inclusive growth. Then enhancing the progress of communities and willing to adopt governance for new challenges. Hence these were important social and economic reforms that should be adopted by the government to achieve sustainable development goals. To improve agricultural productivity, supply and availability of rural credit should be enhanced and farmers should be given essential help by the government. Agrarian distress in India is worsening day by day as most of the farmers want to quit agriculture if they were given any other option. About 40 percent of farmers wanted to abandon agriculture mainly because it had become a highly unviable occupation. So the government should make appropriate policies to strengthen the economic condition of the farmers. To attain the second Sustainable Development Goal of removing hunger can only be fulfilled if the food production can be enhanced. It was only possible by improving the farmers' condition which was actually reeling under the condition of rural indebtedness. Rural indebtedness can be checked by encouraging the farmers to take a loan from institutional sources rather than non-institutional, who often exploited the farmers with their exploitive policies. Farmers should also use the loan for productive purposes rather than unproductive purposes and also make use of their available resources more judiciously. In the recent Budget, the Finance Minister had announced 16 point proposals to revitalize agriculture, but the agriculture can only be revitalized without improving rural credit and solving the problems of small and marginal farmers who are of great help in providing the food security and will help in attaining sustainable development goals.

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