

**THE PROCESSES AND DETERMINANTS OF  
DEPEASANTIZATION IN PUNJAB**

*Dissertation submitted in partial fulfilment of the requirements for the  
Degree of Master of Philosophy in Applied Economics of the  
Jawaharlal Nehru University*

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**M.Phil Programme in Applied Economics**

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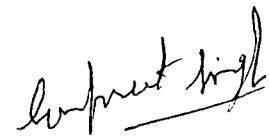
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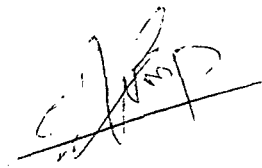
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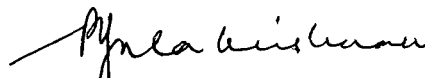
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. . *To*

*My Parents*

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*Usual disclaimer applies.*

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## ABSTRACT OF THE DISSERTATION

# THE PROCESSES AND DETERMINANTS OF DEPEASANTIZATION IN PUNJAB

GURPREET SINGH

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*Indian economy has been experiencing high rate of growth and a structural transformation during the last two decades. The growth attained is skewed with manufacturing and services sectors being the forerunners and the agricultural sector lagging behind. The agricultural growth has been decelerating since the last two decades. It has been argued that the severity of the on-going agrarian crisis would have forced the peasants to leave agriculture and to join the non-cultivation sector where there has been expansion of employment opportunities. The process is evident in all the regions but there exists significant inter-regional variations. The North-western region, in particular Punjab, has shown a relatively higher fall in the proportion of workforce engaged in agriculture. The shrinking size of the peasantry is referred to as depeasantization. The present study examines the processes and determinants of depeasantization in Punjab and further examines the type of mobility taking place among various classes of peasants. The study starts with an attempt to understand the growth pattern of agriculture in Punjab and therefore provides a review of evidences since the green revolution. Then, to understand the trends in depeasantization, the pattern of operational holdings and occupational composition in the state are examined for a period of three decades (1971 to 2001). The determinants of depeasantization have also been identified through a descriptive analysis at a point of time (2003). The mobility of the peasants has been captured by analysing the aspects of educational, occupational, and economic mobility. Two points of time have been compared to examine the type of mobility (upward or downward) of the peasants.*

*The study finds that the decelerating growth of agriculture along with declining farm income has led to reverse tenancy resulting in increasing land concentration among the top sized groups. There has been a sharp increase in the process of depeasantization since the last two decades and this trend has been high for the bottom sized classes. Further, the push factors or distress-led depeasantization have been found to be more dominant than the pull factors or development-led depeasantization. The analysis of mobility has shown that it has not been same for all the classes: while the mobility has been relatively downward among the bottom sized groups, it has been relatively upward for the top sized groups. The push factors, which have forced the marginal peasants to abandon cultivation, have also led to their downward mobility.*

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# CHAPTER I

## INTRODUCTION

### 1.1 Statement of the Problem

Indian economy has been experiencing a high rate of growth and a structural transformation during the last two decades. The growth attained is skewed with manufacturing and services sectors being the forerunners and the agricultural sector lagging behind. This is evident from the sharp fall in share of agriculture in the Gross Domestic Product (GDP) and a concomitant increase in the share of the manufacturing and services sector. The high growth in the manufacturing and service sector has not been translated into growing employment opportunities in these sectors; thus it has been a jobless growth (Kannan and Raveendran, 2009; Goldar, 2000; Chaudhuri, 2002). Despite its falling share in the GDP, agriculture still provides employment to a large proportion (58.4 per cent) of the total workforce (Census of India, 2001).

The high dependence of the population on agriculture and the slow growth of agricultural incomes have adversely affected the livelihood of the agrarian population creating conditions of distress (Reddy and Mishra, 2009; Nair and Menon, 2009; Despande and Arora, 2011). The falling income levels have caused the peasants to adopt coping strategies such as casual wage labour, seasonal migration and self-employment to sustain their subsistence living. Small peasants are leasing-out their unviable holdings to large holders (Gill, 2002) and they are becoming highly dependent on non-farm employment. In this process, land is being concentrated in the hands of medium and large size of holdings in the agriculturally fast growing regions of the country. In such regions there has been a fall in the estimated number of operational holdings and in the proportion of labour force that depends on cultivation as their main source of livelihood.

The process of the shrinking size of peasant population, who depends on cultivation or favours it as their main source of income, is referred to as 'depeasantization'. This term evolved in the debate over the future of peasantry

under capitalism (Araghi, 1995). The central focus of the debate was that the inevitable expansion of capitalism would result in the dissolution of peasantry. Increasing inequality of wealth, especially land would result in differentiation of the peasantry into two: non-labouring landowners and non-landowning labourers. Increasing intensification of technological changes in agriculture (both agro-mechanical and bio-physical) turned agriculture into a capitalist 'mode of production'<sup>1</sup>. Poor peasants with limited access to the factors of production would leave agriculture and join the labour force (De Janvry, 1981) resulting in the emergence of two social classes; the rural bourgeoisie and the rural proletariat.

As far as India is concerned, depeasantization has been taking place on account of the factors such as the ongoing agrarian crisis as well as the economy's structural transformation (Singh et al., 2009). The extent and the factors of depeasantization may vary across the different regions depending on the performance of agricultural sector. The pattern of agricultural growth varies across the different regions in India. During the 1960s and the 1970s the north-western region achieved high growth in agriculture due to the adoption of green revolution technology. The diffusion and adoption of new technology gathered momentum during the 1980s and the 1990s and it spread to more regions in the eastern, southern, and central states. This tended to reduce inter-state disparities in agricultural development over time (Bhalla and Singh, 2010).

In recent years, a poor or slow growing agricultural sector and a high growing non-agricultural sector has led to falling share of agriculture in State Domestic Product (SDP) and employment in all the states with significant inter-state variations. The North-western region has shown a relatively higher fall compared to other states. It has been argued that the severity of the agrarian crisis in this region would have forced the small peasants to leave agriculture (both through sale of their land or leasing-out) and to join the non-cultivation sector where there has been expansion of employment opportunities. In order to

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<sup>1</sup>As depeasantists expect that capitalist mode of production will replace peasant mode of production.

understand the processes and determinants of depeasantization taking place in the country, analysis at the disaggregated level (and the state level as well) is necessary. The present study will examine this issue in the context of Punjab.

## 1.2 Significance of the Study

Agriculture has been the leading sector in Punjab's economy in particular since the green revolution. Its importance is evident from the share of agricultural output in the Net State Domestic Product (NSDP); the contribution of agriculture to the NSDP in 2006-07 has been 34.3 per cent. The contribution of agriculture to Punjab's economy is the highest among all the states in the country. The importance of agriculture in Punjab is further evident from the fact that it employs 39.4 per cent<sup>2</sup> of the total workforce in the state (Census, 2001).

The high agricultural growth attained by the Punjab economy in the first two decades of the post-green revolution (1970s and 1980s) period is observed to have stagnated in the last two decades. In the last two decades, the growth of the economy has not been led by agriculture but by the manufacturing and service sector. The agricultural sector has been in the brunt of a crisis, caused by a host of factors such as ecological degradation, debt burden, unfavourable price policy, decline in public investment and increasing international competition (Balakrishnan et al., 2008; Banerjee, 2009; Chand, 2008; Gill, 2005; Kalkat, 2008; Sidhu, 2002; Sidhu and Johl, 2002). The agrarian crisis in Punjab has severe implications for the food security of India since the state contributes more than 40 per cent of the food gains to the national pool of food grains. Given the dominance of the agricultural sector, the present crisis in agriculture has slowed down the overall growth of the state's economy.

The ongoing agrarian crisis has had very severe impacts on the peasants, especially on the small and marginal ones, who earn a large proportion of their income from agriculture (Bhalla and Singh, 2010). The small peasants have been forced to supplement their income with other occupations as agriculture has

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<sup>2</sup> Agricultural workers consist of agricultural laborers and cultivators.

become less profitable (Singh et al., 2009). Therefore, they have been moving out of agriculture in search of alternative/supplementary income sources. The shrinking size of peasantry can be observed from the decreasing number of operational holdings; from 11.17 lakh in 1990-91 to 9.97 lakh in 2001 (Government of Punjab, 2009). The decline is noticeable in the case of small and marginal farmers; the decline being 5 lakh to 3 lakh during 1991 to 2001. This indicates that mobility has been relatively higher among the small and marginal farmers. Undoubtedly, there has been a sharp fall in the share of cultivators, especially since 1991. This trend has a serious implication on the front of non-farm employment as workers shift from farm to non-farm employment.

The occupational mobility taking place in Punjab and notably among the small and marginal farmers may be either downward or upward. Mobility is downward when the peasants moving out of agriculture, take up petty employments such as agricultural labour, self employment, petty production, and seasonal migration. Downward mobility is due to hardship or crisis driven factors (that are push factors) such as falling productivity, increasing costs, decreasing returns and crop failure; unemployment and underemployment and increasing indebtedness. On the other hand, mobility is upward when peasants shift from agriculture and invest their surplus in other sectors that are more lucrative and profitable. In this case, mobility is driven by pull factors such as increasing agricultural surplus due to technological change, high education level, urbanization, development of secondary and tertiary sectors and even state intervention for generating employment opportunities (Singh et al., 2009) and incentives to start non-agricultural enterprises. These issues relating to occupational shift of peasants (depeasantization) in Punjab have not drawn much scholarly attention. The present study is an attempt in that direction.

### **1.3 Objectives and Scope**

The present study will examine the processes and determinants of depeasantization in Punjab. The specific objectives of the study are:

1. To understand the growth scenario of Punjab agriculture since green revolution.
2. To examine the trends of depeasantization in the state of Punjab and to analyse the determinants of depeasantization.
3. To identify the type of mobility (upward mobility or downward mobility) of the peasants.

A number of related issues such as the impact and implication of depeasantization on rural employment and wages, the performance of the non-farm sectors, inter-district and international migration of peasant households etc. are not covered in the present study due to paucity of data.

#### **1.4 Data Sources and Methodology**

The study is entirely based on secondary data source. To see the growth pattern of Punjab's agriculture, the data provided by Statistical Abstract of Punjab (various years), Census of India (various years) and National Accounts Statistics have been utilised. To analyse the determinants of depeasantization, NSSO's Unit-Level Data of 59<sup>th</sup> round (Situational Assessment Survey of Farmer, 2003) has been used. To fulfil the third objective, two rounds of NSSO's All India Debt and Investment Survey (48<sup>th</sup> and 59<sup>th</sup> rounds) and three rounds of NSSO's Employment and Unemployment Situation in India (50<sup>th</sup>, 61<sup>st</sup> and 64<sup>th</sup> rounds) have been used. Reports of NSSO's Land and Livestock Survey have also been employed.

To examine the growth of Punjab's economy and agricultural sector, annual compound growth rates, percentage distributions, coefficients of variation (CV) have been calculated. Chi-square tests and Cramer's V have been used to see the association among variables. Logistic regression model have been used to identify the factors responsible for depeasantization. To compare the means, t-test has also been employed.

## **1.5 Chapter Outline**

The present study is organised into six chapters including the introduction. The next chapter reviews the studies related to depeasantization. The third chapter analyses agricultural growth in Punjab providing evidences since the green revolution. The fourth chapter deals with the trends and determinants of depeasantization. The fifth chapter analyses the educational, occupational and economic mobility of the peasants in Punjab. The final chapter concludes the study with its policy implications and issues for further research.

## Appendix A

**Table A1: Percentage share of agriculture output in GSDP, and share of cultivators and agricultural labourers in total workers in different states of India in 2001 (per cent)**

States	Percentage Share of agriculture to GSDP	Percentage of cultivators to total workers	Percentage of agricultural labourers to total workers	Percentage of (A+B) to total workers
Andhra Pradesh	26.5	22.7	39.6	62.3
Gujarat	13.5	27.6	24.5	52
Haryana	30.2	36.3	15.2	51.6
Himachal Pradesh	21.3	31.7	3.1	68.6
Karnataka	26.2	29.5	26.4	55.9
Kerala	18	7.2	16.1	23.3
Maharashtra	14.4	28.6	26.8	55.4
Punjab	36	23	16.4	39.4
Tamil Nadu	15	18.4	31.2	49.5
Uttar Pradesh	32.6	40.9	25.1	66
West Bengal	24.6	19	24.9	43.9
All-India	23.9	31.7	26.7	58.4

Source: EPW Research Foundation, 2009 and Census of India, 2001



## CHAPTER II

### REVIEW OF STUDIES ON DEPEASANTIZATION

#### 2.1 Introduction

The concept of depeasantization emerging from the Marxian view of class differentiation has evolved over time. There has been no general consensus over the definition of depeasantization. This process has been conceptualised differently by different schools. The present chapter reviews the various schools of thought. It attempts to look beyond the conventional schools of thought and present the phenomenon of depeasantization in the light of recent developments.

The chapter is divided into five sections. The second and the third sections bring out the Marxist and neo-classical views of depeasantization respectively. The fourth section discusses depeasantization from a broader perspective. The final section brings together the main arguments.

#### 2.1.1 Concept and Definition of Depeasantization

The term depeasantization emerged from the debate over the future of peasantry under capitalism. Originally, the debate occurred in Revolutionary Russia to examine the role of peasantry and its fate under capitalism during the beginning of the 20<sup>th</sup> century. It was revisited by scholars during the 1970s and the 1980s to view the impacts of capitalist development on the peasantry in Latin America. The debate over the future of peasantry portrays two variant views- First is the disappearance thesis (of the Depeasantists), which argued that the inevitable expansion of capitalism will lead to the disappearance of the peasantry from the countryside. "Thus, sooner or later, rapidly or slowly, directly or indirectly, peasants will be transformed into wage workers and capitalist farmers in the countryside" (Araghi, 1995: 338). Second is the permanence thesis (of the Peasantists) which argued that peasantry, for various reasons, do not disappear under capitalism.

The discussion of depeasantization needs necessarily be preceded by an understanding of 'peasantry'. A peasant is an agricultural worker whose livelihood is based primarily on having access to land that is either owned or rented, and who uses principally their own labour and the labour of its family members to work on that land. Eric Hobsbawm (1994) argues that in the second half of the 20<sup>th</sup> century the far reaching social change is the death of peasantry. It existed before the rise of capitalism and in the present world the peasantry is dissolving. '*Peasant economy*' refers to modes of rural economic activity with certain defined characteristics. The first characteristic is that the basic unit of production is the household; therefore, the demographic composition of the household is of paramount importance in determining the volume of output, the percentage of output consumed by the household, and, thus, the net remainder to be used for investment or savings. Second, the majority of household income is derived from agricultural production, that is, the household is dependent on its own labour. Third, as the peasant households are dependent on agriculture for survival, they are assumed to be conservative and resistant to changes that would threaten their survival.

Chayanov (1977) argued that production in a household is not based on the profit motive or the ownership of the means of production, rather on the calculations made by households as consumers and workers (Araghi, 1995). In other words, production is to meet the subsistence of a family and not to maximize profit. According to Chayanov (1977), the basic principle for understanding the peasant economy is the balance between the household member as a labourer and as a consumer. The calculation made by households whether to work more or not is subjective, based upon an estimate of how much production is needed for survival (consumption) and how much is desired for investment to increase the family's productive potential. But Chayanov looks upon the peasantry as a homogenous group and economically undifferentiated entity (Patnaik, 1987).

The definition of peasant used by Sundarayya (1976) in 'The Land Question' and adopted by Utsa Patnaik (1987) in her book 'Peasant Class Differentiation: A Study in Method with Reference to Haryana' is based on the Leninist concept of

class. They adopted this definition of peasant and the classification of peasantry in their studies in the Indian context. This definition divides the various classes of peasants and argues that peasant class is differentiated and not a homogeneous one. According to this definition “those who work on the land throughout the year, physically participating in all major agricultural operations, are to be considered peasants” <sup>1</sup> (Sundarayya, 1976).

Eric Wolf defined peasants as “rural cultivators whose surpluses are transformed to a dominant group of rulers that uses the surpluses both to underwrite its own standard of living and to distribute the remainder to groups in society that do not farm but must be fed for their specific goods and services in return” (Wolf, 1966: 3-4). Thus, Wolf went beyond the debate whether peasants were naturally conservative, values-rational, safety-oriented investors of their land and labour or whether they tended to be risk-taking, market-oriented maximizers (Owen, 2005).

Later, Teodor Shanin’s definition of peasants attempted to reconcile the insights of Chayanov and Wolf. According to him, “Peasantry consists of small agricultural producers who, with the help of simple equipment, and the labour of their family, produce mainly for their own consumption and for the fulfilment of the holders of political and economic power.” (Shanin, 1990:5). He was critical of the classical and Marxist political economy that considered capitalism “outside peasant economies and societies” with the assumption “that capitalism equals depeasantization.”

Bryceson has conceptualised depeasantization in a broader way: “The concept of depeasantization is mostly defined as a multi-layered process of the erosion of an agrarian way of life. This way of life combines subsistence and commodity agricultural production with an internal social organization based on family labour and village community settlement.” (Bryceson, 1999: 175). According to Araghi, “depeasantization has been neither a unilinear process, nor has it taken the historically particular form of differentiation in the countryside within each

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<sup>1</sup> Individually those who work on the land throughout the year, physically participating in all major agricultural operations, are to be considered peasants.

and every nation-state.” (Araghi, 1995: 359). The process of depeasantization may not be uniform across regions but the essence of it is that there will be movement of peasants to the non-agricultural sector.

## 2.2 The Marxist View

It was the Marxian theory that first started the debate on peasantry under capitalism. The theory asserted that peasant agriculture was unstable and would not be able to resist capital penetration (Marx, 1964). According to the Marxian views, this process is a necessary condition for agricultural development. The factors that contribute to the downfall of peasantry are removal of the main subsidiary and supporting economic activities that went along peasant farming, competition from large scale and technically more advanced forms of agriculture. Increasing capitalism will dissolve the peasantry and turn the farming operations to capitalistic mode of production. In this process the undifferentiated class of peasants will be transformed into new distinct groups: capital owners (capitalist farmers) and wage labourers. The spread of capitalism will inevitably result in the dissolution of peasantry (Lenin, 1956; Kautsky, 1988).

The depeasantists' view stated above is in a way similar to the theory of social differentiation of the peasantry. The theory holds that growing inequality of wealth among peasant households, most notably their land, will divide the peasantry into two: non-labouring landowners and non-landowning labourers. The big landlords owning large landholdings will enjoy economies of scale in production whereas the smaller-scale peasants will become increasingly indebted that will force them to sell-off their land to the big landlords. The growing concentration of landholdings will cause the poor peasants to sell their labour power while facilitating its purchase by the emerging class of rural bourgeoisie. The crux of the depeasantists' view is that the peasantry will dissolve ultimately.

The advocates of the 'permanence thesis' disagreed with the Marxist view of dissolving peasantry. They argued that, peasant societies have a distinct development logic that supports the survival of the peasantry within capitalism (Chayanov, 1977). According to this school of thought, one outlook that ensured

its viability is the behavioural characteristics and communal institutions of the peasantry. A peasant believes in subsistence living rather than accumulation of capital that helps him to survive even under capitalism (Schejtman, 1987). At the community level, it is the redistributive mechanisms and economic interactions among peasants that ensure the survival of all peasant families (Warman, 1980). Besides, it is argued that both peasantry and capitalism will survive together in the sense that the peasants as an exploited class will provide cheap food and labour to the benefit of the capitalist economy. The permanence theses of the Populists further argue that capitalism will not develop because of the low level of technological development. The slow process of technological development will help to sustain the peasantry.

Lenin criticises the Populists' view of persistence of peasantry and argues that emerging inequality in the distribution of land, horses and other means of production among households is a process of differentiation. The households with insufficient means that produce their own subsistence are being proletarianised while those with surplus means increasingly employs wage labour. Expanding farming operations with more land and other means of production will turn the peasant farming to capitalist farming.

In both the schools of thought (permanence thesis and disappearance thesis), the Marxian concept of "mode of production" has remained popular. Peasantists argued in favour of the "peasant mode of production" that emphasized working of the rural economy on the basis of the family-labour enterprises. Depeasantists argued that pure peasant mode of production does not exist and peasantry exists as either a class within some other mode of production (for instance feudalism) or as a transitory fraction of a class within the capitalistic mode of production (De Janvry, 1981). If depeasantists' view holds then the force of capitalist mode of production would transform peasant households into two classes that are capitalists and wage labourers. In contrast, peasantists maintained that capitalist interests would work to sustain the peasantry for the capitalists' own dominant position (Warman, 1980: 304). According to Warman (1980), the other reasons for the persistence of peasants are - first, the stability of the capitalistic system is

based on the surplus that it exploited from the peasantry; second, the economic motivations of the peasantry are oriented towards subsistence than towards profit-maximization that is necessary for capitalism to develop and for social differentiation of the peasantry to occur.

Depeasantists opined their view on depeasantization by employing the Marxian framework of capitalism. De Janvry (1981) explained that capitalism required that all workers in the economy sold their labour power and were entirely dependent upon their wage income. This process would lead to the increase in the supply of labour in the economy and would reduce the wage bill paid by capitalists. It would facilitate in the dissolution of all pre-capitalist mode of production and establishment of a capitalistic mode of production. This would eventually lead to the emergence of two social classes namely, the rural bourgeoisie and the rural proletariat.

Using the insights of classical Marxism, many studies have examined the dissolution of peasantry in the rural areas of Latin America and Africa. Deere and Wasserstrom (1981), in their studies on many Latin American countries found that the level of off-farm income was inversely related to the farm size. Their findings thus supported the disappearance thesis of social differentiation among the region's peasantry. Another study by De Janvry et al. (1989) found that among the small landholders in Latin America, wage labour is a major source of household income which invokes the process of depeasantization. However, Warman (1980) argued that participation in wage labour and other income generating activities help peasantry to escape from its dissolution and thereby continue their livelihood strategy of subsistence-oriented agricultural production. This argument is supported by Brass (2003) study of many regions of Latin America.

Thus, in a Marxian sense, with capitalist development there will be concentration of wealth and land in the hands of the landlords; this happens due to the transfer of land from small peasants to landlords. The landless peasants, as a consequence

will move out of agriculture and join the labour market to seek for employment. This process of shrinking size of peasantry can be termed as depeasantization.

In Indian context, the growth of capitalist farming in agriculture, differentiation among peasantry, separation of the direct produces from their means of production, and issues pertaining to peasant mobilisation have been of interest. Several scholars inquired into the extent of capitalist farming in Indian agriculture. The main finding of various studies is that even with the growth of capitalism, the capitalist farming in Indian agriculture continued to be low (Rao et al., 1984).

The green revolution in the mid-1960s that had differential impact across the regions in the country revived the interest in the growth of capitalism in Indian agriculture. The slow growth of green revolution has been due to the fact that the landlords found it more profitable to engage themselves in usury and renting out than in investing in the new inputs of green revolution (Rao et al., 1984). In such a situation peasant differentiation, proletarianisation and separation of direct producers from the means of production tend to progress slowly. It was anticipated that green revolution would hasten the decay of pre-capitalist relationship and thereby lead to disintegration of peasantry. However, this impact of green revolution in the Indian context was far less than what was anticipated. The areas which have low spread of institutional finance, the merchant-usurer capital continue that could control both the means of subsistence and production of the immediate producers. The factors such as demographic pressures, land reforms and supervisory constraints have limited the growth processes of capitalism within agriculture. The demographic pressures have kept ground rents at high levels; land reforms, however ineffective, kept the expansion of holdings beyond the ceiling levels in restraint; and supervisory problems of labour in the presence of limits to labour displacing mechanisation made renting out more profitable.

## 2.3 The Neo-Classical View

The Neo-classicals described depeasantization as the outcome of structural transformation of an economy. The process of structural change has two peculiar characteristics: a secular decline in the share of the labour force in agriculture and a decreasing weight of agricultural output in national product. The process of structural change is due to improvements in agricultural technology that shift resources to the industrial sector, and improvements in manufacturing technology that increases manufacturing wages, pulling labour into that sector (Cuadradoy et al., 2009). The growing importance of the non-agricultural sector will be reflected in the continued decline in the farm production sector. Kuznets (1966) identified the economy-wide phenomena such as industrialization, urbanization and agricultural change as the defining elements of structural change. The Neoclassical economists have commonly asserted that agricultural sector functioned as the supplier of surplus labour for the industrial sector. This shift has been considered as one of the characteristics of structural change by the neo-classicists.

Kuznets (1966) has pointed out the general facts on the role of agriculture in the growth process of the less-developed countries. These facts formed the basis of the neoclassical view that the dominance of agricultural sector in an economy would eventually decline as the process of modernization starts; agriculture would function as the contributor of labour, food, and perhaps capital to the essential modernization efforts in industry. Lewis (1954) argued that no policy efforts would be able to modernise agriculture as this sector would decline naturally. Besides, his suggestion was to keep the terms of trade against agriculture so that it would help modernizing industry.

With increasing employment opportunities in the non-agricultural sector, there will be a fall in the employment share of the agricultural sector: this takes place as a part of the structural change in an economy. The Neo-classical economic theory argued that there will be migration from low wage to high wage regions (Bilsborrow, 1998; Mears, 1997). Rondinelli et al. (1998) holds that the growth of



cities in jobs, wealth, services, infrastructure and new opportunities that are characteristic of development will attract migrants from the surrounding rural areas. Becker and Morrison (1988) argued that such development was not seen in most of the African economies. Due to the poor growth of these economies, the cities have failed to grow economically and hence have failed to attract migrants. In Todaro's model, migration is driven by the potential for higher wages and not the actual wages (Mears, 1997). Therefore, the lack of pull factors or growth of opportunities in the cities in Africa cannot deter migrants.

Mellor (1976) found that with the emerging green revolution technologies and consequent increase in agricultural productivity would raise the incomes of farmers through multiple linkages with the non-farm sector. These were production linkages, both backward, via the demand of agriculturalists for inputs and forward, via the need to process many agricultural goods. Consumption linkages operated through increase in agricultural income that raises the demand for goods and services. The agricultural surplus would be a source of investment funds for the non-agricultural sector which is likely to promote the growth of this sector. Thus, growth in the farm sector reinforces non-farm sector growth and vice-versa.

One of the important formulations on the growth of rural non-farm employment is the residual sector hypothesis. This hypothesis argues that the growth in rural non-farm employment is due to an excess supply of labour over demand from agriculture. Thus, the rural non-farm employment growth is seen, primarily, as a distress-induced phenomenon (Vaidyanathan, 1986). The factors that force (distress led-factors) households to move out of agricultural to non-agricultural sector are called push factors and the factors that lure households to engage in non-agricultural activities are called pull (or demand-pull) factors. Both processes may be going on simultaneously at a particular point of time but of the individual forces that lead to each of the processes, some may be more dominant than the others. Johnson (2004) has argued that depeasantization which can be a rural income strategy is inherently though not explicitly linked with urbanization, industrialization, development and marginalization.

Depeasantization, as the neo-classicals hold, is the outcome of the structural change in the economy. With modernization and urbanization the fast growing non-agricultural sector will attract the rural population to the urban centres. The peasants will move out, as the non-agricultural sector will offer higher wages than the agricultural sector. As a result there will be a shrink in the size of peasantry. Thus, the neo-classicals seemed to have emphasised on the pull factors as the determinants of depeasantization.

## **2.4 Depeasantization from a Broader Perspective**

Depeasantization is a process of shrink in the size of peasantry resulting in disappearance of the agrarian way of life. There is no unanimous interpretation of depeasantization among various schools of thought. Marxists explain this process as an outcome of peasant class differentiation; the accumulation of capital among rural households, most notably accumulation of land will dissolve the peasantry and create two non-peasant classes- the capitalists and the labourers. In short, capitalism will push the peasants out of agriculture. However, the neo-populists argue that peasantry will not dissolve since this class is a source of surplus extraction for capitalists. The neo-classicals, on the other hand, argue that there will be dissolution of the peasantry as a consequence of the structural transformation of an economy. This transformation will cause shift of the rural population to the non-agricultural sector. The relatively higher wages will pull the peasants to the non-agricultural sector. However, these various schools of thought cannot be put into water-tight compartments when contemporary developments are considered. The process of depeasantization can be viewed from different perspectives.

Araghi (1995) argued that the green revolution and various land reform strategies were adopted to promote the development of the capitalist farmer, on a large or small scale, which often neglected basic food production. Due to this strategy only a minority became capitalist farmers, and a vast majority of the rural populations remained petty commodity producers, dependent upon state subsidies and public and private financing for both their production and

consumption needs. The infrastructural developments paved the way towards landlord capitalism and the emergence of a class of rich and middle peasant. In Indian case during the 1960s the pace of capitalism was low because of low return from the agricultural inputs. The pace of capitalism became high with the advent of the green revolution. Bhalla (1984) also advocates the emergence of capitalism however, he argued that capitalism need not lead to a decline in the size of peasantry. "In the heartland of green revolution namely, Punjab and Western Uttar Pradesh, the new technology has not lead to dispossession of the producer since it reduce the threshold of viability. There was very little distress sale of land in these regions. The capitalistic competition did not throw out of the small farmers, though it has altered the production relations." (cited in Rao et al., 1984). Thus, it can be inferred that peasantry will not disappear with capitalism.

The development of capitalism need not dissolve peasantry *per se*; dissolution may be due to agrarian crisis and evolution of government policies. In Africa, removal of agricultural subsidies and price supports, land deregulation, wage freezes, and the devaluation of national currencies led the farmers to a crisis situation; exposing the farmers to high risks and low returns as a result of which the small farmers are unable to compete (Bryceson, 1999). Such crisis has brought about depeasantization, as the rural populations have to move out of agriculture to diversify their income sources so as to cope with the increasing income risks. Araghi (1995) has argued that as small farmers are increasingly exposed to world market forces, they have turned to petty commodity production, rural labour, seasonal migration, occasional wage labour on capitalist farms and subcontracting to multinational corporations as methods of meeting their subsistence needs.

In the present Indian context, the shrink in the size of peasantry is due to the squeezing up of profit margins caused by persistence of the agrarian crisis. Reddy and Mishra (2009) provide a recent picture of the crisis and its impact on various classes of farmers. They raise the issue of increasing marginalization (70 per cent of the farmers own land less than 1 hectare) that has forced these farmers to look for subsidiary occupation. The post- liberalization government policies

are found to have worsened the agrarian crisis. Agrarian subsidies have been diverted towards inputs and procurement of crops (minimum support prices). However, the marginal and small farmers are unable to benefit from these subsidies as they do not produce enough marketable surpluses.

The class analysis of agricultural situation by Banerjee (2009) describes the differential impact of the neo-liberal economic policies on Indian peasantry. He found that the fall in income is also of such intensity that even after non-payment of their debts, it barely allowed attainment of the required consumption levels for a good number of households in these classes. To supplement the falling agricultural income the peasants consider earnings from non-cultivation sources.

The study by Bhalla and Singh (2009) has showed that after the introduction of economic liberalization, the vulnerability of Indian peasantry has increased due to the declining productivity levels in most of the states. This study has found that decline in public investment in irrigation and water management and scientific research has been the chief factor for declining productivity. In the North-western region of the country, the fall in the efficiency of inputs due to its excessive use has lowered profitability further.

In the post-liberalisation era, due to high risks and low returns from agriculture, the small-scale peasant farmers were unable to compete (Bryceson, 1999). During this period, the movement of domestic prices of agricultural commodities came to be correlated to the movement of its international prices. The unit prices of these commodities have shown a declining trend with a high degree of volatility resulting in increased risk, shock and vulnerability to the growers (Subramanian, 2007). Araghi (1995) found that the neo-liberal policies implemented in Africa resulted in the removal of agricultural subsidies and price supports, land deregulation, wage freezes, and the devaluation of national currencies making the rural agricultural populations highly vulnerable. The fall in prices has adversely affected the farmers in India because they have not been able to withstand international competition. Besides, those farmers who had shifted to the cultivation of commercial crops have been even more vulnerable as

production of commercial crops entails large investments. The rationale with which commercial crops have been produced (i.e., to export these crops and import food at cheap price) did not work due to the fluctuating prices. “The rising food prices in the new century, especially the phenomenal upsurges in global food and fuel prices witnessed in recent years, also mean that the real returns in agricultural activity in the third world have turned even more unfavourable over time” (Banerjee, 2009: 49).

Balakrishnan et al. (2008) found that the non-prices or structural factors may also have acted against producers since 1991, having a negative impact on agricultural growth. They found that the factors such as fragmentation of holdings, slowing of irrigation expansion and stagnant public expenditure in agriculture have serious implication on the agrarian growth.

Agriculture being a prime and important sector in Indian economy (both in terms of GDP share and employment share), this trend has a serious setback to the overall growth of the economy. The falling income levels in a crisis situation make the peasants adopt occupational diversification as a survival strategy. Johnson (2004) holds that depeasantization may include a diversification of survival coping mechanisms for the rural poor; diversification constitutes petty commodity production, rural wage labour, seasonal migration, subcontracting to (multinational) corporations, self-employment, remittances, and income transitions. Increasing marginalization raises the importance of these strategies. Of late, these survival strategies have been considered as ‘recreation of a peasant strategy’ (van der Ploeg, 2010).

The growth of the non-farm sector will lure peasants to move out of agriculture. In the Indian context, it has been found that there is a clear increase in non-agricultural employment in rural workforce. A comparison of the growth between farm and non-farm employment in the pre-reform and the post-reform period showed that in the post-reform period, the rural non-farm sector has been able to absorb large labour force and has acted as a resort to surplus population in farm sector (Misra, 2010). In the pre-reform period the annual growth of farm

employment was 1.24 per cent which decelerated to 0.86 per cent in the post-reform period whereas, the growth of non-farm employment was 3.05 per cent in the pre-reform period and 3.81 per cent in the post-reform period (Bhaumik, 2007). This shows that there has been increasing shift of labour from the farm to the non-farm sector in the post-reform period.

In the recent decades, distress of farmers has become a major issue of concern. This distress which has led to increasing number of suicides has been much discussed. This issue shifted the debate from the mode of production of the 1960s to the growing crisis of the economy in the 1980s and to the farmers' suicide in recent years (Assadi, 2008). The shift of labour is not a simple process but a complex one full of hardships. Joshi (1978) argued that agrarian transformation cannot be at the cost of unprecedented human misery, widespread destitution and insecurity. When peasants move out of agriculture and seek employment in non-agricultural sector, due to the over burden in the urban formal sector they have to move towards urban informal sector (Harris and Todaro, 1970). Lack of skills and low level of education again entrap them into low skill jobs and low wages. When peasants move out to agriculture due to distress, they will be willing to take up employments such as petty commodity production and rural wage labour in which case mobility will be downward. If peasants move out of agriculture due to pull factors such as education and better non-farm employment opportunities, then the mobility will be upward (Singh et al., 2009).

## 2.5 Conclusion

The concept of depeasantization has emerged from the Marxist view of class differentiation. It argues that peasantry will shrink in its size with the rise of capitalism. However, in the contemporary world, shrinking peasantry may not be the result of capitalism alone but factors such as structural transformation of the economy and agrarian distress. Due to structural transformation of an economy, the share of agricultural output in the economy and employment share in the total workforce declines. The growing non-agricultural sector in the urban areas will attract rural workforce to join this sector. A shift of peasants may also

take place when there is a fall in agricultural income due to agrarian crisis. An agrarian crisis is generally characterised by the factors such as falling productivity levels and increasing indebtedness. Whether it is structural change in the economy or agrarian crisis, each leads to shrink in the size of peasantry.

The present study is a modest attempt to examine the process of depeasantization. The study views depeasantization as taking place in a broader context and does not restrict itself to any school of thought. However, it tries to capture depeasantization in the context of the on-going developments in the chosen area of the study. In the study, the cultivators are taken as peasants and the shrink in size of cultivators is considered as depeasantization. It has been found that the underlying factors of depeasantization may be development-led or distress-led. Therefore, the study considers both pull and push factors that can determine this process. If it is largely the push factors that determine depeasantization then it can be expected that the peasant mobility is downward. If it is pull factors that determine depeasantization then it can be expected that the peasant mobility is upward.

## CHAPTER III

# AGRICULTURAL GROWTH IN PUNJAB: A REVIEW OF EVIDENCES SINCE GREEN REVOLUTION

### 3.1 Introduction

Enterprising farmers of Punjab have transformed the agricultural economy of the state over a period of more than 150 years. Agrarian history of the region has revealed the various factors that shaped the growth process in agriculture. The British invested in canal colonies in the erstwhile Punjab (it also included the present day Pakistan) to rehabilitate the soldiers who participated in the mutiny of 1857. Since land was abundant, it was possible to settle these soldiers in the vast tracts of land; for the British this was a way of mobilising additional revenue through sale of land and also to procure commodities like wheat and cotton for Britain (Calvert, 1922). The British invested in the development of irrigation in the region; expanded the railways and provided support to promote agriculture through supply of credit and by setting up agricultural research station for transferring technology to the farmers. Since land was abundant, holding sizes were large. The farmers responded quickly, and the production of wheat and other agricultural commodities increased rapidly resulting in increased agricultural production and exports (Grewal, 2004). The yield of crops obtained in Punjab (especially wheat) was comparable to that obtained in other advanced agricultural regions of the world. The region thus achieved tremendous prosperity through agricultural development. The land relations slowly began to undergo change; a new class of rich land owners cum money lenders developed in the region, who began to take away the land of small peasants. The process subsequently resulted in increasing concentration of land. Even under prosperity, the peasants of Punjab increasingly fell in to the debt trap (Darling, 1928). The situation worsened due to the great depression of the 1930s, and the colonial government initiated a number of steps to extend relief to the farmers. With the partitioning of British India into India and Pakistan, bulk of the irrigated area in the erstwhile Punjab was left with the Pakistan part of Punjab. Given the



importance of agriculture in the Indian Punjab, one of the major efforts made by independent India was to promote irrigation in the Indian Punjab by investing in the Bhakra Nangal project. With the large scale development of canal irrigation, Punjab continued to remain the most important agricultural tract in the country. The situation received further boost with green revolution which resulted in quantum jump in the production and productivity of agriculture in the region.

The story of green revolution is well known and its various facets have been ably analysed by a large number of scholars. Our attempt in this chapter is to map a number of salient aspects of the agricultural economy of Punjab in the post green revolution period that has significant bearing on understanding the issue of depeasantization.

The rest of this chapter is organised in as follows: section 2 will review the policies and programmes that has contributed to the spread of green revolution in the state. This is followed by an analysis of the growth performance of agriculture in the state. The remaining sections of the chapter will review the impact of agricultural growth: more specifically the aspects reviewed are agricultural growth and structural changes in the Punjab economy, over-capitalisation of agriculture, and its implications on the viability of farming, indebtedness among farmer households, and on the agrarian structure. The last section summarises the main conclusions of the chapter.

### **3.2 Policies and Programmes**

The accelerated growth of production in the late 1960s, which continued through the 1970s and early 1980s, was the result of adoption of green revolution technology. The green revolution technology comprised the high-yielding varieties (HYVs) of seeds, fertilizers and irrigation technology. The rapid rise in demand for HYV seeds and fertilizers, irrigation, power and credit after the introduction of new technology during mid-sixties underlined the need to increase supplies of these crucial inputs (Bhalla, 2007). The government policies with regard to the funding of research to develop new technologies suited to local farm conditions, strengthening of extension to demonstrate and pass on the

technology to the farmers, providing credit to the farmers to buy inputs and develop irrigation facilities helped to promote the adoption of new technology. The Punjab state marketing agencies like MARKFED, PUNSUP, Agro-industries Corporation, Punjab Mandi Board and Warehousing Corporation has a significant role in the development market for agriculture products in the state (Kalkat, 2008). As a result of various policies, a large number of farmers were able to adopt new technology.

Table 3.1 summarises a few of the key indicators pertaining to the development of Punjab agriculture. High yielding varieties of seeds and fertilizers are two of the main components of the new technology. The short maturing new seed varieties that enabled double cropping had the ability to resist crop disease and thereby gave a bumper harvest. Research stations were able to develop several new varieties of wheat suitable to local conditions. Later, the new rice seed developed by International Rice Research Institute (IRRI) was successfully introduced in Punjab. New varieties of seed were developed with the joint efforts of central and state government, the Indian Council of Agricultural Research (ICAR) and the state agricultural university (Bhalla, 2007). With the initiatives of government, farmers were able to adopt new seed varieties in the early years of sixties. There was a sudden rise in the adoption of HYV of wheat and then later of rice. In recent years, area under HYV for rice and wheat crops has reached hundred per cent. It has remained higher than national average<sup>1</sup>.

The use of fertilizer ensures optimum yields from new seeds. The fertilizer pricing policy enabled the availability of fertilizers at reasonable prices: this led to high consumption of fertilizers per unit of land. The NPK consumption increased from 37.51 kg/ ha in 1970-71 to 223.46 kg/ha in 2008-09. Besides the bio-chemical technology, agro-mechanical technology also developed in Punjab agriculture.

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<sup>1</sup> During the initial years of green revolution, the percentage of HYV seeds in the total area under food grains was 73 per cent as compare to 31 per cent for all India. Further, the percentage of HYV seeds in the total area under food grains has increased to 95 per cent during 1980s whereas it has gone up to 54 per cent for all India (Singh and Kohli, 2005).

**Table 3.1: Selected indicators of agricultural development in Punjab**

Year	Cropping Intensity (per cent)	Proportion of area under HYV (%)		Consumption of NPK (Kg/ha)	No. of Tractors per 1000 NSA in hectares	Area under irrigation (Proportion of NSA) (%)	Source wise Proportion of Net Area Irrigated (in percent)			
		Rice	Wheat				Govt. Canals	Tube wells and Wells	Other sources	Total
1970-71	140	33.33	69.03	37.51	1.33	71.00	44.53	55.09	0.38	100.00
1980-81	161	92.64	98.04	112.67	28.36	81.00	42.28	57.33	0.38	100.00
1990-91	178	94.17	99.97	162.62	68.53	93.00	42.47	57.12	0.41	100.00
2000-01	187	95.98	100.00	165.34	102.13	95.00	23.82	76.13	0.05	100.00
2008-09	190	100.00	100.00	223.46	118.01	97.20	27.31	72.59	0.10	100.00

Source: Calculated from Statistical Abstract of Punjab, various issues.

According to Singh (2008) "A number of machines, like combine harvesters, threshers, reapers, planters and potato diggers unknown to the Punjabi farmers in 1950, are now extensively used" (Singh, 2008: 149). The introduction of machinery has replaced the use of animal draught power. Punjab has become a leading state in the use of modern machines and farming technology<sup>2</sup>. The number of tractors per 1000 hectare has increased from 1.33 in 1970-71 to 118.01 in 2008-09.

The rapid spread of green revolution technology was possible due to the existence of high irrigation potential in the state. Irrigation technology being the most important input massive public investment was made to expand the irrigated area in the state. This led to substantial development in both canal irrigation and ground water irrigation<sup>3</sup>. The quality of irrigation has undergone substantial improvement as evident from the fact that at present about 75 per cent of the net sown area is irrigated by wells and tubewells. The high irrigation levels have led to remarkable increase in consumption of electricity for agricultural purposes; the state consumes 8 per cent of the total electricity for agricultural purpose in India. The massive expansion of irrigation has also resulted in significant increase in cropping intensity; from 140 in 1970-71 to 190 by 2008-09.

With the inception of green revolution technology, the need for both short term and long term credit rose in the state. Credit was needed to improve land and to dig tube wells. The dependence on credit was high among the small and marginal farmers; these farmers having weak resource base demanded credit for both production and consumption purposes (Bhalla, 2007). The cooperative movement in rural credit remained successful, but the role of money lenders has been dominating in Punjab. There has been manifold increase in the disbursement of cooperative credit since green revolution. Similarly,

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<sup>2</sup> Punjab accounts for nearly 18 per cent of the total tractors and 6 per cent of the total pump sets in the country.

<sup>3</sup> As a consequence the area under irrigation reached to over 95 per cent of the cultivated area in the state as compared to 38 per cent for all-India during the late 1990s.

nationalisation of commercial banks led to an enormous increase in credit supply that helped the farmers to buy various farm inputs (Government of Punjab, various issues). However, supply of credit for formal institutional sources as a proportion of total farm credit has shown a sharp fall in recent years<sup>4</sup>.

**Table 3.2: Terms of trade of wheat and rice in Punjab (per cent)**

Year	Wheat	Rice
1981-82	162.19	202.95
1990-91	225.56	212.62
2000-01	295.42	280.20
2006-07	273.77	237.61

*Source: Computed from Report of the Commission for Agricultural Cost and Prices (various Issues) and Farm Harvest Prices of Principal Crops in India, various issues.*

*Note: Terms of Trade is calculated as harvest price of crop/cost of cultivation (A1 cost).*

The agricultural price policies have played the most important role in the spread and adoption of green revolution technology in Punjab. The Agricultural Price Commission (now called Commission for Agricultural Cost and Prices - CACP) was set up in mid 1965 to ensure remunerative prices. Assured prices for wheat and rice created an incentive environment for the adoption of their high-yielding varieties (HYV); these two crops were seen to possess vast potential for raising grain production. The price policy has had a positive impact on farm income in the state. However these policies resulted in a shift of land and other resources away from pulses, oilseeds and other crops to the production of only wheat and rice (Chand, 2003). This advantage that lasted in the initial decades of green revolution has shown a sharp deterioration in the post-WTO period. This is evident from the available estimates of the trends in terms of trade of wheat and rice (see Table 3.2).

### 3.3 Performance of Crop Production

There has been a significant growth in area under rice and wheat since green revolution (Table 3.3). There has been a shift in area from coarse cereals to wheat and rice. During 1970-80, the area under wheat and rice had increased annually by 2.31 per cent and 12.37 per cent respectively. It is seen that during this period,

<sup>4</sup> In 1981-82 the proportion of informal credit was 25.9 per cent of the total farm credit which has increased to 43.6 per cent in 2001-02.

the area under maize, bajra and barley has fallen by 3.54 per cent, 9.71 per cent and 3.42 per cent respectively; the fall in the area under pulses and oilseeds has been 1.23 per cent and 5.11 per cent respectively. The subsequent periods also saw considerable fall in the area under coarse cereals, pulses and oilseeds resulting in the dominance of only wheat and rice in the total cropped area in the state.

**Table 3.3: Trend growth rate of area of major food crops in Punjab (per cent)**

Period	Wheat	Rice	Maize	Bajra	Barley	Pulses	Oilseeds
1970-80	2.31	12.37	-3.54	-9.71	-3.42	-1.23	-5.11
1980-90	1.26	5.39	-5.49	-18.86	-8.09	-7.84	-3.08
1990-2000	0.19	2.42	-1.90	-8.81	-3.55	-5.63	-0.97
2000-09	0.42	0.51	-0.91	-2.01	-6.79	-10.15	-3.92

Source: As in Table 3.1.

The Green Revolution Technology made yield the highest contributor to agricultural growth but the increase in yield was confined to only wheat and rice. During 1970-80, there was a significant increase in the growth of yield for wheat (2.30 per cent) and rice (5.50 per cent) whereas there was sharp fall in yield for pulses, oilseeds and bajra (Table 3.4). In the decades after 1980-90, there was a deceleration in the yields of wheat and rice; in 2000-09, the growth in yield of wheat was -0.28 per cent and that of rice was 1.54 per cent. In 2000-09, the yields of coarse cereals, pulses and oilseeds showed improvement as compared to the previous decades; however, there has been no growth in area under these crops.

**Table 3.4: Trend growth rate of yield of major food crops in Punjab (per cent)**

Period	Wheat	Rice	Maize	Bajra	Barley	Pulses	Oilseeds
1970-80	2.30	5.50	0.21	-0.68	4.94	-0.46	-0.32
1980-90	3.00	1.28	-1.26	-3.28	5.45	3.61	2.95
1990-2000	2.06	0.08	2.62	-3.00	2.34	-1.28	0.06
2000-09	-0.28	1.54	2.22	2.05	0.87	2.13	2.4

Source: As in Table 3.1.

The increase in area and yield has led to high growth rate of production of rice and wheat (Table 3.5). The growth rates of production of rice and wheat during 1970-80 were 18.55 per cent and 4.67 per cent respectively. Barring barley there has been fall in growth of production in all the other crops (maize, bajra, pulses and oilseeds). In the last two decades, the growth of production of wheat and rice

has decelerated. The growths of all other crops continue to fall except maize that shows a growth of 1.29 per cent.

**Table 3.5: Trend growth rate of production of major food crops in Punjab (per cent)**

Period	Wheat	Rice	Maize	Bajra	Barley	Pulses	Oilseeds
1970-80	4.67	18.55	-3.34	-10.32	1.35	-1.68	-5.41
1980-90	4.3	6.74	-6.68	-21.52	-3.08	-4.51	-0.22
1990-2000	2.26	2.5	0.67	-11.55	-1.29	-6.83	-0.92
2000-09	0.14	2.06	1.29	0.00	-5.98	-8.23	-1.62

Source: As in table 3.1.

In the first two decades of green revolution, it was growth in area and yield that accelerated the growth of production in wheat and rice. The higher productivity led to the diversion of area to these crops. Due to the limited scope of expanding area yield became the major contributor to growth in production in the later decades. However, yields of rice and wheat have been stagnant in the last two decades. Although, the yields in other crops show improvement in the recent decades there has been no increase in the area under these crops.

Table 3.6 shows the share of crops in the gross cropped area of the state. The proportion of area under wheat and rice has increased from 51.33 per cent during 1970-1980 to 76.86 per cent during 2000-09. The proportions of area under all other crops have decreased during this period.

Major changes in area allocation to different crops are also reflected in changes in the share of various crops in the total value of output. Bhalla and Singh (2010) have shown that since green revolution the share of wheat and rice in the total value of output has increased for Punjab whereas, for India as a whole, there has been a decline in the share of food grains and increase in the share of remaining crops. For the country as whole there has been a change in cropping patterns

**Table 3.6: Percentage share of various crops in gross cropped area in Punjab (per cent)**

Crop share ( in Percentage) in Gross Cropped Area (GCA)												
Period	Rice	Wheat	Rice and Wheat	Bajra	Maize	Barley	Oil seeds	Pulses	Sugar cane	Cotton	Other	GCA
1970-80	10.88	40.45	51.33	2.19	8.39	1.27	4.85	6.32	1.79	8.89	14.98	100
1980-90	22.27	43.38	65.65	0.52	3.97	0.78	2.74	3.08	1.29	9.03	12.92	100
1990-2000	28.99	42.70	71.69	0.11	2.26	0.50	2.36	1.28	1.46	8.42	11.92	100
2000-09	33.09	43.77	76.86	0.08	1.97	0.28	1.02	0.51	1.41	6.74	11.15	100

Source: As in Table 3.1.



since liberalization; both in terms of area allocation and share in total value of output at all India level. The share of area under foodgrains to total GCA declined from 73.0 per cent during 1990-93 to 68.9 per cent during 2003-06, and the share foodgrains in total value of output declined from 52.7 per cent to 49.6 per cent. The most important change was a significant decline in the share of area under coarse cereals and increase in the share of area under higher value crops brought about because of changes in relative prices and productivity. But in Punjab, the share of foodgrains (mostly rice and wheat) in total cropped area has increased and has been accompanied by increase in the value of its share in the total value of output.

The rapid increase in the share of rice in the total cropped area has occurred in spite of an ambitious programme of diversification of area away from paddy launched by the state government during the 1990's. The argument was that the extensive cultivation of highly water intensive rice has led to depletion of underground water, deterioration in soil fertility and had adverse impact on the ecological balance in the state. Despite the involvement of some of the important private sector companies, this programme has been able to increase the share of area and value of output of the remaining crops only marginally (Bhalla and Singh, 2010). The programme has failed to bring about any substantial changes in the cropping pattern in the state. It has been argued that the reason for failure of diversification in the state is the incompatibility of crop diversification with modern technology (Shergill, 2005). The cultivation of many crops in each crop season is an indication of subsistence farming. However, a modern commercial farm specialises in the production of one main crop in each crop season. The profit margins motivate a modern commercial farmer to cultivate the most profitable crop of the season. "The emergence as well as the economic viability of modern marketing and processing infrastructure and arrangements for a particular farm product in a region is possible only if the marketed surplus of that product is sufficiently large in that region" (Shergill, 2005: 241). Because of high yields combined with subsidised inputs and a remunerative price regime, wheat and rice are highly profitable crops in Punjab. The new technology ensured high yields causing the farmers to shift away from other crops and

cultivate only wheat and rice. The government biased policies that assured prices of wheat and rice further encouraged cultivation of these crops.

**Table 3.7: Rate of growth of value productivity per unit of gross cropped area**

Period	Annual Compound Growth Rate (per cent)
1980-83/1962-65	3.32
1990-93/1980-83	3.13
2003-06/1990-93	1.17
2003-06/1962-65	2.59

Source: *Bhalla and Singh, 2010.*

The shift in cropping pattern to rice and wheat combined with productivity gains realised through technological change has resulted significant increase in the value productivity per unit of gross cropped area in the state. This productivity gains noted in the early decades of the green revolution has been withering away in recent years, as evident from the very slow increase in the productivity (see Table 3.7). In the initial years of green revolution both area effect and yield effect contributed to growth in output. However, the contribution of area has become insignificant with practically no scope for area expansion and the main factor of growth has become the growth in productivity. This is evident from the sources of growth in Punjab agriculture. However, the scope for increase in productivity has become limited resulting slow growth of agricultural output in the state. The situation has been further worsened by the deterioration in terms of trade for rice and wheat as fall in farm income. After spread of green revolution to the other states, they have been able to attain higher yield and output of foodgrains and hence meet their growing food requirements. Thus, Punjab's market share for its surplus in these states has been falling. There has been no demand for 12 to 60 per cent of the surplus food from Punjab in the 2000s (Chand, 2008). The prospects for exports have been limited due to the low comparative advantage of the state in either wheat or rice (Sidhu, 2002). In international market when wheat was available at Rs 475 per quintal where produce in the state was sold at Rs 850 per quintal to Food Corporation of India (FCI). Competition in the international market by Punjab farmers would imply selling of their produce at much lower prices or lowering the cost of production by making production more efficient.

### 3.4 Impact on the Structure of the Economy

The fact that the rapid growth of agriculture in the post-green revolution period has resulted in significant reduction in rural poverty in Punjab has been shown by a number of studies (Saith, 1981). The process through which this has taken place is broadly described as follows. The higher growth of agricultural output has been accompanied by increase in productivity per agricultural worker. The expansion and intensification of agriculture required more demand for labour: the labour was in short supply and therefore, the real wages of agricultural labourers began to rise. The shortage of labour has resulted in migration of agricultural workers to Punjab from other regions of the country. In the meanwhile, requirement of goods and services for the non-agricultural sector began to increase, thereby resulting in expansion of non-farm employment. Through this process, the growth in overall agricultural incomes percolated down to all sections of the society resulting in overall reduction in poverty levels in the state.

**Table 3.8: Rates of growth of agricultural output and agricultural worker productivity (per cent)**

Period	Growth of output	Agricultural worker productivity
1980-83/1962-65	4.97	2.51
1990-93/1980-83	4.44	3.53
2003-06/1990-93	1.6	1.52
2003-06/1962-65	3.76	2.44

Source: as in Table 3.7.

However, the deceleration in the rates of growth of agricultural output and labour productivity (see Table 3.8) would have dampened sustained reduction in poverty levels in the state, if other sectors of the economy have grown faster and generated employment and income generation for the labour force.

**Table 3.9: Trend growth rate of each sector in Punjab, 1960-70 to 2000-10 (per cent)**

Period	Agriculture	Industry	Services	NSDP
1970 - 71/1979-80	4.0	6.7	6.9	5.2
1980 - 81/1989-90	5.1	6.9	4.5	5.3
1990 - 91/1999-00	2.7	7.1	5.1	4.5
2000 - 01/2009-10	2.6	8.4	5.9	5.3

Source: Calculate from CSO, National Accounts Division (various issues).

Note: Series are constant at 1999-00 prices.

Estimates of the rates of growth of the NSDP of Punjab show that it has increased more than 5 per cent per annum in the 1970s, 1980s and in the 1990s, It has shown a marginal fall and recovered again since 2000 (Table 3.9). While agriculture has grown about 4 to 5 per cent in the 1970s and 1980s, it has fallen to about 2.5 per cent in the subsequent periods. On the other hand, industry and service sectors have shown a sustained increase during this period. It appears that the impact of this broad based growth of the economy of the state has resulted in a sustained reduction in poverty levels in the state; around 5.9 per cent in 2004-05, the lowest levels estimated for different states of the country (see Table 3.10). It is also significant to note that the rural unemployment reported for the state (about 3.8 per cent of the labour force) is the lowest in the country and real wages of agricultural labourers continued to show an upward in recent decades.

**Table 3.10: Selected economic indicators of rural Punjab**

Year	Population below Poverty Line (per cent)	Unemployment Persons (per cent)	Agricultural Real Wage Earnings (Male Rs /day)*
1983	13.2	2.0	36.30
1993-94	11.9	1.3	65.83
2004-05	5.9	3.8	71.75

Source: 1. Planning Commission, Govt. of India and NSSO 61st Round.

2. Estimated from Rural Labour Enquiry Report on Wages and Earnings (2004-05).

Note: \* Base (2004-05=100).

This growth pattern in agriculture brought about considerable changes in the composition of the NSDP (Table 3.11). There has been a steady fall in the share of agriculture; its share has fallen from 49.9 percent during 1970-80 to 35 percent during 2000-10. Thus, in the last four decades the share of agriculture has fallen by 15 percentage points. The manufacturing and the service sectors have registered increase in their shares to the NSDP. The share of the service sector has increased from 36.3 percent in the 1970s to 42.7 percent in the 2000s. The share of manufacturing has gone up from 13.8 percent in the 1970s to 22.3 percent in the 2000s.

It appears from the structural changes in the economy of Punjab that the non-agricultural sectors have now emerged as the leading sectors of growth. This has provided the conditions outside agriculture for the movement of people from this sector to the non-agricultural sector. The decline in profitability for cultivation

would have increased debt burden of households as this might have forced some segment of them to move out of cultivation and lease out or sell their land to others. This would have brought out some changes in the agrarian structure. We will briefly examine these issues in the sections that follow.

**Table 3.11: Sectoral share of agriculture in net state domestic product in Punjab 1970-80 to 2000-10 (per cent)**

Period	Agriculture	Industry	Services	All
1970 - 71 to 1979-80	49.9	13.8	36.3	100.0
1980 - 81 to 1989-90	45.5	15.3	39.2	100.0
1990 -91 to 1999-00	42.5	19.6	37.9	100.0
2000 - 01 to 2009-10	35.0	22.3	42.7	100.0

Source: Calculated from EPW research Foundation, 2009 and CSO, 2010.

Note: Series are constant at 1999-00 prices.

### 3.5 Crisis Situation in Agriculture

The green revolution has increased the food grain production with high input use. The intensive input usage has resulted in over exploitation of natural resources, ecological degradation and imbalances, environmental pollution. Degradation of resource has led to decrease in total factor productivity<sup>5</sup>. The green revolution has led the farmer to build large stock of machinery and over exploitation of water and soil. The problem of declining total factor productivity is the consequence of over use of the resources of production.

There has been a huge investment in farm machinery in Punjab in the post green revolution period. It is evident from Table 3.1 that the extent of inputs usage in the state's agriculture is high. The intensity of tractors and pump sets that are relatively costlier investment is high in Punjab. With the increasing number of pumpsets, there has been an acute shortage of electricity in the state for the reason that it has been provided free of cost<sup>6</sup>. Due to the free availability of water and electricity for agricultural purposes, these are being used injudiciously by the

<sup>5</sup> Singh and Hossain (2002) found that during 1990-91 to 1996-97 the growth in total factor productivity (TFP) for rice was negative (-1.77 per cent per annum), with the component of technical change occurring at a very slow pace (0.89 per cent per annum). In the case of wheat, although TFP growth was positive (1.24 per cent per annum), the growth in technical change was slow (1.01 per cent per annum) during 1990-91 to 1997-99. For both paddy and wheat, environmental degradation was found to contribute negatively to TFP, with the negative contribution being much larger in paddy (-5.04 per cent per annum).

<sup>6</sup> More than nine lakh tube wells are provided free electricity by the state (Sidhu, 2002).

farmers. This has resulted in the depletion of underground water table; the water table has been falling at the rate of 23 cm per annum (Sidhu and Dhillon, 1997). The input-use efficiency in the state is found to be low. It is only 35-50 per cent in nitrogenous fertilizers due to imbalanced application of various nutrients. The capacity utilization of tractors has only been 60 per cent (600 hours per year) of that required for their viability<sup>7</sup> (Singh, 2000). Demonstration effect in the rural society of Punjab is another reason that has led to unnecessary purchase of tractors and other farm equipments and building of costly houses (Singh, 2000). Even farmers with less than five acres of land purchased tractors; this is a totally unviable proposition unless and until tractors are used for non-farm work.

The current production technology based on the monoculture of wheat and rice rotation year after year in the same fields has become economically unsustainable and ecologically unviable; the wheat-rice cycle has led to over exploitation of ground water resources in the state (Kalkat, 2008). This cycle demands heavy irrigation, causing a serious imbalance in the availability and actual consumption of irrigation supplies. The deficit has been met by exploiting ground water resources through tube well pumping. In 1973 the water table deeper than 10 meters covered an area of about 3 per cent that increased to 90 per cent in 2004. This happened as the farmers had to deepen wells and place the centrifugal pumps at deeper levels or they had to re-bore wells and install submersible pumps at a heavy cost. There are only six blocks in Punjab that are 'white' and technically exploitable (Sidhu and Johl, 2002). A proportion of the area in Punjab fall either in the 'dark' or 'grey' blocks. Due to salinity of ground water in South-West Punjab, there is a huge supply of canal water; the system of canal irrigation has led to water logging in this part of the state (Gill, 2005). The practice of high cropping intensity has also over exploited the land resource and exhausted fertility of soil. Excessive use of chemical fertilizers and low usage of organic manure has made the soil poor in nitrogen (N), phosphorous (P) and micro-nutrients.

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<sup>7</sup> The viability of tractors requires that their capacity utilization be 1,000 hours per year.

It is evident from the foregoing analysis that the decades following the green revolution in Punjab have witnessed fairly rapid growth. However, in recent years agriculture has moved in to a crisis situation with increase in cost, fall in productivity and farm incomes. In the analysis in the rest of this chapter, we will examine the impact of growth process in agriculture on rural poverty, indebtedness and changes in the agrarian structure.

### **3.6 Indebtedness among Farmer Households**

As seen in the earlier section, there has been over capitalisation of agriculture in the state. For investment in farm machinery, there has been heavy borrowing by the farmers. The borrowings have been financed mainly by non-institutional credit agencies. Borrowings from the non-institutional sources are very high in the state (NSSO, 2003). The non-institutional loans are mostly financed by money lenders who charge exorbitant rates of interest. It has been found that indebtedness was more towards non-institutional sources of finance, in which commission agents figured prominently (Gill et al., 2006).

In the face of low returns from agriculture, farmers are unable to repay the loans. Repayment becomes even difficult as the borrowings are mostly financed by non-institutional sources that demand high rates of interest. The low returns from agriculture and hence inability to repay loans has increased the indebtedness of the farmers. Table 3.12 shows the percentage distribution of outstanding loans by purpose in different size classes in Punjab. The incidence of indebtedness is found to be high but varies across all the size classes ranging from the highest of 83.9 per cent among large farmer households to the lowest of 56.7 per cent among the marginal class. There is not much variation in the percentage of indebted households among the semi-medium (82.7 per cent), medium (83.6 per cent) and large class (83.9 per cent).

The purpose-wise distribution of outstanding loans shows that barring the marginal class, the other classes borrow mainly for capital expenditure in farm business. The outstanding loans of the large holders under capital expenditure and current expenditure in farm business constitute 57.9 per cent of the total; the

same for medium, semi-medium, small and marginal are 72.0 per cent, 78 per cent, 61.6 per cent and 20.3 per cent respectively. Among the marginal class, a significant proportion of the total loans are for consumption expenditure (20.9 per cent) and non-productive purposes such as marriages and ceremonies (21.5 per cent). The small farmers are also found to borrow some proportion of total loan for consumption expenditure (12.0 per cent) and marriages and ceremonies (7.6 per cent).

Table 3.13 shows that there is a high prevalence of non-institutional loans in all classes of farm households in Punjab. In 2003, the non-institutional loans constituted 52.1 per cent of the total loans advanced to the farmer households. The non-institutional source has been dominated by the borrowings from money lenders; the outstanding loans from money lenders constituted 36.3 per cent of the total. The institutional borrowing has been mainly from the commercial banks (28.4 per cent) followed by the co-operative societies (17.6 per cent).

A class-wise analysis shows that among the large class, 70 per cent of the outstanding loan is with the non-institutional source and the same for marginal, small, semi-medium and medium is 67.3 per cent, 50.9 per cent, 38.8 per cent and 52.4 per cent respectively. Only the semi-medium class is found to have a relatively higher proportion of outstanding loan with the institutional source (61.2 per cent) compared to the non-institutional source (38.8 per cent).

The issue is not that of availability of institutional credit, but access, ease, and terms and conditions of such finance (Singh, 2006). The loan limits for different crops are inadequate to meet the higher and increasing cost of production. This gap and the need for credit for other purposes, that the formal institutions do not cater, make farmers turn to the arthiyas or moneylenders. It has been found that most of the suicides in rural areas have been due to heavy indebtedness. The crop failure is the most common reason for non-repayment of debt. The cotton belt in the state is the most suicide prone region (ibid). It has been argued that suicides are the extreme manifestation of agrarian crisis.



**Table 3.12: Percentage distribution of outstanding loans by purpose of loan for each size class of land Possessed by farmer household in Punjab in 2003 (per cent)**

Size Class of Possessed Holding	Capital Expenditure in Farm Business	Current Expenditure in Farm Business	Non-Farm Business	Consumption Expenditure	Marriages and Ceremonies	Education	Medical	Other Expenditure	All	Proportion of Indebted Households
Marginal	13.3	7.0	7.9	20.9	21.5	0.1	8.8	20.5	100	56.7
Small	12.0	49.6	10.1	12.0	7.6	0.3	0.0	8.4	100	75.8
Semi-Medium	28.9	49.1	4.9	1.6	6.3	0.0	1.2	8.1	100	82.7
Medium	33.4	38.6	0.7	9.6	10.9	0.0	2.9	4.0	100	83.6
Large	27.5	30.4	0.0	3.9	4.0	0.0	0.0	34.2	100	83.9
All Size	26.4	36.0	4.4	8.5	10.2	0.0	2.6	12.0	100	65.4

Source: NSSO 59th round, Situation Assessment Survey of Farmers: Indebtedness of Farmer Households, Report no. 498.

**Table 3.13: Percentage distribution of outstanding loans by source of loan for each size class of land possessed by farmer households in Punjab in 2003 (per cent)**

Size Class of Possessed Holding	Government	Co-operative Society	Commercial Bank	Institutional credit	Agricultural / professional money lenders	Traders	Relatives and Friends	Other professionals	Others	Non-institutional Credit	All
Marginal	4.9	9.1	18.6	32.7	34.4	7.5	21.1	1.5	3.1	67.3	100
Small	0.0	22.0	27.1	49.1	35.5	2.9	11.5	1.0	0.0	50.9	100
Semi-Medium	2.6	21.7	36.9	61.2	31.1	5.8	1.0	0.9	0.0	38.8	100
Medium	0.1	17.3	30.1	47.6	35.9	13.4	3.1	0.0	0.0	52.4	100
Large	0.0	14.6	15.5	30.0	65.3	4.6	0.1	0.0	0.0	70.0	100
All Size	1.9	17.6	28.4	47.9	36.3	8.2	6.3	0.6	0.7	52.1	100

Source: NSSO 59th round, Situation Assessment Survey of Farmers: Indebtedness of Farmer Households, Report no. 498.

Most of the farmers commit suicides when there is no hope of coming out of their distress situation (Nair and Menon, 2009). Thus, it is found that stagnation in Punjab's agriculture that has manifested into a crisis is due to over mechanization, lack of remunerative prices, indebtedness and ecological degradation. The unviability of agriculture in the state has forced some segment of farmers to abandon agriculture as their occupation. It has been found that 37 per cent of the farmers have expressed their desire to leave farming as it is not a profitable occupation (NSSO, 2005).

### **3.7 Changes in Agrarian Structure**

Agrarian structure in Punjab has been undergoing a significant change since the green revolution. This is evident from the data available from the land holding surveys conducted by the NSSO. Table 3.14 shows the percentage distribution of household and area owned by size class of land holding. The percentage distribution of households who own land portrays that marginal holdings has increased by 8.8 per cent points during 1971-72 to 2002-03 but the area owned by this class has increased by only 4.7 per cent points during this period. There has been some increase in the proportion of small class households but the percentage area owned by them has doubled during the period. In semi-medium class there is two per cent points decline in the households from 1971-72 to 2002-03 but there has been no change in the proportion of area owned. There is a sharp decline in the share of medium and large holdings with only some reduction in their respective shares in the total area during 1971-72 to 2002-03. Thus, it can be inferred that although the proportion of the number of holdings under large, medium and semi-medium class has been declining, but their shares in the total owned area is still very high.

Table 3.15 on the distribution of operational holdings shows that there has been a significant increase (54.6 per cent points) in the proportion of marginal holdings but the area operated by them has increased by only 5.8 per cent points during 1971-72 to 2002-03. The area operated under the small holdings has increased by 3.6 per cent points despite a fall in the proportion of households under this class.

**Table 3.14: Percentage distribution of households and area owned by size class in Punjab, 1971-72 to 2002-03 (per cent)**

Size Class of Ownership Holding (hectare)	Percentage of Households				Percentage of Area Owned			
	1971-72	1981-82	1992-93	2002-03	1971-72	1981-82	1991-92	2002-03
Marginal (.002 to ≤1.000 ha)	67.5	66.8	69.6	76.3	4.4	5.5	7.1	9.1
Small (1.001- 2.000 ha)	8.3	10	9.9	9.5	8.8	10.7	12.3	15.6
Semi-Medium (2.001-4.000 ha)	12.7	11.6	12.2	7.9	25	22.8	30.2	25.3
Medium (4.001-10.000 ha)	9.1	9.9	7.1	5.1	37.9	42.2	38	34.5
Large(>10.01 ha)	2.2	1.4	1	1	23.6	18.5	12.2	15.3
All Classes (ha)	100	100	100	100	100	100	100	100

Source: NSSO 59th round, Household Ownership Holdings in India, report No. 491.

**Table 3.15: Percentage distribution of operational holdings and area operated by size categories of operational holdings in Punjab, 1971-72 to 2002-03 (per cent)**

Size Class of Operational Holding (hectare)	Percentage of Holdings				Percentage of Area Operated			
	1971-72	1981-82	1992-93	2002-03	1971-72	1981-82	1991-92	2002-03
Marginal (.002 to ≤1.000 ha)	11.7	59	63.2	66.3	1.5	3.9	6.2	7.3
Small (1.001- 2.000 ha)	19.1	10.4	11.4	11.2	7.1	8.9	10.7	11.7
Semi-Medium (2.001-4.000 ha)	32.7	14	13.9	12.9	24.3	21.8	26.7	26.2
Medium (4.001-10.000 ha)	30.5	14.2	9.8	7.8	45.1	45.9	40.6	36.4
Large(>10.01 ha)	6	2.5	1.7	1.9	22.1	19.6	15.8	18.5
All Classes (ha)	100	100	100	100	100	100	100	100

Source: NSSO, 59th round, Some Aspects of Operational Land Holdings in India, report No. 492.

The semi-medium, medium and the large holdings has shown considerable fall in the proportion of holdings but so far as the proportion of area operated is concerned, it has increased for the semi-medium and has decreased for the latter two groups. Although the proportion of area operated under the medium and large groups has shown a decline, they still operate a substantial proportion of the area.

Table 3.16 shows the high prevalence of tenancy in the state. Through tenancy, there has been transfer of land from the small farmers to the large farmers. In Punjab, more than 13 per cent of holdings are found to be tenant holdings (NSSO, 2005). The percentage share of leased-in area in the total operated area is 16.8 per cent. This is the highest among all the states. In the country as a whole, the percentage share of leased-in area was found to be only 6.5 per cent. Across the various size classes, it is found that leased-in area is higher among the semi-medium, medium and the large. The percentage share of lease-in area for the semi medium, medium and the large have been 18.86 per cent, 19.83 per cent and 14.56 per cent respectively.

**Table 3.16: Percentage distribution of operated area by type of possession for each size class of operational holding in Punjab for 2002-03.**

Size class of operational holdings	Owned	Leased-In	Others	All
Marginal	95.38	3.79	0.83	100
Small	89.92	10.08	0.0	100
Semi-Medium	81.14	18.87	0.0	100
Medium	80.17	19.83	0.0	100
Large	85.44	14.56	0.0	100
All	83.16	16.83	0.01	100

Source: NSSO 59th round, *Some Aspects of Operational Land Holdings in India*, report No. 492.

Note: 1. Calculated only for kharif season.

2. Includes the categories otherwise possessed and operated but not possessed on the date of survey.

The reverse tenancy in the state becomes evident also from the percentage distribution of household ownership holding reporting leasing-out land by size class (see Table 3.17). In the period 1961-62, the percentage distribution of holdings leasing-out land moved in favour of large (10.5 per cent), medium (26.3 per cent) and semi-medium (25.6 per cent) farmers. During the period 1961-62 to

2002-03, there has been a significant increase in the distribution of holdings leasing-out land in favour of marginal, small and semi-medium size groups. The percentage of the marginal class has increased from 17.3 per cent to 30.5 per cent and that of small class from 20.3 per cent to 29.7 per cent and of semi-medium from 25.6 per cent to 27.5 per cent. It is seen that the distribution of leased-out area has significantly shifted in favour of the small size groups during the period.

**Table 3.17: Percentage distribution of ownership holdings reporting leasing-out land by class size in Punjab, 1961 and 2002-03 (per cent)**

Size Class of Ownership Holding	1961-62	2002-03
Marginal	17.3	30.5
Small	20.3	29.7
Semi-Medium	25.6	27.5
Medium	26.3	11.4
Large	10.5	0.9
All	100	100

Source: NSSO 17th and 59th Rounds, Land and Livestock Survey.

A number of earlier studies have pointed out the phenomenon of reverse tenancy. Gill (2002) has shown a shift of land from the small and marginal farmers to the medium and large farmers since the 1970s. Grewal and Rangi (1981) have confirmed that most of the leasing out is by the small owners and leasing in is by the big operators. Another study (Singh, 1989) has shown that a sizeable proportion of tenants were the big cultivators; they had a substantial land area of their own, fully endowed with modern production assets such as tractors, tube wells, entrepreneurial skills and high commercial status. This is evident from the increasing land concentration<sup>8</sup> in Punjab, in particular after the green revolution. Detailed analysis of the distributional changes in ownership and operational holdings by Nair and Banerjee (2011) has found that there been an increase of 10.8 percentage points in land ownership share of top 10 per cent households in Punjab during 1961-62 to 2003-04. The top 10 per cent households owned 61.3 per cent of total land whereas the bottom 60 per cent households owned only 2 per cent of total land during 2003-04. Further, they have found that the share of operated area has increased by 21 percentage points for top 10 per

<sup>8</sup> During 1970-71 to 2002-03, the index of concentration of land in Punjab has risen sharply from 0.39 to 0.70 whereas at the national level it has decreased from 0.56 to 0.55 (NSSO, 2005).

cent households during 1961-62 to 2003-04 and they operated 54.5 per cent of total operated area in 2003-04. On the other hand, the share of bottom 60 per cent of households declined from 23.5 per cent in 1960-61 to 4.9 per cent in 2002-03. These striking findings show that during the green revolution period the distribution of operated area has moved significantly in favour of the top size class of holdings. These distributional changes has taken place in spite of the existence of the tenancy act and the ceiling on land holding intended to prevent the concentration of land and strengthen the possession of land by the poor and landless farmers.

### **3.8 Conclusion**

Agriculture in Punjab has witnessed significant changes since the green revolution. Agricultural productivity and output has grown rapidly in the early decades of green revolution. The cropping pattern has shifted in favour of high valued grains like wheat and rice. The profitability of cultivation and farm income has increased and seed growth has stimulated the growth of other sectors of the economy through the inter-sectoral linkages. The resulted effect has been expansion of employment opportunities, increases in wages in both farm and non-farm activities. All these have contributed to rapid reduction in the incidence of poverty in the state. However, during the last two decades, the achievements of green revolution in the early decades appear to have lost its momentum. The productivity growth has been decelerated, cost of production has been on the increase due to over capitalisation of agriculture, and margins of profitability have been falling and the overall growth of agricultural output has decelerated. The fall in farm income has resulted in increase in the debt burden of the farmers creating conditions of wide spread distress. In the last few decades, the agrarian structures have been under a change; the distribution of land has been moving in favour of top sized groups resulting increased land concentration. The farmers in the bottom sized groups have been slowly shifted from agriculture to other sectors of the economy probably due to the disincentive to continue with agriculture and partly due to the increased opportunities for employment and income generation in the non-agriculture sector thanks to its faster growth.

## CHAPTER IV

### DEPEASANTIZATION IN PUNJAB AND ITS DETERMINANTS

#### 4.1 Introduction

This chapter examines the trends in depeasantization in Punjab and its determinants. As we argued in the previous chapter, the deceleration in agricultural productivity, fall in farm incomes, and increase in debt burden of the peasantry have all created conditions that would have accelerated the shift of peasants from agriculture to the non-agricultural sectors. Since the non-agricultural sectors have now emerged as important sources of growth in Punjab economy, such inter-sectoral mobility has become possible. In this chapter apart from analysing the trends in depeasantization, we will examine the factors that determine the process of depeasantization.

The present chapter is divided into four sections. The next section examines the process of depeasantization in Punjab. The determinants of depeasantization are discussed in the third section. The final section concludes the present chapter. It is to be noted that cultivators are taken as peasants and the terms cultivators, farmers and peasants will be used interchangeably.

#### 4.2 Trends in Depeasantization

The process of depeasantization can be captured in two ways; first to see the trend in the number of operational holdings and second, examining the trend in the proportion of cultivators to the total workforce. Declining trends indicate that the peasants are moving out from agriculture.

Punjab can be divided into three sub-regions namely, sub-mountain region, central region and south-west region. The number of districts has increased from 12 in 1971 to 20 in 2005 (see appendix B1). To make the unit comparable, holdings are normalised with the total land area for each district. Thus, the number of holdings per 100 square kilometres is calculated for each district. The number of

holdings in each of the three regions has declined during 1971 to 2005 (see Table 4.1). The highest decline is registered in the case of the sub-mountain region followed by the central and south-west region. For the state as a whole, there has been a 27 per cent decline in the total number of holdings. A massive decline in the number of holdings can be observed in the districts of Jalandhar (47 per cent), Hoshiarpur (41 per cent), Ferozepur (40 per cent) and Kapurthala (38 per cent). The decline is relatively less in Bathinda (4 per cent) and Sangrur (5 per cent). There is an increase in number of holdings, only in Patiala (5 per cent).

**Table 4.1: Number of total holdings\* in various districts of Punjab during 1971 to 2005**

District/ Region	Number of Holdings Per 100 sq. km Area					Percentage Change in 2005 over 1971
	1971	1981	1991	2001	2005	
<b>Sub-Mountain Region</b>						
Gurdaspur	3445	2805	3178	2228	2446	-29.00
Hoshiarpur	3811	2418	2537	2202	2252	-41.91
Rupnagar	3124	2374	2575	1885	2108	-33.52
Sub-Total	3524	2553	2785	2129	2288	-35.07
C.V.%	9.9	9.4	13.0	9.1	7.5	--
<b>Central Region</b>						
Amritsar	3718	2255	2440	2537	2583	-30.53
Jalandhar	3424	2203	2524	2349	1815	-46.99
Kapurthala	3244	2165	2381	2364	2002	-38.29
Ludhiana	2410	1907	2155	1940	1921	-20.29
Patiala	1791	1733	2102	1919	1887	5.36
Sub-Total	2868	2036	2307	2219	2078	-27.55
C.V.%	27.3	10.9	7.9	12.5	15.2	--
<b>South-West Region</b>						
Bathinda	1922	1638	1843	1765	1842	-4.16
Faridkot	2362	1991	1865	2008	2136	-9.57
Ferozepur	2666	1889	1910	1557	1613	-39.50
Sangrur	2116	1757	2000	1895	2010	-5.01
Sub-Total	2277	1822	1903	1716	1795	-21.17
C.V.%	14.2	8.5	3.6	10.7	11.9	--
State	2730	2039	2219	1980	1992	-27.03
C.V.%	25.1	16.2	17.0	13.8	13.4	--

Source: computed from Statistical Abstract of Punjab (various issues).

Note: \*Holdings are normalized with 100 sq. kms. area for each district.

C.V. = Co-efficient of Variance.



The percentage change in the number of holdings by size class shows that there is a huge difference among different classes of farmers during 1971 to 2005 (see Table 4.2). For the state as a whole, negative change has been found in case of small and marginal holdings while semi-medium, medium and large categories show some positive changes. In the sub-mountain region, while there has been negative change in small, marginal and large holdings, the medium and semi-medium show some increase. In the central region there has been a 78 per cent decline in marginal holdings and 27 per cent decline in small, whereas other three classes show significant increase. The south-western region also experienced a heavy fall in the number of small and marginal holdings but showed increase in the number of holdings of the remaining classes.

**Table: 4.2: Percentage change in number of holdings by size class in various districts of Punjab during 1971 to 2005 (per cent)**

Region	Size Class of Operational Holding					
	Marginal	Small	Semi-Medium	Medium	Large	All Holdings
<b>Sub-Mountain Region</b>						
Gurdaspur	-72.71	-16.09	29.60	22.16	-26.12	-28.99
Hoshiarpur	-70.00	-19.32	8.26	7.23	-28.37	-40.92
Rupnagar	-56.17	-3.73	-4.28	-21.06	-48.07	-32.53
Sub-region	-68.34	-15.04	13.88	6.51	-32.51	-35.08
<b>Central Region</b>						
Amritsar	-82.77	-20.34	45.09	33.60	-11.81	-30.51
Jalandhar	-85.13	-48.97	-18.91	3.07	44.62	-46.98
Kapurthala	-79.33	-38.69	-6.35	25.21	104.20	-38.28
Ludhiana	-61.25	-19.54	-1.16	0.83	14.90	-20.28
Patiala	-65.83	-8.29	50.05	49.96	-6.76	5.38
Sub-region	-78.44	-26.75	17.18	22.73	11.44	-27.56
<b>South-West Region</b>						
Bathinda	-53.68	-24.22	36.19	25.78	-15.11	-4.14
Faridkot	-62.54	-27.91	25.84	43.79	-23.07	-9.55
Firozpur	-87.50	-64.04	-18.53	23.25	41.06	-39.51
Sangrur	-62.49	-13.73	39.83	13.42	-16.87	-5.04
Sub-region	-74.67	-42.35	10.10	20.87	5.61	-21.18
State	-74.14	-29.59	13.78	19.42	3.10	-27.08

Source: as in Table 4.1.

Fall in the number of holdings indicates that there has been shift of peasants to non-cultivation. Such shift may change the workforce composition; therefore it becomes imperative to look at the composition of workforce in the state. The

pattern of distribution of workers in Punjab reveals that there has been a continuous fall in the share of cultivators in the total workers (see Table 4.3).

**Table 4.3: Percentage distribution of workers in each type of activity in Punjab during 1961 to 2001 (per cent)**

Years I	Cultivators II	Agricultural Labourers III	Agricultural Workers IV (II+III)	Workers in Household Industries V	Other workers VI	Total VII
1971	42.6	20.1	62.7	3.2	34.2	100
1981	35.9	22.2	58.1	2.6	39.4	100
1991	31.4	23.8	55.2	1.3	43.4	100
2001	23	16.4	39.4	3.4	57.3	100

Source: Census of India, 2001

The magnitude of this decline is found to be the highest during 1991 to 2001. Clearly, this pattern shows that a large number of cultivators have left cultivation. Declining number of cultivators and holdings show the process of depeasantization in the state of Punjab.

**Table 4.4: Index of depeasantization from 1970 to 2001**

District	1971	1981	1991	2001
Amritsar	100	90	82	60
Bathinda	100	57	80	58
Faridkot	100	72	79	52
Ferozepur	100	50	79	58
Gurdaspur	100	88	75	51
Hoshiarpur	100	83	71	55
Jalandhar	100	81	69	49
Kapurthala	100	94	68	48
Ludhiana	100	120	61	36
Patiala	100	108	70	51
Rupnagar	100	96	63	46
Sangrur	100	68	81	58
Total	100	83	74	53

Source: calculated from Census of India (various years).

To see the extent of depeasantization after 1971, the index of depeasantization is calculated (see Table 4.4). The proportion of cultivators in total work force is used to construct the index. Formula to calculate the index is

$$P_i/P_o * 100$$

where  $P_o$  is the proportion of cultivators in 1971 ( $P_o$  is considered as base year) and

$p_i$  is the proportion of cultivators to the total workforce in the years 1981, 1991 and 2001.

1971 which is the period just after the introduction of green revolution has been taken as the base period. Results have shown that for Punjab as a whole, cultivator size has declined to 53 points in 2001 (or there is a reduction of 47 per cent as compared to the base period). None of the districts shows variation from this trend. It is the highest in Ludhiana district (64 per cent) and lowest in Amritsar (40 per cent). The point to be noted here is that the pace of depeasantization was relatively high (21 per cent for the whole Punjab) during the period 1991 to 2001.

From the above analysis, we find that there has been a decline in the total number of operational holdings and also in the proportion of cultivators during the period 1971 to 2001. The index of depeasantization indicates that there is a fall in cultivator size over the period of time. Declining proportion of cultivators shows that they are leaving cultivation reflecting the ongoing process of depeasantization in the state.

### **4.3 Determinants of Depeasantization**

The process of depeasantization can be distress-led or development-led. Bhalla (1993) has distinguished between two kinds of distress diversification. The first is the case of subsidiary workers who do not have any main occupation, but engage in some subsidiary work to supplement household incomes. The second is the case where a person with a main occupation is also engaged in a secondary activity. In both these cases of 'distress diversification', non-agricultural wages (or returns to family labour) are likely to be lower than the prevailing wage rates or even below subsistence (Unni, 1994: 303). Thus, employment in non-farm sector may be characterised by either demand pull or distress-push. The study by Davis and Pearce (2000) has brought the various factors that lead to these two processes. The distress-push diversification would dominate in rural areas which have one or more of the following characteristics: geographical isolation, low

quality physical infrastructure, low human capital, underdeveloped markets, resource scarcity, or incidence of some natural disaster. Demand-pull diversification may take place in the presence of expanding technological innovations (whether within or outside agriculture) market development, or intensifying links with markets outside of the local economy. It is to be expected that distress-push diversification would characterise households in a rural population, which are less endowed, or which have lower incomes.

The movement of peasants to non-agriculture sector or to agricultural labour is governed by the households' accessibility to this sector. There are certain factors that influence accessibility: education, wealth, caste, village level agricultural conditions, population densities and other regional factors are the crucial ones (Lanjouw and Shariff, 2002). The favourable factors ease access to non-agricultural employment. Educated tend to have more opportunities for non-agricultural employment. Accessibility may vary across social groups. The pattern of a gradual reduction in the share of non-agricultural employment and earnings for disadvantaged groups has been observed by Wadley and Derr (1990) in western Uttar Pradesh, and Leaf (1983) for a village in Punjab.

In the last section, it was found that the process of depeasantization has been taking place as the peasants are leaving cultivation. The determinants of depeasantization have been explored in this section. On the basis of descriptive analysis, we are trying to identify some of the factors that facilitate an individual to take up cultivation and also those factors that facilitate an individual to take up non-cultivation activities (agricultural labour and all non-agricultural activities); the former is called push factors and the latter as pull factors.

### *Occupational Shift of Peasants: A Descriptive Analysis*

Shift of peasants from cultivation to non-cultivation depends upon certain characteristics of households such as social group, household size and age of farmer. Besides, there are other factors (push and pull factors) that facilitate farmers to abandon cultivation and join non-agricultural sector or become an

agricultural labour. While the push factors compel the farmers to abandon cultivation, the pull factors lure the farmers to leave cultivation. Education is considered as a pull factor since it facilitates better paying jobs to an individual in non-agricultural sector. Similarly, higher profit from non-agricultural activities may increase the shift of farmers to non-agricultural sector. On the other hand, low profitability in cultivation can be considered as a push factor. Besides inadequate irrigation facility, inadequate technological dissemination, small scale farm production, individual's perception toward cultivation, lack of timely availability of farm inputs, indebtedness of farmer households and low fertility of agricultural land, are the other push factors that may cause the shift of peasants to the non-agricultural sector (or work as work as agricultural labour).

Unit-level data of 59<sup>th</sup> round of NSSO- Situational Assessment Survey of Farmers is used to examine the determinants of depeasantization. The data is provided for rural households for the period 2003. The analysis divides the occupation into two categories: cultivators<sup>1</sup> and non-cultivators. The terms cultivators, farmers and peasants are used interchangeably. The analysis considers only those households who own agricultural land. The households who own land but do not cultivate are taken as a proxy for depeasantization.

#### 4.3.1 Occupation and Age

Age is an important determinant for the choice of occupation. One may expect that people with higher age tend to shift less from their present occupation to other occupations (Hasan and Jandoc, 2010). In Table 4.5, there is an association between occupation and age. The relationship is statistically significant as evident from chi square test<sup>2</sup>. It can be observed that the proportion of non-cultivators is higher in lower age groups compared to that of the cultivators in lower age groups.

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<sup>1</sup> Cultivation includes crop cultivation and animal husbandry.

<sup>2</sup> . Chi-square test is very useful to check the association between two categorical variables. The formula of this test is  $\chi^2 = \sum \frac{(\text{Observed} - \text{Model})^2}{\text{Model}}$ . We construct hypotheses: (null hypotheses)  $H_0$ : the two variables are independent. And (alternative hypotheses)  $H_1$ : the variables are not independent or they are associated.

**Table 4.5: Occupation and age group**

Occupation	Age Group (years)					Total
	17-25	26-35	36-50	51-65	66 and above	
Non-Cultivators	25 (3.6)	119 (17.4)	316 (46.1)	157 (22.9)	68 (9.9)	685 (100.0)
Cultivators	13 (2.3)	56 (10.0)	225 (40.3)	176 (31.5)	88 (15.8)	558 (100.0)
Total	38 (3.1)	175 (14.1)	541 (43.5)	333 (26.8)	156 (12.6)	1243 (100.0)
		Value	d.f. <sup>a</sup>	Asymp. Sig. <sup>b</sup> (2-sided)		
Pearson Chi-Square		32.791	4	0.000		
Cramer's V		0.162	-	0.000		

Source: NSSO 59<sup>th</sup> round, Situational Assessment Survey of Farmers-Unit Level Data.

Note: figures in the parentheses are percentages.

a. indicates degree of freedom.

b. indicates Asymptotic Significant.

The proportion of individuals who are more than 50 years of age are higher in the cultivator category as compared to other categories. Therefore, it can be inferred that young age individuals prefer non-cultivation occupation. However, the strength of this relationship is not strong as the value given by Cramer's V value is low.

#### 4.3.2 Occupation and Household Size

Household size that is one of the characteristics of a household, determines the occupational choice of a family. If the family is large, it can be expected that members will seek for alternative income sources to enhance income and thereby move out of cultivation. Table 4.6 shows an association (though not strong) between occupation and household size. In both occupations, majority of the households have members less than 10. But, in the case of non-cultivators, the proportion of households with 5 to 10 members is higher than that of the cultivator households.

**Table 4.6: Occupation and household size**

Occupation	Household Size (members)				Total
	1-4	5-10	11-15	16 and above	
Non-Cultivators	189 (27.6)	478 (69.8)	15 (2.2)	3 (0.4)	685 (100.0)
Cultivators	169 (30.3)	353 (63.3)	34 (6.1)	2 (0.4)	558 (100.0)
Total	358 (28.8)	831 (66.9)	49 (3.9)	5 (0.4)	1243 (100.0)
		Value	d.f.	Asymp. Sig. (2-sided)	
Pearson Chi-Square		14.66	3	0.002	
Cramer's V		0.109	-	0.002	

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

### 4.3.3 Occupation and Social Group

More than 82.5 per cent of the cultivators belong to the 'other' category. In the non-cultivators category, the scheduled caste constitutes 57 per cent (Table 4.7). Chi square and Cramer's V values indicate that there is a strong association between social group and occupation. Social groups play an important role in determining the occupation. Among all social groups, others category (general caste) is dominant in cultivation occupation.

**Table 4.7: Occupation and social group**

Occupation	Social Groups				
	Scheduled Tribe	Scheduled Caste	Other Backward Class	Others	Total
Non-Cultivators	5 (0.7)	394 (57.4)	147 (21.5)	139 (20.3)	685 (100.0)
Cultivators	3 (0.5)	40 (7.2)	54 (9.7)	461 (82.6)	558 (100.0)
Total	8 (0.6)	433 (34.8)	201 (16.2)	600 (48.3)	1243 (100.0)
		Value	d.f.	Asymp. Sig. (2-sided)	
		Pearson Chi-Square	497.333	3	0.000
		Cramer's V	0.633	-	0.000

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

### 4.3.4 Occupation and Region

Occupational structure depends on the geographical conditions of a specific region. Individuals who own land in fertile regions may choose to remain in cultivation. The central region in Punjab is the most fertile and is considered as the hub of green revolution. In sub-mountainous region the non cultivators constitute 63.2 per cent of the total employment (Table 4.8). In central region the share of non-cultivators is high despite the fact that it is the most fertile region. Thus, it can be said that the relationship between occupation and region is quite ambiguous even though the chi-square test confirms an association. However, note that the value of Cramer's V suggests that this relationship is weak.

**Table 4.8: Occupation and region**

Occupation	Region		
	Central	South-West	Sub-Mountainous
Non-Cultivators	278 (54.6)	235 (50.9)	172 (63.2)
Cultivators	231 (45.4)	227 (49.1)	100 (36.8)
Total	509 (100.0)	462 (100.0)	272 (100.0)
	Value	d.f.	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.673	2	0.005
Cramer's V	0.093	-	0.005

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

#### 4.3.5 Occupation and level of Education

Education is a major factor to get better employment opportunities like skilled jobs. With high education level, individuals move out of agriculture (Meyer and Tuma, 1979). It is found that the proportion of non-cultivators is higher than that of the cultivators in the category of below primary education (Table 4.9). In other categories of education, the proportion of cultivators is higher than that of the non-cultivators. It seems that education does not play major a role in determining the choice of occupation. The relationship between education and occupation is statistically significant but is weak.

**Table 4.9: Occupation and education**

Occupation	Education			
	Below primary	Primary and Middle	Secondary	Higher secondary and above
Non-cultivation	448 (60.7)	153 (48.7)	60 (45.5)	24 (40.7)
Cultivation	290 (39.3)	161 (51.3)	72 (54.5)	35 (59.3)
Total	738 (100.0)	314 (100.0)	132 (100.0)	59 (100.0)
	Value	d.f.	Asymp. Sig. (2-sided)	
Pearson Chi-Square	24.452	3	0.000	
Cramer's V	0.140	-	0.000	

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

#### 4.3.6 Occupation and Individual's Perception

The households who have land may not necessarily adopt cultivation as occupation. The perception of an individual about work matters. There is a strong relationship between occupation and perception about it. About 78 per cent of the cultivators like their occupation and 44.3 per cent of the non-



cultivators like their occupation (Table 4.10). Thus, 55 per cent of the non-cultivators do not like their occupation. It may be that non-cultivators have adopted this occupation without their will or they have left cultivation due of low profit or rising cost of cultivation. In a nutshell, perception is not the lone factor in determining the occupation but is still considered an important one.

**Table 4.10: Occupation and perception about farming**

Occupation	Perception		Total
	Do not Like	Like	
Non-cultivator	375 (54.7)	310 (44.3)	685 (100.0)
Cultivator	122 (21.9)	436 (78.1)	558 (100.0)
Total	497 (40.0)	746 (60.0)	1243 (100.0)
	Value	d.f.	Asymp. Sig. (2-sided)
Pearson Chi-Square	138.543	1	0.000
Cramer's V	0.334	-	0.000

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

#### 4.3.7 Occupation and Land Size

Size of land is one of the most crucial factors that determine whether a worker will opt for cultivation or non-cultivation activity. Larger the size of land greater is the possibility of being a cultivator. Small size holdings are not viable due to high capital cost. It is because small holders are prone to agricultural uncertainties and risks. Small holding is one of the push factors that force a peasant to leave cultivation (Tacoli, 2002).

**Table 4.11: Occupation and land size**

Occupation	Land Holding Size		
	Small	Large	
Non-Cultivators	658 (70.7)	27 (8.7)	
Cultivators	273 (28.3)	285 (91.3)	
Total	931 (100.0)	312 (100.0)	
	Value	d.f.	Asymp. Sig. (2-sided)
Pearson Chi-Square	363.374	1	0.000
Cramer's V	0.541	-	0.000

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

In Table 4.11, it is seen that among the small<sup>3</sup> holders more than 70 per cent are non-cultivators and among the large holders more than 91 per cent are

<sup>3</sup> Small category consists of small and marginal farmers while large category consists of semi-medium, medium and large farmers in this analysis.

cultivators. The chi-square test shows that there is a statistically significant relationship between occupation and land size. The value of Cramer's V indicates that this relationship is strong.

#### 4.3.8 Occupation and Access to Various Source of Information to Avail Modern Technology

Dissemination of agricultural technology is an important determinant for occupational choice. It can be expected that better sources of information about agricultural technology encourages adoption of cultivation as occupation. NSSO collects this data from the sources like availability of technology participation in training programme, television, Extension worker, krishi vigyan Kendra, radio, newspaper, input dealer, Government demonstration, village fair, other progressive farmers, Farmers study tour, others, primary cooperative society, output buyers/food processor, credit agency, para technician/ private agency/NGO. Access to various sources of information on modern agricultural technology is low in case of both the categories. The association between the two is significant but weak (Table 4.12).

**Table 4.12: Occupation and access to modern technology**

Occupation	Access to Modern Technology		
	No	Yes	Total
Non-Cultivators	675 (98.5)	10 (1.5)	685 (100.0)
Cultivators	532 (95.3)	26 (4.7)	558 (100.0)
Total	1207 (97.1)	36 (2.9)	1243 (100.0)
	Value	d.f.	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.194	1	0.001
Cramer's V	0.095	-	0.001

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

#### 4.3.9 Occupation and Adequate Irrigation

Adequate irrigation facility is the most important factor of production of cultivation. Better irrigation facility at regular intervals facilitates an individual to adopt cultivation. The association between occupation and adequate irrigation is statistically significant and the relationship is strong. Among cultivators about 60 per cent expressed that they have adequate irrigation facility. On the other hand

only 10 per cent of non-cultivators said they have adequate irrigation facility. Despite ownership of land, irrigation plays an important role in determining occupation as is apparent from Table 4.13.

**Table 4.13: Occupation and adequate irrigation**

Occupation	Irrigation		
	Inadequate	Adequate	Total
Non-Cultivators	612 (89.3)	73 (10.7)	685 (100.0)
Cultivators	224 (40.1)	334 (59.9)	558 (100.0)
Total	836 (67.3)	407 (32.7)	1243 (100.0)
	Value	d.f.	Asymp. Sig. (2-sided)
Pearson Chi-Square	338.003	1	0.000
Cramer's V	0.521	-	0.000

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

#### 4.3.10 Occupation and Timely Availability of Agriculture Inputs

Timely availability of agricultural inputs is very crucial for crop production. Among cultivators, about 73 per cent expressed that they could avail agricultural inputs on time and among non-cultivators the proportion is only about 35 per cent (Table 4.14). Chi-square test shows that the association between occupation and timely availability of inputs is statistically significant.

**Table 4.14: Occupation and timely availability of inputs**

Occupation	Timely availability of Farm Inputs		Total
	No	Yes	
Non-cultivator	445 (65.0)	240 (35.0)	685 (100.0)
Cultivator	148 (26.5)	410 (73.5)	558 (100.0)
Total	593 (47.7)	650 (52.3)	1243 (100.0)
	Value	d.f.	Asymp. Sig. (2-sided)
Pearson Chi-Square	182.137	1	0.000
Cramer's V	0.383	-	0.000

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

#### 4.3.11 Occupation and Profitability from Cultivation

Profit from any occupation is one of the most important factors that pull an individual to adopt it. So is the case with cultivation. Profit is taken as total receipts minus total expenditure. The proportion of cultivators who earn profit of more than Rs. 50000 is nearly 33 per cent. Thus, a higher proportion (77 per cent) of cultivators have profit earnings less than or equal to Rs. 50000 (Table 4.15).

In case of non-cultivators more than 86 per cent are not earning any profit (it may be their cost equals their earnings from cultivation). The non-cultivators are those who own land but do not cultivate<sup>4</sup>, instead they lease-out their land. Even if they cultivate they do not spend their entire working hours in cultivation<sup>5</sup>. The relationship between profitability and cultivation is statistically significant indicating that with high profit, individuals choose to remain in cultivation. The value of Cramer's V suggests that this relationship is strong.

**Table 4.15: Occupation and profitability from cultivation**

Occupation	Profit from cultivation (Rs.)							
	Nil	Below 10000	10001-25000	25001-50000	50001-100000	100001-200000	Above 200000	Total
Non-Cultivators	581 (84.8)	75 (10.9)	16 (2.3)	9 (1.3)	2 (0.3)	1 (0.1)	1 (0.1)	685 (100.0)
Cultivators	61 (10.9)	165 (29.6)	101 (18.1)	97 (17.4)	74 (13.3)	40 (7.2)	20 (3.6)	558 (100.0)
Total	642 (51.6)	240 (19.3)	117 (9.4)	106 (8.5)	76 (6.1)	41 (3.2)	21 (1.7)	1243 (100.0)
				Value	d.f.	Asymp. Sig. (2-sided)		
Pearson Chi-Square				706.642	6	0.000		
Cramer's V				0.754	-	0.000		

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

#### 4.3.12 Occupation and Profitability from Non-cultivation

The farmers may move from the farm to the non-farm sector when the non-farm sector confers benefit greater than the farm sector. The individuals in the farm sectors in occasions may also work in the non-farm sector. The non-farm sector emerges as a pull factor in rural areas (Tacoli, 2002). Table 4.16 shows that there is an association between occupational choice and profitability from non-cultivation as evident from the chi-square test.

<sup>4</sup> Since the analysis has been done excluding the landless.

<sup>5</sup> According to NSSO household's occupation (household type) is decided on the basis of the source of the household's income during the 365 days preceding the date of survey. For this purpose, only the household's income (net income and not gross income) from economic activities is considered. The selected household is assigned appropriate type code out of the five different household type codes: self-employed in non-agriculture, self-employed in agriculture, agricultural labour, others.

**Table 4.16: Occupation and profitability from non-cultivation**

Occupation	Profit from Non-cultivation (Rs.)						Total
	Nil	Below 10000	10001-25000	25001-50000	50001-100000	Above 100000	
Non-cultivators	537 (78.4)	125 (18.2)	17 (2.5)	2 (0.3)	1 (0.1)	3 (0.4)	685 (100)
Cultivators	529 (88.4)	22 (3.9)	4 (0.7)	2 (0.4)	1 (0.2)	0 (0.0)	558 (100)
Total	1066 (85.8)	147 (11.8)	21 (1.7)	4 (0.3)	2 (0.2)	3 (0.2)	1243 (100)
		Value	d.f.		Asymp. Sig. (2-sided)		
Pearson Chi-Square		7.195	5		0.000		
Cramer's V		0.239	-		0.000		

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

### 4.3.13 Occupation and Debt

Table 4.17 shows that there is a high prevalence of debt among farmer households. Only about 29 per cent of the cultivator households have no debt. Among the non-cultivators, 41 per cent have no debt. 10 per cent of cultivator households have debt more than Rs. 50 thousand that shows the high extent of indebtedness among these households. Among non-cultivators more than 41 per cent of households have no rent and about 48 per cent have debt less than 25 thousand. Clearly, the extent of indebtedness among cultivator households is higher than that of the non-cultivators. The association between occupation and debt is found to be statistically significant.

**Table 4.17: Occupation and debt**

Occupation	Debt (Rs.)								Total
	Nil	Up to 10000	10001-25000	25001-50000	50001-75000	75001-100000	100001-200000	Above 200000	
Non-Cultivators	282 (41.2)	244 (35.6)	80 (11.7)	45 (6.3)	14 (2.0)	10 (1.4)	7 (1.0)	3 (0.4)	685 (100)
Cultivators	161 (28.9)	80 (14.3)	114 (20.4)	86 (15.4)	35 (6.3)	26 (4.6)	38 (6.8)	18 (3.2)	558 (100)
Total	443 (35.6)	324 (26.1)	194 (15.6)	131 (10.3)	49 (3.9)	36 (2.8)	45 (3.5)	21 (1.7)	1243 (100)
			Value	d.f.		Asymp. Sig. (2-sided)			
Pearson Chi-Square			171.852	7		0.000			
Cramer's V			0.372	-		0.000			

Source: As in Table 4.5.

Note: figures in the parentheses are percentages.

It is clear from the above discussion that both pull factors and push factors are responsible for the process of depeasantization. To examine the relative

importance of these factors on individual's choice between cultivation occupation and non-cultivation occupation, estimation of a logistic regression becomes an important method.

#### 4.3.14 Logistic Regression Model

Logistic regression is very useful statistical tool to employ when dependant variable have binary outcomes. To run a logistic regression, basic idea and literature have been borrowed from Green, 2009; Field, 2006; and Kenneth E. Train, 2002. Logistic regression is a multiple regression but with an outcome variable that is a categorical dichotomy and predictor variables that are continuous or categorical (Field, 2006). In other words we can predict which of the two categories a person is likely to belong to given certain other information.

Logistic regression analyzes binomially distributed data of the form

$$Y_i \sim B(n_i, p_i), \text{ for } i = 1, \dots, m,$$

where the numbers of Bernoulli trials  $n_i$  are known and the probabilities of success  $p_i$  are unknown.

The model proposes for each trial  $i$  there is a set of explanatory variables that might inform the final probability. These explanatory variables can be thought of as being in a  $k$ -dimensional vector  $X_i$  and the model then takes the form

$$p_i = E\left(\frac{Y_i}{n_i} \mid x_i\right)$$

The logits, natural logs of the odds, of the unknown binomial probabilities are modeled as a linear function of the  $X_i$ .

$$\text{logit}(p_i) = \ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 x_{1,i} + \dots + \beta_k x_{k,i}$$

Note that a particular element of  $X_i$  can be set to 1 for all  $i$  to yield an intercept in the model. The unknown parameters  $\beta_j$  are usually estimated by maximum likelihood using a method common to all generalized linear models.

The interpretation of the  $\beta_j$  parameter estimates is as the additive effect on the log of the odds for a unit change in the  $j$ th explanatory variable. In the case of a dichotomous explanatory variable, for instance cultivator and non-cultivators,  $e^\beta$  is the estimate of the odds of having the outcome.

The model has an equivalent formulation

$$P_i = \frac{1}{1 + \exp - (\beta_0 + \beta_1 x_{1,i} + \dots + \beta_k x_{k,i})}$$

This functional form is commonly called a single-layer perceptron or single-layer artificial neural network. A single-layer neural network computes a continuous output instead of a step function. The derivative of  $p_i$  with respect to  $X = x_1 \dots x_k$  is computed from the general form:  $Y = \frac{1}{1 + \exp - f(x)}$ ,

where  $f(X)$  is an analytic function in  $X$ . With this choice, the single-layer neural network is identical to the logistic regression model.

### *Variables in the Model*

Occupation: it is taken as dependent variable (cultivators=1 and non-cultivators=0). Non-cultivator includes self-employed in non-agriculture, agricultural labour, other labour, and others.

Independent variables:

1. Age (age of household's head) and
2. Household Size are taken as numerical variables. These variables are considered in the model as household's characteristics.

3. Social Group: it is also taken as household characteristics. Social groups are divided into two categories that are others and ST, SC and OBC together in the analysis (General=1 and ST, SC and OBC=0).
4. Region: Regions are divided into two categories namely most fertile region and less fertile region. Central region of Punjab is considered as most fertile region. South-West and Sub-Mountainous regions are considered as less fertile regions (fertile region=1 and less fertile region=0).
5. Education: Education of household's head. It is categorized as education secondary and above and education below secondary (secondary and above=1 and below secondary=0).
6. Perception: Perception of a household regarding cultivation occupation (like=1 and do not like=0).
7. Land size: land size is divided into two categories, small (marginal and small) and large (semi-medium, medium and large) (large=1 and small=0).
8. Technology Access: the various sources of information to avail agricultural technology. Here we have taken whether a household accessed these sources of information (yes=1 and no=0).
9. Irrigation: whether a household is getting adequate level of irrigation for farming or not. (Yes=1 and no=0).
10. Timely availability of Inputs: whether a household is accessing timely availability of farm inputs or not. (Yes=1 and no=0).
11. Profitability from Cultivation and 12. Profitability from Non-Agriculture: both variables are taken as numerical values. Profitability is calculated by subtracting cost from receipts.
13. Debt: debt is also taken as debt outstanding of a household and is considered as numerical value.



### *Results of Logistic Regression*

The dependent variable is OCCUPATION<sub>ij</sub> which shows individual *i*'s choice of provider *j* (*j* takes two values- individual chooses cultivation and individual does not choose cultivation). The odd is defined as a ratio between 'probability that an individual opts for cultivation' and 'probability that an individual does not opt for cultivation'. Exp B (when B is the estimate for  $\beta$ ) can be interpreted in terms of the odds ratio. If the value of odds ratio is greater than one then it indicates that as the predictor increases, the odds of the outcome occurring also increase. Conversely, a value less than one indicates that as the predictor increases, the odds of the outcome occurring decrease.

The results of the logistic regression are presented in Table 4.18. In this model the variables age, household and social group are included as control variables. Age is a significant factor which determines the shift of workers from cultivation to non-cultivation, *ceteris paribus*. Value of odds ratio suggests that if a worker is of young age, there is a high probability to be a non-cultivator and vice-versa, other things remaining the same. Social group is highly significant and the value of odds ratio is higher than one which implies that odds favour an individual to be a cultivator when the social group is general (other than SC, ST and OBC). It means that social group has a significant impact on occupational choice. Similarly, household size has a significant impact on the dependent variable. Here odds ratio is less than one which means that as the household size increases, individuals are likely to move to non-cultivation, *ceteris paribus*.

Education is significant at 10 per cent level and its odds ratio is less than one which means that if an individual is educated up to 10<sup>th</sup> class or above, he is more likely to turn to non-cultivation. Given other things, education can play an important role in shifting the labour force from agriculture to non-agriculture. There is a high probability of being a cultivator when land size is large. The odds ratio suggests that when land size is large, the probability of being a cultivator is about 5 times higher than not being a cultivator. Similarly, region is statistically significant and its relationship with dependant variable is positive.

**Table 4.18: Results of logistic regression model**

Independent Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Age	0.011	0.007	2.720	1	0.099	1.011
Social Group	1.783	0.184	94.264	1	0.000	5.948
Household Size	-0.151	0.044	11.977	1	0.001	0.860
Education	-0.534	0.249	4.590	1	0.032	0.586
Land Size	1.508	0.283	28.430	1	0.000	4.519
Region	0.393	0.181	4.720	1	0.030	1.481
Perception	0.721	0.183	15.572	1	0.000	2.056
Time	0.636	0.186	11.755	1	0.001	1.889
Irrigation	1.134	0.209	29.466	1	0.000	3.110
Technology Accessed	-0.539	0.552	0.953	1	0.329	0.583
Debt	2.705	1.000	7.315	1	0.007	14.957
Profit Cultivation	25.644	6.449	15.811	1	0.000	1.372E11
Profit Non Cultivation	-6.666	2.782	5.740	1	0.017	0.001
Constant	-2.951	0.457	41.756	1	0.000	0.052
No. of Observations	1243	Log likelihood	-867.160		Predictability of the Model	86.8 per cent
<b>Overall Model Evaluation</b>				<b>ROC Analysis<sup>6</sup></b>		
	<b>Chi-square</b>	<b>df</b>	<b>Sig.</b>	<b>Area</b>	<b>Std. Error</b>	<b>Asymptotic Sig.</b>
Step	843.006	13	0.000	0.925	0.008	0.000
Block	843.006	13	0.000	<b>Cox &amp; Snell R-Square</b>		<b>Nagelkerke R-Square</b>
Model	843.006	13	0.000	0.492		0.656

There is a high probability of an individual being a cultivator when land is fertile, *ceteris paribus*.

Perception about work plays an important role in determining individual's occupation. This is also positively correlated with cultivation when an individual likes his occupation. Timely availability of inputs (seeds, fertilizers and machinery) and adequate irrigation are positively correlated with cultivation. The odds for these variables are more than one which means that inadequate availability of inputs and irrigation reduces the likelihood of an individual being a cultivator. There is no statistically significant relationship between occupation and sources of technology accessed indicating that the sources of information to avail oneself of agricultural modern technology have no impact on occupational shift.

<sup>6</sup> Graph and detailed information are given in the Appendix B4 of this chapter.

Debt is positively correlated with cultivation. It can be expected that indebted cultivators to get rid of this debt may be willing to leave cultivation. Profitability from cultivation is highly significant and has a positive relationship with occupation indicating that peasants remain in cultivation when the profitability from cultivation is high. Profitability from non-cultivation is one of the pull factors which is statistically significant at 10 per cent. It suggests that profitability in non-cultivation has an impact on the outcome variable. As the profitability from non-agriculture increases people prefer to move to non-agricultural sector.

#### **4.4 Conclusion**

The analysis shows that the number of holdings has been declining in Punjab during 1971 to 2005. The decline has been sharp since 1991. The sub-mountain region has experienced a relatively higher reduction in the number of holdings compared to the other regions. Across the districts, it is found that Patiala is the only district where the number of holdings has increased. So far as the various sizes of holding are concerned, there is a wide variation in change in the number of holdings. The extent of reduction is highest for the marginal holdings followed by the small holdings. Barring the district of Rupnagar, the number of medium holdings has increased in all the districts. It is evident that the small and marginal classes have experienced high reduction in the numbers of holdings in all regions.

The workers' classification since 1971 has shown that there has been a decline in the proportion of cultivators. The decline has been found to be higher during 1991-2001 relative to the other periods. The index of depeasantization confirms that during 1971 to 2001 there has been a decline in the proportion of cultivator in all the districts of the state. Thus, there has been developing a trend of depeasantization in Punjab since 1971 but its pace has become sharper after 1991.

It is found that both push and pull factors have led to the process of depeasantization in the state. However, the push factors seem to be more

dominant than the pull factors. Our model confirms that education and profit from non-agricultural sector has a mild impact on the process of depeasantization. Declining profitability in cultivation, indebtedness, small holdings, inadequate irrigation, perception about cultivation, delay in agricultural inputs and land quality are the push factors that have a strong impact on the process. Among the household's characteristics social group is found to be the most important factor that determines occupational choice.

The present chapter has examined the process of depeasantization. As we have seen there is a dominance of the push factors in determining the process of depeasantization, it can be said that the mobility among the majority of the peasants may be downward. However, the type of mobility after moving out of cultivation may not be the same for all classes. The next chapter therefore deals with this issue.

## Appendix B

**Table B1: Formation of district units**

District Unit in 1971	Comparable Unit in 2005
1 Amritsar	Amritsar + Tarantaran
2 Bathinda	Bathinda + Mansa
3 Faridkot	Faridkot
4 Ferozpur	Ferozpur + Moga + Mukatsar
5 Gurdaspur	Gurdaspur
6 Hoshiarpur	Hoshiarpur
7 Jalandhar	Jalandhar + Nawan Shahar
8 Kapurthala	Kapurthala
9 Ludhiana	Ludhiana
10 Patiala	Patiala + Fatehgarh Sahib
11 Ropar	Ropar + SAS nagar
12 Sangrur	Sangrur + Barnala

**Table B2: Number of holdings by size class in various districts of Punjab for 1971 and 2005 (holdings per 100 sq.km.)**

Size Class	Marginal		Small		Semi-Medium		Medium		Large		All Holdings	
	1971	2005	1971	2005	1971	2005	1971	2005	1971	2005	1971	2005
Sub-Mountain Region												
Gurdaspur	1590	434	685	575	651	844	436	532	83	62	3445	2446
Hoshiarpur	2116	635	671	541	581	629	363	390	80	58	3811	2252
Rupnagar	1514	663	566	545	567	543	402	318	75	39	3124	2108
Sub-Total	1788	566	653	555	604	688	399	425	80	54	3524	2288
Central Region												
Amritsar	1741	300	736	586	681	988	474	633	86	76	3718	2583
Jalandhar	1402	208	687	351	725	588	514	530	96	138	3424	1815
Kapurthala	1418	293	671	412	664	622	413	517	78	158	3244	2002
Ludhiana	673	261	464	374	607	600	555	559	111	127	2410	1921
Patiala	455	156	311	285	406	609	459	689	160	149	1791	1887
Sub-Total	1107	239	559	409	603	707	489	600	111	124	2868	2078
South-West Region												
Bathinda	454	210	328	249	399	543	517	650	224	190	1922	1842
Faridkot	692	259	444	320	526	662	534	767	166	127	2362	2136
Ferozepur	890	111	539	194	586	478	493	607	158	223	2666	1613
Sangrur	479	180	367	317	485	678	601	682	184	153	2116	2010
Sub-Total	637	161	423	244	501	552	534	646	182	193	2277	1795
State	1027	266	516	363	558	635	492	587	137	141	2730	1992
CV%	52	58	28	34	18	22	14	22	41	45	25	13

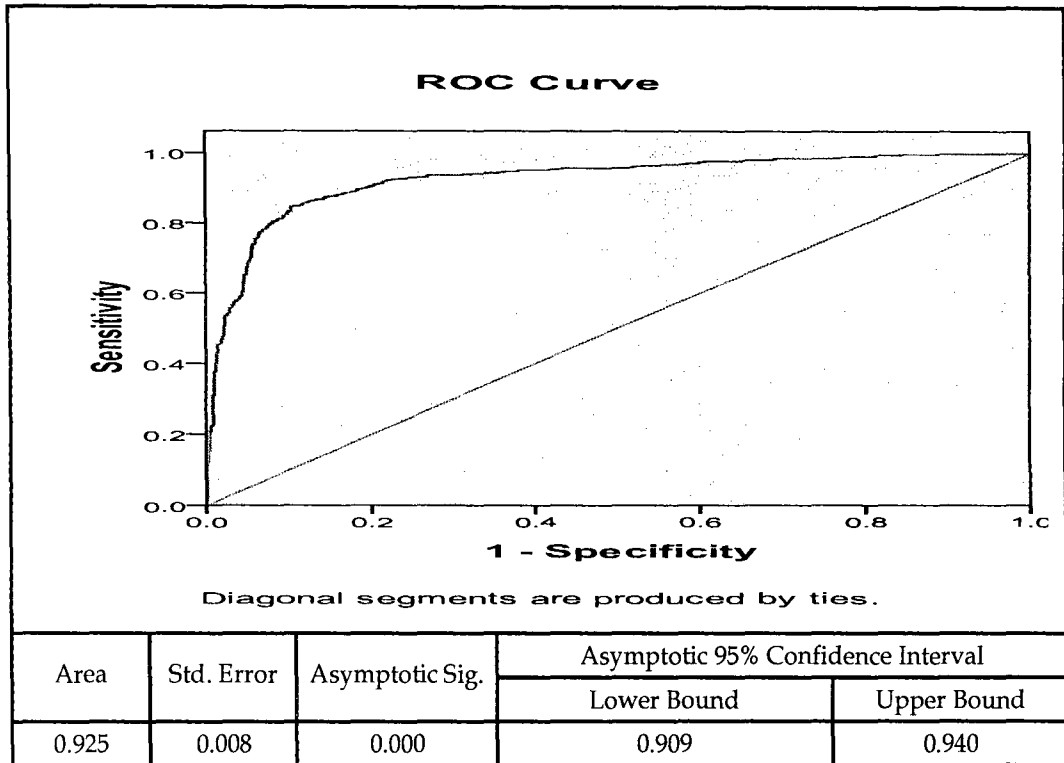
Source: Statistical Abstract of Punjab (various issues).

**Table B3: Percentage of cultivators to total workforce in Punjab, 1971 to 2001**

District	1971	1981	1991	2001	Percentage point Change in 2001 over 1971
Amritsar	35.4	31.9	29.2	21.4	-14.1
Bathinda	54.4	31	43.6	31.8	-22.6
Faridkot	47.9	34.4	37.7	25	-22.8
Ferozpur	51.3	25.6	40.4	29.6	-21.7
Gurdaspur	39.6	34.8	29.6	20.3	-19.4
Hoshiarpur	43.6	36.3	31.2	24	-19.6
Jalandhar	32.7	26.3	22.6	16.2	-16.5
Kapurthala	46.1	43.1	31.5	22.2	-23.8
Ludhiana	32.9	39.5	20	11.8	-21
Patiala	42.6	46	29.7	21.6	-21
Rupnagar	47.1	45.1	29.5	21.5	-25.5
Sangrur	51	34.6	41.5	29.3	-21.6
Total	42.6	35.4	31.7	22.6	-19.9

Source: Census of India, (various years).

**Table B4: Area under ROC Curve**





## CHAPTER V

# EDUCATIONAL, OCCUPATIONAL AND ECONOMIC MOBILITY OF PEASANTS IN PUNJAB

### 5.1 Introduction

Depeasantization may be led by both pull and push factors as we have found in the previous chapter. Pull or development-led factors work when there is generation of employment opportunities in the non-cultivation sector. Push or distress-related factors operate with low level of income in agriculture, small size of holdings, inadequate irrigation facilities and indebtedness. The occupational shift of peasants from cultivation to non-cultivation may lead to upward mobility or downward mobility. The present chapter makes an attempt to identify the direction of the mobility whether it has been upward or downward. Mobility has been captured through an analysis of the aspects of education, occupation and economic status of the peasants. A comparison of two periods has been done to fulfil this objective at hand. If the two period's comparison suggests that there has been an improvement in the educational level, economic status, and shift to better paying occupations of the peasants, then it can be said that an upward mobility has taken place.

The present chapter is divided into five sections. The next section deals with the educational mobility of peasants. With higher educational status, out-migration is likely to be high. Therefore, the aspects of migration have also been dealt in this section. The occupational mobility of peasants has been analysed in the third section. Economic mobility in terms of indebtedness, consumption expenditure and assets position has been discussed in the fifth section. The final section concludes the present chapter.

### 5.1.1 Concepts and Data

The status of peasant classes has been measured through occupational structure, the levels of education, per capita monthly expenditure (consumption), indebtedness and asset. The status of peasants has been compared at two points of time (with a decadal difference approximately) by using unit-level data of National Sample Survey (NSS). As the household samples collected in NSS are different in the two rounds, they cannot be compared. Due to this non-comparability, the analysis has been done according to land ownership by various classes of peasant households namely, marginal, small, semi-medium, medium and large. Further, because of non-availability of the required information on education, per capita monthly expenditure (consumption), indebtedness and asset from the same source, different surveys of NSSO have been used. Land and Livestock Surveys (48<sup>th</sup> and 59<sup>th</sup> rounds), All India Debt and Investment Surveys (48<sup>th</sup> and 59<sup>th</sup> rounds), Employment and Unemployment Situation in India (50<sup>th</sup> and 61<sup>st</sup> rounds) and Employment and Unemployment and Migration Particulars (64<sup>th</sup> round) have also been used. To compare the various aspects regarding the status of peasants, two rounds of the same survey are taken. Due to the non-availability of information on land ownership in Employment and Unemployment and Migration Particulars survey (64<sup>th</sup> round) the information on land possessed<sup>1</sup> has been used as a proxy for land ownership.

### 5.2 Educational Mobility and Out-migration among various Peasant Classes

Educational attainment of higher level tends to open up new opportunities in the labour market (McCormick, 1997). A higher level of education eases the peasant's mobility to seek for employment in the non-farm sector. The educational status of the peasants by size class has been discussed in this section. A comparison of their educational status has been done for the periods 1993-94 and 2004-05.

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<sup>1</sup> For the definitions of land possessed and land ownership see Appendix C4.

**Table 5.1: Educational status of households by size class of land ownership for 1993-94 and 2004-05**

Educational Level		Size Class of Ownership Holding				
		Marginal	Small	Semi-medium	Medium	Large
Not Literate	1993-94	1325830 (60.10)	291055 (53.01)	205695 (46.00)	153100 (46.33)	43292 (44.95)
	2004-05	1197461 (37.93)	110681 (38.17)	120672 (37.31)	55987 (38.29)	4621 (32.20)
Up to Middle	1993-94	601345 (27.26)	147685 (26.90)	141151 (31.56)	113295 (34.29)	26308 (27.31)
	2004-05	1063308 (33.68)	110785 (38.21)	119197 (36.86)	46868 (32.05)	3900 (27.17)
Secondary	1993-94	223648 (10.14)	88029 (16.03)	81461 (18.22)	43292 (13.10)	20823 (21.62)
	2004-05	498936 (15.80)	49368 (17.03)	46247 (14.30)	24986 (17.09)	2345 (16.34)
Higher Secondary Or Diploma	1993-94	36464 (1.65)	6288 (1.15)	5939 (1.33)	12026 (3.64)	911 (0.95)
	2004-05	179908 (5.70)	11320 (3.90)	23838 (7.37)	4000 (2.74)	1386 (9.66)
Graduate And Above	1993-94	18863 (0.86)	16042 (2.92)	12944 (2.89)	8727 (2.64)	4985 (5.18)
	2004-05	217392 (6.89)	7803 (2.69)	13454 (4.16)	14390 (9.84)	2100 (14.63)
Total	1993-94	2206150 (100.00)	549099 (100.00)	447190 (100.00)	330440 (100.00)	96319 (100.00)
	2004-05	3157005 (100.00)	289957 (100.00)	323408 (100.00)	146231 (100.00)	14352 (100.00)

Source: Computed from NSSO 50<sup>th</sup> and 61<sup>st</sup> round, *Employment and Unemployment Situation in India- Unit level Data*.

Note: 1. Figures in parenthesis are percentages to total

The proportion of illiterate ranges from 60.10 per cent for the marginal class to 44.95 per cent for the large class in 1993-94 (Table 5.1). The proportion of peasants literate up to the middle level is the highest for the medium class (34.29 per cent) followed by the semi-medium, large, marginal and small classes. Secondary education is the highest for the large class (21.62 per cent) and lowest for the small class (10.14 per cent). Among all size classes the proportion of peasants in higher secondary or diploma is the highest for the medium class (3.64 per cent) and the lowest for the large class (0.95 per cent). The large class constituted the highest proportion (5.18 per cent) and the marginal class constituted the lowest proportion (0.86 per cent) in the category of "graduate and above". The pattern of educational level of the peasants

in 1993-94 suggests that the proportion of the large, medium and semi-medium peasants in higher educational categories is relatively higher than that of the marginal and small peasants.

As compared to 1993-94, the year 2004-05 shows that the variation in the proportion of not literate has come down. It ranged from the highest of 37.93 per cent for the marginal class to the lowest of 32.2 per cent for the large class. There has been remarkable fall in the proportion of not literate for all peasant classes and the fall is as high as 23 percentage points for the marginal class. From this it can be inferred that there has been some improvement in the educational status for all peasant classes.

For the education level up to the middle there is not much variation across classes in each of the year. Compared to 1993-94 in 2004-05, barring the medium and large class the proportion of peasants in all the classes with educational level upto middle has gone up. So far as the secondary education is concerned there has been fall in the proportion of the large and the semi-medium class during 1993-94 to 2004-05. However, the large class shows significant increase (9 percentage points) in the proportion of peasants under higher secondary and diploma. Other classes have also shown increase under this category but the increase has been the highest for the large class. Even for the educational level graduate and above, the large class register the highest increase in its proportion (nearly 9 percentage points) during the period followed by medium (7 percentage points) and marginal class (6 percentage points).

The general relation between size of holding and levels of educational attainment is positive. This relationship seems to come through even from our analysis of Table 5.1. However, the evidence indicates some crack in this relationship as reflected in an increase in the proportion of marginal size group in the categories of higher education. Upward mobility in education has been found for all size classes. But it is found to be more in the higher size groups.

**Table 5.2: Migration in Punjab by educational category in 2007-08**

Educational Category	Migrate	Do not Migrate	Total
Not Literate	12487 (0.90)	1376581 (99.10)	1389068 (100.00)
Upto Middle	7519 (0.07)	1115050 (99.33)	1122569 (100.00)
Secondary	5008 (0.08)	590219 (99.16)	595227 (100.00)
Higher Secondary/Diploma	18051 (10.40)	156226 (89.64)	174277 (100.00)
Graduate and Above	5372 (5.40)	94721 (94.63)	100093 (100.00)
	Value	d.f.	Asymp. Sig. (2-sided)
Pearson Chi-Square	118190.43	4	0.000
Cramer's V	0.187	-	0.000

Source: Computed from NSSO 64<sup>th</sup> round, *Employment and Unemployment and Migration Particulars-Unit level Data*.

Note: 1. Figures in parenthesis are percentages to total.

It has been observed that the level of education of peasants has been improving in the state of Punjab during 1993-94 to 2004-05. Education is one of the pull factors of depeasantization, as discussed in the fourth chapter. The level of education helps to ease the process of occupational mobility. Workers with higher education are expected to move to the urban areas which are likely to offer better jobs or employment opportunities that demand high skills. Therefore, with the increasing level of education, the possibility of out-migration becomes higher. Out-migration is an important livelihood strategy for households in rural areas. Remittances improve the standard of living through asset holdings and high consumption levels (Quisumbing and McNiven, 2006). Table 5.2 shows the relationship between educational levels and out-migration. It has been found that higher the educational level higher is the migration. This relationship is statistically significant but is weak as evident from the low value of Cramer's V.

Table 5.3 shows rural outmigration by size class of possessed holdings in 2007-08. On an average, out-migration constitutes more than 27 per cent of total population. The extent of out-migration is highest in the medium and large class; the out-migrated population constitutes 44.11 per cent of the total medium and large class

population. The marginal class shows the lowest extent of out-migration (25.37 per cent).

**Table 5.3: Rural outmigration by size class of possessed holdings in 2007-08**

Size Class of Possessed Holding	Migrated	Not Migrated	Total
Marginal	696170 (25.37)	2048210 (74.63)	2744380 (100.00)
Small	89804 (31.36)	196572 (68.64)	286376 (100.00)
Semi-Medium	75899 (37.64)	125749 (62.36)	201648 (100.00)
Medium and Large	65636 (44.11)	83194 (55.89)	148830 (100.00)
Total	927509 (27.44)	2453725 (72.56)	3381234 (100.00)
	Value	d.f.	Asymp. Sig. (2-sided)
Pearson Chi-Square	5511.699	3	0.000
Cramer's V	0.040	--	0.000

Source: Computed from NSSO 64<sup>th</sup> round, Employment and Unemployment and Migration Particulars-Unit level Data.

Note: 1. Figures in parenthesis are percentages to total.

2. It is important to note that only those persons who were members of the household at the time of their departure and are presently alive are to be considered. Any member who had migrated out any time in the past but returned to the household and is presently members of the household will not be considered as out-migrants.

There is a statistically positive relationship between size of holding and the out-migration.

It is now of interest to examine whether the place of migration varies across the size of holdings. Therefore, it is of interest to examine the place of migration to capture the pattern of migration.

The place of migration shows that the proportion of out-migration within the same district to the total out-migration is the highest for all the classes in 2007-08 (Table 5.4). For the marginal class, the proportion of out-migration is 36 per cent and the same for small, semi-medium and medium and large is 47.3 per cent, 37.2 per cent and 37.0 per cent respectively. This indicates the prevalence of short distant out-migration among all the peasant classes. The proportion of out-migration "outside the state" is found the lowest for all classes. On an average the proportion of out-

migration outside the state is 14.3 per cent and for each marginal, small, semi-medium and medium and large is 15.9 per cent, 7.0 per cent, 11.5 per cent and 11.1 per cent respectively.

**Table 5.4: Present place of migration in 2007-08**

Size Class of Possessed Holding	Same State and within the Same District	Same State but another District	Outside the State	Another Country	Total
Marginal	250900 (36.0)	166935 (24.0)	110726 (15.9)	167609 (24.1)	696170 (100.0)
Small	42487 (47.3)	23293 (25.9)	6273 (7.0)	17751 (19.8)	89804 (100.0)
Semi-Medium	28214 (37.2)	13793 (18.2)	8748 (11.5)	25144 (33.1)	75899 (100.0)
Medium and Large	24276 (37.0)	19544 (29.8)	7297 (11.1)	14517 (22.1)	65634 (100.0)
Total	345877 (37.3)	223565 (24.1)	133044 (14.3)	225021 (24.3)	927507 (100.0)

Source: Computed from NSSO 64<sup>th</sup> round, Employment and Unemployment and Migration Particulars-Unit level Data.

Note: 1. Figures in parenthesis are percentages to total.

According to the land possessed size, it is found that in the category of “same state and within the same district” the proportion of out-migration is the highest in the small peasant class (47.3 per cent) and the lowest in the marginal class (36.0 per cent). The proportion of out-migration in “different district but within state” is the highest among medium and large class (29.8 per cent) and the lowest in the marginal class (24.0 per cent). In the category of place of migration “outside the state”, the proportion is the highest for the marginal class (15.9 per cent) and the lowest for the small class (7.0 per cent). The out-migration to foreign countries also constitutes a high proportion in all peasant classes with the proportion being the highest for the semi-medium (33.1 per cent) and the lowest for the small class (19.8 per cent).

The place of migration pattern indicates that large scale migration is prevalent among the peasants. Having found so the reasons why peasants migrate are brought out in the following analysis. These reasons will reflect under what circumstances migration is taking place among the different peasant classes.

Table 5.5 presents the various reasons for out-migration in the sample. The reasons such as search of some employment, or better employment, or business, taking up employment/better employment, transfer of service/contract, and proximity to place of work are the economic factors that determine occupational mobility. It is found that for majority of the marginal and semi-medium class, the reason for out-migration is to take up employment/better employment. For both small class and medium and large class the dominant reason for migration is “search for better employment”. The reasons such as search of some employment or better employment and taking up employment/better employment are the main economic factors responsible for out-migration of all the classes in general and of the small and marginal categories in particular.

Educational out-migration is higher among the small class and medium and large class relative to other classes (Table 5.5). In the medium and large class 50.09 per cent migrate for the purpose of education and the same for small class is 22.69 per cent. Out-migration for education purpose is negligible for the marginal and the semi-medium class.

It can be inferred from reasons for migration and its pattern that migration for economic reasons is taking place in all the classes of peasants. However, the extent of migration in search of employment or better employment is higher in marginal and small classes. This trend indicates that these peasants are migrating from rural areas and leaving cultivation to take up better employment opportunities. Given the improvement in educational levels and migration of the peasants, next we examine the pattern and levels of occupation.



**Table 5.5: Reasons for out-migration in rural Punjab, 2007-08**

Reason For Migration	Size Class of Possessed Holding				
	Marginal	Small	Semi-Medium	Medium & Large	Total
In search of employment	53429 (16.57)	5254 (13.95)	6792 (18.43)	2649 (11.28)	68124 (16.21)
In search of better employment	87214 (27.05)	10689 (28.38)	11351 (30.80)	3848 (16.38)	113102 (26.90)
Business	3199 (0.99)	0 (0.00)	0 (0.00)	65 (0.28)	3264 (0.78)
To take up employment / better employment	115017 (35.78)	7890 (20.95)	12559 (34.08)	3597 (15.31)	139063 (33.08)
Transfer of service/ contract	26769 (8.30)	2328 (6.18)	1180 (3.20)	960 (4.09)	31237 (7.43)
Proximity to place of work	3959 (1.23)	65 (0.17)	0 (0.00)	217 (0.92)	4241 (1.01)
Studies	11820 (3.67)	8548 (22.69)	305 (0.83)	11766 (50.09)	32439 (7.72)
Social / political problems (riots, terrorism, political refugee, bad law and order, etc.)	1588 (0.49)	0 (0.00)	4456 (12.09)	0 (0.00)	6044 (1.44)
Displacement by development project	119 (0.04)	0 (0.00)	0 (0.00)	0 (0.00)	119 (0.03)
Acquisition of own house/ flat	260 (0.08)	0 (0.00)	0 (0.00)	0 (0.00)	260 (0.06)
Housing problems	140 (0.04)	0 (0.00)	0 (0.00)	0 (0.00)	140 (0.03)
Health care	6550 (2.03)	0 (0.00)	0 (0.00)	0 (0.00)	6550 (1.56)
Migration of parent/ earning member of the family	0 (0.00)	0 (0.00)	167 (0.45)	386 (1.64)	553 (0.13)
Others	12304 (3.82)	2892 (7.68)	46 (0.12)	0 (0.00)	15242 (3.63)
Total	322368 (100)	37666 (100)	36856 (100)	23488 (100)	420378 (100)

Source: Computed from NSSO 64<sup>th</sup> round, Employment and Unemployment and Migration Particulars-Unit level Data.

Note: 1. Figures in parenthesis are percentages to total.

### 5.3 Occupational Mobility of Peasants

The 48<sup>th</sup> (1992) and 59<sup>th</sup> (2003) rounds of the Land and Livestock Survey have been compared to examine the occupational pattern<sup>2</sup> of various classes of peasants. Table 5.6 shows the distribution of households belonging to different size classes of land ownership according to principle status activities for the two years 1992 and 2003.

The proportion of marginal peasants in own account working category is the lowest (37.22 per cent) and that of medium is the highest (86.77 per cent) in 1992 (Table 5.6). The proportion of unpaid family work is the highest for large peasants (3.82 per cent) followed by medium (1.68 per cent), semi-medium (1.18 per cent), marginal (0.81 per cent) and small (0.41 per cent). The proportion of marginal peasant in the category of “worked as regular salaried/wage employee” is the highest (14.17 per cent). The medium class has the lowest proportion (2.56 per cent). It is found that in 1992 only the marginal and small class work as casual wage labour. Barring the small class, no other classes are in the category of “did not work but was seeking and/or available for work” in 1992.

Comparing 1992 and 2003, it has been observed that the proportion of marginal peasants in own account workers’ category is smaller relative to any other peasant class in both the periods. In this category, there has been nearly 8 percentage decline in the proportion of small peasants during 1992 to 2003. The proportion of medium peasants shows a decline of about 9 percentage points during these periods. Semi-medium class has shown an increase of 1.75 percentage points. In the large peasant class, the increase has been over 18 percentage points. Clearly, as the size of holding

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<sup>2</sup> Various categories of principal occupation status given by NSS are as follows: worked in household enterprise (self-employed): own account worker- 11, worked as helper in household. enterprise (unpaid family worker) -21; worked as regular salaried/wage employee -31, worked as casual wage labour in other types of work -51; did not work but was seeking and/or available for work -81, attended educational institution -91, attended domestic duties only -92, attended domestic duties and was also engaged in free collection of goods (vegetables, roots, firewood, cattle feed, etc.), sewing, tailoring, weaving, etc. for household use -93, rentiers, pensioners , remittance recipients, etc.-94, not able to work due to disability -95, others- 97.

increases the proportion of peasants in the own account work category also increases. As it can be seen in 2003 all the large peasants are engaged in own account work.

The proportion of marginal peasants in regular salaried work shows virtually no change during 1992 to 2003 (Table 5.6). The proportion of small, semi-medium, medium and large holdings has shown some fall during 1992-2003; the small by 0.82 percentage points, semi-medium by 1.48 percentage points, medium by 1.43 percentage points and large by 3.04 percentage points. In 2003, the proportion of large peasants has become negligible.

There is an increase in the proportion of marginal peasants in casual wage labour category from 32.24 percent in 1992 to 33.17 percent in 2003 (Table 5.6). The proportion of small peasants has declined by 1.64 percentage points. The proportion in the remaining three categories is found negligible in both 1992 and 2003. The smaller the size of the holdings, higher is the proportion of peasants in casual work category. It is only the marginal class, where unemployment (those who did not work but was seeking and/or available for work) persists. However, there has been a fall in the proportion of unemployed in the marginal class by 1.70 percentage points during 1992 to 2003.

The proportion of all peasant classes in the working category "attended domestic duties only" registered a decline during 1992 to 2003. The fall in the marginal class has been 0.83 percentage points, and that in small, semi-medium, medium and large has been 1.34 percentage points, 0.52 percentage points, 0.47 percentage points, 3.95 percentage points respectively. Thus, the proportion in the large peasant class has shown the highest fall. In the category of "attended domestic duties and was also engaged in free collection of goods", the proportion of marginal, small and medium

**Table 5.6: Principal status of the households by size class of ownership holding for 1992 and 2003**

Principal Status Activity		Size Class of Ownership Holding				
		Marginal	Small	Semi-medium	Medium	Large
Worked in household enterprise (self-employed): own account worker	1992	485240 (37.22)	174962 (84.29)	202094 (79.58)	128755 (86.77)	18390 (81.58)
	2003	797001 (35.80)	223426 (76.44)	138803 (81.33)	66930 (77.62)	577 (100.00)
Worked as helper in household enterprise (unpaid family worker)	1992	10538 (0.81)	861 (0.41)	3004 (1.18)	2500 (1.68)	860 (3.82)
	2003	683 (0.03)	5976 (2.04)	3907 (2.29)	0 (0.00)	0 (0.00)
Worked as regular salaried/ wage employee	1992	184668 (14.17)	10746 (5.18)	13943 (5.49)	3803 (2.56)	685 (3.04)
	2003	316703 (14.23)	12734 (4.36)	6845 (4.01)	974 (1.13)	0 (0.00)
Worked as casual wage labour in other types of work	1992	420225 (32.24)	6906 (3.33)	0 (0.00)	0 (0.00)	0 (0.00)
	2003	738520 (33.17)	4941 (1.69)	115 (0.07)	0 (0.00)	0 (0.00)
Did not work but was seeking and/or available for work	1992	15440 (1.18)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
	2003	2378 (0.11)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Attended educational institution	1992	0 (0.00)	0 (0.00)	0 (0.00)	1923 (1.30)	0 (0.00)
	2003	5689 (0.26)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Attended domestic duties only	1992	31794 (2.44)	5989 (2.89)	3183 (1.25)	884 (0.60)	891 (3.95)
	2003	35873 (1.61)	4540 (1.55)	1245 (0.73)	108 (0.13)	0 (0.00)
Attended domestic duties and was also engaged in free collection of goods for household use	1992	49560 (3.80)	5365 (2.58)	10708 (4.22)	2071 (1.40)	0 (0.00)
	2003	99433 (4.47)	12101 (4.14)	5645 (3.31)	1619 (1.88)	0 (0.00)
Rentiers, pensioners , remittance recipients, etc	1992	38927 (2.99)	0 (0.00)	9022 (3.55)	0 (0.00)	0 (0.00)
	2003	97685 (4.39)	11454 (3.92)	4468 (2.62)	7789 (9.03)	0 (0.00)
Not able to work due to disability	1992	3728 (0.29)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
	2003	26171 (1.18)	4327 (1.48)	4741 (2.78)	5306 (6.15)	0 (0.00)
Others (including begging, prostitution, etc.)	1992	63429 (4.87)	2748 (1.32)	11982 (4.72)	8455 (5.70)	1715 (7.61)
	2003	106213 (4.77)	12808 (4.38)	4905 (2.87)	3498 (4.06)	0 (0.00)
Total	1992	1303549 (100.0)	207577 (100.0)	253936 (100.0)	148391 (100.0)	22541 (100.0)
	2003	2226349 (100.0)	292307 (100.0)	170674 (100.0)	86224 (100.0)	577 (100.0)

Source: Computed from NSSO 48<sup>th</sup> and 59<sup>th</sup> round, Land and Livestock Surveys-Unit Level Data.

Note: 1. Figures in parenthesis are percentages to total.

peasant classes has shown increase by 0.67 percentage points and 1.56 percentage points and 0.48 percentage points respectively during 1992 to 2003. The proportion of semi-medium on the contrary has fallen by 0.91 percentage points. The proportion of large class remains negligible in both the periods. In these two categories, it is largely the marginal and small peasants that are engaged.

The pattern of principal status of employment of various peasant classes shows that large, medium, semi-medium and small classes are largely engaged in own account work category. In the own account category, the proportion of marginal class is relatively small. The marginal class is largely engaged in casual work and other categories of work that are lowly paid. Thus, it can be said that larger the holding size greater the engagement of peasants in work that are highly paid such as own account work whereas, smaller the holding size greater is the engagement of peasants in lowly paid work such as casual labour.

**Table 5.7: Household type by size class of ownership holding for 2003**

Household Type	Size Class of Ownership Holding				
	Marginal	Small	Semi-medium	Medium	Large
Self-Employed In Non-Agriculture	454440 (20.25)	16595 (5.77)	27093 (15.79)	0 (0.00)	0 (0.00)
Agricultural Labour	479671 (21.37)	6156 (2.10)	115 (0.07)	0 (0.00)	0 (0.00)
Other Labour	473731 (21.11)	13534 (4.62)	0 (0.00)	0 (0.00)	0 (0.00)
Self Employed In Agriculture	460471 (20.52)	237131 (80.99)	135854 (79.16)	87961 (98.54)	577 (100.00)
Others	375931 (16.75)	19362 (6.61)	8551 (4.98)	1302 (1.46)	0 (0.00)
Total	2244244 (100.00)	292778 (100.00)	171613 (100.00)	89263 (100.00)	577 (100.00)

Source: Computed from NSSO 59<sup>th</sup> round, Land and Livestock Survey-Unit Level Data.

Note: 1. Figures in parenthesis are percentages to total.

2. Others includes all the households except Self-Employed in Non-Agriculture, Agricultural Labour, Other Labour, Self Employed In Agriculture.

3. For a rural household, if a single source contributes 50 per cent or more of the household's income from economic activities during the last 365 days, it will be assigned the type code corresponding to that source.

The large and the medium peasant classes in own account worker are basically engaged in cultivation (self employed in agriculture); 100 per cent of the large and 99

per cent of the medium peasants are self employed in agriculture in 2003 (see Table 5.7). The small and semi-medium peasants are also mostly self-employed. Only 13 per cent of the small peasants and 5 per cent of the semi-medium peasants are not self-employed. However, the proportion of self-employed in the marginal class is less relative to the other classes; 40 per cent of the marginal peasants are self-employed and the remaining 60 per cent work as either agricultural labour, other labour or are engaged in other categories of work. Thus it can be said that marginal peasants are heavily dependent on labour activities both agricultural and non-agricultural. Therefore, it is worthwhile to examine the growth in wage rates of agricultural and non-agricultural activities.

**Table 5.8: Real wage earnings from agriculture and non-agriculture by agricultural rural labour in Punjab**

Real Wage Earnings (Male Rs / day)					
Sector	1983	1993-94	2004-05	Compound Annual Growth Rate (%)	
				1983 to 1993-94	1993-94 to 2004-05
Agriculture	36.30	65.83	71.75	6.13	0.86
Non-Agriculture	28.57	67.27	75.96	8.94	1.22
Ratio (Agri. to Non-Agri.)	1.27	0.98	0.94		

Source: Estimated from Rural Labour Enquiry Report on Wages and Earnings (2004-05).

Note: Base (2004-05=100).

Adoption of wage labour occupations by the marginal peasants indicates that these occupations are more remunerative than cultivation on their marginal holdings. The growth of wage earnings is higher during 1983 to 1993-94 than that of 1993-94 to 2004-05 in Punjab. But in both the periods the growth rate of non-agricultural wage earnings has been higher than that of agricultural wage earning (Table 5.8). The ratios of agricultural real wage earnings to non-agriculture real wage earnings for 1983, 1993-94 and 2004-05 indicate that in 1983 agricultural wage rates were higher than non-agricultural wage rates but in the periods thereafter non-agricultural wages have remained higher than agricultural wages. It may thus be concluded that the increasing non-agricultural wage earnings have lured a large proportion of marginal farmers to shift to non-agricultural wage (other labour category) occupations (see Table 5.7).

With participation in non-agricultural wage occupations, it can be expected that the levels of employment will increase. Therefore, it is of interest to see the days of employment in a week for 1993-94 to 2004-05 to get a comparative picture of the levels of employment. The distribution of the average number of days of employment (Table 5.9) for various land holding classes shows that there has been not much change during 1993-94 to 2004-05. However, it can be inferred from the t-statistics that there is a statistically significant positive change in the number of days of employment in a week for marginal class during 1993-94 to 2004-05. There is statistically significant negative change in number of days of employment for semi-medium and large classes whereas; there is no significant change for small and medium classes. In other words, on an average there is an improvement in the number of days of employment for marginal class and only deterioration for semi-medium and large classes. The small and medium classes show no significant change.

**Table 5.9: Number of days of employment in a week by size class of land ownership in 1993-94 and 2004-05**

Size Class of Ownership Holding	No. of days of Employment		F-statistics	t-statistics
	Mean			
	1993-94	2004-05		
Marginal	6.42	6.56	47.57***	-3.20***
Small	6.57	6.56	0.03	0.11
Semi-Medium	6.82	6.58	41.16***	3.10***
Medium	6.69	6.65	0.61	0.50
Large	6.64	6.38	4.10**	0.97*

Source: Computed from NSSO 50<sup>th</sup> and 61<sup>st</sup> round, *Employment and Unemployment Situation in India-Unit level Data*.

Note: 1.\* denotes significant at 10 per cent, \*\* denotes Significant at 5 per cent and \*\*\* denotes significant at 1 per cent.

2. F-test was conducted before t-test to check the equality of variances of the means.

A distinct pattern can be observed from the analysis of occupational pattern and its levels. While the proportion of the marginal peasants in own account work has decreased, it has increased for the casual work category, indicating casualisation of work. There has been an increase in participation of marginal peasants in agricultural and non-agricultural wage employments irrespective of the low growth

in wage earnings during 1993-94 to 2004-05. Thus, there has been a downward occupational mobility among the marginal peasants. Although there has been a fall in the proportion of small peasants engaged in casual work yet its proportion in other categories of lowly paid occupations has gone up. Therefore, it seems that there is downward mobility among small peasants also. For the semi-medium, medium and large classes there has been an upward mobility as there has been an increase in the proportion of each of this class under own account work.

#### **5.4 Economic Mobility of the Peasants**

The levels of education and occupational pattern have an important bearing on the economic conditions of a household. Improving economic conditions of a household reflects upward mobility of the household (Rao, 2009). Economic mobility in the present analysis has been captured through examining the level of indebtedness, consumption expenditure and the levels and composition of assets of peasant households.

It can be seen that indebtedness has increased for all peasant classes in the sample during 1992 to 2003 (Table 5.10). The proportion of indebted households has increased from 26.31 per cent in 1992 to 52.76 per cent in 2003. The increase has been the highest for the semi-medium class followed by the small class; their proportion has gone up by 55.14 and 47.74 percentage points respectively. In the marginal, medium and large classes, the increase has been 24.99, 40.74 and 22.12 percentage points respectively.



**Table 5.10: Estimated number of rural indebted households in Punjab for 1992 and 2003**

Size Class of Ownership Holding	Indebted		No Debt	
	1992	2003	1992	2003
Marginal	259680 (22.60)	1054099 (47.59)	889356 (77.40)	1160648 (52.41)
Small	17475 (21.86)	187986 (68.86)	62479 (78.14)	85013 (31.14)
Semi-medium	57177 (25.10)	151169 (80.24)	170607 (74.90)	37233 (19.76)
Medium	122012 (35.56)	58676 (76.30)	221064 (64.44)	18226 (23.70)
Large	62205 (36.29)	6414 (58.41)	109210 (63.71)	4567 (41.59)
All	518549 (26.31)	1458344 (52.76)	1452716 (73.69)	1305687 (47.24)

Source: Computed from NSSO 48<sup>th</sup> and 59<sup>th</sup> round, All India Debt and Investment Surveys-Unit Level Data.

Note: 1. Figures in parenthesis are percentages to total.

Further, to capture the extent of indebtedness, the average amount of loan outstanding by size of holding is examined (Table 5.11). There is a substantial increase in the average amount of loan outstanding for all sizes of holdings. T-test has been conducted to compare the sample average amount of loan outstanding in the periods 1992 and 2003. The t-statistics shows that the average amount of loan outstanding has gone up for each marginal, small, semi-medium and medium class; only for the large class as well as the samples as a whole, the t-statistics is not statistically significant. The percentage increase in the amount of loan during 1992 to 2003 has been the highest for the semi-medium peasants followed by the large peasants. It has been found that the extent of indebtedness is high among the bigger sized holdings. This may be due to the high debt repayment capacity of these groups. Since the small and marginal peasants have relatively low debt repayment capacity, the increasing level of indebtedness may be a burden for them which in turn may increase their distress level.

**Table 5.11: Average amount of loan outstanding by size class of land ownership (in Rupees)**

Size Class of Ownership Holding	Mean (Rs.)		Percentage change	F-statistics	t-statistics
	1992	2003			
Marginal	14141.4	32195.4	128	14.32***	-4.42***
Small	22938.1	80004.7	249	6.11**	-3.96***
Semi-Medium	22783.1	107447	372	28.05***	-5.16***
Medium	56784.2	162734	187	8.85***	-3.07**
Large	89769.5	390000	334	41.09***	-0.81

Source: Computed from NSSO 48<sup>th</sup> and 59<sup>th</sup> round, All India Debt and Investment Surveys-Unit Level Data.

Note: 1. \* denotes significant at 10 per cent, \*\* denotes Significant at 5 per cent and \*\*\* denotes significant at 1 per cent.

2. F-test was conducted before t-test to check the equality of variances of the means.

3. Figures for both the periods are deflated with consumer price index (base period 2003) for agricultural workers.

The level of consumption expenditure is an important measure of the standard of living; higher consumption expenditure indicates better living standards. Deaton and Grosh (2000) hold that consumption is the best measure of the economic component of living standards. The monthly per capita consumption expenditure by land owning class is presented in Table 5.12.

**Table 5.12: Household's monthly per capita consumer expenditure by size class of land ownership (in Rupees)**

Size Class of Ownership Holding	Mean (Rs.)		Percentage Change	F-statistics	t-statistics
	1992	2003			
Marginal	542.75	723.39	33	57.82***	-12.24***
Small	635.37	1070.61	69	13.75***	-9.96***
Semi-Medium	742.25	1168.51	57	15.92***	-8.67***
Medium	761.298	1311.81	72	28.37***	-4.68***
Large	772.158	1613.09	109	27.60***	-6.19***

Source: Computed from NSSO 48<sup>th</sup> and 59<sup>th</sup> round, All India Debt and Investment Surveys-Unit Level Data.

Note: 1. \* denotes significant at 10 per cent, \*\* denotes Significant at 5 per cent and \*\*\* denotes significant at 1 per cent.

2. F-test was conducted before t-test to check the equality of variances of the means.

3. Figures for both the periods are deflated with consumer price index (base period 2003) for agricultural workers.

Monthly per capita consumption expenditure of the sample households increased during 1992 to 2003 for all the classes. To check whether there is a difference between the means of the two periods; t-test has been carried out. It shows that there is statistically significant difference between the means of each peasant classes. The value of t-statistics indicates that there is an upward shift of per capita consumption

expenditure in all the peasant classes. Clearly the larger the size of holding higher is the increase in consumption expenditure; it is found to be 109 per cent for the large holdings and 33 per cent for the marginal holdings.

Level of asset is one of the most important indicators of economic wellbeing. There is a high difference of value of total assets across the size of holdings in 1992 and 2003. The sample average nominal value of total asset by size of holding has increased for all peasant classes from 1992 to 2003 (see Appendix C3). To remove the effect of inflation, average real value of total asset by land size class of holdings for 1992 and 2003 has been calculated (Table 5.13). The highest value of average asset is Rs. 3060957 that is for the large peasants and the lowest is Rs. 115278 that is for the marginal peasants in 1992. The value of total average asset for all the holding size has increased; with the highest increase for the small holdings and lowest for the marginal ones. As seen from the Table 5.13, the variation in the average value of total assets across the holding sizes is still high in 2003; ranging from the highest of Rs. 9224496 (for the large holdings) to Rs. 286817 (for the marginal holdings).

**Table 5.13: Average real value of total assets by land size class of holdings for 1992 and 2003 (in Rupees)**

Land Size Class	Mean (Rs.)		Percentage Change	F-statistics	t-statistics
	1992	2003			
Marginal	115278	286817	149	167.90***	-9.56***
Small	353846	1297745	267	23.26***	-8.21***
Semi-Medium	612091	2182730	257	82.45***	-13.44***
Medium	1234419	4239363	243	83.25***	-11.52***
Large	3060957	9224496	201	23.39***	-6.03

Source: Computed from NSSO 48<sup>th</sup> and 59<sup>th</sup> round, All India Debt and Investment Surveys-Unit Level Data.

Note: 1.\* denotes significant at 10 per cent, \*\* denotes Significant at 5 per cent and \*\*\* denotes significant at 1 per cent.

2. F-test was conducted before t-test to check the equality of variances of the means.

3. Figures for both the periods are deflated with consumer price index (base period 2003) for agricultural workers.

Now, it becomes crucial to see the composition of the value of assets to capture the variation in the asset position of the peasants. Table 5.14 provides the percentage distribution of various assets for 1992 and 2003. Land constitutes a significant proportion of the total assets possessed by all sizes of holdings. Analysing the asset owning at a point of time shows that higher the size of holdings, higher is the concentration of land asset. In 1992, land constituted 85.73 per cent of the total assets of the large class whereas assets like livestock and transportation constituted only 1.19 per cent and 1.27 per cent respectively. For the small and marginal class, it can be seen that unlike the other classes, the assets are not concentrated on land alone but is distributed across livestock, machinery, transportation and building. The building asset constituted 60.38 per cent and 27.85 per cent of the total assets for the marginal and small class respectively.

**Table 5.14: Percentage distribution of the value of various assets by land size class of holdings for 1992 and 2003 (per cent)**

Land Size Class	Year	Marginal	Small	Semi-Medium	Medium	Large
Land	1992	29.12	61.83	71.48	78.99	85.73
	2003	60.19	82.03	84.64	92.35	94.42
Livestock	1992	5.77	3.64	2.50	1.9	1.19
	2003	1.24	0.35	0.24	0.14	0.07
Machinery	1992	1.60	4.64	2.85	5.24	5.08
	2003	0.20	0.10	0.08	0.04	0.01
Building	1992	60.38	27.85	21.53	12.7	6.72
	2003	37.49	17.26	12.87	7.39	5.49
Non-Farm	1992	0.73	0.04	0.40	0.06	0.00
	2003	0.35	0.08	1.98	0.00	0.00
Transportation	1992	2.50	2.00	1.23	1.11	1.27
	2003	0.53	0.17	0.19	0.08	0.01
Total	1992	100	100	100	100	100
	2003	100	100	100	100	100

Source: Computed from NSSO 48<sup>th</sup> and 59<sup>th</sup>, All India Debt and Investment Surveys-Unit Level Data.

The composition of assets during 1992 to 2003 has undergone a change. During 1992-2003, there has been an increase in the concentration of the value of land asset for each peasant class. While in 1992, building constituted the highest proportion for the marginal peasants, in 2003 the proportion of the value of land becomes the highest.

The increase in the proportion of the value of land asset has been the highest for the marginal peasants; the increase has been 30 percentage points.

There has been an increase in the extent of indebtedness for all the size holdings. However, given the low repayment capacity of the small and marginal peasants relative to the other classes, it can be expected that increasing indebtedness may be a burden on these peasants. Besides the increase in asset possession for the marginal class has been lower than all other classes, indicating that increasing indebtedness is actually a burden for this class. So far as the increase in consumption expenditure is concerned, the marginal peasants are on the lower side. Thus, it can be said that economic mobility is relatively downward for the marginal class. However, the economic mobility for the other classes is relatively upward.

## **5.5 Conclusion**

The relationship between size of holding and levels of educational attainment is found to be positive. However, the evidence indicates some crack in this relationship as reflected by the increase in the proportion of marginal size group in the categories of higher education. It can be inferred that there is an upward mobility in education for all size classes. But it is relatively greater for higher size groups. High educational attainment has led to increase in migration. It has been found that migration is taking place mainly for economic reasons. The extent of migration in search of employment or better employment is high in the marginal and small classes whereas the extent of migration for educational purposes is high among the medium and large classes. It seems that while migration among small and marginal peasant is out of need, for the large and medium class it is out of choice. So there may be the working of distress-led factors in case of the small and marginal peasants resulting in their downward mobility.

Education and migration affect the occupational mobility of an individual. There is a trend of downward occupational mobility among the marginal and small peasants.

For the semi-medium, medium and large classes there has been an upward mobility as there has been an increase in the proportion of each of this class under own account work.

While, economic mobility is relatively downward for the marginal class, it is relatively upward for the other classes. Given the low repayment capacity of the marginal peasants relative to the other classes, it can be expected that increasing indebtedness may be a burden on these peasants. So far as the increase in asset possession and consumption expenditure is concerned, the marginal peasants are on the lower side.

From our analysis of the various aspects of mobility, it has been found that in general there has been a downward mobility for the marginal peasants while for the small, semi-medium, and medium and large, mobility has been upward. Thus, it can be said that the distress-led factors, which have forced the marginal peasants to abandon cultivation, have also led to the downward mobility.

### Appendix C

**Table C1: Average amount of various amounts by land class size of holdings for 1992**

Land Size Class		Land	Livestock	Machinery	Building	Non-Farm	Transportation	Total
Marginal	Mean (Rs.)	18786.44	3655.45	1034.90	38954.60	470.53	1611.71	64513.64
	N	402	402	402	402	402	402	402
	Std. Deviation(Rs.)	23548.03	4468.04	8700.47	39821.32	4326.18	10434.10	59682.90
Small	Mean(Rs.)	122444.81	7200.95	9192.12	55140.48	82.14	3964.88	198025.38
	N	42	42	42	42	42	42	42
	Std. Deviation(Rs.)	61227.29	6484.86	21792.85	45966.63	324.57	9101.82	109125.86
Semi-Medium	Mean(Rs.)	244846.12	8561.19	9763.74	73758.47	1371.80	4228.56	342529.87
	N	118	118	118	118	118	118	118
	Std. Deviation(Rs.)	118087.56	6839.99	17906.19	61340.38	10149.60	12689.75	160654.70
Medium	Mean(Rs.)	545650.34	13130.83	36194.34	87767.66	430.72	7653.43	690827.32
	N	218	218	218	218	218	218	218
	Std. Deviation(Rs.)	264552.52	9210.31	48311.83	66127.41	4512.85	17598.13	323256.59
Large	Mean(Rs.)	1468607.48	20446.50	87103.50	115095.07	70.92	21702.52	1713025.98
	N	167	167	167	167	167	167	167
	Std. Deviation(Rs.)	1035876.84	13593.93	69065.85	93081.11	911.15	31712.63	1101311.36
Total	Mean(Rs.)	428506.76	9566.25	25755.94	68673.05	485.97	6975.89	539963.85
	N	947	947	947	947	947	947	947
	Std. Deviation(Rs.)	693043.13	10344.28	49578.55	67850.09	5062.84	19212.82	772205.27

Source: Computed from NSSO 48<sup>th</sup>, All India Debt and Investment Survey-Unit Level Data.

**Table C2: Average Amount of various amounts by land class size of holdings for 2003**

Land Size Class		Land	Livestock	Machinery	Building	Non-Farm	Transportation	Total
Marginal	Mean (Rs.)	172648.35	3552.81	573.10	107527.24	1002.28	1513.30	286817.10
	N	881	881	881	881	881	881	881
	Std. Deviation(Rs.)	298631.44	4659.45	1796.81	108394.46	6364.71	9383.95	352152.82
Small	Mean(Rs.)	1064538.92	4570.06	1357.42	224029.94	1064.37	2184.73	1297745.44
	N	167	167	167	167	167	167	167
	Std. Deviation(Rs.)	648279.10	7383.97	2307.55	192138.83	9853.21	4060.76	736878.22
Semi-Medium	Mean(Rs.)	1847386.79	5243.87	1808.02	280893.87	43189.62	4208.21	2182730.38
	N	106	106	106	106	106	106	106
	Std. Deviation(Rs.)	1066579.11	10895.14	3328.01	282928.11	389906.38	9659.11	1232189.95
Medium	Mean(Rs.)	3915111.82	6026.15	1610.51	313205.13	6.41	3402.56	4239362.59
	N	39	39	39	39	39	39	39
	Std. Deviation(Rs.)	3558527.47	10623.78	1371.46	201597.20	40.03	6949.15	3629845.39
Large	Mean(Rs.)	8710000.00	6320.00	956.00	506000.00	.00	1220.00	9224496.00
	N	5	5	5	5	5	5	5
	Std. Deviation(Rs.)	7382106.75	10624.83	534.26	169351.71	.00	756.31	7376966.07
Total	Mean(Rs.)	602624.01	3936.31	827.07	147465.98	4707.10	1905.63	761466.10
	N	1198	1198	1198	1198	1198	1198	1198
	Std. Deviation(Rs.)	1320172.96	6194.90	2082.35	164820.06	116287.80	8798.44	1406371.69

Source: Computed from NSSO 59<sup>th</sup>, All India Debt and Investment Survey-Unit Level Data.



**Table C3: Average amount of total asset by land size class of holdings for 1992 and 2003 (in Rupees)**

Land Size Class	Mean		F-statistics	t-statistics
	1992	2003		
Marginal	64513.64	286817.10	242.52***	-12.57***
Small	198025.38	1297745.44	31.79***	-9.63***
Semi-Medium	342529.87	2182730.38	109.64***	-16.08***
Medium	690827.32	4239362.59	108.91***	-14.25***
Large	1713025.98	9224496.00	68.36	-10.54

Source: Computed from NSSO 48<sup>th</sup> and 59<sup>th</sup> round, All India Debt and Investment Surveys-Unit Level Data.

Note: 1. \* denotes significant at 10 per cent, \*\* denotes Significant at 5 per cent and \*\*\* denotes significant at 1 per cent.

2. F-test was conducted before t-test to check the equality of variances of the means.

**Appendix C4: The following definitions are taken from National Sample Survey Organisation.**

**1. Land possessed:** Land possessed is given by land owned (including land under 'owner like possession') + land leased in - land leased out + land held by the household but neither owned nor leased in (e.g. encroached land).

**2. Ownership of land:** (i) A plot of land is considered to be owned by the household if permanent heritable possession, with or without the right to transfer the title, is vested in a member or members of the household. Land held in owner-like possession under long term lease or assignment is also considered as land owned. Thus, in determining the ownership of a plot of land two basic concepts are involved, namely,

(a) Land owned by the household, i.e. land on which the household has the right of permanent heritable possession with or without the right to transfer the title, e.g. Pattadars, Bhumidars, Jenmos, Bhumiswamis, Rayat Sithibans, etc. A plot of land may be leased out to others by the owner without losing the right of permanent heritable possession.

(b) Land held under special conditions such that the holder does not possess the title of ownership but the right for long term possession of the land (for example, land possessed under perpetual lease, hereditary tenure and long term lease for 30 years or more) will be considered as being held under owner like possession. In the states where land reform legislations have provided for full proprietorship to erstwhile tenants, they are to be considered as having owner like possession, even if they have not paid the full compensation.

(ii) Sometimes a plot may be possessed by a tribal in accordance with traditional tribal rights from local chieftains or village/district council. Again, a plot may be occupied by a tenant for which the right of ownership vests in the community. In both the cases, the tribal or other individual (tenant) will be taken as owner, for in all such cases, the holder has the owner like possession of land in question.

## CHAPTER VI

### CONCLUSION AND POLICY IMPLICATION

#### 6.1 Summing up

Indian economy has been experiencing a high rate of growth and a structural transformation during the last two decades. This growth has been led by the manufacturing and services sector with the agricultural sector lagging behind. However, the high growth in the manufacturing and service sector has not been translated into growing employment opportunities in these sectors. Thus, there has been a high dependence of the population on agriculture. The slow growth of agricultural incomes has adversely affected the livelihood of the agrarian population creating conditions of distress. The falling income levels have caused the peasants to adopt coping strategies such as casual wage labour, seasonal migration and self-employment to sustain their subsistence living, which in turn has led to a shrink in the size of the peasantry (depeasantization). Small peasants are leasing-out their unviable holdings to large holders and they are becoming highly dependent on non-farm employment. In this process, land is being concentrated in the hands of medium and large size of holdings in the agriculturally fast growing regions of the country.

Depeasantization has been taking place on account of the factors such as the ongoing agrarian crisis as well as the economy's structural transformation. It has been argued that the severity of the agrarian crisis in agriculturally developed regions would have forced the small peasants to leave agriculture and to join the non-cultivation activities. In order to understand the processes and determinants of depeasantization taking place in the country, the present study has examined this issue at the disaggregated level in the context of Punjab.

Agriculture in Punjab has witnessed significant changes since the green revolution. There has been a rapid increase in agricultural productivity and output and shift in cropping pattern to wheat and rice. The high growth in the farm sector in the early decades of the green revolution has also stimulated

growth of other sectors through the inter-sectoral linkages. This resulted in expansion of employment opportunities and increases in wages in both farm and non-farm activities. All these have contributed to rapid reduction in the incidence of poverty in the state. However, during the last two decades, there seem to be a decay of the gains of green revolution achieved in the early decades. The productivity growth has decelerated, cost of production has been on the increase due to over capitalisation of agriculture, and margins of profitability have been falling and the overall growth of agricultural output has decelerated. The fall in farm income has resulted in increase in the debt burden of the farmers creating conditions of wide spread distress. These factors have led to a change in the agrarian structures since the last few decades. There has been a change in the distribution of land; it has been concentrated among the top sized groups. The farmers in the bottom sized groups have been slowly shifted from agriculture to other sectors of the economy probably due to the disincentive to continue with agriculture and partly due to the increased opportunities for employment and income generation in the non-agriculture sector.

It has been found that the shift of peasants from cultivation to non-cultivation in Punjab has been the outcome of both the push and the pull factors. However, the push factors have been found more dominant than the pull factors. Education which is a pull factor has been found to have relatively lesser impact on depeasantization whereas the profit from non-agricultural sector has a relatively higher impact. Declining profitability in cultivation, indebtedness, small holdings, inadequate irrigation, perception about cultivation, delay in agricultural inputs and land quality have been found to be the main factors causing depeasantization in the state. Further, social group appears to be the most important household characteristic that determines the occupational choice and hence the mobility of peasants.

Our examination of educational, occupational and economic mobility has shown that mobility of all three types is apparent among the peasant classes. However, the mobility has not been same for all the classes: while the mobility has been

relatively downward among the bottom sized classes, it has been relatively upward for the top sized classes.

The analysis of educational mobility shows that there has been an upward mobility in education for all size classes but it has been relatively greater for the higher sized groups. Besides, high educational attainment has led to migration among the peasants and it has been mainly for economic reasons. The extent of migration in search of employment or better employment is high in the marginal and small classes whereas the extent of migration for educational purposes is high among the medium and large classes. It seems that while migration among small and marginal peasants is out of need, for the large and medium class it is out of choice. So there may be the working of distress-led factors in case of the small and marginal peasants resulting in their downward mobility.

So far as occupational mobility is concerned, there is a trend of downward occupational mobility among the marginal and small peasants and upward mobility among the semi-medium, medium and large peasants. Downward mobility is evident from the increasing casualisation of work among the marginal peasants.

Economic mobility as measured through the level of indebtedness, consumption and assets has shown that it is relatively downward for the marginal class and relatively upward for the other classes. Although increase in the level of indebtedness is lower for the marginal class relative to the other classes yet it may be burden for them given their low repayment capacity. So far as the increase in asset possession and consumption expenditure is concerned, the marginal peasants are on the lower side.

It has been found that in general there has been a downward mobility for the marginal peasants while for the small, semi-medium, and medium and large, mobility has been upward. Thus, it can be said that the distress-lead factors, which have forced the marginal peasants to abandon cultivation, have also led to their downward mobility.

## 6.2 Policy Implications

To achieve higher agricultural productivity, there has been an over-use of agricultural inputs in Punjab. The low farm income levels and depleting resources have led to the agrarian crisis in the state. There is no single way to overcome this crisis. The problem of conserving natural resources is of prime importance at this juncture. At the outset the monoculture of wheat and rice has to be replaced by crop diversification. Multiple cropping is necessary to retain the fertility of the soil. The crop diversification should be preferably from the cultivation of high-volume, low-value crops to cultivation of high-value, low-volume crops (Kalkat, 2008). In 2005, the area under fruit was 44,000 hectares, with the maximum area under kinnow, mainly in the Ferozapur and Hoshiarpur districts. During the last 5-6 years, due to the efforts of the Punjab Agro-Industries Corporation (PAIC) this fruit has found a remunerative domestic market and farmers are getting fair returns, ranging from Rs 60,000 to Rs 1,00,000 per acre per annum. The PAIC is propagating sweet orange cultivation and has taken up a bold research and development programme. More of such efforts become pertinent in the state. The government agencies should identify the region and the crop suitable for the region that will help to achieve higher productivity and hence higher farm income.

The cropping pattern prevailing at a point of time is governed by the availability of technology, the market situation, availability of inputs and access to production resources. The farmers choose to cultivate those crops that are secure and have assured markets. The wheat-rice cycle in Punjab has been the outcome of the deliberate government policies that encourages the cultivation of these crops. The government policies should be framed so as to promote multiple cropping in the state. The Johl Committee (2002) has advised to retire part of the area under rice be compensated by the government; it suggested retiring 25 lakh acres from rice cultivation in the state. Such recommendations demand effective implementations in the state.

The peasants are adopting non-agricultural occupation due to non-profitable agricultural earnings. The shift is higher among the small and the marginal peasants. To ensure that these peasants get better employment, sufficient opportunities should be created in the non-farm sector. Agro-industries are an important avenue for employment generation. Punjab has a comparative advantage in timber and biomass production (Kalkat, 2008). A planned development of such agro-industries which have scope in the state will generate employment opportunities. The root of these developments lies in strengthening the inter-sectoral linkages in the economy of the state.

Another important avenue for employment generation is the development of livestock and dairy. There is a need to help the existing dairy farmers as well as encourage other farmers to start dairy farming. Small farmers need help to set up small-scale dairy units so that their meagre farm income is supplemented. Poultry is another area which can be exploited as an income generating source given its high demand within and outside the country. In order to ensure better income from poultry, government investment on veterinary aid and good infrastructure is needed.

### **6.3 Issues for Further Research**

- There is a need to understand the process and determinants of depeasantization at a micro-level in Punjab. The extent and reasons for depeasantization may vary across the various districts of the state which requires an in-depth examination.
- Is income diversification an option to sustain the livelihoods of peasants? What types of livelihood strategies are they adopting to cope up with the falling income from crop cultivation? This issue needs to be addressed.
- How far agricultural allied activities can supplement the incomes of rural households especially the small and marginal ones? How can the activities like farm-forestry, dairy and poultry be made attractive to provide employment in rural areas? These issues require micro level studies.

- The socio-economic characteristics of households who move from agricultural to non-agricultural activities need to be explored. In particular, the linkages between the asset and employment structures in the rural areas need to be analysed.
- The rural-urban nexus also requires more careful analysis. Apart from the relationships reflected in aggregate measures, one needs to analyse the quantum and nature of rural non-agricultural activities around towns of different sizes, performing different functions.
- How far the out-migration is helpful in enhancing the socio-economic status of the rural households? And under what conditions they have been migrating from rural areas? This issue needs to be examined.



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