CHAPTER 2

REVIEW OF LITERATURE

We have explained in Chapter 1 that the objective of our present study is to explain the stagnation of Indian agriculture in terms of some characteristic features of our agrarian economy. Our purpose is to look at Indian agriculture from the point of view of structural, technological and institutional characteristics in the context of the new policy regime, and attempt to study the relevance of these characteristics to the growth and stagnation of the agrarian economy. We thus take up the issues of farm-size and productivity, technical efficiency and technological transformation including diversification of cropping pattern, the working of informal credit market and market interlinkages, and finally categorization of farms according to their roles in the process of capital formation and modernization of agriculture.

While literature on Indian agriculture is quite rich in itself and deals with a wide range of aspects focusing on various issues related to agriculture. In this study, instead of taking up an attempt to critically review all the studies related to agriculture, here we take up review of important literature related to specific issues we propose to address in the present study. In particular, we first review the key studies on the relationship between farm size and productivity, followed by studies on technical efficiency of farms in relation to farm size. Next we take up the issue on diversification of cropping pattern in agriculture and review some studies in brief. After that we present studies relating to interlinked informal credit operations in agriculture as an institutional characteristic, and lastly we review a few key studies on construct of class within peasantry, and relative role of different classes in the process of agricultural growth.
The present study proposes to examine to what extent the productive efficiency of a farm is affected by, among other factors, structural factors like smallness of the size of farms. A large volume of literature has grown on the relationship between farm-size and productivity after Sen (1962) first started the debate in 1962. The issue became a focal point of agrarian debates after the 1960s when Farm Management Surveys in India first established the empirical basis. A large number of studies during the 1960s and 1970s provided evidence that crop productivity per unit of land declined with an increase in farm size (Sen 1962; Mazumdar 1965; Khusro 1968; Hanumantha Rao 1966; Saini 1971; Bardhan 1973). While Sen (1962) observed that “by and large, productivity per acre decreased with size of holding”, Khusro (1968) comes to the generalized conclusion that “as farm size (acreage) expands, gross output per acre declines.” In line with the views of an inverse relationship, Saini (1971) carried out a study and concluded that “thus, by and large, the inverse relationship between farm size and productivity is a confirmed phenomenon in Indian agriculture”. The evidence of an inverse relationship between farm size and productivity has been so widely observed that it has been considered as a ‘stylized fact’ of Indian agriculture.

On the other hand, some economists questioned the validity of the inverse relationship between farm size and productivity. Usha Rani’s (1971) studies in Intensive Agricultural Development Programme (IADP) districts using farm level observations showed that neither cropping pattern nor inputs intensity nor even yield per acre differs across farms of different sizes. Using aggregated data relating to individual districts for the period between 1954 and 1957, Krishna Bharadwaj (1974) investigated the relationship between productivity and size of farm and found that in the majority of cases, an inverse relationship existed; however, it was not statistically significant. Utsa Patnaik (1972) argues that “a very considerable difference is made to the farm variables with changing economic size of farms, depending on how we measure this economic size. With acreage as a measure of economic size, i.e.; of the scale of production, we obtain one set of results; with an alternative
index of the scale of production, we may obtain diametrically opposite results”.

Economists like Chadha (1978) opined that the relationship does not hold in more dynamic agro-climatic zones, or if quality of soil is considered (Bhalla and Roy 1988). In particular, Chadha (1978) looked at farm level data for three agro-climatic regions in the Punjab for the year 1969-70 and found that the inverse relationship had ceased to hold in the more dynamic zones. Ghose (1979) re-examined the FMS data and argued that an essential precondition for the existence of the inverse relationship phenomenon is technical backwardness, while Deolalikar (1981) observed that the inverse size-productivity relationship cannot be rejected at low levels of agricultural technology in India, but can be rejected at higher levels.

Also some doubts were expressed about the statistical validity of the alleged ‘inverse relation’, by A.P.Rao (1967) who, based on analysis of disaggregated data relating to individual holdings, came up with results contradicting the hypothesis that yield per acre falls as farm size increases. Rudra’s (1968a) analysis of individual holding, in 20 villages strengthened this doubt. In another follow-up study, working with size-group data Rudra (1968b) challenged the universal validity of the alleged inverse relationship and concluded that “there is no scope for propounding a general law regarding farm size and productivity relationship”. In fact, Rudra questioned the very statistical validity of the alleged relationship and pointed out that “there were indications in the Farm Management Survey data themselves that in certain areas yield per acre, instead of declining with increasing size, might actually be increasing”. In tune with this, Hanumantha Rao (1975) and Subbarao (1982) reported a positive relationship between farm size and productivity and attributed this to higher application of fertilizer and other cash-intensive inputs on large farms.

Later Rudra and Sen (1980) attempted to review the main findings – both analytical as well as empirical. The general conclusion was the diversity
of Indian agriculture with regard to the relationship between size and productivity: the negative relation may hold in certain parts of the country at certain times but not everywhere and not at every time. Even when the inverse relationship held, “it may hold in certain ranges but not in others, and in many cases it is particularly noticeable only for small size classes.”

Ghosh M (1989) examined the changes in the agrarian structure of rural West Bengal during the seventies. He hypothesized that in a dualistic agrarian structure in which large farms under-utilize land due to shortage of family labour and small farms under-utilize family labour due to scarcity of land, a reduction in the degree of inequality in the distribution of operational land would favourably affect agricultural productivity. He suggested that a reduction in inequality of land distribution through appropriate land reforms would result in higher agricultural productivity in West Bengal. In line with this, Raj Krishna (1995), after examining various Indian studies based on Farm Management data, came to the conclusion that “a reduction in the size of holdings and land concentration brought about by land reform will not be associated with a reduction in output per acre, after a new equilibrium is established.”

In conformity to these, a recent study by Chattopadhyay and Sengupta (1997), using farm level data for 1989-90 for West Bengal, suggests that “the inverse relation between farm size and productivity becomes stronger in the agriculturally developed regions of West Bengal compared to the relatively less developed regions” which is possibly due to the effects of green revolution on smaller size farms. The conclusions of this study have however been questioned by Dyer (1998). On a critical examination of the data and methodology, Dyer concludes that the study by Chattopadhyay and Sengupta is defective. In particular, Dyer (1997) argued that the inverse relationship is neither a product of superior efficiency on the part of small farms nor is it due to better quality land on the small farms but arises from the desperate struggle for poor peasants for survival on below subsistence plots of land.
Hence, Dyer opined that redistribution of land on the basis of the inverse relation argument, far from alleviating poverty and creating employment opportunities, will only deepen and perpetuate extreme levels of exploitation and poverty.

More recently, R Chand, P A Lakshmi Prasanna and A Singh (2011) argued that the inverse relationship between farm size and productivity has been quite pronounced even in the recent years as National Sample Survey data from the initial years of the 21st century show that smallholdings in Indian agriculture still exhibit a higher productivity than large holdings.

However, most of these studies are based on aggregative data on farm production and productivity, and considers aggregate value of output across heterogeneous agro-climatic conditions. Again, the problems with such studies is the assumption of the homogeneity of farm output, as crop prices vary significantly across types of crops or across regions for the same crop.

Hence, studies carried out on the relation between size of farms and productivity show contradicting results. While some studies showed an inverse relationship, others failed to confirm it. There are indications that the inverse relationship exists in certain types of farms, but the relation cannot be generalized. In addition, the relationship need not be there for all size groups, for all regions, and for all crops, and hence the debate thus remains inconclusive.

It should however be noted, as Rudra points out “while some participants in the controversy regarding the inverse relationship between farm size and land productivity have treated the question as merely one of academic interest, there are others who have not failed to notice that the question is of fundamental significance from the point of view of economic policy- and hence, of politics.” However, “the alternatives seem to have reduced themselves to two- viz., small-scale peasant farming and large-scale capitalist farming. That there was a third alternative – viz., that of cooperative farming – seems to have completely disappeared from public memory.”
Although there is a very large literature on the links between farm size and farm productivity in Indian agriculture there is virtually a few that discusses the relationship between farm size and technical efficiency. During late-1960s and early-1970s, farm-size productivity relationship was well debated as discussed so far. The latest debate has been based on the alleged confirmation of inverse relationship in agriculturally advanced zones (Chattopadhyay and Sengupta, 1997). In recent years, one common debate has been on the ability of small farmers to reap the benefits of new technology (Sharma and Sharma, 2000). The argument advanced in this debate is that technology adoption among different segments of the same state/region widely varies. In particular, available literature suggests that farmers in the developing countries fail to exploit the full potential of technology (Banik, 1994). Hence, increasing efficiency in production over the years has assumed greater significance for the policymakers/planners to frame suitable policies. However, by ‘technical efficiency’ is meant something other than ‘allocative efficiency’, which is widely estimated with the help of econometric tools like Data Envelopment Analysis or Stochastic Frontier Analysis in available literature as contrast to regression method of estimation of production function for measuring allocative efficiency. Here an attempt has been made to provide a brief review of literature concerning both technical and allocative efficiencies.

Studies relating to the measurement of the extent and distribution of allocative efficiency are relatively scanty. In an earlier attempt to examine the allocative efficiency of Indian farmers Schultz (1964) argued that “there are comparatively few significant inefficiencies” in the allocation of the factors of production in traditional agriculture. Some studies (Saini, 1968) provided substantial empirical evidences to establish the hypothesis that Indian farmers are efficient allocators of resources in the agricultural practices. However, such attempts have been criticized by economists like Rudra (1983) on grounds that “the assumption of common price has almost invariably been made by all those who have worked with Indian data”. According to Rudra,
“working along this line contains such logical inconsistencies as to render the framework intrinsically incapable of yielding any valid results”. Nevertheless, some attempts have also been made to examine allocative efficiency in West Bengal agriculture which includes the works of Kumbhakar (1994) and Ray and Bhadra (1993). Kumbhakar argued that majority of farmers are found to be under-users of endogenous inputs, viz. fertilizer, manure, human and bullock labour. In an alternative framework, Ray & Bhadra (1993) examined the cost-minimizing behaviour of farmer households and argued that though a farmer is technically efficient, they fail to select a cost minimizing input bundle. More recently, Laha & Kuri (2011) measured the allocative efficiency and its determinants in West Bengal agriculture by advocating cost minimization principle using Data Envelopment Analysis. Their findings reveal that the farmers of West Bengal are “moderately efficient in allocating inputs in agriculture” and factors like educational level of the head of the household, operated land, interlinkage of factor markets and availability of credit have “significant bearing on the level of allocative efficiency”.

In contrast to allocative efficiency, technical efficiency/inefficiency as an indicator of the productivity of the farm and its variation across farms has been the centre of attention for a number of studies. In fact, since the 1990s there has been a spurt of literature focusing on the issue of measurement and determinants of technical efficiency in agriculture (Coelli and Battese, 1996, Chattopadhyay & Sengupta, 2001; Reddy & Sen, 2004; Sarkar & Dey, 2004; Bhowmik (2007); Mukherjee & Chakraborty (2008). Coelli and Battese (1996) investigated the agricultural production of Indian farmers using a stochastic frontier production function which incorporates a model for the technical inefficiency effects using Farm-level data from the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). The results indicate that factors like the age and level of education of the farmers and farm size do have a significant influence upon the inefficiency effects of farmers in two of the three villages considered.
Chattopadhyay & Sengupta, 2001 based on the non-parametric DEA technique examined the efficiency of resource-use under different types of tenure that incorporates 'size-class' differences among owners and tenants. The data were collected by the Ministry of Agriculture, Government of India through the ‘Comprehensive Scheme for Studying Cost of Cultivation’ (CSSCC) from six agro-climatic zones of West Bengal. Their analysis shows that “the medium-sized farms belonging to both owner and tenant categories are efficient” and irrigation facilities as an important factor responsible for this efficiency are mostly enjoyed by them.

Following a similar approach using stochastic frontier analysis, Reddy and Sen (2004) tried to quantify technical efficiency in rice production and investigated the influence of farm specific socio economic characteristics on inefficiency. The result of their study shows that technical efficiency in the production of rice, among other factors, is “negatively related with farm size”. Other factors exerting negative influence on efficiency included education of the farmer, experience, extension contacts and percentage of good land, while age and fragmentation of land showed positive influence. In another study, Sarkar and Dey (2004) tried to estimate the technical efficiency level of individual farms employing Data Envelopment Analysis approach under deterministic production frontier model with cross-sectional data from West Bengal. They attempted to examine the extent of efficiency under different types of tenure and different farm sizes in selected ‘technologically advanced’ and ‘technological backward’ villages. The study finds that “the use of high technological inputs in agriculture is not so important in improving the efficiency level of farms” and that “only high use of technical inputs like irrigation, HYV seed, chemical fertilizer, per unit of land does not necessarily bring about maximum possible output for a given set of inputs, nor does it only make ‘best practice’ relationship between inputs and output.”

Some of the recent studies estimating efficiency include a study by Singh (2007), where technical efficiency of wheat farming in the state of
Haryana has been estimated using stochastic frontier model, based on the cross-sectional as well as time series data. His estimates of technical efficiency have indicated that “small-size farms are more efficient than medium- and large-size farms, negating thereby the myth that large-size farming is more profit/business-oriented”. A similar study by M.K. Sekhon, A. K. Mahal, M. Kaur and M.S. Sidhu (2010) estimated technical efficiency of individual farms through stochastic frontier analysis and shows that “even in an advanced agricultural region like Punjab, there is a need to improve the technical efficiency of majority of the farmers”. In fact, the average technical efficiency has been estimated to be about 76 per cent. Mean technical efficiency has been recorded to vary across regions of the state; the central region being most technically efficient. In their investigation in the central Gujarat, Narala and Zala (2010) estimated the technical efficiency in rice production following a similar econometric method to determine technical efficiency of individual farms and have assessed the effect of farm-specific socio-economic factors on this technical efficiency. Their study indicated that “the realized output can be raised by 27 per cent in the region with available technology and resources, without any additional resources”.

Apart from the issues relating to productivity and efficiency in Indian agriculture, a large volume of literature has been devoted to a comparatively new issue of *diversification of cropping pattern* as an indication of technical advancement of Indian agriculture. In fact, after the initiation of some institutional and technological changes during the 1970s and 1980s, the country witnessed a rapid growth in the production of foodgrains. But of late a decelerating tendency in agriculture has been noticed especially in terms of growth of production of major crops, especially after the opening up of the economy in the early 1990s. As is claimed in current literature, the opening up of the agrarian economy should lead to transformation of the economy from traditional grain-based production system to one based on production of high
value export oriented crops. It is often suggested that the changing scenario demands a much different role for Government in the future than it has exercised in the past. Economic forces, led by market demand –domestically and globally – if allowed to operate, will drive the road to diversification (IFPRI, 2007). It is also argued that private sector will provide the leadership. Increased incentives can contribute to ‘getting prices right’, while increased investment can provide the physical infrastructure and technologies to create and move inputs, services, and commodities.

However, after decades of opening up of the economy, the country is still striving hard to achieve the desired state of the transformed economy. In view of this, crop diversification has become an important issue of agricultural development in the recent past, which sparked off a host of studies at the national level that analyses the nature and spread of crop diversification both at aggregated (national or state) and disaggregated (district or village) levels. Many studies analyzed the spatio-temporal pattern of diversification by using various indices and also tried to find out the role of price and non-price factors in explaining the pattern of diversification. Among them Narayanmoorthy (1997), Singh (1997), Sawant (1997), Bhalla and Singh (1997) are some authors who had examined the role of infrastructural factors like irrigation, market, institutions, technology etc, on the variations in diversification in different places in India. Attention may also be drawn to a study by Chand (1995) who observed that infrastructure like access to motorable road, market and irrigation facilities determines the extent, success and profitability of diversification through high paying crops, while the evidences were weak regarding the role of farm size on the level of diversification. Vyas (1996) observed that market infrastructure, institutional arrangements and technological change especially in the field of irrigation contributed significantly to the changes in cropping pattern.

However, Joshi and Gulati (2003) reported a negative impact of irrigation on crop diversification and crop diversification was observed more
pronounced in the rain-fed areas. Again, they observed that diversification in favour of horticultural commodities was more confined to the small holders. Among the infrastructural variables, markets and roads showed significantly positive influence on crop diversification. Chand and Chauhan (2002), however, observed that the land possessed by the small and marginal peasants have significantly positive impact on extent of diversification of crops in India along with factors like irrigation and road.

Apart from the aforementioned studies, many authors have argued that small and marginal holders initiated agricultural diversification instead of depending on the cereal based production basically for their need in order to survive. Joshi (2007) reported that rice cultivation might be remunerative only for large farmers having enough resources to bear the rising cost of cultivation of the input packages. Small and marginal holders, have of course, certain advantages from the point of view of availability and cheapness of family labour, which in contrast to the hired labour, is managed effectively in diversifying crops. An analysis by Satysai K.J.S. and U Viswanathan (2005) studying shifts in the cropping pattern at the regional level revealed that the southern region, especially the states of Kerala and Andhra Pradesh, demonstrated phenomenal shift in area from foodgrains to non-foodgrains crops. Other regions, viz., western, north-western, central and eastern regions also showed considerable shifts in terms of increasing share in area under non-foodgrain crops. The crops which have increased their relative shares are groundnut in Andhra Pradesh, rubber in Kerala, sunflower and soybean in Maharashtra, rapeseed in Punjab and Rajasthan and cotton in Haryana. A study conducted by CSD (2010) analyzed the trends and patterns of agricultural diversification and related development in the Eastern states of India comprising the states of Bihar, Uttar Pradesh, Jharkhand, Orissa and West Bengal. Cropping pattern in each state was compared between 1999-2000 and 2006-07 by using the index of crop diversification formulated by Bhatia (1965). It was seen that crop diversification had reduced from their 1999-2000 levels in the state of Bihar, Orissa and Jharkhand, while it increased
slightly in Uttar Pradesh and a lot in West Bengal. From the field survey data in the selected districts it was seen that small and marginal farmers showed more horizontal diversification within the crop sector towards high value crops such as oilseeds, sugarcane, jute and vegetables compared to the other categories. Overall it is seen that small and marginal farmers were diversifying more within the crop sector into high value crops compared to other farm size categories. Another study by Jha B K, N Kumar and B Mohanty (2009) discusses the pattern of agricultural diversification considering different definitions of agricultural diversification. The study finds that for most of the crops, the percent share of leading producing states has increased during the reference period (1983, 2003 and 2006-07). This suggests an increasing trend towards specialization in agricultural production. Farms in the region are getting specialized under these crops and such specialization has not increased risk on the farm.

The issue of crop diversification gained much attention also in agriculture of West Bengal especially after the mid-nineties when production growth rates of major important crops started declining. It was argued that a change in the cropping pattern of the state can go a long way to counter the deceleration trends in West Bengal and can become a handy solution of the slowing down the pace of agricultural growth of the state. In fact, De (2003) examined the nature of changes in cropping pattern in West Bengal and the determinants of crop diversification. The results of his analysis revealed that the cropping pattern in West Bengal in terms of allocation of acreage remained skewed towards boro paddy, potato and oilseeds (especially mustard), while other crops continued to lose their importance in the cropping pattern over time. He also noted that inter-district variations in the intensity of crop diversification for agriculturally developed districts was backed by practice of scientific methods of cultivation, with the intensive use of mechanical devices to exploit ground water as well as surface water. De (2000) also examined the extent of crop diversification and its variation across different districts of West Bengal with the help of various indices like
‘Herfindahl Index’ (HI), ‘Ogive Index’ (OI), ‘Entropy’ (EI) as well as ‘Modified Entropy Index’ (MEI), and observed large scale variations in diversification across districts over time, depending on the growth of utilization of improved agricultural technology.

Other studies at the state-level include studies by Ghosh and Kuri (2005), Majumdar and Basu (2005), Sanyal (1998) and Sharma (2005). Majumdar and Basu (2005) pointed out that to enhance the growth rate of the agriculture of the state, the cropping pattern of the state needs to be diversified towards the high value crops. According to Sanyal (1998), the cropping pattern in most of the districts has noticeably changed in favour of high-value non-food grain crops such as potato, oilseeds and other non-food grain rabi crop. Similarly, Bhalla and Singh (1997) reported that during the post-Green Revolution period (particularly after 1970) cropping pattern in West Bengal has changed in favour of high remunerative crops at the cost of the lower value crops. The analysis reveals that during the period 1970 - 1971 to 1994 - 1995, the area and production of boro rice, potato and mustard have increased rapidly and the development of irrigation and technology in other fields are the main factors behind the relatively rapid expansion of cultivation of the above mentioned crops. It was argued by scholars like De (2003) that farmers prefer that combination of crops from which they can derive maximum possible net revenue at least possible risk. Similar observations can be found in the study by Sau and Pathak (2007) where they have shown that there is an increasing extent of crop diversification following economic reforms. The area under fruits and vegetables recorded a substantial increase during the period 1997 - 1998 to 2004 - 2005. In their study De U K and M Chattopadhyay (2010) made an attempt to study nature and extent of crop diversification in West Bengal for the period of 1970 to 2005, primarily based on official data. They calculated Herfindahl index, Simpson index, Entropy and Modified entropy index for all the districts of West Bengal for the years 1970 - 1973, 1979 - 1982, 1989 - 1992 and 2002 – 2005 and carried out multiple regression analysis to find the impact of different factors on the level of
diversification over time in different parts of rural West Bengal. Based on the findings of the study, they argue that agricultural infrastructures are “crucial in promoting diversification of crops and ensure sustainable income and employment of the farmers”, which is why “small and marginal farmers who have limited land resources for maintaining minimum living standard, diversify their crop cultivation”.

In another study, Mukherjee A and S Chakrabarty (2008) made an attempt to examine the ‘process of transformation the agrarian economy’ of India under the post Doha situation focusing upon diversification of cropping pattern. The objectives of their study included the examination of the questions regarding whether and under what conditions there has been a greater diversification of cropping Pattern; and what are the factors at micro level which influence the farmers’ decision regarding diversification. By undertaking a sample survey in three districts of West Bengal, namely, Hooghly, Burdwan and North 24 Parganas, the study finds that “marginal farmers everywhere are diversifying cropping pattern to supplement their income; the cereals they produce meet their consumption needs directly whereas they meet their consumption needs of other purchased items out of non-cereal production. But the relatively bigger farmers find a constraint due to lack of availability of sufficient family labour days to undertake diversification on a larger scale.” In the same study the authors conducted regression analysis of panel data on crop diversification index of seven provinces of India and find that traditionally prosperous wheat producing region like Punjab and Haryana have low and falling crop diversification index along with Orissa, a traditionally rice producing zone. On the other hand Gujarat, Andhra Pradesh and Tamil Nadu show high and rising levels of diversification. The results of their panel data regression analysis show that variation in the use of fertilizer per hectare plays strong positive impact on variation in crop diversification among states and over time.

In another study Ghosh B K (2010) attempted to explore the nature of
cropping pattern changes in West Bengal during 1970-71 to 2004-05 by decomposing output changes in terms of substitution effect and expansion effect, entirely based on the secondary data. He analyzed the cropping pattern changes in terms of crop concentration index measured by Herfindal index and ‘cropped area- gross cropped area elasticity’. The study revealed that the cropping pattern in West Bengal in terms of allocation of acreage had been skewed towards food grain. However, during the last fifteen to twenty years some important crops (boro rice, potato, oilseeds, especially mustard) emerged as the main crop for the farmers and the cropping pattern turned against pulses, coarse cereals and sugarcane. In another study Saha B and R Bahal (2011) looks into the strategic and extension role of different non-agricultural activities that play important role in the livelihood securities of farmers and identified the comparative profiles of diversifier and non-diversifier farmers in West Bengal. The study reveals that “on socio-personal characters, the diversifiers were found significantly higher on family labour status “. Similarly, “on economic context, the mean values of diversifiers on material possession, resource mobilization potentiality, annual income and credit utilization behaviour were found significantly higher than those of nondiversifier”. De U K (2005) tried to analyze the basic reason behind changes in cropping pattern in West Bengal in terms of acreage allocation in favour of boro rice, potato and mustard during the post-Green Revolution period. Based on secondary data, the study measured the impact of major factors like, irrigation, rainfall, chemical fertilizer, yield and price etc. on the acreage change of the selected crops in terms of multiplicative regression analysis considering stochastic forms of equations. The study reveals that “expansion of irrigation and technology in other fields is the main factors responsible for the relatively rapid expansion of cultivation of boro-rice, potato and mustard.” At the same time, growth of chemical fertilizer also plays an important role in accelerating growth of those crops.
On the part of the informal credit market, especially *interlinked informal credit operations*, only a few key literatures could be found enriched with micro-studies, large-scale surveys and empirical substantiation of theoretical ideas. As the present study partly deals with the interlinkage between land, labour and credit markets, we shall concentrate on the concerned issue of interlinked credit operations in the backdrop of structural backwardness of agriculture. It should be noted that an interlinked contract/transaction is one where two or more interdependent exchanges are simultaneously agreed upon. An apt definition of interlinkage has been provided by Bell and Srinivasan (1989). According to them, “an interlinked transaction is one in which the parties trade in at least two markets on the condition that the terms of all trade between them are jointly determined”.

However, in case of the concept of interlinkage, according to Bardhan (1983), a contract “does not necessarily refer to explicit contracts with legal sanctions, but more often to implicit arrangements enforced by nothing more than the prevailing custom, social interaction and goodwill in a small, closed community and the enlightened self-interest of the individual in a situation of limited alternative opportunities”.

Such interlinkages among rural markets are widely observed in many developing countries and it assume economic significance when the prices of the commodities transacted through interlinked markets differ from what their prices would have been if they had not been interlinked. However, as is put by Swain M (1999) “the different views on interlinked deals can broadly be divided into two strands of thought”, viz. the New Institutional Economists and the Marxist, apart from the tradition Neoclassicist. One the one hand, the New Institutional Economists argue that rural factor markets are imperfect, characterized by prevalence of risk, uncertainty, indivisibility, information asymmetry and moral hazard problems. They emphasize that interlinkage is the means by which the profit maximizing landowner overcomes the inefficiencies of incomplete and imperfect markets and this facilitates increased efficiency and higher social welfare. Marxists, on the
other hand, believe that interlinked transactions are devices of the dominant party to subjugate the poor and to increase their political economic power in the village community. Interlinkage is viewed as a method of surplus extraction which helps the dominant class consolidate their class position. Thus the New Institutional Economists’ interpretation of interlinked transactions is contractual, while the Marxist explanation is one of surplus appropriation. Again, the pattern and consequence of interlinked credit markets has been a subject of controversy for quite some time. There are two important arguments of the effect of interlinkage. One argument says that the effect of interlinkage have been utilized as an exploitative device by the stronger parties to extract surplus out of the weaker ones (Bhaduri, 1986; Mukherjee 1989). On the other hand, while rejecting interlinkage being necessarily exploitative, others explain its rationale in terms of information asymmetry and uncertainty (Braverman and Stiglitz, 1982).

The first report of interlinkages involving rural credit appears to be in 1925 (Darling, 1925). However, it was the work of Bardhan and Rudra (1978) that led to much of the development of recent theoretical work. They took a survey of nearly 275 villages in West Bengal, Bihar and some of the eastern districts of Uttar Pradesh in 1975-76. The evidence strongly suggested that the landlord quite often gave production loans to the tenants. About fifty per cent of tenants took loans from their landlords and most attached farm labourers borrowed from their employers. Their survey also suggested that the overwhelming majority of tenancy and attached labour contracts do not display feudalistic features.

The subject of interlinkage came into focus with the pioneering work by Bhaduri A (1973). Based on a study carried out in Birbhum district of West Bengal, Bhaduri attempted to arrive at a theoretical generalization regarding the economic structure of agricultural backwardness. Bhaduri pursued the interaction of forced commerce as an integral part of the system of production relations with productive accumulation as the basis for explaining
agricultural backwardness, and attempted to describe how an extensive and contrived system of forced commerce reacts back on the existing production structure to sustain it. In particular, Bhaduri argues that since the income of a landlord depends both on commercial exploitation through usury and on rent as a fixed share of the product, the landlord class will not respond favourably to opportunities for improved agricultural technology although they have the financial capacity to do so. In fact, unless a landlord feels confident that he is going to be a net gainer in this process, he will not opt for an improvement of agricultural technology. This is because a higher output brought about by technological advances increases the share of the tenant in output, which reduces the debt-dependence of the tenants for consumption loans on the landlord, thereby weakening the entire mechanism of forced commercialization. Thus, the landlord’s consideration of usurious income may dampen his incentive to innovate so long as the landlord’s gain in income from innovation falls short of his loss in income from usury due to a reduction in consumption loan requirement of the tenants. In other words, as long as increased output is associated with a correspondingly higher level of debt, the method of surplus extraction through forced commercialization need not stand in contradiction to agricultural progress brought about by technological advances. Hence forced commercialization based upon consumption loan taken by the tenants and the consequent usurious income of a landlord makes him inclined to perpetuate the low income level of his tenants by restricting technological improvement in agriculture; which tends to reinforce in turn the grip of forced commercialization bringing about technological stagnation along with it.

With the aim to bring-out the crucial interlinkage between two agents and how they often interlock and shape the nature of production relations, Rudra A and Bardhan P (1983) jointly conducted two large-scale field surveys in 110 villages in West Bengal, once in 1975-76 and again in 1979. While the first survey is claimed to be the first intensive and large-Scale survey of contractual relationships in rural India, the second one is said to be an even
more intensive labour relations survey in West Bengal villages. The two surveys were primarily designed to focus on the terms and conditions of various formal or informal contracts involved in land-lease, wage labour and credit relations. On the part of the observations on money lending Rudra and Bardhan described several specialized credit markets, each with certain kind of lenders lending to certain type of borrowers, revealing the fragmented nature of the rural credit markets. These specialized credit markets argued to arise because of the fact that the rural poor (landed or landless) cannot do without loans, and hence there are special provisions for different categories of borrowers with different ways of ensuring the security of repayments.

Apart from the sources of credit that are accessible to all borrowers, viz. professional moneylenders, a part of the rich farmers and retail shops; the authors distinguished four types of specialized credit markets: a) the landlords lending consumption loans to the respective tenants, where the security involved is in the form of threat of eviction; b) the landlords lending consumption loans to the farm servants, where the security is the unpaid part of the wage is due at the end of the contract period; c) the rich farmers lending consumption loans to the casual labourers, where the loan is advanced in the lean season against the commitment of future labour; and d) the lenders are grain traders and the borrowers are the middle-sized cultivators, where the borrowers have surplus grains, but lack access to better sources of credit.

Rudra and Bardhan argues that contrary to the popular belief, usurious money lending by professional money lenders is not the central feature of the credit operations in the rural society. In fact the authors found the rich farmers to be indulged in money lending in almost all the villages in West Bengal. Interestingly, these lending are found to be free of mortgages, and even interests, which appears ‘strange’ as against their universal association with professional money lending. It has been argued that these interest-free and mortgage-free credits may be ‘one important way in which the rural rich maintain their social and economic dominance over the poor even if in the
short-run this may not maximize their usurious income’. Thus it has been concluded that being denied any access to any source of credit is as important a form of deprivation as the exorbitant interest rates. Hence while dependence and exploitation does not necessarily take the form of payment and extraction of high rates of interest, ‘interest-free loans under certain conditions bind a poor farmer or labourer to a rich farmer just as effectively or even more effectively’.

On the basis of survey data conducted during 1979-80 on tenurial conditions in Nadia district of West Bengal, Khasnobis and Chakraborty (1982) reported some important phenomena relating to the informal credit market. The survey revealed that the interlinkage between tenancy and credit contracts did not operate as a powerful phenomenon in the field area. The typical landlord did not enter into usury practice with his tenants. The tenants however needed both production and consumption loans which they met largely from the non-landlord loan-givers. Hence while the study did not find much evidence in support of Bhaduri’s hypothesis that there exists an interlinkage between tenancy and credit contract involving the landlord and the tenant and that the poor adoption of the output raising innovations by the landlord can be explained in terms of an usurious rate of interest on the consumption loan advanced to the tenants by the landlord, the study validated Rudra’s view that the landlords often provide interest-free loans for their tenants.

In this connection, we must mention the study by Mukherjee A (1989), which broadly attempts to find out factors that can explain the failure of the new strategy to inject adequate dynamism into particular parts of our rural economy. The study stands unique in its class in the sense that it deals with the problem of identifying the factors that obstruct the process of capital formation in a small rural area of West Bengal, and takes into account the interlinked agrarian markets both from the borrowers’ as well as the lenders’ side. After a detailed investigation of 149 farms from Birbhum district of West
Bengal, the study finds that “portion of paddy and fertilizer markets are interlinked through a system of credit and moneylending or advance payment (dadan)”, and identified a sub-category of farmers who “participate in this interlinked market both as a major marketing channel for paddy and seller of fertilizer.” Further the study observes that in large number of cases selling of paddy takes place as repayment of credit taken as advance with the condition of repaying in terms of paddy, at the beginning of the season. In some cases paddy is sold in order to pay the price of fertilizer purchased on credit with the attached condition of repaying in terms of paddy. On the basis of her findings, she concludes that the “interlinked market for credit and labour leads on the one hand to the distortion of the normal functioning of the labour market and on the other prevents the farmers with inadequate access to resources from undertaking risk-bearing productive investment by reducing the chance of timely availability of labour and rising the labour cost. Such an agrarian structure thus poses to be an obstacle in the process of productive innovation and growth.”

Khasnobis R (1994) upgraded his previous results in 1993 by conducting a broader survey with data from four district of West Bengal to capture the realities in a better way than the previous one. While describing the general scenario with respect to the credit conditions of the tenant households, Khasnobis found that the private lenders were playing a dominant role in the rural credit scenario and the institutional loans were found to be distributed according to the asset base of the creditors, while the poor tenants were being excluded from the organized credit market. It was observed that about three-fourths of the loan-receiving landless tenants and a similar proportion of marginal tenants depend exclusively on the private agencies to meet their requirements, which indicates that the rural market is being dominated by the private money lenders. Hence Khasnobis reconfirms his earlier findings (1982) by not supporting the Bhaduri’s hypothesis of interlinkage between tenancy and credit contracts.
Khasnobis found that the informal credit market was being dominated by the merchants, the professional moneylenders and a category that could be labeled as ‘friends and relatives’. Among these Khasnobis found the ‘merchants’ as being the most important source of informal credit mainly consisting a section of traders selling modern agricultural inputs to the peasants and/or buying marketable surplus from them. Calculating the imputed interest rates on the various forms of transactions between the parties, Khasnobis argued that there exists a high rate of interest in the informal credit market, which can be described in terms of the economics of monopoly; i.e. the isolated character of unorganized market resulting from the borrowers’ inaccessibility to the organized markets for credit, and hence rejects the ‘Lender’s Risk Hypothesis‘ as developed by Bhaduri. All of the above finding led Khasnobis to reconfirm his previous results and concluded the interlinkage between tenancy and credit does not seem to operate in the countryside. In fact he argues that with the drying up of institutional sources of credit, the informal credit agencies are fast making a come-back in rural West Bengal with a new type of interlinkage involving the merchants and the tenants.

A number of other empirical studies have established the existence of interlinked contracts. A few of those are the works of Bliss and Stern (1982), Dreze and Mukherjee (1987), Sarap (1986), Bell and Srinivasan (1989) and Swaminathan (1991). Bliss and Stern (1982) reported that two of forty tenants in Palanpur were indebted to their landlords. In the same village Dreze and Mukherjee (1987) found tenancy-credit market interlinkages. Sarap (1986), in a study conducted in Western Orissa, found a variety of interlinkages including those in land, labour, inputs and output markets in which credit was central. Bell and Srinivasan (1989), in a survey of Andhra Pradesh, Bihar and Punjab, selecting 34 villages and 40 households from each village, found that while barely 15 and 20 per cent of the total amounts borrowed in Andhra and Bihar respectively, are associated with transactions in other markets, almost 60 per cent are so in Punjab. In another micro-empirical study,
Swaminathan (1991) collected primary data from two villages – Konur and Gokilapuram – in the Madurai district of Tamil Nadu, and found that, “interlinkage with other markets, particularly the labour market is, in many cases an important feature of contract enforcement on loans”.

In their paper Meenakshi R, R Ranade and S Deb (2006) looks at the credit delivery system in rural India on the basis of a field survey carried out in the State of West Bengal. According to them “given the reality that access to formal sector credit is not smooth for the marginal farmers, the emergence of a trader class as a major source of credit for working capital (without demanding any collateral), appears to be beneficial for these poor farmers”. However, as they argue the repayment rates of the comparatively poorer farmers are found to be better than that of the financially better-off farmers, the paper constructs a game theoretic model to show how in the face of asymmetric information, necessity to build trust has led to this behaviour. In particular, developing a theoretical model, the paper shows that in the face of imperfect information, for the poor farmers to build credibility, prompt repayment is of utmost importance. The comparatively richer farmers on the other hand have automatically attained some trust from the lender as their paying capabilities are higher. Again, they often have alternative source of financing (at least a proportion of the cost of cultivation) making them less dependent on the traders. As they care less about their reputation, they can afford to be comparatively lax in repayment. This leads to the people with lower capability of repayment to actually make prompt repayment.

In his paper Gangopadhyay S (1994) dealt with interlinkage and some of its economic issues. He shows interlinkage as an endogenous outcome in his models and uses the imperfections in the credit market as the major cause for interlinked contracts. From the results of the study, the author argues that the inherent economic inefficiencies due to imperfections can be eliminated by interlinked markets. However, if one looks at the income accruing to the borrower, the author says “an interlinked contract allows the lender to extract
the full surplus attributable to the interlinking of markets‖, while it is also true that “interlinkage does not immediately mean more ‘exploitation’ of the borrower.” He points out to another important issue that “it is possible to come up with situations where the farmer may be better off without interlinking”. He also shows a possibility that “the (small) farmer earning a higher income also pays a higher interest on loans taken, while the poorer farmer pays a lower interest”.

In another paper Chakrabarty, D & A Chaudhuri (2001) developed a model of interlinkage under adverse selection and have looked at the interaction between formal and informal sector credit institutions in the presence of interlinkage. It is found that when the formal sector is rationed, the landlord does provide optimal credit to the high type tenant but provides sub-optimal credit to the low type. In this situation, where there is a fixed amount of credit forthcoming from the formal sector the landlord/moneylender is a monopolist facing the residual demand for credit coming form the tenants. And as a monopolist he uses an interlinked contract as a two-part tariff with a flat rental fee and an interest rate in order to maximize his return. The paper also shows that “one way of reducing the landlord/moneylender’s monopoly power would be to make the supply of credit from the formal sector a positively sloping function of the interest rate”. So even if the formal sector subsidizes the availability of credit, providing more credit at higher interest rates has the effect that now the monopolist landlord /moneylender in setting his interest rate has to consider the feedback effect on the formal sector.

Recently Gill A (2003) made an attempt to analyze the various aspects of informal rural credit market of which interlinked contracts occupy the central place. The study is based on empirical investigation carried out in two districts – Patiala and Amritsar –of the State of Punjab (which is agriculturally the most advanced) during 1994-95, choosing six villages from each district. The study revealed “the dominant position of the money lender in a new
guise – that of a commission agent, who interlinked the credit market with the output market”. In fact, the paper finds that credit is given on the collateral of sale of crop to the commission agent, who further sells it to government agencies. Payment on sale of crops is also made through commission agents, who deduct their loan amount before finally paying the cultivators. The end result is constant exploitation of cultivators, with many of them resorting to end their lives when they can no longer bear the burden of debt. Another study by Sohi R S and S S Chahal (2004) addresses the issue of interlinkage in rural Punjab. Based on a primary sample survey in ‘developed’ and ‘less developed’ districts of Punjab and tries to examine the type and extent of interlinkage between credit services and marketing, and the socio-economic status of the linked credit participants. In order to identify the socio-economic features influencing the probability of linkage, the authors carried out a logit regression analysis. The study finds eight different types of linkages connecting with land, labour, input, output and lease market, where credit-product linkage dominated in both developed and less develop regions. The study also observes that the small farmers displayed a higher tendency to enter into credit contracts, which “may probably be due to the reason that the small farmers have poor access to formal credit as compared to the informal agencies which provide tied loans more easily with minimum hassles”.

There have virtually been only a few empirical economic studies in India that have worked with the *construct of class within the peasantry*, especially since the 1990s. This absence becomes extremely glaring as sociologists, political scientists and other social observers have argued that the class structure in India has not only undergone a “great transformation” but also that it has been central to understanding Indian economic policy initiatives during the last two decades (Chatterjee 2008). However, there has been a rich discussion in this respect that began in the early 1960s, which developed into a wide-ranging debate (popularly known as the ‘Mode of Production Debate’) on the growth of capitalist production in Indian
agriculture. In fact, it was the rapid transformation of agricultural development strategy through ‘Green Revolution’ package that provides the background to the rise of the ‘capitalist farmer’ in the 1960s, which the debate attempts to conceptualize and theorize. The debate gathered momentum towards the end of the decade and reached its most intensive phase in the seventies, while the 1980s witnessed a number of reviews of the debate. Further contributions have been in the nature of discussion and development of its specific aspects. In fact the discussion had started with certain specific questions addressed by economists e.g., what was meant by capitalist production in agriculture, and how could its growth be captured statistically when carrying out empirical surveys of farming households? Clearly the appropriate statistical methods of aggregation and analysis depended in turn on the theoretical approach to the question of capitalist development in the agrarian sector.

However, development of ‘capitalist farming’ was perhaps crystallizing even before the so-called ‘Green Revolution’ took place in the sixties. That pattern was already much in evidence by 1953-54 as was demonstrated with clarity in a study by S.C. Gupta, published in 1962, which was the first major study to underline the development of ‘capitalist farming’. Gupta shows that, the distribution of land and other farm assets was in unequal proportions favouring the large farms. At the same time, tenanted land also was not mainly in the hands of landless peasants or those with extremely small holdings (as was commonly supposed); such land also was largely taken over by big farmers who operated on a commercial basis. In particular, no less than 60 percent of the rented area was in the hands of big farmers who owned more than 10 acres whereas poor peasants with less than 5 acres, far more numerous, had no more than 20 percent of the rented area. On the basis of his findings, Gupta classified farmers in a hierarchy as follows:

1. **Capitalist Farmers**: Those who undertake “cultivation mainly with the use of hired labour and investment of capital (i.e. that they rely on wage labour for at least 50 percent of their requirements). They
produce essentially for profit and the bulk of their output is destined for the market.” He found that these capitalist farmers have “the necessary drive, capital and technical skill to obtain maximum productivity per worker with the minimum cost and reap the highest profit per acre.”

(2) Market Oriented Large Family Farms: These are farms that undertake cultivation mainly with the help of family labour although they too employ labourers. They “have a substantial marketable surplus and are therefore market oriented.” For the purposes of classification of empirical data Gupta adopts the criterion for this class of those who own between 10 and 20 acres of land, and rely for between a third and a half of their labour requirements, on hired labour. They invest capital but their capacity to invest is not very great. They strive for a maximum use of their family and hired labour force.

(3) Smallholders: These are at the bottom of the hierarchy. They account for about three quarters of all the holdings but have very little land. The bulk of the output from their tiny fragmented holdings is needed by them to eke out their own bare existence and they have very little surplus to market.

On the basis of his findings, Gupta argues that it would be misleading to employ a generalized way to describe the whole of the agrarian economy in terms that are here applied to the smallholders alone. While the bulk of the rural population was poor and backward, the bulk of the land was cultivated with great efficiency and profit by a few.

Later, the debate on the mode of production, theoretically an analytical concept, veered-back to the original questions of class formation and class differentiation in agriculture. As put by Patnaik (1990), “without further empirical investigation it was not possible to determine a priori what was the extent and impact of ongoing capitalist accumulation; on the other hand, the proper investigation of existential social reality itself required the application of theoretical categories of class.” Here, the economists with Marxist
theoretical persuasions argued that the Marxist theory of class differentiation within the peasantry constitutes a powerful theory that provides the necessary analytical tools for looking at the agrarian structure both at a point of time and in its evolution over time. In fact, the Marxist proposition is that economic classes are to be looked at in terms of two related criteria: possession of the means of production, and the exploitation of labour. The resolution of this dilemma was attempted mainly by economists like Patnaik (1976) by formulating a general index of exploitation of labour which did not presuppose either capitalist or other types of relations but subsumed both. Other authors like Rudra (1970) on the other hand emphasized class formation in terms of class for-itself rather than class-in-itself.

Rudra, after being profoundly dissatisfied with some of the assertions about the allegedly ‘revolutionary’ changes in Indian agriculture, sets out to see what was actually happening in our agriculture and to determine whether the agrarian economy has made a decisive transition from feudalism to capitalism. He wanted to identify ‘capitalist farmers’ on the basis of a comprehensive statistical analysis of empirical data. With this intention he along with his two of his colleagues studied a sample of 261 farms, all above 20 acres, in Punjab. After a thorough analysis of data, Rudra argues that a ‘capitalist farm’ may be expected to possess certain ‘principal characteristics’, especially in Punjab. He puts them as:

(a) a capitalist farmer will tend to cultivate his land himself rather than give it out on lease;
(b) he would tend to use hired labour in a much greater proportion than family labour;
(c) he would tend to use farm-machinery;
(d) he would be market-oriented, i.e. he would tend to market an important share of his produce; and
(e) he would be profit-minded, i.e. he would tend to so organize his production as to yield a high rate of return on his investments.

Based on the above features Rudra constructs the following variables-
(a) percentage of land rented out to total land owned;
(b) wage payment in cash per acre of farm size;
(c) value of modern capital equipment per acre of farm size;
(d) percentage of produce marketed to total produce; and
(e) cash profit per acre.

Rudra argues that if there were indeed a category of ‘capitalist’ farmers, then one would expect to have strong positive associations as between the pairs of variables. However, Rudra reports a ‘very important negative finding’ that data fails to indicate any strong association between any of the pairs of variables. He thus concludes that the results “pertain more to the economics of mechanization than to the anatomy and physiology of the animal which has been named the capitalist farmer even before his existence has been established”.

Rudra’s findings however were strongly criticized by economists like Rao (1970), Chattopadhyay (1972) and Patnaik (1976). In Particular, Rao observes that “it is because of the strong conditions Rudra puts on them rather than because of their non-capitalist nature that Rudra obtains his negative conclusions”, while Chattopadhyay argues that Rudra’s “theoretical part is far from satisfactory” and that the theoretical mistakes is “reflected in Rudra’s choice of variable among others to identify the ‘capitalist farmer’."

On the other hand, Patnaik differentiated between two sets of propositions namely (i) that there exists, amongst the various classes within the non-capitalist agrarian economy, a small but growing class which may be identified as ‘capitalist’, and another, much stronger proposition (ii) that agriculture is characterized by complete or near complete polarization into two main classes, capitalists and wage labourers. She suggests that Rudra's statistical criteria are relevant only to the second; much stronger proposition which, she points out was not being suggested by him. On the other hand, they have no relevance to the first proposition which is what was at issue.

In particular, in her paper, Patnaik (1976) outlines a suggested criterion, termed the labour-exploitation (E) criterion for demarcating classes
within the peasantry at the empirical level. Here, the ration ‘E’ expresses the extent of exploiting or being exploited, in relation to the extent of self-employment, viz. \( E = \frac{x}{y} = \text{net use of outside labour / family labour days.} \) Based on this ratio, Patnaik puts forth some divisions within peasantry “that are determined on the basis of which form of exploitation – wages or rent – predominates”. She categorizes peasantry as-

1) The first category contains both big landowners of the feudal type and the capitalists, distinguished by the peasants by the fact that family members do not perform manual labour in any major farm operations.

2) The second category is the top stratum of peasantry, the rich peasants. They perform some manual work in major farm operations and are therefore distinguished from the landlords/capitalists.

3) The third category comprises of the middle peasantry, which is primarily self-employed, since on average its resource position per capita is such as to just employ family labour adequately and provide a livelihood at a customary subsistence level. This category may be looked upon as comprising of two subcategories, viz. (a) upper middle peasants- who are net exploiters of others’ labour; and (b) lower middle peasants- who either do not exploit any labour at all or they are themselves exploited to some extent.

4) The fourth category consists of the poor peasants, for whom the per capita resource position is so bad as to necessitate working mainly for others in order to obtain a subsistence- either directly through hiring out labour for wages or indirectly through leasing in land even on high rents, or a combination of these two.

5) The last category is formed by the full time labourers, who do not operate any land at all. He is entirely or mainly dependent on hiring out his labour for wages in order to obtain a subsistence.

However, Patnaik’s classification is not free of criticisms either. In fact, Rudra (1978) criticized her argument that “the existence of wage labour as commodity is not only a necessary but also a sufficient criterion for defining
capitalist relations of production”. Rudra in turn argues that reinvestment of surplus for productive purposes does not logically imply in the extraction of surplus thorough the process of purchasing labour at market wage rate, nor it is historically true that existence of market for labour power has necessarily been accompanied by capitalist accumulation and reproduction. As such, the exclusive dependence on hired labour is not a sufficient characterization of ‘capitalist' production. In addition to labour hiring, which is the necessary condition, the condition of accumulation and productive investment must be satisfied. The concept of classes is thus becomes an analytical concept and not an empiricist one.

However, as has been mentioned earlier, there have been no empirical economic studies in India that have worked with the construct of class within the peasantry since the 1990s. Though it has been central to understanding Indian economic policy initiatives during the last two decades, especially after the economic reforms took place in the 1990s, its absence has become extremely glaring as the class structure in India might have changed dramatically. There are however some studies (Bhattacharya, 2001; Banerjee, 2009) that attempts to give an empirical approximation to the analytical concept of the class status of the household, but they all seem to follow Patnaik’s (1987) labour-exploitation criterion side by side with usual acreage criterion.

The only exception to this is a study by Mukherjee A (1989) that attempts at classification of surplus producing farmers on the basis of their role in the process of growth. The study is of particular relevance to the present thesis since the present thesis carries out an investigation into stagnation of Indian agriculture in terms of role of different categories of farmers following the same principle of categorization as introduced by her. In her study Mukherjee attempts to find out factors “that can explain the failure of the new strategy to inject adequate dynamism into particular parts of our rural economy”, on the basis of a study dealing with the problem of identifying the factors that obstruct the process of capital formation in a small rural area of West Bengal.
The idea on which the whole study is based is that “the backwardness and growth of a particular region should be explained in terms of interaction of behaviour patterns of different categories of farmers exerting contradictory influences on agricultural productivity and the process of capital formation.” As such, Mukherjee not only classifies farmers into several categories, but also reveals the dynamics of interaction of behaviour patterns in retarding the process of growth. In particular, the study proposes that the farmers “who are capable of producing any surplus” can be grouped broadly in four categories.

The first category consists of farmers who actually take a leading role in the technological innovation, and are identified as ‘Progressive Farmers’. The second category consists of farmers who in spite of their adequate access to scarce resources are hesitant in the matter of technological innovation in agricultural production; they are more interested in undertaking investment in non-agricultural pursuit which seems to be less risky and less hazardous. This category is identified here as ‘Commercial Farmers’. The rest of the farmers are those who are without adequate access to resources and incapable of playing any significant role in technological innovation due to various institutional-organizational backwardness characterizing the rural economy. Further, it is argued that it is possible to identify a sub-category within this residual category which consists of farmers who try to consider agricultural production as a profitable field of investment but are constrained by their inadequate access to resources and existing institutional conditions that limit their accessibility to resources. Rate of growth of productivity and spread of new technology depends much upon the activities of this sub-category, which forms the third category, because they include a very large section of the broad masses of peasantry. This third category of farmers are identified here as ‘Enterprising Farmers’. All the rest of farmers in this residual category (i.e. the complement of the subset) can be categorized in the fourth category, and identified here as ‘Non-progressive Farmers’.
On the basis of the empirical validation of the above categorization, Mukherjee comes to the conclusion arguing that “while accessibility to resources do not always guarantee greater productive investment, greater initiative and larger output, lack of adequate access to resources may result in channeling of productive resources away from agricultural production and limiting the scale of investment.” At the same time, Mukherjee argues that “it is possible to identify the most retrograde category of farmers (the commercial farmers in her study) whose behaviour pattern is largely responsible for backwardness of particular regions”, and she observed this category of farmers as economically most dominant, enjoying the most dominant socio-political status in the rural society.

To sum up, in this chapter, we carried out a brief review of existing literature on specific issues with which we are concerned in this study, namely, the relationship between farm-size and productivity, relationship between farm-size and efficiency, diversification of cropping pattern in Indian agriculture, interlinkage in rural credit markets and construct of class in agriculture.

In a brief review of studies relating to the relationship between farm size and productivity, we cover prominent studies since the debate on the subject began. However, we found that the studies carried out on the relation between size of farms and productivity show contradicting results. While some studies showed an inverse relationship, others failed to confirm it. There are indications that the inverse relationship exists in certain types of farms, but the relation cannot be generalized. In addition, the relationship need not be there for all size groups, for all regions, and for all crops, and hence the debate thus remains inconclusive.

In case of review of studies relating to the relationship between farm-size and efficiency, we take into account of studies pertaining to both
allocative efficiency and technical efficiency of farms. After a brief review, we found that there is much controversy regarding the efficiency of farms in relation to size of holding, as different studies yielded differing results in varying agro-economic conditions. As such, no definite relationship between farm-size and efficiency (or inefficiency) can be accepted as valid throughout the country across farms.

Further, in case of studies reviewed relating to diversification of cropping pattern, it is observed that most of the authors argue that diversification in cropping pattern which made rapid strides in recent past is primarily initiated by the marginal and small farms, a feature that is mostly observed throughout the varying regions. However, the authors appear to differ on the rationale behind higher diversification ratio among small farms. At the regional level, factors like availability of infrastructure have exhibited positive raltionship with higher levels of crop diversification.

Further, in case of review of literature relating to interlinked credit markets, we first attempted to define the concept of interlinked credit operations as put by dirrent strands of mainstream economics. We discussed at length the theoretical development of ideas based on empirical findings, and observed that only a few have investigated into the actual working of the interlocking operations and their role in the process of growth. We also carried out a brief review of the empirical evidences relating to interlinked market operations in India, and observed that the particular feature is witnessed throughout the country, even in the agriculturally most advanced states like Punjab.

Apart from this we have also made a brief excursion in the area of class character on Indian agriculture and method of classifying farming households in this context. We observed that most of the studies try to shape an empirical substantiation of theoretical ideas. This has in turn resulted into a debate on the process of commercialization of agriculture with related controversies regarding the characterization of the mode of production in agriculture.
However, it should be noted that the studies explaining the general backwardness of agriculture emphasizing on certain aspects of the agrarian structure largely avoid explaining the regional variations in agricultural growth in terms of interaction among various factors. We also fail to find any study that enumerate the relative importance of different factors in the process of growth and the impact of their actual working on the behaviour patterns of agrarian classes with regard to the degree and pattern of utilization of modern inputs.