CHAPTER II

REVIEW OF LITERATURE: THEORETICAL FRAMEWORK AND EMPIRICAL FINDINGS
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2.1 INTRODUCTION

Review of literature has been undertaken to decipher the trends, dimensions and magnitude of the topic and also to identify the research gaps in this area which constituted the base for the formulation of objectives and hypotheses presented in chapter I. For this purpose, literature was collected from various sources which encompass the articles from various academic publications, reports of government, research agencies and doctoral thesis and so on. So based on the literature reviewed, this chapter has been subdivided under two broad heads - theoretical and empirical literature. Further the theoretical literature review has been discussed under the heads of Neo – classical labour leisure model, Theory of backward bending labour supply, Jevons theory of labour supply, Static and dynamic theories of labour supply and Harris – Todaro model of rural-urban migration. In the empirical section, literature on estimation of determinants of labour supply and participation decisions, changing socio-economic conditions of rural labourers, MGNREGA, shortage and surplus of labour in rural India, farm and nonfarm employment related issues have been reviewed.

2.2 THEORETICAL FRAMEWORK

Theories are the building blocks of any research endeavour. So in this direction, the literature on theoretical framework for rural labour supply behaviour has been discussed here. Even though the literature is voluminous, for the purpose of providing the overall glimpse of the theory in labour supply, this section aims to provide the highlights of theoretical issues of labour supply.

2.2.1 Neo-classical labour leisure model

To start with, it was noted that neo-classical labour supply model was the foundation of several studies. Several modifications, extensions based on varied assumptions have figured in literature with the time. Neo-classical labour leisure
model, placed in static and dynamic labour supply setting are two notable theoretical frameworks in this regard.

Neo-classical labour leisure model states that labour supply curves are derived from the tradeoff between labour and leisure. Higher income may be earned by working more hours but this will lead to decrease in the duration or amount of leisure the labourer enjoys. In consequence two effects - income and substitution effects emerge on the amount of desired labour supplied due to a change in the wage level. For instance, when the real wage rate rises, the opportunity cost of leisure increases. This tends the labourers to substitute labour for leisure – the substitution effect. But when leisure is normal good, the demand for leisure increases as income increases, this rise in wage or income will tend to supply less labour hours by the labourer – income effect. The shape of the curve will depend upon the relative strength of these effects. For example, if substitution effect is stronger than income effect the labour supply curve will be upward sloping and vice versa. That means the substitution effect leads worker to work more and the income effect leads to put in less work hours.

Further an extension to this, is the theory of backward bending labour supply curve of labour.

2.2.2 Backward bending supply curve of labour

The backward bending supply curve of labour relates to the trade-off between work – labour and leisure, leisure being normal good. In a nutshell the theory states that when people are paid higher wages they work longer hours, but only up to a point. At that point, the more wage is paid to people the less they work, because

(a) Workers generally prefer leisure over work, and

(b) Beyond that point they can sustain their consumption habits while working fewer hours.
In the figure 2.1, X axis shows different quantities of labour supplied measured in terms of working hours, it can also be measured in terms of labour supply days and Y axis represents different levels of wage rates. In the initial stage a worker will be working L1 hours at given wage rate W1. Owing to the greater utility obtained because of more income when the wages increase from W1 to W2 the worker tends to supply more hours of work say L2. This means the substitution effect is positive and income effect is negative that means the substitution effect is stronger than the income effect. This, in turn implies that, as wages increase number of hours labour supplied or worked also increases. In simple words, to obtain more wages worker will be ready to substitute his or her leisure time for work. However is it noted that any further increase in wage from W2 to W3, then the number of hours worked would fall from L2 to L3. This is for the reason that now the income effect becomes stronger than the substitution effect leading to backward bending labour supply curve.

2.2.3 Jevons theory of labour supply

Similar idea has been put forward by Jevons. But he applied the theory of utility in order to bring out a theory of labour supply. According to this approach there are two aspects of labour:

a. Positive aspect or utility of labour

b. Negative aspect or disutility of labour
Labour has utility or a positive aspect that is because it is rewarding in terms of wages. That is a labourer will be compensated with wages or rewarded for the labour he puts in. On the contrary it has disutility because it is a painful exertion of mind and body. So according to this theory, Labour will be supplied as long as the utility of labour is greater than the disutility of labour. In other words labour will be supplied till the labour enjoys the utility and it will be supplied up to a point where utility and disutility from executing labour are equal.

Further deriving from these neo classical ideas, several versions of Static and dynamic labour supply models have been built. These theories have assumed their own importance in the literature pertaining to labour supply.

2.2.4 Static labour supply model

Static labour supply model for one period revolves around an individual’s decision in the labour market:

1. To work or not to work – extensive margin of labour supply
2. If working , then how many hours should be put in – intensive margin

This model assumes that an individual is free to choose hours of work and also free to select a wage offer. Further individual’s utility function is defined in terms of consumption of goods and leisure thus this is based on the consumer theory.

If an individual is not willing to supply his or her labour at the going wage rate, meaning that her or his reservation wage is higher than market or going wage rate then he or she will end up with a corner solution (Killingworth 1983).

So as this is based on consumer theory and utility maximization, it is assumed that an individual or labourer seeks to maximise his or her utility of two goods – real income (Y) and leisure time (L) which is restricted by the budget constraint – (given by time and good constraint – H+L =T and wH =pY, where, H=hours of work , L=hours of leisure, T= total time available, w= wage rate , p= price index of real income Y = real income) respectively. So given by

\[ pY = wT - wL \]

The Marginal utility of consumption and leisure can be arrived effortlessly for the reason that, this approach assumes quasi concavity of utility function. Moving
ahead, static model discussed above, is a kind of model allowing for the assumption that a labourer is free to supply the number of hours he or she desires, thus this model follows decision making at the individual level. However, this model is not free from criticisms. The major argument levelled against this kind of a model is that in practical working field, a labourer or a worker is hardly given choice to work only those numbers of hours which he or she intends to. So this has led the theoreticians in support of static model approaches to come up with two set of modified models namely – tight labour market models where demand for labour is in excess of labourer supply and thus workers and individuals in reality choose desired work hours; secondly loose labour markets where opposite is the situation, that is, labour supply is in excess of labour demand and thus individuals have no freedom to choose but to abide the contracts offered.

Further other main criticism on this model is about the ignorance or neglect of factors that may influence the labour supply decisions such as the future life events of individuals. Another serious limitation of the static framework is that, it fails to accurately predict the relative strength of income and substitution effects in the model. But with time, there have been several improvements in this framework like the researches which state the model with more realistic assumptions like family budget constraint model or the models based on Becker’s theory of time allocation. Yet lots of complications and limitations still haunt these models and the research is still on.

2.2.5 Dynamic model of labour supply

Variations in the hours of work supplied by an individual are observed only to that wage changes (increase or decrease) which are previously predicted or anticipated by the labourer as mentioned by Bundell and Macurdy (1999) is the core of the dynamic model of labour supply. Assumptions like – planned wealth when an individual or worker or labourer dies is zero, the budget constraint is the difference between the labourer’s accumulated wealth or income and the expenses, maximisation of life time utility etc feature in the dynamic model. Life cycle model of labour supply is one such dynamic model of labour supply which is quite popular. These models assert the idea that labour supply decision of worker happens in a life cycle setting. This approach to determine labour supply depends on the implicit assumption that labour supply is the matter of life time decisions of an individual and
hence labour supply needs to be understood under the context of life cycle of labour from birth to death encompassing the schooling and other factors. Basically two broad approaches can be witnessed under these studies according to Bosworth et al (1988) where first approach deals with the special focus on current labour supply decision of a labourer rather than future, keeping wages as exogenous. In contrast, the second genre deals with wages to be endogenous and special importance is attributed to the labourer’s human capital level of education and training.

Unlike the typical income and substitution effects; life cycle models spell out three different effects – efficiency effect, interest rate effect and time preference effect – influencing labour supply decision of labourer as per Bosworth et al (1998)

Efficiency effect appears to be an extension of substitution effect though because this explains the inter temporal substitution effect where labourer supply more labour during the higher wage rate periods in relation to that of lower wage rate periods. Coming to the interest rate effect , here the labour supply decision of the labourer depends on the age where in the lesser years open up more opportunities to work and earn, than at later years of life, thus leading to savings in the bank for earning higher interests. Lastly the time preference rate effect speaks of procrastinating behaviour of individuals that is the inherent desire to opt of leisure in current period there by postponing the labour supply in later period.

These models of labour supply decision are also not free of limitations, the most prominent drawback identified in the literature is, this kind of approach often complicates the analysis and these models fit only for the longitudinal data which are difficult especially in a country like India which lacks well built data base on labour supply variables.

2.2.6. Harris-Todaro model of rural urban migration

While dealing with the dynamics of rural labour market, mention must be made of the famous “Harris-Todaro model of Economic Development”1 in this theoretical section. Because the theory is the ground breaking theory in explaining “migration” which is an important feature of rural labour markets of a country like India. The model states that rural labour will migrate to urban areas in the process of

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1 Harris, J.R & Todaro,M.P.(1970); Migration, unemployment and development : A Two Sector Analysis, American Economic Review 60(1);126-142
economic development because of the ‘wage differentials’ and they will continue to migrate to urban areas until the urban wages are higher than the rural wages.

No doubt the implications of the theory are relevant to the research theme of this study, however, including the dimension of migration calls for different approach with a different set of objectives and methodology. But as per the primary observations of the researcher, migration was not found to be the rampant problem or the reason or the trend in the study area. Thus the objectives of the study have not included the migration related aspects and thus the model proposed by Harris –Todaro or any other migration related studies have been excluded from the purview of this research endeavor.

2.3 EMPIRICAL LITERATURE

Empirical literature has been further classified under following broad heads:

2.3.1 Estimation of the determinants of labour supply and participation decisions - Cross country experiences and India level studies

2.3.2 Changing socio-economic conditions of rural labourers

2.3.3 MGNREGA related studies

2.3.4 Studies on shortage and surplus of labour in rural India

2.3.5 Rural employment diversification - Farm and Nonfarm labour related studies

2.3.1 Estimation of determinants of labour supply and participation decisions - Cross country experiences and India level studies

Huge pile of literature is available from various parts of the globe on the issue of estimating the labour supply in different contexts. Labour supply functions have been estimated for different set of workers and in different approaches. But it must be noted that Neo-classical approach remains dominant till date and majority of working paper series are discussions on the assumptions and deviations from those assumptions in order to improvise the same like, Ratzel (2009), Skoufias (1996) , Macurdy (1980), Trendle (2008), Pacifico (2009), Tocco et al ( 2012), Erosa et al (2011), Huffman (1980). These studies have used panel data or data from longitudinal and household survey from secondary data bases. However studies by Angba (2003), Robinson et al (1982), Anim (2011), Ozcan and Gonzalez (2008) Faridi and Basit
(2011) have used cross section data to analyse the labour supply and participation decisions. The brief description of each of these studies has been presented in the table 2.1.

**Table 2.1 Summary of literature Estimation of the determinants of labour supply and participation decisions - Cross country experiences and India level studies**

<table>
<thead>
<tr>
<th>Author</th>
<th>Objective</th>
<th>Data sources Methodology</th>
<th>Findings/conclusions</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratzel (2009)</td>
<td>Impact of working time on happiness</td>
<td>German socio economic panel, Multiple regression</td>
<td>Unemployment means utility loss, Employment positively related to life satisfaction</td>
<td>Germany</td>
</tr>
<tr>
<td>Skoufias (1996)</td>
<td>Effect of intertemporal substitution of Labour Supply</td>
<td>Dynamic model of labour supply, quarterly panel data by International Crops Research Institute for Semi Arid Tropics (ICRISAT)</td>
<td>But no evidence to prove the effect of intertemporal substitution of labour</td>
<td>Various countries</td>
</tr>
<tr>
<td>Macurdy (1980)</td>
<td>Estimating a life cycle model of labour supply of males</td>
<td>Data from Michigan Panel on Income Dynamics, life cycle model two stage analysis</td>
<td>Study indicates how cross section specifications of hours of work can be modified to estimate parameters relevant for describing labour supply behavior in a lifetime setting.</td>
<td>Michigan</td>
</tr>
</tbody>
</table>
| Trendle (2008) | Define labour shortage, causes consequences and policy                     | Descriptive paper Labour adjustment model                                               | Causes: barrier preventing entry  
Consequences: lower quality output, higher wages | Australia       |
<p>| Pacifico (2009)| Labour Supply of Italian couples for Policy evaluation purpose            | Data from Survey of Household Income and wealth for Italian couples . Behavioral Micro simulation model | High education leads to High Participation, and higher the number of Children, higher is the participation for males and low for female, High non labour income leads to lower participation | Italy          |
| Angba (2003)   | Studying the effect of rural urban migration of youths on agriculture labour supply in Nigeria | Primary data of 100 respondents , chi-square and simple descriptive statistics           | Low production in agriculture and increasing shortage of labour has made it difficult to expand the area under cultivation and growing migration to urban areas has increased the pressure on provision of infrastructure facilities in cities and towns | Nigeria        |</p>
<table>
<thead>
<tr>
<th></th>
<th>Author(s) and Year</th>
<th>Title</th>
<th>Methodology</th>
<th>Findings</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Tocco et al (2012)</td>
<td>Studying the supply and demand side limitations affecting the structure of agriculture and the rural economy</td>
<td>Descriptive paper European labour markets</td>
<td>Increase nonfarm employment as agriculture does not provide more jobs</td>
<td>Europe</td>
</tr>
<tr>
<td>8</td>
<td>Erosa et al (2011)</td>
<td>Labour supply decisions of male workers in USA over their life cycle with education an important variable</td>
<td>Data from income dynamics and Survey of income and program participation, heterogeneous life cycle model</td>
<td>Aggregate labour supply response is mostly driven by extensive margin</td>
<td>USA</td>
</tr>
<tr>
<td>9</td>
<td>Huffman (1980)</td>
<td>Effect of investment in education and information on the off farm labour supply of farmers in USA</td>
<td>Data of 276, data from Census of agriculture and federal extension service data and Data from US department of agriculture, weighted least square.</td>
<td>Raising education levels of farmers, increased agricultural inputs have led to increased off farm labour supply</td>
<td>USA</td>
</tr>
<tr>
<td>10</td>
<td>Robinson et al (1982)</td>
<td>Analyzing the factors affecting the supply of farm operators' labour between farm and off farm</td>
<td>Cross section data from Australian Agricultural and Grazing industries Survey, Tobit maximum likelihood estimation</td>
<td>Farm operator’s decision to allocate his labour is influenced by his stage of life cycle, his level of human capital, his wealth and importantly the level of income off farm</td>
<td>Australia</td>
</tr>
<tr>
<td>11</td>
<td>Animl (2011)</td>
<td>Investigating socio-economic factors affecting Labour Supply</td>
<td>396 households cross sectional survey -2007, Ordinary Least Square</td>
<td>Farming experience, gender, farming type, cultivated land size etc, average distance from nearest town affect labour supply</td>
<td>South Africa</td>
</tr>
<tr>
<td>13</td>
<td>Faridi and Basit (2011)</td>
<td>Exploring the factors directly and indirectly influencing the rural labour force participation</td>
<td>Primary data, Non linear logit model based on the standard participation model.</td>
<td>Found out that there exists inverse relationship between size of farm and labour force participation. The level of education, land availability, access to economic centres and credit turned out to be most crucial factors determining the rural labour force participation.</td>
<td>Pakistan</td>
</tr>
</tbody>
</table>

Source: Compiled by the researcher

Ratzel (2009) analyses the impact of working time on happiness using data from German socio-economic panel. This study was taken in the background of neo-
classical theory, which views work as a bad-necessary and it says that since working hours entail a reduction in leisure time, the individual utility loss caused by labour time is implicitly presumed. But the empirical findings in the field of happiness economics show that, unemployment generates a sharp utility loss that is not even caused by the loss of income and also employment leads to a rise in individual happiness. These results contradict the economic assumptions of the disutility of work. The study has used regression analysis to study, if employment as compared to unemployment is positively related to life satisfaction. According to the study “work” not only serves to earn a living but also had additional, non-pecuniary benefits. This implies if individuals supply labour this will gain positive utility. According to results, optimal labour supply for men was 7 hours and women 4 hours and further increase will lead to a reduction in happiness. Finally the study proposes a policy for companies that they can attract employees even with lower wages than their competitors but have to pay for this wage discount with more flexible working hours and improvement in working conditions.

Further it was Skoufias (1996) who attempted to test the hypothesis of intertemporal substitution of labour supply using the quarterly panel data on adult male and female members of rural households, collected by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India. The labour supply is measured usually as hours of work for wages and residual time is viewed as leisure but according to the study, in developing economies it not the case because several income generating activities are performed within household in that leisure time. So this paper includes time worked for wages, time worked for home and time worked at household farm. The study has found no evidence for intertemporal substitution for males in agricultural households and the results state that constraints of market especially the credit constraints withhold the possibility of intertemporal substitution of labour supply.

Macurdy (1980) based on neo classical life cycle model of labour supply, has formulated and estimated a structural life cycle model of labour supply using data on prime age males from the Michigan Panel on income dynamics. He has noted an important loophole that most of the works on labour supply ignore life cycle theory and typically they regress annual hours of work on the current hourly wage rate, but this paper argues that a worker in contrast to mentioned studies determines his current
labour supply in a life cycle setting. He concludes by articulating that increase in men’s lifetime average wage rate leads to no change or decline in their hours of work. But here it can be said that expenses of persons- unexpected or changing consumption pattern is also an important element of person’s decision to work or not.

Labour shortage in a broader sense includes the skills shortage. Trendle (2008) has attempted to define the labour shortage and identify the causes, consequences and policy responses to the issue of shortage in the Australian context. The study has also presented a labour market adjustment model and it discusses the reasons behind the slow adjustment of labour markets: training, barriers preventing entry and employers taking time to realise the imbalance. The study attributes lower quality output and lower productivity and higher wages to be the consequences of labour shortage. Finally he concludes by saying that policy should aim improvement of skills of population.

Unlike the continuous approach of the traditional labour supply models, by using a model based on the discrete choice set from survey of household income and wealth, Pacifico (2009) has presented a micro econometric labour supply model for Italian couples for policies evaluation purposes. The study has come up with the results like higher the level of education achieved; the more likely is the participation in the labour market. Higher the non labour sources of income the lower is the probability of participation for the both the spouses in the study. Also women preferences for work will decrease with younger dependent children under age 6 years. This pattern will reverse for men. Finally they have suggested for development of a collective model of labour supply that takes into account bargaining between the spouses decision to work.

Studying the effect of rural urban migration of youths on agriculture labour supply in Nigeria, Angba (2003) has noted the sluggishness in Nigerian agricultural sector and because of movement of active labour force from rural to urban areas and participation of aged people to accomplish farming activities. Their main findings based on chi-square and simple descriptive statistics is that, there is low production in agriculture and large section of Nigerian population has taken non agricultural occupations. Also they declare that increasing labour shortage of farm in Nigeria is a consequence of rural urban migration. Further Nigerian agriculture is suffering from
an acute shortage of labour, making it difficult to expand the area under cultivation, while in the towns and cities the supply of social and infrastructural facilities like housing, water health services have come under severe pressure.

Criticising the neo-classical assumption in analysing European Union labour markets, Tocco et al (2012) have highlighted the structural constraints characterised in rural labour supply. They opine that the distinction between supply and demand sides is not clear and many aspects are so interconnected that, some supply side limitations have implications on the demand for labour. Here education is seen to be positively associated with participation in rural non-farm employment. Also they have stressed on improving non-farm employment as agriculture doesn’t provide more jobs. The study has also seen the constraints in demand for labour—seasonal occupation, risks of weather and volatility of prices, principal agent problem etc and finally the study concludes by suggesting for the removal of these constraints.

In a study undertaken by Erosa et al (2011) based on data from panel of income dynamics and survey of income and program participation, labour supply decisions of male workers in USA over their life cycle is analysed with education to be an important explanatory variable. They have developed a neo-classical model of labour market with heterogeneous agents who make labour supply decisions both along extensive margin [whether to work or not] and the intensive margin [how much to work]. The results of the study show that the aggregate labour supply response is mostly driven by the extensive margin.

Presenting econometric evidence of the effect of investment in education and information on the off farm labour supply of farmers in USA, Huffman (1980) states that raising education level of farmers, increased agricultural extension input, has led to increased off farm labour supply of farmers. The econometric evidence reported in this paper, also suggest that farmers with more education even when they have not migrated have reallocated their labour services from self employed farm work to off farm work, faster than farmers with lower levels of education. This study mainly concentrates on the reallocation of human resources.

In an Australian study, Robinson et al (1982) aimed at analysing the factors affecting the supply of farm operator’s labour between farm and off farm work. Their findings suggest that the farm operator’s decision to allocate his labour is influenced
by his stage of life cycle, his level of human capital, his wealth and importantly the level of income accruing to his labour that he could generate on the farm in relation to off farm. Also they have found that off farm employment increases as the proportion of the labour force employed in agriculture in the region decreases. In addition, the study has come out with result that in regions where the range of the off farm job opportunities is limited and high proportion of regional labour force being employed in agriculture, the “discourage worker effect” is likely to be significant problem.

Investigating the socio-economic factors affecting the supply of labour for poor rural household farmers in South Africa, Anim (2011) has shown that farm operators years of farming experiment was positively correlated with labour supply. It is quite obvious that as years spent on farm, the labourers tend to have weak bargaining power in off farm employment opportunities, so they are forced to work on farms. The study also has noted farm operator’s years of farming experience, gender of farm operator, farming type, cultivated land size, stock of farm machinery availability of farm inputs, the number of members working off-farm, high wage rate of household, average distance of the farm from nearest town – all these factors effect farm labour supply.

In a study, Ozcan and Gonzalez (2008) have estimated the effect of increase in the divorce risk on the labour supply behaviour of men and women. They discuss the legislation of divorce in Ireland in 1996 to constitute as a better source of exogenous divorce risk. This paper claims that there is decline in the rise of labour supply of married Irish women, because of the legislation of divorce that took place in 1996.

Using a nonlinear logit model based on the standard participation model, a study in Pakistan Faridi and Basit (2011) have explored the factors directly and indirectly influencing the rural labour force participation. It has been found out that, there exists inverse relationship between size of farm and labour force participation. Also the level of education, land availability, access to economic centres and credit turned out to be most crucial factors determining the rural labour force participation.

Literature on female labour supply decisions are immense because female labour supply is believed to be decided differently in comparison to male labour supply. Because the issues related to fertility, social role of women being care taker of
family and such other socio-cultural factors do influence labour supply decisions of females. Hence few studies on female labour supply are discussed in the table 2.2.

**Table 2.2 Summary of literature reviewed on female labour supply**

<table>
<thead>
<tr>
<th>Author</th>
<th>Objective</th>
<th>Data sources Methodology</th>
<th>Findings/conclusions</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanveer and Elhorst (2008)</td>
<td>Effect of fertility rate on Female Labour Supply</td>
<td>1960-2005 data from International Labour Organization Regression analysis</td>
<td>Fertility rate has negative impact on Female Labour Supply</td>
<td>40 countries panel</td>
</tr>
<tr>
<td>Shapiro and Mott (1979)</td>
<td>To study the labour force participation of young mothers in the months immediately preceding and following the first birth</td>
<td>Data from National longitudinal survey of young women Multivariate analysis</td>
<td>Unlike the traditional behavior of women to take off from labour market during child bearing: the time duration has been reduced for all women.</td>
<td>Ohio</td>
</tr>
<tr>
<td>Blau and Kahn (2005)</td>
<td>Study the connection between wages and labour supply of married women and analyze the changes in labour supply</td>
<td>Data from March Current Population Survey data from USA -1980-2000, multiple methods</td>
<td>Women's labour supply became less responsive to their husbands' wages. And between 1980 and 2000, women's own wage elasticity fell by 50 to 56 percent, while their cross wage elasticity fell by 38 to 47 percent in absolute value</td>
<td>USA</td>
</tr>
</tbody>
</table>

Source: Compiled by the researcher

**Tanveer and Elhorst (2008)** investigate the effect of fertility transition on female labour force participation by different age groups using a cross country panel data for a period of 1960-2005 and regression analysis. They have found that fertility rate impact female participation negatively for all groups. U shaped female labour supply as suggested by theory is captured in this study; that is, at a lower level of income, the female economic participation is high as economies grow and move from low income to middle income, there is a structural shift from agriculture to manufacturing sector, then there is decline in female economic participation. This will again increase in high income economies with more education and job opportunities for female workers.
Describing the labour supply of married white woman in a simple model using Public Use Micro data samples of 1990 US census, the study undertaken by Black et al (2009) demonstrates the effects of wage and non labour income on labour supply by location. Most of the studies on labour supply had ignored this, but when it was incorporated, the variation is huge. Finally they have found that women with low non-labour income and living in an inexpensive city are associated with higher labour force participation and longer work hours, where as among with high non labour income living in an inexpensive city is associated with lower labour force participation and shorter work hours. So this study implies the role of cost of living in respective cities affecting labour supply behaviour. This is a realistic approach.

Shapiro and Mott (1979) have examined both descriptively and analytically, the labour force participation of young mothers in the months immediately preceding and following the first birth. They have found that the white women labour supply behaviour to be consistent with the neo classical model predictions but the black women labour supply behaviour was in the contrast. In addition they have found that unlike traditional behaviour of women to take off from labour market during child bearing that’s pre and post delivery; the time duration has been reduced for all women.

Labour supply behaviour study by Blau and Kahn (2005) over the period 1980-2000 for married women, shed light on the connection between wages and labour supply by using March current population survey data from USA. They also examine the reasons for the changes in labour supply. According to the study, married women’s labour supply function shifted sharply to the right in 1980s, with little shift in 1990s. In accounting sense this difference in the supply shift, is the major reason for the more rapid growth of female labour supply in 1980s than 1990s. In addition, the married men’s real wages fell slightly in the 1980s but it rose in 1990s, a factor that contributed modestly to the slowdown in the growth of women’s labour supply in 1990s. Also decreased women labour elasticities implies that government policies don’t have much effect on economy in the present as it used to be earlier because then women’s labour supply responses were more elastic.

Further studies on Indian context on the issue of estimating labour supply functions have been discussed. As stated in the first chapter, the concept of labour
supply has been ignored in research literature in India. However there are couple of interesting studies on labour supply in India and Bardhan’s work (1979) is one such pioneering work.

Bardhan (1979) studying the labour supply functions in Indian agriculture, has found little evidence on the standard horizontal curve of labour [purely elastic] as commonly assumed in the theoretical literature on economic development. Also the wage elasticity of supply of labour was found to be weak. It seemed that labour supply was primarily determined by social and demographic conditions of the labour supply household and its asset situation. The study suggests the need for more intensive, possibly small scale, micro surveys of not only the employment, social and demographic characteristics of labourers, but also an overall synchronised analysis of various terms and conditions of contracts of labour.

Dasgupta and Goldar (2006), in their econometric analysis have investigated the existence of inverse relationship between supply of labour and wage rate of female labour supply in India based on NSSO unit level data using Heckman selection technique. They have stated that, payment in kind, encourages the female labour supply. Also higher the number of earning members in the household, the lower would be the participation of females in the labour market. The results further state that, the factor that govern labour supply decisions may differ based on the economic well-being of the household where the labourer resides, because the women will withdraw from labour force in case of a welfare gain for the family.

It must be noted that the studies built on the both longitudinal and cross section household survey data have employed different approaches of regression to estimate the co-efficient of determinants of labour supply and labour participation decisions. From simple OLS technique to most advanced and innovative techniques like difference in difference approach, multivariate analysis, tobit and other logistic regression. As the present study has used cross section data from primary survey the most relevant and convenient technique was discussed to be either tobit or heckman selection technique. Because the data involved was censored data and thus normal OLS estimation will not yield efficient results in such cases.² Further unobserved

² For more details see STATA help manual available open source in the internet under the heads – rheckman, rheckprobit etc also C:\WP60\LECT2.PHD\Heckman Selection\heckman from UCLA.doc or http://www.gseis.ucla.edu/courses/ed231c/notes3/selection.html.
wages, labour supply days and working hours leads to the problem of sample selection bias. This has been meticulously explained by Heckman (1979) and thus he has proposed a two-step technique to correct for this bias which has been explained in detail in the methodology section of the first chapter.

Added to the literature reviewed in this section has also dealt with identification of the determinants of labour supply decisions and this has been presented in section 4.3.2 of chapter IV which demanded justification for the selection of variables into the model.

### 2.3.2 Changing socio-economic conditions of rural labourers in India

For analysing the factors responsible for determination of labour supply and participation decisions it was necessary to understand the features of the rural labourers. Thus studies like Srivastava (2012), Pramanik (2008), Laxminarayan (1977), Padhi (2007), Khan (2011) and Senthilkumar (2013) were reviewed. The highlights of these studies were that, the nature of rural labourers work has undergone change. The practice of casual labour and informal labour has been the trend. The disposition of labour contracts, the traditional caste based social relations which effected rural labour market has seen a notable change. The summary of the literature reviewed in this section have been presented in the table 2.3.
### Table 2.3 Summary of literature on the changing socio-economic conditions of rural labourers in India

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<tbody>
<tr>
<td>1 Padhi (2007)</td>
<td>Definition, features and conditions of agricultural labourers</td>
<td>Descriptive Census data</td>
<td>Casualization of labour is trend</td>
<td>India</td>
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<tr>
<td>2 Laxminarayan</td>
<td>Changes in conditions of agricultural labourers</td>
<td>Primary data 3 villages from Punjab, Haryana and Uttar Pradesh</td>
<td>Decline in permanent labourers and pure agricultural labourers, casualization of labour has been the trend</td>
<td>Punjab UP Haryana</td>
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<tr>
<td>3 Pramanik (2008)</td>
<td>Changing terms and conditions of contracts on farms</td>
<td>West Bengal Survey primary data from 180 labour households, Descriptive</td>
<td>Piece wage rates, high supervision cost and moral hazard problem</td>
<td>West Bengal</td>
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<tr>
<td>4 Srivastava</td>
<td>Analyzing macroeconomic trend in employment</td>
<td>NSSO various rounds, Descriptive</td>
<td>increasing informal and casual work</td>
<td>India</td>
</tr>
<tr>
<td>5 Khan (2011)</td>
<td>Changing employment preferences among rural women</td>
<td>Primary data Uttar Pradesh, descriptive paper</td>
<td>women prefer self employment like embroidery as it gives sense of freedom and ensures income more than farm labour</td>
<td>UP</td>
</tr>
<tr>
<td>6 Senthilkumar</td>
<td>To study socio-economic conditions of female agricultural labour</td>
<td>Primary data</td>
<td>There is correlation between the size of land owned and cost of cultivation and debt</td>
<td>Arranganoor village Salem district Tamilnadu India</td>
</tr>
</tbody>
</table>

Source: Compiled by the researcher

Even if there is huge number of labourers in agriculture, when it comes to the policy making arena, they are neglected according to Padhi (2007). This study closely examines the definitions, features and conditions of agricultural labourers. The author views that agricultural labourers lack bargaining power and also there is shortage of demand for labour, and this, draws greater attention here. Casualisation of labour has opened the choice of working under various other activities. So now it is the labourers
who decide the terms and conditions of farm labour contracts unlike earlier where employers had power of decision making.

A study on the changing conditions of the agricultural labourers, **Laxminarayan (1977)** aims to throw light on the changes which have taken place over a period of time in the socio-economic conditions of agricultural labourer household at the three villages in the three states- Punjab, Haryana and eastern Uttar Pradesh in India. The changes identified in the study were: decrease or stagnancy in the number of permanent labourers and the casual labour becoming the main source of livelihood for the agricultural labour households. Further due to the surplus labour in agriculture, they have weak bargaining power and as a result labourer are being compelled to accept a larger proportion of wages in cash according to the study. Finally the study witnessed that, the category of pure agricultural labour disappeared fast as income from agricultural labourer is only a fraction of the total income of agricultural labour households.

In an article by **Pramanik (2008)** employer and worker contracts on farms is studied based on survey in West Bengal. The changing terms and conditions of employment of agricultural labourers are analysed. It was found that the duration of the contract, bias, frequency and mode of payment, work hours and obligations, credit and land relations, the degree of freedom to work for different employers- all these factors were involved in determining wages of labourers. With the level of development increasing in villages, the importance of group labourers also has increased and now the concept of piece-wage rate are more in practice so as to avoid the high supervision cost. This indicates moral hazard problem in agriculture. Agricultural labour market does not involve any market signals for employment and thus this happens to be a greatest problem in the wake of labourers’ non preference of agricultural labour.

Analysing the recent macro employment trends in India, **Srivastava (2012)** has shown that there is increasing trend of informalising and casualisation of labour in India. This paper also discusses the main strategies proposed for introducing labour standards and decent work in the Indian context. In order to sustain long-term growth, the study argues for the greater acceptability to improve the labour standards. Because
causalisation and informalisation has implications for job security and good conditions of work etc which has often been neglected in Indian scenario.

In a study conducted by Khan (2011), he states that women prefer self employment like embroidery as it gives sense of freedom and ensures income more than farm labour. Also he argues that as education level increased, labourers in Uttar Pradesh have grabbed those non agricultural sector opportunities which yield same level of wages as in agriculture.

Senthilkumar (2013) has analysed the socio-economic conditions of female agricultural labourers and farmers in Aranganoor village of Salem district Tamilnadu, using primary data. The study finds that there is correlation between the size of land owned and debt of labourers and the size of land and cost of cultivation.

2.3.3 MGNREGA related studies

Studies on the evaluation of MGNREGA are immense and some studies like Mukherjee and Sinha (2010), Alha and Yonzon (2011), Thadathil and Mohandas(2012), Berg et al (2012), Kumar (2011), Kadrolkar (2012), Kannan (2011), Harish et al (2011), Shome et al (2012), Basu (2011) and Prasad (2014) were reviewed in the study owing to the demand of the theme of the research. The contemporary phenomenon of non availability of labour in the farm sector was mentioned to be the result of implementation of MGNREGA. These studies have highlighted various issues related to labour shortage – the reasons, impact of scheme and measures. Some of the interesting findings are summarised in the table 2.4.
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<tr>
<td>Mukherjee and Sinha</td>
<td>To study impact of MGNREGA</td>
<td>Simple theoretical model</td>
<td>CPI data</td>
<td>Income from MGNREGA substantial so shortage of labour</td>
<td>India</td>
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<tr>
<td>Alha and Yonzon</td>
<td>To study impact of MGNREGA</td>
<td>Descriptive paper</td>
<td>NSSO various rounds</td>
<td>MGNREGA has pushed up rural wages and labour shortage. Also prevailing caste system, physical drudgery reasons for labour shortage</td>
<td>India</td>
</tr>
<tr>
<td>Thadathil and Mohandas</td>
<td>To study impact of MGNREGA</td>
<td>Primary data</td>
<td>Descriptive paper</td>
<td>Not responsible for shortage in farm labour in Kerala</td>
<td>Wayanad district Kerala</td>
</tr>
<tr>
<td>Berg et al</td>
<td>To study impact of MGNREGA</td>
<td>Decadal Monthly panel data on agricultural wages, Difference in difference approach</td>
<td></td>
<td>Raised unskilled wages and its effective antipoverty program</td>
<td>250 Indian districts</td>
</tr>
<tr>
<td>Kumar</td>
<td>To study impact of MGNREGA on labour supply</td>
<td>Descriptive</td>
<td></td>
<td>MGNREGA &amp; Globalisation effect resulted in labour shortage in Karnataka</td>
<td>Karnataka</td>
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<td>Kadrolkar</td>
<td>To study impact of MGNREGA</td>
<td>Primary data</td>
<td>descriptive 120 respondents</td>
<td>Implementation has flaws</td>
<td>Kadur Chikkmagalur u district</td>
</tr>
<tr>
<td>Kannan</td>
<td>To study impact of MGNREGA</td>
<td>Descriptive</td>
<td></td>
<td>Workers preferred to enroll because quick yields with least efforts</td>
<td></td>
</tr>
<tr>
<td>Harish et al</td>
<td>To study impact of MGNREGA</td>
<td>Primary data</td>
<td>90 workers Paired t test , Multiple regression</td>
<td>Caused labour shortage to the tune of 53%in weeding and 30% sowing</td>
<td>Kadur and Chikkmagalur u</td>
</tr>
<tr>
<td>Shome et al</td>
<td>To study impact of MGNREGA</td>
<td>primary and secondary data</td>
<td>200 households likert scale and indexing</td>
<td>Labor shortage aggravated due to MGNREGA</td>
<td>Anekal Taluk Bangalore district</td>
</tr>
<tr>
<td>Basu</td>
<td>Impact of Rural Employment Guarantee Scheme</td>
<td>Labour tying model</td>
<td>Model developed by Bardhan 1979</td>
<td>Indirect effects make labourers better off than direct wage paid</td>
<td>-N.A-</td>
</tr>
<tr>
<td>Prasad</td>
<td>To suggest strategy to overcome labour supply in agriculture due to MGNREGA</td>
<td>Primary data</td>
<td>120 respondents</td>
<td>Strategy is to implement co-operative farming in study area and involving labourers in agricultural land through MGNREGA</td>
<td>Band and Hamirpur district of Bundelkhand region, Uttar Pradesh, India</td>
</tr>
</tbody>
</table>

Source: Compiled by the researcher
In a paper using simple theoretical model Mukherjee and Sinha (2010), have studied the impact of MGNREGA on three aspects namely, rural labour market, income of the poor households and overall agricultural production. It was found that income from MGNREGA alone can be a substantial part of the target income of the poor. So in such a situation, the study has identified a behavioural change which might take place: that poor people may lead to exhibit a backward bending supply curve of labour and this might lead to an aggregate reduction of agricultural output. They conclude by saying that in order to avoid the adverse production effect arising out of reduction of labour supply from the poor households, agricultural productivity should be increased via green revolution and mechanisation. But the study also notes the importance of revisiting the patterns of land holdings - fragmented and small which are obstacles for large scale mechanisation of agriculture.

Based on secondary data Alha and Yonzon (2011) studied on the recent farm labour shortage and the reasons behind this trend. The structural changes in Indian economy in recent past have made male-migration a lucrative phenomenon while schemes like MGNREGA are found to be attractive for females in rural locations due to the fact that female population otherwise were involved in repetitive, boring and drudgery works at very low wage rate in agricultural sector as per the study. This has caused shortage of farm labour and consequently, an upward push in agricultural wages. The study has argued that MGNREGA should be taken to be a facilitator for rural population to increase the living standards of the rural labourers rather than considering it as cause for the rise in the cost of the cultivation. This is also because MGNREGA is not the cause of change in the structure of rural employment but rather it is a consequence of the low employment growth rate in the agricultural sector. The prevailing caste system is also seen as a reason for labourers’ non preference of farm labour according to this study as many people now prefer to break loose from the existing caste taboos prevailing in rural areas.

Contradicting and challenging the fact that MGNREGA being the cause for shortage of labour, a study by Thadathil and Mohandas(2012) conducted in Wayanad district, Kerala, states that MGNREGA has not been responsible for shifting the labourers away from the agricultural sector instead it claims that MGNREGA has provided economic empowerment. This was because, out of the total sample population, women who left agriculture and joined MGNREGA belonging to
the age group of 20-50 years formed only 16%. Further when males are taken into account, it was only aged, illiterate and low educated male workers who were not willing to take up physical labour in agriculture were absorbed in MGNREGA due to soft work. The study is interesting in terms of its finding, unlike the large set of studies which literally hang MGNREGA to be the root cause for labour shortage in Indian agriculture. But the study area is Kerala- ‘a home of labour unions’. So, the labour unions effects have been neglected by this study. Because of collective bargaining power of the labourers, wages are relative very high in Kerala in comparison to other states. So MGNREGA might have not been able to attract or provide any incentive for the labourers to move out of farms.

The effect of public work MGNREGA on agricultural wages is evidenced from India by Berg et al (2012). The paper uses a decade’s monthly data on agricultural wages for a panel of approximately 250 Indian districts. The study has found that each annual person day of employment created by MGNREGA per rural inhabitant in a district increases real daily wage by 1.6% in that district. During 2008-10, MGNREGA annually generated approximately 3.3 person days of employment per rural inhabitant. They say that MGNREGA appears to be targeted because it only affects unskilled wages and not skilled wages. In conclusion the study states, public work programmes provide the government an additional mechanism to influence wage rates in the rural unskilled labour market other than minimum wage laws. Since there happens to be a relationship between wages and poverty reduction, if public work programmes are able to raise wages then they have to be treated as an attractive policy instrument to reduce poverty according to the study.

Kumar (2011), studying the implementation of MGNREGA, has stated that MGNREGA has been targeted as cause for shortage of labour supply in recent years. According to this study the implementation of MGNREGA has resulted in an increase of up to 20 per cent in the cost of farm production in Karnataka. It has also created a shortage of labour in the agriculture sector in the state. MGNREGA has pushed up the rural wage rate and this has tremendously increased the bargaining power the labourers and thus the cost of production. This study also highlights the fact that along with MGNREGA, the effects of globalisation, has also resulted in shortage of farm labour.
Accessing the impact of MGNREGA at Saraswathipura Grama panchayat of Kadur taluk in Chikkamagaluru district based on both primary and secondary data, the study by Kadrolkar (2012) has found that the dominant castes are taking the benefit of the employment meant for the backward communities and also the implementation of the act was found to be with several flaws. The study suggests for usage of technology in the work field of MGNREGA must be stopped and there must be hike in the wage rates of the programme. The study has also suggested that people should be made aware of the details of the act, and there must be increase in the man days of work provided.

According to Kannan (2011), under MGNREGA, a family ensures that all members get enrolled one after the other, irrespective of the age or the capacity of the person to work, throughout the year. No mechanism was found to check the physical presence of workers or the work done at the work site according to the article. As this behaviour will yield quick money with least efforts most of the workers preferred to enroll for the program. Thus this study identifies a behavioural change in labourers that is they prefer to work under poor or least supervision.

A study by Harish et al (2011) on the impact of MGNREGA on labour supply and income generation in dry zone of Karnataka, using regression analysis, has revealed that gender, education, family size of the labourers, to be significant factors influencing the labourer’s employment under the program. Also the implementation of the programme has found to cause labour scarcity to the tune of 53% and 30% of the agricultural operations like weeding and sowing respectively. So there has been a decline in the area of labour intensive crops like tomato and ragi to the extent of 30% due to MGNREGA implementation

In another study by Shome et al (2012) based on both primary and secondary data, the effectiveness on implementation of MGNREGA has been analyzed at Anekal Taluk of Bangalore district in Karnataka. It was found that the effectiveness of the program had widespread variation and also it was seen that MGNREGA to have a significant impact on the level of quality of life. Important finding from the study which has to be noted is that labour shortages in agriculture seem to have been aggravated due to MGNREGA work. This finding implies that problem of shortage of
labor had seeds before MGNREGA but it only got severed after implementation of MGNREGA.

Studying the impact of Rural Employment Guarantee Scheme on seasonal labour markets, Basu (2011) intends to determine the optimum compensation to program beneficiaries. By accounting for the seasonality in agricultural production and the institution of permanent labour contracts, it has been shown that technological change and productivity increase in employment guarantee programs tend to make labourers better off as compared to a direct increase in the wage paid at the relief programs.

Prasad (2014) has suggested measures to overcome the labour supply shortage in agriculture through MGNREGA using primary data - both quantitative and qualitative from 120 respondents from Banda and Hamirpur districts of Uttarpradesh. He suggests that, labour shortage in agriculture in the study region must be addressed by giving jobs to labourers registered under MGNREGA at the farms. This will prove as a solution to labour shortage in study area. He also recommends for adoption of co-operative farming in study area.

2.3.4 Studies on shortage and surplus of labour in rural India

Literature on the rural labour market in India has been enormous and the studies have commonly held preconceived notions; either studies were built on idea that there is labour surplus or there is labour shortage and they attempted to justify the same or reject the other like Foster and Rosenzweig (2010), Ryan and Ghodake (1980), Joshi et al (2010), Devi (2012), Sharma and Prakash (2011), Roy et al (2011). Further, few studies like Rangarajan et al (2011), Jha (2006), Hirway (2012) have shown concern on the NSSO Employment data on rural India. The details of these studies have been presented in the table 2.5.

Using panel data Foster and Rosenzweig (2010) analyses if there is evidence for surplus labour in India by modelling supervision costs, risk, credit market imperfections and scale economies associated with mechanisation. According to this study, in contrast to the original surplus labour models, rural labour in India is not surplus conditional to the distribution of land. Based on the structural estimates of the effects of the farm size on the labour use and the distribution of Indian land holdings,
they have estimated that over 20% of the Indian agricultural labour force is surplus if the minimum farm scale is 20 acres. They give policy suggestion as to remove the cultural and political barriers to amalgamation of lands to minimum 20 acre farms so that surplus 22% of labour can be released from agriculture and they stress for sufficient growth in industrial and service employment to absorb these workers.

The article by Ryan and Ghodake (1980) has built on the larger idea that there is an abundance of labour resources relative to the capital and land in most of the developing countries of the semi-arid tropics. But as per this study the abundance can only be seen as evidences by national statistics, which are unreliable especially about rural areas. Study further states that 70% of the labour force in India is classified to be agricultural workers; there is a need to come up with better measures and understanding of the demand and supply parameters of labour market. Difference in human capital, village and household characteristics undoubtedly influence individual wage and labour supply.

Joshi et al (2010) based on secondary data on population forecast in India, on issues of skills, employment and challenges, state that India will become the world’s most populous country by 2030 and working age population will swell from 749 million to 962 million over 2010 to 2030. They state that if the current trends in India labour participation and unemployment rate continue, about 423 million in India’s working age population will be unemployed or unable to participate in the job market by 2030. Also the demand for labour will exceed the supply of labour or employed workforce. They basically speak of the skill based labour shortage. Further the study, predicts the existence of disguised unemployment in agriculture. It finally states that without deliberate policy efforts to expand the labour intensive industrial sector, a majority of India’s workforce would remain trapped in the agricultural sector.
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<th>Author</th>
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<th>Data sources &amp; Methodology</th>
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<td>2</td>
<td>Ryan and Ghodake (1980)</td>
<td>To study labour market behaviour</td>
<td>Primary data Paired t test, simple correlation coefficient, descriptive</td>
<td>Difference in human capital, village and household characteristics influence wage and labour supply</td>
<td>240 households from Maharashtra and Andhra Pradesh</td>
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<td>3</td>
<td>Joshi et al (2010)</td>
<td>Studying evolving demography</td>
<td>Report</td>
<td>Skill based labour shortage even in case of disguised unemployment</td>
<td>India</td>
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<td>5</td>
<td>Sharma and Prakash (2011)</td>
<td>Causes and consequences of supply-demand gap in sugarcane cultivation</td>
<td>Data from Comprehensive Scheme for Studying Cost of Cultivation of Principal Crops of Government for 30 years. Simple averages and percentages</td>
<td>Cropping pattern changed because of labour shortage. Labour shortage because inhuman working conditions and physical drudgery</td>
<td>India</td>
</tr>
<tr>
<td>6</td>
<td>Roy et al (2011)</td>
<td>Analyzing the mechanism of landlords coping with supply – demand gap of agricultural labourers during busy agricultural season</td>
<td>Primary data</td>
<td>Landholdings are fragmented hence permanent labourers cannot be maintained thus Mechanization must be carried to cope with the situation</td>
<td>West Bengal</td>
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<td>7</td>
<td>Rangarajan et al (2011)</td>
<td>Trends in employment and wages in light of controversies about NSSO</td>
<td>NSSO 66th round data, Descriptive paper</td>
<td>NSSO data has left the community at a situation where no one is able to explain the decline in labour force in the period of increasing population</td>
<td>India</td>
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</table>
In an empirical analysis, Devi (2012) the labour use pattern and its efficiency in rice farming in Kerala is studied using primary, secondary data and descriptive statistics. Labour shortage in agriculture especially in rice farming, is reported to be an important reason behind declining paddy area in the state. Chemical usage has been on rise on account of labour shortage and this has raised the cost of production as per the study. This implies the deteriorating quality of agriculture and land use and this may result in degradation of the soil and quality of agricultural output. Also labour shortage and resultant high wages have forced the farmers to go in for machines and agro-chemicals in paddy cultivation. It was found that there is shift from field crops [labour intensive] to non food plantation crops [less labour intensive]. The labour scarcity was owing to the preference of younger generation for a stable employment or other causal works in the non farms. The physical drudgery associated with farming and aspects like lower social status also prompted for changing social preference as per the study. Finally the author has called for efforts to ensure the labour supply in agriculture by technological interventions to improve the efficiency and reducing drudgery.

Studying the causes and consequences of supply – demand gap for labour in sugar industry in India, Sharma and Prakash (2011) have identified that changing cropping pattern, will induce a strong adverse effect on the long term sustainability of sugarcane crop. This change in cropping pattern was because of shortage of harvest labour in general in the context where sugarcane is highly labour intensive crop. They have identified arduous work and inhuman working conditions on farms to be the

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<td>8</td>
<td>Jha (2006)</td>
<td>Analyzing the association between employment and income in agriculture</td>
<td>The share of female workers in agriculture and real wages but agricultural productivity has not increased significantly. Also labour-land ratio has increased during the reference periods (1983-99).</td>
</tr>
<tr>
<td>9</td>
<td>Hirawa (2012)</td>
<td>Analyzing the reality and quality of NSSO data</td>
<td>Measurement of labour force issues is not very easy and it is hard for NSSO to reflect reality.</td>
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Source: Compiled by the researcher
major reason for the labour shortage in sugarcane industry. Also non-preference of farm work because of availability of other employment opportunities and welfare measures has contributed to the supply-demand gap. Study has also brought to light that, with the initiation of MGNREGA, the manpower available in the rural areas were more inclined to less drudgery inducing operations and working for sugarcane harvesting was not opted for. As consequences of labour scarcity, the area under sugarcane cultivation had declined and the study suggests for mechanisation to avoid the trend of reduced sugarcane cultivation at Haryana.

In a case study in West Bengal, Roy et al (2011), the authors have analysed the mechanism by which landlords try to cope with the supply-demand gap of agricultural labourers during busy agricultural season. The study has witnessed that fully attached labourers have declined for the reason that labourers found causal labour to be more profitable and also farms with decreasing size of land holdings have found unable to bear the cost of permanent labourers. The study concludes with a note that there can be no alternative for land owned farmers but to adopt mechanisation.

In an article, Rangarajan et al (2011) the trends in employment and wages given by 66th round of NSSO has been examined in the light of controversies generated by the release of the data. The author states that only NSSO data contains a comprehensive view unlike the other sources, and thus there is a need to carefully analyse and objectively use this data for better impact on policy. According to NSSO data there has been decline of labour force, coupled with a slowdown in the additions to workforce, along with population and GDP growing. Education has been the major reason to withdraw from labour force according to the study. Also the female participation has declined 21 million in the period of 2004-05 to 2009-10 while the men participation has increased but only in secondary and tertiary sectors. Women withdrawal to attend domestic duties implies that improvement in wages and agricultural incomes. Also, the author says there is large shift of workforce out of agriculture which moved into secondary sector [mainly construction] and tertiary sector. But with this authors conclude by saying that the data from NSSO 66th round has left the community in a situation where no one is able to explain the decline in labour force in the period of increasing population and GDP growth.
In an analysis by Jha (2006) based on the NSS quinquennial survey on employment for the period of 1944-2000s, it was seen that number of agricultural workers has been stagnated in parallel with growth in agricultural income and real wage. So the study questions about there being jobless growth in agriculture.

Highlighting the deteriorating quality of NSSO data, the study by Hirway (2012) has examined the proposition that whether the data produced by NSSO reflects reality. Because NSSO data has stated that there is jobless growth and dramatic crash of employment. The capital intensive growth of the economy has failed to create adequate employment opportunities in spite of rapid growth of GDP as per the data. Also with the improvement in wages and income levels there are not many takers of low paying jobs. The author urges that the labour force has not been missing as popularly interpreted, but the labourers have moved out to informal jobs which are hard to be measured by NSSO surveys.

2.3.5 Rural employment diversification - Farm and Nonfarm labour related studies

Development of non-farm activities is one of the major traits of structural transformation and in a developing country like India, this provides enormous scope for provision of employment. Several studies have been undertaken for studying the linkages of farm and non farm sector and between poverty alleviation and non farm sector jobs like Lanjouw and Shariff (2004), Jha (2006), Dev (1990), Eswaran et al (2009), Shanmugam and Vijayalakshmi (2005), Sanchez (1991). The summary of these studies have been presented in table 2.6.
Having the traditional view in the background, that rural households in developing countries are exclusively engaged in agriculture, **Lanjouw and Shariff (2004)** have focused on the contribution of the non-farm employment to the rural poverty alleviation. The study states that there is huge number of evidence that rural households had multiple sources of incomes. So the study discusses the potential linkage of farm and non-farm employment through the supply of labour and capital. The study views that, increased productivity in agriculture either releases labourers or it raises the wage rates. Further when agriculture will become unable to provide widespread employment, the non farm sector plays an important role in picking up part of the slack. The study has indicated that many of the qualities and characteristics like education, wealth and social status which influence access to non-farm jobs,

### Table 2.6 Summary of literature reviewed on rural employment diversification - Farm and Nonfarm labour

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<tbody>
<tr>
<td>1 Lanjouw and Shariff (2004)</td>
<td>Evaluate Non Farm Employment in poverty alleviation</td>
<td>NCAER in 1993-94 Multinomial logit model</td>
<td>Indirect effects of developing Non Farm Employment</td>
<td>1765 villages in India</td>
</tr>
<tr>
<td>2 Jha (2007)</td>
<td>Investigating the nature and pattern of rural diversification</td>
<td>NSSO various rounds Log linear and Ordinary Least Square estimation</td>
<td>Rural Non Farm Employment must be increased because Farm Employment is limited</td>
<td>India</td>
</tr>
<tr>
<td>3 Dev (1990)</td>
<td>Examining changes in shares of distribution of workforce</td>
<td>NSSO data various rounds Multiple regression analysis</td>
<td>Rearing livestock attracts labour</td>
<td>India All India level two states- Kerala and Bihar</td>
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<td>4 Eswaran et al (2009)</td>
<td>Focusing on trickling down effect</td>
<td>NSSO data Dummy variable regression</td>
<td>Non Farm employment opportunities have not been able to draw labour on large scale</td>
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<td>5 Shanmugam and Vijayalakshmi (2005)</td>
<td>Influence of socio-economic factors on labour participation labour unions</td>
<td>Primary data Probit regression 120 respondents</td>
<td>Education has positive influence on nonfarm labour participation and income from non-farm significant</td>
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<td>6 Sanchez (1991)</td>
<td>To study role played by Non Farm Employment</td>
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Source: Compiled by the researcher
particularly well-paying salaried and own-enterprise occupations. But rural people lack these. So at the very first glance, non farm sector does not seem to hold out great prospects for the rural poverty reduction as per the study. However the study states that if an expanding non farm sector tightens rural labour markets and leads to rise in agricultural wages, then even if the poor are not direct beneficiaries, in the sense of finding employment in the non farm sector, their living standards will still rise.

Jha (2007), investigating the nature and pattern of rural diversification in India, based on the disaggregate level figures, show that, both push and pull factors have contributed to rural non-farm employment growth but the process of rural diversification in such situations is however different and the study discusses broad strategies to increase rural non-farm employment in the country. The study reports that increased pressure on land has limited the scope for increasing employment in agriculture so that employment in the non farm sector becomes an important option. It has also been observed that agricultural wages during 1987-93 had grown at a faster rate; whereas growth in non agricultural wages has been higher than agricultural wages during 1993-99. This trend was owed to relationship between respective performances of the sector and wages during both periods.

Examining the changes at the all India level and for two states- Kerala and Bihar, in the shares of distribution of workforce in agriculture as well as non-agriculture, the study by Dev (1990) has found that growth of non-farm employment depend on several factors. In some areas, non-agricultural growth is due to agricultural growth linkages while in others it could be due to agricultural underemployment, unemployment and poverty. The decline in the share of workforce in crop production has lead to an increase in the share of non-agriculture. Also livestock seems to have absorbed some part of the decline in the share of crop production according to the study. In addition they have found that there is positive relationship between the agricultural productivity and rural unemployment and the study attributes the causes for labour displacing technology in high agriculture productivity regions and attraction of the labour from neighbouring areas to agricultural prosperity in high productivity regions.

Focusing on the trickling down effect of economic growth through NSSO data, a study by Eswaran et al (2009) has found that in spite of non-farm sector’s
sudden growth, it has not been able to draw labourers from agriculture on a large-scale. Also the study views that the amount of labour force caught up in agriculture is still high and their standards of living can be enhanced only by boosting farm productivity. Further with a new approach to poverty that the paper takes agricultural wages to be indices of incomes of poor and they look on how agricultural economic growth can reduce poverty. Non-farm sector jobs, as they have found are open to those who have better education and thus as non-farm employment cannot be found by old labourers and females. So it is only by increasing agricultural productivity these set of labourers in agriculture can witness improvement in living standards according to the study.

In a study conducted by Shanmugam and Vijayalakshmi (2005) the influence of labour unions on labour participation and the socio-economic factors encouraging labourers to organise is assessed in two districts of two states- Pallakad in the state of Kerala and Nagapattanam in the state of Tamil Nadu. Using probit function, it has been found that education and income from non-farm were most significant factors determining participation of labourers in union. In fact the income from non-farm employment was found to be having greater role in collective bargaining.

A study by Sanchez (1991) has noted that increasing nonfarm activities have become important primary source of employment for small and landless farmers in developing countries. The study states that, nonfarm employment as a source of income play an important role in reducing income inequality in rural sector. Also increased income derived from rural non-farm activities exhibits equalising effect on rural income distribution and offers better chances of realising equity objectives of development.

In a paper, Rodgers (2012) the focus is on the economic activity and the work status of men, women and children in rural Bihar. This is based on survey and the data is analysed using simple descriptive statistics. The results show that women’s participation in the labour force had increased in thirty year period and men were able to find alternative sources of income and diversify their activities away from agriculture. Further, massive migration of male labourers has tightened local labour market and contributed to the higher participation of the women in the farm labour
force. Employment opportunities for women outside agriculture in Bihar are extremely limited in rural areas.

2.4 Summary

This chapter has reviewed the relevant theories and the empirical literature available. The cross country experiences in determination of labour supply decisions and labour participations are discussed along with the India level studies. The method of estimation and the relevant determinants of the labour supply decisions have been highlighted besides the discussion on the contemporary rural labour market situation in India. The crux of the issues and the gaps in the literature reviewed has been highlighted so that there emerges a strong foundation for the formulation of objectives and hypothesis. Thus the chapter has paved for endeavoring the present study.