Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is the largest employment programme in the country with a huge public investment. The prime focus of the scheme is to provide wage employment to every rural household who wishes to work and asks for unskilled manual work. It aims at creating sustainable rural livelihood through regeneration of the natural resource–base, i.e. augmenting productivity and supporting creation of durable assets and strengthening rural governance through decentralization and processes of transparency and accountability. The main objective is creation of durable assets for sustainable development of the rural areas. Besides providing employment, it (MGNREGS) regenerates the rural sector by improving infrastructure and enhancing agricultural productivity. The work includes water conservation, irrigation canals, flood control, road construction and similar work.

It is expected that the MGNREGS has the potential to transform rural economy and social relations at many levels. The performance of the scheme is expected to show a consistent improvement almost in every aspect. Up to the end of financial year 2014-15, this scheme has provided employment to 1.02 crore households with around 254.14 crore person-days by completing 28,50,270 works in Andhra Pradesh. The number of households who have been provided employment under MGNREGS has been increased significantly, which shows a wide coverage of the scheme. All these indicate that substantial income is being provided to the households working under the Scheme. Since, wage-earners are the main focus of this scheme; it will create enormous potential to uplift the socio- economic status of the rural poor. Such a huge program in terms of financial allocation is expected to address the problem of rural poverty and reduce the income inequalities in rural Andhra Pradesh.

The impact of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) on rural poverty depends on a number of factors such as socio-economic settings of the household, resource endowments of the region besides the outreach of the program, the effect of MGNREGS on the rise in market wages in agriculture and non agricultural employment. Thus, MGNREGS is expected to help the poor to create opportunities for improving the economic wellbeing. The program is expected to ensure wealth generation and changes in the wellbeing of the households by
improving the quality of life and living standards of poor people. Field evidence needs to be systematically analyzed before drawing conclusions of the program impact.

Poverty in the rural areas is concentrated among those who depend on agriculture. The MGNREGS is to target the poor among the rural community who suffer from lack of remunerative economic opportunities. Thus the households who found to be in low standard of living are expected to get improvement in their socio-economic status. Landless Agricultural wage labour are highly represented poor. The Landless agricultural labour lie at the lowest rung of the socio-economic ladder. This is certainly due to their weak assets base and dependence on agricultural labour wage. Scheduled Castes, Scheduled Tribes and Backward Castes are highly represented poor among agricultural labour who suffer from low income and poverty. The Mahatma Gandhi National Rural Employment Guarantee Scheme has to bring changes in socio-economic settings of these households, keeping in view of the huge public investments spent.

There are other important challenges in the non-income poverty dimensions like gender, caste, inter regional, inter-district, rural-urban disparities.. etc. The standard of living is a measure of well-being and hence depends on both monetary and non-monetary variables. Income, though, is a sole indicator of standard of living, is possessed inappropriately and it is supplemented by other variables like housing, literacy, type of assets possessed and so on. Hence this chapter attempts to study the socio-economic status of households covered under MGNREGS to estimate the indices of levels of living of different types of households belonging to different social groups and to identify the factors influencing the households being poor.

The socio-economic status of the households is estimated basing on income, employment level, consumption pattern and their access to basic amenities like drinking water, sanitation, school, transport, market facilities, and communication and recreation facilities. The ‘Z-test’ analysis is undertaken to find the homogeneity of the sample. Since there are high variations within the sample, households are stratified into four categories viz : category I, whose households belong to Upper Castes in social hierarchy, category II, whose households belong to Backward classes, category III, whose
households belong to Scheduled Castes and category IV, whose households belong to Scheduled Tribes. A comparative study of the households basing on the standard of living was analyzed using “Composite Index of Standard of Living”. Considering the important aspects of levels of livings of the population, an “Index of Deprivation (ID)” was also developed. To analyze the determinants of poverty among labour logistic regression model is used.

**Composite index of standard of living**

The present chapter made an attempt to assess the impact of MGNREGS program on eradication of rural poverty. To estimate the impact of MGNREGS on rural poverty, composite index of standard of living was computed for each of the sample households. The composite index was computed by combination of social and economic indicators using the scoring technique (Sing and Chand 2000, T.Ponnarasi, K.Sita Devi 2008). Availability of electricity in the house, access to health care, access to education, access to transportation and communication, markets, sanitation, and drinking water facilities are included in computing social index. The value of assets, income, consumption expenditure, saving and borrowing are included in computing economic index.

**Composite index of standard of living of h-th household (CISLh)**

\[ W_1 S_h + W_2 E_h \]

Where \( S_i \) and \( E_j \) represent i-th social and j-th economic indicators respectively. \( S_{i(max)} \) and \( E_{j(max)} \) are the maximum scores for i-th social indicator and j-th economic indicator. Weight \( w_1 \) is given by \( \sum S_{i(max)} / (\sum S_{i(max)} + \sum E_{j(max)}) \) and \( w_2 \) is (1-\( w_1 \)).

**Index of social indicators of the households**

\[ SK= \sum Sk / (\sum Sk)^{mean} \]

**Index of economic indicators of h-th household (Eh)**

\[ \sum E_j / \sum E_{j(max)} \]
Factors Influencing the Households Being Poor

The logit model in this study postulates that $P_i$, the probability that a respondent ‘i’ is poor, is a function of index variable $Z_i$ summarizing a set of the individual attributes. Hence, the following representation of a household being poor may be considered.

$$P_i = E(Y=1|X_i) = \frac{1}{1 + e^{-(\beta_1 + \beta_2 X_i)}} \quad \text{.... (1)}$$

Where $e$ is the familiar base of the natural logarithm. Now, let equation (1) be rewritten as

$$P_i = \frac{1}{1 + e^{-Z_i}} \quad \text{.... (2)}$$

Where $Z_i = \beta_1 + \beta_2 X_i$

Equation (2) represents the (cumulative) logistic distribution functions (Gujarathi, 1988).

It could be verified that as $Z_i$ ranges from $-\infty$ to $+\infty$, $P_i$ ranges between 0 and 1 and that $P_i$ is non-linearly related to $Z_i$ (i.e. $X_i$). However, one would encounter an estimation problem because $P_i$ is not only non-linear in $X$ but in the‘$\beta$’s as well, as can be seen clearly from (1). This means that the familiar OLS procedure could not be made to estimate the parameters. But this problem is more apparent than real because (1) it is intrinsically linear, which can be shown as follows:

If ‘$P_i$,’ the probability of a household being poor is as given by (2), then, $(1-P_i)$, the probability of non-poor is

$$1-P_i = \frac{1}{1 + e^{-Z_i}} \quad \text{.... (3)}$$

Therefore, it can be written as

$$\frac{P_i}{1-P_i} = \frac{1 + e^{-Z_i}}{1 + e^{-Z_i}} = e^{Z_i} \quad \text{.... (4)}$$
Now, by taking the natural log of (4), it would be obtained:

\[ L_i = \ln \left( \frac{P_i}{1-P_i} \right) \]

\[ Z_i = \beta_1 + \beta_2 X_i \quad \ldots \text{(5)} \]

That is, \( L \), the log of the odds ratio, is not only linear in \( X \), but (from the estimation viewpoint) linear in the parameters also. It might be noted that the linearity assumption of OLS does not require that the \( X \) variable be necessarily linear. So there can have \( X^2 \), \( X^3 \) etc., as regressors in the model. For this purpose, it is the linearity in the parameters that is crucial. \( L \) is called the logit, and hence the name logit model for (5).

**Estimation of the Logit Model:**

For estimation purposes, equation (5) can be written as follows:

\[ L_i = \ln \left( \frac{P_i}{1-P_i} \right) = \beta_1 + \beta_2 X_i + u_i \quad \ldots \text{(6)} \]

To estimate the model, apart from \( X_i \), the values of the logit \( L_i \) are needed but now one runs into some difficulties. If one has data on individual respondents, \( P_i=1 \), if the respondent is poor and \( P_i=0 \) if the respondent is non-poor. But, if these values are put directly into the logit \( L_i \), it obtains:

\[ L_i = \ln \left( \frac{1}{0} \right) \text{ if the respondent is poor} \]

\[ L_i = \ln \left( \frac{0}{1} \right) \text{ if the respondent is non-poor} \]

Obviously, these expressions are meaningless. Therefore, if one has data at the micro or individual level, one cannot estimate (equation 6) by the standard OLS routine.
In this situation, one may have to resort to the maximum likelihood method to estimate the parameters (Uma Devi and Prasad, 2006).

Within the logit framework discussed above, this study has postulated that the probability of an individual being poor \( (L_i) \) is dependent upon the attributes like age, percentage of literates, category (land holding), social status, percentage of earners in the household, household income and man-days employed.

The index variable \( P_i \) indicating whether the respondent is poor or non-poor has been expressed as a linear function of the independent variables. Thus, the logit regression model has been specified as follows.

\[
L_i = \alpha_i + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + u_i
\]

Where,

\( X_1 \) - family size of the household
\( X_2 \) - Percentage of literates in the household,
\( X_3 \) - Social status of the households; 1 if scheduled caste or tribe; 0, otherwise,
\( X_4 \) - Percentage of earners in the household,
\( X_5 \) - Annual income of the household in rupees,
\( X_6 \) - Man-days of MGNREGS employment of the household,
\( \beta_i \)'s - Parameters to be estimated,
\( u_i \) - Error term.

The standard of living of the sample household was analyzed using aggregated measure of social and economic indicators. The standard of living was computed for each household, combining the social and economic indicators using the scoring technique and presented in table-7.1. The composite index of standard of living has been computed assessing score to economic social variables. The index of economic indicators and index of social indicators are also computed and analysed for each of household. It could be observed from the table that there is a direct relation between average value of index of standard of living and social hierarchy of the household, i.e., average value of standard of
living is increasing with the social hierarchy. It is higher in forward caste households and lower in schedule tribe households. It was 38 and 31 in scheduled caste and scheduled tribe households respectively. It was 44 and 52 in backward class and forward caste households. The average values of Index of social indicator show a similar trend. However the average value of economic indicator for backward caste households was lesser than that of scheduled caste households. While the average value of economic indicators is 40 for backward caste households, it is 42 for scheduled caste households; it is 29 for scheduled tribe households which is very low when compared to the average value of index of economic indicator of other households.

The distribution of households according to the value of composite index clearly reveals that there is nearly 65 per cent of the scheduled tribe households and 56 per cent of scheduled caste households found to be distributed in the index value of below 40. Nearly 32 per cent of backward caste households and 11 per cent of forward caste households found to have the index value of below 40, i.e., the standard of living of 11 per cent of forward caste households and 34 per cent of backward caste households is almost similar to that of the standard of living of scheduled caste and scheduled tribe households. Around 30 per cent of backward caste households and 51 per cent of forward caste households are found to be distributed in the index value of above 60. Nearly 12 per cent of scheduled tribe households and 12 per cent of scheduled caste households are found to be distributed in the index value of above 60.

Further, it is found that 84 per cent of scheduled tribe households and 84 per cent of scheduled caste households, 70 per cent of backward caste households and 49 per cent of forward caste households are distributed in the index range between 20-60. In case of economic indicator 68 per cent and 42 per cent of the scheduled tribe and scheduled caste households have value of index below 40. Nearly 15 per cent of backward caste and 10 per cent of forward caste households have been placed in the index below 40. The economic indicators for 96 per cent of schedule tribe households, 80 per cent of the schedule caste households 60 per cent backward caste households and 39 per cent of forward cast are distributed in index below 60 per cent.
Table - 7.1

The Distribution of Index of social, economical and Composite Index

<table>
<thead>
<tr>
<th>Range</th>
<th>Social Index</th>
<th>Economical Index</th>
<th>Composite Index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Schedule tribes</td>
<td>Schedule castes</td>
<td>Schedule tribes</td>
</tr>
<tr>
<td>Below 20</td>
<td>-</td>
<td>-</td>
<td>20</td>
</tr>
<tr>
<td>20-40</td>
<td>65</td>
<td>53</td>
<td>48</td>
</tr>
<tr>
<td>41-60</td>
<td>25</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>61-80</td>
<td>10</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>81-100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Average Index</td>
<td>31</td>
<td>38</td>
<td>29</td>
</tr>
</tbody>
</table>

Source: Primary data
The small numbers of about 4 per cent of scheduled tribe households, 20 per cent of scheduled caste households, and 40 per cent of backward caste have been placed in the economic index of above 60. From the analysis it could be concluded that though scheduled caste and scheduled tribe households are found to be disadvantaged category in terms of standard of living, nearly 70 per cent of backward caste, and 50 per cent of forward cast households are not in better condition than that of schedule caste and schedule tribe households.

**Index of Deprivation (ID)**

The indicators which show significant difference between poor and non-poor in their levels of living are used in computing deprivation index. The entire variables include computing deprivation index for giving equal weight and categorized as deprived and non-deprived. The score ‘1’ is assigned to identify the socio economic variables if the household did not enjoy the social and economic benefit or status in the society. Otherwise zero score is assigned. A simple index of deprivation is computed by taking the sum of total of all such scores. The composite index of deprivation for the ten identified variables is computed for each individual household. The ID value ranges from 0 to 12. If the household sets a value ‘0’, it indicates that the household has not been deprived in any of the ten aspects. If the household gets a value 12, then the household is considered to be deprived of in all aspects.

The index of deprivation for the identified variables has been computed for each of the individual households which is presented in table -7.2. ID value ranges between 0 to 12. The percentage distribution of households by the level of deprivation is categorized as not deprived (0-2), less deprived (3-5), and more deprived (6-8) and most deprived (9-12). It could be observed from the table, that 78 per cent of the households are in deprived state and only 2 per cent of the households are in a not deprived state and the remaining 19 per cent of the households are in a less deprived state. The most deprived households whose ID value ranges between 9-12 account for 47 per cent of the total households. Nearly 32 per cent of the total households are under deprived status.
Table - 7.2

Distribution of households by level of deprivation

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Range of ID</th>
<th>Schedule tribes</th>
<th>Schedule castes</th>
<th>Backward castes</th>
<th>Forward castes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Not Deprived (0-2)</td>
<td>0 (0.00)</td>
<td>0 (0.00)</td>
<td>7 (4.04)</td>
<td>2 (9.82)</td>
<td>9 (1.67)</td>
</tr>
<tr>
<td>2</td>
<td>Less deprived (3-5)</td>
<td>7 (12.76)</td>
<td>8 (12.64)</td>
<td>42 (25.27)</td>
<td>7 (39.18)</td>
<td>64 (19.33)</td>
</tr>
<tr>
<td>3</td>
<td>Moderately deprived (6-8)</td>
<td>12 (23.06)</td>
<td>19 (30.82)</td>
<td>67 (39.88)</td>
<td>7 (40.24)</td>
<td>105 (31.67)</td>
</tr>
<tr>
<td>4</td>
<td>Most deprived (9-12)</td>
<td>34 (65.18)</td>
<td>35 (56.54)</td>
<td>51 (30.81)</td>
<td>2 (10.76)</td>
<td>122 (47.33)</td>
</tr>
<tr>
<td>5</td>
<td>Total</td>
<td>53 (100)</td>
<td>62 (100)</td>
<td>167 (100)</td>
<td>18 (100)</td>
<td>300 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures in parentheses represent percentages to respective total
Among them 65 per cent of scheduled tribe households, 56 per cent of scheduled caste households are in most deprived status and the remaining scheduled caste and scheduled tribe households are in less deprived status. There is not even a single scheduled tribe and scheduled caste household which is in not deprived status. In case of backward caste, and forward caste households, 65 per cent of backward caste households and 59 per cent of forward castes are in deprived status, 11 per cent of the forward castes are in most deprived status. Similarly 31 per cent of the backward castes are in most deprived status. A less number of backward cast (7 per cent) and forward cast (3 per cent) are in not deprived status.

So from the above analysis it can be inferred that a state of deprivation for the selected indicators is found among households irrespective of social status. However the state of deprivation is found to be more among scheduled caste and scheduled tribe household categories when compared to other corresponding category households.

**MLE Coefficient for logit model**

The Logit model postulates that the probability of a household being deprived is dependent on the socio economic characteristics of the household. The maximum livelihood estimates of co-efficient of logit model for the respondent is presented in the Table-7.3. The results of the specified logit model shows that the coefficient associations with the explanatory variables have registered an expected sign and most of them are found to be significant at probability levels ranging from 1 to 10 per cent. The coefficient of determination $R^2$ is 0.82 which indicates that the model is a good fit. The result indicates that the literacy percentage, family size, mandays of employment, percentage of adults in the household and annual income are found to be negative and significant.

This indicates that one unit charge in the negative and significant slope of coefficient would decrease the probability of household being deprived by their appropriative percentages. The coefficient of the other explanatory variable, family size is positive and significant, which indicates that the change in the family size would increase the probability of respondent to be poor.
### Table -7.3

**MLE Coefficient for Logit model**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Logit MLE Coefficient</th>
<th>Slandered error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>5.3521**</td>
<td>1.652</td>
</tr>
<tr>
<td>Family size</td>
<td>0.0031***</td>
<td>0.153</td>
</tr>
<tr>
<td>Percentages of literates</td>
<td>-0.0685**</td>
<td>0.047</td>
</tr>
<tr>
<td>Social status</td>
<td>0.2058</td>
<td>0.521</td>
</tr>
<tr>
<td>Percentages of earners</td>
<td>-0.3823*</td>
<td>0.225</td>
</tr>
<tr>
<td>Annual Income</td>
<td>-0.0621**</td>
<td>0.041</td>
</tr>
<tr>
<td>Man days of MGNREGS employment</td>
<td>-0.0042</td>
<td>0.002</td>
</tr>
<tr>
<td>$R^{2}$</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>Number of observers</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Primary data  

**Note:** *, **, and *** show significant at 10 percent, 5 per cent and 1 per cent level respectively
The coefficient of the other variable, social status was positive and not significant. This indicates that the change in the social status of respondents would also increase the probability of households to be deprived. Hence the results reveal that the social status of the households could not influence their probability of being deprived, i.e., other than scheduled tribe and scheduled cast households are also found to be deprived by their appropriate percentages. The coefficient of the other variable man days of employment under MGNREGS is negative and not significant, which indicate that the change in the man days of employment under MGNREGS could not decrease the probability of the household to be poor significantly. Thus the results of analysis, imply that the probability of a household being deprived could be influenced by the variables considered in this model except that of social status.

To sum up, the estimated composite index of standard of living reveals that the index value is lowest for scheduled tribe and scheduled caste households which is 34, whereas it is high in forward caste households followed by scheduled caste and backward caste households. That is, scheduled tribe and scheduled caste households are found to be most disadvantaged category in terms of standard of living. At the same time 70 per cent of backward caste and 50 per cent of forward cast households are not in a better condition than that of scheduled tribe and scheduled caste households in both economic and social aspects. The index of deprivation is (ID) computed using the scoring technique for identified variables. It reveals that the 78 per cent of households are in deprived state and only 2 per cent of households are in not deprived state and the remaining 20 per cent of households are in less deprived state. Nearly 47 per cent of the total households are found to be in the most deprived state.

The results of the specified logit model shows that the coefficient associations with the explanatory variables have registered an expected sign and most of them are found to be significant at probability levels ranging from 1 to 10 per cent. The coefficient of determination $R^2$ is 0.82 which indicates that the model is a good fit. The result indicates that the literacy percentage, family size, mandays of employment, percentage of
adults in the household and income from agriculture are found to be negative and significant. This indicates that one unit charge in the negative and significant slope of coefficient would decrease the probability of household being deprived by their appropriation percentages. The coefficient of the other explanatory variable, family size is positive and significant, which indicates that the change in the family size would increase the probability of respondent to be poor.

The coefficient of the other variable, social status was positive and not significant. This indicates that the change in the social status of respondents would also increase the probability of households to be deprived. Hence the results reveal that the social status of the households could not influence their probability of being deprived, i.e., other than the scheduled tribe and scheduled caste households are also found to be deprived by their appropriate percentages. Thus the results of the analysis, imply that the probability of a household being deprived could be influenced by the variables considered in this model except that of social status. The analysis clearly reveals that the Mahatma Gandhi National Rural Employment Guarantee Schemes could not bring expected changes in socio-economic settings of the households in spite of the huge public investments.