Nutritional Security across Social Castes: A Study with Special Reference to the Jangalmahal Region of West Bengal

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Abstract

The present paper attempts to analyze the status of nutrition security across the social castes in the Jangalmahal Region of West Bengal on the basis of the NSSO Unit Level Data for the years 2004-05 and 2011-12. The percentage share of nutrition insecure people was relatively low in the Jangalmahal region compared to the whole West Bengal. It was 58.2 per cent in 2004-05 and 69.7 per cent in 2011-12 in the Jangalmahal Region. The corresponding shares in West Bengal were 76.7 per cent and 78.1 per cent respectively. The incidence of nutrition insecurity depends on the socio-economic as well as demographic characteristics of the households. The choice of consumption basket of the households is also important for nutrition security. The households with higher share of food consumption lead to the lower incidence of nutrition insecurity. The per capita cultivable land, deficient in the Jangalmahal Region, is also caused for the nutrition insecurity of the households.

Keywords: Nutrition Insecurity, Social Castes, Jangalmahal Region

Introduction

Since independence, Government of India has been extended provision of social justice to the SCs & STs people for improving their socio-economic conditions. In India SCs & STs are still deprived than other social castes after the seven decades of independence. A significant portion of SCs & STs are living in West Bengal. Food is the most basic need of a person. Over the last three decades intensive agriculture and new crop varieties have fuelled a steady increase in per capita food production and decreasing world food prices have made food more available to a greater number of people. But the inability of a person to eat enough food, stay active and live a healthy life comes under the preview of food insecurity. Hidden hunger or micronutrient deficiencies, is much more widespread than hunger, which only refers to inadequate dietary energy intake. Nutrition security exists when all people at all times have physical, social and economic access to food, which is consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life. In recent years, the government has been implementing a wide range of nutrition intervention programmes for achieving food and nutrition security at the household and individual levels and supplies food items at administered prices through public distribution system (PDS). There has been a range of food-for-work and other wage employment programmes NREP, RLEG, JRY and MGNREGP where people are paid in part or full in food grains for working in public works. Another approach adopted by the
government is to target women and children directly by the Mid-Day Meal and ICDS programmes. National Food Security Act (2013) has been implemented to extend the supplies of food at subsidised price for targeted 75 per cent of rural and 60 per cent of urban people in India.

**Literature Review**

Gillespie and Stuart (2013), Alderman (2005) founded that economic growth can be sustained for under-nutrition in India. Swain (2008) & Rid Out, Seed and Ostry (2006) concluded that the role of a state is more important for reducing child under-nutrition in India by investing more on public health, improvements in the disease free environment, etc. According to Gopalan (1995) inequitable distribution rather than inadequate production of food is the major factor underlying India’s current problem of malnutrition. Ghosh (2006) evaluated the importance of ICDS programme on child malnutrition and also gave importance on appropriate infant and young child feeding practices. Sen and Himanshu (2013), Himanshu (2013) & Jha and Acharya (2016) concludes that the PDS system and other public expenditure-led social safety nets can significantly contributed for reduction of poverty, food security and malnutrition. Swaminathan (2003) and Vyas (2000) reviewed the importance on state, market and civil society for performing important roles in reducing food insecurity. Basu (2011) highlighted the problems of high food inflation and lack of storage and suggested for strengthening of cold storage infrastructure in India. Tendon and Lands (2011) observed that food security/nutritional status of an individual depends crucially on the relative prices of different commodities along with income levels. They stressed on the fact that household food security depends on the household behavior. Dreze (2004) highlighted that the right to food have to be achieved and it’s needed to be linked with other economic and social rights such as the right to education, work, information, and health.

**Jangalmahal Region**

The three less developed districts in West Bengal, namely Paschim Medinipur, Bankura, Puruliya constitute the Jangalmahal Region. It is the South-West part of West Bengal. The region is one of the most backward region in the state West Bengal and it provides the habitation to many inchoate tribes who survive using their traditional practices. The region was also affected by extreme Maoist movement during 2009 and 2011. That generated shocks and risk on the livelihood. The State Government have extended different social protection programmes to overcome the food and nutrition insecurity, poverty and other deprivations of the people of this region.

**Objectives**

In this brief background the present study analyses the status of the nutrition insecurity across social castes with the special reference to Jangalmahal region of West Bengal.

**Database**

The present work is based on the National Sample Survey Organisation (NSSO) Unit Level Data on Consumer Expenditure Survey. We have used NSSO Unit Level Data relating to Consumer Expenditure (Type-1) of 61st Round (2004-05) and 68th Round (2011-12) Survey.

**Methodology**

The Task Force (1979) estimated the average calorie requirements, separately for rural and urban areas as a population-weighted average of the age-gender-activity specific calorie allowances
recommended by the Nutrition Expert Group (1968). The estimated calorie norm was 2400 kcal per capita per day in rural areas and 2100 kcal per capita per day in urban areas. In the present study these calorie norms are used for the nutrition insecurity lines in the rural and urban areas respectively. To work out the calorie value of food across households we have used nutrition chart and the corresponding food basket of NSSO unit level data relating to household consumption. Nutrient contents of different items are largely based on “Nutritive Values of Indian Foods” by C. Gopalan, B.V. Rama sastry and S.C. Balasubramanian, revised and updated by B.S. Narasinga, Y.G. Deosthale and K.C. Pant (1991). Generally, the total intake of calorie from a food item is derived from the quantities reported as consumed by the sample households. In the calorie chart the calorie value of the original items are only given. For the calorie value of the by-products of the particular items we have considered the calorie value of the original items. The Foster, Greer and Therbecke (1984) methodology is also used to measure the status of nutrition insecurity

\[ NI_\alpha = \frac{1}{N} \sum_{i=1}^{q} \left( \frac{\bar{C} - C_i}{C} \right)^\alpha \; ; \; \alpha = 0, 1, and 2 \]

Where, N is the total number of population & q is the number of nutritional insecure people and \( \bar{C} \) is the recommended Calorie requirement per capita per day of a person and \( C_i \) is the actual per capita per day consumption of calories of the \( i \)-th person.

When, \( \alpha = 0 \), \( NI_0 \), implies the Incidence of Nutrition Insecurity (INI)

\( \alpha = 1 \), \( NI_1 \), implies the Depth of Nutrition Insecurity (DNI)

and \( \alpha = 2 \), \( NI_2 \), implies the Severity of Nutrition Insecurity (SNI)

**Situation of Nutrition Insecurity**

The nutrition insecurity situation of West Bengal is shown in the Figure 1. The share of nutrition insecure people (INI) increased from 76.7 per cent in 2004-05 to 78.1 per cent in 2011-12. Depth of Nutrition Insecurity (DNI) decreased from 17.5 per cent in 2004-05 to 16 per cent in 2011-12 and Severity of Nutrition Insecurity (SNI) also decreased from 5.4 per cent in 2004-05 to 4.5 per cent in 2011-12. That is, the overall nutrition security situation has been worsened in West Bengal.

**Figure 1 INI, DFI, SNI in West Bengal, 2004-05 and 2011-12**

Source: Authors’ estimation from NSSO Unit Level Data of 61st and 68th Round Survey of Household Consumption Expenditure

The situation of nutrition security in Jangalmahal Region was better than the whole of West Bengal. The incidence, depth and severity of nutrition insecurity was lower in the Jangalmahal Region compared to the whole West Bengal. While both the incidence and depth of nutrition insecurity increased during 2004-05 to 2011-12. The share of nutrition insecure people (INI) increased from 58.2
per cent in 2004-05 to 69.7 per cent in 2011-12. The depth of nutrition insecurity (DNI) increased from 12 per cent to 13.1 per cent but the nutrition insecurity risk, measured by severity of nutrition insecurity (SNI), decreased from 3.7 per cent in 2004-05 to 3.4 per cent in 2011-12 [Figure 2].

**Figure 2 Nutrition Insecurity Situations in the Jangalmahal Region, 2004-05 & 2011-12**

![Graph showing nutrition insecurity](image)

Source: As in Figure 1

A caste wise analysis of nutrition insecurity in West Bengal shows that the schedule tribes had the highest incidence of nutrition insecurity followed by the schedule castes. In 2011-12, the incidence of nutrition insecurity increased for all social castes except the general caste [Figure 3].

**Figure 3 Incidence of Nutrition Insecurity by Castes in West Bengal, 2004-05 and 2011-12**

![Graph showing incidence by castes](image)

Source: As in Figure 1.

As regards the situation of nutrition insecurity across social groups the incidence of nutrition insecurity was higher for the STs and SCs, the former happened to be the worst position in 2004-05 but in 2011-12 it was highest for OBCs and STs [Figure 4]. In Jangalmahal Region, the percentage share of nutrition insecure people for SCs was very high in 2004-05 (69.1) which increased to 69.2 per cent in 2011-12. During 2004-05 to 2011-12 the reduction of incidence of nutrition security had observed for all social classes except the OBC. The reduction was the highest for OBCs (28.4 per cent) and Others (13.4 Per cent) whereas it was least for SCs (0.1 per cent).

**Figure 4 Nutrition Insecurity Situations by Castes in the Jangalmahal Region, 2004-05 & 2011-12**

![Graph showing reduction of incidence](image)

Source: As in Figure 1
Characteristics of Households

Social Group

The distribution of households across castes in Jangalmahal region is shown in the Figure 5. Out of the total households in the Jangalmahal region 8.8 per cent households belong in Scheduled Tribes (ST), 22.7 per cent in Schedule Castes (SC), 11.8 per cent in Other Backward Castes (OBC) and the rest 56.7 per cent in General/Others Castes in 2004-05. The percentage shares of SC and ST households were more or less same in 2011-12. But the General/Others households increased from 56.7 per cent in 2004-05 to 57.8 per cent in 2011-12. In contrary the OBC caste households decreased at the extent of 1.4 percentage points.

Figure 5 Distribution of Households by Castes in the Jangalmahal Region

Households Size

A group of person normally living together and taking food from a common kitchen constitutes a household. The size of a household is the total number of persons in the household. In 2011-12, there were 47.3 percent households having members one to four and it was 33.2 percent in 2004-05. The numbers of household members in between five to eight were 45.1 per cent in 2011-12 and 53.4 per cent in 2004-05. The household having the number of members higher than eight was only 13.4 per cent in 2011-12 and 7.6 per cent in 2004-05. The average numbers of members of households in Jangalmahal region were 5 in 2004-05 as well as in 2011-12 (Figure 6).

Figure 6 Distribution of Households by the Size in Jangalmahal Region

Age of the Head of the Households

Intra household’s decision power is delineated primarily on the basis of association of the head of the households. The greater the age of the household head, more rational becomes his decision. The distribution of the age of head of the households in Jangalmahal region for the year 2004-05 and 2011-12 are shown in Figure 7. There were 9.9 per cent and 10.1 per cent of households in 2004-05 and...
2011-12 respectively with the head’s age below thirty years. The distribution of the households by the age of head of households is positively skewed [Figure 7].

Figure 7 Distribution of Households by age of Head of the HHs in Jangalmahal Region

![Bar chart showing the distribution of households by age of head of households in Jangalmahal Region.]

Source-As in Figure1

Status of Ration Card

As regards the status of ration card of the households in the Jangalmahal region, 6.1 per cent of households have AAY card, and 31.5 per cent households have BPL card in 2004-05. AAY and BPL card holder households decreased in 2011-12 compared to 2004-05. The ‘Others’ card holder households increased from 62.4 per cent to 67.3 per cent during this period (Figure 8).

Figure 8 Distributions of HHs by the type of Ration Card in Jangalmahal Region

![Bar chart showing the distribution of households by type of ration card in Jangalmahal Region.]

Source-As in Figure1

Type of Employments

Among the three status of employment the regular status of employment was relatively low in Jangalmahal. The households with at least one regular employee were 12.9 per cent in 2004-05 and it marginally decreased to 11 per cent in 2011-12. Majority of the households in the Jangalmahal Region were either self-employed or casual labour[figure 9].

Figure 9 Distribution of HHs by Types of Employment in Jangalmahal Region

![Bar chart showing the distribution of households by type of employment in Jangalmahal Region.]

Source: As in Figure1.
Average years of Schooling

Education level of the households is indicated by the average years of schooling (AYS) measured as total years of schooling of the members of households divided by the household size. It helps us to understand the relative position of the households in respect to education. The AYS of the households was marginally increased in the Jangalmahal Region during 2004-05 to 2011-12. In rural India it was five in 2004-05 and six in 2011-12. The AYS was below five years for 69.1 per cent households in 2004-05 and 56.8 per cent households in 2011-12. There were 23.1 per cent and 32.4 per cent of households with AYS greater than four but less than eight in 2004-05 and 2011-12 respectively. The AYS was greater than eight for 7.8 per cent households in 2004-05 and 10.9 per cent households in 2011-12 (Figure 10).

Figure 10 Distribution of Households (HHs) by the Average Years of Schooling (AYS) in Jangalmahal Region

Source: As in Figure1.

Econometric Analysis of Nutrition Insecurity at the Household Level in the Jangalmahal Region of West Bengal

The present section analyses the determinants of nutrition insecurity at the household level in the Jangalmahal Region. This analyse is done for the years 2004-05 and 2011-12 separately on the basis of NSSO Unit Level data. Households are widely varied in terms of socio economic, demographic and cultural factors. The choice is whether the households utilized her human and physical resources to derive income to recover nutrition insecurity. The factor hypothesized to influence the nutrition security can be grouped into four categories: cultural, social, demographic and economic. The cultural factor is specified by the average years of education (YED) of the members of the households. The social factor is specified by the castes of the households. Four demographic factors have used in our analysis: size of the households (HHSZ), female headed households (FHS), age of the head of the household (AGEH) and square of the age of the head of the household (SAGEH). The economic factors are employment status, share of food expenditure to total expenditure (SFE), the status of Ration Card, per capita PDS benefit (in kg.) and per capita Cultivable land (LANDP).
Table 1 Notation, Specification, mean and Standard Deviation (SD) of the Variables Used in Probit Estimation at the Household Level in 2004-05 and 2011-12.

<table>
<thead>
<tr>
<th>Notation</th>
<th>Specification</th>
<th>2004-05</th>
<th>Mean</th>
<th>SD</th>
<th>2011-12</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NINS</td>
<td>Whether the household is nutrition insecure or not (yes=1,0)</td>
<td></td>
<td>0.5</td>
<td>0.5</td>
<td></td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Cultural Factor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YED</td>
<td>Average education level of the households</td>
<td></td>
<td>4.3</td>
<td>3.4</td>
<td></td>
<td>5.4</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>Social factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>Whether the household belongs to ST community(yes=1,no=0)</td>
<td></td>
<td>0.1</td>
<td>0.3</td>
<td></td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>SC</td>
<td>Whether the household belongs to SC community(yes=1,no=0)</td>
<td></td>
<td>0.2</td>
<td>0.4</td>
<td></td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>OBC</td>
<td>Whether the households belongs to OBC community(yes=1, no=0)</td>
<td></td>
<td>0.1</td>
<td>0.3</td>
<td></td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>Demographic Factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HHSZ</td>
<td>Size of the households</td>
<td></td>
<td>5.0</td>
<td>2.7</td>
<td></td>
<td>4.2</td>
<td>2.1</td>
</tr>
<tr>
<td>FHS</td>
<td>Whether the head the family is Female (yes=1,no=0)</td>
<td></td>
<td>0.1</td>
<td>0.3</td>
<td></td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>AGEH</td>
<td>Age of the head of the households</td>
<td></td>
<td>46.8</td>
<td>13.7</td>
<td></td>
<td>47.4</td>
<td>13.5</td>
</tr>
<tr>
<td>SAGEH</td>
<td>Squared age of head of the households</td>
<td></td>
<td>2379.2</td>
<td>1378.8</td>
<td></td>
<td>2428.4</td>
<td>1366.9</td>
</tr>
<tr>
<td><strong>Economic Factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE</td>
<td>Whether Household has a regular employee (yes=1,no=0)</td>
<td></td>
<td>0.8</td>
<td>0.4</td>
<td></td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>AAY</td>
<td>Whether Household has a Antyodaya ration card( yes=1,no=0)</td>
<td></td>
<td>0.1</td>
<td>0.2</td>
<td></td>
<td>0.0</td>
<td>0.2</td>
</tr>
<tr>
<td>BPL</td>
<td>Whether Household has a B.P.L ration card (yes=1,no=0)</td>
<td></td>
<td>0.3</td>
<td>0.5</td>
<td></td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td>SFE</td>
<td>Percentage of food to total expenditure</td>
<td></td>
<td>60.0</td>
<td>11.7</td>
<td></td>
<td>55.8</td>
<td>12.1</td>
</tr>
<tr>
<td>PDSQ</td>
<td>Per Capita PDS Quantity(in Kg)</td>
<td></td>
<td>0.6</td>
<td>1.3</td>
<td></td>
<td>7.4</td>
<td>14.8</td>
</tr>
<tr>
<td>LNDAP</td>
<td>Per Capita Cultivable Land of Households</td>
<td></td>
<td>0.4</td>
<td>0.6</td>
<td></td>
<td>0.2</td>
<td>0.6</td>
</tr>
</tbody>
</table>

The status of the nutrition insecurity is analysed with the help of Probit. The Probit Model, represents a sigmoid curve, corresponds to the Cumulative Distribution Function (CDF) of a standard normal distribution. Here $P_i$ is considered as standard normal CDF which is evaluated as a linear function of explanatory variable(s). Thus, the Probit Model is specified as

$$P_i = P(Y_i = 1) = F(\alpha + \beta X_i)$$

Here $F(\alpha + \beta X_i)$ is the CDF of the standard normal distribution so that

$$P_i = F(\alpha + \beta X_i) = \int_{-\infty}^{\alpha + \beta X_i} f(Z)dz$$

Where, $Z$ is the standard normal variable and $f(Z)$ is the density faction of $Z \sim N(0,1)$

As in Probit model, the log-likelihood function is
\[ \ln L = \sum_{i=1}^{n_1} Y_i \ln P_i + \sum_{i=n_1+1}^{n} (1 - Y_i) \ln (1 - P_i) \]

\[ = \sum_{i=1}^{n_1} Y_i \ln F(\alpha + \beta X_i) + \sum_{i=n_1+1}^{n} (1 - Y_i) \ln [1 - F(\alpha + \beta X_i)] \]

The \( \ln L \) is to be maximized with respect to \( \alpha \) and \( \beta \) to estimate the unknown parameters. It has been shown that the log likelihood ratio (LR) is distributed as \( \chi^2 \) with degrees of freedom \( k (= \text{number of estimable parameters in the model}) \). Thus, our decision rule is: if \( LR^{*} \sim \chi^2 > \chi^2_{\alpha,k} \), reject the null hypothesis which states that all the coefficients of the estimated model are simultaneously equal to zero, and conclude that there is overall significance of regression.

The Probit Regression Model for nutrition insecurity analysis is specified as follows:

\[ NINS_i = \beta_1 + \beta_2 AEDU_i + \beta_3 ST_i + \beta_4 SC_i + \beta_5 OBC_i + \beta_6 HHSZ_i + \beta_7 FHS_i + \beta_8 AGEH_i + \beta_9 SAGEH_i + \beta_{10} RE_i + \beta_{11} AAY_i + \beta_{12} BPL_i + \beta_{13} SFE_i + \beta_{14} LNDAP_i + \beta_{15} PCPQ_i + U_i \]

Where \( i = 1, 2, \ldots, 1308 \) for the year 2004-05 and \( i = 1, 2, \ldots, 1152 \) for the year 2011-12

Two separate regression model are estimated – one for the year 2004-05 and other for 2011-12.

**Table 2 Probit Estimation of Nutrition Insecurity at the Households Level**

<table>
<thead>
<tr>
<th>Regression Results for 2004-05</th>
<th>Regression Results for 2011-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of obs = 1308</td>
<td>Number of obs = 1152</td>
</tr>
<tr>
<td>LR chi2(14) = 302.00</td>
<td>LR chi2(14) = 191.54</td>
</tr>
<tr>
<td>Prob &gt; chi2 = 0.0000</td>
<td>Prob &gt; chi2 = 0.0000</td>
</tr>
<tr>
<td>Pseudo R2 = 0.1993</td>
<td>Pseudo R2 = 0.1225</td>
</tr>
<tr>
<td>Log likelihood = -606.71646</td>
<td>Log likelihood = -686.30136</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coef.</th>
<th>Std. Err.</th>
<th>z</th>
<th>P&gt;z</th>
<th>Coef.</th>
<th>Std. Err.</th>
<th>z</th>
<th>P&gt;z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.128</td>
<td>0.475</td>
<td>-0.270</td>
<td>0.788</td>
<td>1.659</td>
<td>0.472</td>
<td>3.520</td>
</tr>
<tr>
<td>YED</td>
<td>-0.143</td>
<td>0.020</td>
<td>-7.180</td>
<td>0.000</td>
<td>-0.082</td>
<td>0.014</td>
<td>-5.960</td>
</tr>
<tr>
<td>ST</td>
<td>0.433</td>
<td>0.152</td>
<td>2.860</td>
<td>0.004</td>
<td>0.158</td>
<td>0.157</td>
<td>1.010</td>
</tr>
<tr>
<td>SC</td>
<td>0.059</td>
<td>0.109</td>
<td>0.540</td>
<td>0.059</td>
<td>0.012</td>
<td>0.110</td>
<td>0.110</td>
</tr>
<tr>
<td>OBC</td>
<td>0.039</td>
<td>0.139</td>
<td>-0.280</td>
<td>0.782</td>
<td>0.295</td>
<td>0.119</td>
<td>2.480</td>
</tr>
<tr>
<td>HHSZ</td>
<td>0.159</td>
<td>0.019</td>
<td>8.500</td>
<td>0.000</td>
<td>0.183</td>
<td>0.023</td>
<td>7.840</td>
</tr>
<tr>
<td>FHS</td>
<td>0.043</td>
<td>0.143</td>
<td>-0.300</td>
<td>0.077</td>
<td>0.171</td>
<td>0.131</td>
<td>1.310</td>
</tr>
<tr>
<td>AGEH</td>
<td>-0.010</td>
<td>0.019</td>
<td>-0.530</td>
<td>0.060</td>
<td>-0.053</td>
<td>0.017</td>
<td>-3.040</td>
</tr>
<tr>
<td>SAGEH</td>
<td>0.000</td>
<td>0.000</td>
<td>-0.020</td>
<td>0.098</td>
<td>0.001</td>
<td>0.000</td>
<td>2.920</td>
</tr>
<tr>
<td>RE</td>
<td>-0.214</td>
<td>0.134</td>
<td>-1.600</td>
<td>0.101</td>
<td>-0.271</td>
<td>0.105</td>
<td>-2.580</td>
</tr>
<tr>
<td>AAY</td>
<td>0.630</td>
<td>0.172</td>
<td>3.660</td>
<td>0.000</td>
<td>0.257</td>
<td>0.266</td>
<td>0.970</td>
</tr>
<tr>
<td>BPL</td>
<td>0.418</td>
<td>0.105</td>
<td>3.970</td>
<td>0.000</td>
<td>0.269</td>
<td>0.100</td>
<td>2.680</td>
</tr>
<tr>
<td>SFE</td>
<td>-0.007</td>
<td>0.004</td>
<td>-1.760</td>
<td>0.078</td>
<td>-0.009</td>
<td>0.004</td>
<td>-2.200</td>
</tr>
<tr>
<td>LNDAP</td>
<td>-0.355</td>
<td>0.083</td>
<td>-4.300</td>
<td>0.000</td>
<td>-0.051</td>
<td>0.057</td>
<td>-0.890</td>
</tr>
<tr>
<td>PDSQ</td>
<td>-0.005</td>
<td>0.006</td>
<td>-0.730</td>
<td>0.463</td>
<td>-0.225</td>
<td>0.077</td>
<td>-2.910</td>
</tr>
</tbody>
</table>
The result of the probit estimation of nutrition insecurity for the years 2004-05 and 2011-12 are shown in the Table 2. Here AEDU, AGEH, SFE, types of employment; PDSQ and LANDP are inversely related with the incidence of nutrition insecurity. But HHSZ, FHS, SAGEH, AAY and BPL are positively related with the incidence of food insecurity. All these relationship are statistically significant. An increase of the average years of education (AEDU) of the household reduces the chance of nutrition insecurity. The households belonging to the lower caste are deprived in different dimensions. Here the results show that the chance of nutrition insecurity is higher for SC, ST, and OBC households. Demographic factors, namely household size (HHSZ) and female headed HHs (FHS) are significantly explaining the household nutrition insecurity where both the factors are positively related. The age of head of household (AGEH) and square of age of head of household (SAGEH) are also significantly related with the nutrition insecurity – former is negatively and latter is positively related. This means that the chance of nutrition insecurity is decreased with the increase of age at a decreasing rate. The higher age of the head denotes he or she has more rational in decision making. Adding the age squared to head age, allow us to model the effect of differing ages, rather than assuming the effect is linear for all ages. Economic factors, namely share of nutrition in total consumption, and per capita cultivable land are negatively and significantly explained the nutrition insecurity. In the present study PDS facilities by the means of AAY and BPL card are positively associated with nutrition insecurity. The result is not contradictory at all. Actually the AAY and BPL beneficiaries are mostly belonging in poor and deprived households. The AAY and BPL facilities help them to increase their nutrition consumption level but they may not overcome the incidence of nutrition insecurity.

Conclusion
In West Bengal, the share of nutrition insecure people increased from 2004-05 to 2011-12. But the incidence, depth and severity of nutrition insecurity in the Jangalmahal region was better than that of West Bengal. Nutrition insecure people are relatively higher for socially disadvantaged classes – STs and SCs in the Jangalmahal Region as well as in the whole of West Bengal. The incidence of nutrition insecurity depends of the socio-economic as well as demographic characteristic of the households. The chance of nutrition insecurity decreases with higher average years of schooling of the household. The household belonging to the disadvantaged castes (STs, SCs and OBCs) are deprived in different dimensions; therefore, their chances of nutrition insecurity are relatively higher than the upper caste households. Nutrition insecurities are higher for larger size of households. The status of nutrition insecurity has decreased with the increase of age of the head of the households but at a decreasing rate. The choice of consumption basket of the households, measured by the share of food in total consumption, is also important for nutrition security. The households with higher share of food consumption lead to the lower incidence of nutrition insecurity. The per capita cultivable land is deficient in the Jangalmahal Region. It is also caused for the nutrition insecurity of the households. Nearly seventy per cent of the ST people in the Jangalmahal region were nutrition insecure. The failure of the entitlements, both own and public, is caused for the nutrition insecurity. A course correction will be needed.

References


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