Multidimensional Deprivations of the Households: A Study in the Context of Bankura District, West Bengal

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Abstract:

The purpose of this study is to assess the multidimensional deprivation and its determinants for the households in Bankura district, West Bengal. In order to gauge multidimensional deprivation this study covers ten indicators covering three dimensions viz. health, education and the standard of living. The ordered logit regression model has been formulated to investigate the factors affecting the probability of falling in multidimensional deprivation at different extents. Using a set of primary data collected from 580 households this study has reported that 40 per cent of the sample households are income poor while 52 percent suffers from multidimensional poverty. Besides, 13.6 percent of the sample households, who are 29 per cent of the non-poor households, are vulnerable of multi-dimensional poverty. The ordered logit regression analysis reveals per capita household income, landholding, major occupations and castes as significant determinants of the extent of multidimensional deprivations for the households in Bankura district. However, type of family, social status and participation in SHG-centric microfinance programme are less important in the determination of the extent of multidimensional deprivations.

Keywords: Bankura district, Ordered-logit regression, Multidimensional Poverty

1. Introduction

Intensity of poverty of a household is normally measured by per capita income or consumption expenditure. However, it has been acknowledged that poverty is the manifestation of monetary and non-monetary deprivations of mankind. In other words, poverty is not only the lack of necessities of material wellbeing but also the denial of the opportunities of living with dignity. Poverty or deprivation is thus a multidimensional phenomenon. The dimensions of poverty and deprivations are heavily grounded on the components of basic needs approach and Sen's capability approach. The dimension of poverty and deprivation extended beyond income and consumption expenditure to access to health care facilities, education, standard of living and entitlement, empowerment etc. The money metric measure of poverty fails to encompass all these issues. It encourages the development of alternative measures that include the multiple dimensions of poverty and alleviate the shortfall in money metric measures. As a result, the famous Human Development Index (HDI) followed by Human Poverty Index (HPI) appeared. The Gender Development Index (GDI) and the Gender Empowerment Measure (GEM) have also been developed to measure poverty considering gender perspective. These indices gauge the average achievement of human development for the country, state or for

district as a whole. However, these indices do not take into account the distribution of human development within population subgroups or households. Thus, these measures are not applicable to measure the extent of poverty at the household level and at the individual level. Even, these measures do not identify the deprived people or households. Against this backdrop, Alkire and Santos, (2010) have introduced Multidimensional Poverty Index (MPI) to focus multidimensional deprivations among poor households. The first effort to implement a multidimensional measure of poverty has been in the UNDP Human Development Report, 2010, following methodology of Alkire and Santos, (2010). The MPI evaluates poverty based on a household's deprivation in three basic dimensions -health, education and living standards. It is a non-income measure of poverty and deprivation. The main advantage of MPI over HDI and HPI is that it is applicable at the country level or community level and as well as at the household level. The MPI helps identify the poor and design policies to address the interlocking deprivations of the poor households. Therefore, this approach is consistent with the household level analysis of deprivations which would be helpful for regional planning and development. In the earlier study (Bagli, 2015a) we have computed multidimensional poverty index for two blocks in Bankura district and estimate the incidence of multidimensional poverty of the households of Bankura district. This paper has tried to assess the extent of multidimensional deprivations of the households in the district of Bankura, West Bengal. The rest part of this paper has been designed as follows. Section-2 deals with the literature review and objectives of this paper. We have specified the methodology and data base for this empirical study in section-3. In section section-4 we describe our empirical findings. Section-5 concludes this study with some policy prescriptions based on empirical findings.

2.   Motivation and Objectives

Recently, researches on poverty and deprivation measurement and analysis have been shifted to understanding poverty in its multidimensional form (Wagle, 2005; Bourguignon and Chakravarty, 2003; Atkinson, 2003). According to Sen (1988) income of a household symbolizes the means to better living conditions but it is not the better living condition itself. He has proposed to reduce deprivations in living conditions or functionings that people can achieve. Income creates the ability to purchase commodities that help achieve some functionings but the conversion of commodities into functionings is not precise for all. As Individuals/households are different in respect of a range of factors such as physical entitlement, nature of occupation, public actions, and social relation, they are different in their ability to convert commodities into functionings. However, Sen (1988) did not propose any measure that captures multiple dimensions of deprivations or poverty at the household level. The first successful attempt to measure multidimensional deprivations was HDI. It has been appearing as achievement index of the countries in Human Development Reports since 1990. The HDI encompasses average income, longevity and educational attainment of the people to measure the achievement of human development of a country or community. But this measure does not identify the poor or deprived households. Alkire and Santos, (2010) were the first who have

computed MPI for 104 developing countries using household survey data. They have considered ten indicators covering three non-income dimensions: Education, Health and Standard of Living. The MPI captures a set of direct non income deprivations that hit a person simultaneously. They have examined the relation between three income headcounts (using the $1.25/day, $2/day and national poverty lines) and deprivations in each of the three dimensions of the MPI, as well as with the MPI itself. Their study has revealed a high linear association of the headcounts with the two international poverty lines with the MPI, but associations are much lower with the headcounts using the national poverty lines. However, they have documented many examples of mismatches between the two poverty criterions. Following Alkire and Santos, (2010), UNDP Human Development Report has published that most of the world's multidimensional poor live in south Asia and Sub-Saharan Africa. In UNDP Human Development Report 2010 onwards we find 55.4 per cent of the population of India is multi-dimensionally poor. Intensity of multidimensional poverty among the Indian states is highest in Bihar (MPI=0.5) followed by Jharkhand, Uttar Pradesh, and Madhya Pradesh. The value of MPI of West Bengal was 0.32 in 2008-9. Alkire and Seth (2013) have studied the change in multidimensional poverty in India between 1999 and 2006 using National Family and Health Surveys. They have found that multidimensional deprivation reduced. The reduction, however, has not been uniform across different states and population subgroups. Incidence of multidimensional poverty in West Bengal has been reduced 7% point which is less than the reduction in India as a whole, but more than reduction in the so-called *BIMARU* states. Besides, the ST households compared to SC and other social groups have shown slower progress, widening the inter-group disparity in multidimensional poverty. The households belonging to Muslim community compared to the households belonging to the religions like Hindu Christian and Sikh have shown lower achievement to arrest multidimensional deprivation during the period 1999-2006. Bagli (2015c) has developed a comprehensive index of multifaceted deprivation (MDI) for each state in India. This index combines nine indicators under three dimensions of deprivations viz. Knowledge, Health and Living standard. Based on census data the MDI has been computed measuring the weighted normalized inverse Euclidian distance of the deprivation index vector from the worst situation of deprivation. It has been reported that deprivation is highest in Jharkhand followed by Madhya Pradesh, Odisha. Deprivation is least in the states of Goa, preceded by Kerala, and Himachal Pradesh. The state of West Bengal has high level of deprivation. The study has obtained a close and negative association between MDI and HDI. MDI is highly correlated with the incidence of income poverty. The study reveals that most of the states with high level of deprivation belong to same cluster. The states of India, of course, are not highly diverse in terms of multifaceted deprivation. Bagli (2015b) has studied the intensity and inequality of multifaceted deprivation of the districts of West Bengal. He has found that the district of Bankura has high level multifaceted deprivation. In respect of the indicators of multifaceted deprivation the district of Bankura is similar to the districts Birbhum and Purulia but it is dissimilar to the district of Paschim Midnapore. However, this measure is applicable in macro level study. Using a set of household level data Bagli (2015a) has

reported the MPI for two CD blocks of the district of Bankura in West Bengal. The study has found MPI 0.151 for Kotulpur block and 0.416 for Chhatna block. The study has also estimated the incidence of multidimensional poverty for the households and obtained that the incidence of multidimensional poverty significantly varies across the major occupational groups and social castes in Bankura district.

Therefore, the study of household level multidimensional poverty or deprivations, which are important without doubt to the regional development planners for framing planning program, is not common in West Bengal. Even human development reports of the districts did not cover the issue of MPI. We know that the districts of Bankura Purulia and West Midnapore are recognised as most backward districts. They deserve special plan and program for human development. For this purpose we need to understand the present situation of deprivations and its components for these districts. With this end in view, we have planned to study the extent of multidimensional deprivations and its determinants in the district of Bankura.

This empirical study covers two community blocks namely Kotulpur and Chhatna of Bankura district. Table 1 and table-2 depict the demographic and living conditions of the households of our study district and blocks. In the district of Bankura 32.65 per cent population is belonging to SC community and 10.25 per cent are belonging to ST community. In Bankura district 69 per cent population aged six plus year can read and write. But total workforce participation rate in Bankura district is 46.56 per cent of the population aged above six years. In respect of the demographic profile there is no significant difference between the blocks.

Table1: Demographic Profile of the Study Zone

Area	No. of Residing Households	SC (%)	ST (%)	Workforce participation rate (%)	Literacy rate (%)
Bankura District	766902	32.65	10.25	46.56	69.19
Kotulpur block	41119	35.37	3.29	46.07	78.01
Chhatna block	40009	29.99	20.50	45.20	65.72

Source: Population Census in India, 2011

Table 2: Living Standard of the households in Study Zone

Area	Dirt wall house (%)	No exclusive room(%)	Drinking water from treated source (%)	Access to electricity for lighting (%)	No access to improved sanitation (%)	Access to improved fuel for cooking (%)	Households availing banking services (%)	Households having no census asset (%)
Bankura district	6.2	5	7.7	44.2	79.7	6.6	54.7	20.7
Kotulpur block	6.2	1.8	5.4	66	59.8	5.1	65.4	11.2
Chhatna block	4.3	9.6	6.3	34.5	87.6	5.2	67.9	21.9

Source: Population Census in India, 2011

In Bankura district 6.2 per cent households live in house with wall material grass, thatch, bamboo, plastic, polythene etc. while 4.3 (6.2) per cent households of Chhatna (Kotulpur) block live in dirt wall house. Although 5 per cent households in Bankura district reside without exclusive room in residences, in Kotulpur (Chhatna) block (1.8) 9.6 per cent households reside without exclusive room in their residence. Only 7.7 per cent households in our study district use treated drinking water at source. The situations of the blocks under study are more serious. We see that 55.8 per cent households do not have access to electricity for lighting in the district of Bankura. Problem of electricity is severe in the block of Chhatna. The problem of no access to sanitation is very much serious in the area under study. In terms of access to banking service our study blocks are better in position compared to the district as a whole. Only one fifth of the households in the district as a whole are asset poor. Therefore, in the district of Bankura, multidimensional deprivation in respect of health, education and living standards is serious in contrast to the poverty in terms of asset holding. Further, a large section of the population comes under SC and ST community. However, it is revealed that compared to Chhatna block, Kotulpur block is in advantageous position. Thus, the empirical study of multidimensional poverty for households in Bankura district covering the blocks of Chhatna and Kotulpur is practically justified.

The specific objectives of this study are as follows.

First, we study the extent of multidimensional deprivations for the households residing in the district of Bankura, West Bengal.

Second, we investigate the determinants of the extent of multidimensional deprivation at the household level.

3.   Study Design

In order to measure the extent of multidimensional deprivations for the households in Bankura district this study follows the methodology proposed in UNDP human development Report (2010). It covers the overlapping deprivation across the field of health, education and standard of living of the households. Ten indicators in total have been taken for capturing the deprivations in the array of three dimensions viz. health, education and standard of living. The dimensions and indicators of multidimensional poverty with deprivation criteria and weights have been presented in table 3.

Table 3: Dimensions and Indicators of Multidimensional Deprivations

Dimension	Indicators	Weight
Health	1] At least one member suffers from malnutrition 2] One or more child have died during last five years	5/3 5/3
Education	1] No one has completed five years of schooling 2] At least one school-age child not enrolled in school	5/3 5/3

Living Condition	1] No electricity	5/9
	2] No access to safe drinking water	5/9
	3] No access to improved sanitation	5/9
	4] House has dirt wall/floor	5/9
	5] Household uses dirty cooking fuel (dung, firewood or charcoal)	5/9
	6] Household has no car and owns at most one of: bicycle, motorcycle, radio, refrigerator, telephone or television	5/9

Source: Compiled from UNDP Human Development Report, 2010

We have attached equal weight with each dimension and each indicator within a dimension has received equal weight. Value '1' has been assigned for deprivation in each indicator and '0' otherwise. The maximum total deprivation score (d) will be 10. The maximum deprivation score in each dimension is 10/3 since we have equal weight for each dimension. As the dimension of health deprivation has two indicators each indicator with deprivation in the health dimension is worth 5/3. Similarly, each indicator of education dimension of deprivation takes score 5/3. The standard of living dimension has six indicators so each indicator with deprivation carries score 5/9. Now to measure the deprivation level of a household we take the summation of the weighted score obtained the household in the range of all the dimensions and indicators. According to UNDP a household (or all members of the household) is said to be multi-dimensionally poor if the sum of weighted deprivation score (WDS) for a household is 3 or more.

The multi-dimensionally poverty head count ratio (H) is the proportion of the multi-dimensionally poor people to the total sample households. Therefore,

$$H = q/n$$

where, q stands for the number of multi-dimensionally poor people/households and n is the total population/households. It actually measures the incidence of multidimensional poverty. The intensity of multi-dimensional poverty (A) reflects the proportion of the weighted component indicators, in which, on average, poor people are deprived of. Technically,

$$A = \sum_{1}^{q} c/qd$$

where, c denotes the total score of weighted deprivations the poor people experience and d stands for the total number of indicators in all the dimensions of deprivation. Finally, the multidimensional poverty index (MPI) is obtained by multiplying the multi-dimensionally poverty head count ratio (H) with the intensity of multi-dimensional poverty (A).Therefore,

$$MPI = H \times A$$

In accordance with the sum of weighted deprivation score this study has ordered the extent of multidimensional poverty or deprivations in four different classes. If $0 \leq WDC \leq 2$ for a household we treat it as well off class. The households having

$2 < WDC \leq 3$ have been considered as vulnerable of multidimensional poverty. The households with $3 < WDC \leq 5$ are belonging to marginally poor class. Finally, we have identified the households as extreme poor who have $5 < WDC \leq 10$. We have attached value 1 well-off class, 2 for vulnerable class, 3 for marginally poor and 4 for extreme poor. Therefore, the extent of multidimensional poverty is a categorical variable and the categories have hierarchically order. Against this backdrop, formulation of ordered logit model is appropriate for investigating the determinants of the extent of multidimensional deprivations. This model may be build around a latent regression such that

$$Y_i^* = X_i' \beta + U_i$$

U_i is logistical ly distribute d with $F(z) = \dfrac{e^z}{1 + e^z}$

A normalisation is that the regressors do not include an intercept. However, in this model usually Y_i^* is unobserved. In order to observe it we specify

$Y_i = j$ if $\alpha_{j-1} < Y_i^* \leq \alpha_j$ where, j = 1,2,3,4 and $\alpha_0 = -\infty$ and $\alpha_4 = \infty$

$$\Pr(Y_i = j) = \Pr(\alpha_{j-1} < Y_i^* \leq \alpha_j) = \Pr(\alpha_{j-1} < X_i'\beta + U_i \leq \alpha_j)$$

Then $\qquad = \Pr(\alpha_{j-1} - X_i'\beta < U_i \leq \alpha_j - X_i'\beta)$

$$= F(\alpha_j - X_i'\beta) - F(\alpha_{j-1} - X_i'\beta)$$

Here, F is the cumulative distribution function of U_i. The regression parameters β and the three threshold parameters α_1, α_2 and α_3 are obtained by maximising the log likelihood with $p_{ij} = pr(Y_i = j)$

In this model we can compute the marginal effect after logit on the probability of choosing alternative j when regressor X_r changes such that

$$\frac{\delta \Pr(Y_i = j)}{\delta X_r} = \left[F'(\alpha_{j-1} - X_i'\beta) - F'(\alpha_j - X_i'\beta)' \right] \beta_r$$

Where, X_r is r[th] independent variable and β_r is corresponding coefficient parameter.

The empirical estimate of this study is based on a cross-sectional household survey conducted in two blocks, Kotulpur and Chhatna, of Bankura district during 2012-13. We have already justified that Kotulpur is relatively developed whereas Chhatna is relatively underdeveloped block in Bankura district. Initially two Gram panchayets from Chhatna block and three from Kotulpur block have been selected randomly. In the second stage we have selected twelve villages taking at least two from each Gram Panchayet. Finally, after making a pilot survey for each village, sample households have been selected

randomly from the sample villages. We should mention that number of sample households from each village is not equal. It depended on total inhabitant and other socio economic characteristics of the villages. Therefore, the sample is a multi-stage stratified random sample. We have collected the data from 600 households but find the information of 20 households incomplete. Actually 580 households have been considered for analysis. Among them 320 households belong to Kotulpur block and 260 households belong Chhatna block. Alkire and Santos (2010) have already explained the justification behind the inclusion of the dimensions and indicators for measuring multidimensional poverty or deprivations. Among the indicators under consideration the measure of malnutrition due to poverty is difficult one. Usually, the malnutrition status has been measured following body mass index (BMI) for adults and weight for age for children. But often we feel difficulty to follow these accurate measures for each household member due to absence of the person at the time of survey or due to our time and technical constraints. In those situations we apply our personal observations keeping the measures in mind. The households where the incidence of infant mortality during last five years is not applicable we treat them non-deprived. If a household did not have school aged children the household is considered as non-deprived. For other indicators we simply gather the required information asking the respondents and from our observations.

4. Findings and Discussion

This section reports the empirical findings for analysis and discussion. First of all we discuss the summary statistics of the indicators of multidimensional deprivations of the sample households reported in table-4. More than one third of our sample households have at least one malnourished member. At the time of household survey 11% of our sample households have reported that at least one child below five years has died during the last five years. In more than one fifth of the sample households no one household member has passed primary level education. The surprise comes that in spite of the commendable expansion of educational infrastructure in West Bengal at least one child (up to 14 years) of one third sample households do not enrol in educational institutions. The earlier study (Bagli, 2015a) has reported that in respect of educational deprivations there is a wide variation in between the sample blocks.

We find that 23% of the sample households do not have electricity as improved energy for domestic lighting. It is not surprising that 35% of the surveyed households collect drinking water from unsafe source. Most of these households drink water with heavily contaminated by iron. Three-fourth of the sample households use dirty fuel like dung, crop residue, firewood or charcoal for cooking. Thus the households in Bankura district have hardly access to improved fuel and energy for cooking. Housing condition of the sample households is not so good. More than two-third of the sample households live at house with completely dirt wall and floor. Although no one have car of their own we have observed that majority of the sample households are not asset poor. A few households have refrigerator and landline telephone connection along with other assets. Ownership of bicycle, mobile, motorcycle and television are very common in the area

under study. It is reported that only 15% of our sample households do not own more than one of the listed assets under the dimension of standard of living. More than two third of the sample households do not have access to improved sanitation. It reveals that the households in the district of Bankura are not conscious regarding health and hygiene. Therefore, the statistics of the indicators prove that majority of the sample households in the districts of Bankura are deprived of health condition, education and standard of living.

Table 4: Description of the Indicators of Multidimensional Deprivations (N=580)

Dimension/Indicator	Number of Household	Percentage
Health		
At least one of the family members is malnourished	215	37
One or more child died during last five years	66	11
Education		
No one has completed five years of schooling	121	21
At least one school-age child not enrolled in school	190	33
Living Conditions		
No access to electricity	135	23
No access to safe drinking water	203	35
Household uses dirty cooking fuel (dung, firewood or charcoal)	435	75
House has dirt wall and floor	405	70
Household has no car and owns at most one of: bicycle, motorcycle, radio, refrigerator, telephone/mobile or television	86	15
No access to improved sanitation	398	69

Source: Author's own computation based on sample observations

Table 5 and table-6 present the socio-economic profile of the sample households. Based on the criteria of identifying multi-dimensionally poor we have found that 53% of our sample households are multi-dimensionally poor. While 40% of the sample households are income poor in accordance with the poverty line income (Rs. 643.20 per head per month) for the rural people in West Bengal (Government of India, 2012). The average annual household income is Rs. 13.81 thousand which varies from Rs. 150 thousand to Rs. 3.9 thousand. The value of CV indicates high level of inequality in income for the rural households in Bankura district. In order to measure the extent of multidimensional deprivations of the households we consider the sum of the weighted score obtained the

household in the range of all the dimensions and indicators. In this respect average extent of multidimensional deprivations is 3.34 which is greater than the cut off value for the multidimensional deprivations for identifying poor. The statistics of dispersion shows that there is a commendable inequality in deprivations among the sample households. Thus the identification of multidimensional poor is not enough to study the multidimensional deprivation. To this end we analyse the extent of multidimensional deprivations of the households.

Table 5: Percentage Distribution of the Attributes of the Households (N=580)

Selected Attributes of the Households	Number	Percentage
Multidimensional poor	305	52.59
Income poor	232	40.00
Landless households	85	14.65
Social Status of Household Head (leader/committee member =1)	199	34.31
Participation in Self-Help Group-Centric Microfinance Programme	255	43.97
Participation in MGNREGS	183	31.55
Financial Inclusion (A least one member have at least one of: a bank A/C/post office A/C/Life Insurance/Health Insurance)	356	61.38
Cultivation as Major Occupation	257	44.31
Nonfarm Self Employment/Service as Major Occupation	125	21.55
Casual Labour as Major Occupation	198	34.14
Belonging to Scheduled Castes	195	33.62
Belonging to Scheduled Tribes	68	11.72
Belonging to OBC	136	23.44
Belonging to General Castes	181	31.20
Nuclear Family	475	81.90

Source: Author's own computation based on sample observations

It has been reported that the SGSY and MGNREGS are functioning to serve the poor in the district of Bankura. 44% of the sample households have participated in self-help group (SHG) centric microfinance programme under SGSY. The average length of participation of sample SHG-members is 27 months. Among the sample households 31% have job-card under MGNREGA. However, most of the job-cardholders under our sample have got 35-40 days employment in average during the financial year 2011-12. The policies of SGSY and MGNREGS, therefore, fail to include a vast section of poor in the area under study. At least one member of 39% of the surveyed households do not have any financial behaviour like access to a bank account or post office A/C or Life

Insurance/Health Insurance. Most of the sample households borrowed money during the last year but more or less half of them have access to formal credit. Thus the faceted of financial exclusion is a common phenomenon in this area. In terms of major occupation we have found that among the sample households 44% are cultivators, 21% self-employed/service and 34% casual labour respectively. One third of the household heads are leader or committee member of different social institutions. Our sample is comprised of 34% SC, 12% ST and 54% general caste/OBC households. Thus in accordance with the composition of social castes our sample is a representative sample of Bankura district. Structure of the majority of the sample households is nuclear.

Table 6: Descriptive Statistics of the Households Characteristics (N=580)

Households Characteristics	Mean	Std. Dev.	CV	Maximum	Minimum
Family Size (Number)	3.86	1.17	30.31	8.00	1.00
Weighted Deprivation Score of the Households	3.34	2.30	68.86	10.00	0.00
Duration of Participation in SHG DPSHG (Month)	27.24	36.79	135.05	145.00	0.00
Highest Education Among Males (HIEDUM) (Year)	7.89	4.43	56.14	22.00	0.00
Highest Education Among Females (HIEDUF) (Year)	5.54	4.55	82.12	19.00	0.00
Landholding, LANDH, (bigha, 1 bigha=0.4 acre)	2.65	2.99	112.83	16.00	0.00
Worker Population Ratio WPR (%)	50.32	21.98	43.68	100.00	0.00
Annual Per Capita Income (APCIN) (Rs. '000)	13.81	13.86	100.36	150.00	3.90

Source: Author's own computation based on sample observations

The households have four members in average. Average education of the highest qualified male (female) member in the sample households is eighth (sixth) standard. In average the sample households hold land of 2.65 bigha while 14% households are landless. The average worker population ratio tells us that half of the households members work to earn household livelihood.

In accordance with the sum of weighted score of the indicators of multidimensional deprivations we have categorized the households into four categories as shown in table-7. We find that 21% of the sample households have extreme multidimensional deprivations. The extent of deprivations of 31% households is marginal. We already said that in total 53% are multi-dimensionally poor. Besides, 13% of the sample households, who are 29% of the non-poor households, are vulnerable of multi-dimensional poverty. Therefore, our empirical study reveals that in accordance with the methodology of multidimensional

poverty two third of the households in Bankura district are either vulnerable or poor. Finally, the calculated value of multidimensional poverty index for the sample households is found to be 0.270. Alkire and Santos (2010) have found MPI was equal to 0.32 for West Bengal in 2008-09. Therefore, we can say that the intensity of multidimensional deprivations in West Bengal slightly reduced during period 2008-09 to 2012-13. However, the value of MPI shows that average households of Bankura district are vulnerable in multi-dimensional poverty.

Table 7: Extent of Multidimensional Deprivations among the Sample Households

Weighted Deprivation Score (WDS)	Extent of Multidimensional Poverty (Y)	Number	Percentage	Cumulative Percentage
5 < WDS ≤ 10	Extreme poor (Y=4)	124	21.45	21.45
3< WDS ≤ 5	Marginal Poor (Y=3)	181	31.20	52.65
2< WDS ≤3	Vulnerable (Non-poor) (Y=2)	79	13.60	66.25
0≤ WDS ≤2	Well-off (Non-poor) (Y=1)	196	33.75	100.00

Source: Author's own explanation

In table 8 and table 9 we present the results of the estimated ordered Logit model and marginal effects after logit on the probability of belonging to alternative extent of multidimensional poverty. The coefficient of per capita household income is negative and statistically significant. It indicates that an increase in per capita income necessarily reduces the probability of being extreme deprived. The marginal change in probability of being multidimensional poor household tells us that one thousand additional per capita household income above the mean income reduces the probability of the incidence of extreme (marginal) multidimensional poverty by 1.22% (2.18%) points. On the other hand, a household with additional per capita income above the average has 0.04% point more probability to belong in vulnerable. However, additional income increases the probability of being well-off class by 2.9 % points. Income increases the purchasing power which helps the households fight against multiple deprivation. Our study reveals that income poverty and non-income poverty (multidimensional poverty) of the households are significantly related. Thus income generation is essential for alleviating multidimensional deprivations.

Landholding of the household has also significant impact on the extent of multidimensional deprivations. The marginal effects indicate that one bigha extra landholding from the mean reduces the probability of being extreme (marginal) poverty or less deprivation by 1.4% (2.5%) points. Further extra unit of landholding increases the probability of belonging in well-off class. The coefficient of the major occupation (cultivation=1) and (Non-Farm/Service=1) indicate that cultivator and nonfarm self-employed /service holder households are relatively less deprived compared to casual labour class. If a household can move from casual labour to cultivator, the probability of

being extreme (marginally) multi-dimensional deprivations will reduce by 5.7% (10.43%) points. Therefore, land redistribution in favour of landless or poor is urgent requirement in order to reduce multidimensional deprivations. On the other hand, if a labour class household can shift to self-employed or service holder household the probability of being extreme (marginally) multi-dimensionally poor will reduce 5.41% (11.61%) points. Thus, occupation mobility from casual labour to cultivator or self-employment or service is favourable to arrest multidimensional deprivations in the district of Bankura.

Table 8: Estimated Ordered Logit Model for Multidimensional Deprivations ®

Dependent Variable: Extent of Multidimensional Deprivations Method: ML - Ordered Logit (Newton-Raphson) Included observations: 580 Convergence achieved after 5 iterations				
Independent Variables	Coefficient	Std. Error	z-Statistic	Prob.> z
Annual Per Capita Income (APCIN) (Rs. '000)	-0.136	0.0197	-6.89	0
Landholding (LANDH) (bigha) (1 bigha =0.4 acre)	-0.156	0.039	-3.95	0
Type of Family (Nuclear =1)	-0.022	0.225	-0.1	0.923
Major Occupation CULTI, (Cultivation =1)	-0.657	0.242	-2.71	0.007
Major Occupation NFARM (Non-Farm/Service= 1)	-0.704	0.285	-2.47	0.013
Social Status of Household Head (Leader/Committee member =1)	-0.295	0.221	-1.33	0.182
Duration of Participation in SHG DPSHG (Year)	0.004	0.002	1.44	0.15
Caste (OBC=1)	0.648	0.232	2.78	0.005
Caste (Scheduled Caste=1)	1.23	0.233	5.25	0
Caste (Scheduled Tribe=1)	1.585	0.314	5.04	0
Cut Point (Well off group)	-2.790	0.387		
Cut Point (Vulnerable group)	-1.878	0.377		
Cut point (Poor)	0.212	0.361		
Summary Statistics				
Pseudo R-squared	0.212		Log likelihood	-608.804
LR statistic [Ch^2(10)]	326.82		Probability (LR statistic)	0

® Casual labour class is reference category for major occupations, Common persons are reference category for social status and General caste is reference category for Castes

Source: Author's own computation using software STATA 9.2

In order to assess the impact of social capital of the household heads on multidimensional poverty we have recognised the household heads, who are leader or committee member of any social institution like cultural committee, club, Gramsava, Gram Panchayat, as socially empowered. We have found that households with socially empowered heads are less likely to belong in extreme poor class. However, this finding is not statistically significant. The coefficient of the duration of SHG membership is positive but insignificant. It implies that participation in SHG by any household member centric microfinance program is immaterial in the determination of the extent of multi-dimensional deprivations. Our several studies conducted in this district (Adhikary & Bagli 2012, 2013, Bagli & Adhikary 2013,) reveal that SHG-centric microfinance programme successfully have ensured access to affordable micro credit of the rural people. SHGs reduce income poverty of the rural people. It can finance to smooth consumption throughout year, to purchase durable assets to facilitate drinking water to build sanitation etc. So we expect that the duration of SHG membership reduce the extent of multidimensional poverty. But our empirical finding comes against our hypothesis although it is not statistically significant. During field survey we have observed that the performance regarding entrepreneurship development of this programme is, however, not in commendable position. Majority of the beneficiaries of SGSY in the area under study could not undertake self-employed activity. The lack of management efficiency and social responsibility of the microfinance institutions are the primary cause of the low performance. As a result that SHG centric microfinance program fails to improve health, education and standard of living conditions of the people in Bankura district.

Table 9: Marginal Effect of the Independent Variables on Extents of Multidimensional Deprivations

Independent Variables	Y =4	Y =3	Y =2	Y =1
Annual Per Capita Income (APCIN) (Rs. '000)	-0.0122*	-0.0218	0.0048	0.0292
Landholding (LANDH) (bigha) (1 bigha =0.4 acre)	-0.0140*	-0.0249	0.0055	0.0333
Type of Family (Nuclear =1)#	-0.0020	-0.0035	0.0008	0.0047
Major Occupation CULTI, (Cultivation =1)#	-0.0576*	-0.1043	0.0202	0.1417
Major Occupation NFARM (Non-Farm/Service= 1)#	-0.0541*	-0.1161	0.0103	0.1599
Social Status of Household Head (Leader/Committee member =1)#	-0.0255	-0.0477	0.0090	0.0642
Duration of Participation in SHG DPSHG (Year)	0.0004	0.0007	-0.0001	-0.0009

Caste (OBC=1)#	0.0669*	0.0936	-0.0319	-0.1286
Caste (Scheduled Caste=1)#	0.1317*	0.1657	-0.0587	-0.2387
Caste (Scheduled Tribe=1)#	0.2253*	0.1325	-0.1064	-0.2513

#Marginal effects after Ordered Logit for discrete change of dummy from 0 to 1
Source: Author's own computation using software STATA 9.2

The marginal probability of the incidence of multidimensional deprivations reveals that in contrast to the general caste households, scheduled caste and scheduled tribe households are more likely to fall in extreme or marginal extent of multidimensional deprivations. The probability of being multi-dimensionally extreme poor for a scheduled caste (scheduled tribe) household is 13.17% (22.53%) higher than that for general caste households. The probability of the incidence of extreme multi-dimensional deprivations for OBC households is 6.6% higher than that of the general caste households. Thus the scheduled tribe households are most deprived of health, education and standard living opportunities than other households in Bankura district.

5.   Policy Implications and Conclusion

This study explores that the households in the district of Bankura experience deprivation in a number of non-income indicators covering health, education and living standards dimensions of multidimensional poverty. As there is a certain level of inequality (CV= 68.86) in multidimensional deprivations among the households, deprivation alleviation plans and programs should be targeted at different socio-economic strata among the deprived households. In this study we have also identified the determinants of the multidimensional deprivations of the households. As per capita income is a significant factor reducing the extent of multidimensional deprivations, we should give priority on the policies towards income generation of the deprived households. The holding of land is a suitable factor for reducing multidimensional deprivations. Our ordered logit regression establishes that if a household belonging to wage labour class can shift its occupation towards cultivation or non-farm self employment or service the extent of multidimensional deprivations of the household will reduce. This study claims the scheduled tribe households as most deprived section followed by SC and OBC in the district of Bankura.

In order to encourage income generation and upward occupational mobility we have to take some further decentralized planning towards land redistribution and micro entrepreneurship development which help the deprived people shift to cultivation or non-farm self employment occupation and generate sufficient income. Some continuous employment generation plan/programme is also necessary and urgent. It is fact that average land holding in West Bengal is already small. Thus the programs towards further land redistribution towards poor have some socio-economic and political difficulty. Of

course, we may take a credit policy by which the landless households can purchase land taking bank loan with affordable interest rate and subsidy. Moreover, implementation of policies regarding non-farm self employment or salary based employment generation is relatively socio-economic trouble-free and suitable too. We have already MGNREGS for employment generation for the rural people. However, this programme granted only one-third of its promised employment per year to the eligible persons in the area under study. Therefore, we have a greater scope for further extension of these policies for improving the economic condition of the rural poor in Bankura district. Besides, we have to develop the rural tourist places in the district of Bankura surrounding the recognised tourist places like Joyrambati, Bishnupur, Susunia hill. It will definitely increase sustained employment and income of the local poor people. Juxtaposed with the employment generation programs we have to take some steps to encourage the deprived households to undertake self employment project in cottage industries or small scale industries in this district. There is an ample scope of further self employment in famous cottage industries in Bankura district like 'pottery', 'tasar silk', 'baluchari sari' 'Terakota', 'Dogra' if the government have taken some suitable credit policies and marketing policies for these industries.   We have found that SHG-centric microfinance programme has been functioning for rural entrepreneurship development in general and women entrepreneurship development in particular. However, we find some negligible direct effect of this programme on the multidimensional deprivations. Therefore, financial inclusion policies through SHG are less important for reducing multidimensional deprivations. Finally, in order to reduce the pangs of multidimensional deprivations we need some special package like extension of health care facility, local language based education, hygienic drinking water supply program, sanitation, LPG connection and housing programme, for the households particularly the households belonging to socially lower castes in Bankura district.

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