

Measuring Household Food Security, Risk Factors and Coping Strategies among Rural Households in India

Introduction:

Ensuring nutritious food for all is essential for health, nutritional well-being and important for development of the nation. Thus, household food security has been recognised as a basic of human right (WHO). The concept of food security is multidimensional and complex, which can address in several ways like chronic and transitory food security, seasonal food security, national food security, households and intra-households food security. The concept of food security has undergone several changes. Earlier food security was seen as a food supply point of view at national or an administrative level. Any country or nation, which had sufficient food stock for its people considered as food secure. But after 1970s, focus shifted to households and individual level (Smith, et al.) because it has been realised that supply of food alone do not confirm everyone's access to food. There are many others factor which come into play. In recent time, the most acceptable definition of food security (World Food Summit, 1996) is “ *Food security exists when all people physical, social and economic access at all times to sufficient, safe and nutritious food which meets their dietary needs and food preference for an active and healthy life*”. In this definition, food security comprises with three main elements: food availability, food accessibility and food utilization. Thus, food insecurity exists when people lack access to sufficient amounts of safe and nutritious food and are therefore not consuming the food required for normal growth and development, and for an active and healthy life. This may be due to unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate utilization at household level etc, that are directly or indirectly influenced by a set of complex social, economical and demographic factors of the household.

Rational of the Study:

Globally, around 842 million people were estimate as hungry that means one in eight people do not get enough food to be healthy and lead an active life (GHI, 2013). Largest number of hungry people lives in South Asia and Africa. Though, India made some improvement in the last two decades (hunger score improved from 32.6 in 1990 to 21.3 in 2013) but the situation is alarming in terms of its absolute number of hunger. India home to a quarter of the world's hungry which accounts of 210 million people. The problem becomes worse when we look into some other hunger indicators. Nearly nine out of ten pregnant women aged 15-49 years suffer from malnutrition and anaemia. More than 46 percent of Indian children under five are underweight (NFHS-3, 2005-07). Every third adult is reported to be thin (BMI less than 18.5). According to the latest report on the state of food insecurity in rural India, more than 1.5 million children are at risk of becoming malnourishment because of rising global food prices. On the other hand, India is considered as one of the fastest-growing economy in the world. India showed a GDP growth of 4.98 % during 2013-14 and expected a growth of 5.5 % in 2014-15. It is evident that real GDP per head grew at 3.9 percent a year from 1980 to 2000 and at 5.4 percent a year from 2000 to 2005. Not only in economic development but

agricultural production also increased significantly since after green revolution. India's food grain production estimated to be 259 million tonnes for the year 2013-14. Apparently, buffer stock in the Food Corporation of India (FCI) is sufficient to ensure the food security at the nation. In 2012, FCI holds more than 66 metric million tonnes of food grain, which is more than adequate to feed each of the India's population. Despite of these adequate food stocks, the most surprising fact is that millions of people in India are dying of hunger. In this context, it is very relevant to find out the underlying causes of food security and hunger at household level, such as whether households get enough food, what factors restrict household from the access to the food, how does the food distribute in the household, does that food fulfil the nutritional requirement of all members of the household? And how do they cope with the food insecurity shocks to improve the food security condition? The present study will address these issues and hence, the importance of this study.

Data and Methodology:

A cross-sectional study was conducted among 485 households selected from Bankura district in West Bengal of India during January- May, 2013. A structured questioner used to survey the households. Information collected regarding a set of social, economical and demographic aspects of the household. Food securities among rural households were address using '*food security core survey module*' designed by U.S Census Bureau. This survey module constitutes to a series of 18 questions about conditions and behaviours that characterize households when they are having difficulty meeting basic food needs. Each question asks whether the condition or behaviour occurred at any time during the previous 12 months and specifies a lack of money and other resources to obtain food as the reason. The main advantage of this module is that its multiple indicator questions capture and distinguish the various levels of severity throughout the full range of severity with which the phenomenon of food insecurity or hunger is experienced. This survey module is useful not only for national surveys, but it can also use for local level to determine the extent and severity of food insecurity and hunger. In India also, it has been used very successfully (Agarwal et al., 2009 ; Mukhopadhyay & Biswas, 2010) to understand the determinants and extents of food insecurity. In order to determine households' score on the food security scale, responses to 18 questions are combined into a scale using non-linear statistical methods based on the Rasch measurement model. The scale provides a continuous, graduated measure of the severity of food deprivation across the surveyed households. Based on their food security scale scores, households are classified into four categories as "food secure", "Food insecure without hunger", "Food insecure with hunger (moderate)", "Food insecure with hunger (severe),"The scale reliability was examined using Cronbach's alpha value (Cronbach's alpha=0.77). Cronbach's alpha is reported because it is a familiar statistics. Streiner and Norman suggested that values for alpha should exceed 0.7, while values in excess of 0.90 might be suggestive that some items are redundant (Streiner & Norman, 1989).

To understand the coping strategy of household information have been collected about 'Consumption coping strategy' as well as 'Livelihood coping strategy' when a household faced food deficient condition. Consumption coping strategy specifically related with the strategy to food consumption pattern that includes: dietary change; attempt to increase

household food availability through some short term strategy; trying to reduce the number of household members; and adopting some rationing strategy. Livelihood coping strategies due to food deficiency, are those which are helpful for a food insecure household to sustain their life rather than to make them food secure directly. These include: working as casual labour, selling assets and live stocks, sending children for work, compromising with health care etc. The analyses were carried out in STATA 10. Bi-variate and multivariate techniques were applied in this study.

Preliminary Result:

Preliminary analyses show the distribution of responses to the households' food security survey module items reported by the rural households. Majority of the households reported (47 percent) that they have eaten enough of the food but not always the kind of the food what they wanted to eat in the last twelve months. Only 10 percent households reported that they have eaten enough of the kind of food what they wanted to eat. About six percent households often did not eat enough in the last twelve months. More than half of the sampled households (54 percent) reported that they were often worried that food would run out before the family has money to buy. One in every second of households mentioned that food often did not last and they did not have money to buy more. Three out of five households reported that they are often not able to afford balanced meals to eat. Majority of the households (56 percent) reported that they often could not feed children a balanced meal as they could not afford. Half of the households (50 percent) reported that any adult members of the households ever skipped or reduced a meal because of the insufficiency of money. Result also shows some evidence of child food insecurity. Almost six percent households reported that their children also had to skip meals for sometimes because of the lack of money and food.

Result shows that only 20 percent households are found food secure, 44 percent households are categories in food insecure category, 30 percent households are categories in food secure with hunger (moderate) category and six percent households fall in food insecure with hunger (severe) category.

We have analysed some selected socio demographic characteristics of the households by the households' food security status. Table indicates that household's family size decreases as food insecurity condition in the household increases. Average family size in the food secure household is seven where as this figure goes down for food insecure households (six) and the households with food insecurity with hunger (five). Household monthly per capita expenditure is much higher to the food secure household compared to the food insecure household. Average monthly per capita expenditure is Rs 944 for food secure households, Rs 601 for food insecure households and it is Rs 406 for the households with food insecurity with hunger. Average landholding size decreases as the households' food insecurity condition goes to the most awful situation. Per capita calorie consumption is found higher to the food secure houses compared to food insecure houses. Food secure households show average calorie consumption of 2077 kcal per capita per day whereas this figures are quite low for food insecure (2124 kcal) and food insecure with hunger households (1871 kcal).

Logistic regression model was applied to explain the net effect of various independent variables on household food security status. Result indicates that households where head of the household have more than 10th standard of schooling are 6.7 times higher to be food secure compared to the households where head of the households are uneducated (OR=6.69; 95% CI, 1.78 – 25.18). Household belongs to General caste is 2.2 time higher to be food secure than the household belongs to Scheduled caste (OR=2.19; 95% CI, 0.86 – 5.53). Households where three members are currently employed show 16 times higher chance to be food secure than the households where only one member is currently employed (OR=16.13; 95% CI, 0.67 – 389.93). Households having livestock in the household are 2.3 times higher to be food secure compared to the households with no livestock in the household (OR=2.29; 95% CI, 0.92 – 5.69).

Households find several ways to deal with food insecurity either by compromising with food consumption or by reducing the income shocks at the households. The most common consumption coping strategy opted by households is to consume less preferred and less expensive food (98%), followed by borrowed food from relative (73%), reduced number of meals eaten in a day (66%) and restricted adult's consumption in order for small children to eat (65%). Households also use some coping mechanisms to minimise risks of the income shocks at household. The most common strategy is to spend past saving cash (95%) during the income shocks in the household. Then, they compromise with other expense (94%) and health expenditure of household's members (84%). Selling of livestock, household's assets, and land property are also some of the strategies opted by the households but in extreme food insecurity condition.

Conclusion:

It is seen from the preliminary analyses that food insecurity condition at household arises due to deprivation in human, physical and economical capital. Higher level of education, presence of regular employed member, access to land and availability of livestock at household improves the food security condition. Coping mechanisms varies with the types of food security. Range and depth of coping strategies increase with the severity of food insecurity. At the initial stage, household tries to manage the food shortage using some common consumption and income shocks coping mechanisms but latter on, depth and severities of coping mechanisms increase when food insecurity condition goes worst at the household.