

Does Credit improve Nutritional Intake and Food Security in India?

1. Introduction

Attaining food security is a matter of prime importance for India where an estimated 29.5 percent are the poor (Planning commission report, 2014). The Indian economy has grown at a faster pace and is now recognized as the fastest growing economies in the world, but the indicators of development have not complied with the economic growth rate. For example India ranked 97th out of 118 countries on the International Food Policy Research Institute's (IFPRI) Global Hunger Index (GHI) in 2016, behind Nepal, Sri Lanka, Bangladesh, among others, but ahead of Pakistan and three other Asian countries (IFPRI, 2016). In this regard food security becomes one of the biggest concerns in India where one fourth of the population lives in extreme poverty. India's high economic growth has had less impact on food security and the nutrition levels of its population even after having been successful in green revolution which is said to have solved the problems of food insecurity in India (Raghav, 2010; Karhad, 2014). Government of India has enacted many inclusive programmes for improving food and nutrition security. The country has made substantial progress in terms of raising the laws for food security (NFSA of 2013) by giving priority to self-sufficiency in food grains through increased agricultural subsidies, procurement (MSP) and public distribution of food grains, employment programmes, etc. However, the incidence of poverty, deficit agricultural production, chronic food insecurity persists in a large proportion of India's population which poses a serious concern (Deaton & Drèze, 2009).

The specific objectives of the study are (1) to examine the trends in consumption and nutrition pattern by rural and urban for 1993-94, 2004-05, 2009-10 and 2011-12 and exploring the demand and supply gap during the post-reform period. (2) to examine the role of credit in ensuring food security in India between the years 2004-05 and 2011-12.

2. Data and methodology

The study uses multiple sources of data to accomplish outcome of the study. The NSS Consumption Expenditure Survey (CES) unit level data for 2004-05, 2009-10 and 2011-12 for analysis was used. We compiled production data for different food items from various ministries of Government of India (GOI). The study also uses the unit level data of Indian Human Development Survey (IHDS), a panel survey data of both 2004-05 and 2011-12 for analysing the role of credit in consumption. We performed analysis for BPL and APL households for consumption of major food grains for 2004-05 and 2011-12. We used multinomial logit model and multi-level regression to accomplish the outcome of the study.

3. Results and findings

3.1 Nutrition intake by expenditure classes and social groups

The per-capita calorie, protein and fat intake increased from 2031 Kcal/day, 55 gm/day and 35 gm/day respectively in 2004-05 to 2103 Kcal/day, 57 gm/day and 42 gm/day respectively in 2011-12 with the increasing trends in per-capita monthly expenditure (PCME) from Rs. 559 to Rs. 1287 during the reference period 2004-05 to 2011-12. The per-capita calorie, protein and fat intake increased from 1985 Kcal/day, 54 gm/day and 46 gm/day respectively in 2004-05, to 2062 Kcal/day, 56 gm/day and 49 gm/day respectively in 2011-12 with the increasing PCME from Rs.1052 to Rs.2477 in urban areas during 2004-05 to 2011-12, which is almost two-folds to PCME in rural. The rural and urban differentials in protein intake was not considerable but a substantial differential was found in calorie and fat intake. The rural populace consumes more calorie by 100 Kcal/day, however, fat intake was more in urban populace by 10 gm/day. This indicates that differentials in the nutritional intake do exist during the reference period as the overall nutrition intake has been less than nutrition intake norm recommended by the ICMR for Indian population.

The Indian council of Medical Research (ICMR) (2009) suggests 2400 Kcal/day per person in rural area and 2100 Kcal/day per person in urban area as the yardstick nutritional intake irrespective of socio-economic background. The top 15 percent expenditure class consumes higher calories in rural areas and top 25 percent expenditure class consumes higher calories in urban area than suggested by ICMR. Almost 80 percent of Indian population had less nutrition intake than ICMR norm which is self-

explanatory for the low level of nutrition intake. The nutrition intake among the lowest 5 percent expenditure class had been half to that of top 5 percent expenditure class. The middle expenditure classes on an average has nutrition intake shortfall of 1000 Kcal/day and 450 Kcal/day respectively in rural areas and urban areas. The trends and level of all the three components of nutrition intake provides evidence to a widening nutritional gap between the rich and the poor.

By the social groups, the ST's and SC's have higher calorie deprivation as compared to other social groups such as OBC and General. Among OBC's and General category the shortfall was of 300 Kcal/day and 200 Kcal/day respectively in 2011-12. The trends, levels and shortfall has been found similar in urban area. The shortfall in calorie intake was low in urban area compared to rural area. The SC's and ST's in urban areas have shortfall of 100 Kcal/day compared to adequate calorie intake of 2100 Kcal/day in 2011-12.

3.2 Demand and supply gap in India

Table 1 illustrates the demand and supply gap for consumption of different food items in India for 2004-05, 2009-10 and 2011-12. The per-capita production for all the food items such as cereals, pulses, vegetables, fruits, oilseeds, milk, meat, and fish increased whereas only spices showed a declining trend in per-capita monthly production for the respective years. Although per-capita production of majority of the food items were increasing it does not match to fulfil the demand of consumption in India. The per-capita monthly consumption of cereals showed a declining trend from 2004-05 to 2011-12. A deficit (production minus consumption) in cereals, pulses and its products, meat, vegetables, fruits (fresh) and spices manifest as reasons of low-calorie intake among Indian population. The deficit increased for pulses and its products, vegetables, fruits (fresh) and spices. Of these food items, the deficit had been massive for vegetables (-12.3) and fruit (fresh) (-6.27) in 2011-12. The deficit for cereals declined over the time from -7.7 Kg per person per month in 2004-05 to -3.7 Kg per person per month in 2011-12. However, the deficit was substantial in recent years and pose serious concern for the availability of the basic food items. In contrast to the shortfall of basic food items in India, there had been a surplus production of milk, oilseeds, and fish throughout the reference period. Overall, production of food items in the country is not able to meet the requirements of population for majority of food items creating a gap between demand and supply. One of the reasons that can be attributed to low food security in India may be insufficient per-capita production as against per-capita consumption. The persistent decline in fertilizer subsidies, small land sizes and inconsistencies in monsoon affecting the water availability for crops is one of the prime reasons for the fall in food production in India.

Table 1: Demand and supply gap in India during 2004-05 to 2011-12.

Items	Per-capita production			Per-capita consumption			Demand and Supply Gap		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
Cereals	14.3	14.54	16.85	22.01	20.74	20.55	-7.71	-6.2	-3.7
Pulses & pulse products	1.01	1.05	1.19	1.32	1.46	1.7	-0.31	-0.41	-0.51
Oil seeds	1.88	1.78	2.07	1.14	1.28	1.39	0.74	0.5	0.68
Milk	7.14	8.32	8.9	5.64	6.35	6.58	1.5	1.97	2.32
Meat	0.17	0.33	0.38	0.33	0.36	0.44	-0.16	-0.03	-0.06
Egg	3.49	4.31	4.62	2.73	2.55	3.12	0.76	1.76	1.5
Fish	0.49	0.56	0.60	0.4	0.36	0.39	0.09	0.2	0.21
Vegetables	7.83	9.56	10.88	16.16	16.41	23.18	-8.33	-6.85	-12.3
Fruits (fresh)	3.81	5.11	5.32	9.6	10.29	11.59	-5.79	-5.18	-6.27
Spices	0.31	0.19	0.29	0.35	0.48	0.55	-0.04	-0.29	-0.26

Source: Author's calculation of NSS 2004-05, 2009-10 and 2011-12 data. Author's calculation from Directorate of Economics and statistics, Department of agriculture, cooperation and farmer's welfare, Ministry of agriculture and farmer's welfare, GOI.; Basic Animal Husbandry & Fisheries Statistics 2014 and 2015 report and Indian National Horticulture Database Reports for the year 2010, 2011 and 2013 from the year 2008-09 to 2011-12. Note: A negative value indicates deficit in food items.

3.3 Role of credit in ensuring food security in India

The major expenditure from loan amount was done for marriage followed by medical expenditure, agri-business and household consumption. A 36 percent households took loan from moneylender in 2004-05, which dropped to 20.8 percent in 2011-12. Credit from banks and relatives increased from 24 percent and 18 percent respectively in 2004-05 to 29.5 percent and 21 percent respectively during 2004-05 to 2011-12. There has been a major shift among households taking credit from source of loan. Now majority of households shifted to bank and friends than money lender. On an average 12 percent of loan amount were for consumption in 2004-05 which increased to 15 percent in 2011-12. A higher percent of loan for consumption constitutes from employer, money lender, friends, and relatives.

Table 2a elucidates the variation in mean consumption for below poverty line (BPL) households between those who have taken loan and those who have not taken loan in rural and urban India for the year 2004-05. The mean consumption of rice, wheat and milk was higher for rural BPL households who did take loan than those who did not take loan for consumption of food items. Mean consumption for pulses, meat, chicken and fish, eggs and vegetables were lower for rural BPL households who did take loan than those who did not take loan. This shows that BPL households consume greater quantity of staple food and milk by taking loan in 2004-05.

Table 2b reveals the variations in mean consumption for BPL households between those who did take loan and those who did not take loan in rural and urban India in 2011-12. The mean per-capita consumption of wheat, meat/chicken/fish, edible oil, milk, and egg was higher for rural BPL households who did take credit than those who did not take credit for consumption. The consumption behaviour of rural BPL households reversed where they consumed staple food items by taking credit in 2004-05. In 2011-12 they moved on to consumption of meat/chicken/fish, edible oil, eggs. In urban areas, the consumption of pulses, meat/chicken/fish, edible oil, milk, and egg were higher for urban BPL households who did take loan than those who did not take loan in 2011-12. The overall result shows that credit increased the consumption of food items such as milk, edible oil, eggs, vegetables, meat/chicken/fish for rural and urban BPL households who did take loan compared to those who did not take loan for consumption.

Table 2a: The variation in mean consumption for BPL households by credit in rural and urban India for the year 2004-05.

Loan categories (BPL: 2004-05)	Rice	Wheat	Pulses	meat/chicken/fish	Edible oil	Milk	Egg	Vegetable
Not taken (Rural)	8.75	2.57	0.57	0.20	0.43	1.99	0.10	1.48
Taken (Rural)	11.08	2.82	0.66	0.38	0.46	2.90	0.03	0.59
Not taken (Urban)	8.02	1.67	0.54	0.23	0.46	2.63	0.22	0.77
Taken (Urban)	6.93	2.33	0.58	0.49	0.81	3.00	0.20	0.27
Loan categories (BPL: 2011-12)	Rice	Wheat	Pulses	meat/chicken/fish	Edible oil	Milk	Egg	Vegetable
Not taken (Rural)	7.63	3.94	0.61	0.21	0.47	2.74	0.11	1.84
Taken (Rural)	5.78	4.39	0.52	0.30	0.52	5.04	0.12	1.06
Not taken (Urban)	6.14	3.23	0.51	0.22	0.54	3.51	0.19	1.08
Taken (Urban)	6.05	3.19	0.64	0.35	0.78	5.26	0.23	0.85

Source: Authors' calculation from IHDS-I (2004-05).

Table 2b: The variation in mean consumption for BPL households by credit in rural and urban India for the year 2011-12.

Loan categories (APL: 2004-05)	Rice	Wheat	Pulses	meat/chicken/fish	Edible oil	Milk	Egg	Vegetable
Not taken (Rural)	6.28	5.07	0.58	0.20	0.49	3.63	0.10	1.89
Taken (Rural)	4.68	5.10	0.49	0.26	0.51	5.61	0.13	1.13

Not taken (Urban)	5.09	3.97	0.44	0.22	0.55	4.03	0.17	1.19
Taken (Urban)	5.70	3.58	0.67	0.28	0.79	5.61	0.24	1.11
Loan categories (APL: 2011-12)	Rice	Wheat	pulses	meat/chicken/fish	Edible oil	Milk	Egg	Vegetable
Not taken (Rural)	5.22	5.62	0.38	0.21	0.73	6.26	1.04	0.39
Taken (Rural)	5.29	5.45	0.41	0.19	0.66	6.33	1.08	0.41
Not taken (Urban)	4.68	4.06	0.40	0.36	0.87	5.70	2.04	0.40
Taken (Urban)	4.70	4.15	0.40	0.41	0.81	5.08	1.96	0.40

Source: Authors' calculation from IHDS-II (2011-12).

Similar outcomes also hold for above poverty line (APL) households in rural and urban areas. The consumption of pulses, meat/chicken/fish, edible oils, eggs, and milk were higher for rural and urban households who did take loan than those who did not take loan in both the years 2004-05 and 2011-12. Nevertheless, the variations were not high among the APL households by the credit.

Conclusion

The findings of the study reveal that only upper quintile reaches to minimum level of calorie intake or above the minimum dietary intake as prescribed by ICMR (2010). There has been a huge difference in the calorie, protein, and fat intake between the lower and upper expenditure classes in rural India. The upper quintile had a two-fold per-capita calorie intake as compared to lower quintile across all the social groups during 2004-05 to 2011-12. Furthermore, the SCs and STs had shortfall of 600 Kcal/day respectively in rural areas in 2011-12, although nutrition intake increased during 2004-05 to 2011-12. There has been a shortfall in per-capita production of cereals, pulses, meat, vegetables, and spices to meet the consumption requirements of people in India. On the other hand, there has been a surplus production of milk, fish, and oilseeds in our country. One of the reasons that can be attributed to low food security in India may be insufficient per-capita production as against per-capita consumption.

The results reveal that the role of credit has significant impact on rural and urban BPL households in ensuring food security. A significant proportion of households, 12 percent in 2004-05 increased to 15 percent in 2011-12, did take loan for consumption from employers, money lenders, friends, and relatives. The consumption of food items such as meat/fish/chicken, milk, oilseeds, and pulses increased from 2004-05 to 2011-12 for rural and urban BPL households who did take loan for consumption than who did not take loan for consumption. The credit has helped in shifting the consumption pattern towards more high protein content food items: milk, egg, meat/chicken/fish, and pulses.

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