

Public Distribution System in Kamrup (Rural) District of Assam: It's Impact and Parameters for Participation

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ABSTRACT

The present study was an attempt to evaluate the prevalent public distribution system (PDS) in the Kamrup (Rural) district of Assam considering the impact of PDS on the BPL households and the factors responsible for participation in PDS in the study area by surveying a random sample of 132 households. The study revealed that Public distribution system in the study area had made the beneficiaries more secured in terms of their non beneficiary counterparts. Moreover, PDS had a positive impact of calorie intake ($\Delta C = 104.1 \text{ cal/day}$) on BPL households. Furthermore, the variables namely, distribution of variety of goods ($\beta = 2.131^{***}$, $p < 0.01$), lack of awareness ($\beta = -2.387^{***}$, $p < 0.01$) and location of pds in easily accessible areas ($\beta = 2.892^{***}$, $p < 0.01$) were found to be significant factors influencing the participation in PDS. The study suggests the need to introduce innovative ideas such as smart cards, food credit/debit cards and decentralized procurement to check the bottlenecks in the PDS and to use both digital and print media to spread awareness about PDS to make the system more efficient.

Key words: Public distribution system; Calorie intake;

India's Public Distribution System is the largest single retail system with 4.78 lakh fair price shops in the world (Gupta and Saxena, 2014). In developing countries like India, the public distribution system (PDS) was introduced to ensure all dimensions of food security (Maity, 2020). These programs are also very large and financially burdensome. It is the largest social assistance program in India distributing to 16 crore families and spending more than Rs.30,000 crore that accounts for almost 1% of the GDP. The system provides food security to poor households of the society in the country, by ensuring them, their essential fixed requirements at lower prices than in the open market (Ghumaan and Dhiman, 2014). With the intention to disburse essential commodities to the weaker sections properly, Government of India established Ministry of Consumer Affairs, Food and Public Distribution to efficiently manage and distribute food grains. The public distribution system is critical to poverty alleviation as in addition to being a food subsidy programme; the PDS serves as a

safety net for the poor and downtrodden and contributes towards the social welfare of the people. PDS has become a central tool of the Government for managing the food economy of the country. The PDS came into existence in India during the Second World War as an anti-inflationary measure on a very limited scale. . The Targeted Public Distribution System (TPDS) launched in June 1997 is an important instrument of policy aimed at reducing poverty through the mechanism of delivering minimum requirements of food grains at highly subsidised prices to the poor and needy population below the poverty line (Bhat and Bhat, 2012). National Food Security Act, 2013 was launched with the objective to provide for food and nutritional security in human life. The Act provides aims of coverage of upto 75% of the rural and upto 50% of the urban population under Targeted Public Distribution System (TPDS). In its present form as a (producer) price-support-cum-consumer subsidy programme, the PDS has evolved in the wake of critical, national level food shortage of the 1960s. The system

serves triple objectives viz., protecting the poor, enhancing the nutritional status and generating a moderate influence on market prices. But the main motto of establishing fair price shops have not been fulfilled, as essential commodities are liberally diverted in open market than distributing to the beneficiaries. Even after more than 60 years of its inception, the PDS is still an issue in public debate and policy. The current study was conducted in the Kamrup (Rural) district of Assam where the number of beneficiaries was highest in comparison to the other states in the north eastern part of India. The twin objectives of the study were to estimate the impact of public distribution system on the BPL households and to analyze the factors responsible for participation in PDS in the study area.

Public Distribution System in Kamrup (Rural) : The Kamrup (Rural) district is an administrative district of the state of Assam formed by carving out of the erstwhile Kamrup district. As far as coverage is concerned, the Kamrup (Rural) district covers 3,56,356 cardholders through 1756 fair price shops which are under the jurisdiction of 40 Gram Panchayat Samabai Samittee (GPSS)/Wholesale Consumer Cooperative Society (WCCS). The average number of cards covered by a FPS in Kamrup (Rural) district was found to be 202.93.

METHODOLOGY

The present study was conducted in Kamrup (Rural) district of Assam where the numbers of beneficiary households were highest as compared to other part of Assam. Multistage sampling technique was used for the selection of sample households. The blocks of Hajo and Chhaygaon and two villages from each were selected purposively for the study based on similar reasons. Finally, 132 households were selected from the four villages using proportionate random sampling. Primary data were collected by conducting interviews using a pre-tested schedule which covered a wide range of household's demographics and socio-economic information, calorie intake and the factors affecting participation in the public distribution system with a focus on understanding the status of the PDS in the study area. The secondary data for the study area were collected from various published sources.

The adjusted 24 hour recall method was used to calculate the calorie and nutrient intake of the rural

households, by adjusting for fruits, eggs and meat intake from household monthly (*Orewa and Iyanbe, 2010*). The estimate of per capita calorie intake on daily basis was done using the formula below:

$$C = \sum_{i=1}^n A_{ij} B_j$$

Where,

C = Per capita daily calorie (Kcal) intake level of the individual in the study area

A_{ij} = The weight in grams of the average daily intake of j^{th} food commodity by the i^{th} individual

B_j = The standardize food energy content of the j food commodity

To estimate the difference between the calorie intake by the BPL households with and without the assistance of the public distribution system the formula given below was used:

$$\Delta C = C_{\text{pds}} - C_{\text{wpds}}$$

Where,

ΔC = Difference in the calorie intake

C_{pds} = Calorie intake with PDS

C_{wpds} = Calorie intake without PDS

The factors contributing in effective participation in public distribution system was determined by the following logit model:

$$\text{Pds benf} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu$$

Where,

Pds benf = Dichotomous variable for participation in PDS (1, if beneficiary and 0, if non-beneficiary), Const = Constant, β_i = Parameters ($i = 0, 1, 2, \dots, 8$), X_1 = Adequate quantities, X_2 = Variety of goods, X_3 = Lack of awareness, X_4 = Location of pds in accessible place, X_5 = Preference of local variety, X_6 = Proper employee response, X_7 = Wasting time in ration shop, X_8 = Age of cardholder, μ = Error term

RESULTS AND DISCUSSION

The average age of the household heads was 51.65 years in the surveyed area with a family size of 7 members. Size of the household has impact on the economic bearing of the household. Moreover, family size in relation to food expenditures has received wide attention for its effects on the nutrient intake and in turn calorie consumption of the individuals. The largest sample household was comprised of nine family members while the smallest household had three

Table 1. Mean quantity of food consumed in the Kamrup (Rural) district

Food groups	RDA	Mean food consumption							
		AAY(n=33)		BPL(n=35)		APL(n=24)		NB BPL (n=40)	
		Mean	Adq (%)	Mean	Adq (%)	Mean	Adq (%)	Mean	Adq (%)
Cereals(gm)	380	526.37	138.52	511.42	134.58	498.36	131.15	488.78	128.63
Pulses(gm)	45	36.75	81.67	39.92	88.71	47.47	105.49	34.52	76.71
Vegetables(gm)	475	242.84	51.12	243.74	51.31	272.39	57.34	196.76	41.42
Fruits(gm)	100	4.74	4.74	7.61	7.61	13.39	13.39	15.78	15.78
Oils and fats(ml)	25	24.37	97.48	26.54	106.16	28.56	114.24	28.34	113.36
Milk and milk products(ml)	300	174.59	58.20	179.91	59.97	188.43	62.81	168.84	56.28
Sugar(gm)	25	24.62	98.48	31.40	125.6	28.54	114.16	34.26	137.04
Egg and meat(gm)	50	22.95	45.90	16.27	32.54	18.21	36.42	22.28	44.56

Note: RDA= Recommended Dietary Allowances, AAY= Antyodya Anna Yojna, BPL= Below Poverty Line, APL= Above Poverty Line, Adq=Adequacy, NB=Non beneficiary

members only. Majority of the household heads were male (79.35%). Considering the transition in the type of family composition in today's world, with 65.91 per cent, majority of the sample households were found to be from nuclear families and the rest 34.09 per cent belonged to joint families. Literacy and schooling are important indicators of the quality of life, which can help to measure the poor's ability to take advantage of the income earning opportunities, which in turn, may influence food intake and health seeking behaviour. So, about 22 per cent of the households head attained educational qualification up to middle level, followed by higher secondary level (20.65%), primary level, secondary level and graduate level (13.04%). Most of the households were hindu (58.7%) and the rest 41.3 per cent were muslim. Approximately, 14.13 per cent of the households belonged to schedule caste and the schedule tribe families comprised 6.52% of the sample surveyed. The rest either belonged to the general or OBC category. Agriculture with 73.9 per cent was found to be in majority as the principal occupation of the respondents whereas people involved in non agricultural activities were found to be the rest 26.1 per cent.

Impact of PDS on calorie intake : Food consumption and energy derived from the intake of the food items across the households and the type of ration cards is presented in the Table 1 and Table 2. Table 1 gives us a clear picture about the various quantities of food items that the households consumed. It was found that the all the categories of household were adequate in the consumption of cereals and oils and fats only. *Nagesh, (2016)* also witnessed similar results in his study

conducted in Tumakur district of Karnataka. The intake of the food items surely shows that the households fell short in consuming adequate quantities of a lot of food items. Here the findings show that the beneficiaries were found to be in a better position of taking a comparatively higher proportion of food items from each food category then their non participant counterparts. This is due to the availability of the higher amount of disposable income to spend on other needs which is due to the food subsidy of PDS.

Table 2. Energy derived from the intake of the food items in the Kamrup (Rural) district

Food items/ groups	Energy derived (cal/day)			
	AAY (n=29)	BPL (n=44)	APL (n=22)	NB BPL (n=40)
Rice	902.2	1009.6	1005.5	871.2
Wheat	796.7	687.8	632.2	789.7
Others	65.3	99.8	151.3	53.3
Total	1754.3	1753.4	1789	1714.3
Cereals	1754.3	1753.4	1789	1714.3
Pulses	67.2	78.5	111.4	63.4
Vegetables	59.2	84.7	82.6	67.8
Fruits	5.6	16.4	8.9	9.6
Oils and fats	194	117.6	233.8	103.2
Milk and milk products	86.6	49.5	83.3	66.6
Sugar	41.8	28.7	54.3	37.8
Egg, fish and meat	20.8	24	16	29.8
Total	2239.4	2196.6	2379.4	2092.5

Note: AAY= Antyodya Anna Yojna, BPL= Below Poverty Line, APL= Above Poverty Line, NB=Non Beneficiaries,

Table 2 reveals that the access to PDS had made the BPL beneficiaries more secured in terms of the

intake of calorie than their non-participant counterparts. Taking 2100 calories for urban and 2400 calories for the rural households (Dandekar, 1996) as the minimum requirement, per capita per day the gaps between the beneficiaries and the non-beneficiaries is quite evident. A positive impact on the calorie intake of the BPL household ($\Delta C = 104.1 \text{ cal/day}$) is found during the study. The subsidized food items have helped in attainment of calorie security but lack in terms of providing nutritional security. There were no 'severely' insecure households in terms of calorie intake but some households were 'mildly' insecure. It was also found that majority of the calorie was consumed from cereals which clearly show that the respondents were not calorie deficient but calorie deprived.

Table 3. Factors affecting participation in PDS in the Kamrup (Rural) district

Variable	Coefficient	SE	Prob.
Constant	-3.157	2.178	0.147
Adequate quantities	-0.501	0.593	0.398
Distribution of goods	2.131***	0.580	0.0002
Lack of awareness	-2.387***	0.559	0.00
Location of PDS	2.892***	0.686	0.00
Preference of local variety	-0.695	0.582	0.232
Proper employee response	-0.307	0.581	0.597
Wasting time in ration shops	-0.682	0.557	0.220
Age of the cardholder	0.068	0.044	0.121

No. of observation = 132

McFadden R-squared = 0.439

Note: *** indicate $p < 0.01$

Parameters for effective participation in PDS : The estimated logit regression coefficient of all the factors affecting participation in PDS was worked out and presented in Table 3.

From Table 3, it was clear that the explanatory variables included in the regression function described around 43.9 per cent variation in the dependent variable, i.e., PDS beneficiary in the entire study area. From the analysis, it was found out that the explanatory variables viz., distribution of variety of goods ($p < 0.01$), lack of awareness ($p < 0.01$) and location of PDS in easily accessible areas ($p < 0.01$) has a significant effect on the participation of the respondents in PDS in the study area. An increase in one unit in distribution of variety of goods can increase the participation by about 2.131 times in the study area. Srivastava and Chand, (2017) had

also reported that the increased supply of both rice and wheat had a positive impact on the participation of the beneficiaries. In a similar way, an increase in one unit of the explanatory variable location of public distribution system in easily accessible areas will result in the increase in participation in PDS by 2.892 units. Ghumaan and Dhiman (2014) also found that easy accessibility to fair price shops has resulted in greater participation and eventually better satisfaction among the beneficiaries. Moreover, an increase in one unit of lack of awareness will cut down the participation in PDS by 2.387 units or in other words, an increase in one unit of awareness will lead to increase in participation in PDS by 2.387 units. All other variables in the logit model fail to show any significant effect.

CONCLUSION

The calorie intake in the study area is very much within the range of 2100 cal/person/day in urban areas to 2400 cal/person/day in rural areas (Dandekar, 1996). From the present study it was found that there were no severely insecure households in the study area but some households were found to be mildly insecure. It was also found that PDS made the beneficiaries more food secure than their non-participant counterparts as they had more disposable income to now spend on other necessities. From the study it was found that PDS had marginal positive effect on calorie intake ($\Delta C = 104.1 \text{ cal/day}$) of BPL households but majority of the total calorie (More than 70%) were obtained from staple cereals. The findings from the study revealed that the explanatory variables viz., distribution of variety of goods ($p < 0.01$), lack of awareness ($p < 0.01$), location of PDS in easily accessible areas ($p < 0.01$) had a significant effect on the participation of the respondents in PDS in the study area. The study reported that the distribution of variety of goods through the fair price shops can help in improving the participation of the people of the study area into the public distribution system. Moreover spreading awareness about the benefits of PDS through both print and digital media will also have a positive impact on the participation in PDS. The location of PDS also has a strong impact on the number of people willing to avail the facilities of PDS. So, the required infrastructure for PDS should be developed in areas that are easily accessible to the people to have a positive impact on the participation in PDS.

REFERENCES

- Bhat, G.M, and Bhat, A. H. (2012). Efficiency of public distribution system in Kashmir: A micro economic analysis. *Int. Res. J. Soc. Sci.*, **1** (4): 24-27.
- Dandekar, V.M. (1996). Population, poverty and employment. In the Indian economy (Vol II). Sage Publications India Pvt Ltd, New Delhi, Pp 405.
- Ghumaan, G.K. and Dhiman, P.K. (2014). Impact of public distribution system on BPL families - An analysis of Punjab. *Int. J. Bus. Manag. Res.*, **4** (2): 125-134.
- Gupta, A.K. and Saxena, A. (2014). Significance of public distribution system in an Indian state - Uttar Pradesh. *Int. J. Manag. Soc. Sci. Res.*, **3** (11): 1-8.
- Maity, S. (2020). Public distribution system and food security: Evidence from Barpeta district, Assam. Development in practice. doi: 10.1080/09614524.2019.1667957. Accessed 17 March 2020.
- Nagesh, N.S. (2016). Impact of subsidised food grains on the food security of rural households: An economic analysis. M.Sc thesis, Submitted to University of Agricultural Sciences GKVK, Bengaluru- 560065, Karnataka, India.
- Orewa, S.I. and Iyanbe, C.O. (2010). Determinants of daily food calorie intake among rural and low-income urban households in Nigeria. *Acad. J. Plant Sci.*, **3** (4): 147-155.
- Sawant, B.S. and Jadhav, R.J. (2013). Public distribution system of essential commodities as a social security (a study of Satara district Maharashtra). *Intl. J. Manag. Busi. Stud.*, **3** (1): 31-33.
- Srivastava, S.K. and Chand, R. (2017). Tracking transition in calorie-intake among Indian households : Insights and Policy Implications. *Agric. Econ. Res. Rev.*, **30** (1): 23-35.

