



Food Security and Public Distribution System: Households' Perceptions, Awareness, and Use of Technology in Moradabad District UP

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Abstract: India has achieved self-sufficiency in foodgrains production, but the accessibility to food by the poor has been a major problem. The mere availability of food with government agencies is of little use if it is not accessible by the poor and those who need it most. The accessibility to the PDS foodgrains depends on both demand and supply-side factors. Perception and awareness at the household level play a crucial role in asserting their demand for their entitlement. Well aware and informed households bargain effectively with Fair Price Shops (FPS) dealers, assert their demand, and not let their PDS quota without purchase. Awareness among the households is low in the district, and households get confused about prices, quantity, and commodities. The PDS dealers have been the main source of confusion for the cardholders. The use of technology in the PDS may lower corruption and improve the PDS functioning, but it created some hurdles for the cardholders and some points of times become the source of exclusion for the households. Aadhaar Based Biometric Authentication through the 'Point of Scale' (PoS) machine created many hurdles for the beneficiaries. An alternative system to the PoS machine should be there to authenticate the beneficiaries. The government agencies and the NGOs should come forward to create mass level awareness among the cardholders to curve out the leakages and every form of corruption from the PDS.

Key Words: Food Security, the PDS, Perception, Awareness, Access

1. Introduction: Food security has been a major concern of the world community to reduce hunger and malnutrition from this planet. The FAO convened the World Food Conference in 1974 to draw the attention of the world community; for the first time, attention was paid to draw different ways and means to assure food to millions of hungry. The conference put the challenge before the world community that no one would go hungry, and no child and women were stunted by malnutrition (FAO, 2006; Xaxa, 2014). Food security not only depends on the availability of food with the country but also on the purchasing power of the individual. The government is responsible for devising ways and means to make food available within a country and secure means to purchase it. The concept of food security implies to adopt and implement programmes and policies to supplement the food requirement of the vulnerable and marginalised groups of people. An efficient food distributive system is an integral part of food security. Food availability with government agencies is of little use if it is not accessible to the people required it. Food should be accessible to all without hindrance to live life with dignity.

Initially, the Public Distribution System (PDS) has been started as a rationing measure in urban parts of the country and later on expanded to the rural areas. The PDS's main objective has been to provide cheaper food to the poor and regulate the food market during scarcity and bumper foodgrains production. But it has been unable to achieve its prime objective and criticised by the policy expert and academic circle. Considering all criticism, the government introduced various reforms to make the PDS more profitable and accessible to the poor. In the line of these reforms was the National Food Security Act (NFSA) passed

by the Indian Parliament in 2013. Under the NFSA, various new provisions and changes were made to improve its efficiency and effectiveness. So it becomes a necessary to identify the level of awareness and assess the role of technology in making the PDS more effective and efficient that may transfer the maximum benefit to the intended households. The level of awareness at the household play a very important role in asserting their demands

2. Objective:

To know households' perceptions and the level of awareness and its effects on the access to the PDS foodgrains under the NFSA.

To assess the role of technology in making the PDS more effective and efficient.

3. Methodology: This study is based on the primary data collected through a set of questionnaires in the Moradabad district of Uttar Pradesh. The survey was carried out in 2018 for the purpose of a larger study (thesis). It takes into account 504 sampling households in the rural and urban areas. A questionnaire covering both qualitative and quantitative aspects of the sampling area is used to achieve the end result. Qualitative aspects involve studying socio-economic characteristics of the households, experiences, perceptions, and awareness related to the functioning of the PDS. Quantitative aspects take into consideration to assess and analyse the consumption and utilisation of the PDS grains, percentage households with ration cards possess, the contribution of the PDS grains to the total quantity consumed by the households, etc. Information obtained with the help of a questionnaire related to the level of awareness and use of technology is calculated, tabulated, analysed, and presented in a meaningful way to understand the ground realities.

4. Review of Literature:

The term food security evolved in the mid-1970s when the World Food Conference 1974 defines food security in terms of food supply and assuring the availability and price stability of essential foodstuffs at the international and national levels (FAO, 2006). The FAO identified four pillars of food security as availability, access, utilization, and stability. In 1948, the United Nations recognised the right to food in the declaration of human rights and proclaimed that it is vital to enjoying other rights. In 1996, the FAO called another World Summit on Food Security in response to widespread under-nutrition and growing concerns about the capacity of agriculture to meet future food needs. Rome summit calls the members of the UN to make efforts to halves the chronically undernourished people by 2015. Surprisingly, in the world, more than 800 million and particularly in the developing world, do not have adequate food to meet their basic nutritional needs.

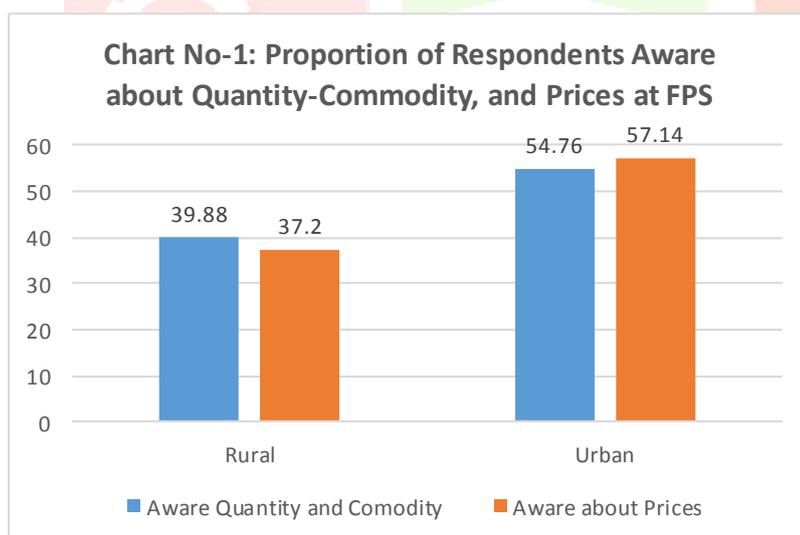
India comes under monsoon types of climate where the uncertainty of rainfall has remained a significant concern in foodgrain production. The failure of the monsoon and drought lower the availability of foodgrains with the farmers and, consequently, with the government that affects the distribution of the entitlement to the poor. The shortage of food production affects people according to their resource entitlement and their command on the means of production. Most of the famines proceeded by the failure of the crops due to a natural disaster (Ghose, 1982). To overcome this problem of bad harvest and drought, the Indian government adopted the buffer stock policy to store the bumper production of good years that could be used during the food shortage that arises due to natural calamities. Before the green revolution came to India, it depends on the import of foodgrains. After the success of the green revolution, India became self-sufficient in foodgrain production. This was a landmark achievement in Indian history. As the foodgrain production increases, the buffer stock with the government also increases with the same proportion that may reduce the threat of famine and hunger. In spite of the spectacular economic growth and bumper foodgrain production, the problems of under-nutrition and malnutrition not to be eliminated and still continues to persist in the country (Ramachandran, 2013).

According to the United Nations, malnutrition is more common in India than in sub-Saharan Africa. The UNICEF estimated that nearly half of all childhood death to be attributed to malnutrition in India. The UNICEF's studies reveal severe undernutrition in five Indian states, namely Uttar Pradesh, Orissa, Bihar, Rajasthan, and Madhya Pradesh. American Chemical Company DuPont released the Global Food Security Index by considering the key issues as affordability, availability, and quality of a set of 105 countries in 2013; in which India ranked 71 in the 105 countries, much lower than the neighbour China (42) even lower than 66th obtained in the previous year. By 2025, India will become the most populous country in the world, feeding such a large population to be likely one of the serious challenges in the coming future (Thakur, A.K., & Taneja, D., 2013).

Food is a basic need for human existence. A healthy life depends on the availability and accessibility of qualitative food. Lack of food has devastating consequences for the well-being and future of the people. Uttar Pradesh has 57 percent stunted, 15 percent wasted, and 42 percent underweight children under the age of 5 years in 2005-06. Children's nutritional status has improved in Uttar Pradesh since NFHS-3 by some measures, not by all measures. Stunted come down from 57 percent to 46 percent, underweight from 42 to 40 percent, while wasting has increased from 15 percent to 18 percent. The improvement is not satisfactory, and therefore, child malnutrition is still a major problem in the state of Uttar Pradesh (NFHS-4, 2015-16). The infant mortality rate in Uttar Pradesh in NFHS-4 is estimated at 64 deaths before the age of one year per 1000 live births, reduced from the NFHS-3 estimate of 73 and NFHS-2 estimate of 89. The under-five mortality rate was 78 in Uttar Pradesh, which came down from the NFHS-3 estimate of 96 and the NFHS-2 estimate of 126 (Uttar Pradesh-NFHS_4, 2015-16). The under-five mortality rate is higher in the district of Moradabad, having 80 per thousand live birth (Office of the Registrar General & Census Commissioner India, 2013). Higher under-nutrition among the children under five also prevails in the district as stunted is 40.9 percent, wasting 12.3 percent, and underweight 35 percent, according to NFHS-4. Furthermore, it is deep-rooted in the marginalised social groups. Household's share of expenditure on food is about 54 percent, while it is about 30 percent on cereal in the District (Poshan, 2018). The district is also severely affected by frequent drought and bad monsoons, which have a bearing effect on household food security. To cope with all these problems, a well-established and managed PDS is a major safeguard against starvation and hunger. Before the implementation of the NFSA, barely one-fourth of the rural population have access to the PDS under the BPL categories. Even the BPL cards were in the wrong hand. It is very unfortunate that after implementation of the NFSA; reports on the status of the NFSA in UP are very alarming. A rapid investigation was conducted in the Moradabad district that came to the same conclusion. More eligible households were found without ration cards and having no information about the NFSA. Ration cards are yet to be distributed; the system continues with the same flaws as before (Drèze, 2016).

4. Result and Discussion:

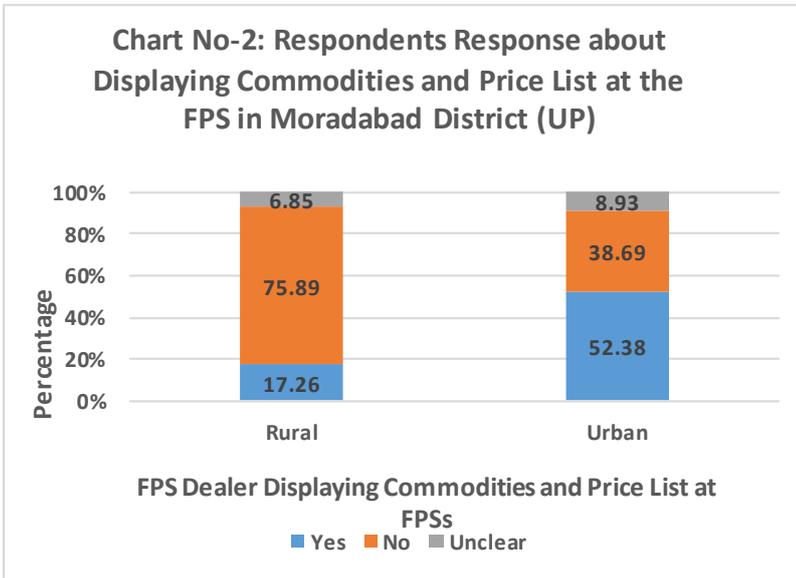
4.1. Awareness among Households about Quantity and Prices of Food Distributed at the FPSs: Awareness among the households about quantity which they are entitled and prices at which ration is distributed play a more significant role in asserting their rights-based demand and obtaining the same quantity as transferred by the government for the beneficiaries.



Awareness might be depending on the education, social interaction, and the information disseminated to the cardholders by the FPSs dealers and other social groups working in the local areas. Awareness is higher among urban households rather than rural households. Households aware of the quantity and commodity distributed at FPSs are 39.88, 54.76 percent in the rural and the urban areas, respectively. The proportion of the respondents who know about prices is 37.2 and 57.14 in the rural and the urban areas, respectively (Chart no-1).

Source: Field Survey, 2017-18.

As observed during the field survey, the first, households got confused by the ration dealers as they cheated to the cardholders by saying that the government giving 4 or 4.5 kg ration per unit even though 5 kg per unit provided by the government. Second, information not be provided by the ration dealers despite the guideline to make things clear like quantity and prices of food on the noticeboard at a visible place at the FPSs. Even information is there at the FPSs but most probably not clear or quantity and food prices not written on the noticeboard.



All the FPS dealers do not display the price list at the FPS despite the provision to display it at a visible place. Only 17.26 percent of the rural respondents replied “Yes” and 75.89 “No” when asked about displaying the price list of cereals, both rice, and wheat by the dealer, at the FPS. More than six percent of the respondents were unclear about displaying the price list. While in the urban area, 52.38 and 38.69 percent of the respondents replied “Yes” and “NO” about displaying the price lists at the FPSs, respectively. 8.93 percent of the respondents were unclear about displaying the price list at the FPSs.

Source: Field Survey, 2017-18.

This variation might be due to the monitoring, which is much higher in the urban areas than in rural areas. Not showing prices at the notice board helps the FPS’s dealers in cheating the cardholders by charging higher prices, and giving the lower quantity of their entitlement.

4.2. PDS Grains Used by the Cardholders: There is a perception among the cardholders that the PDS grains’ quality is not good. The question arises here is that if foodgrains’ quality is not good, then for what purpose beneficiaries put to use these grains? That is why a question was asked to the cardholders about using food grains that they received from the FPSs.

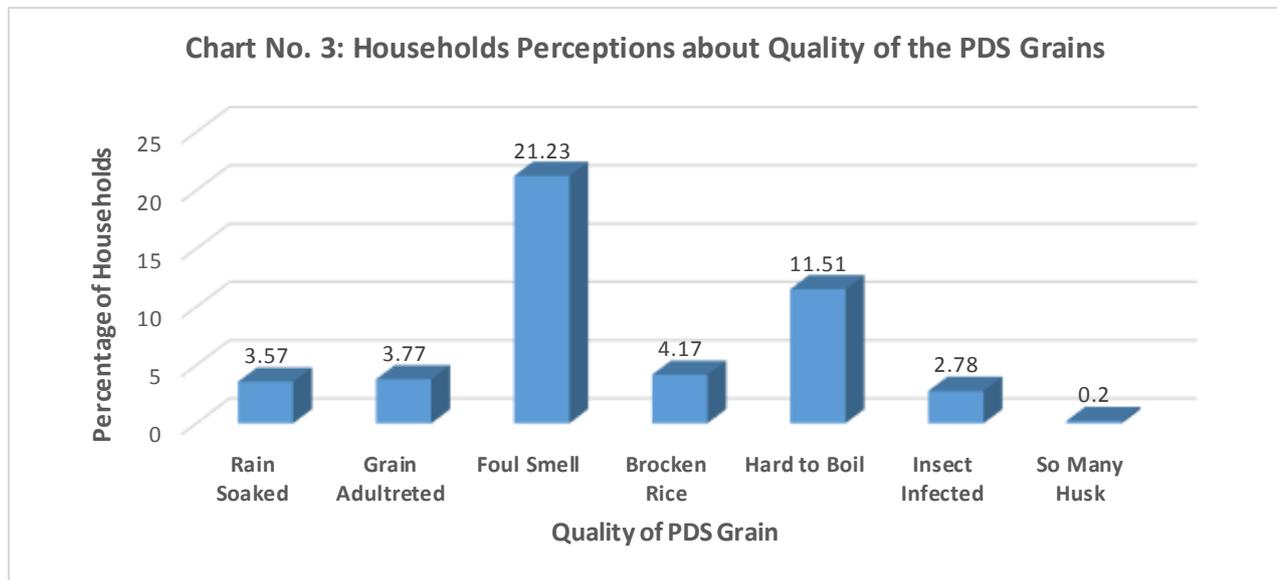
Table No.1: Percentage of Respondents by Used of PDS Grains in Moradabad District (UP)

PDS Grain Used	Frequency	Percent
Personal Consumption	467	92.66
Cattle Feed	30	5.95
Resale	7	1.39
Total	504	100

Source: Field Survey, 2017-18.

A maximum number of respondents among the cardholders replied that we used ration for personal consumption (92 percent). And others put to use the PDS ration for other purposes than consumption, was about 6 percent who said we feed cattle, and 1.3 percent who resale PDS grains. One respondent in Bhojpur town replied that we exchange from our relatives who used to feed cattle on some margin. In the same town, another respondent replied that we used wheat, but the rice was exchanged from the Kairana shops by taking 30 percent less.

(Chart no-3) reported the responses of the households about the quality of food grains. 3.57 percent of the respondents said that the PDS foodgrains are rain-soaked, 3.77 percent of the respondents said that grains are adulterated. A maximum of the respondents (21.23) percent replied that PDS grains have a foul or bad smell. 4.17 percent of respondents complained about broken rice, 11.51 percent complained grains hard to boil. Other problems that were reported insect infected and so many husks.



Source: Field Survey, 2017-18.

4.3. Households Perception about Functioning of the PDS: The overall functioning of the PDS depends on several factors like high-level of monitoring, incentives to both the dealers and beneficiaries, political will power, digitization of transaction, and behaviour of the dealers who distribute ration. The attitude of the dealers also plays a very important role in accessing the entitlement by the beneficiaries. If dealers exhibit good and helpful behaviour, cardholders feel free to visit ration shops on any day of the month to off-take their ration. But this does not happen in most of the cases as the PDS's shop dealers behave rudely with the cardholders. They sometimes used abusive words to the cardholders, and lower caste people are more prone. They look down upon the poor and keep them waiting for a longer time in queue.

Table No. 2: Respondents showing Perception Related to Attitude of Dealers, Importance of, and Satisfaction with PDS in Rural and Urban Areas in Moradabad District (UP)

Perceptions	Rural		Urban	
	Percentage	Freq.	Percentage	Freq.
Attitude of Dealer				
Helpful	26.19	88	32.14	54
Indifferent	56.25	189	61.9	104
Unhelpful	16.37	55	5.95	10
unclear	1.19	4	0	0
Importance of PDS				
Important	89.29	300	92.86	156
Quit-important	9.82	33	5.95	10
Not Important	0.89	3	1.19	2
Unclear	0	0	0	0
Satisfied with PDS				
Highly Satisfied	39.88	134	47.02	79
Reasonably Satisfied	49.11	165	44.05	74
Somewhat Dissatisfied	10.12	34	5.36	9
Very Dissatisfied	0.89	3	3.57	6

Source: Field Survey 2017-18.

As shown in (table no-2), 26 and 32 percent of the respondents in the rural and urban areas respectively; describe the dealers' attitude as helpful, while 56 percent in the rural and 61 percent in the urban regions describe the dealers' attitude as indifferent. Sixteen percent of the respondents in rural areas and about six percent in the urban areas called the dealers' attitude as unhelpful. Around more about 1 percent of the respondents in the rural areas is unclear. The dealers' attitude in the rural areas was different

and more harassed than in the urban areas, as observed during the field survey. This might be due to unawareness about whom to complain and rigid caste and social behaviour deep-rooted in rural societies. High discrimination at the local level existed due to the fact that most of the FPSs are owned by the people belonging to the upper strata of the caste system. They have political support and power relation; that is why it becomes the fashion for them to make abusive comments and physical assault. A study done by Pankaj (2019) reported discrimination and exclusion in the public distribution system and how power relation plays a role in accessing welfare programs in Uttar Pradesh (Kumar Pankaj, 2019).

4.4. Importance of the PDS: India has become self-sufficient during the 1970s but could not eliminate under-nutrition and malnutrition from the face of its soils. High poverty still existed in a remote part of India. The government started a full flag programme as the PDS to provide food on a subsidised basis to economically marginalized poor people to overcome such menaces. It also helped reduce the poverty level as claimed by various scholars as saving on food can be used on the children's health and education. Beneficiaries became angry when asked about replacing the ration with cash transfers. It also becomes clear from (table no-2) that more about 90 percent of the respondents show the importance of the PDS in their household's total food consumption. 9.82 percent of the respondents in the rural and 5.95 percent in the urban areas called the PDS as a quit-important. Very few, only about 1 percent of the household called the PDS as not important. It can be inferred from the respondents' responses that the PDS has importance in their total food consumption. No one can discard the significance of the PDS in their consumption and social assistance. It can be used during crisis times and work as protection from hunger. It will also help to realise the food security objective in a time-bound manner if the proper initiative is adopted.

The level of satisfaction with the PDS indicates how efficient the system work to provide food to the beneficiaries. As shown in (table no-2), 39.88 percent in the rural and 47.02 percent in the urban areas are highly satisfied with the PDS's functioning. A higher percentage of the respondents (49.11) in the rural (44.05) in the urban are reasonably satisfied. 10.12 percent of the rural and 5.36 of the urban respondents are somewhat dissatisfied. Dissatisfaction increases with the gap months and lower quantity and higher prices exercised by the dealers. Reasonably satisfied means beneficiaries are compromising at least one aspect of the PDS like quantity, price, diversion of ration for a whole month, dealers' behaviour, etc.

Table No-3: Respondents Perception about Functioning of the PDS as Compared to the Pre NFSA-2013 in Moradabad District (UP)

	Rural				Urban			
	Better	Same	Worse	Unclear	Better	Same	Worse	Unclear
Accessibility	25.6	38.1	21.43	14.88	35.71	25	10.12	29.17
Quantity Supply	7.44	44.94	32.74	14.88	25	28.57	18.45	27.98
Regularity	19.64	45.54	16.37	18.45	37.5	24.4	6.55	31.55
Quality of Grain	2.68	77.38	6.25	13.69	14.88	48.21	4.17	32.74

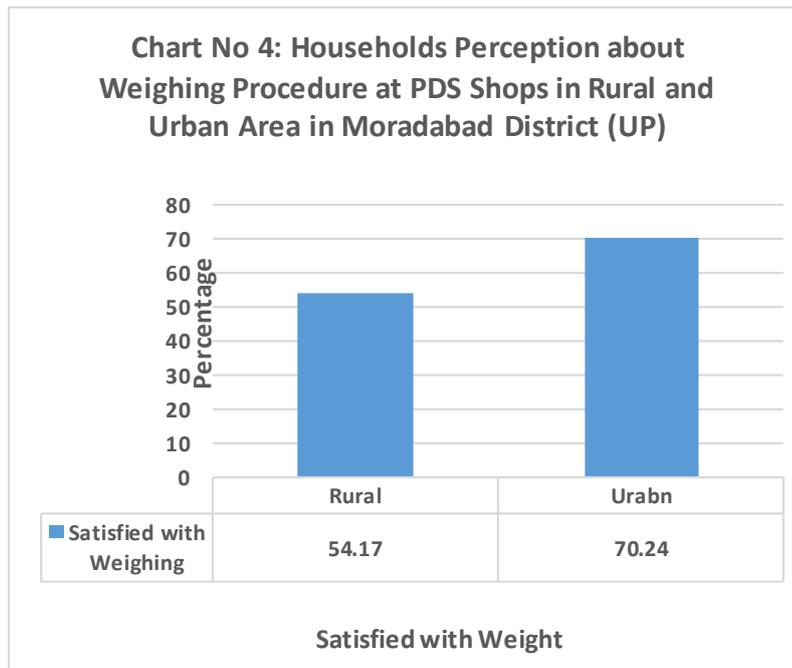
Source: Field Survey, 2017-18.

The National Food Security Act (NFSA) was passed by the Indian parliament that brought many changes to the PDS. The changes introduced to the PDS were a price reduction, quantity on per capita basis as against per households, digitization of the ration cards, etc. The advantages and disadvantages of the new system can be assessed based on the access to food, quantity supply, regularity, and quality of foodgrains. Accessibility refers to the improvement in access to food on a monthly basis. Twenty-five percent of the respondents considered accessibility better, 38 percent felt the same, 21 percent thought worse, and 14 percent was unclear in rural areas. While in urban areas, 35.71 percent of the respondents considered accessibility better, 25 percent of the respondents considered accessibility as the same, 10.12 percent considered accessibility worse, and 29.17 percent was unclear about accessibility.

No bigger change in quantity supply was reported in a rural area, but it is somehow higher in an urban area. It might be due to the unit's omission from the beneficiaries' ration card and lower purchase entitlement ratio in a rural area. Almost 50 percent of the rural areas' respondents reported quantity supply as same as prior to the NFSA. Thirty-two percent of the respondents replied quality of grain as worse than before. No larger change was reported in the regularity of the PDS shops. Almost half of the respondents reported regularity as same as before. No considerable change has been reported in the regularity of the FPSs. Most of the dealers open the FPS for two or three days in a month. After these days, dealers refused to give ration to the

beneficiaries. Another problem related to regularity was no fixed days for the distribution of ration. Many cardholders said that we do not have information on opening days.

The weighing procedure adopted at the FPSs is not uniform. Some dealers took traditional methods of weighing, and some others used electronic weighing machines. But the ration most of the time remains lower than the actual weight weighed at the FPSs.



Cardholders complained that weighing methods are not fair. In Khairkhata village, Respondents said that the dealer used the bucket to weigh ration without compensating this bucket's weight. We get less ration as much as the bucket's weight and replied if we say anything about this, the dealer gives open threat and says take or don't take, I would give the same. Despite the electronic weighing machine's provision at the FPSs, dealers in villages still use the traditional weighing system. In contrast, dealers in urban areas use the electronic weighing machine. Households satisfied with the weighing procedure was 54.17 percent in the rural areas while 70.24 percent in the urban areas.

Source: Field Survey, 2017-18.

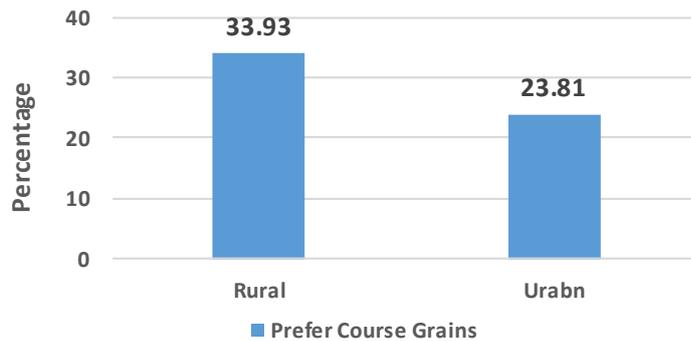
Households not satisfied with the weighing procedure was 45.83 in the rural areas and 29.76 percent in the urban areas. A higher proportion of the households satisfied in urban areas might be because dealers in urban areas adopted an electronic weighing machine to weigh the ration. People in urban areas are comparatively higher educated who can assert their demand. Dealers cheated to the beneficiaries in two ways: first, they give them less than their entitlement and, at the same time, weigh lower during weighing as they also used faulty methods of weighing.

Commodities are given under the PDS are rice and wheat. Many scholars criticised it as the poor have less option to diversify their diets and argued that coarse grains should be included in the PDS so as poor can diversify their diets. Micro-nutrient deficiency is much higher among the Indian poor and primarily urban poor owing to the uniform diets. At the same time, rural counterparts are much better because of greater diversity in their cereal consumption.

The use of coarse grains in the diet could be helpful to tackle micronutrient deficiency. Narasimha D. Rao, a scientist at the International Institute for Applied System Analysis, analysed the NSSO (2011-12) for consumption expenditure and found that more than two-thirds of the Indian population is affected by the deficiency in protein, micronutrients such as Iron and zinc, and Vitamin-A. Data presented in the same study provide that nearly 85 percent are Vitamin A deficient, and more than 50 percent are protein-deficient. Micronutrient deficiencies are more prevalent than calorie and protein deficiency (Ghosh Sahana, 2018). Green revolution and the PDS give emphasis on two crops, wheat, and rice as the main cereal crops as reflected in the consumption. The PDS provides food to 75 percent of the rural and 50 percent of the urban population, which helps in sifting dietary habits from coarse cereals towards wheat and rice, which further led to micronutrient deficiency among the masses. India's total iron intake has reduced by 21 percent in rural areas and 11 percent in urban areas between 1983 and 2011. Iron deficiency is more acute in those parts of India, where rice replaced coarse grains rather than wheat.

The poor are more affected due to higher dependency on the public distribution system. The PDS is so crucial for food security, but the predominance of low nutrient rice from the PDS is associated with a reduction in iron intake (Ghosh Padmapama, 2018). Rice is considered a status marker in a society, the rich people prefer white rice, and coarse grains means for the poor.

Chart No-5: Households Preference about Course Grains in Rural and Urban Areas in Moradabad District (UP)



So it becomes necessary to know the preference of the households whether they prefer coarse grains or not. A question of their preference for coarse grains was asked to the cardholders during the survey. In which, 33.93 percent of the households in the rural and 23.81 percent in the urban show concern about coarse grains. While a higher proportion of the households do not prefer coarse grains, as shown in (chart no-5). Almost two-thirds of the households in the district do not prefer coarse grains. This might be due to coarse grains are considered a food of the poor.

Source: Field Survey, 2017-18.

4.5. Aadhaar Based Biometric Authentication (ABBA): The Unique Identification Authority of India (UIDAI) provides a unique identification number to all individuals identified by their biometric features, aiming to facilitate and inclusion into the government's various welfare programmes. It fulfils two objectives: First, it provides identification documents to all the residents, without which households get excluded from the government's subsidiary programmes. Second, it will help to reduce the corruption in different ways like identification of duplication. Keeping in mind the same objectives, Aadhaar was linked to the beneficiary's ration card to eliminate eligibility, identity fraud, and social exclusion from the PDS under the NFSA. Any development project that helps overcome the problems of exclusion of the poor from the welfare scheme is welcomed. But various studies suggested that linking of Aadhaar to the ration card of the beneficiaries becomes the source of exclusion (Khera, 2017; Menon, 2017; Muralidharan et al., 2020; Reetika Khera, 2017).

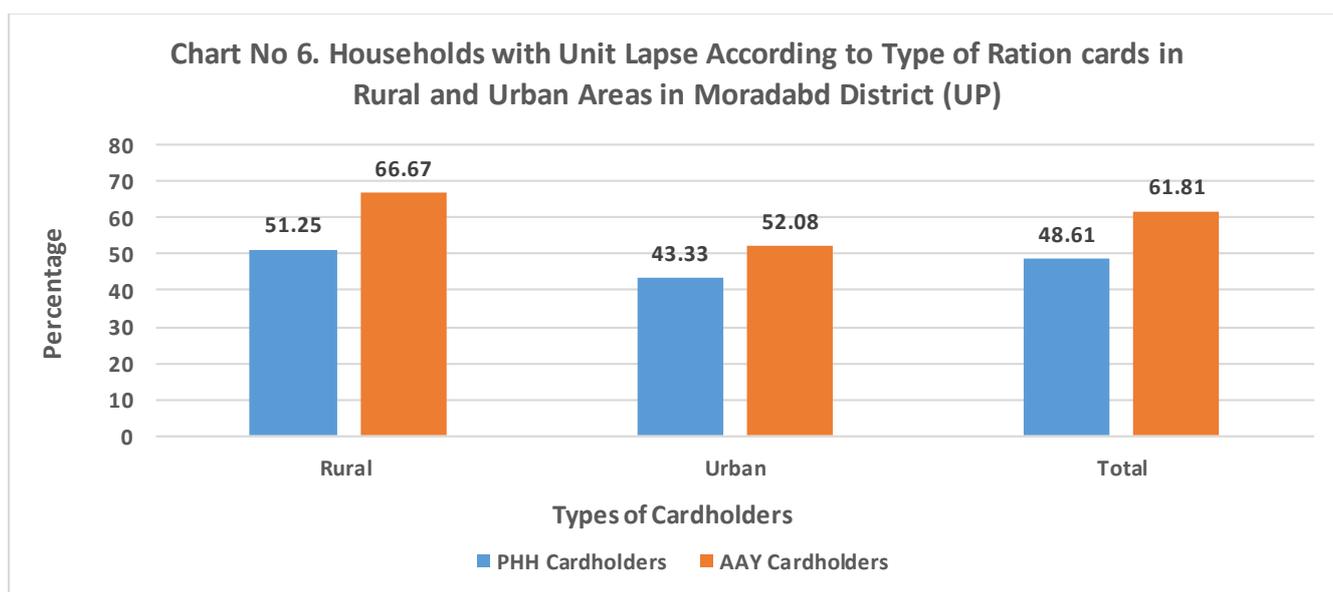
In the study area, the government first introduced Aadhaar Based Biometric Authentication of the beneficiaries in urban areas where Aadhaar cards are linked to their ration card. The electronic "Point of Scale" machine a small hand-held device installed at every PDS outlet and connected to the internet. The PoS machine creates some hurdles in the smooth distribution of the food grains at the FPS due to lack of internet connectivity (temporary or permanent), non-availability of the PoS able member in the household. In due course of time, cardholders became the worst victim of the ABBA system. Most commonly, biometric authentication failure occurred in the case of two groups: the elderly and manual labourers, as their fingers prints often do not match. People have to queue for a long time as connectivity comes and goes or makes a repeated visit to the ration shops to grasp the opportunity of subsidised food. The ABBA has made food grains distribution more problematic as it takes many more days to distribute ration that is not the case in the sample district as practically shops remained open for not more than 2 to 4 days. A study carried out in Jharkhand highlighted that Aadhaar has no direct impact on reducing leakages but excluded 10 percent of the genuine beneficiaries; however, beneficiaries did incur 17 percent higher transaction costs to receive their benefits (Muralidharan et al., 2020)¹. The introduction of the ABBA is termed "Pain without Gain"² on the part of the cardholders. Thumbs of the cardholders did not match that result without purchase of their entitlement. Some cardholders in the Bhojpur town informed that ration dealer comes to our home, after few days of ration distribution, to take fingerprints of the PoS able member without giving ration for that specific month.

4.6. Getting Ration Card Made and Unit Lapse in Ration Card: Prior to the NFSA, the PDS was criticised because of its limited coverage that resulted in excluding some eligible households from the ambit of the public distribution system. Under

¹ Muralidharan et al., 2020 conducted extensive empirical study of the impact of the Aadhaar in reducing leakages, and saving accrued to the government in Jharkhand. They divided the study area into two groups: control group where beneficiaries used old system of procuring their ration and treatment group where beneficiaries go through ABBA. They found that beneficiaries incurred 17 percent higher transaction costs to receive their benefits (a Rs. 7 increase on a base, which is control group incurring of Rs. 41), driven by unsuccessful trips made to the FPS and opportunity cost in doing so.

² The term "pain without gain" was used by Jean Dreze et al, 2017 in a paper titled "Aadhaar and Food Security in Jharkhand Pain without Gain?"

the NFSA, coverage has extended to cover 75 of the rural population and 50 percent of the urban population. But the objective of including all the poor and downtrodden households could not be achieved as many poor households and those mainly belonging to socio-economically lower hierarchy was unable to get ration card made. Those who have been unable to get a ration card made, complained we have given the documents to the FPS dealer but did not get a ration card. Another problem reported was that they did online at cybercafé two or three times but did not get a ration card. One cardholder complained that I have a ration card, but it was got cancelled by Gram Pradhan and the secretary's nexus. It was not only me, but others also got to be cancelled in the mass drive of ration card cancellation. People from other hamlets or villages attached to the nearby village face more problems in getting ration cards made as the FPS dealers help or more open to their village people's issues. Another narrative by the respondents was that the dealer help in getting ration cards made to his own group of people and people belonging to the Pradhan group. People in the rural area have given some money to get a ration card made to the dealer two to three times but cannot get a ration card. Respondents also complained that if we did online two to three times but did not get a ration card and angrily asked the surveyor what we can do to get a ration card made.



Source: Field Survey, 2017-18.

One of the genuine problems that came into the picture during the survey was “Unit Lapse” in the ration card. It was the general phenomenon in the survey area both in rural and urban sectors. Most of the households reported that we have fewer units in our ration card compared to household size. The PHH cardholders complained about the unit lapse in their ration cards are 51.25 percent and 43.33 percent in rural and urban areas. In comparison, 66.67 and 52.08 percent of AAY cardholders have a unit lapse in their ration cards, respectively. As a whole, the district, 48 percent of the PHH cardholders, and 61 percent of the AAY cardholders show a unit lapse in their ration cards, respectively, as shown in (chart no-6). Unit lapse has no meaning for AAY cardholders as their entitlement is defined on the card basis, not a unit basis, but the PHH cardholders get more affected as their entitlement is defined based on the unit basis as written in their ration cards.

This is because the household was not having Aadhaar card of all its members. Even if they have due to some mistake while seeding the data, they entered incorrect information that is not marching to the already inbuilt Aadhaar data sets. And it became challenging to add left-over units into the ration card as told by the respondents. The lapse unit in the ration card varies from one to six units. Many households complained about the unit lapse in their ration cards and told us we have one unit in the ration card but have five to six members in the household. This problem reduced the welfare and subsidy transfer to such households. Some households complained that we have one unit in our ration card; that is why we do not go to off-take our entitlement because it takes too much time to collect ration from the FPSs due to long-standing queues and problems of network, and losses of wages as well.

The purchase entitlement ratio is used as a measure of access to the PDS. It is also used as an indicator to assess; how effective the PDS is in transferring the legal entitlement to the beneficiaries. The PER can be read as an indicator of the cumulative leakages in the system (Dreze et al., 2019). (Table -4) shows the purchase entitlement ratio according to the type of ration card

in both rural and urban areas. The PER for PHH ration cardholders is 84.04 and 87.88 percent in rural and urban areas, respectively, in the district. The PER for AAY ration cardholders is 87.82 and 88.89 percent in the rural and the urban sectors, respectively.

Table No-4: Purchase Entitlement Ratio according to Type of Ration Card in Rural and Urban Areas in Moradabad District (UP)

PER Ratio	PHH		AAY	
	Freq.	Percent	Freq.	Percent
Rural	240	84.04	96	87.82
Urban	120	87.88	48	88.98

Source: Field Survey, 2017-18.

The PER is slightly higher in the urban area, both for the PHH and the AAY households. It reflects higher accountability on the government's part due to higher awareness among urban beneficiaries and a social environment of intolerance of misdeeds by the FPS dealers and associated officials. Information plays a crucial role where awareness and knowledge about the right quantity and prices in the PDS are associated with lower snatching (Pradhan & Roy, 2019). The gap in legal entitlement and purchase from the PDS by the cardholders represents the leakages or corruption from the system. In the rural area, leakages were 16 percent for PPH and 13 percent for AAY households.

5. Conclusion:

Awareness among the cardholders is low in the district. The FPS dealers cheated the cardholders by pretending and giving threats of different kinds like cancellation of ration cards. Cardholders not even fully aware of the grievance redressal mechanism. They are even not aware of the toll-free number given on the notice board at the fair price shops. Households also not aware of vigilance committees formed at the village level. Due to low awareness and low level of education, households receive less quantity of PDS foodgrains that of their entitlement. The PHH Households receive about 84 percent of their entitlement in the rural areas and 87 percent of their entitlement in urban areas, while the AAY households receive 87.82 and 88.98 percent of their entitlement in the rural and the urban areas. Leakage and different forms of corruption still persisted in the PDS in spite of various safeguards and provisions to punish the culprits. But due to low awareness among cardholders about their rights and complaining authority, ration dealers manage to give less quantity of foodgrains than their entitlement. Some households have missing names or 'unit lapse' in their ration cards, which further reduced the household's entitlement. Many households in the sampling areas reported that we have one unit in our ration card in spite of being more than one member in a household. Linking of the Aadhaar number with the ration card further aggravated this problem of unit lapse. Even those with ration cards face problems in their biometric authentication during the PDS foodgrains transaction at FPS. This problem is very common in the case of elderly and manual workers working hard whose fingerprints are not recognised by the PoS machine many times, that resulted in without purchase of any foodgrains. All these problems need to be eliminated by adopting alternative ways that ensure that anybody eligible will not go without purchase. Technology can help to transform the system that may transfer maximum benefits to the beneficiaries and bring down corruption. Technology should be appropriate, reliable, and people-friendly and alternative to ABBA that replaces the online 'Point of Scale' machine authentication, or it should be used offline 'PoS' machine and OTP service to the beneficiaries mobile. To make the PDS well-functioning, efficient and effective, there is an urgent need to increase a mass level awareness among the cardholders and citizens about their rights and different provisions of the act.

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