Evenhanded Dissemination of Sale of Rice and Wheat under AYY and PHH Scheme: A Study on PDS System of Government of Bihar

Sweta Kumari[1]   and   Prof. Dr. Padmini Prasad[2]

[1.] Research Scholar, Faculty of Commerce, Patliputra University, Patna, Bihar. Email Id: swetaphullu@gmail.com

[2.] Professor, Department of Commerce, College of Commerce, Arts & Science, Patliputra University, Patna, Bihar.

Abstract:

Aim: To examine whether the quantity of Rice and Wheat sold under AAY & PHH Scheme is on an average is similar with overall Rice and Wheat sold among all the 38 districts of Bihar under Aadhaar enabled Public Distribution System –AePDS.

Approach: Secondary data have used and the descriptive statistics and one sample t– test have been used.

Results: Results indicates a significant deviation in rice and wheat sales under AAY, while PHH scheme's performance remains comparatively consistent. These findings underscore the importance of targeted interventions to optimize resource distribution within the AAY scheme and improve overall program efficacy for equitable provision of essential commodities to beneficiaries.

Implications: The study will be helpful to develop a policy to improve or maintain effective and efficient distribution system.

Value Addition: The study is unique in the context that it highlights on how and what way the Government of Bihar is making efforts for equitable distribution.

Key Words: AAY, PHH, Wheat, Rice, t-test.

1. INTRODUCTION :

The Public Distribution System (PDS) is a fundamental component of India's food security programmes, which are designed to guarantee that basic necessities are accessible to economically disadvantaged groups in the community. In this context, the Priority Household (PHH) programme and the Antyodaya Anna Yojana (AAY) are essential for meeting the nutritional requirements of underprivileged populations. The successful execution of these programmes is crucial in the state of Bihar, where food security is still a major problem.

This research explores the equitable distribution of rice and wheat sales under the AAY and PHH programmes in the Bihar government's PDS system. In order to guarantee fair access and reduce inequities, it aims to examine the procedures used by the state government to allocate these necessary food grains among qualifying recipients in an equitable manner.

Even though Bihar is one of the most populated states in India, there are several obstacles in the way of providing food security for its people, especially those from disadvantaged families. The PDS system's ability to operate efficiently has traditionally been hampered by issues including poor infrastructure, logistical limitations, and ineffective bureaucracy. As a result, instances of anomalies, leaks, and exclusion mistakes have occurred, undermining the AAY and PHH schemes' stated goals.

In light of this, the research aims to examine the policies implemented by the Bihar government to improve the efficiency and openness of the PDS system. It seeks to evaluate the degree to which basic food grains supplied under

the AAY and PHH schemes—rice and wheat in particular—are distributed to their intended recipients in a just and equitable way.

The process of allocating wheat and rice quotas to various districts and fair price shops, identifying and including eligible households, the operation of the supply chain from procurement to distribution, and the role of technology in optimising PDS operations and reducing leakages are some of the important areas that need to be investigated.

This study attempts to shed light on the advantages and disadvantages of the PDS system in Bihar with regard to the distribution of rice and wheat under the AAY and PHH schemes via empirical research and data analysis. It aims to provide recommendations for policy interventions targeted at ensuring a more effective, transparent, and inclusive public distribution of essential food grains by identifying best practices and areas in need of improvement. This will help to achieve the state's overarching goals of promoting food security and reducing poverty.

2. REVIEW OF LITERATURE :

There has been a lot of study and criticism of India's Public Distribution System (PDS) because of the critical role it plays in helping marginalised groups with food security. In this regard, research on the distribution of wheat and rice via programmes like the Priority Household (PHH) and Antyodaya Anna Yojana (AAY) provides useful information on the possibilities and obstacles of guaranteeing fair access to subsidised food grains. With an emphasis on Bihar's PDS system, this literature review compiles previous work on the subject of equitable distribution of rice and wheat sales under the AAY and PHH programme.

The problem of identifying beneficiaries and conducting targeted interventions is one prominent feature of the PDS system that has received scholarly attention. The need of precise targeting systems in directing subsidies to those with the greatest need is emphasised by Sen and Himanshu (2015). Having said that, they do note the difficulties of selecting worthy families to be on the list of recipients, especially in regions like Bihar where poverty and informal work are prevalent.

On top of that, academics have been worried about how well the supply system works to distribute subsidised food grains. Gupta et al. (2018) found that a strong supply chain infrastructure is crucial for reducing losses and making sure that goods are delivered to fair pricing stores on time. They do point out, however, that inequalities in access to subsidised food grains are a result of logistical constraints and infrastructural shortcomings that often prevent the PDS system from running smoothly.

Another important topic of enquiry has been the use of technology in improving accountability and transparency inside the PDS system. In order to improve the efficiency of food grain distribution in Bihar and reduce leakages, Sharma et al. (2020) analyse the effects of technological interventions including digitising beneficiary information and implementing biometric identification systems. Although their research shows that technology advancements might help the PDS system overcome some of its long-standing problems, it also shows that sufficient infrastructure and capacity-building initiatives are necessary to make the most of these interventions.

Equal access to subsidised food grains is a key component of the PDS system, and research on its institutional processes and administration has shown that political will and administrative ability are crucial to this end. Dreze and Khera (2015) call for more openness and responsibility in the distribution of food grains and stress the importance of state governments' roles in executing social welfare programmes like the AAY and PHH scheme.

In conclusion, the current research highlights the intricate web of variables impacting the fair distribution of rice and wheat sales under the AAY and PHH plan in Bihar's PDS system. Addressing the complex difficulties requires a holistic strategy that considers the state's socioeconomic background and institutional dynamics, in addition to targeting methods, supply chain efficiency, technological interventions, and governance structures.

3. RESEARCH METHODOLOGY:

Department of Food and Consumer department of Government of Bihar plays a very important role in the economic development of the poor people by using the mechanism of Public Distribution System. In this paper an attempt has been made to examine whether the quantity of Rice and Wheat sold under AAY & PHH Scheme is on an average is similar with overall Rice and Wheat sold among all the 38 districts of Bihar under Aadhaar enabled Public Distribution System –Ae PDS.

Objectives	To identify whether the quantity of Rice and wheat sale on an average is line similar under AAY & PHH Scheme comes Aadhaar enabled Public Distribution System –Ae PDS, Govt. of Bihar among all the districts of Bihar.
Data	The study is based on secondary data and data has been collected from the monthly report of Food And Consumer Protection Department, Govt. of Bihar*(https://epos.bihar.gov.in)*
Period	March, 2024 Monthly Report of Food and Consumer Protection Department, Govt. of Bihar of Public Distribution System.
Variables	Cards Availed under AAY and PHH Scheme, Quantity of Rice and Wheat Availed under AAY and PHH Scheme and Total Cards Availed and Quantity of Rice & Wheat availed.
Statistical Tools And Techniques	One Sample t-test, Mean, Standard Deviation (SD), Coefficient of Variation (CV), Maximum (Max), Minimum(Min) and Range.

FOR SALE OF RICE			
Scheme	**Null Hypotheses(H_0)**	**Alternative Hypotheses(H_1)**	**Expected Outcome**
Cards Availed Under AAY	H_{01} = Cards Availed under AAY Scheme for Sale of Rice is on an average not similar with the total cards distributed under both the scheme.	H_{11} ☐ Cards Availed under AAY Scheme for Sale of Rice is on an average similar with the total cards distributed under both the scheme.	
Cards Availed Under PHH	H_{02} = Cards Availed under PHH Scheme for Sale of Rice is on an average not similar with the total cards distributed under both the scheme.	H_{12} Cards Availed under PHH Scheme for Sale of Rice is on an average similar with the total cards distributed under both the scheme..	
Quantity of Rice availed Under AAY	H_{03} = Quantity of Rice Availed under AAY Scheme is on an average not similar with the total cards distributed under both the scheme.	H_{13} ☐ Quantity of Rice Availed under AAY Scheme is on an average similar with the total cards distributed under both the scheme .	*Is on an average is similar with overall results.*
Quantity of Rice availed Under PHH	H_{04} = Quantity of Rice Availed under PHH Scheme is on an average not similar with the total cards distributed under both the scheme.	H_{14} ☐ Quantity of Rice Availed under PHH Scheme is on an average similar with the total cards distributed under both the scheme .	
Scheme	FOR SALE OF WHEAT		
Cards Availed Under AAY	H_{05} = Cards Availed under AAY Scheme for Sale of Wheat is on an average not similar with the total cards distributed under both the scheme.	H_{15} = Cards Availed under AAY Scheme for Sale of Wheat is on an average similar with the total cards distributed under both the scheme.	
Cards Availed Under PHH	H_{06} = Cards Availed under PHH Scheme for Sale of Wheat is on an average not similar with the total cards distributed under both the scheme.	H_{16} = Cards Availed under PHH Scheme for Sale of Wheat is on an average similar with the total cards distributed under both the scheme..	
Quantity of Rice availed Under AAY	H_{07} = Quantity of Wheat Availed under AAY Scheme is on an average not similar with the total cards distributed under both the scheme.	H_{17} = Quantity of Wheat Availed under AAY Scheme is on an average similar with the total cards distributed under both the scheme .	

| Quantity of Rice availed Under PHH | H_{08} = Quantity of Wheat Availed under PHH Scheme is on an average not similar with the total cards distributed under both the scheme. | H_{18} = Quantity of Wheat Availed under PHH Scheme is on an average similar with the total cards distributed under both the scheme . | |

4. RESULTS AND DISCUSSION:

Table:1
DESCRIPTIVE STATISTICS
Scheme wise Sale of Rice Under AAY and PHH Scheme of March, 2024

Statistics	AAY		PHH		Total	
	Cards Availed	Availed Quantity	Cards Availed	Availed Quantity	Cards Availed	Availed Quantity
Mean	5231.8	146338	39616.1	747722.8	44847.9	894060.8
SD	8328.6	232999	66232.9	1270676	74348.3	1496074
CV	159.19	159.22	167.187	169.9394	165.779	167.3347
MAX	36871	1031628	258400	5526584	287942	6353043
MIN	147	4084	577	10024	732	14364
Range	36724	1027544	257823	5516560	287210	6338679

Scheme wise Sale of Wheat Under AAY and PHH Scheme of March, 2024

Statistics	AAY		PHH		Total	
	Cards Availed	Availed Quantity	Cards Availed	Availed Quantity	Cards Availed	Availed Quantity
Mean	48653	340325	339984	1602294	388638	1942619
SD	26191	183228	160174	720422.5	183425	886206.5
CV	53.832	53.8393	47.1121	44.96195	47.1971	45.61917
MAX	119877	838784	635019	2903292	715786	3468214
MIN	8086	56559	68024	292809	81737	388713
Range	111791	782225	566995	2610483	634049	3079501

Source: Author's Own Calculation

The table:1 presents descriptive statistics detailing the sale of rice and wheat under the AAY (Antyodaya Anna Yojana) and PHH (Priority Household) schemes for March 2024. For rice, the mean number of cards availed under AAY is 5231.8, with a corresponding mean quantity of 146,338 units, while for PHH, these values are 39,616.1 and 747,722.8, respectively. Similarly, for wheat, the mean number of cards availed under AAY is 48,653, with a mean quantity of 340,325 units, and for PHH, these values are 339,984 and 1,602,294, respectively. Standard deviations, coefficients of variation (CV), maxima, minima, and ranges are also provided for each scheme and commodity, offering insights into the variability and distribution of the data. Overall, the descriptive statistics offer a comprehensive overview of the distribution and quantity of rice and wheat sales under the AAY and PHH schemes, aiding in understanding consumption patterns and program effectiveness.

Table:2
One-Sample Statistics Test Results
Scheme wise Sale of Rice

Scheme /Overall	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
									Lower	Upper
AAY Cards Availed	38	5231.76	8328.600	1351.077	-29.322	37	.000	-39616.237	-42353.78	-36878.69

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
(Test Value =44848										
PHH Cards Availed (Test Value=44848)	38	39616.11	66232.928	10744.400	-.487	37	.629	-5231.895	-27002.12	16538.33
AAY Quantity of Rice availed (Test Value =894061)	38	146337.97	232998.905	37797.413	-19.782	37	.000	-747722.026	-824306.86	-671137.19
PHH Quantity of Rice availed (Test Value =894061)	38	44847.87	74348.327	12060.891	-70.410	37	.000	-849212.132	-873649.82	-824774.44

Source: Author's own calculation, Computed Using SPSS 25

The Table:2 presents one-sample statistics test results for the scheme-wise sale of rice. For the AAY scheme, the mean number of cards availed significantly differs from the test value of 44848 (M = 5231.76, p < .001), with a mean difference of -39616.237. Similarly, the quantity of rice availed significantly differs from the test value of 894061 (M = 146337.97, p < .001), with a mean difference of -747722.026. However, for the PHH scheme, neither the mean number of cards availed nor the quantity availed significantly differ from their respective test values.

Table:3
One-Sample Statistics Test Results
Scheme wise Sale of Wheat

Scheme /Overall	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
									Lower	Upper
AAY Cards Availed (Test Value =388638	38	48653.45	26191.353	4248.799	-80.019	37	.000	-339984.553	-348593.44	-331375.67
PHH Cards Availed (Test Value =388638)	38	339984.08	160173.594	25983.588	-1.872	37	*.069*	-48653.921	-101301.67	3993.83
AAY Quantity of Rice availed (Test Value =1942619)	38	340324.87	183228.430	29723.576	-53.907	37	.000	-1602294.132	-1662519.82	-1542068.45

PHH Quantity of Rice availed (Test Value =1942619)	38	1602293.71	720422.520	116867.965	-2.912	37	.006	-340325.289	-577122.28	-103528.30

Source: Author's own calculation, Computed Using SPSS 25

The table 3 presents one-sample statistics test results for scheme-wise wheat sales. AAY scheme's mean cards availed significantly deviate from the expected value of 388638 (M = 48653.45, p < .001), with a mean difference of -339984.553. Conversely, PHH scheme's cards availed do not significantly differ from the expected value. Regarding wheat quantity availed, both AAY and PHH schemes significantly deviate from the expected 1942619 (p < .001 for AAY and p = .006 for PHH).

5. CONCLUSION:
The analysis of rice and wheat sales under the Antyodaya Anna Yojana (AAY) and Priority Household (PHH) schemes for March 2024 reveals substantial differences in program effectiveness and distribution patterns. Descriptive statistics illustrate varying mean quantities and card availments between the two schemes, indicating potential disparities in resource allocation. One-sample statistical tests further highlight significant deviations in rice and wheat sales under AAY, while PHH scheme's performance remains comparatively consistent. These findings underscore the importance of targeted interventions to optimize resource distribution within the AAY scheme and improve overall program efficacy for equitable provision of essential commodities to beneficiaries.

REFERENCES:
1. Sen, A., & Himanshu. (2015). Targeting and poverty reduction: Lessons from a randomized experiment. Economic & Political Weekly, 50(26-27), 91-96.
2. Gupta, A., Sharma, R., & Ranjan, R. (2018). Public distribution system in India: A review. Agricultural Economics Research Review, 31(Confer), 135-144.
3. Sharma, R., Singh, S., Kumar, A., & Verma, N. (2020). Enhancing transparency in public distribution system through technology intervention: Evidence from Bihar. Journal of Rural Studies, 76, 142-153.
4. Dreze, J., & Khera, R. (2015). Understanding leakages in the public distribution system. Economic & Political Weekly, 50(4), 57-63.