Public Distribution System in Kerala-A Study on Consumers' Attitude

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Abstract

The enactment of the National Food Security Act (NFSA) made food rights a legal right. The vast territory, population, and socio-economic disparities that exist in India make it extremely challenging to make the Public Distribution System foolproof. The Public Distribution System of Kerala, hailed by many as the best in the country owing to its effective implementation and universal coverage, was instrumental in securing food security, alleviation poverty, and ensuring impressive human development indices in health care and social development. The present study intends to evaluate the level of awareness of PDS consumers and their attitude towards the Public Distribution System. The study found that consumers have the least awareness of Regulatory and technology-related factors and are well-informed about Business factors. It also revealed that they have a Positive attitude toward Service, Regulatory measures, and technology Related Factors and the overall attitude is favourable.

Keywords: *National Food Security Act (NFSA), Public Distribution System (PDS), Global Hunger Index (GHI)*

Introduction

Food is one of the basic necessities for human survival. Everyone has the basic right to be free from hunger, the right to adequate, safe, and nutritious food, and to use it effectively to lead an active and healthy life. Food insecurity refers to a situation in which access to safe and healthy food is limited. Food security refers to the accessibility of sufficient, safe, and nutritious food- materially, socially, and economically for all people at any time to meet their dietary needs for an active and healthy life. It has been found that low-income communities and those with poor health experience more severe food insecurity. Though it is not the only determinant, food insecurity is an important factor that leads to poverty. Other impacts include policies, population, food distribution in countries and regions, unstable

political conditions, and adverse environmental conditions caused by climate change, including severe drought, water shortage, soil degradation, and erosion (George & Mckay, 2019).

The goal of the United Nations is to eliminate hunger by 2030 and ensure that all people, especially the poor and vulnerable, including infants, receive safe, nutritious, and adequate food throughout the year (Martin, *n.d.*). Although the commitment to achieve zero hunger by 2030 is the fundamental ambition to achieve the Sustainable Development Goals, our hard-won achievements are now being threatened or reversed. The Global Hunger Index 2019 shows that hunger levels in many countries are now higher than in 2010, and about 45 countries will not be able to achieve the UN target of zero hunger by 2030. Conflict, inequality, and the effects of climate change all lead to persistently high levels of hunger and food insecurity around the world (United Nations, n.d.).

Among the 116 countries in the Global Hunger Index (GHI) 2021, India ranks 101st position and belongs to the category of 'serious' hunger. Neighbouring Bangladesh, Myanmar, and Pakistan also fall into the 'serious' category but rank higher i.e., in a better position than India in the GHI 2021. Bangladesh ranks 76th, Myanmar and Pakistan rank 71st and 92nd respectively (Global Hunger Index, 2021). This worse situation can also be seen from the Global Food Security Index (GFSI) 2021, that India's position is 71st among 113 countries in the world and belongs to the least food-secured category (Economist Impact, 2021).

India's Public Distribution System (PDS) plays a vital role in reducing food insecurity by acting as a safety net by distributing necessities at a subsidy rate to ensure the energy requirement of people. Although PDS is the cornerstone of the government's food and nutrition policy, India is still home to a large number of hungry and malnourished people (George & Mckay, 2019).

PDS- Concept

'A public distribution is the whole or part of the distribution system in principle owned and controlled by Public authorities on behalf of the general public or specific group thereof'(Ojha, 1987). India's public distribution system is a retail system supervised and guided by the State Governments (Singh, 2009).
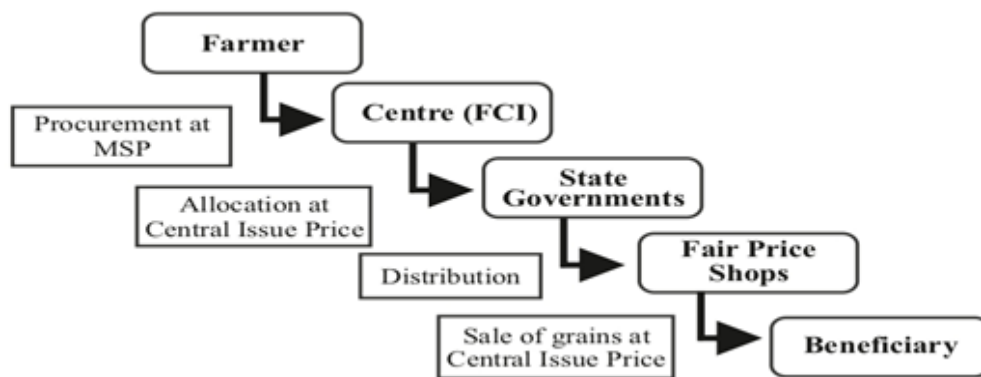

Figure 1

Process of Public Distribution System (Source: Drishti, 2019)

National Food Security Act (NFSA), 2013

The National Food Security Act 2013, promulgated on 5th July 2013, marks a shift from a welfare approach to a rights-based approach. The Act legally entitles up to 75 per cent of the rural population and 50 per cent of the urban population to receive subsidized food grains according to the 'Targeted Public Distribution System'. Therefore, the Act covers about two-thirds of the population to receive highly subsidized food. The National Food Security Act, 2013 has been implemented in all the Indian states and Union Territories. At present, there are about 80 crore people have been covered under this scheme, out of the intended maximum coverage of 81.35 crore people.

The PDS of Kerala acts as an effective instrument to ensure food security and is considered a model for most of the other Indian states. The distinctive features of the Kerala model of the PDS such as universal coverage, high-level utilization, and progressive utilization have been widely appreciated and recognized. However, a close examination of the facts reveals that the distribution side of the PDS in Kerala still has issues to be addressed. The contribution of PDS to the total consumption of food grains in the state is comparatively low and the benefits of progressive distribution to weaker sections have also not been realized. The issues with the criteria and process of selecting beneficiaries prevented a large number of eligible families from benefiting from the food security coverage.

Literature Review

Various studies have extensively examined the Public Distribution System (PDS) in India, focusing on different states and aspects of the system.

Large canvas with small pictures

The PDS system of many states is insufficient to cater to the needs of the people. Naik (1997) conducted research on the management of food grains by the PDS in Orissa and found that the quantity of rice and wheat provided to cardholders was inadequate, indicating a lack of effectiveness in meeting consumer needs. Venkata Subbaiah (1999) in his study of the PDS subsidy rice scheme, has found that the quantity of rice provided to beneficiary households under the scheme was insufficient compared to their needs. In Karnataka, it is found that in rural areas, poor families are dissatisfied with the quantities of goods, and most of them think that the quantity is not sufficient. This shows that, whether in urban or rural areas, poor families hope to obtain more PDS products. (Kudlannavar, 2000). Praveen Kumar Reddy (2002) in his study on the role of PDS in the economic development of tribals in Prakasam and Nellore districts of Andhra Pradesh affirms that customers are not satisfied with the quality and quantity of rice supplied. Due to the insufficient quantity of food provided through PDS, the tribal people are forced to rely on other sources. Sometimes they have to depend on the open market to buy food, so they have to pay more, which exacerbates their financial problems because they have to borrow money from moneylenders and are always in debt.

Inefficient Management

Inefficient governance of government systems has become a prevailing trend. In addition to the lacune of insufficiency of quantity, the timely delivery of goods to fair-price stores posed significant challenges for the delivery agency. This inefficiency proved that it is not consumer-oriented. The public distribution system proved to be ineffective and failed in terms of the quantity, price, and quality of the goods distributed, and the regularity of satisfying the needs of consumers, especially those of socially disadvantaged groups (Naik, 1997).

The research indicates that the efficient functioning of fair-price shops is greatly influenced by the timely provision of food grains, their appropriate location, pricing, quantity, and quality. This ensures that beneficiaries can access essential food grains on a monthly basis at their designated ration shops. Sustained efforts are necessary to guarantee that food grains are easily accessible to beneficiaries in convenient locations. The pricing of food grains should also be reasonable to aid ration cardholders in obtaining their monthly food grain allocations (Sathish, A., & Gaonkar, N. B., 2023).

Dealer Junks

Dealers are complaining about the discrepancy in quantity allotted and received and reducing the quantity to consumers to compensate for the discrepancy. The urban population of many states complains about the weights and measures in FPS as inaccurate (Venkata Subbaiah, 1999)

Pictures from Kerala

All the problems prevailing in other states are apparent in the state of Kerala. Nair (2008) conducted a study on food security in Kerala with special reference to the targeted public distribution system. It is revealed that despite the low entitlement, many families have not yet purchased the allocated quotas. The most common complaints about the under-use of PDS are the poor quality of the grains distributed by the system and the unavailability of locally preferred rice. Reasons for poor grain quality include adulteration, foul smell, insect infestation, and stickiness when cooked. The government's poor storage facility is the main reason for the supply of foul smell and insect-infected supplies.

In an Investigation into Food Security and the Food Budget of the Families by Compensatory Public Distribution System, Saritha & John (2015) showed that with the introduction of the Food Security Act, many of the subsistence APL families struggling to meet both ends were excluded. They must buy more from the open market at very high prices. The pattern of changes in the purchases of PDS by MPCE (Monthly Per Capita Expenditure) groups showed that the quantity of purchases from PDS has not systematically decreased with the increase in expenditure class.

A detailed examination of the utilization of TPDS by the APL and BPL households in Kerala by Smitha (2017) found that the actual purchase is less than their entitlement due to poor quality and irregularity. Most (78 per cent) BPL families are dissatisfied with the dealer's service, especially because dealers charge higher prices from them. It is also revealed that about 30 per cent of targeting errors (inclusion error and exclusion error) prevail in the selection of beneficiary households under TPDS.

A recent study by Sekhar (2018) shows that the conditions of fair-price shops in Kerala are much better than in other states. The performance of the targeted public distribution system satisfies the poor class of society, especially the achievement of the poverty alleviation goal. However, the public distribution system faces many problems in the modern world. The quality and quantity of PDS foodgrains need to be changed. Government policy changes will improve the status quo of the system. The poor sectors of society need better care and support through the PDS. A positive correlation is essential, such as the condition of poor sections and the condition of the PDS. These positive correlations reduce poverty in our country.

Shanand (2019) pointed out that the main weaknesses of the PDS are the low quality of goods, inadequate quantity, and non-availability of commodities during the early weeks of the month. The study also shows that the intensity of the problems faced by AAY cardholders is high, which shows that the distribution mechanism is inefficient in ensuring that the poorest households get the most benefits.

These studies collectively highlight persistent issues within the PDS, such as inadequate quantity, poor quality, irregularities, targeting errors, and challenges in delivery and distribution. Consequently, there is a pressing need for systemic improvements and policy changes to enhance the effectiveness and consumer orientation of the PDS.

Statement of the Problem

As per the report of the State of Food Security and Nutrition in the World 2019 (FAO, 2019), the number of undernourished people in India is estimated at 194.4 million, accounting for approximately 14.5 per cent of the total population (Kerala State Planning Board, 2019). In India, the per capita consumption of PDS food grains (rice, wheat/atta) is 2.027 kg in rural and 1.185 Kg in urban areas (2009-10), which is only around 20 per cent and 14 per cent of the consumption requirements of both the segments respectively (National Sample Survey Organisation, 2013). In Kerala, the per capita consumption of PDS food grains (rice, wheat/atta) is 2.128 kg in rural and 1.806 Kg in urban areas (2009-10), which only constitute around 26 per cent and 23 per cent of consumption requirements of both the segments respectively (Directorate of Economics & Statistics- Govt. of Kerala, 2015). The National Sample Survey report reveals that consumers mostly depend on the open market for their food grain requirement, even though the government spends a lot of money on food subsidies to PDS. This apathy may be due to the quality of goods supplied, the nonavailability of required food grains as and when required, the attitude of the supply system, etc. In this context, the present study is to be undertaken to analyze the attitude of consumers towards the Public Distribution System.

Objectives of the study

To ascertain the level of awareness of consumers about various aspects of PDS.

To analyze the attitude of Consumers towards the Public Distribution System.

Methodology

The design of the present study is descriptive and analytical. Both primary and secondary data were collected. The secondary data were obtained from the publications of the Food and Agriculture Organization, World Bank, Ministry of Consumer Affairs Food and Public Distribution (GoI), and Kerala State Civil Supplies Department. The primary data were collected from 520 consumers by using a structured questionnaire. The multi-stage proportionate random sampling method is used for the selection of 120 ration shops in the first phase of sampling and in the second phase 520 consumers were selected from the 120 ration shops (120 FPS was selected in the first phase of sampling), using the incidental sampling method (Aggarwal, 1988). The formula used for fixing the sample size is **n ≥ (1.96 s/d)²**. A pilot study was conducted among 50 consumers for a period of two months from March 2019 to April 2019 and final instruments for data collection were administered to 520 sample consumers for a period of six months from July to December 2019. The tools used for hypothesis testing include One Sample t-test, ANOVA, and MANOVA.

Demographic Profile of Consumers

Table 1

Demographic Profile of Consumers

Basis of Classification	Classification	Number of Respondents	Per cent
Place of Residence	Rural	392	75.4
	Urban	128	24.6
	Total	**520**	**100.0**
Gender	Male	129	24.8
	Female	391	75.2
	Total	**520**	**100.0**
Age Group	Below 25	153	29.4
	25 to 40	78	15.0
	41 to 55	246	47.3
	Above 55	43	8.3
	Total	**520**	**100.0**
Educational Qualification	Up to Higher Secondary	304	58.5
	Graduate	157	30.2
	Post Graduate	56	10.8
	Professional	3	0.6
	Total	**520**	**100.0**
Occupation	Business	17	3.3
	Govt. Servant	46	8.8
	Private Job	49	9.4
	Self Employed	60	11.5
	Unemployed	348	66.9
	Total	**520**	**100.0**
Number of Family Members	Less than 3	19	3.7
	3 -5	426	81.9
	6 – 9	72	13.8
	Above 9	3	0.6
	Total	**520**	**100.0**
Monthly Family Income	Below Rs. 10,000	235	45.2
	Rs. 10,000 - 25,000	155	29.8
	Rs. 25,001 - 50,000	74	14.2
	Rs. 50,001 - 1,00,000	33	6.3
	Above Rs. 1,00,000	23	4.4
	Total	**520**	**100.0**

Source: Primary Data

From the Table, it is clear that three-quarters of respondents are females and 75 per cent of them are residing in rural areas. The age-wise classification reveals that the sample is somewhat symmetrical, i.e. 29 per cent of consumers are in the age group below 25; 15 per-cent are in the age group 25 - 40; 47 per cent in 41-55, and only 8 per-cent are in the age group above 55. It is also found that the majority of respondents are in the age groups above 40 years revealing that the aged are comparatively more interested in using PDS nowadays. The educational qualification-wise classification reveals that the majority of respondents have education up to a higher secondary level (59 per cent); 30 per cent are graduates; 11 per-cent are postgraduates and less than one per-cent have professional qualifications. Classification of the sample based on occupation reveals that only 3 per—cent are businessmen; government employees constitute 9 per cent of respondents and another 9 per cent are people engaging in private jobs. Twelve per cent are self-employed, and the majority are unemployed (67 per cent). Classification based on the number of family members reveals that most of the respondents (82 per cent) have family members between 3-5 supported by the census data reveals that the average household size is 4.3 persons (Government of India, 2011). Analyzing the monthly family income reveals that nearly half (45 per cent) of the PDS users belong to the lowest strata of income group. And 75 per cent have a monthly income below Rs.25,000.

Rationing Profile of Consumers

Table 2

Rationing Profile of Consumers

Basis of Classification	Classification	Number of Respondents	Per cent
Type of Ration card	Yellow card (AAY)	35	6.7
	Pink card (BPL)	188	36.2
	Blue card (NPS)	146	28.1
	White card (NPNS)	151	29.0
	Total	**520**	**100.0**
The distance of Ration shop from Home	Below 2 Km	419	80.6
	In between 2-5 Km	97	18.7
	Above 5 Km	4	0.8
	Total	**520**	**100.0**
Source of Information about the availability of ration items	Visiting the shop	137	26.3
	Friends and Relatives	121	23.3
	News papers & Journals	18	3.5
	Mobile messages	238	45.8
	Other sources	6	1.2
	Total	**520**	**100.0**
Giving up ration items temporarily	Yes	34	6.5
	No	486	93.5
	Total	**520**	**100.0**
Number of times ration items given up	Once	7	20.6
	Twice	8	23.5
	Thrice	1	2.9
	More than Thrice	18	52.9
	Total	**34**	**100.0**

Source: Primary Data

From the Table, it is clear that 6.7 per cent of respondents are Andhyodaya Anna Yojana (Yellow colour) cardholders, 36.2 per cent belong to BPL (Pink colour) category, 28.1 per cent have the Blue colour (Non-Priority Subsidy) ration card and 29 per cent belong to Non-Priority Non-Subsidy (White colour ration card) category. Population proportion is strictly followed in the sample. Analysis of the distance of ration shops from consumers' homes reveals that most of the consumers (80.6 per cent) have their ration shops within 2 km distance from home; 19 per cent have a 2-5 km distance and only less than 1 per cent have ration shops in more than 5 km distance. While analyzing the sources of information about the availability of ration items, it is found that 26.3 per cent get information only when they visit the shop; 23.3 got information from friends and relatives; 3.5 per cent from newspapers and journals; and 46 per cent through mobiles messages, and only 1 per cent got information from other sources like PDS dealers directly inform about the availability of items in FPS. When we analyze the option to give up ration items temporarily, only 6.5 per cent of respondents exercised this option and most of them (93.5 per cent) did not exercise this option. Among consumers who exercised the give-up option, the majority (53 per cent) used this facility more than three times.

Awareness of Consumers on Various Aspects of PDS

Consumers may or may not know all aspects of PDS. If they encounter any difficulties in obtaining services from PDS, the awareness will help consumers to make complaints. Thirteen variables are identified for evaluating the level of awareness of consumers on different aspects of PDS. They are grouped into three main components viz. Business (six variables), Regulatory measures (four variables), and Technology-related factors (three variables). A three-point Likert scale is used to measure the level of awareness of consumers. Each point on the scale carries a score. Responses of consumers are assigned scores 1 to 'Unaware', 2 to 'partly aware', and 3 to 'fully aware'. One sample t-test is used to examine whether the mean is statistically different from a hypothesized or test value. Here the hypothesized or test value is set to 2 (the median) for each variable and construct. The hypotheses considered are:

H_0: Awareness of Consumers on various aspects of PDS is equal to the average level

H_1: Awareness of Consumers on various aspects of PDS is not equal to the average level

Table 3
Awareness of Consumers on Business-Related Factors

Variables	Mean	SD	t-value[#]	p-value
Quality of goods supplied	1.92	.617	-2.913	**0.004***
Prices of articles	2.33	.634	11.824	**<0.001***
Quantity of entitlement	2.43	.684	14.161	**<0.001***
Working hours of FPS	2.64	.635	23.055	**<0.001***
Grievance redressal mechanism in PDS	1.54	.647	-16.333	**<0.001***
Rights of consumers	1.87	.685	-4.224	**<0.001***
Overall	**2.12**	**.399**	**6.907**	**<0.001***

Source: Primary Data

[#]One Sample t-test

*Significant at 5 per cent level of Significance

Among the six factors, working hours, quality, and price of articles show a high mean score as compared to the median score of 2, showing that the consumers are aware of these and the SD of these factors shows that there is no wide heterogeneity in opinion. The mean scores with respect to Quality of goods, GRM, and Rights of consumers are low and the corresponding SD is high (32 per cent, 42 per cent, and 37 per cent respectively of mean), indicating that their level of awareness is low as well as there is a wide disparity in their opinions. This shows that consumers are highly aware of the Price and quantity of the articles, and working hours but they have a below-average level of awareness about GRM, their Rights, and the quality of goods supplied. The test statistics at 5 per cent level of significance also accept the same.

Since the p-value for overall awareness of consumers on Business-related factors is less than 0.05, hence the null hypothesis is rejected at 5 per cent level of significance, i.e., the awareness level is not equal to the average level. It is observed that consumers have above average level of overall awareness of Business-related factors since its mean score is greater than the average score.

Table 4

Awareness of Consumers on Regulatory Measures Related Factors

Variables	Mean	SD	t-value[#]	p-value
Provisions of National Food Security Act	1.46	.607	-20.381	<0.001*
Orders /Guidelines issued by the Govt.	1.59	.629	-14.709	<0.001*
Procedure for porting ration card	1.49	.674	-17.367	<0.001*
Procedure for giving up ration items temporarily	1.37	.598	-23.995	<0.001*
Overall	1.48	.481	-24.779	<0.001*

Source: Primary Data

[#]One Sample t-test

*Significant at 5 per cent level of Significance

Mean scores of all Regulatory Measures related factors are low, indicating that the consumers have a below-average level of awareness. Since p-values for all Regulatory measures related factors are less than 0.05, the null hypothesis is rejected at 5 per cent level of significance. That means there is a significant difference between the mean score and average value at 5 per cent level of significance. Based on the mean score, it is found that consumers have a low level of awareness on all Regulatory Measures related factors since all mean scores are less than the average value. Among them, Consumers' awareness about the procedure for giving up ration items temporarily is very low.

Table 5

Awareness of Consumers on Technology-Related Factors

Variables	Mean	SD	t-value[#]	p-value
Operation of EPOS Machine	2.01	.704	.312	0.755
Procedure for purchasing goods when break down of EPOS machine occurs	1.54	.726	-14.505	<0.001*
Billing and announcement regarding Bill by EPOS machine	2.08	.744	2.359	0.019*

Overall	1.88	.598	-4.516	<0.001*

Source: Primary Data

#One Sample t-test

*Significant at 5 per cent level of Significance

Since p-values are less than 0.05, the null hypothesis for the variables 'procedure for purchasing goods when the breakdown of the EPOS machine occurs and Billing and announcement regarding bill by EPOS machine' is rejected at 5 per cent level of significance. That means consumers' awareness of these variables is not equal to the average level. Based on the mean score, it is found that consumers have a low level of awareness about the procedure for purchasing goods when a breakdown of the EPOS machine occurs and there is a wide disparity in their opinions (Mean=1.54 and SD=0.726). But they have above average level of awareness about Billing and announcement regarding Bill by EPOS machine (Mean=2.08 and SD=0.744). It is also observed that the consumers have an average level of awareness about the operation of the EPOS Machine (Mean=2.01 and SD=0.704) because its p-value is greater than 0.05, the test statistics failed to reject the null hypothesis.

Since the p-value for overall awareness of consumers on Technology related factors is less than 0.05, hence the null hypothesis is rejected at 5 per cent level of significance. It implies that awareness level is not equal to the average level and overall awareness of consumers on Technology related factors is below-average level since its mean score is less than the average score.

Table 6

Overall awareness of Consumers on Various Aspects of PDS

Construct	Mean	SD	t-value#	p-value
Overall awareness of Consumers	1.87	.378	-7.966	<0.001*

Source: Primary Data

#One Sample t-test

*Significant at 5 per cent level of Significance

Since the p-value for overall awareness of consumers on various aspects of PDS is less than 0.05, hence the null hypothesis is rejected at 5 per cent level of significance, i.e., the level of awareness is not equal to the average level. It implies that the overall awareness of consumers is below-average level because its mean score is less than the average score.

Awareness of Consumers Based on Type of Ration Card

The hypotheses considered are:

H0: There is no significant difference in the level of awareness among different types of ration cardholders

H1: There is a significant difference in the level of awareness among different types of ration cardholders

Table 7

Awareness Level of Consumers Based on Type of Ration Card

Construct	Types of Ration Cards								Total		Univariate	
	Yellow Card		Pink Card		Blue Card		White Card					
	N=35		N=188		N=146		N=151		N=520		F	p-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		

Business Factors	2.18	0.26	2.19	0.39	2.13	0.38	2.02	0.44	2.12	0.39	3757.88	**<0.001***
Regulatory Factors	1.39	0.52	1.44	0.47	1.48	0.44	1.53	0.52	1.48	0.48	1231.03	**<0.001***
Technology Factors	1.78	0.57	1.87	0.61	1.87	0.57	1.93	0.63	1.88	0.59	1281.33	**<0.001***
MANOVA F Value = 66.629# and p-value <0.001*												

Source: Primary Data

#Pillai's Trace

*Significant at 5 per cent level of Significance

Table 7 reveals the awareness level of consumers based on types of ration cards. A close look into the mean scores given by different categories of cardholders, reveals that Pink and Yellow cardholders have more awareness about the Business related factors. While on Regulatory Measures and Technology related factors, White cardholders have more awareness and Yellow cardholders have a low level of awareness compared to others.

From the Table, it is clear that the MANOVA test (Pillai's Trace) provides significant F values for a set of factors among the different types of ration cardholders at 5 per cent level (value of F= 66.629 with p= 0.001<0.05). The result of the univariate analysis also gives significant F values and p-values for all the constructs are less than 0.05. Hence, the null hypothesis is rejected and the alternative hypothesis is accepted, that is there is a significant difference in the level of awareness among the different types of ration cardholders. Based on the mean score, it is revealed that Pink cardholders are more aware of Business related factors while on Regulatory measures and Technology related factors, White cardholders have more awareness compared to other types of cardholders. This may be due to the weaker sections (priority cards yellow and pink) relying more on PDS, leading to more awareness of Business-related factors (quality, quantity, commodity prices, FPS working hours, and their rights). However, non-priority cardholders (blue and white) rely less on PDS, so they have less knowledge of business-related factors. However, they have more knowledge of regulatory measures and technology-related factors, which may be due to higher income and education levels.

To make the difference more clear, multiple comparisons using LSD have been attempted and the summary of results is presented in Table 8.

Table 8

Multiple Comparisons using LSD

Construct	Yellow Vs Pink card	Yellow Vs Blue card	Yellow Vs White card	Pink Vs Blue card	Pink Vs White card	Blue Vs White card
Business Factors	-.0088	.0554	.1633*	.0641	.1721*	.1079*
Regulatory Factors	-.0584	-.0972	-.1491	-.0387	-.0906	-.0519

Technology Factors	-.0861	-.0935	-.1484	-.0074	-.0623	-.0549

Source: Primary Data

*Significant at 5 per cent level of Significance

From the Table, it is evident that the mean differences for the Business related factors are found to be significant at 5 per cent level. On Business-related factors, the level of awareness of White cardholders is significantly different from Yellow, Pink, and Blue cardholders. It is also revealed that the mean differences for the Regulatory Measures and Technology Related factor are found to be not significant at 5 per cent level. So Regulatory Measures Related factor requires further analysis to test its statistical significance.

Now, to test the statistical significance of the difference in the mean scores for awareness of Regulatory Measures Related factors, One-way ANOVA was used to test the following hypotheses.

H_0: There is no significant difference in the level of awareness of Regulatory Measures -related factors among different types of cardholders

H_1: There is a significant difference in the level of awareness of Regulatory Measures-related factors among different types of cardholders.

Table 9

One-way ANOVA for Awareness on Regulatory Measures factors

	Sum of Squares	df	Mean Square	F	p-value
Between Groups	1.003	3	0.334	1.450	0.227
Within Groups	119.044	516	0.231		
Total	120.047	519			

Source: Primary Data

One-way ANOVA gives an F value of 1.450, which is considered to be not significant at 5 per cent level (p> 0.05) and hence failed to reject the null hypothesis. This implies that there is no significant difference in the level of awareness of Regulatory Measures-related factors among the different types of cardholders.

To test the statistical significance of the difference in the mean scores for awareness on technology-related factors, One-way ANOVA was used to test the following hypotheses.

H_0: There is no significant difference in the level of awareness on Technology related factors among different types of cardholders

H_1: There is a significant difference in the level of awareness on Technology related factors among different types of cardholders.

Table 10

One-way ANOVA for Awareness on Technology-related factors

	Sum of Squares	df	Mean Square	F	p-value
Between Groups	0.746	3	.249	.693	.557
Within Groups	185.385	516	.356		
Total	186.131	516			

Source: Primary Data

One-way ANOVA gives an F value of 0.693, which is considered to be not significant at 5 per cent level (p> 0.05) and hence failed to reject the null hypothesis. This implies that there is no significant difference in the level of awareness on Technology related factors among the different types of cardholders.

Awareness Level of Consumers Based on Place of Residence

To analyze the level of awareness of rural and urban consumers on different aspects of PDS, a Multivariate Analysis of Variance (MANOVA) was attempted. It was decided to analyze the responses on three principal component factors for explaining possible variations observed in the level of awareness of urban and rural consumers. The MANOVA for this bundle of three factors, by place of residence, is considered for this purpose. The hypotheses to be considered will be:

H_0: There is no significant difference in the level of awareness between urban and rural consumers.

H_1: There is a significant difference between the level of awareness of urban and rural consumers.

Table 11

Awareness Level of Consumers Based on Place of Residence

Construct	Place of Residence				Total		Univariate		MANOVA	
	Rural		Urban							
	N=392		N=128		N=520		F	p-value	F[#]	p-value
	Mean	SD	Mean	SD	Mean	SD				
Business Factors	2.16	0.38	2.00	0.42	2.12	0.40	7531.63	<0.001*		
Regulatory Factors	1.46	0.48	1.52	0.49	1.48	0.48	2455.59	<0.001*	172.06	<0.001*
Technology Factors	1.88	0.57	1.90	0.67	1.88	0.60	2561.77	<0.001*		

Source: Primary Data

[#]*Pillai's Trace*
*Significant at 5 per cent level of Significance

Table 11 shows that level of awareness of rural consumers (Mean=2.16 and SD=0.38) is more than that of urban consumers (Mean=2 and SD=0.42) on Business-related factors. But in the case of awareness about Regulatory measures and Technology related factors, urban consumers have more awareness than rural consumers.

MANOVA test (Pilla's Trace) result provides significant F values for a set of factors between urban and rural cardholders at 5 per cent level (value of F=172.06 with p=0.001<0.05). The result of the univariate analysis also gives significant p-values for all the constructs. Hence, the null hypothesis is rejected and the alternative hypothesis is accepted that is there is a significant difference in the level of awareness between the urban and rural consumers on different aspects of PDS. Based on the mean score it is found that rural consumers are more aware of Business related factors than urban consumers. This may be due to the rural people relying more on PDS, leading to more awareness of Business-related factors (quality, quantity, commodity prices, FPS working hours, and their rights). While urban consumers have more knowledge of regulatory measures and technology-related factors, which may be due to higher standard of living, income, education levels.

Attitude of Consumers towards Public Distribution System

A five-point Likert scale is used to measure the attitude of consumers. Each point on the scale carries a score. A response indicating the unfavourable attitude is given the least score (score 1) and the most favourable is given the highest score (score 5). Thus, scores assigned to responses of favourable statements are, 1 to strongly disagree, 2 to disagree, 3 to Neutral, 4 to agree, and 5 to strongly agree. One sample t-test is used to examine whether the mean is statistically different from a hypothesized value. Here the hypothesized or test value is set to 3 (the median) for each variable and construct. The hypotheses considered are:

H_0: Attitude of consumers on various aspects of PDS is equal to the neutral level

H_1: Attitude of consumers on various aspects of PDS is not equal to the neutral level

Table 12
Attitude of Consumers on Product-Related Factors

Variables	Mean	SD	t-value[#]	p-value
Quality of articles supplied by FPS	2.63	1.005	-8.288	**<0.001***
Price of articles	4.37	0.744	41.980	**<0.001***
Adequacy of Quantity of PDS goods supplied	3.49	1.107	10.023	**<0.001***
Demonstration of stock meant for distribution	2.63	1.267	-6.713	**<0.001***
The compulsion to purchase non-subsidy items	3.78	0.950	18.654	**<0.001***
Weights of commodities supplied by FPS	3.58	1.036	12.700	**<0.001***
Honesty in recording transactions in Registers/Cards as to quantity and items purchased	3.72	1.154	14.214	**<0.001***
Honesty in supplying all the commodities earmarked for distribution	3.50	1.124	10.103	**<0.001***

Dissemination of information to consumers about the availability of articles in FPS	3.03	1.163	0.565	0.572
Diversion of PDS goods to open market/ ineligible consumers	3.03	1.142	0.691	0.490
Adulteration in goods supplied	3.46	1.014	10.341	**<0.001***
Overall	**3.38**	**0.599**	**14.569**	**<0.001***

Source: Primary Data
#One Sample t-test

*Significant at 5 per cent level of Significance

Since the p-value is less than 0.05, the null hypothesis is rejected at 5 per cent level of significance concerning the attitude on all business-related factors except for the variables 'dissemination of information to consumers about the availability of articles and diversion of PDS goods to open market / ineligible consumers'. Hence the opinion regarding the attitude of consumers is not neutral. Based on the mean score it is observed that they have favourable attitude on the variables viz., prices of articles, adequacy of the quantity of supply, the compulsion to purchase non-subsidy items, Weights of commodities supplied, honesty in recording transactions, honesty in supplying all the commodities earmarked for distribution, and adulteration in goods supplied by FPS. But they have unfavourable attitudes on the variables quality of articles supplied and demonstration of stock meant for distribution and corresponding SD is high (38 per cent and 48 per cent respectively of mean), indicating wide disparity in their opinions.

Since the p-value is greater than 0.05, the test result fails to reject the null hypothesis for the variables 'dissemination of information to consumers about the availability of articles and diversion of PDS goods to open market/ineligible consumers'. There is no significant difference between the mean score and average value i.e. consumers have neither favourable nor unfavourable attitudes on these variables.

Since the p-value of consumers' overall attitude on product-related factors is less than 0.05, the null hypothesis is rejected at the 5 per cent significance level. This means that the overall attitude of consumers to product-related factors is not equal to a neutral level. It has been observed that consumers' overall attitude on product-related factors (mean=3.38 and SD=0.599) is favourable because its mean score is higher than the median.

Table 13
Attitude of Consumers on Service-Related Factors

Variables	Mean	SD	t-value#	p-value
Location of FPS	4.22	0.903	30.796	**<0.001***
Transparency in operation	3.07	0.996	1.630	0.104
Timing and working hours of FPS	3.91	0.929	22.222	**<0.001***
Queue system in FPS	3.29	1.251	5.257	**<0.001***
Consumer discrimination by the shop dealers	3.49	1.166	9.588	**<0.001***

Grievance redressal mechanism	3.27	0.935	6.475	**<0.001***
Behaviour of shop dealers and staff	3.93	0.908	23.226	**<0.001***
Number of ration cards in their shop	3.04	0.900	1.121	0.263
New design and painting of shops	3.25	1.031	5.570	**<0.001***
Overall	**3.49**	**0.456**	**24.754**	**<0.001***

Source: Primary Data

#One Sample t-test

*Significant at 5 per cent level of Significance

Since p-values are less than 0.05, the null hypothesis is rejected at 5 per cent level of significance concerning all Service-related factors except for 'Transparency in operation and number of ration cards in their shop'. Hence the consumers do not have a neutral attitude. Based on the mean score it is observed that they have a favourable attitude on the variables viz. Location of FPS, Timing and working hours of FPS, Queue system, Consumer discrimination by the dealers, Grievance redressal mechanism, Behaviour of shop dealers and staff, and New design and painting of shops, because their mean scores are above the median and the SD of these factors shows that there is no wide heterogeneity in opinion.

Since the p-values for 'transparency in operation and the number of ration cards in their shop' are greater than 0.05, the test result fails to reject the null hypothesis at 5 per cent level. It means that consumers have neither favourable nor unfavourable attitudes on these variables.

Since the p-value of consumers' overall attitude on Service-related factors is less than 0.05, the null hypothesis is rejected at 5 per cent significance level. This means that the overall attitude of consumers on service-related factors is not equal to a neutral level. It has been observed that consumers' overall attitude on service-related factors is favourable because its mean score is higher than the median.

Table 14
Attitude of Consumers on Regulatory Measures Related Factors

Variables	Mean	SD	t-value#	p-value
Adherence of Govt. Orders and instructions by the dealers	3.01	1.034	.212	0.832
Avoidance of leakage of subsidy by linking of adhaar with ration card	4.17	0.828	32.097	**<0.001***
Supervision and control measures taken by the supply department	3.57	0.914	14.253	**<0.001***
Helpline contact numbers	3.33	0.987	7.730	**<0.001***
Mobile messages sent by the Supply Department	3.40	1.219	7.485	**<0.001***
Ration card portability facility	4.16	0.967	27.442	**<0.001***
Option to give up ration items temporary prevent malpractices of dealers	3.75	0.918	18.686	**<0.001***

Overall	**3.63**	**0.522**	**27.422**	**<0.001***

Source: Primary Data

[#]One Sample t-test

*Significant at 5 per cent level of Significance

Table 14 reveals the attitude of consumers towards PDS on regulatory measures-related factors. Since the p-value is less than 0.05, the null hypothesis is rejected at 5 per cent level of significance concerning all Service-related factors except to the variable adherence of Govt. Orders and instructions by the dealers. Based on the mean score, it can be concluded that consumers have favourable attitude on the 'avoidance of leakage of subsidy by linking of adhaar with ration card, supervision and control measures are taken by the supply department, Helpline contact numbers, Mobile messages send by the Supply Department, Ration card portability facility, and Option to give up ration items temporary prevent malpractices of dealers. Regarding the variable 'adherence of Govt. Orders and instructions by the dealers', test results failed to reject the null hypothesis at 5 per cent level (observed t-value 0.212 with p=0.832 >0.05). Hence the consumers have neither favourable nor unfavourable attitudes on this variable. It is also found that the overall attitude of consumers on Regulatory Measures Related Factors is favourable because the mean score is 3.63, which is greater than the median score of 3 (p-value<0.05).

Table 15
Attitude of Consumers on Technology-Related Factors

Variables	Mean	SD	t-value[#]	p-value
Transparency in transactions via EPOS machine	4.08	0.875	28.102	**<0.001***
The time required to purchase via EPOS machine	2.63	1.139	-7.468	**<0.001***
Complexity in using EPOS machine	2.78	1.035	-4.914	**<0.001***
Announcement of bill details from EPOS machine	4.16	0.805	32.737	**<0.001***
Ensuring of EPOS bill details with goods purchased	3.96	0.960	22.711	**<0.001***
Overall	**3.52**	**0.527**	**22.445**	**<0.001***

Source: Primary Data

[#]One Sample t-test

*Significant at 5 per cent level of Significance

Table 15 reveals the attitude of consumers on Technology-related factors. Since the p-value is less than 0.05, the null hypothesis is rejected at 5 per cent level of significance concerning all Technology-related factors. It is observed that they have a favourable attitude on the variables, 'transparency in transactions via EPOS machine, the announcement of bill details from EPOS machine, and ensuring of EPOS bill details with commodities purchased. But they have an unfavourable attitude on the variables 'time required to purchase via EPOS machine' and 'complexity in using EPOS machine' and SD for these variables are high, which indicates wide disparity in their opinion. It is also found that the overall attitude of consumers on

the Technology-Related Factor is favourable because the mean score is 3.52, which is greater than the median score (p-value<0.05).

Table 16

Overall attitude of Consumers towards PDS

Construct	Mean	SD	t-value[#]	p-value
Overall attitude of Consumers	3.49	0.402	27.724	<0.001*

Source: Primary Data

[#]One Sample t-test

*Significant at 5 per cent level of Significance

Since the p-value for the overall attitude of consumers towards PDS is less than 0.05, hence the null hypothesis is rejected at 5 per cent level of significance, i.e., the attitude of consumers towards PDS is not equal to the neutral level. Based on the mean score, it is found that consumers have an overall favourable attitude towards PDS because its mean score is greater than the median.

The attitude of Consumers Based on Type of Ration Card

For comparing the attitude of different types of ration cardholders on different aspects of PDS, a Multivariate Analysis of Variance (MANOVA) was attempted. To explain the possible variations observed in the variables across the four types of ration cards, MANOVA for the bundle of four factors taken as dependent variables by one factor, types of cards, is considered. This procedure tests the null hypothesis about the attitude of different categories of cardholders on the mean scores of responses on the bundle of dependent variables (four constructs). The hypotheses considered are:

H_0: There is no significant difference in the attitude among different types of ration cardholders

H_1: There is a significant difference in the attitude among different types of ration cardholders.

Table 17

Attitude of Consumers towards PDS Based on Type of Ration card

Construct	Types of Ration Cards								Total		Univariate	
	Yellow Card		Pink Card		Blue Card		White Card					
	N=35		N=188		N=146		N=151		N=520		F	p-value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Product Factors	3.47	0.53	3.49	0.55	3.50	0.52	3.12	0.66	3.38	0.60	4492.68	<0.001*
Service Factors	3.50	0.40	3.56	0.42	3.56	0.41	3.35	0.52	3.50	0.46	7905.58	<0.001*
Regulatory Factors	3.79	0.39	3.70	0.55	3.67	0.44	3.46	0.55	3.63	0.52	6552.97	<0.001*
Technology Factors	3.77	0.62	3.52	0.51	3.57	0.50	3.41	0.53	3.52	0.53	5936.95	<0.001*

MANOVA F Value = 45.19# and p-value <0.001*

Source: Primary Data

#Pillai's Trace

*Significant at 5 per cent level of Significance

Table 17 shows the attitude of different types of consumers towards PDS. In the case of product-related factors, the highest mean score is given by Blue cardholders followed by Pink, Yellow, and White cardholders. It indicates that Blue cardholders have a most favourable attitude in Product related factors. Pink and Blue cardholders have a more favourable attitude on service-related factors. But in the case of Regulatory Measures and Technology related factors, the highest mean score was given by Yellow cardholders and the lowest mean score was given by White cardholders. That means Yellow cardholders have a more favourable attitude in Regulatory Measures and Technology-related factors. It is also observed that white cardholders have a less favourable attitude on all constructs than that of all other categories. It may be due to the increase in the level of household income, their benefits of subsidized food grains, and dependence on PDS is reduced, which will, in turn, increase their dependence on the open market, that leads to creating a less favourable attitude towards PDS among the non-priority (White) cardholders.

MANOVA test (Pillai's Trace) provides significant F values for a set of factors among the different types of ration cardholders at 5 per cent level (value of F= 45.19 with p= <0.001). The result of the univariate analysis also gives significant F values and p-values for all the constructs which are less than 0.05. Hence, the null hypothesis is rejected at 5 per cent level of significance. It implies that there is a significant difference in the level of attitude among the different types of ration cardholders. Based on the mean score, it is revealed that Yellow, Pink, and Blue cardholders have more favourable attitudes than White cardholders on all constructs. To make the difference more clear, multiple comparisons using LSD have been attempted and the summary of results is presented in Table 18.

Table 18

Multiple Comparisons using LSD

Construct	Yellow Vs Pink card	Yellow Vs Blue card	Yellow Vs White card	Pink Vs Blue card	Pink Vs White card	Blue Vs White card
Product Factors	-.0166	-.0267	**.3559***	-.0100	**.3726***	**.3826***
Service Factors	-.0581	-.0585	.1491	-.0004	**.2072***	**.2077***
Regulatory Factors	.0920	.1177	**.3358***	.0257	**.2438***	**.2182***
Technology Factors	**.2455***	**.1972***	**.3538***	-.0483	.1083	**.1566***

Source: Primary Data

*Significant at 5 per cent level of Significance

From the Table, it is clear that the mean difference between different categories of cardholders is significant at the 5 per cent level on all the constructs. The pair-wise comparisons reveal that attitudes of

White cardholders are significantly different from Yellow, Pink, and Blue cardholders regarding Product-related factors. On Service-related factors, White cardholders' attitude is significantly different from Pink and Blue cardholders. Regarding Regulatory measures related factors, White cardholders' attitude is significantly different from Yellow, Pink, and Blue cardholders. On Technology related factors, the attitude of Yellow cardholders has differed from Pink, Blue, and White cardholders, and also significant difference exists in the attitude of Blue and White cardholders. It is also revealed that Yellow, Pink, and Blue cardholders have a more favourable attitude than White cardholders on all constructs.

Attitude of Consumers Based on Place of Residence

The MANOVA for bundle of four factors, by place of residence-wise, is considered with the following hypotheses.

H_0: There is no significant difference in the attitude of urban and rural consumers towards PDS.

H_1: There is a significant difference in the attitude of urban and rural consumers towards PDS.

Table 19

Attitude of Consumers Based on Place of Residence

Construct	Place of Residence				Total		Univariate		MANOVA	
	Rural		Urban							
	N=392		N=128		N=520					
	Mean	SD	Mean	SD	Mean	SD	F	p-value	F#	p-value
Product Factors	3.46	0.55	3.16	0.69	3.38	0.60	8690.439	**<0.001***	136.37	**<0.001***
Service Factors	3.52	0.42	3.42	0.54	3.50	0.46	15351.917	**<0.001***		
Regulatory Factors	3.67	0.49	3.50	0.59	3.63	0.52	12779.230	**<0.001***		
Technology Factors	3.53	0.52	3.49	0.56	3.52	0.53	11573.481	**<0.001***		

Source: Primary Data,   #Pillai's Trace

*Significant at 5 per cent level of Significance

Table 8 reveals that rural consumers have a more favourable attitude than that of urban consumers on all constructs viz. Product, Service, Regulatory Measures, and Technology-related factors.

MANOVA test (Pilla's Trace) result provides significant F values for a set of factors between urban and rural cardholders at 5 per cent level (value of F=136.37 with p=<0.001). The result of the univariate analysis also gives significant F values and p-values for all the constructs are less than 0.05. Hence, the null hypothesis is rejected at 5 per cent level of significance. That means there is a significant difference in the attitude of urban and rural consumers towards PDS. Based on the mean score it is found that rural consumers have a more favourable attitudes than urban consumers on all the constructs. This may be because rural consumers have lower income, education, and living standards than urban consumers, so their expectations are lower than urban consumers.

Findings of Study

Demographic Profile of Consumers

Three-quarters of the consumers are females and reside in rural areas. The majority of the consumers are in the age groups of above 40 years, which shows the aged are interested in using PDS even today. Most consumers are unemployed (67 per cent) and have educational qualifications up to higher secondary (59 per cent). Most of them have a monthly household income of less than Rs. 25,000 and have 3 to 5 family members. The census data-2011 also supports the findings, i.e., the average household size in Kerala is 4.3 persons.

Rationing Profile of Consumers

The gleaming fact is most of the people in Kerala have their ration shops within a radius of 2 km distance from home. Since Kerala has a higher mobile penetration rate than other states, it is clear that 94 per cent of Kerala's population has a mobile connection. It highlights that the lion's share is having mobile phones and thus the mobile Mobile Message as a prominent source of Information.

Unpopular Give-up option

Most of the consumers (93.5 per cent) did not exercise the option to give up ration items temporarily suggesting the unpopularity/lack of awareness of this new proposal. Among the consumers who exercised the give-up option, the majority (53 per cent) used this facility for more than thrice persons.

Price and quantity conscious consumers

Among the business-related factors the PDS consumers are aware of the price of articles supplied through PDS, the quantities of goods supplied, and working hours of FPS.

Ignorance of Consumer Rights

The awareness about the rights of consumers is very low, and the majority of the consumers are least aware of the grievance redressal mechanism in PDS. In addition, they are least aware of the quality of food materials supplied through the PDS in Kerala.

Well-informed about Business factors

Consumers' overall awareness about the business-related factors is good. Priority (Yellow and Pink) cardholders and rural consumers are more acquainted with business-related factors. It is due to the increased reliance of weaker sections and rural consumers on PDS, leading to more awareness of Business-related factors (quality, quantity, commodity prices, FPS working hours, and their rights). However, non-priority cardholders (Blue and White) rely less on PDS, so they have less knowledge of business-related factors.

Least awareness of Regulatory factors

Consumers are not well acquainted with all Regulatory Measures related factors, viz., Provisions of the National Food Security Act, Orders /Guidelines issued by the Govt., Procedures for ration card portability, and Procedures for giving up ration items temporarily. Among them, they have the least awareness of the procedure for giving up ration items temporarily. There is no significant difference in the level of awareness of Regulatory Measures related factors among the different types of cardholders. Urban consumers are more conscious of Regulatory Measures factors compared to their counterparts.

Low Awareness of Technology Related Factors

Consumers are least bothered about the procedure for purchasing goods when a breakdown of the EPOS machine occurs but they are aware of the Billing & announcement regarding bills by the machine. They have an average level of awareness about the operation of the EPOS Machine. Overall awareness of consumers on Technology-related factors is poor. Non-priority (Blue and White) cardholders and urban consumers have more awareness of Technology-related factors.

Ignorance of PDS Consumers
Overall awareness of consumers about various aspects of PDS is not good.

Favourable attitude on Product-Related Factors

Consumers' overall attitude on product-related factors is favourable. They have a positive attitude on the variables viz., prices of articles, adequacy of the quantity of supply, the compulsion to purchase non-subsidy items, weights of commodities supplied, honesty in recording transactions, honesty in supplying all the commodities earmarked for distribution, and adulteration in goods supplied by FPS. Among them, they revealed the most favourable attitude to the prices of articles. But they have unfavourable attitudes about the quality of goods supplied through ration shops and demonstration of stock meant for distribution. Consumers have a neutral attitude with respect to information provided by the dealers about the availability of ration and diversion of PDS goods to the open market.

Low-income people more supportive of Product-related factors
There is a significant difference in the level of attitude among the different types of ration cardholders on product-related factors. Blue, Pink, and Yellow cardholders have the most favourable attitude while White cardholders have the least favourable attitude to Product-related factors.

Positive Attitude on Service-Related Factors
Consumers' overall attitude on service-related factors is favourable. They have a positive attitude with respect to the location of FPS, timing and working hours of FPS, Queue system, no customer discrimination by the dealers, Grievance redressal mechanism, Behaviour of shop dealers and staff, and New design and painting of shops. Among them, they revealed the most favourable factor is the location of FPS. But they have a neutral attitude in respect of 'transparency in operation and the number of ration cards in their shop'.

Pink and Blue cardholders show the most Favourable attitude to Service-related factors

There is a significant difference in the level of attitude among the different types of ration cardholders on service-related factors. Pink and Blue cardholders have a more favourable attitude than the others.

Appreciation for Regulatory measures
Consumers have an overall praiseful attitude toward Regulatory Measures Related Factors of PDS. They have a welcoming attitude in respect of 'avoidance of leakage of subsidy by linking of adhaar with ration card, supervision & control measures taken by the supply department, Helpline contact numbers, mobile messages sent by the Supply Department, ration card portability facility, and Option to give up ration items temporary to prevent malpractices of dealers. Among them, consumers have the most favourable attitude toward the introduction of ration card portability facility. Consumers revealed negative attitudes regarding the 'adherence of Govt. Orders and instructions by the dealers.

Economically weaker sections, most favour of Regulatory measure factors

There is a significant difference in the level of attitude among the different types of ration cardholders on Regulatory measures related factors. Most economically weaker sections (Yellow and Pink) of the people have the most favourable attitude on Regulatory measures related factors.

Favourable attitude on Technology-related factors

Overall consumers' attitude on the Technology-related factors is favourable. They have a positive attitude in respect of 'transparency in transactions via EPOS machine, the announcement of bill details from EPOS machine, and ensuring of EPOS bill details with commodities purchased. But they have an unfavourable attitude regarding the time required to purchase via EPOS machine and complexity in using EPOS machine.

Yellow cardholders are more in favour of Technology Related Factors

There is a significant difference in the level of attitude among the different types of ration cardholders on Technology related factors and Yellow cardholders have a more favourable attitude.

White cardholders are least favourable to PDS

There is a significant difference in the attitude among the different types of ration cardholders on all constructs viz., Product, Service, Regulatory measures, and Technology related factors. And White cardholders have the least favourable attitude on all the constructs. It is due to the increase in the level of household income, their benefits of subsidized food grains, and dependence on PDS reduced, which will, in turn, increase their dependence on the open market, leading to creating a less favourable attitude towards PDS.

Rural more agreeable to PDS

There is a significant difference in the attitude of urban and rural consumers on all the constructs viz., Product, Service, Regulatory measures, and Technology related factors. Rural consumers have more favourable attitudes than urban consumers on all the constructs. This may be because rural consumers have lower income, education, and living standards than urban consumers, so their expectations are lower, and dependence on PDS is more compared to urban consumers.

Favourable attitude towards PDS
The overall attitude of Consumers towards PDS is favourable.

Recommendations

The serious concern of consumers in Kerala related to the food grains distributed through the PDS is the quality of articles. An appropriate and efficient system for procurement, processing and storage of goods should be adopted to improve the quality of goods and timely distribution to the FPS.

Once the quality is taken care of the next level is to ensure satisfaction to citizens by addressing their grievances. Consumer awareness of GRM remains low even though the supply department has a website for filing grievances, contact numbers of rationing inspectors are provided on EPOS bills, and complaint books are maintained at all rationing stores. Govt. should take the necessary steps to publish a manual for GRM and conduct outreach campaigns to educate consumers about the procedure for filing and handling complaints in PDS.

The government should provide facilities to consumers for online payment at the point of sale. In addition to traditional ration cards, plastic cards should also be issued for more convenience.

A dominant portion of consumers did not verify EPOS bill details with commodities purchased. Government should take necessary steps for providing awareness programmes through TV, newspapers,

mobile messages, social media, etc. to create consumers' awareness about the grievance redressal mechanism and to verify the bill details of purchased goods. Toll-free numbers can be provided for registering complaints if any.

Most of the consumers don't bother about portability facilities and the option to give up ration items temporarily. As the subsidized food grain supply is the responsibility of the government, its impact on the budget is huge. So if the government can induce the citizens, having sufficient income to give up their ration items, that can be redistributed to the deserving beneficiaries. Hence Govt. should take the necessary steps for popularising these facilities so that it will not only strengthen PDS but also help in targeting PDS to weaker sections of people

To attract non-priority cardholders, the quality, quantity, and number of articles supplied through PDS should be increased. This will help the government to control the price of food grains available in the open markets. Capturing all citizens under the wide umbrella of PDS will help the government to tackle emergencies as we have seen during the recent pandemic.

The number of essential goods distributed through this system is very limited, but consumers demand more, so the government should take the necessary steps to distribute more goods at subsidized prices through the PDS.

There is rigid, excessive bureaucratic control in issuing new ration cards and renewing the existing ones. Hence the government should take necessary measures to eliminate the complexity in the issuance and renewal of ration cards. All formalities related to card issuance and renewal should be carried out online.

Consumers' awareness about different aspects of PDS is low. Therefore, the government should take necessary steps for conducting awareness campaigns, especially for their entitlement, rights, the timing of allotment, etc. through various media like mobile messages, social media, Television, Newspapers & magazines, etc.

Most of the ration shops do not maintain their notice boards properly. The Government should take necessary steps for ensuring the proper display of notice boards in FPS, so that the consumers can learn about stock details along with price, the quantity of their entitlement, complaints authorities of PDS, etc.

Conclusion

The consumers have favourable attitude towards the working and quality of food grains supplied. The limited supply or non-availability of all items of food grains is the major constraint to the lower strata of society to depend on the PDS. Due to its universal coverage, the PDS in Kerala has greater prospects, especially after the implementation of NFSA-2013. The inclusion of a greater number of essential commodities at superior quality with technologically upgraded PDS will improve the efficiency of the system and that in turn will enhance overall consumer satisfaction. Ensuring greater efficiency of PDS in Kerala will reduce the hunger levels of the state considerably to reach 'zero hunger' by 2030, as envisaged in the sustainable development goals of the UN.

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