Household Access and Utilization Pattern of the Public Distribution System in Ernakulum District

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BY

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DECLARATION

I hereby declare that this dissertation "Household Access and Utilization Pattern of Public Distribution System in Ernakulum District" submitted by me in partial fulfillment of the requirements for the award of an M.A Degree in Economics is my original work. This work has not previously formed the basis for other academic qualifications.

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CHAPTER-1

INTRODUCTION

1.1 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 .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 .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. 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 71stamong 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.

1.2 LITERATURE REVIEW

- Varghese Alina et.al(2024)examines that the Public Distribution System (PDS) in India stands as a pivotal mechanism for ensuring food security and alleviating poverty by providing subsidized food grains to the economically disadvantaged population. Historically, the PDS has played a crucial role in addressing the nutritional needs of millions of Indian citizens.The system encountered the challenges such as leakages, inefficiencies, and corruption, leading to suboptimal outcomes in achieving its intended objectives. In the pursuit of addressing these challenges, the Indian government has embarked on a transformative journey by embracing digitalization as a key system for the Public Distribution System. The integration of digital technologies aims to streamline processes, enhance transparency, and ultimately improve consumer satisfaction. This study relies into the multifaceted dimensions of this digital transformation within the PDS and examines its impact on consumer satisfaction.

- Kamalavalli AL et.al(2016) The study aims to find out the utilization level of PDS by the households and for which 350 ration cardholders belonging to Pollachi Taluk. It was found that cardholders have only moderate satisfaction and it was suggested to improve the working of PDS by opening the ration shops on Sundays, Increase in quantity of few items during festival time etc. The result of the study is based on the opinions given by the cardholders of Pollachi taluk. Public distribution system in Tamil Nadu is a universal system to cover all the needy families by supplying rice at lower than the BPL price fixed by the government.

- Sreelakshmi V S(2022)explains that Food is considered as the basic requirement for the existence of human beings. The basic requirement like clothing, shelter and access to food is mandatory for every person in the society, and every individual owns a fundamental right to be free from hunger. Thus, Food Security is determined as a basic element that eliminates poverty through the assurance of food grains available to households both financially and physically while economic growth is the most important factor to achieve the sustainable development by reducing the poverty and through attainment of self sufficiency in food. Food security and economic growth interact with each other in a mutually reinforcing process over the course of development's is mainly provided for the needs of the people mainly under below poverty line .

- Perumal Gunanithi et.al(2025) describes and analyses the technology-based social assessment process in the Indian Public Distribution System (PDS)and its impact on vulnerable communities. It presents the current actors, stakeholders, and the processes involved, especially those who socially assessing beneficiaries for receiving rations and the role of technology. It investigates the characteristics, performance barriers and gaps, of the existing PDS. Main aim is to Identify the current effects on groups and how to make improvements. This mainly focus on house-hold analysis on household demographics, ration utilization, savings due to rationed items, and overall satisfaction with the PDS .

- Suresh Bellankonda et.al(2025) The emphasis is based on food security in the southern part of Andhra Pradesh. The PDS is known for a gargantuan role in food security for poorest livelihoods.This study is developed from the secondary data, by examining the current state of food security, while identifying major challenges, and drawing evidence-informed implications that may support the government initiatives to design and implement new strategies surrounded by the PDS from which it can provide services to poor populations. This research primarily focus backward areas to examine social protection for marginalized and disadvantaged groups to receive government help through the PDS, lower classes must require more than others, as there were multiple households in rural areas that rely on the PDS. The study then focused on the PDS in relation to social protection at different levels of households in society.

- Nirmala MM et.al(2024)examines the opinion and perspectives of fair price shop owners on the viability of the PDS .The view of Fair price shop owners in the distribution of ration assumes that major significance in the analysis of the Public Distribution System, Hence their views will also strengthen the working of PDS. Present Study Exploratory Factor Analysis has been applied to identify the factors related to major problems faced by the fair price shop dealers/owners concerning PDS, their perceptions towards the ration cardholders and their perception of the role played by Panchayats in PDS.

- Dhar TN(2005) explains that food security in a country faces many problems such as low production, high prices difficulties in procurement, limited availability in open markets, poor distribution, and lack of proper nutrition. To deal with this, the government has increasingly intervened in the food grain market. While this intervention has helped achieve food security, it has also created several problems. These include negative economic effects, heavy financial burden on the government, and price distortions. A detailed analysis shows that the current food management policy is economically inefficient and politically unsustainable. Therefore, the entire food security policy, including food grain procurement and distribution, needs urgent review and major reforms based on sound logic and political agreement..

- Jose Shilpa et.al(2013) Public Distribution System (PDS) in Kerala is known for its extensive coverage. The objective of this study is to assess the household food security status of the people living below the poverty line (BPL) and its impact on the health of women and children in the selected coastal areas of Kochi in Kerala. Household food security was assessed using a food security core module questionnaire on 500 BPL families in coastal Kochi. The utilization of PDS, nutritional status and diet pattern of women and children 3-6years were studied. The results showed that PDS was best utilized by the majority. Only 43% families were food secure, and the case of the rest of them food insecurity levels varied from no hunger to severe hunger. Significant differences in weight and height of children and the levels of food security were found. The study revealed the current food security status and identified the short comings in PDS.

- Jayan T (2015) The study examines that the benefits such as the food grains and the ration subsidy reached the rural and urban households under the PDS and no.of households moved out to official poverty line expenditure due to ration income in the state of Kerala. Targeted Public Distribution
  System was introduced in the country following the failure of the Universal PDS to serve below the poverty line and poorest of the households. It is being implemented in the country through a three- tier structure which consists of Antyodaya, BPL and APL households. It explains that around half of the subsidized food grains to be distributed to BPL-AAY.Study reveal major
  portion benefited by the APL card holders rather than BPL.

- Muthu Mayil G et.al(2021) The study captures the progress of the Indian food security system established by the Government of India through a digital journey in public administration and social welfare initiatives with mobilization of the National Food Security Act, 2013. The methodologies were used to curb diversion, leakages, and black marketing in different components under the Targeted Public Distribution System. Futhermore, it also focuses on the way ahead for improving the system using new information and

communications technology to benefit the citizens.Intoduce that the rising population will lead to increase in consumption. PDS mitigate the concept of hunger and food scarcity.

- Ezung Evothung et.al(2021) This paper examines the overall performance of the Public Distribution System (PDS) in three districts of Nagaland State viz., Kohima, Peren and Wokha, based on data collected through survey sampling of PDS beneficiary households.Various issues such as irregularities in distribution of ration items, arbitrary pricing and allocation of ration items by the dealers .The paper also identifies the indispensability of the PDS in providing a modicum of food security to the poorer sections of the state. The study estimates the average income transfer due to PDS to beneficiaries in their monthly per household expenditure for a few essential commodities.

- Mahendradev S(1998) explains that The Public Distribution System (PDS) is a government programme in India. It helps to improve food security for families, especially poor households. Many people in India still suffer from poverty and lack of proper nutrition. To help them, the government supplies six basic items through PDS: rice, wheat, sugar, edible oils, kerosene, and soft coke. These items were sold to people at lower prices than the market price, and earlier the system was open to everyone. In the early years, PDS was not mainly meant to reduce poverty. Instead, it was used to control food prices and act as an alternative to private traders. Until the late 1970s, PDS was mostly limited to urban areas and regions facing food shortages. The main aim is to control prices .

- Pursell Garry (2014) examines that the Indian government follows highly interventionist food-grain policies, especially for rice and wheat, Through trade controls, MSP, input subsidies, and subsidized distribution to low-income consumers via fair price shops (Below poverty line- BPL). The consumer subsidy scheme under TPDS was replaced in September 2013 by the National Food Security Act, which expanded subsidized rice and wheat distribution to about two-thirds of India's population. This paper briefly examines the impact of different policy reforms—abolition of the MSP system, abolition of the TPDS, and opening the markets to private exports. Using simulations, it identifies winners and losers and measures the effects on the fiscal position of central and state governments and on the welfare of rice farmers, consumers (poor and non-poor), and illegal diverters of subsidized rice.

- Mahendran A et.al(2014) The study examines the impact of free rice on coastal population using multistage random sampling. Public Distribution System (PDS) is a poverty alleviation program and contributes towards the social welfare of the people. In Tamil Nadu ,rice has been supplied free of cost since

1 june 2011. The findings show that only 17.4 percent of poor families use PDS rice, while others depend on open and black markets.

- George PS(1996) the studies examines that ,The public distribution system (PDS) in India has close links with food security for the vulnerable segments of the population, budgetary support for food subsidy and the price policy. This paper reviews some aspects of the operation of the PDS and raises some policy issues with regard to scope and coverage of PDS, production incentives to farmers, and provide amount of food subsidy.

- Parikh S kirit(1986)This paper studies how well India's Public Distribution System (PDS) works. It examines whether PDS actually reaches poor people, how much food and income support it gives to them, how costly it is, and whether cheaper alternatives could provide the same benefits. The study finds big differences across states, weak targeting of the poor, low subsidies in most states (except Andhra Pradesh and Kerala), no clear reduction in market prices due to PDS, and shows that most poor people are still not covered by the system.

- Sivanandham S et.al(2025) This study focuses on the last – mile distribution in the Ramanathapuram district in Tamilnadu, here the food grains need to be transported from the eight district warehouses associated with different cooperatives to the fair price shops.For this they develop a light-weight and scalable operations decision support system for food grain distribution from the district warehouses to the fair price shops.The public distribution system in India has undergone various transformations through the years to expand food security across different regions of the country.

- Abey George et.al(2019) examines that it seeks to explore the functioning and efficiency of the PDS in achieving food and nutritional security in India.The Public Distribution System (PDS) of India plays a crucial role in reducing food insecurity by acting as a safety net by distributing essentials at a subsidized rate. The findings of this emphasize the role of PDS in tackling the hunger and malnutrition, and making improved food security and reduced infant mortality rate.

- S Nakkiran(2004) introduce The Public Distribution System (PDS) is a key instrument used by State Governments to provide a safety net to the poor against rising prices of essential commodities. The involvement of women Self- Help Groups (SHGs) in distribution improves transparency, accessibility, and safety while reducing transaction costs, making this channel worth promoting. However, the system's efficiency is affected by problems such as leakages, poor quality goods, under-weighment, irregular availability of items, and issues related to ration cards, including bogus cards. Strengthening the PDS requires timely supply of allotted items, higher margins for cooperatives, better employee salaries, manageable workloads at fair price shops, updated notice boards, vigilance committees, and greater participation of women SHGs. Continuation of the universal PDS is essential to protect the poor from price rise, and eliminating bogus cards demands responsibility from PDS employees along with strong coordination among local bodies, revenue authorities, and cooperative societies.

- Vinaya V C(2022) examines the food shortages during covid -19 pandemic situation. The virus is human transmittable and has produced a world wide pandemic. A growing no of people were face with severe other diseases.Food security were considered as the huge worry for the people.The impact of the pandemic on food security will be detrimental to the people at below poverty line (BPL).The government of the India provide assistance such as subsidized price for rice and wheat for the people. Community kitchen programme supported by the kudumbhasree ,had delivered meals to the people who all are in quarantine. The PDS supplied free rations to the people.

1.3 STATEMENT OF PROBLEM

In Ernakulam district, there are both urban and rural diversity, the functioning and utilization pattern of the PDS may vary due to factors such as income levels of the households, education, awareness, size of the family and accessibility to fair price shops. While some households may fully utilize their entitlements, others may face challenges like irregular supply, poor quality of commodities, or lack of information regarding their entitlements. Hence, it becomes essential to examine that how Households in Ernakulam District access and utilize the PDS, what socio-economic and demographic factors influence their participation, and what barriers exist in effective utilization. Understanding these patterns can provide valuable insights for improving the efficiency, equity, and responsiveness of the PDS in ensuring food security at the local level.

1.4. OBJECTIVES

1. To examine the demographic and socio-economic profile of households availing PDS in both urban and rural areas.

2. To understand beneficiaries' perceptions regarding the adequacy, quality, and delivery mechanisms of PDS commodities.

3 To analyze the challenges faced by the Households availing PDS.

1.5 THEORETICAL FRAMEWORK

1.5.1 PUBLIC CHOICE THEORY: This theory explains how inefficiencies, leakages, corruption and poor governance may influence for the functioning of welfare schemes .This theory is based on some of the issues in supply irregularities, and the quality of the commodities.

1.5.2 FOOD SECURITY THEORY: Food security theory explains that every households get access to sufficient ,safe and nutritious food. PDS is the institution provided for vulnerable households to enhance food security. This theory deals with how PDS contributes to availability and accessibility of essential commodities and Whether households in Ernakulam are able to secure food through subsidized channels.

1.5.3 WELFARE ECONOMICS THEORY: According to this theory government interventions aim to improve the well-being of citizens, especially the poor. The PDS represents a redistributive policy where essential goods are made affordable through subsidies,mostly to the people below poverty line. This theory examine how effectively the system reduces inequality and enhances social welfare.

1.6 METHODOLOGY

1.6.1 Area of study

The present study is conducted in Ernakulam district of Kerala, covering both kumbhalangi panchayath (rural areas) and kochi municipal corporation (urban areas). District is characterized by a diverse socio- economic structure, High literacy levels, and an extensive Public Distribution System (PDS) network. The inclusion of both urban and rural areas helps in understanding variations in household access to and utilization of PDS services across different settlements.

1.6.2 Source of Data

The study is based on both primary and secondary data .Primary data were collected directly from households through a structured questionnaire. The survey includes examining demographic factors such as age, gender, family size, and area of residence, as well as socio-economic factors like income level, occupation, education, and type of ration card.Personal interviews and Google forms were used.

Secondary data were collected from government reports, publications of the Civil Supplies Department, journals, books, and official websites related to the Public Distribution System.

1.6.3 Sample Design

Sample of households was selected from both urban and rural areas of Ernakulam district .The sample includes beneficiaries holding different types of ration cards such as APL, BPL, and AAY. This ensures adequate representation of various socio-economic groups. Total sample includes reports of 50 respondents .Both from urban and rural

1.6.4 Tools for Data Collection

Primary data were collected using a structured interview/ questionnaire were used to collect both quantitative and qualitative data.

1.6.5 Method of Data Analysis

The collected data were classified, tabulated and analyzed using simple statistical tools such as percentages, tables and charts. Descriptive and comparative statistical tools such as percentages, averages, and frequency tables were used to study the patterns.Bar,column,and pie charts were used for visual representation. Chi- square tests were used to explore the relationship between type of ration card and adequacy of PDS .

1.6.6 Period of Study

The study was conducted between 2025-2026 over a four months of period.(Sep,oct,nov,dec)

1.7 LIMITATIONS OF THE STUDY

1. The study is confined to selected urban and rural areas of Ernakulam district .

2. Time and resource constraints limited the sample size.

3. Respondents may understate their experiences with the Public Distribution System.

1.8 CHAPTER SCHEME OF THE STUDY

Chapter 1: Introduction, Review of Literature, Statement of the Problem, Objectives, Theoretical Framework, Methodology, Limitations, and Scheme of Study.

Chapter 2: Overview on PDS, Historical background, Significance of PDS , Drawbacks and Challenges of PDS, Evolution of PDS .

Chapter 3: Data analysis and interpretation, including comparative study and statistical results.

Chapter 4: Findings, Suggestions and Conclusion.

CHAPTER-2 AN OVERVIEW
PUBLIC DISTRIBUTION SYSTEM

INTRODUCTION

2.1 PUBLIC DISTRIBUTION SYSTEM

Food is one of the most basic needs for humans.For a country like India- where a large portion of the population as historically lived with low income, irregular employments and vulnerabilities to price changes-ensuring affordable access to essential food grains as always being a priority. The Public Distribution System (PDS) emergence as a tool to guarantee that the poorest people in society do not have to sleep hungry when market prices rise or when food availability shrinks. Over the decades, PDS has grown from a simple wartime rationing mechanism into one of the world's largest social security networks, functioning as a lifeline for millions of families.At it's core ,the PDS is a government – operated network that supplies essential commodities primarily rice, wheat,sugar,kerosene and occasionally pulses – at subsidized prices through designed Fair Price Shop (FPS),commonly referred to as ration shops. Its purpose is not only to deliver food but also to promote a sense of economics stability among households that constantly struggle with uncertain incomes, because food is central to survival the availability of subsidized grains helps families from the effects of inflation, unemployment, crop failures and natural disasters. Even though PDS has faced criticisms related to leakages, corruption, inefficiencies, and uneven coverage. It act as a pillar in India's fight against poverty and malnutrition. Its evolution reflects India's socio economic journey and highlights the state's ongoing attempt to balance cost, efficiency and inclusiveness in food security policies.

2.2 HISTORICAL BACKGROUND AND EVOLUTION

Its origin was at the time of food shortages.The roots of the Public Distribution System can be traced back to the early 1940's during the period of World War II. India under colonial rule at the time ,faced severe disruptions in food supply. The Bengal Famine of 1943,in which millions were died, exposed the consequences of unregulated food markets during emergencies. In order to prevent hoarding, skyrocketing prices and panic ,the British administration introduced rationing mechanisms in urban centers. The system aimed to stabilize prices by ensuring the availability of essential commodities at subsidized rates. After independence in 1947,the newly formed Indian government decided to retain rationing in selected regions because the country continued to face food scarcity, domestic agricultural production were low, increase in dependence on imports and foreign exchange was limited. This vulnerability made it necessary to maintain a system that could protect citizens from hunger.

POST INDEPENDENCE

During the 1950's and 1960's,food shortages persisted and PDS became the main tool for managing scarcity. The government expanded procurement operations,by importing food grains through agreements such as PL – 480 with the United States and distributed these grains to ration shop across the country .The agricultural prices commission and the food corporation of India (FCI)were established to oversee procurement, storage and transportation. It was not until the Green Revolution of the late 1960's and early 1970's that India began witnessing improvements in food grain production.With the rising output ,the focus were gradually shifted from crisis management to Distribution management. PDS started moving closer to rural regions, although urban areas remained it's primary beneficiaries for a long time.

EXPANSION AND UNIVERSALIZATION(2970s-1980s)

Food production rose and the policy makers viewed PDS as a tool not only for stabilizing the prices but also for reducing poverty.The government has expanded this system to reach more Households, mostly who are residing in rural villages. For many years PDS has functions as the universal system,it means no one is excluded from using PDS.Anyone could purchase food grains at subsidized price.But this model placed a heavy financial burden for the exchequer and always it won't benefit the poorest people.By the late 1980s, various committees were pointed that PDS system suffered from leakages and that subsidies were reached to people who don't have a need for it.This lead to changes in policy in 1990s.

2.3 NATIONAL FOOD SECURITY ACT(NFSA)2013

The concept of NFSA globally is to ensure that all people at all times should get access to basic food to maintain their active and healthy life and it is characterized by availability ,access , utilization and stability of food.Article 21 of the constitution may be interpreted to include right to leave with human dignity which may include right to food and other necessities.NFSA provide Nutritious meals for children, pregnant women and lactating mothers.PDS get modernised after the emergence of NFSA, by bringing digital oversight and increasing accountability. The act were covered about two- third of India's population. The act were shifted from welfare based to a right based approach to food security.

2.4 SIGNIFICANCE OF THE PUBLIC DISTRIBUTION SYSTEM

- Ensuring Food Security

  PDS act as the safety net for millions of low income families. When the prices of food rise due to drought ,shortages in supply, inflation,the poor Households are the first who suffer more.PDS act as a shield for hunger and malnutrition by providing subsidized grains. It also support vulnerable groups such as landless labourers,daily wage earners, migrant workers, elderly persons and single mothers.

- Reducing Poverty and Inequality

  Subsidized grains free up a portion of income and enabling families to spend on health, education and other essential needs. Studies show that the emergence of PDS significantly lowers hunger related distress and improves nutritional among the economically weaker sections. PDS reduces inequality and helps to promote human development .

- Price Stabilization

  PDS prevents from hoarding and price spikes, by releasing grains into the market during the time of shortages. This helps to maintain economics stability especially in regions prone to crop failures .The presence of government procurement and distribution mechanism also discourage private traders 'from manipulating prices .

- Support to Farmers

  Procurement at MSP ensures that farmers will receive a guaranteed minimum income for their crops. This will encourage them to continue in their production of staple grains .The assured demand created by PDS contribution to agriculture stability , especially in states depend on wheat and rice cultivation .

2.5 DRAWBACKS AND CHALLENGES OF PDS

- Leakage and diversion

  One of the most frequently cited issues is leakage. In many regions, grains meant for ration shops are diverted into the open market by corrupt intermediaries. These leakage occurred during transportation, storage and at FPS outlets. As a result ,the intended beneficiaries do not receive their full entitlements.

- Issues Related to Quality

  Beneficiaries often complain about the poor quality of food grains distributed through PDS.Sometime PDS may distrbute dusty, infested or broken grains.Such quality issues will reduce the nutritional value and make the food unfit for consumption.

- Irregular Supply

  Irregularity in supply chain leads to stock shortages, and forcing beneficiaries to visit multiple times. Seasonal challenges, poor infrastructure and administrative lapses worsen this problem. Some states face delays in the delivery of grains to ration shops.

- Error Identification

  Targeting errors under TPDS leads to many poor households being excluded. (Exclusion errors) and many non- poor households being included (inclusion error).

2.6 EVOLUTION OF PDS

The PDS is a crucial component of the government's efforts to ensure food security and to provide subsidized food grains to economically vulnerable sections of the population. The PDS were introduced in India in the 1950s with only focusing on distribution of food grains at subsidized prices. The Green Revolution in the 1960s led to increase in agricultural production and the PDS expanded to rural areas. The system became an integral part in the government's poverty alleviation programme. Targeted PDS were introduced in June 1 st(1997) aim is to make PDS more efficient and mainly targeted the poor people.AAY cards were issued to the poorest families at very lowest subsidy rate. To improve transperancy and efficiency they introduced end to end comperatisation and integration of Aadhar. This started the implementation of electronic point of sale at fair price shops using thumb impression.

CHAPTER-3

Analysis of Household Access and Utilization Pattern of Public Distribution System in Ernakulam District

3.1 INTRODUCTION

This chapter presents the analysis and interpretation of data collected for an analysis on Household access and utilization patterns of the public distribution system in Ernakulam District, covering both urban and rural areas. The analysis is based on primary data obtained from beneficiary households and aims to assess the effectiveness of PDS in meeting Household food security needs. The chapter primarily focuses on examining the demographic and socio economic profile of households availing PDS, including factors such as income levels, occupation, family size, and place of residence. Understanding these characteristics helps in identifying the sections of society that are most dependent on the PDS .

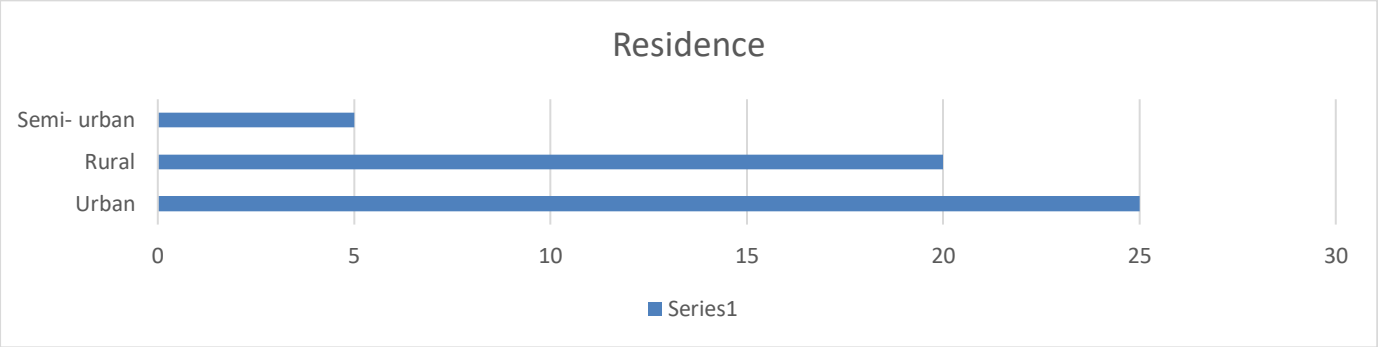
Furthermore, the chapter analysis Beneficiaries perceptions regarding the adequacy, quality and delivery mechanism of PDS commodities .This includes quality of food grains, pricing, behaviour of Fair Price Shop (FPS) staff. In addition ,

The chapter also examines the challenges faced by household in availing PDS benefits, such as inadequate quantity, long queues and quality issues.Identifying these constraints provides insights into the gaps in the existing system and highlights the areas requiring improvements .

3.2 Profile of the Household

3.2.1 Area of Residence

Figure 3.1 Area of Residence

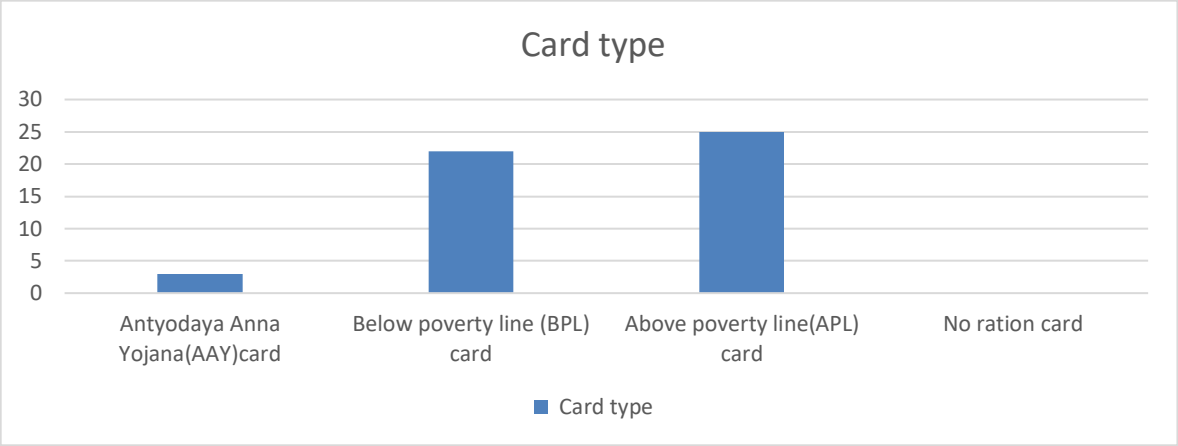


Source: Primary Data

The data shows that 50% of the respondents (25 households)belong to urban areas, followed by 40% (20 households) from rural areas, while only 10% (5 households) are from semi-urban areas. This distribution indicates that the majority of the respondents are Residing in urban areas .Public Distribution System (PDS), which is widely utilized in rural areas due to higher dependence on subsidized food grains

3.2.2 Card Type

Figure 3.2 Card Type



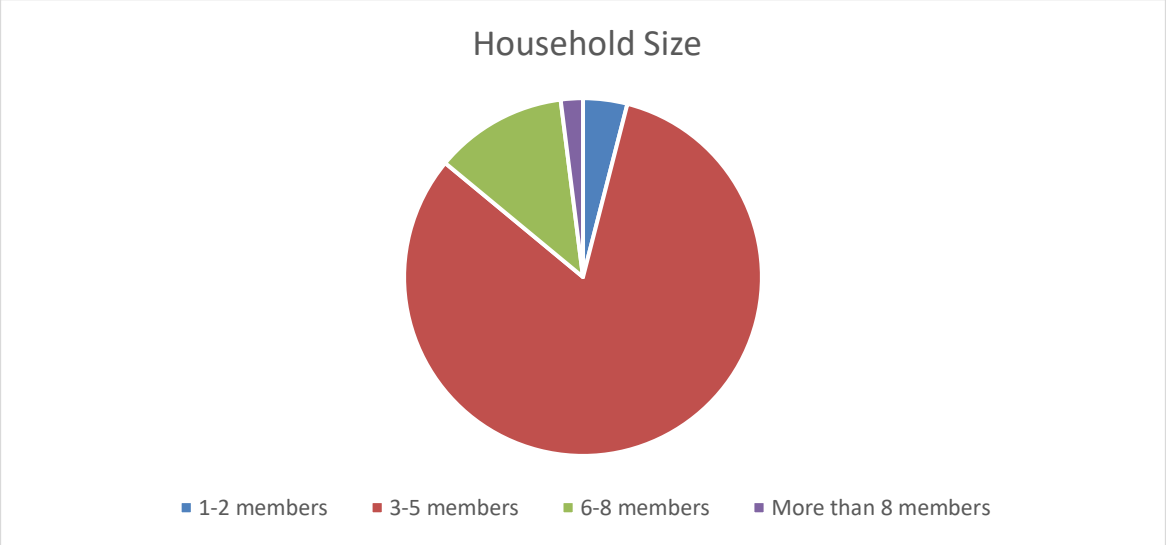
Source: Primary Data

The Table shows that 50% of the respondents (25 households) possess Above Poverty Line (APL) ration cards, followed by 44% (22 households) holding Below Poverty Line (BPL) cards, while only 6% (3 households) are covered under the Antyodaya Anna Yojana (AAY). Notably, none of the respondents reported having no

Ration card, indicating complete coverage of households under the Public Distribution System (PDS) within the sample.I have collected data mostly from urban and rural areas. Overall, the distribution indicates that the PDS in the study area has wide coverage across different economic categories, with greater representation of APL and BPL households.

3.2.3 Household size

Figure 3.3 Household Size

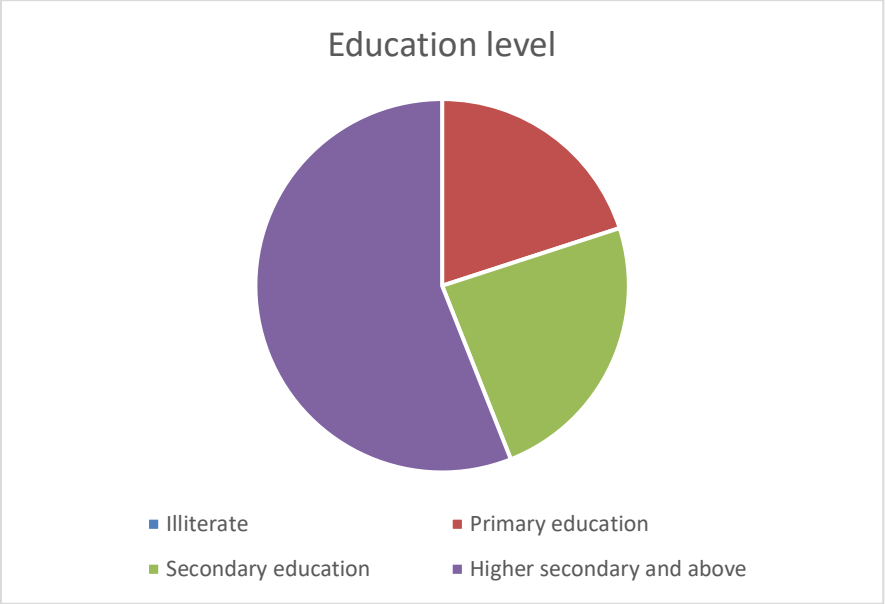


Source Primary Data

The data reveals that a large majority of the respondents (82%, 41Households) belong to the 3–5 member household category, indicating that medium-sized families are the most common in both urban and rural areas. This pattern reflects the prevalence of nuclear or small joint family structures, which are increasingly common due to urbanization, migration for employment, and changing social norms. Small proportion of households (12%, 6 households) have 6–8 members, which may represent joint families, more commonly observed in rural areas only 4% fall under 1-2 members because single person are relatively rare .more than 8 members in a family is very least because of declining fertility rates, increased cost of living, and limited housing space, especially in urban areas, which discourage very large family sizes.

3.2.4 Education level

Figure 3.4 Education level



Source: Primary Data

The high proportion of respondents with higher secondary and above education can be attributed to improved access to educational institutions, Government literacy and schooling programs, and increased awareness about the importance of education, particularly in urban areas ,and in rural regions with better educational infrastructure. 20% (10 respondents) having primary education. Notably, none of the respondents are illiterate, suggesting a Relatively good level of basic education in both urban and rural areas .

3.2.5 Occupation

Figure 3.5 Occupation

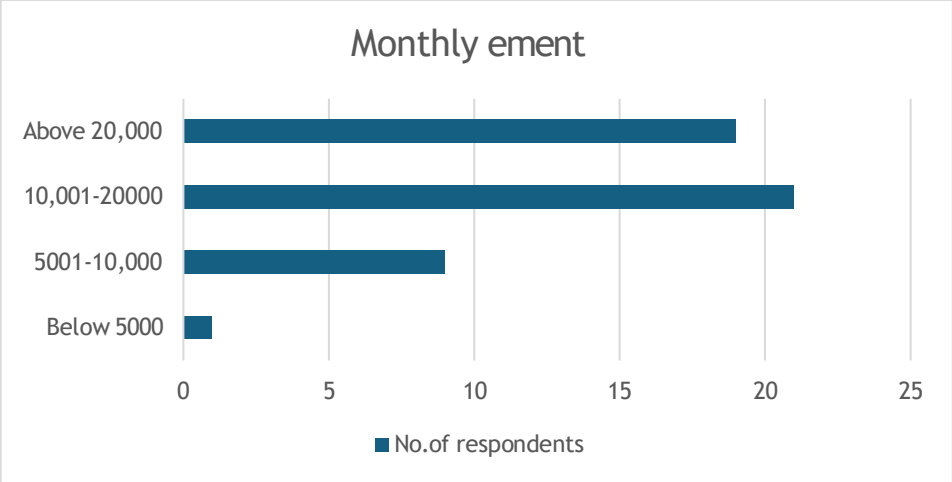


Source: Primary Data

The occupational structure suggests a shift away from agriculture toward wage labour, salaried employment, and self-employment, reflecting changing livelihood patterns in both urban and rural areas. This occupational mix also explains the continued reliance on welfare schemes such as the Public Distribution System(PDS)especially among daily wage and self-employed Households with irregular incomes. Where households increasingly rely on non-farm activities due to low agricultural returns, land fragmentation, and Income uncertainty. High proportion of daily wage indicates that ,This may be due to seasonal employment, lack of stable job opportunities, and migration To urban areas for work, making daily wage labour a common livelihood option across both areas.

3.2.6. Income level

Figure 3.6 Income level

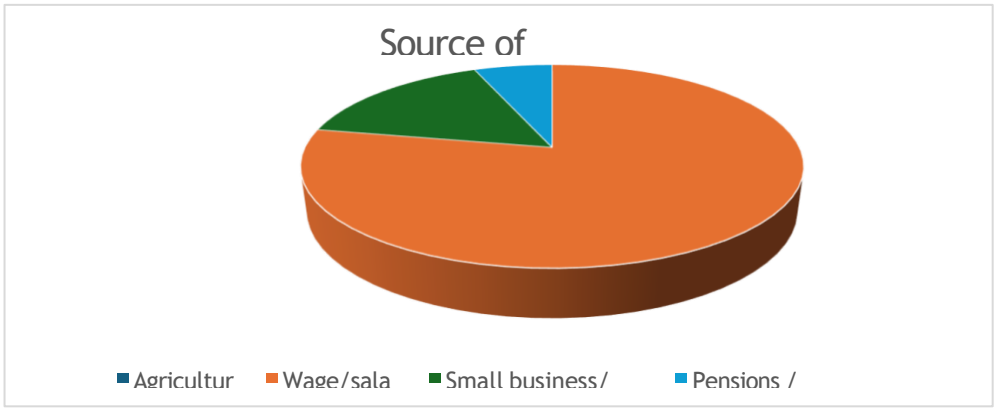


Source: Primary Data

The data indicates that 42% of the respondents fall within the ₹10,001–₹20,000 monthly income group, followed by 38%earning above ₹20,000, while 18% earn between ₹5,001–₹10,000. Only 2% of respondents reported a monthly income below ₹5,000.Suggests that a large proportion of respondents belong to moderate-income households, which are common in both urban and rural areas due to the prevalence of daily wage labour, salaried employment, and small-scale self-employment. The substantial share of households earning above ₹20,000 (38%) reflects the urban component of the sample, where formal employment and better-paying private-sector jobs are more accessible. It may also indicate diversified income sources in some rural households, such as non-farm activities, or small businesses.

3.2.7 Source of Income

Figure 3.7 Source of Income

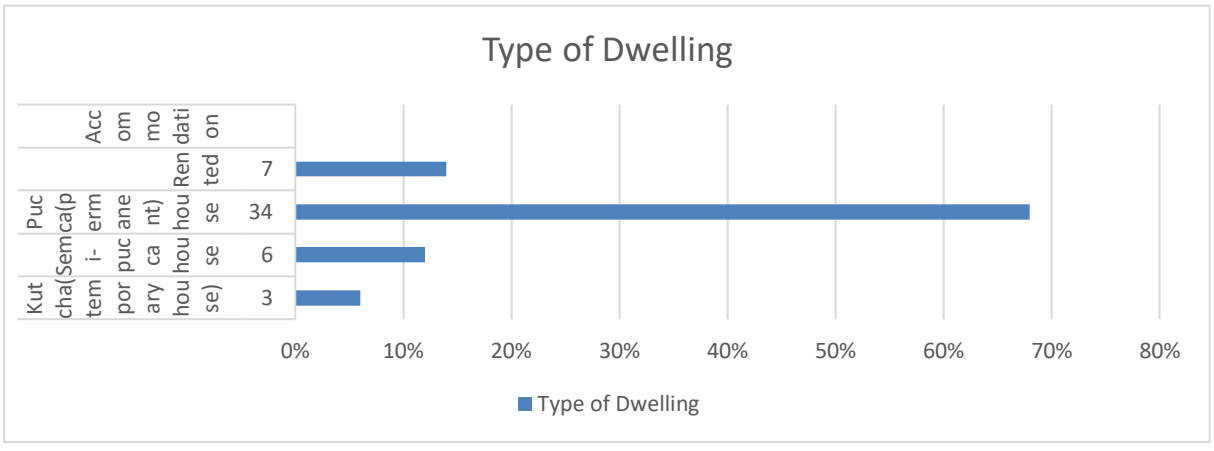


Source: Primary Data

The data on the source of income of respondents shows a clear dominance of wage or salary-based earnings. A large majority of the respondents, 39 out of 50 (78%),Most of the household depends on wage or salaried employment as their primary source of income. This indicates that most households in the study area rely on regular employment rather than self-owned or traditional livelihood activities. smaller proportion of respondents, 8 individuals (16%), are engaged in small business or trade. 3 respondents (6%) depend on pensions or remittances, indicating the presence of households supported by retirement benefits or income sent by family members working elsewhere.

3.2.8 Households type of dwelling

Figure 3.8 Household's Type of dwelling

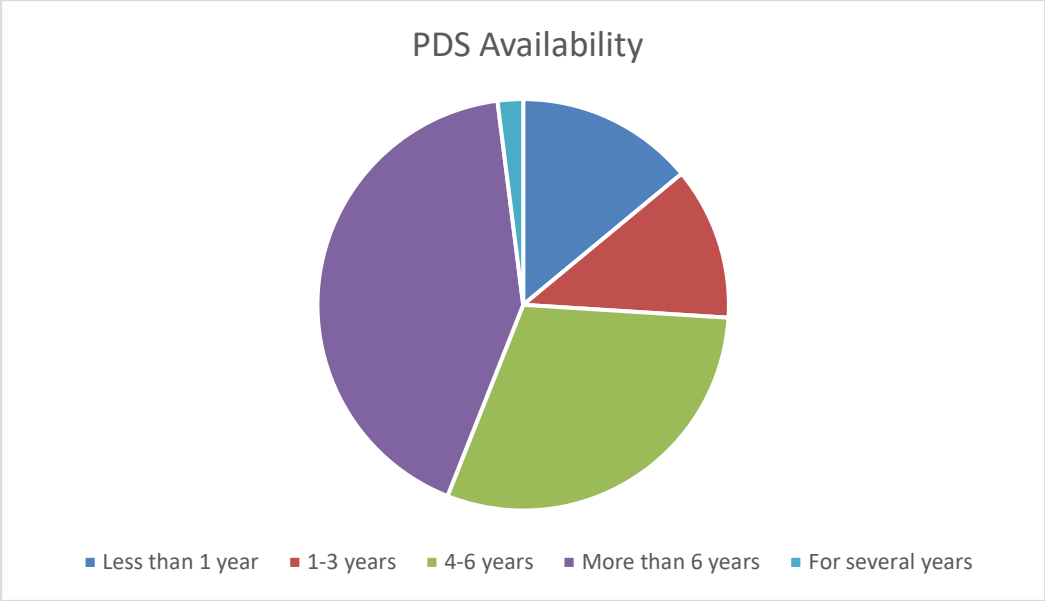


Source: Primary Data

The high share of pucca houses is more characteristic of urban and semi-urban areas, where infrastructure facilities, housing schemes, and stable income sources are comparatively better. 6 and 14% are data's from rural areas most of them reside in kutcha and rented houses. Urban households often prefer rented houses due to employment-related migration, higher land prices, and limited ownership opportunities. 6% of respondents live in kutcha(temporary) houses and 12% in semi-pucca houses, this is because of lower level of income. Rural areas show a higher presence of kutcha and semi-pucca houses.

3.2.9 PDS benefits availed by household

Figure 3.9 PDS Benefits availed by household

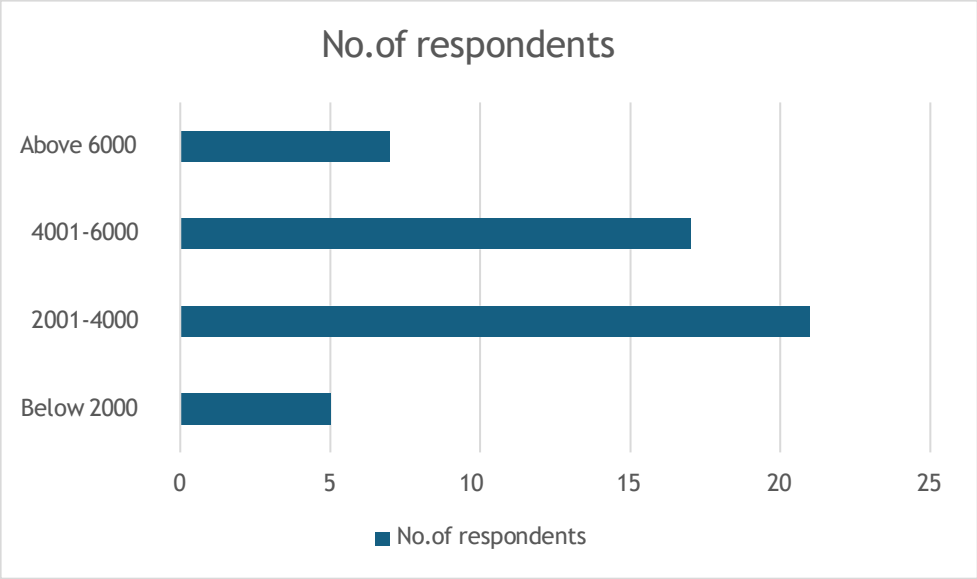


Source: Primary Data

Rural households are more likely to be long-term PDS beneficiaries, reflecting chronic economic vulnerability and limited livelihood diversification. Urban households show a relatively shorter period of PDS usage, often linked to transitional economic conditions, migration, or temporary income insecurity. Rural households often continue in the PDS network for many years due to sustained eligibility under BPL or priority categories. long term PDS usage is more commonly associated with rural households, where poverty levels are higher and their income sources are irregular.

3.2.10 Expenditure on Food

Figure 3.10 Expenditure on Food



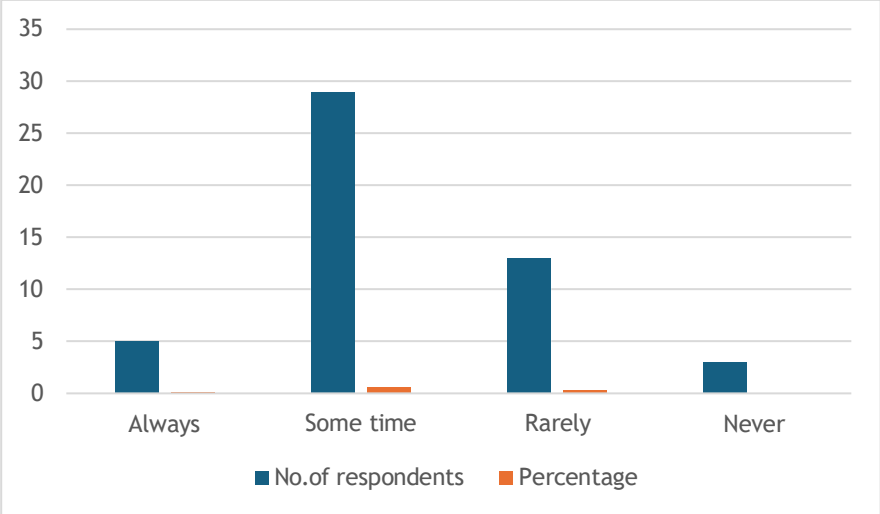
Source: Primary Data

The data on monthly expenditure on food shows that the majority of respondents spend a moderate amount onfood,indicating Constrained household budgets and reliance on subsidized food support. Another 17 respondents (34%) spend ₹4001–6000 on food, indicating relatively better purchasing capacity. These households are likely to consume a more diversified diet, including market-Purchased cereals, pulses, vegetables, and occasional non- essential food items.Expendiure on food below 2000 is least as compared. Which reflects the low income households .Such Household are highly depends on PDS .Higher income groups prefer above 6000 .

3.3 Beneficiaries perceptions regarding quality and delivery mechanism

3.3.1 Commodities free from impurities

Figure 3.11 Commodities free from impurities

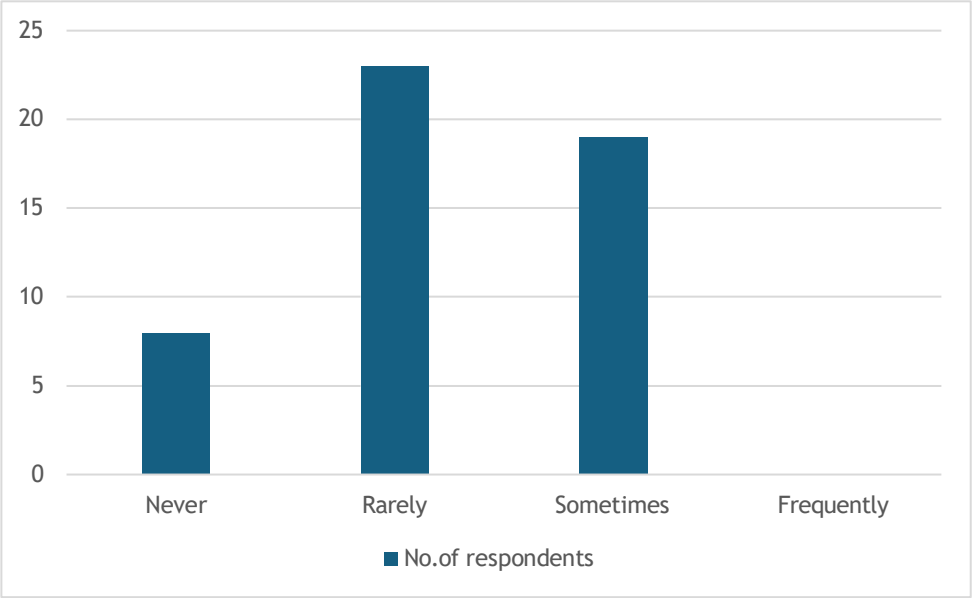


Source: Primary Data

The table shows that a majority of respondents (58%) reported that PDS commodities are free from impurities only sometimes, Indicating inconsistency in quality standards. A significant Proportion, 26% of respondents, stated that impurities are rarely absent, while 6% reported that commodities are never free from Impurities. Together, these responses suggest that nearly one-third of beneficiaries frequently experience issues such as stones, Insects, or dirt in PDS supplies.This 6%of household are facing these problems because of poor storage system.

3.3.2 problems faced such as shop closure

Figure 3.12 problems faced such as shop closure

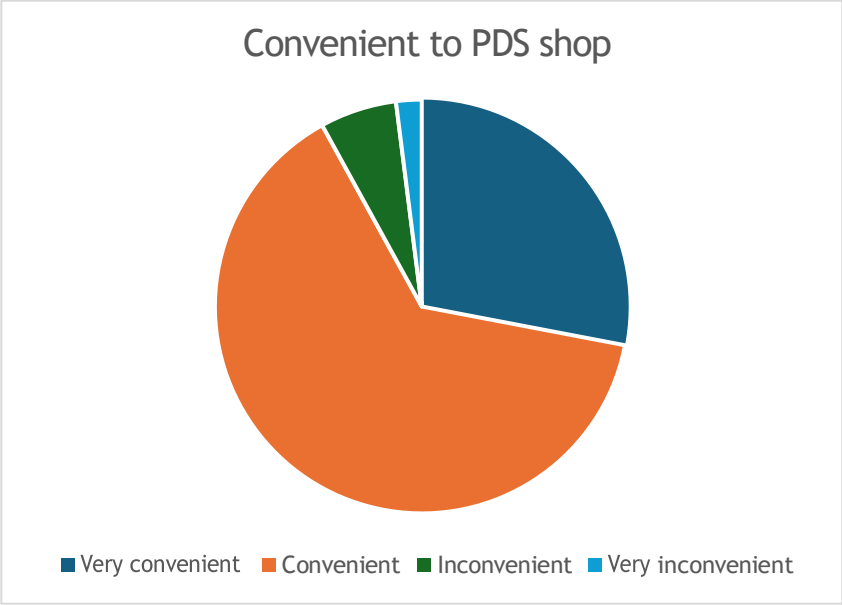


Source: Primary Data

The data indicates that most households experience problems related to PDS functioning only occasionally rather than regularly. A majority of respondents (46%) reported that they rarely face issues such as shop closure, stock shortages. while 38% stated that they sometimes encounter such problems. This suggests that operational issues do exist but are not persistent or severe for most beneficiaries. Only 16% of households reported that they never face such problems. No one is facing these problems frequently . Some respondents selected "sometimes," as these issues tend to occur during specific months rather than continuously.

3.3.3Convenient to PDS shop

Figure 3.13 Convenient to PDS shop

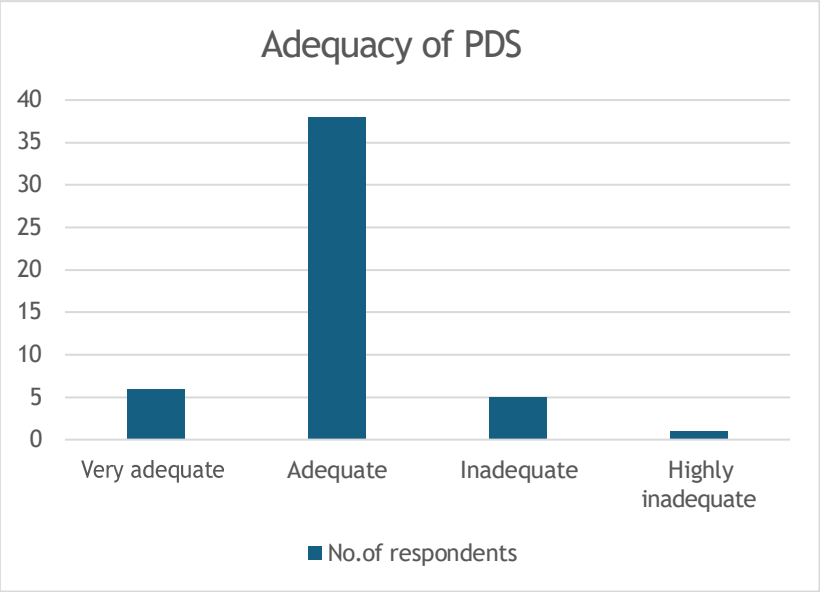


Source: Primary Data

28% of household choose very convenient is because PDS shops are located within or near residential areas, reducing travel distance and time, which explains the high share of "convenient" responses. Households choosing "very convenient" likely benefit from nearby shops. Around total 8% of household reported as inconvenience may be due to longer travel distances, limited shop hours, crowded conditions, or mobility constraints faced by elderly or working members.

3.3.4Adequacy of PDS

Figure 3.14 Adequacy of PDS

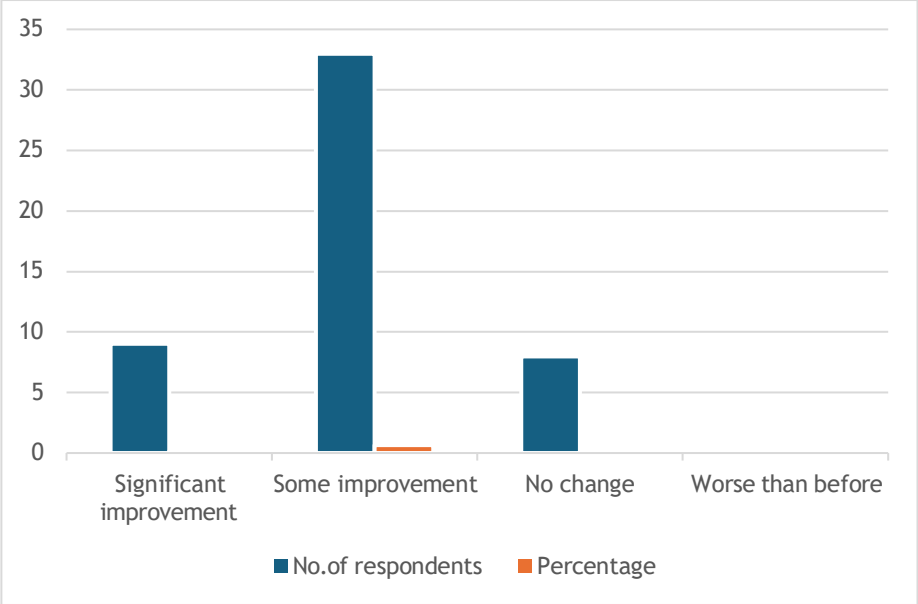


Source: Primary Data

The data highlights that most households consider the quantity of PDS food grains they receive each month to be sufficient. A large majority of respondents (76%) rated the adequacy of PDS food grains as adequate, while 12% perceived it as very adequate. Together, this indicates that 88% of households feel that PDS allocations largely meet their basic monthly food requirements. Those reporting "very adequate" are likely smaller households or those heavily depends on PDS.

3.3.5Improvement level

Figure 3.15 Improvement level

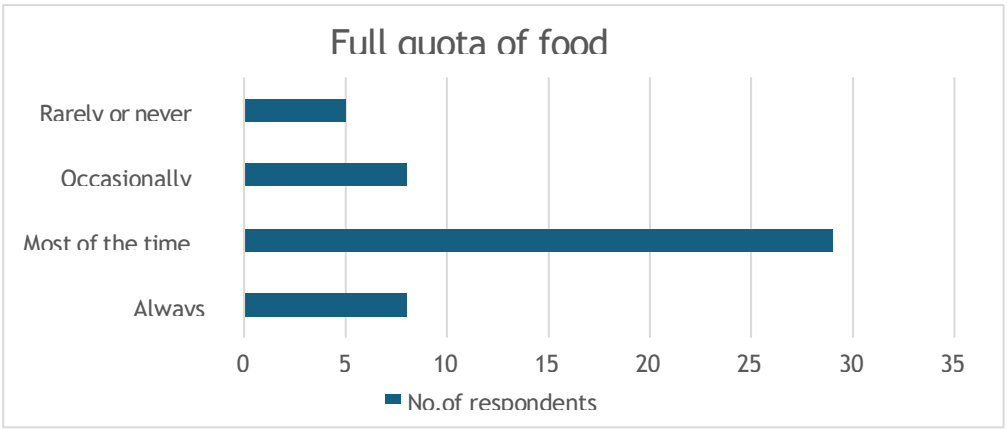


Source: Primary Data

The data clearly indicates that the introduction of digital systems in the PDS has led to a positive change in quality and service delivery. This have reduced the scope for impersonation, leakages, and manipulation of records . Respondents choosing "some improvement" may still experience occasional technical issues such as biometric failures or network problems'. A large majority of respondents (66%) reported some improvement, while 18% perceived a significant improvement after the adoption of smart cards, biometric machines, and related digital mechanisms. Overall, 84% of households acknowledge improvements, reflecting the effectiveness of digitisation initiatives in strengthening the PDS. Only 16% of respondents reported no change, and importantly, none of the households felt that the system became worse, suggesting that digital interventions have not negatively affected service delivery.

3.3.6 Full quota of food grains received by household

Figure 3.16 full quota of food grains received by household



Source: Primary Data

The high proportion choosing "most of the time" it means that distribution is generally regular, but minor disruptions such as temporary stock shortages, delayed supply, or technical issues (biometric failures, server problems) occasionally affect full delivery. Respondents selecting "occasionally" may face partial supply in some months possibly due to irregular allocation, shop- level practices, or demand pressures. Those indicating "rarely or never" may be affected by persistent local issues, such as repeated stock shortages, distance constraints, lack of awareness .

3.3.7 Quality of Rice/ Wheat

Figure 3.17 Quality of Rice/Wheat

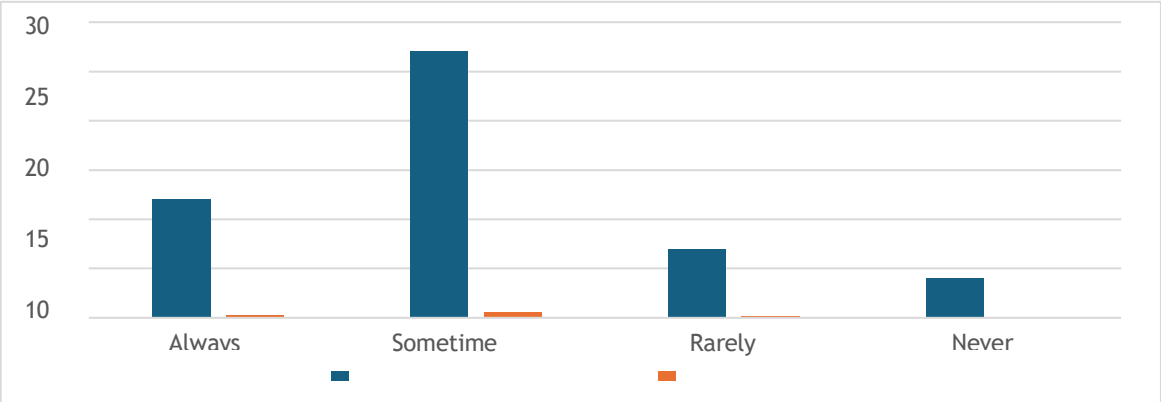


Source: Primary Data

Majority of respondents (64%) rated the quality as satisfactory, while 10% considered it very good. This shows that 74% of households find the quality usable for regular consumption.
However, 22% of respondents rated the quality as poor and 4% as very poor, indicating that over one-fourth of households experience quality-related issues. Those rated "very good" may receive better-quality stock, freshly supplied grains, or well-stored commodities from their fair price shops. Respondents reporting "poor" or "very poor" quality may have encountered broken grains, excess moisture, presence of impurities, or pest infestation.

3.3.8 Impurity free

Figure 3.18 Impurity free

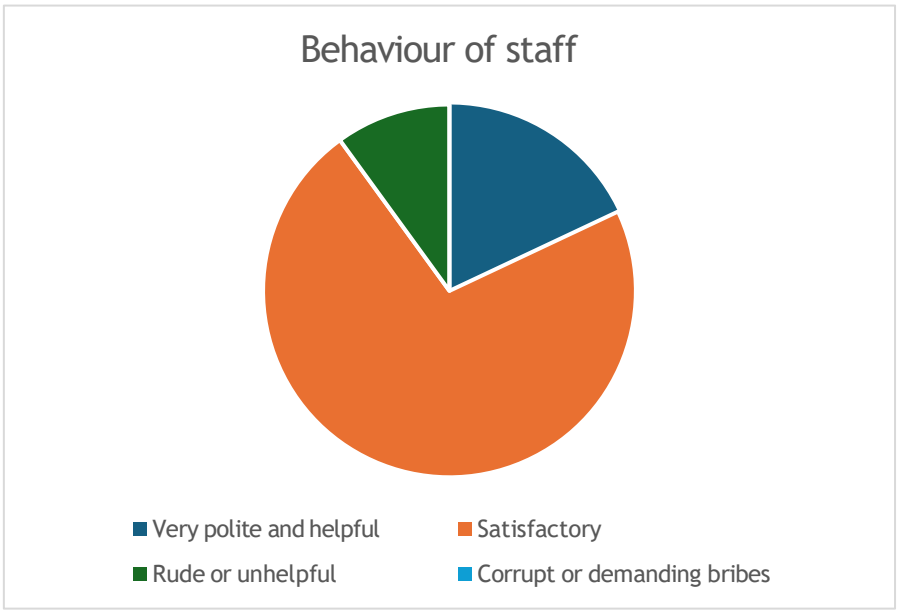


Source: Primary Data

The category " sometimes " is choose because of inconsistent handling and packaging practices at different fair price shops. Around 27 households prefer like this.Reason for the households choosing always is because they are accessing better-managed shops with improved storage facilities and hygiene practices. Respondents reporting "rarely" or "never" may face issues due to poor storage conditions, reuse of old containers, exposure to dust or moisture, and lack of standardized packaging.

3.3.9 Behavior of fair price shop staff

Figure 3.19 Behavior of fair price shop (FPS) staff



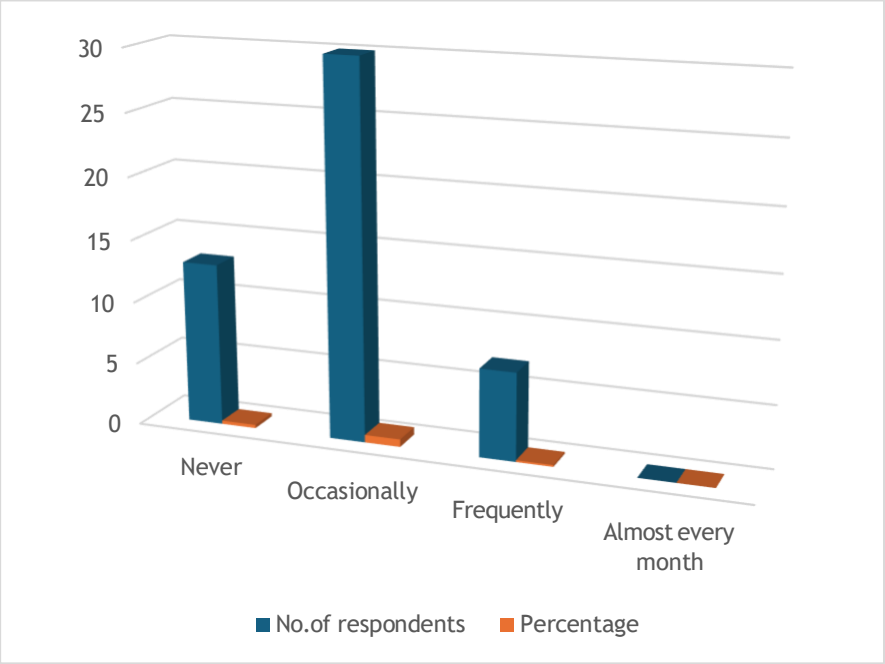
Source: Primary Data

Majority of respondents (72%) reported that the behaviour of FPS staff was satisfactory.Beneficiarirs may choose this because as long they not face serious issues such as denial of goods or disrespect. About 18% of respondents perceived FPS staff as very polite and helpful. These households likely experienced friendly interactions, clear communication regarding entitlements, assistance during

distribution, or support for elderly and less educated beneficiaries. Such positive behaviour encourages trust in the system and improves beneficiaries' overall satisfaction with the Public Distribution System (PDS). 10% of respondents reported rude or unhelpful behaviour, This could be due to factors such as overcrowding at FPS outlets, staff workload, irregular supply of commodities.

3.3.10 Irregularities faced

Figure 3.20 Irregularities faced

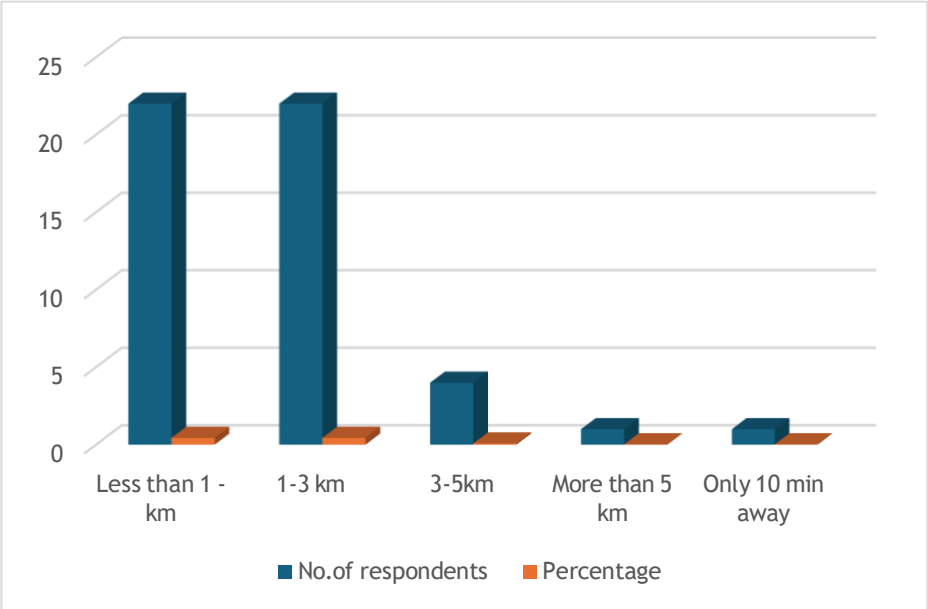


Source: Primary Data

The table shows that a majority of households (60%) occasionally irregularities in the timing or availability of Public Distribution System (PDS) supplies. This indicates that while PDS services are generally functioning, inconsistencies do occur from time to time, affecting regular access for many beneficiaries. 26% of respondents choose like this may be due to better management, efficient distribution mechanisms, or lower beneficiary pressure.14% report as frequently because of stock shortage or timing issues.

3.3.11 Distance to Ration Shop

Figure 3.21 Distance to ration shop

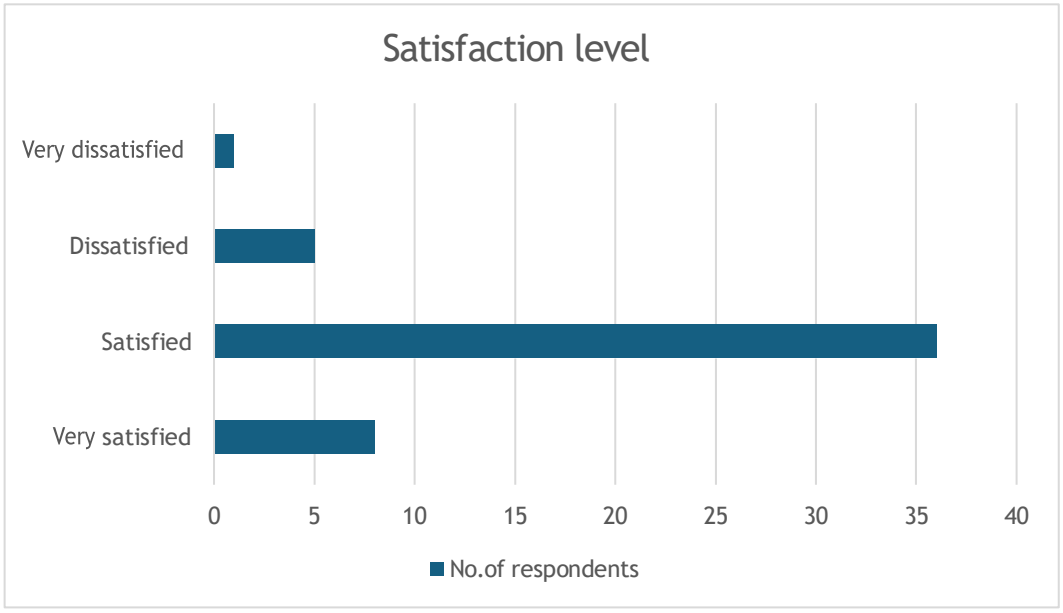


Source: Primary Data

The majority of households (88%) have a ration shop within 3 km, which shows that FPS outlets are generally accessible. This approximately reduces travel time, effort, and transportation costs for collecting PDS commodities, which is crucial for low-income families who rely on regular rations. Those choosing "less than 1 km" may be in urban or densely populated areas where shops are nearby.2% of households choose more than 5 km faces difficulties in collecting rations, especially the elderly or those without personal transport.

3.3.12 Satisfaction level with delivery mechanism

Figure 3.22 Satisfaction level with delivery mechanism of PDS

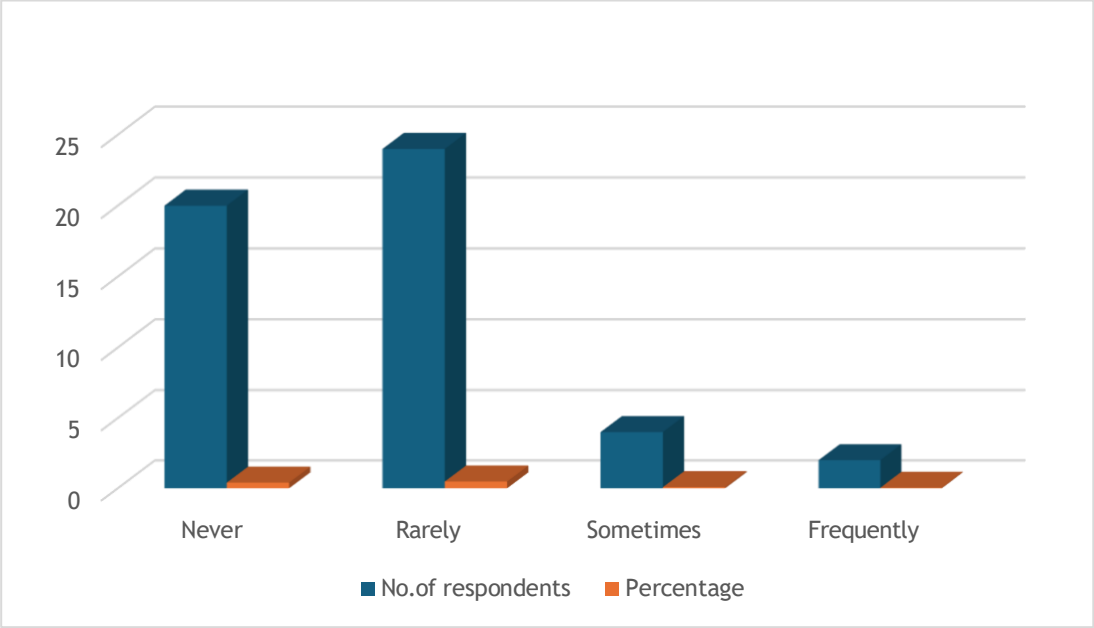


Source: Primary Data

72% of respondents reported as satisfied.16% said they are very satisfied.10% indicated they are dissatisfied, and only 2% reported as very dissatisfied. Majority are satisfied because delivery mechanism is functioning well for most beneficiaries. 10% dissatisfied and 2% very dissatisfied may face delays, shortages, or errors in records. Around 88% of households are well satisfied .

3.3.13 Cheating Experience

Figure 3.23 Cheating Experience

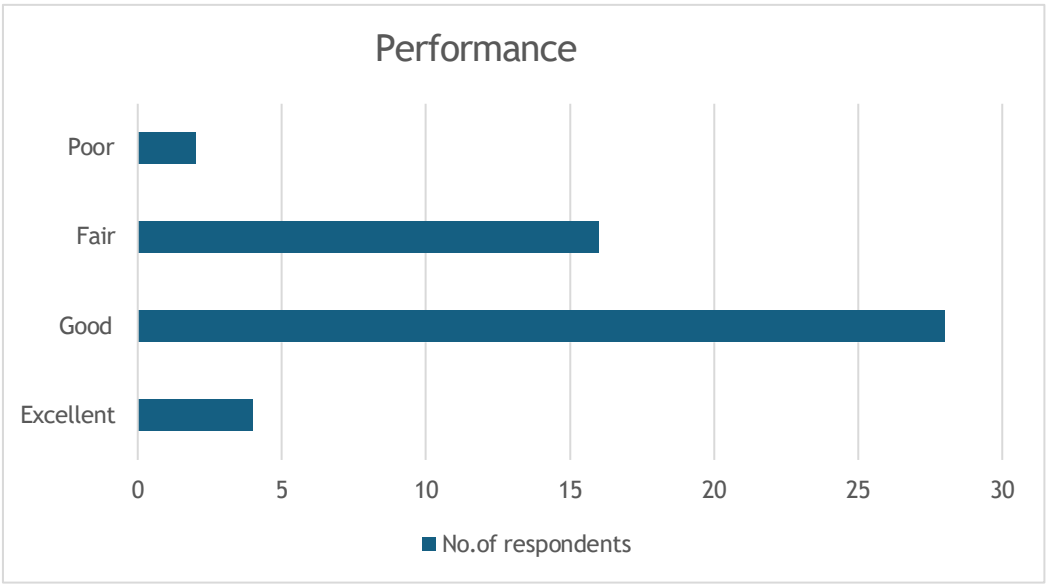


Source: Primary Data

Many FPS outlets now use digital systems, such as smart cards, biometric authentication, and electronic weighing, which reduce the opportunity for staff to manipulate quantity. Households who know their entitlement and check the weight/quantity carefully are less likely to be cheated, leading them to report"never"or"rarely."A small proportion of household report as sometime or frequently, this is because of the staffs are less trained or negligent.88% of FPS are functioning well and received correct quantity of goods.

3.3.14performance of PDS

Figure 3.24 Performance of PDS

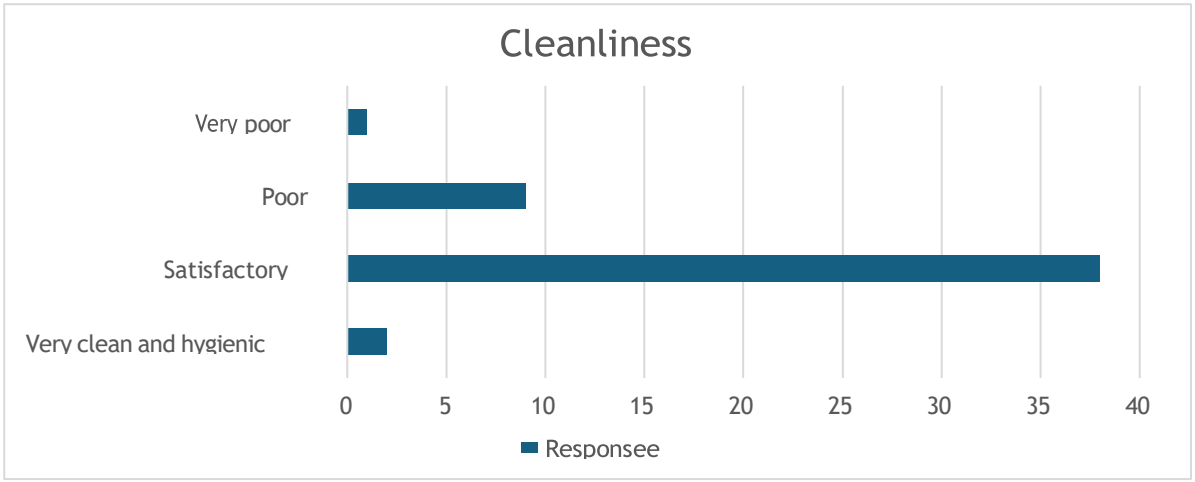


Source: Primary Data

majority of households (64%) perceive the PDS as performing well (excellent or good). This suggests that for most families, the system effectively provides essential commodities like rice, wheat, and sugar, helping to meet basic dietary needs. The 32% rating it as fair likely reflects households who experience occasional shortages, minor delays, or inconsistencies in quality or quantity.

3.3.15 Cleanliness and Storage conditions

Figure 3.25 Cleanliness and Storage conditions



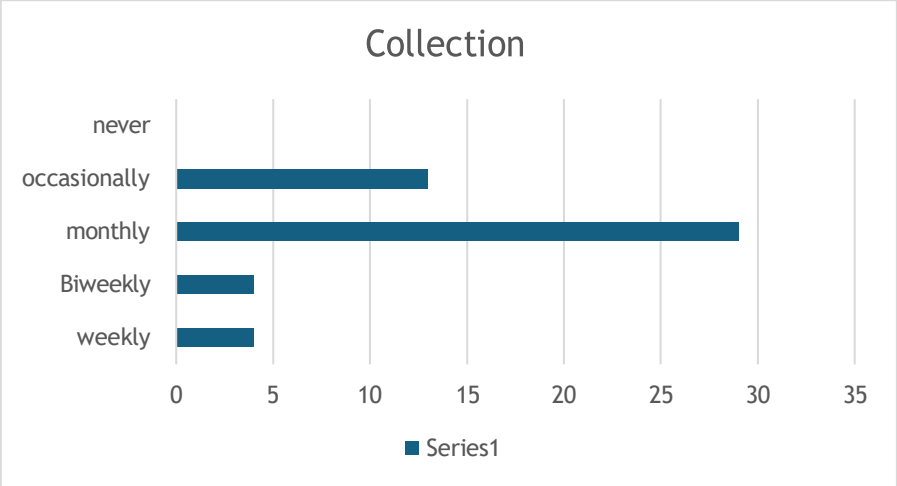
Source: Primary Data

The majority of households (76%) rated FPS cleanliness and storage as satisfactory, suggesting that most shops maintain an acceptable level of hygiene.20% of households rated as poor and very poor this is because of less infrastructure .Many FPS outlets are small, with inadequate storage space, poor ventilation, or lack of proper shelving.

3.4 Challenges Faced by Household

3.4.1Collection of PDS commodities

Figure 3.26 Collection of PDS commodities

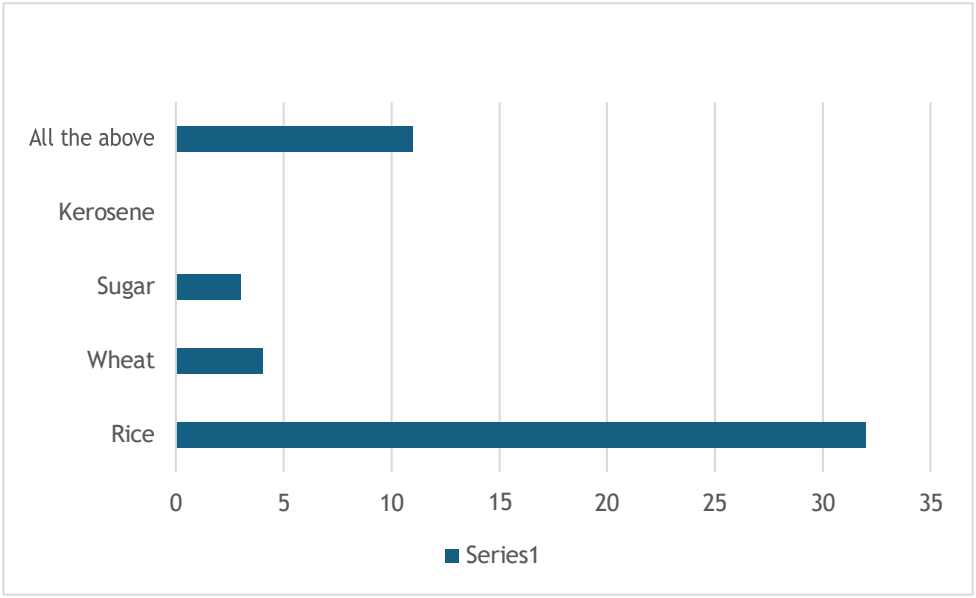


Source: Primary Data

The majority of households (58%) collect commodities monthly, which is consistent with the common practice in PDS distribution where rations are allocated on a monthly basis. Monthly collection helps households plan their consumption, reduces frequent travel to FPS outlets. Due to less storage facility at houses 8% of households collect weekly and biweekly.

3.4.2commonly purchased commodities

Figure 3.27 commonly purchased commodities

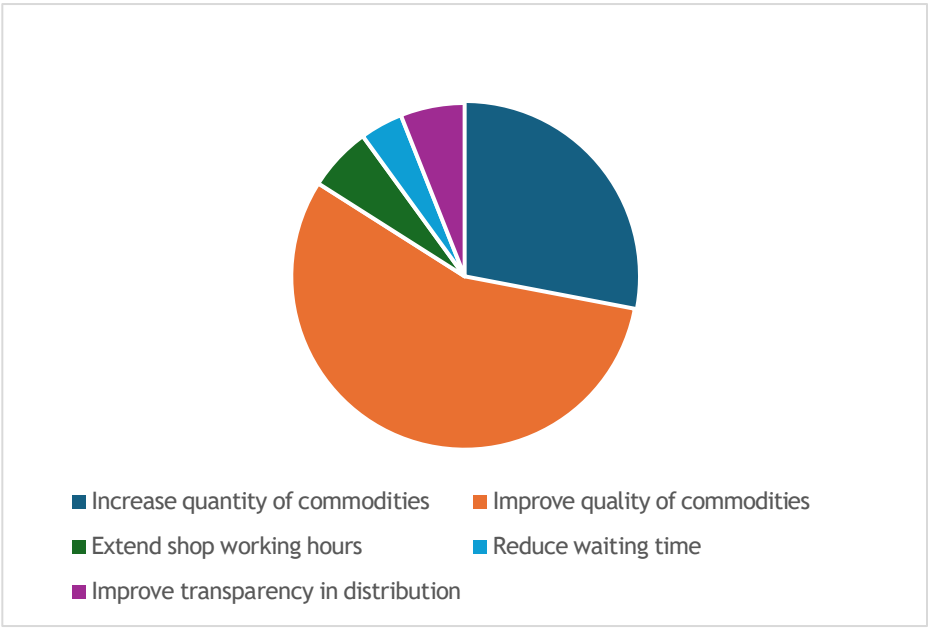


Source: Primary Data

The majority of households (64%) purchase rice only, which suggests that rice is the most essential and preferred staple for their daily diet. 22% of households purchase all commodities, indicating that a section of beneficiaries prefers a complete monthly ration from PDS, covering multiple staples.Some FPS outlets may have limited supply of wheat or sugar at times, leading households to purchase only what is reliably available.0 households are not accessing kerosene.

3.4.3 Improvements suggested by Household

Figure 3.28 Improvements suggested by Household

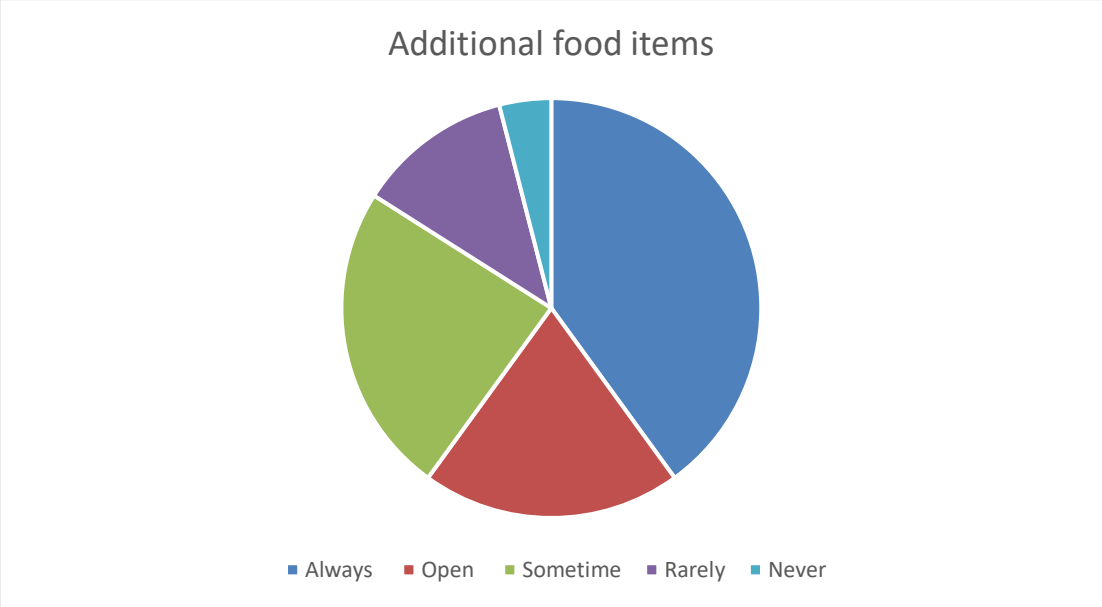


Source : Primary Data

The majority of households (56%) emphasized improving the quality of commodities, indicating that while PDS supply is largely available, the quality may not always meet expectations. Issues may include rice or wheat with impurities, low-grade sugar, Households prioritize quality because it directly affects health, taste, and usability of food items. 28% of respondents suggested increasing the quantity of commodities, reflecting that for some families, the current ration allocation may not be sufficient for meet monthly household needs, especially for larger families.6% report to extend working hours.

3.4.4 purchasing of Additional food items despite using PDS

Figure 3.29 purchasing of Additional food items despite using PDS

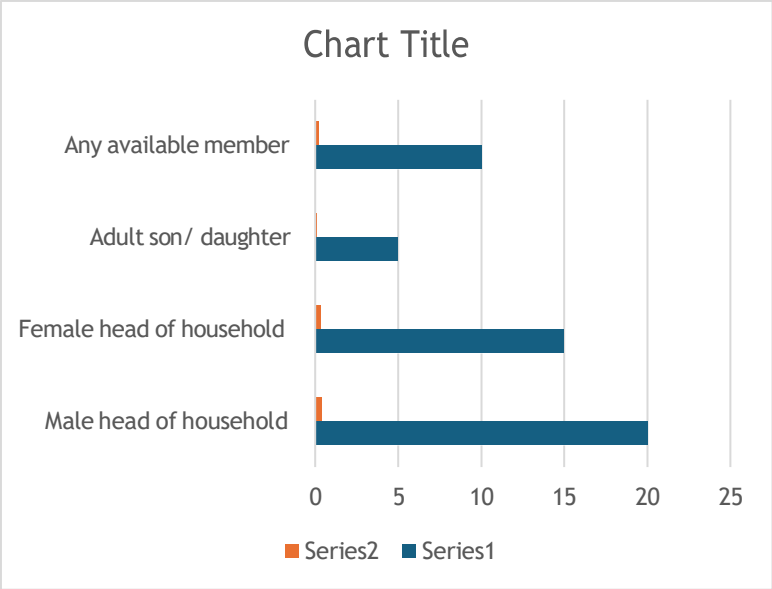


Source Primary Data

The data indicates that most households (84%) purchase additional food from the market at least sometimes, suggesting that the PDS alone does not fully meet all dietary requirements. For larger families, the allotted PDS ration may not be enough to last the entire month, forcing households to supplement from the market. The small proportion (4%) who never buy additional food likely includes households who rely entirely on PDS supplies, possibly due to smaller household size.

3.4.5 Household Responsible for Collecting PDS commodities

Figure 3.30 Household responsible for collecting PDS commodities

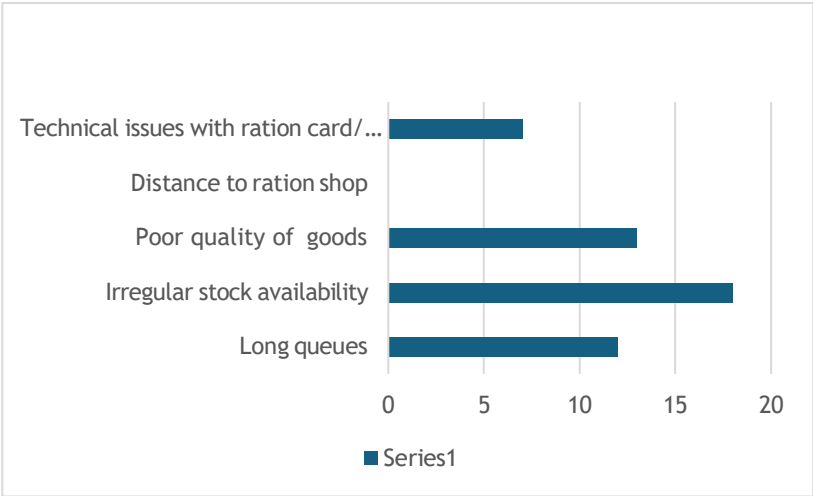


Source: Primary Data

40% of male head of the households are responsible to collect Commodities because men may be more available during shop hours. 30% are women's where whose men are working away from home. some cases, adult children assist due to convenience or mobility, particularly in larger households.

3.4.6 Challenges faced by Household

Figure 3.31 Challenges faced by Household



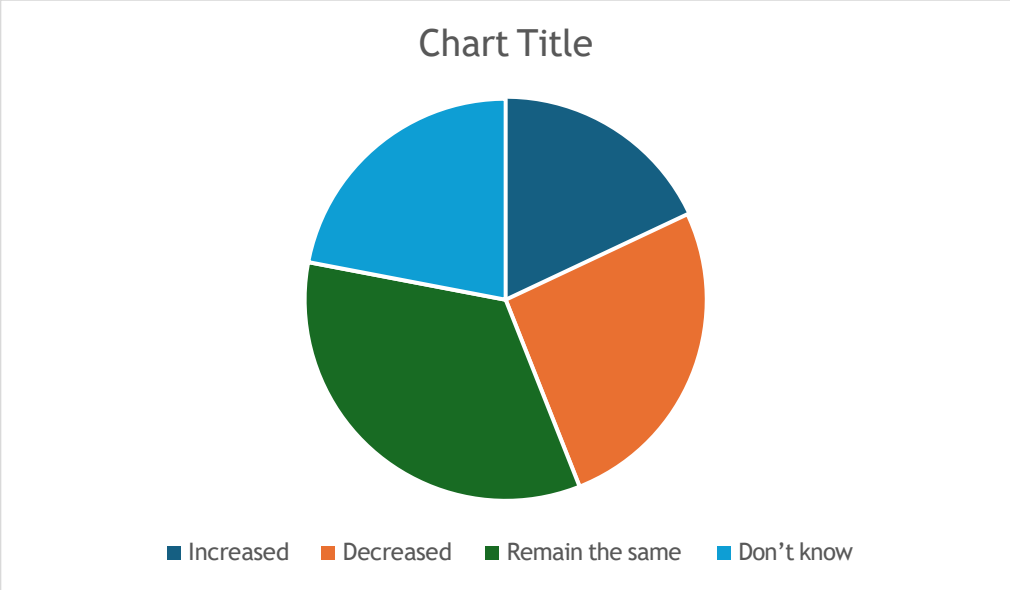
Source: Primary Data

The findings indicate that the primary challenge (36%) is irregular stock availability. This

suggests that some FPS outlets face supply inconsistencies, which may prevent households from obtaining their full entitlement in a timely manner. This is a common issue in areas with logistical or distribution constraints. Poor quality of goods (26%) is the second major concern. Even when commodities are available, households are conscious of the condition and usability of PDS items. Long queues (24%) also affect beneficiaries, particularly in shops serving larger populations or during peak collection times. Queues can consume time, cause inconvenience, and affect vulnerable populations such as the elderly or women with children.

3.4.7 Utilization of PDS commodities over past 3 years

Figure 3.32 Utilization of PDS commodities over past 3 years

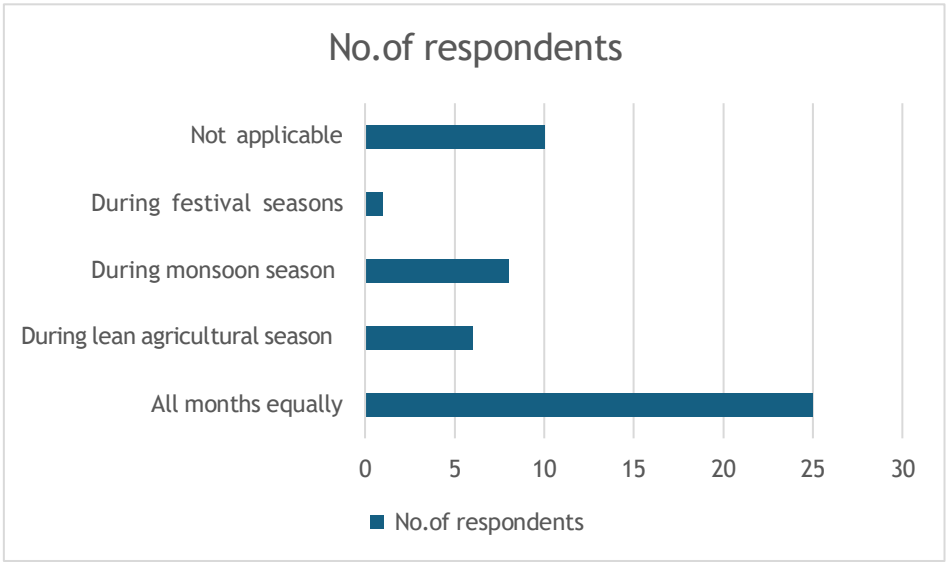


Source: Primary Data

34% of households reported no change, suggesting that for a significant portion, PDS access and consumption have remained stable. This may be due to consistent supply and household dietary habits that rely steadily on PDS staples. 18% reported increased utilization,26% report as decreased. Changes in household income or food preferences, reducing dependency on subsidized rations.

3.4.8 Time of Household Dependency on PDS

Figure 3.33 Time of Household Dependency on PDS

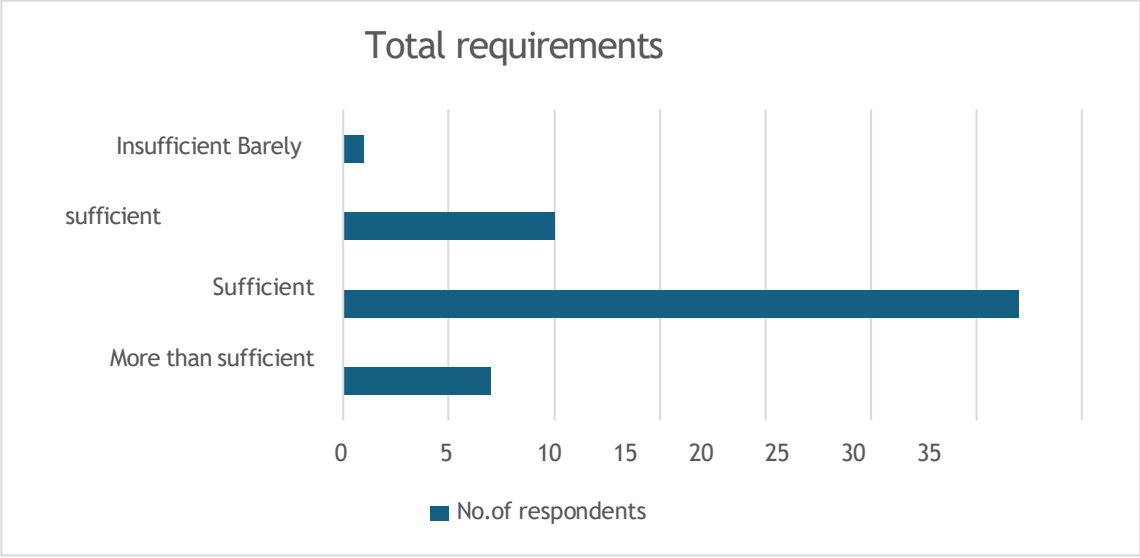


Source: Primary Data

12% Depend during lean agricultural season likely reflects households who experience reduced income or food availability during months when agricultural work is minimal, making PDS supplies especially important. Dependence during monsoon season (16%) may be due to limited access to markets or agricultural disruptions caused by rain, Not applicable (20%) may include households who do not heavily rely on PDS. They have sufficient income or alternative source for food .

3.4.9 Household's total food requirement (PDS)

Figure 3.34 Household's total food requirement (PDS)

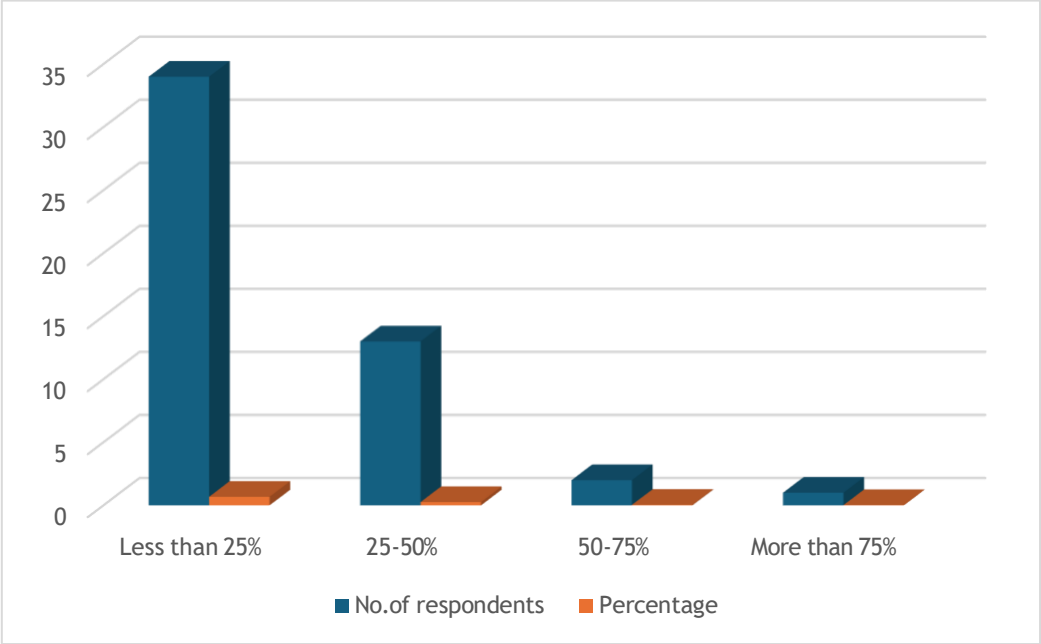


Source: Primary Data

The data indicates that for the majority of households (68%), PDS commodities meet less than a quarter. of their total food requirement. This suggests that while PDS provides essential staples, it is insufficient to cover the entire dietary needs of most families. smaller proportion (26%) meet 25–50% of their food needs through PDS, while only 6% of households rely on PDS for more than half of their food requirements, indicating that heavy dependence on PDS is rare.

3.4.10 Quantity of PDS commodities received by Household

Figure 3.35 Quantity of PDS commodities received by household



Source: Primary Data

The majority of households (64%) consider the quantity of PDS commodities sufficient, indicating that for most families, the monthly allocation meets their basic staple needs. This reflects the effectiveness of the PDS in providing an adequate ration for routine consumption, especially for small to medium-sized households. 14% reported "more than sufficient", likely representing smaller households or families that can store and utilize the allotted quantity efficiently over the month.

To examine the demographic and socio-economic profile of households availing PDS in both urban and rural areas.

Relationship between Type of Ration Card and Adequacy of PDS Hypotheses

Null Hypothesis (H_0):

There is no significant relationship between Type of Ration Card and Adequacy of PDS.

Alternative Hypothesis (H_1):

There is a significant relationship between Type of Ration Card and Adequacy of PDS .

OBSERVED FREQUENCY

Ration card/ Adequacy	AAY	BPL	APL	TOTAL
Highly inadequate	1	0	0	1
Inadequate	0	7	4	11
Adequate	2	15	16	33
Very adequate	0	5	0	5
Total	3	27	20	50

Degree of Freedom df=(4-

1)(3-1)=6

Table value

At 5% of significance level , χ^2 value=12.59 Decision

Table value of χ^2 at 5% level with 6 df= 12.59 Calculated χ^2 = 21.86

Since 21.86 > 12.592, the null hypothesis is rejected.

The Chi-square test was applied to examine the relationship between type of Ration Card and Adequacy of Public Distribution System (PDS) commodities among households in the urban and rural areas in Ernakulam district .The calculated Chi-square value (χ^2 = 21.86) is greater than the table value at 5 per cent level of significance (χ^2 = 12.59) with 6 degrees of freedom. Hence, the null hypothesis is rejected and the alternative hypothesis is accepted.

This result indicates that there exists a significant relationship between the type of ration card and the adequacy of PDS commodities. The perception of adequacy of PDS supplies varies across different categories of ration card holders.

The Data show that BPL and APL households largely perceive PDS commodities as adequate, with a majority of respondents in these categories reporting adequacy. In contrast, AAY households, though fewer in number, reported relatively lower adequacy, with one respondent indicating that the commodities were highly inadequate. This suggests that the most economically vulnerable section may not be receiving sufficient benefits from the PDS in terms of quantity or suitability.

The findings reveal that the adequacy of PDS commodities is not uniform across ration card categories. The significant association highlights the need for policy attention to ensure that AAY households receive adequate and sufficient PDS supplies, thereby strengthening the effectiveness of the Public Distribution System.

To understand beneficiaries perceptions regarding the quality and delivery mechanism of PDS commodities.

Relationship between Performance of PDS and Quality of food grains .

Hypotheses

Null Hypothesis (H_0):

There is no significant relationship between performance of PDS and Quality of food grains.

Alternative Hypothesis (H_1):

There is a significant relationship between performance of PDS and Quality of food grains .

OBSERVED FREQUENCY

Performance	Q1	Q2	Q3	Q5	Total
1	0	0	2	0	2
2	1	8	7	0	16
3	1	3	22	2	28
4	0	0	1	3	4
Total	2	11	32	5	50

Degree of Freedom df=(4-

1)(4-1)=9

Table value

At 5% of significance level , χ^2 value=16.919 Decision

Table value of χ^2 at 5% level and 9 df = 16.919 Calculated χ^2 = 36.95

Since 36.95 > 16.919, the null hypothesis is rejected.

The Chi-square test was used to examine the relationship between the Performance of the Public Distribution System (PDS) and the

Quality of food grains supplied. The calculated Chi-square value (χ^2 = 36.95) is substantially higher than the table value at the 5 per cent level of significance (χ^2 = 16.919) with 9 degrees of freedom.

Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted.

The observed frequencies reveal that respondents who rated the performance of PDS as higher (Performance level 3) predominantly expressed satisfaction with the quality of food grains, particularly under Q3, which recorded the highest number of responses. This suggests that better operational performance of the PDS—such as timely distribution, proper handling, and effective management—is closely associated with improved perceived quality of food grains.

In contrast, lower performance levels are associated with fewer positive responses regarding food grains quality, indicating

dissatisfaction or concerns related to quality. Additionally, the responses under Performance level 4, though limited in number, show variability, reflecting inconsistent perceptions of food grain quality among a small section of respondents. The findings highlight that quality of food grains is strongly influenced by the performance of the PDS. Improvements in storage, transportation, and distribution mechanisms can therefore enhance both the quality of food grains and beneficiaries' satisfaction with the system. This underscores the importance of strengthening PDS performance to ensure the delivery of good- quality food grains to Households.

To Analyze the Challenges faced by the Household Availing PDS Dependent variable: overall performance

Independent variable: Cheating Experience, Behaviour of PDS staff, availability and adequacy of resources.

Regression Statistics

Multiple R	0.788625171
R Square	0.62192966
Adjusted R Square	0.597272899
Standard Error	0.433646053
Observations	50

ANOVA

	df	SS	MS	F	*Significance F*
Regression	3	14.2298	4.743250207	25.22349357	8.45E-10
Residual	46	8.65025	0.1880489		
Total	49	22.88			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.825290194241051	0.505908697708493	1.631302640138835	0.109655083231395	-0.193051196831436	1.843631585313540	-0.193051196831436	1.843631585313540
Availability and Adequacy of Resources	0.625946459382401	0.142547321677475	4.391148511443960	0.000065569110169347	0.339013582945545	0.912879335819257	0.339013582945545	0.912879335819257
Experience of Cheating	-0.224262301373456	0.101187227583002	-2.216310365746574	0.031655805994427	-0.427941626442140	-0.020582976304771	-0.427941626442140	-0.020582976304771

Staff Behaviour	0.3366317159 63841	0.1580185554 18554	2.1303302961 6164	0.0385240802519123	0.0185568612142287	0.6547065707 13454	0.0185568612142287	0.6547065707 13454

A multiple regression analysis was conducted to examine the influence of Cheating experiences, Behaviour of PDS staff, and
Availability and adequacy of resources on the overall performance of the Public Distribution System (PDS).

Multiple R = 0.788

This indicates a strong positive relationship between PDS performance and the selected independent variables.

R Square = 0.6219

About 62.2% of the variation in PDS performance is explained by cheating experiences, behaviour of PDS staff, and availability and adequacy of resources. This shows that the model has good explanatory power.

Adjusted R Square = 0.5973

Even after adjusting for the number of predictors, nearly 59.7% of the variation in PDS performance is explained, confirming the reliability of the model.

Standard Error = 0.4336

Indicates a reasonably good fit of the regression line. Number of observations = 50

The sample size is adequate for meaningful analysis. F value = 25.23

Significance F = 8.45×10^{-10}

Since the significance value is much lower than 0.05, the regression model is

statistically significant.

Hypotheses

Null Hypothesis (H_0): There is no significant relationship between performance of PDS and the factors.

Alternative Hypothesis (H_1): There is a significant relationship.

The analysis reveals that cheating experiences and the behaviour of PDS staff are the most significant determinants of PDS performance. While availability and adequacy of resources remain important, they do not significantly affect performance when compared to issues related to staff conduct and malpractices. Therefore, improving transparency, reducing cheating practices, and enhancing staff behaviour are crucial

for strengthening the effectiveness of the Public Distribution System.

CHAPTER -4

FINDINGS, SUGGESTIONS AND CONCLUSION

4.1 INTRODUCTION

This chapter presents a detailed analysis and interpretation of the data collected for the study on household access to and utilization patterns of the Public Distribution System (PDS) in Ernakulam district. The analysis is based on primary data gathered from selected households across urban, rural, and semi-urban areas. The chapter seeks to examine how socio-economic characteristics, income levels, household composition, accessibility of fair price shops, and service delivery mechanisms influence the utilization of PDS commodities. Through systematic analysis, the chapter evaluates the effectiveness of the PDS in meeting household food requirements and ensuring food security.

The utilization of the Public Distribution System is not merely a matter of accessing subsidized food grains; it reflects broader issues of economic vulnerability, social welfare, and state intervention in ensuring equitable distribution of essential commodities. Differences in access and utilization across households highlight variations in dependency on PDS, quality perceptions, and satisfaction levels. By analyzing beneficiaries' experiences regarding quantity, quality, availability, digitalization, and service delivery, this chapter brings out the strengths and limitations of the PDS at the household level.

4.2 FINDINGS

The analysis of household characteristics and utilization patterns of the Public Distribution System (PDS) reveals that the scheme plays a significant role in supporting household food security in the study area.

- The majority of respondents belong to urban and rural areas, with diverse socio-economic backgrounds. Most households are nuclear families with moderate income levels and depend primarily on wage or salaried employment.
- The findings indicate that PDS coverage is universal among the sampled households, and most respondents consider the
  quantity of food grains to be adequate.
- Digitalization initiatives have improved transparency and service delivery, reducing instances of cheating and irregularities. However, quality-related issues such as impurities, storage conditions, and irregular stock availability remain concerns for a section of beneficiaries.
- While PDS contributes to household food consumption, it meets less than 25% of total food requirements for most households, indicating continued dependence on the open market.

- Over all the performance of the PDS is rated positively, though improvements in quality, stock consistency, and infrastructure are necessary to enhance effectiveness.
- Type of Area of Residence shows that 50% of the respondents (25 households) reside in urban areas, followed by 40% (20 households) from rural areas, while only 10% (5 households) belong to semi-urban areas. This indicates that the sample has a higher representation of urban households.
- The Public Distribution System (PDS) is traditionally more crucial for rural populations due to higher dependence on subsidized food grains, the significant urban representation reflects increasing reliance on PDS among urban households as well, especially among low- and middle-income groups.
- Type of Ration Card reveals that 50% of respondents possess Above Poverty Line (APL) cards, followed by 44% holding Below Poverty Line (BPL) cards, while only 6% are covered under the Antyodaya Anna Yojana (AAY). Notably, none of the households reported the absence of a ration card, indicating complete PDS coverage among the sampled households. This suggests effective inclusion under the PDS across different economic categories in the study area.
- Size of Household shows majority of households (82%) consist of 3–5 members, indicating the predominance of nuclear families. Only 12% have 6–8 members, representing joint families, which are more common in rural areas. Very small households (1–2 members) and very large households (more than 8 members) are minimal, reflecting changing family structures, rising living costs, and declining fertility rates.
- The educational profile of household heads is relatively strong, with 56% having higher secondary education or above. The absence of illiteracy among respondents reflects improved educational access and awareness, especially in urban areas.
- Occupational data shows a shift away from agriculture, with none of the respondents engaged in farming.Daily wage labour(42%) and salaried employment (38%) dominate, highlighting increased dependence on non-farm livelihoods.
- Housing conditions show that 68% of households live in pucca houses, reflecting relatively stable living conditions. However, the presence of kutcha and semi-pucca houses in rural areas highlights economic vulnerability.
- More proportion of households have been availing PDS benefits for more than six years suggesting that they are more dependent on PDS particularly rural and economics vulnerable groups .
- The majority of households (68%) meet less than 25% of their total food requirement through PDS, indicating that PDS serves as a supplementary support rather than a complete food security solution.

4.3 SUGGESTIONS

Improve Quality Control: Regular quality inspections should be conducted at procurement, storage, and FPS levels to reduce impurities and pest infestation.

Upgrade Storage Infrastructure: FPS outlets should be equipped with proper storage facilities, ventilation, and moisture-proof containers to preserve grain quality.

Ensure Regular Stock Availability: Strengthening supply chain management can reduce irregular stock availability and delays.

Standardize Packaging: Commodities like sugar should be supplied in sealed, hygienic packaging to ensure cleanliness.

Extend FPS Working Hours: Flexible timings can help working households avoid long queues.

Strengthen Digital Systems: Address biometric failures and network issues through backup authentication mechanisms.

Nutrition Diversification: Inclusion of pulses and fortified food items can improve nutritional outcomes.

Larger household should receive large quota of food grains

Enhance Awareness: Beneficiaries should be informed about their entitlements, complaint mechanisms, and digital features.

4.4 CONCLUSION

This chapter has presented a detailed analysis and interpretation of primary data collected from households availing the Public
Distribution System (PDS) in Ernakulam district. The analysis focused on understanding household access, utilization patterns, quality perceptions, service delivery mechanisms, and the challenges faced by beneficiaries. By examining socio-economic characteristics alongside PDS performance indicators, the chapter provides a holistic picture of how effectively the PDS functions at the grassroots level in an economically and socially diverse district like Ernakulam. The study concludes that the Public Distribution System plays a significant and supportive role in ensuring

household food security in Ernakulam district. The system has achieved wide coverage across socio-economic groups, with effective digitalization, improving transparency, reducing leakages, and enhancing beneficiary satisfaction. While the majority of households find PDS food grain quantities adequate and service delivery satisfactory, the system does not fully meet total household food requirements, making open market purchases unavoidable. Quality-related issues, irregular stock availability, and infrastructure constraints remain important challenges.

Overall, the PDS in the study area is functioning effectively as a supplementary food security mechanism, rather than a comprehensive solution. Addressing quality consistency, infrastructure gaps, and service delivery inefficiencies can further strengthen the system and enhance its contribution to household welfare. The chi- square analysis shows a significant relationship between the type of ration card and the adequacy of PDS among the households in urban and rural areas.

PDS supply receives adequate for BPL and APL households.AAY households shows the most vulnerable group and they as report lower adequacy .The findings highlight the need for targeted policy intervention. Thereby improves the equity and effectiveness in the delivery of food security. Second objective shows the relationship between overall performance of PDS and the Quality of food grains.From this findings are to strengthen the storage facilities, transportation. Higher performance level of PDS associated with greater food grain quality .The multiple regression shows the overall performance of PDS is influenced by the challenges faced by the Household availing PDS.Overall conclusion for regression is that it is not determined by a single factor but by a combination of administrative efficiency. Strengthening transparency, curbing malpractices, ensuring adequate availability of resources, and improving staff behaviour are essential for enhancing the effectiveness of the Public Distribution System.

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QUESTIONNAIRE

To examine the demographic and socio-economic profile of households availing PDS in both urban and rural areas

1. What is the type of area you reside in?

a) Urban
b) Rural
c) Semi-urban
d) Other (please specify)

2. What is the type of ration card your household possesses?

a) Antyodaya Anna Yojana (AAY) card
b) Below Poverty Line (BPL) card
c) Above Poverty Line (APL) card
d) No ration card

3. What is the size of your household?

a) 1–2 members
b) 3–5 members
c) 6–8 members
d) More than 8 members

4. What is the highest education level of the household head?

a) Illiterate
b) Primary education
c) Secondary education
d) Higher secondary and above

5. What is the main occupation of the household head?

a) Agriculture and allied activities
b) Daily wage labour
c) Government/private employment
d) Self-employment or business

6. What is your average monthly household income?

a) Below ₹5,000
b) ₹5,001 – ₹10,000
c) ₹10,001 – ₹20,000
d) Above ₹20,000

7. What is the primary source of income for your family?

a) Agriculture
b) Wages/salary
c) Small business/trade
d) Pensions or remittances

8. What is your household's type of dwelling?

a) Kutcha (temporary) house
b) Semi-pucca house
c) Pucca (permanent) house
d) Rented accommodation

9. How long has your household been availing PDS benefits?

a) Less than 1 year
b) 1–3 years
c) 4–6 years
d) More than 6 year

10. What is the average monthly expenditure on food (including PDS grains)?

a) Below ₹2,000
b) ₹2,001 – ₹4,000
c) ₹4,001 – ₹6,000
d) Above ₹6,000

Beneficiaries perceptions regarding the adequacy, quality, and delivery mechanisms of PDS commodities.

11. Are PDS commodities free from impurities (stones, insects, dirt, etc.)?

a) Always

b) Sometimes

c) Rarely

d) Never

12. Have you ever faced problems such as shop closure, stock shortage, or manipulation of records?

a) Never

b) Rarely

c) Sometimes

d) Frequently

13. How convenient is it for you to access your PDS shop (distance, timing, and travel)

a) Very convenient

b) Convenient

c) Inconvenient

d) Very inconvenient

14. How would you rate the adequacy of PDS food grains your household receives every month?

a) Very adequate

b) Adequate

c) Inadequate

d) Highly inadequate

15. .Have you noticed any difference in quality or service after the introduction of digital systems (smart cards, biometric machines, etc.)?

a) Significant improvement

b) Some improvement

c) No change

d) Worse than before

16. Do you often receive the full quota of food grains allotted to your card type?

a) Always

b) Most of the time

c) Occasionally

d) Rarely or never

17. How do you rate the quality of rice/wheat supplied through the PDS?

a) Very good

b) Satisfactory

c) Poor

d) Very poor

18. Are the commodities (sugar, kerosene, etc.) provided through PDS clean and properly packed?

a) Always

b) Sometimes

c) Rarely

d) Never

19. How would you describe the behavior of fair price shop (FPS) staff towards beneficiaries?

a) Very polite and helpful

b) Satisfactory

c) Rude or unhelpful

d) Corrupt or demanding bribes

20. Do you face any irregularities in the timing or availability of PDS supplies?

a) Never

b) Occasionally

c) Frequently

d) Almost every month

21. How far is the nearest fair price shop (ration shop) from your residence?

a) Less than 1 km

b) 1–3 km

c) 3–5 km

d) More than 5 km

22. How satisfied are you with the delivery mechanism (timely supply, record keeping, digital systems, etc.) of PDS?

a) Very satisfied

b) Satisfied

c) Dissatisfied

d) Very dissatisfied

23. Have you ever experienced cheating in weight or quantity at the ration shop?

a) Never

b) Rarely

c) Sometimes

d) Frequently

24. Overall, how do you rate the performance of the PDS in meeting your household's basic food needs?

a) Excellent

b) Good

c) Fair

d) Poor

25. How would you rate the cleanliness and storage conditions of the fair price shop?

a) Very clean and hygienic

b) Satisfactory

c) Poor

d) Very poor

patterns of utilization of PDS commodities among different household categories.

26.How often does your household collect PDS commodities?

a) Weekly

b) Bi-weekly

c) Monthly

d) Occasionally

e) Never

27. Which of the following PDS commodities does your household regularly purchase?

a) Rice

b) Wheat

c) Sugar

d) Kerosene

e) All of the above

28. Which factor influences your decision to collect PDS commodities most?

a) Low price compared to market

b) Quality of commodities

c) Availability and timing

d) Distance to ration shop

e) Others (specify)

29. Do you purchase additional food items from the open market despite using PDS?

a) Always

b) Often

c) Sometimes

d) Rarely

e) Never

30. Who in your household is mainly responsible for collecting PDS commodities?

a) Male head of household

b) Female head of household

c) Adult son/daughter

d) Any available member

31. How would you describe the regularity of your PDS commodity collection?

a) Always regular

b) Sometimes irregular due to stock issues

c) Often irregular due to other reasons

d) Rarely collect

32. Has the utilization of PDS commodities by your household changed over the past 3 years?

a) Increased

b) Decreased

c) Remained the same

d) Don't know

33. Which months does your household depend mostly on PDS supplies?

a) All months equally

b) During lean agricultural seasons

c) During monsoon season

d) During festival seasons

e) Not applicable

34. What proportion of your household's total food requirement is met through PDS?

a) Less than 25%

b) 25–50%

c) 50–75%

d) More than 75%

35. How would you rate the quantity of PDS commodities received for your household size?

a) More than sufficient

b) Sufficient

c) Barely sufficient

d) Insufficient