

A STUDY ON THE EFFECTIVENESS OF AADHAAR ENABLED PUBLIC DISTRIBUTION SYSTEM

PROJECT REPORT

*A project report submitted to the University of Kerala in partial fulfillment of the
requirement for the Award of Bachelor of Commerce.*

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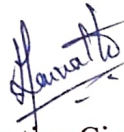
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CERTIFICATE

This is to certify that the project entitled "A STUDY ON THE EFFECTIVENESS OF AADHAAR ENABLED PUBLIC DISTRIBUTION SYSTEM" is a bonafide record of work done by **Ancy B, Arya M, Asha B R, Gopika G S and Gopika Gopan**, submitted to the University of Kerala in partial fulfilment of the requirement for the award of the Degree of Bachelor of Commerce under Choice Based Credit and Semester System, under my supervision and guidance.

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DECLARATION

We hereby declare that the project entitled “**A STUDY ON THE EFFECTIVENESS OF AADHAAR ENABLED PUBLIC DISTRIBUTION SYSTEM**” is a bonafide record of work done by **Ancy B, Arya M, Asha B R, Gopika G S and Gopika Gopan**, submitted to the University of Kerala in partial fulfilment of the requirement for the award of the Degree of Bachelor of Commerce under Choice Based Credit and Semester System.

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LIST OF ABBREVIATIONS

Abbreviations	Full Form
PDS	Public Distribution System
TPDS	Target Public Distribution System
APL	Above Poverty Line
BPL	Below Poverty Line
FCI	Food Corporation of India
NFSA	National Food Security Act
ePOS	Electronic Point-of-Sale
FPS	Fair-Price Ration Shops
UID	Unique Identification
ABBA	Aadhaar Based Biometric Authentication
AePDS	Aadhaar enabled Public Distribution System
UIDAI	Unique Identification Authority of India
JAM	Jan Dhan Aadhaar Mobile
ATM	Automated Teller Machine
EID	Electronic Identification
MID	Merchant Identification Number
MIS	Management Information System
ICT	Information and Communications Technology
GOI	Government of India
MSP	Minimum Support Price
OMSS	Open Market Sale Scheme
CAP	Covered and Plinth
CAG	Comptroller and Auditor General
IFO	First in First Out
FSO	Food Safety Objective
NPNS	Non-Priority, Non-Subsidy
NPS	Non-Priority, Subsidy
PHH	Priority Household
AAY	Antyodaya Anna Yojana

EXECUTIVE SUMMARY

Public Distribution System (PDS) is a government sponsored chain of shops entrusted with the work of distributing basic food commodities to the needy section of the society at very cheap rate prices with a view to eradicate scarcity. The state government is responsible for the identification of eligible beneficiaries, issuance of ration cards and allocation and distribution of food grains within the state. Ration cards are an official document issued by the state government in India to households that are eligible to purchase subsidized food grain from the public distribution system under the National Food Security Act (NFSA). India's public distribution system is now going through both successes and setbacks. On the other hand, the system has issues like fraud, inadequacies in coverage and leakage. Government of India in 2015 began rolling out Electronic Point-of-Scale (ePOS) devices at fair-price ration shops (FPS) and requiring that beneficiaries use the aadhaar based biometric authentication (ABBA) to collect their benefits.

The objectives of the study were to find out the effects in pre and post impacts of AePDS, to know about the extent of awareness among people about the features of the new system, to understand the efficiency of Aadhaar enabled PDS in bringing about transparency in PDS and food security, to examine the satisfaction level of the respondents regarding the rationing system after the implementation of AePDS and get to know about the existing problems relating to the implementation of AePDS.

The research design used in study is analytical and descriptive in nature. The universe of the study includes all the ration cardholders in Trivandrum district. The present study is based on primary and secondary data. Convenience sampling technique is used to collect data from the respondents. The various statistical tools such as percentage, mean, rank are used for the data analysis of the study.

The study states that many benefits have been gained from the implementation of this AePDS system such as there was wastage of more time by standing in queue, and uncertainty about timings and days of distribution of ration, but now the consumers don't have to wait that long they get the SMS or messages regarding the day and timing of distribution of ration. One of the objectives of the study was to make a comparison between the pre and post AePDS. It was found that the initiative has definitely resulted in making the PDS more accountable. As per the responses of the beneficiaries, it is clear that the change from post rationing system to the new one (AePDS) is essential for

managing scarcity through distribution of food grains at affordable prices and in improving the efficiency and transparency of the system.

The study also showed certain drawbacks about AePDS such as not noticing the SMS because the text is not created as important or noticeable, lack of knowledge about new technology, inefficient epos machines, setting up of alternative facilities to the old aged people whose Aadhaar authentication is not effective, not making any kind of enquiry regarding the efficiency of new system, lack of satisfaction of beneficiaries etc can be noticed. These should be noticed and take certain measures by the staffs for the efficiency of AePDS system.

It was seen that the Aadhaar enabled Public Distribution System initiative has definitely made public distribution system more responsible. The transition to AePDS has resulted in efficient operations of fair price stores through receipt of subsidies and timely supply of products. A large number of respondents were very satisfied with the new system's biometric authentication. This does not mean that the new system does not cause problems. Goods are received at public distribution system with accurate measurements and provide an overall improvement to the system. It is also evident that majority of the people are aware of the facilities of the new system. The implementation of AePDS has increased the overall efficiency of the public distribution system. In contrast to the pre-AePDS system, the beneficiaries are far more satisfied with the new one. The study was effective in determining the amount that people knew about the different aspects of the newly implemented system. The switch from the previous rationing system to the new one brought transparency in public distribution system and food security. The satisfaction level of beneficiaries after the implementation of AePDS is better than that of before. The study was effective in determining the amount that people knew about the different aspects of the newly implemented system. The switch from the previous rationing system to the new one brought transparency in public distribution system and food security. The satisfaction level of beneficiaries after the implementation of AePDS is better than that of before.

CHAPTER – 1

INTRODUCTION

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Public Distribution System (PDS) is a government sponsored chain of shops entrusted with the work of distributing basic food commodities to the needy section of the society at very cheap rate prices with a view to eradicate scarcity. Wheat, rice, kerosene, sugar etc. are a few major commodities distributed by the public distribution system.

India's PDS is the biggest retail system on the planet based on ration cards. In India the scheme of the Public Distribution System was first started on 14 January 1945, during the Second World War. The introduction of rationing in India date back to the 1940s Bengal famine with a view to reduce the burden of food subsidy and targeting it better to the needy people. The Government of India adopted the Target Public Distribution System (TPDS) from June 1, 1997, with a focus on the poor. Under the operations of TDPS, the beneficiaries were divided into households below the poverty line (BPL) and the households above the poverty line. PDS is operated under the joint responsibility of the central and state government. The central government through Food Corporation of India (FCI), has assumed the responsibility for procurement, storage and transportation of food grains to designated deposit of FCI. The state government is responsible for the identification of eligible beneficiaries, issuance of ration cards and allocation and distribution of food grains within the state. Ration cards are an official document issued by the state government in India to households that are eligible to purchase subsidized food grain from the public distribution system under the National Food Security Act (NFSA). The government provides ration cards to the people depending on their distribution lines.

India's public distribution system is now going through both successes and setbacks. On the other hand, the system has issues like fraud, inadequacies in coverage and leakage. The cardholders, if they fail to collect the deprived ration they are deprived of these essentials. The shopkeepers transact the business illegally at a higher price. Not only are this but cardholders often deceived in terms of accurate weight. The needy individuals often fall prey to unlawful activities by the shopkeepers. To beat the issues of dishonesty by ration vendors and unauthorized sale of subsidized ration material, usage of innovation which links you UID with the PDS, utilization of biometrics, empowered the

system. Government of India in 2015 began rolling out Electronic Point-of-Scale (ePOS) devices at fair-price ration shops (FPS) and requiring that beneficiaries use the aadhaar based biometric authentication (ABBA) to collect their benefits. “One Nation, One Ration Card” is aadhaar based national ration card portability scheme introduced in 2018 by the Indian Central Government, to ensure food security for all, including internal migrants within India under which beneficiaries can purchase subsidized food anywhere in India and thus ensures the food security through the inter-state portability of ration cards. After the implementation of Aadhaar in PDS, millions of fake ration cards were eliminated in India, based on the biometric enabled aadhaar card seeding.

Aadhaar enabled Public Distribution System (AePDS) has been implemented effectively in Kerala. The Kerala state government ‘ePOS Kerala’ portal is provided for the AePDS under the Food & Civil Supplies and Consumer Affairs Department of the total 3.54 crore members listed in ration cards in Kerala, 3.52 crore (99.57 percentage) have provided biometric details. Kollam, Pattanamthitta, Malappuram and Alappuzha districts have reported 100 per cent submission

STATEMENT OF THE PROBLEM

Aadhaar enabled Public Distribution System was introduced in compliance with an end-to-end computerization strategy by the Government of India in 2015. It is a digitalized system for the distribution of food grains and other essential commodities to beneficiaries under the Public Distribution System in India. It uses Aadhaar as the unique identifier for beneficiaries and ensures that they receive their entitled rations without any hassle. This compelled beneficiaries to seed their aadhaar cards with ration cards that authenticating the biometric of the beneficiary coming to the ration shops of the UIDAI (Unique Identification Authority of India) server. This further eliminated ghost cards and made the functioning of ration shops more accountable and transparent. The AePDS system in Kerala was launched in 2017 and has been steadily expanding since. As of March 2023, it covers over 99 per cent of the ration shops in the state and over 95 per cent of the beneficiaries.

The AePDS system has several advantages over the traditional PDF system. It has the potential to ensure that all eligible beneficiaries receive their entitled rations. Additionally, the AePDS system provides beneficiaries with a wider range of options for receiving their rations, including their bank accounts or through the doorstep delivery

system. But most of the people are unaware of these facilities. So, it is important to study the extent of awareness among people about the various features of the new system. The study attempts to draw light on the impact of AePDS from the viewpoint of beneficiaries. The AePDS system eliminates the need for manual verification of beneficiaries which makes the process of distributing regions more efficient. It also provides a digital trail for all transactions which makes it more transparent and accountable. The system makes it more difficult for corrupt officers to manipulate the PDS system. Even though AePDS ensures these benefits, the study also focuses on finding out whether it has actually brought out transparency in dealings and whether it has been able to deliver goods to the genuine card holders. It can be made possible by making a comparison of pre and post impacts of AePDS.

Customer satisfaction plays a crucial role in determining the success and effectiveness of any system implementation. It measures the extent to which customers expectations and requirements are met, reflecting their overall experience and perceptions of the system's functionality. Hence it is essential to understand customer satisfaction for continuous improvement, addressing challenges and maximizing the system benefits. There are certain challenges in the implementation of AePDS. At first, there are difficulties in capturing the fingerprint either due to technical error or due to imperfections in fingerprint. Secondly, there are complaints about the accessibility of the internet connection. There are many other problems such as limited awareness among the beneficiaries, data security issues, limited scale of operations etc. Since there is need to find out the existing problems the study also tries to point out the existing problems in its implementation and suggest remedies for the same.

The basic infrastructure required for implementation of AePDS system is ration cards, fair price shops and ePOS machines. Ensuring robust infrastructure, regular maintenance and proactive troubleshooting can enhance the system reliability and consequently improve overall satisfaction. This, in turn, can contribute to the effectiveness and efficiency of the public distribution system, leading to improved outcomes for both beneficiaries and overall distribution process. The problem is thus stated finding out the impact of Aadhaar enable public distribution system (AePDS) as viewed from the perception of beneficiaries

IMPORTANCE OF THE STUDY

With a view to reducing the burden of food subsidy and targeting it better to the needy people, the Government of India adopted the Target Public Distribution System from June 1st, 1997. Main significance of AePDS is to improve service delivery through online and real time transactions to issue food grains to genuine and eligible card holders in time to make a foolproof PDS. It also helped people to eliminate misuse and duplication of ration cards. In AePDS can get fingerprints using biometric devices and offering a completely unique number to each resident bogen cards and shadow cards can also be eliminated. Nowadays even the common public is aware of the AePDS system and thus the system also benefits and satisfies the problems faced by the public. This project also provides answer to the questions like: -

- What is the satisfaction level of respondents regarding the rationing system after the implementation of AePDS?
- How AePDS impacted the public after the implementation of this system?
- What are the existing problems relating to the implementation of AePDS?
- Is AePDS efficient enough to bring transparency in PDS and food security?
- What is the awareness level of people about this new system?

SCOPE OF THE STUDY

The study aims on the effectiveness of Aadhaar Enabled Public Distribution System. The present study is confined to Trivandrum. It analyses a previous system in which people visit fair price shops to buy essential commodities like rice, flour etc. in various ration shops across Trivandrum. The fair price shops are usually dependent on poor people. Moreover, the present study analysis the factors which attracts more deserving people by improving services delivery through online real times transaction, to issue food rations to the genuine and eligible cardholders in time, to make a foolproof PDS system, free from hoarding, stock diversion and corruption.

OBJECTIVES OF THE STUDY

- Examine the pre and post impacts of AePDS
- Study the extent of awareness among people about the features of the new system

- Understand the efficiency of Aadhaar enabled PDS in bringing about transparency in PDS and food security
- Examine the satisfaction level of the respondents regarding the rationing system after the implementation of AePDS
- Study the existing problems relating to the working of AePDS

RESEARCH METHODOLOGY

Research methodology is a way to systematically solve research problems. It may be understood as a science of studying how research is done scientifically.

1. Research design

The research design used in the study is analytical and descriptive in nature

2. Sources of data

The present study is based on primary and secondary data

a) Primary data collection

- **Population**

The universe of the study includes all the ration cardholders in Trivandrum district.

- **Sample size**

From the population, data from 80 respondents are collected.

- **Sampling technique**

Convenience sampling technique is used to collect data from the respondents.

- **Instruments used for primary data collection**

A well-structured questionnaire is used to collect the data from the respondents by using forms. Interview schedules are used to collect data from illiterate respondents. Other informations are collected interviewing ration shop dealers.

b) Secondary data

The present study collects secondary data from both published as well as unpublished sources including government websites, reports, books, journals, articles, research theses and so on.

3. Data Analysis

Various statistical tools are used for analyzing the data collected from primary sources. The tools such as percentage, mean, rank are used for the data analysis of the study.

The primary data collected are approximately condensed in the form of tables and figures, to make the results comprehensible and facilities easy comparison of results to be analysed statistically.

To find out the benefits of AePDS, the respondents were asked to rank the various features of the system according to their priority. To analyse the collected data, each rank was assigned weights.

Rank	1	2	3	4	5	6	7	8	9	10
Weights	10	9	8	7	6	5	4	3	2	1

Each feature was taken and the different ranks obtained for the features were multiplied with respective weight and the aggregate of their products were taken. The weights were multiplied with the responses received in each level and the total sum was taken. Then this total was divided by the number of respondents to obtain the mean score. To analyse the data collected, the scores for each feature obtained were compared and then highest was ranked 1 and next 2 and so on.

LIMITATIONS OF THE STUDY

- The study is confined to Trivandrum district.
- Lack of effective response from ration cardholder. Many cardholders were reluctant to share their sincere opinion regarding efficiency or quality of service delivery.
- Time element is an important limiting factor of the study as it is implemented recently.
- The perception of agents and employees of civil supply state department is wholly excluded as the study is only on the perception of consumers.

CHAPTERISATION

Chapter 1: Introduction

This chapter deals with the overall introduction on the topic under a study: A study on the effectiveness of Aadhaar enable Public Distribution System”. The chapter also includes statement of the problem under study, scope of the study undertaken, objectives of conducting the study, the methodology followed, limitations of the study and chapterisation.

Chapter 2: Review of Literature

This chapter deals with the detailed literature review of studies related to AePDS and PDS.

Chapter 3: Theoretical Framework

The present chapter has been divided into 3 parts the first parts. The first part analyses the Public Distribution System in India. The second part analyse the Public Distribution System in Kerala and the last section deals with the Aadhaar enabled Public Distribution System.

Chapter 4: Data Analysis and Interpretation

This chapter days with analysis of data collected from the ration beneficiaries for the study and implementation. Tables, graphs and charts are used to make the result easily understandable and comparable.

Chapter 5: Summary, Finding, Suggestions and Conclusion

This chapter deals with the major findings derived based on the data analyzed and the interpreted. The conclusion of the study and suggestions to purpose are also mentioned in the chapter.

CHAPTER 2
REVIEW OF LITERATURE

CHAPTER 2

REVIEW OF LITERATURE

The purpose of present chapter is to give an overview of some of earlier studies on Aadhaar Enabled Public Distribution System (AePDS) in India. A review of literature is nothing but a review of theoretical, empirical and methodological issues on the subject. This helps in providing meaningful direction and thought for appropriate research questions and policy making. In recent years, there has been tremendous growth in the literature on AePDS. Therefore, it is just not possible to conduct a survey of all available literature on the subject. Keeping in view the limitation of research scholar in terms of time and resources, we briefly review some of the earlier studies on AePDS in India to identify gaps in research, if any, which would help in formulating the methodology of present study.

Ankush & etal (2023) in their article biometric security-based ration card for PDS stated that the proposed biometric empowered fingerprint administration system can have overseen better methods for ration card system to stop the product pilferage, similarly, the modernized ration system to accomplish paperless work and to expand security and utilize this system can accomplish straight forwardness and decrease offers of items operating at a profit advertise. To combat the issues of dishonesty by ration vendor's unauthorized sale of subsidized ration material utilization of an innovation with linkage of UID with the PDS and utilization of biometric empowered system for the recipient recognizable proof.

Hima (2023) in the article a study on the enrollment and challenges of aadhaar enabled services delivery in India stated that aadhaar has been envisioned as a means for residents to easily and effectively establish their identity, to any agency, anywhere in the country, without having to repeatedly produce identity documentation to agencies. Aadhaar would ensure that residents across India, including the poorest and the most marginalized, can access the benefits and services that are meant for them. Investment in infrastructure boosted economic growth and productivity. In the last few decades, a new kind of soft infrastructure has emerged. That soft infrastructure was taken into consideration while building aadhaar identity platform, a system that can uniquely identify residents of a

country with anytime, anywhere usage. The UID is a 12-digit unique identification number issued UIDAI and is considered by policymakers as a critical and unparalleled human resource information system in resolving identity crisis of residents, effective enforcements of individual rights, and improving the delivery of social benefits by eliminating multiple identification mechanisms across various government departments while also strengthening national security.

Mahesh & etal (2023) in their article a study of the level of satisfaction among beneficiaries regarding the implementation of the electronic point of sale (e-PDS) system in the public distribution system (PDS) in Ahmadabad district stated that their paper aims to assess their level of satisfaction among beneficiaries regarding the implementation of the ePOS system in the PDS. It further seeks to identify the factors that influence customer satisfaction with the ePOS system, including system reliability, ease of use, accessibility, transparency and service quality. The results indicated a strong positive relationship between the above predictors and overall satisfaction. The predictors collectively explained our significant portion of the variance in overall satisfaction, with service quality being particularly influential. The findings highlight the importance of improving these factors to enhance beneficiary satisfaction with the ePOS in the PDS.

Sanjeev (2023) in the article centre takes the e-governance route to push AePDS stated that the new mode of digital governance has helped the streamline the center's efforts for holistic transformation and streamlining of the public distribution system. AePDS was designed to ensure that food and other essential commodities are distributed to the targeted beneficiaries in a transparent and efficient manner. The article also shows that digitalization has helped in plugging subsidy leaks and has so far removed over a million bogus beneficiaries. This ensures that only eligible beneficiaries receive the benefits of the public distribution system. The use of electronic point of sale devices helped to authenticate the identity of beneficiaries at the time of distribution, which eliminated the need for manual verification of beneficiaries which was time consuming and prone to cross.

Anandhu (2022) in the article impact of ePOS enabled public distribution system with special reference stated that the Indian food safety system was created by the indian government and local department of consumption, food distribution and the public to

distribute food and non-food objects to the Indian poor at grant rates. The government installed electronic point of sale in all ration shops is fast progressing as part of the national food security act to ensure transparent functioning of PDS. This study was done with to analyse the awareness level consumers and to evaluate the effectiveness of ePOS system. The result was that consumers were aware about the implementation of ePOS and it stated that this change was highly effective still with little problem in it which can be eliminated with proper methods.

Bidisha (2022) in the article an ethnographic account of algorithmic practices in the public distribution system in India stated that the use of digital technologies in public services had eliminated human discretion and biases. Even though it had benefited the adoption of digital biometric services had damaging effects on the population due to their lack of capacity to control and verify their biometrics. In this article, the most cited challenge in AePDS is the failure of biometric authentication. The authentication failure takes place on the beneficiary places their fingers on the capture machine, but the machine could not recognize it. It also stated that rather than biometric authentication, the provision of mobile phone one-time password can be used for the same. But the services were suspended, citing complaints of rampant misuse by the distributors.

Nikita & Amit (2021) in their article digital biometric authentication and citizens stated that despite an apparent alignment with global development goals focused on providing legal identity, India's digital and biometric based aadhaar system continues to struggle in translating welfare gains to people. In this work, they applied a complex theory based theoretical framework to understand the ongoing issues with major digital governance initiatives such as AePDS. The study found that the complexity and diversity of relationships in local social contexts have not been fully considered in the design and implementation of AePDS technology. Understanding local context is crucial for effective digital governance initiatives, as it can improve food security for marginalized populations by incorporating unique characteristics and ensuring flexibility and adaptability.

Aakanksha & Gayatri (2021) in their article aadhaar enabled public distribution system (AePDS) beneficiary survey and assessment framework stated that PDS has evolved as a system of managing scarcity through distribution of foodgrains at affordable prices. In

2015, aadhaar enabled PDS made linking aadhaar cards of the beneficiaries to the ration cards mandatory enabling the fair price shops to use biometrics to authenticate the beneficiaries, improving efficiency and transparency of the system. The objectives of the study were to understand the status of use of various technological components, challenges and benefits of existing technologies, and to understand the technological infrastructure used to implement the scheme. The study found out that digitalization and monitoring are the two parameters that need improvement to overcome the challenges faced in the smooth functioning of AePDS.

Ajay (2021) in the article ePOS in public distribution system, a study on the consumer perception stated that the public distribution system is an Indian food security system that was established by the Government of India under the Ministry of Consumer Affairs to distribute food. And non-food items to India's poor at subsidised rates. The operational efficiency of the system was expected to improve the PDS in Kerala. The study focused on the perception of consumers, i.e.; the ration cardholders on the operation of the system, its effectiveness and to examine the major problems associated with the implementation of ePOS machine. The present study had revealed that the consumers were satisfied with the ePOS system, but the system had to address the operational issues faced so that the satisfaction rating of the consumers would improve. ePOS machines have been a breakthrough in enhancing the effectiveness of public distribution system in Kerala. The system had to perform more to ensure a fair, easy and quick delivery of items and ensure overall justice. The redressal mechanisms had to be strengthened and the technical issues had to be addressed so that the system becomes more foolproof, effective and transparent.

Nitya (2021) in their article aadhaar and exclusion, the public distribution system in India examines the consequences of Section 7 of Aadhaar Act 2016, which was introduced as a means of enrolling more worthy individuals in the country's welfare program. But rather than having the desired effect, it has kept a sizeable portion of beneficiaries out of the system. In the rolling on aadhaar, the court declared it is inadmissible that the petitioners' few examples of exclusion render Section 7 arbitrary and in violation of articles 14 and 21. About 67 per cent of the nation's population depends on the PDS system which in its current configuration protects their right to food. For those in society who are most at risk, it guarantees their right to live with dignity. Therefore, it is the responsibility of the

state to guarantee that the system is in place and that its own operations do not impede the implementation of such measures.

Prabhakar & etal (2021) in their article an assessment of effectiveness of electronic and cashless transaction in public distribution system stated that the study aims to understand the implementation of AePDS and cashless service delivery of PDS through the experiences of the stakeholders. The main objective of the study is to systematically assess the quality, responsiveness and outcomes of the AePDS and cashless delivery of PDS services provided by fair price shops to the public and to generate better understanding of the problems and constraints being faced by the fair price shops and the staff of Department of Consumer Affairs, Food & Civil supplies in their role as service provider to the community. Respondents were asked to share their experiences with the PDS efficiency pre and post AePDS times. The difference reported varied between districts has seen an improvement in service delivery after the introduction of AePDS. The study found out that the initiative has resulted in timely distribution of commodities, ensuring that the benefits reach the actual beneficiaries and improved the overall transparency of PDS, to name a few.

Ajinkya & etal (2020) in the article secure contactless automatic ration distribution system using internet of things stated that an automated ration distribution system was a very effective technique for a nation with a huge population and financial constraints. Both citizens and the food distribution authorities were made easier by this system. It ensures that the security of distribution was not compromised by illiteracy. It also promotes paperless service and has a long lifespan. Furthermore, this device could be made cashless. The bank account could link to ration cards so that money was withheld from their accounts after they had received their allotted amount of goods and services.

Anjana & Praveena (2020) in their article a study on impact of electronic point of sale system among PDS beneficiary stated that the public distribution system (PDS) evolved as a system of management of scarcity through distribution of food grains at affordable prices. Online authentication services provided by UIDAI are used for the sale of PDS commodities to BPL beneficiaries in all FPS. This has improved efficiency and transparency in the system and enabled on time ration delivery to the eligible beneficiaries. In this study, an attempt is made to examine the impact of electronic point

of sale (ePOS) system among PDS beneficiaries with special reference to Thrissur district. There is a need for an increase in the quantity of food items given through ration shops and a need to ensure the quality of food grains supplied to consumers.

Dheera (2020) in his article impact of implementation of ePOS machines in ration shops stated that PDS was a programme which was sponsored by the Government of India which focuses on social welfare and anti-poverty measures. In order to tackle with the issue of leakages in Public Distribution System, central government has taken the step towards making linkage between technological intervention and PDS by way of aadhaar based biometric authentication for ensuring improvement in functioning and also reduction in leakages of the system. Aadhaar enabled Public Distribution System was an attempt made by Government of Kerala under which the PDS was linked with the unique aadhaar ID of the beneficiaries. This conceptual paper aims at identifying the impact of the implementation of e-pos machines in ration shops of Kerala. The model constructed gives pictures of elements like prevention of illegal sale of ration products.

Hartej & Bidisha (2020) in their article digital identity and exclusion in welfare stated that the project explored the relationship between digital biometric ID systems and social exclusion by understanding the user of experiences of the public distribution system in India. In the light of the recent push for the computerization of the PDS facilitated by aadhaar, the project examined how people interact with the digital biometric ID system of aadhaar through ethnographic field work, conducted in different states. The project discovered that this had created more opportunities for exclusion. The project's main goal was to comprehend how, despite appearances, technology can become exclusive in real world settings.

Janani (2020) in the article delivery protocols in aadhaar enabled PDS in five southern states of India stated that the public distribution system in India is an important part of the social protection system which provides essential food commodities to targeted households at subsidised rates. Kerala has a more transparent system as they display the live count of complaints received and processed under each category. The study reveals that any system for delivering welfare provisions must ensure that the benefits reach the most vulnerable households without disruption. Leveraging aadhaar might eliminate under serving citizens but may also exclude deserving citizens from being successfully

identified and authenticated. The study found out that these errors occur at two stages, failure to identify and enroll an eligible citizen and failure to provide ration even when enrolled.

Rajiv (2020) in the article ICT interventions using AePDS and PDS labharthi application in Bihar stated that the poor families always suffer from the functioning and supply of ration from the public distribution system. All these eligible families needed to be supported by a timely supply of ration that was being offered by the government to them. The article also stated that the portal of Aadhaar enabled public distribution system shows all the needed data to the beneficiaries. The portal gets continuously updated and reflects the key information that is beneficial to the users. From the same the user could update the information regarding the AePDS and avail themselves of their ration as offered by the government. If there is any malpractice being found by the customer in the fair shops, then it could also be registered as a complaint in the same portal.

Silvia (2020) in the article biometric infrastructures and the indian public distribution system states that the public distribution system is main food security program in India based on the distribution of primary necessity goods at subsidized prices. The hegemonic narrative on technology induced leaps in the effectiveness of social protection systems is problematised by the consideration offered. The biometric PDS is a history of winners and losers which compare reforms with problems of exclusion. Technological malfunctioning and undesired shifts in the making of program governance. While digital tools might be entrenched in program improvement technical errors related to access entitlement and data injustice might become equally pervasive and prevent the system from achieving the goals of effective coverage that were established.

Gopika (2019) in the article impact and issues of Aadhaar enabled PDS (AePDS) in Kerala stated that the Public Distribution System (PDS) played a significant role in the government's poverty alleviation programmes and discharging its social development obligations by providing food grains and essential items to the rural and urban poor at subsidised rates. It was primarily a social welfare and anti- poverty programme of the Government of India. Under the PDS, states were required to formulate and implement foolproof arrangements for identification of the poor for delivery of foodgrains and for its distribution in a transparent and accountable manner at the FPS level. The main

objectives of the study were to understand the efficiency of AePDS in bringing about transparency in PDS and to study the existing problems relating to the implementation of AePDS. The study found out that billing fraud still exists. Most of the beneficiaries did not check or did not understand the bill properly; here corruption still prevailed in the form of exaggerated billings given to the beneficiaries when they made any purchase. Deliberate underweighting of the commodities by sales was reported by many beneficiaries. Shop owners raised the issue of unexpected sales to beneficiaries from other parts causing shortage of commodities for their own cardholder's inefficiency of ePOS machine were the major problems within the system. The impact of IT in the PDS increases the transparency and positive impact in identifying the real beneficiaries.

Rakesh & etal (2019) in their article at alternatives to aadhaar based biometrics in the public distribution system stated that the Indian public distribution system has witnessed several technologies driven performance improvement initiatives over the last few years. The main motivation behind the initiative was to reduce leakage grains into the open market and to ensure better availability of the grains to genuine beneficiaries. But due to the lack of proper functioning of the authentication the beneficiaries are not able to avail the facility. The article stated the need for alternatives to aadhaar based biometrics so that the beneficiaries could make use of it.

Vanguru & Rajasekhara (2019) in their article a success story of aadhaar enabled public distribution system in Krishna district stated that public distribution system is a means for ensuring food security for the poor and needy. The problems of PDS had not been uniform in the country. So, the government had embarked on an ambitious initiative towards the end-to-end digital transformation of the PDS supply chain to address these sources of inefficiency. Krishna district in AndhraPradesh was the district where the AePDS was first piloted in 2015. The study revealed that the new system helped in savings in subsidy by saving number of trips of the beneficiaries, helped reduce ghost cards and authenticate the beneficiaries. The improper practice in closing balances were now completely prevented achieved accuracy in data updated and output. The GPS trackers in the trucks helped locate the foodgrains after they left the godowns. Direct benefit transfer was the facility which deducted the amount directly from the beneficiary's account.

Sarang (2018) in the article Aadhaar enabled PDS stated that the Jan Dhan Aadhaar Mobile (JAM) Government of India provides subsidized food and fuel to the target beneficiaries family covered under BPL and AAY groups under TPDS. This was not able to reach real beneficiaries due to wrongful exclusive large-scale pilferage duplication and ghost beneficiaries and lack of identity of genuine beneficiaries. The government seeks to implement cashless payment using existing biometric terminals which aimed at demonstrating cashless payments through JAM by beneficiaries on the PDS to fair price shops merchants based on biometric authentication. The study also found that even though the genuine beneficiaries were getting their entitlements they faced hardships due to overcharging, deliberate underweighting and beneficiaries had to spend at least half a day to take commodities because of long queues.

Chaudhari & Dhotre (2017) in their article stated that large sums of public funds were lost because of corruption in the traditional Ration Distribution System. The public distribution system's manual labour had been replaced by the suggested model. Similar to an ATM, the ration distribution system was automated through the used embedded system technology. This automated ration system used smart cards in place of the traditional ration card system. The products were obtained from the automated ration shop and the amount was deducted from the individual's account as soon as the input was provided. To involve the government in the process, the proposed ration shop system was connected to the government database via GSM modules, which further sends the most recent information to the government and the consumer. In this automated ration shop, the government had controlled over all transactions that occur in ration shops.

Laxman & etal (2017) in their article biometric enabled ration card security system for PDS stated that Indian public distribution system is the largest distribution system in the world. Government of India purchase the food grains items from the open market through the Food Corporation of India and distributes to the needy citizens on subsidized prices through the fair price shop. The main purpose of the secure ration card system is to reduce the paperwork involved, widespread corruption, misuse of cards and duplication ration cards. This system mainly focuses on designing and implementation of a security system for a ration card using fingerprint that has been used at FPS of Civil Supply Corporation. Since biometric identifiers are associated permanently with the user, they are more reliable than tokens or knowledge-based authentication methods.

Gayatri (2015) in the article Aadhaar enabled PDS system (AePDS) - electronic point of sale (ePOS) stated that the Department of Food & Public Distribution identified. A key area to achieve end-to-end computerisation of TDPS. They are creation and management of digitalized beneficiary database, supply chain management of TDPS commodities, sale of TDPS commodities including aadhaar authentication of beneficiaries and recording of transactions through ePOS and transparency and grievance redressal mechanism. The study found out that implementation of AePDS enabled accuracy in closing balance and allotment, providing information to cardholders, encouraged savings, cardholder satisfaction, stock visibility and complete management information system (MIS). It was also found that there were certain challenges faced while the implementation of the project such as training and capacity gaps within civil supplies officers in field and ration shop owners, selection of EID/MID/mobile number/bank account of the beneficiaries, Aadhaar seeding and cleansing of ration card database and removal of duplicate ration cards.

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CHAPTER 3
THEORETICAL
FRAMEWORK

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THEORETICAL FRAMEWORK

The present chapter has been divided into three parts. The first part analyses the Public Distribution System in India. The second part analyses the Public Distribution System in Kerala. And the last section deals with the Aadhaar enabled Public Distribution System.

PUBLIC DISTRIBUTION SYSTEM

Public Distribution System is a government sponsored chain of shops entrusted with the work of distributing basic food and non-food commodities to the needy sections of society at very cheap prices. Food Corporation of India, a government entity manages the public distribution system.

PUBLIC DISTRIBUTION SYSTEM IN INDIA

Public Distribution System is primarily a social welfare and anti-poverty programme of Government of India. Essential commodities like rice, wheat, sugar, kerosene and the like are supplied to the people under the PDS at subsidised prices. It has been one of the most important elements in India's safety net system for almost 50 years and also the most far reaching in terms of coverage as well as public expenditure on subsidies. PDS provides rationed amounts of basic food items (rice, wheat, sugar, edible oils) and other non-food products (kerosene, coal, standard cloth) at below market prices to consumers through a network of fair price shops disseminated over the country.

Evolution of PDS in India

The Public Distribution system in India forms an important part of state strategy for intervening in the distribution of food grains and other essential commodities. However, the nature of the policy of state intervention is largely determined by the causes and conditions, which are responsible for its emergence and growth. The major causes of the origin of this policy are: -

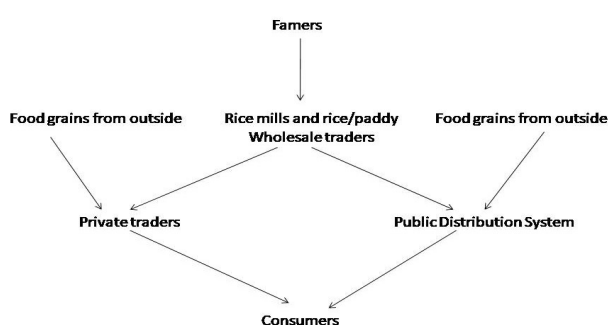
- i. Drought, famine and war conditions
- ii. Inflation

- iii. Market imperfections
- iv. Poverty and
- v. Lack of distributive justice

The FCI has many large warehouses in different parts of the country where food grains are stored after procurement. Food may be transported according to decisions made by the Government of India (GOI) in consultation with state governments. Apart from allocation to the States, the GOI also fixes the issue price that is selling price of the FCI. As far as distribution within the states is concerned, the state government is, again, the policy-making institution. It can decide how to distribute the allocated food (to everybody, to targeted groups only, to concentrate on cities or on rural areas, etc.)

Each state has its own distribution policy. The state Department of Food or Civil Supplies monitors this distribution process. In many states parastatals, trading corporations have been established which act as PDS wholesalers. They bring food from FCI warehouse to storage places near the retail points, the so-called fair price shops. The retail sale of PDS commodities is undertaken either by this state co-operation or by co-operative societies or by private fair price shop owners. It is important to add that not all procured food grains are readily available for distribution in times of severe scarcity. Furthermore, the above-described scheme is:

- a. Crosscut by several GOI distribution programs meant for selected categories of people in which not the state government but the central Government Formulates distribution policy, and
- b. Supplemented with additional state government programs in the sense of procurement and distribution activities.



Source: Secondary data

Food grains market in South India
Fig 3.1

It is a schematic outline of the PDS and the neglect of the open market in food grains. This is a schematic view of the whole food grains market in South India. The figure clearly shows a dual market system. The largest part of the food grains is channeled to the open market, while about 10 per cent of rice and wheat goes to the PDS consumers purchase in South India. It focuses on rice production and procurement as there is hardly any wheat production in South India. Both the open market and the PDS are partly supplied with food grains stock from outside the State.

Objectives of Public distribution system

1. The goal of the Public Distribution System does not limit itself to the distribution of rationed articles. Making available sufficient quantities of essential commodities at all times, in places accessible to all, at prices affordable to all and protection of the weaker section of the population from the malicious spiral of rising prices is primary objective of system distribution.
2. PDS public feeds with supplies, bears the cost of subsidy, and decides as to which goods to supply, at what rates, what amount to be sold per head or per family.
3. The purpose of Public Distribution System is to offer basic minimum quantity of essential commodities at lowest prices especially to poorer sections of society and also to stabilize their open market prices or at least to stop an unwarranted rise in such prices under crisis period. The prices charged are usually lower than open market prices and also lower than the procurement and other costs incurred by the government.
4. It has been principally an urban oriented system. Its origin as well as development has been in sensitive urban areas where a scarcity of food grains and other essential commodities could become political obligations of administration.

Functioning of Public Distribution System

The central and state governments share responsibilities to provide food grains to the identified recipients. The centre procures food grains from farmers at a minimum support price (MSP) and sells it to states at central issue prices. It is responsible for transporting the grains to godowns in each state. States hold the responsibility of transporting food grains from these godowns to each fair price shop (ration shop), where the beneficiary buys the food grains at the lower central issue price. Many states further

subsidies the price of food grains before selling it to recipients. The Food Corporation of India (FCI) is the nodal agency at the centre that is responsible for transporting food grains to the state godowns.

State-level ministries of food and civil supplies control networks of ration shops within their authorities and are responsible for allocating licenses to the private traders who operate the shops. State governments also issue 'ration cards' to their residents (at one time on a nominally universal basis, but more recently on a 'targeted' basis) and determine the quantities to which consumers are entitled. These differ from one commodity to the next. The prices are determined by state governments.

Under the Public Distribution System scheme, each family below the poverty line is eligible for 35 kg of rice or wheat every month, while a household above the poverty line is entitled to 15 kg of food grain on a monthly basis. The Central Government takes responsibility for procurement, storage, transportation, and bulk allocation of food grains. State governments hold the responsibility for distributing the same to the consumers through the established network of fair price shops. State governments are also responsible for operational responsibilities such as allocation and identification of families under different criteria, issue of ration cards, supervision and monitoring the functioning of fair price shops. Major functioning of Public Distribution System encompasses following (Logistical Management of PDS):

1. **Procurement of Food Grains:** The food grains offered to recipients under TPDS are procured from agrarians at MSP. The MSP is the price at which the FCI purchases the crop directly from farmers; typically, the MSP is higher than the market price. This is intended to provide price support to farmers and incentives for production. It is done by the central government. They procure the food materials from the Food Corporation of India and the State Agencies at Minimum Prices which include wheat, rice, kerosene and sugar. Other essential commodities like iodized salt, Palm oil, candles, Ghee and cloth etc. have also been purchased. Currently procurement is performed in two ways: centralised procurement and decentralised procurement. The centre procures and stores food grains to fulfil the prescribed minimum buffer stock norms for food security, release food grains under TPDS on a monthly basis, meet emergency situations arising out of unexpected crop failures, natural disasters and sell through the Open Market Sale Scheme (OMSS). The central government introduced the Open Market Sale

Scheme (OMSS) in 1993, to sell food grains in the open market; this was intended to increase the supply of grains to moderate or stabilize open market prices.

2. Identification of the poor and needy: The centre and states identify eligible BPL households through a detailed process.

Table 3.1
Ration Cards Beneficiaries and Subsidies

Ration Card Colour	Beneficiaries	Subsidy on Foods and Commodities
Yellow Card	Most economically backward section of society Antyodaya Anna Yojana Beneficiaries	35kg of food grains completely free of cost Rice – 28kg Wheat - 75kg
Pink card	Priority or Below Poverty Line (BPL)	5kg of food grains completely free for each member of the family Rice – 4kg Wheat - 1kg
Blue card	Non- Priority or Above Poverty Line (APL)	2kg rice at Rs 2 per kg per person
White card	Non - Priority	Rice – 10 kg Wheat – 7 kg

Source: Secondary data

3. Issue of ration cards to poor people: A Ration Card is a file issued under an order or authority of the State Government, as per the Public Distribution System, for the purchase of essential commodities from Fair Price Shops. State Governments issue unique Ration Cards to Above Poverty Line, Below Poverty Line and Antyodaya families and conduct periodical review and checking of Ration Cards. An Indian citizen may get the application form for making a new Consumer (Ration) Card from any Circle Office. Person will require some documents to get ration card such as a photograph of the head of the family attested by a gazette

officer/MLA/MP/Municipal Councillor, proof of residence and the Surrender/Deletion Certificate of the previous Ration Card, if there was any. In case, if person is not able to provide proof of his/her residence, the Circle FSO conducts spot inquiries by recording the statements of two independent witnesses in the neighbourhood. The standard prescribed time schedule for the preparation of a Ration Card is generally 15 days (about 2 weeks). However, the procedure and time limit may vary. In case, Ration card holders lost their card or it is stolen or burnt, they can also obtain a duplicate ration card if the same could not be traced out within one month after its loss by submitting applications, duly endorsed by the Fair Price Depot dealer, to the Deputy Director of the Tahsildar, as the case may be, by enclosing a passport size photograph of the applicant and a duplicate card will normally be issued within a week. If card holder has transferable job, within the District, the card could be transferred to the new place and if the place of residence happens to be outside the District, the card-holder will be issued a Surrender Certificate after surrendering it to the office so as to enable him/her to obtain a new ration card at the new place.

4. Storage: Besides the food grains requirement for immediate distribution under targeted public distribution system, the central government maintains minimum buffer reserves of food stocks for emergencies. The food grains procured for targeted public distribution system and other contingencies are maintained and stored as the central pool stock. Food Corporation of India is the main government agency delegated with the storage of food grains in the central pool. According to the storage rules of the Food Corporation of India, food grains are normally stored in covered godowns, silos, and in the open, referred to as Covered and Plinth (CAP). However, FCI's own storage capacity has been inadequate to accommodate the central pool stock of food grains. Consequently, Food Corporation of India hires space from various agencies such as the central and state warehousing corporations, state government agencies and private parties. In an evaluation of the storage management of food grains by FCI, the Comptroller and Auditor General (CAG) noted that there is sub-optimum utilisation of the existing storage capacity available with FCI and states. It is apparent that inadequate storage will result in wastage of food. Therefore, proper Storage becomes an essential factor in Logistics Management. The Food Corporation of India has huge responsibility to perform job of storing the grains

efficiently. There is a regular monitoring mechanism under which inspections at all levels are carried out to ensure safe preservations of food grains in Food Corporation of India. The steps taken to monitor the warehouse are under:

- i. Food grains are to be stored by adopting proper scientific code of storage practices.
- ii. Adequate materials are to be used to prevent the entry of moisture from the floor to the food grains.
- iii. Spraying of insecticides.
- iv. Effective rat control measures taken in godowns.

V. Regular periodic inspections of stocks.

vi. The principle of "First in First Out" (FIFO) is to be followed to the extent possible so as to avoid longer storage of food grains in godowns.

5. Allocation of food grains to states: The central government allocates food grains from the central pool to the state governments for distribution to BPL, AAY and APL families. Allocation for BPL and AAY families is performed based on the number of identified households. Conversely, allocation for APL families is made based on the availability of food grains stocks in the central pool and the past off take (lifting) of food grains by a state from the central pool. Given the food grains stocks in FCI, the centre has the discretion to allocate more grains to states on an ad-hoc basis. Earlier, ad-hoc allocations have been provided in the disaster of floods, droughts, and festivals.
6. Transportation of food grains to all Fair price shops: In India, food grains and other items are normally transported through Roadways and Railways. Choice of transport depends on volume of food grain. Through roadways, food grains are transported that are distributed at short distances. Railways deliver food items at high speed and suitable over long distances. This means of transportation has a large carrying capacity and can carry bulky goods.
7. Fair price shop (Ration Shops): Fair Price Shops (FPS) are called ration shops in a general way. In these centers, the consumer gets a Ration Card on the basis of which he is given food grains. The state government has given license to the Ration Shops to sell the food grains at comparatively lower price.
8. Consumer: Consumers are the people who buy the food grains from the Fair Price Shops at Minimum Market Price. They are allowed to purchase food grains only if they own a ration card.

Recently Aadhaar can also be used in public distribution system to simplify several processes. The most frequent consumers belong to the BPL category; which includes Marginal Farmers, Pottery, and Craftsmen. Numerous reforms have been suggested to make the targeted public distribution system more effective. Major reforms include using information technology and leveraging Aadhaar to improve identification of beneficiaries. There is an immense role of aadhaar card in public distribution system. It has been realized that one major problem in the implementation of the targeted public distribution system is the inclusion and barring errors in the identification of recipients. It has been proposed to integrate the Unique Identification or Aadhaar number with several government schemes, including TPDS, to address this problem. The Aadhaar number would be used to precisely identify and authenticate beneficiaries entitled to receive subsidies under the targeted public distribution system and other government schemes.

Technology-based reforms of the targeted public distribution system implemented by states: The Supreme Court appointed a committee under the chairmanship of Justice Wadhwa to investigate reforms to the TPDS that have been implemented by various states. In its 2009 report, the Wadhwa Committee found that certain states had implemented computerisation and other technology-based improvements to the targeted public distribution system. Technology-based reforms helped plug leakages of food grains during TPDS. The Committee found that the current manual recording of suitability of beneficiaries and transactions was prone to human mistakes and tampering. Additionally, there was pilferage through the distribution network and there is no central monitoring system to guarantee end-to-end delivery. The Committee observed that end-to-end computerisation could control large-scale diversion and help track the delivery of food grains from state depots to recipients.

Limitations of Public Distribution System

The problems of Public Distribution System have not been undeviating in the nation. In some states, the administration is weak and dishonest. In these states, deficiencies regarding huge shortage of stocks, fake supply entries in ration cards, diversion of commodities for sale to open market and bogus ration cards are recorded. Public Distribution System suffers from irregular and poor quality of food grain made available through Fair Price

In general, the public distribution system has the following limitations.

- a) Identification of poor by the states is not fool proof. Many poor and needy people are left out and a lot of fake cards are also issued.
- b) Fair Price Shop owner gets fake ration cards and sells the food grains in the open market.
- c) People do not get the permitted amount of food grains from the Fair price shop.
- d) Diversion of Food grains by Fair Price Shops holder and mediator.
- e) Many times, good quality food grains are replaced with poor quality cheap food grains.
- f) Public distribution system includes only few food grains such as wheat and rice, it does not fulfill the requirement of complete nutrition.
- g) Uneven distribution of Food generations, procurement and distribution.

Main problem involved in the operation of public distribution system is the issue of containing the food subsidy to reasonable levels. Other major issues which confront the system include the issue of targeting the system to benefit the actual poor and restricting the coverage of public distribution system to only the major commodities. Decentralization of operations and devolving to the states the key decision-making powers as regards the operation of public distribution system are some major issues that need to be addressed.

Government agencies can reform the system by introducing innovative ideas such as food stamps and food credit/debit cards to facilitate better working of the system with a view to reduce malpractices like diversion and reducing the costs of food delivered to the poor. Though the government has taken several measures to improve public distribution systems like decentralised procurements, introduction of UIDAI etc. but still these measures are not completely espoused. More measures like universalization of the public distribution system are needed for the hour. Public distribution systems can provide food security only when it covers a wide range of food grains. With the introduction of the Food Security Ordinance, it is expected that public distribution systems will be able to fulfil the long-valued goal of Food security.

PUBLIC DISTRIBUTION SYSTEM IN KERALA

It is well known that Kerala had one of the best runs and most effective PDS networks in India. Prior to the introduction of targeting, Kerala was the only state in India with near-universal coverage of the PDS.

Kerala is a food deficit state-this means that the agricultural production is geared towards cash crops instead of food crops like rice and wheat. "Food production is inadequate in Kerala, where the trend has been dwindling paddy cultivation and the extension of cultivated area under cash crops. Some farmers in Kerala have switched to producing rubber since rubber prices raised to a record 123 rupees a kilo in Kerala after crude oil prices more than doubled in a year, according to the government's Rubber Board. The state accounts for more than 90 per cent of the natural rubber produced in India, the world's fourth-biggest grower. The tropical climate in Kerala is ideal for rubber, helping growers achieve an average yield of 1,879 kilograms, the highest in the world. The area producing rubber has almost doubled to 494,400 hectares during the past 25 years, according to the Planning Board. Still, government curbs on converting paddy land to cash crops ensure that farmers are holding back. The State had, however, learned to cope with the fact that it was not self-sufficient in food-grain production by maintaining what has often been hailed as the most effective public distribution system (PDS) in the country, which ensures access to food grains to almost the entire population using imports from other States.

The benefits of the system were equitably spread across income groups in both rural and urban areas. There were 14,234 fair price shops through which rice and wheat procured by the Food Corporation of India, sugar and kerosene are distributed by the State Civil Supplies Department. Significantly, 12,203 of these shops were in the rural areas. Each retail outlet served about 400 households and, according to the State Government, no individual needed to walk more than 2 km to fetch his ration. The system requires a certain minimum off take in all these shops if they are to be viable.

According to Government figures, Kerala's total food grain requirement in 1997 was 48 lakh tonnes a year and internal production accounted for only 10 lakh tonnes. Twenty-four lakh tonnes used to be provided under the PDS, the rest of the requirements being met on the open market.

Kerala was rated among the best performers in raising rural household consumption and reducing rural poverty, partly because of its effective system of public distribution. Significantly, the poor used the PDS more than the rich. A survey found about 85 per cent of consumers met all or part of their rice requirements from fair price shops.

The TDPS in Kerala

The TPDS has affected Kerala's PDS in several ways: First, as 25 per cent of Kerala's populations have been termed BPL by the Planning Commission, the guaranteed and subsidised allocation of grain for BPL households under the TPDS accounts for only 10 per cent of the previous PDS ("lifting") supply. The Kerala government has identified 42 per cent of households as BPL households and is providing the BPL subsidy to these households from the state budget. Given that Kerala is a food deficit state, in the pre-TPDS period, the state's own production accounted for 20 per cent of grain requirements, the PDS accounted for 32 per cent and the rest came from private trade (This is according to official data on PDS and not the NSS consumption data). If the allocation to the APL is stopped, then the PDS allocation to Kerala, it is estimated, will account for 3.8 per cent of the grain requirements of the state, as opposed to the 32 per cent the PDS was providing earlier. Thus, TPDS has changed the share of the PDS in the total grain requirements of Kerala. This has had implications on domestic availability of rice and on prices.

Secondly, the Kerala government has continued to provide additional grain to BPL households as well as maintained its entitlements for APL households.

Thirdly, because of the various schemes and the different prices under the TPDS scheme certain distortions are created- consumers have information problems when PDS prices are frequently changed, rolled back, and differentiated according to scheme and card, there is confusion among consumers as to the appropriate prices to be paid. It would be better if the TPDS scheme had remained unchanged for a few years at least, after the switch, as the constant change in prices led to information problems among consumers and opened up scope for malpractice by people who made use of the confusion regarding the scheme to charge higher prices.

Finally, there is evidence that ration shops are becoming unviable and are closing down. With the higher APL prices, ration shops have lost their advantage in relation to

private stores for most of the population and it is reported that people have begun to shift to private traders. With a smaller number of ration cards to serve, and upper bounds on margins that can be charged to BPL consumers, the net profits of fair price shop owners/dealers are lower under the TPDS than before.

In Kerala, ration cards were widely acknowledged as identity cards, and many families kept and renewed their cards as a means of identification. However, now that there are so many other accepted identity cards studies should be carried out to see how many have renewed their cards after 2005. On speaking to the FPS owner, one is likely to hear that the TPDS is the cause for the change in the effectiveness of the famed 'Kerala model' PDS. But even in the time of the Universal PDS system, the measure of the effectiveness of the PDS was based upon the number of ration card holders, and then ration cards were the accepted identification card, hence most people made sure they held ration cards. Today, however, there are other accepted cards for identification and studying the number of people who renewed their ration card in 2005 would probably show a sizeable decrease in the number of ration card holders. If a person needs a gas connection today and he or she is classified as APL and they do not possess a ration card, they only need to show their voter id card to get the new gas connection. The logic behind showing the ration card was so that the authorities could ensure that a person was not buying kerosene using the PDS and at the same time purchasing a gas connection. Hence one cannot blame the shift to the TPDS system for the fact that people are moving away or choosing not to use the PDS.

It is very clear that the system cannot be dismantled completely because there is a part of the population that does depend on it heavily, but one cannot blame the TPDS system per se for the fact that PDS has become defunct for a sizeable part of the population. With globalization and the advent of retail shops into the state, APL consumers prefer to spend some extra money for purchasing products of superior quality and much greater range than those available through the PDS. However some ration shop owners have stated that with inflation, a few APL families have moved back to procuring some supplies using the PDS.

Aadhaar Enabled Public Distribution System (AePDS)

Andhra Pradesh is the first State in the country to implement ePoS in 100 per cent Fair price shops with the integration of FCI & MLS points (Supply Chain Management

System) for lifting of Stock and ration portability. The system enables monitoring the Sales & Stock availability at every FPS. All POS devices are linked with electronic weighing scales. The Food and Civil Supplies Department of Kerala has deployed electronic point of sale (ePOS) machines in all the 14,374 ration shops in Kerala. Chief Minister Pinarayi Vijayan declared the complete digitisation of the state's ration distribution / supply chain, in compliance with the National Food Security Act (NFSA) at a function in Kannur on May 18th, 2018, electronic Point of Sale (POS) machines in all the 14,374 ration shops in the Kerala. The Department of Civil Supplies completed the task of installation of ePOS machines across all retail ration outlets after connecting the 3.41 crore ration beneficiaries in the state with the Ration Card Management System utilising the Aadhaar database. The department gave training to all 14,374 ration dealers and their staff in managing the sales through ePOS machines on a single day at 348 centres in the state. The government distributed new ration cards from June 1, 2018, to some 75,000 families who are currently not registered with any of the ration cards. The Kerala government is contemplating GPS tracking of vehicles transporting food grain in the distribution chain as well as installation of surveillance systems in all distribution centres as part of the PDS renovation.

AEPDS IN KERALA

It is well known that Kerala had one of the best runs and most effective PDS networks in India. Prior to the introduction of targeting, Kerala was the only state in India with a near- universal coverage of the PDS. In 1991, around 95 per cent of all households were covered by the PDS and possessed a ration card. Though the number of ration cards issued alone does not necessarily translate to mean that all these cardholders are using the ration cards, this is the measure used by most studies to calculate the reach and coverage of the PDS and Kerala's PDS was internationally acclaimed as being a model system worth emulating by the other states in the country. What the targeted system aims to do is basically provide more subsidies for the poor who need it the most, and to reduce subsidies to APL families who are thought to be able to afford to pay more. The government could then narrow down the allocation of grains and reduce its food subsidy bill. After the introduction of targeting through Targeted PDS (TPDS), though the lifting was good but only a part of PDS food grains reached the card holders. It is shown that while many people benefited from the present set up, some people within almost all the

categories of stakeholders were dissatisfied with the large-scale misappropriation of food grains. Mainly there were two problems responsible for the poor implementation of PDS. Firstly, there was a physical access problem, in the sense that the commodities arrived late, irregular or not at all. Secondly, at the bureaucracy level, the corruption was very widespread and institutionalized.

Table 3.2
Key Register for February 2024

Sl.No	District	Total Cards	Total Units	Electrified Cards	Non - Electrified Cards
1	Alappuzha	620562	2221598	620378	184
2	Ernakulum	912231	3285507	911308	923
3	Idukki	320393	1108517	318305	2088
4	Kannur	677182	2720078	675220	1962
5	Kasaragod	344612	1444125	344192	420
6	Kollam	793483	2763724	792374	1109
7	Kottayam	554135	2032769	553571	564
8	Kozhikode	822326	3229518	821780	546
9	Malappuram	1043081	4664038	1041912	1169
10	Palakkad	811122	3019140	809248	1874
11	Pathanamthitta	362986	1288810	361395	1591
12	Thiruvananthapuram	1021995	3369949	1021478	517
13	Thrissur	902684	3312944	902191	493
14	Wayanad	236478	871729	234418	2060

Source: Secondary data

The greatest achievement of PDS was that it has prevented more famines in India. But for each rupee transferred to poor households through the TPDS, the government of India had to spend a budget of Rs. 9. For each kg of subsidised grains bought by the poor, the off take from central pool was 6.4 kg. The leakage of about half of the TPDS grain before reaching the beneficiaries reflects inefficiency, corruption and pilfering on a large scale. Moreover, the average poor household purchase of only less than half of the entitled TPDS grain indicates the malfunctioning of the system. Further TPDS had plagued with huge exclusion and inclusion errors. The author points out that universal PDS as before

1997 is not a solution to all this because even under that system, there were large scale errors.

Table 3.3
Scheme Wise Sale for regular rice for February 2024

Sl.No	District	NFSA (Kgs)		Total (Kgs)	Non-NFSA (Kgs)		Total (Kgs)	Total Sale (Kgs/Lts)
		AAY	PPH		NPNS	NPS		
1	Alappuzha	180681.7		585816.5	766498.2		133076.8	150582.7
2	Ernakulum	153619.1		628208.7	781827.8		225238.8	228870.6
3	Idukki	131987.5		263067.6	395055.1		34015.1	70806.5
4	Kannur	2595.5		10268	12863.5		113870.3	4824.55
5	Kasaragod	123915.5		228666.5	352582		48183	76803
6	Kollam	203569.2		516889.6	720458.8		171456.2	138832.4
7	Kottayam	169558		354275.6	523833.6		149452.6	118555.5
8	Kozhikode	281115.6		833017.4	1114133		199312.1	263618
9	Malappuram	306550.6		1025991	1332542		144967	370288.3
10	Palakkad	147036		1300097	1447133		185688.6	220489
11	Pathanamthitta	119646.9		265684	385330.9		78409.48	104439
12	Thiruvananthapuram	10792.35		8406.28	19198.63		45339.99	24197.45
13	Thrissur	287247.7		695331.5	982579.2		167152.2	199292
14	Wayanad	14572		11429.5	26001.5		2454	1792.95

Source: Secondary data

Thus, the above presentation has provided a number of interesting clues to the impact of PDS on poor. The studies confirmed the success of PDS in terms of benefiting the poor. Many studies observed different problems like exclusion error, leakage & diversion of PDS items, inadequacy of quantity, irregular supply, poor quality, faulty delivery mechanism, improper weighing procedure, corruption etc. The main weakness of PDS that has been pointed out is that it is not benefitting the vulnerable section of the society to the extent for which it is expected to. So, it can be concluded that PDS is benefiting the poor to some extent but has several problems or error.

CHAPTER 4

DATA ANALYSIS AND

INTERPRETATION

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation of the response given by the ration beneficiaries of Thiruvananthapuram district. The study mainly focuses to examine the pre and post impacts of AePDS, to study the extent of awareness among people about the features of the new system, to understand the efficiency of Aadhaar enabled PDS in bringing about transparency in PDS and food security, to examine the satisfaction level of the respondents regarding the rationing system after the implementation of AePDS and to study the existing problems relating to the implementation of AePDS.

4.1 Type of card possessed by the beneficiaries

Different types of cards are issued by the government to the beneficiaries which include AAY, PHH, NPS and NPNS. The following table analyses the type of card possessed by the beneficiaries.

Table 4.1
Type of card possessed by the beneficiaries

Card Type	No. of Respondents	Percentage
Yellow (AAY)	20	25
Pink (PHH)	20	25
Blue (NPS)	20	25
White (NPNS)	20	25
Total	80	100

Source: Primary data

The above table depicts that 25 per cent of the respondents hold each type of card i.e., NPNS, NPS, PHH and AAY. Data was collected equally from the above four cards in order to accurately know about the benefits provided to each type of card.

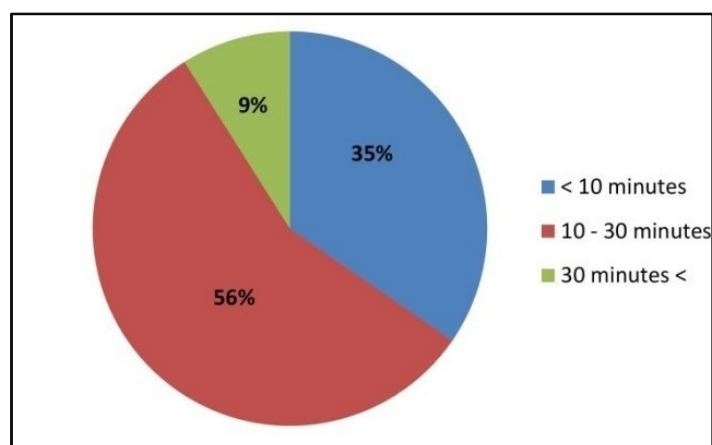
4.2 Time spend for the purchase of PDS items - Pre-AePDS

Earlier the beneficiaries had to spend a lot of time in the ration shops to get the PDS items. The following table helps to know the exact time taken by the beneficiaries during the pre AePDS time.

Table 4.2
Time spend for the purchase of PDS items - Pre-AePDS

Time	No. of Repondents	Percentage
<10 minutes	27	35
10 – 30 minutes	44	56
30 minutes <	7	9
Total	80	100

Source: Primary data



Source: Primary data

Time spend for the purchase of PDS items - Pre-AePDS
Fig 4.1

From the above data, it is clear that the card holders had to wait for 10-30 minutes to purchase commodities from the ration shops before the adoption of AePDS as majority agreed to it followed by 35 per cent of the beneficiaries who say that it won't take even 10 minutes for the purchase. And only a meagre per cent said that it took more than 30 minutes for the same.

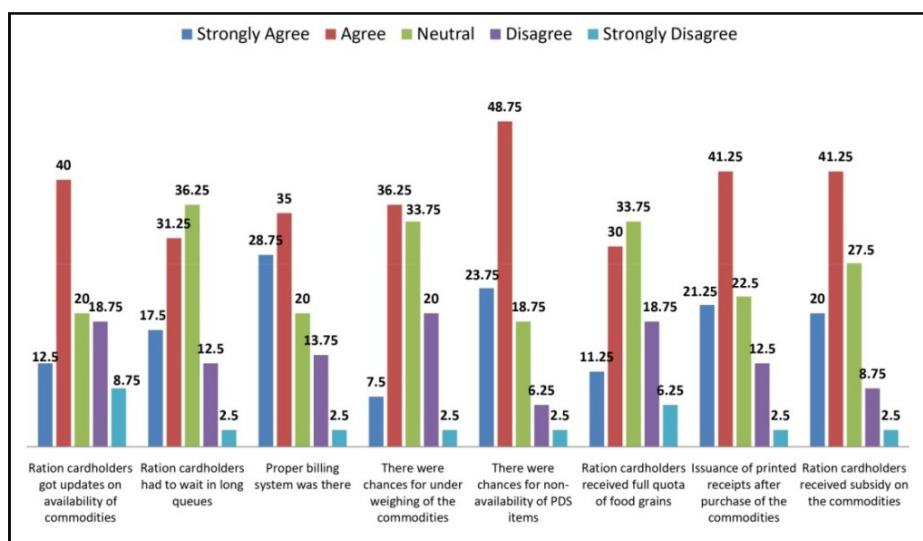
4.3 Problems during Pre-AePDS

There were a lot of problems in the pre AePDS which hindered the delivery of ration items to the beneficiaries. The table below analyses the real problems faced by the beneficiaries with the traditional PDS system.

Table 4.3
Problems during Pre-AePDS

Problems	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Ration cardholders got updates on availability of commodities	10	12.5	32	40	16	20	15	18.75	7	8.75
Ration cardholders had to wait in long queues	14	17.5	25	31.25	29	36.25	10	12.5	2	2.5
Proper billing system was there	23	28.75	28	35	16	20	11	13.75	2	2.5
There were chances for under weighing of the commodities	6	7.5	29	36.25	27	33.75	16	20	2	2.5
There were chances for non-availability of PDS items	19	23.75	39	48.75	15	18.75	5	6.25	2	2.5
Ration cardholders received full quota of food grains	9	11.25	24	30	27	33.75	15	18.75	5	6.25
Issuance of printed receipts after purchase of the commodities	17	21.25	33	41.25	18	22.5	10	12.5	2	2.5
Ration cardholders received subsidy on the commodities	16	20	33	41.25	22	27.5	7	8.75	2	2.5

Source: Primary data



Source: Primary data

Problems during Pre-AePDS

Fig 4.2

Majority of the respondents responded that they got updates on the availability of commodities and each card holder got a subsidy for the card he/she possessed. Some of them neutrally agreed that they had to wait in long queues for purchasing the ration items. They agreed that they received a full quota of food grains. Under the public distribution system, States were required to formulate and implement fool proof arrangements for identification of the poor for delivery of food grains and for its distribution in a transparent and accountable manner at the public distribution system level. The beneficiaries mainly criticised the ration shop owners for deliberately reducing the quantity of commodities supplied. According to the ration shop owners, the supply of food grains was insufficient. So there were more chances of under weighing commodities before the implementation of AePDS. The respondents also expressed their dissatisfaction towards the non availability of public distribution system items sometimes. Under nutrition among children from poor households those excluded from public distribution system was highest, and it warrants inclusion in public distribution system. Improving the quality of food grains and widening food baskets in PDS is recommended for reduction in level of malnutrition. From the above data, it is clear that certain problems existed in the rationing system which called for the implementation of a new system.

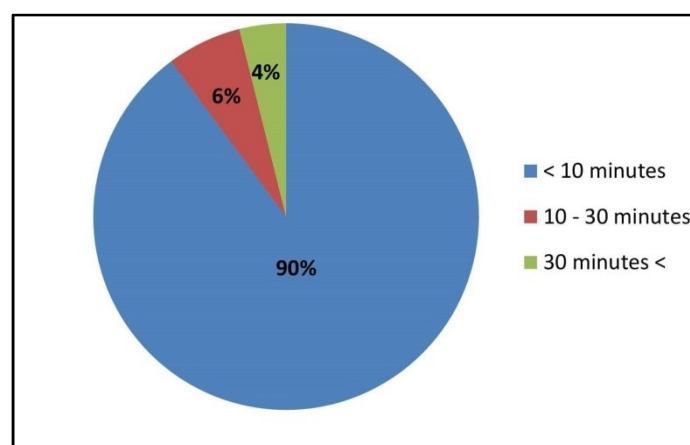
4.4 Time spend for the purchase of PDS items - Post-AePDS

After the implementation of AePDS there has been a reduction in the purchase time taken by the beneficiaries. The following table helps to analyse how exactly the purchase time has reduced from then to now.

Table 4.4
Time spend for the purchase of PDS items - Post-AePDS

Time	No. of Repondents	Percentage
<10 minutes	46	90
10 – 30 minutes	32	6
30 minutes <	2	4
Total	80	100

Source: Primary data



Source: Primary data

Time spend for the purchase of PDS items - Post-AePDS

Fig 4.3

The time taken by the beneficiaries to purchase commodities from ration shops has consequently been reduced to less than 10 minutes after the implementation of AePDS. Only a small proportion said that it still took 10-30 minutes for the purchase and a meagre 4 per cent responded that it took more than 30 minutes for the purchase of ration.

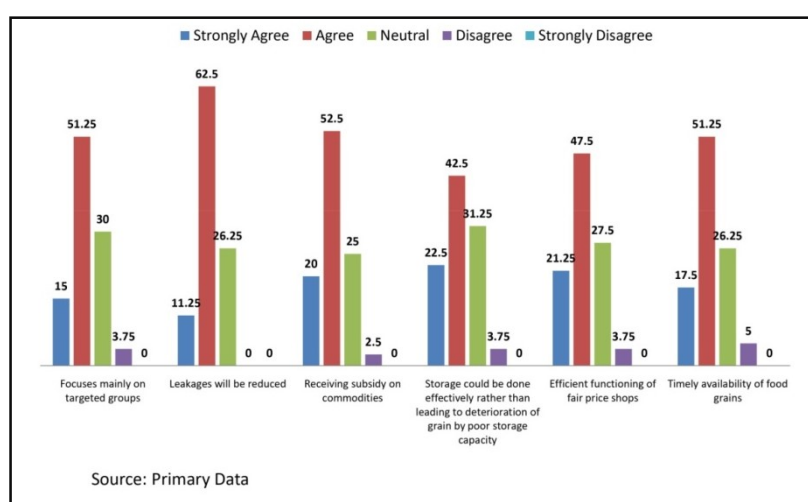
4.5 Facilities that lead to the implementation of AePDS

There are certain additional facilities in the AePDS which lead to its implementation. The table below helps to know how efficient the new system is in providing these facilities.

Table 4.5
Facilities that lead to the implementation of AePDS

Facilities	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Focuses mainly on targeted groups	12	15	41	51.25	24	30	3	3.75	0	0
Leakages will be reduced	9	11.25	50	62.5	21	26.25	0	0	0	0
Receiving subsidy on commodities	16	20	42	52.5	20	25	2	2.5	0	0
Storage could be done effectively rather than leading to deterioration of grain by poor storage capacity	18	22.5	34	42.5	25	31.25	3	3.75	0	0
Efficient functioning of fair price shops	17	21.25	38	47.5	22	27.5	3	3.75	0	0
Timely availability of food grains	14	17.5	41	51.25	21	26.25	4	5	0	0

Source: Primary data



Source: Primary data

Facilities that lead to the implementation of AePDS
Fig 4.4

From the above data, it is understood that the major provisions of the new system have improved the overall efficiency of the functioning of the Public distribution system as the majority of the respondents have agreed to it. The AePDS was implemented in such a way for identification of the poor for timely delivery of food grains and for its distribution in a transparent and accountable manner. Earlier the proportion of food grains is meant to be distributed through PDS but is not consumed by the eligible beneficiaries because of leakages. The aadhaar enabled public distribution system has reduced leakages and enabled the card holders to get the eligible subsidy for the card each one possessed. Public distribution system is operated under the joint responsibility of the Central and the State Governments. The Central Government, through Food Corporation of India, has assumed the responsibility for procurement, storage, transportation and bulk allocation of food grains to the State Governments. After the implementation of AePDS, the government has taken steps in storing the ration commodities safely rather than leading to deterioration of food grains by poor storage and ensuring its timely availability.

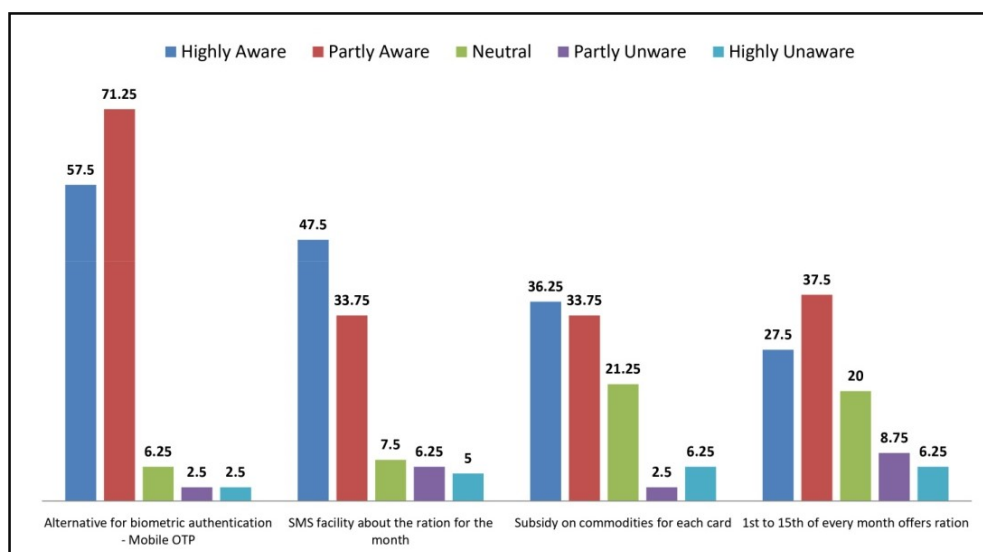
4.6 Awareness of the beneficiaries about the facilities or services offered by AePDS

In order to make the new system more efficient and effective, the beneficiaries have to be fully aware of all its features. The following table helps to understand the extent of awareness among the beneficiaries about the various features of the new system.

Table 4.6
Awareness of the beneficiaries about the facilities or services offered by AePDS

Facilities/ Services	Highly Aware		Partly Aware		Neutral		Partly Unaware		Highly Unaware	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Alternative for biometric authentication - Mobile OTP	43	57.5	24	71.25	5	6.25	2	2.5	2	2.5
SMS facility about the ration for the month	38	47.5	27	33.75	6	7.5	5	6.25	4	5
Subsidy on commodities for each card	29	36.25	27	33.75	17	21.25	2	2.5	5	6.25
1st to 15th of every month offers ration	22	27.5	30	37.5	16	20	7	8.75	5	6.25

Source: Primary data



Source: Primary data

Awareness of the beneficiaries about the facilities or services offered by AePDS
Fig 4.5

From the above data, it is clear that most of the respondents are highly aware of the various facilities offered by the AePDS. The distribution through public distribution system shops through one-time password (OTP) - based authentication helps to eliminate ghost cards and ensure commodities to the real beneficiaries. The majority of the respondents find the SMS updates about the availability and prices of commodities a useful one. This particular facility helps the respondents to reduce their visits to ration shops to inquire about the arrival of ration stock. The beneficiaries are also aware of the subsidy that each card possesses. The ration shops offer ration from 1st to 15th of every month but most of the people are unaware of this particular facility. Only a meagre number of respondents are unaware of these facilities provided by the AePDS. Awareness among people about the facilities of the new system will help them to fully utilise its benefits.

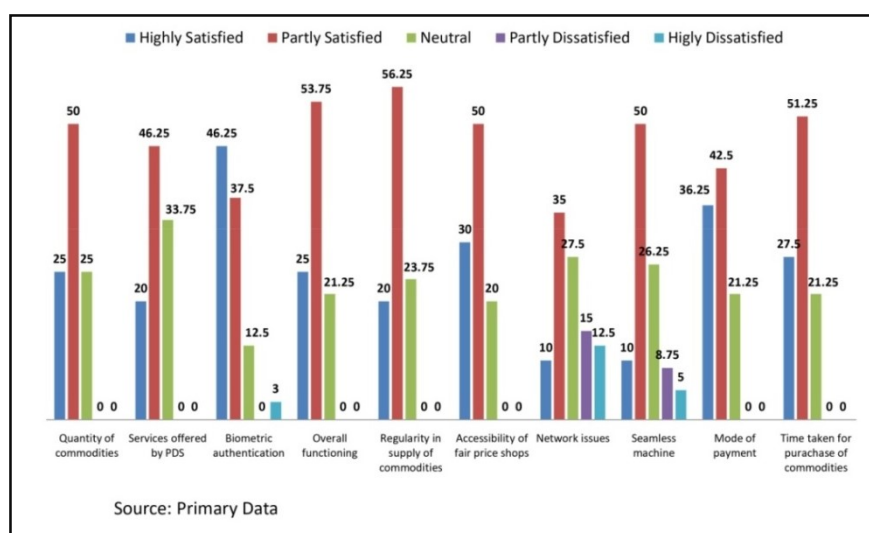
4.7 Satisfaction of the beneficiaries after implementing AePDS

Customer's intensity of purchase depends on the quality of services extended at Fair price shops. The purpose of setting up AePDS will be nullified, unless the real beneficiaries have not utilised the products offered at PDS. The table below analyses the satisfaction of the beneficiaries with regard to the various features of the new system.

Table 4.7
Satisfaction of the beneficiaries after implementing AePDS

Statements	Highly Satisfied		Partly Satisfied		Neutral		Partly Dissatisfied		Highly Dissatisfied	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Quantity of commodities	20	25	40	50	20	25	0	0	0	0
Services offered by PDS	16	20	37	46.25	27	33.75	0	0	0	0
Biometric authentication	37	46.25	30	37.5	10	12.5	0	0	3	3
Overall functioning	20	25	43	53.75	17	21.25	0	0	0	0
Regularity in supply of commodities	16	20	45	56.25	19	23.75	0	0	0	0
Accessibility of fair price shops	24	30	40	50	16	20	0	0	0	0
Network issues	8	10	28	35	22	27.5	12	15	10	12.5
Seamless machine	8	10	40	50	21	26.25	7	8.75	4	5
Mode of payment	29	36.25	34	42.5	17	21.25	0	0	0	0
Time taken for purchase of commodities	22	27.5	41	51.25	17	21.25	0	0	0	0

Source: Primary data



Source: Primary data

Satisfaction of the beneficiaries after implementing AePDS
Fig 4.6

From the above data, the following inferences could be made:-

- Even though each card holder can get the exact information regarding the amount of commodities available for them during each month, it is expected to have a positive impact on the quantity of commodities beneficiaries can avail but most of them are only partly satisfied as they felt that the quantity they are getting is not sufficient even after the implementation of AePDS.
- The public distribution system evolved as a system of management of scarcity through distribution of food grains at affordable prices. Public distribution system is supplemental in nature and is not intended to make available the entire requirement of any of the commodities distributed under it to the household or a section of the society. Public distribution system ensures these services but failed to completely satisfy the beneficiaries with the services offered by the ration shops.
- The beneficiaries responded that they are highly satisfied with the Aadhaar based biometric authentication since it ensures elimination of ghost cards and vastly improve efficiency in welfare delivery and reduce leakages. This system significantly reduced the total disbursement of grain and consequently, leakages.
- The beneficiaries gladly accepted the adoption of recent technology in public distribution system. The computerization of public distribution system makes it easier to supply and to record all transactions. It is not possible to say that the beneficiaries are fully satisfied with the overall functioning since they point out many problems in the current system. At first there is a difficulty in capturing finger print, either due to technical error or due to imperfections in finger print. Most of the people are complaining about the accessibility of internet connection. And with regard to the regularity in supply and the accessibility of fair price shops, people are only partly satisfied.
- From the above inferences, it is understood that the Aadhaar enabled Public distribution system has not fully succeeded in satisfying the beneficiaries.

4.8 Existing problems related to the working of AePDS

To find out the benefits of AePDS, the respondents were asked to rank the various features of AePDS according to their priority. The following table helps to know the priority of respondents among the various features of the new system.

Table 4.8
Existing problems related to the working of AePDS

Statements	Weighted Score	Rank
Efficiency	85	1
Updates on availability of commodities via SMS	74	2
No long queues	68	3
Accurate weights	64	4
Proper billing system	60	5
Availability of PDS items	51	6
Accessibility	48	7
Regularity	40	8
Quantity of commodities	34	9
Working of PDS	28	10

Source: Primary data

Majority of the respondents feel that the implementation of AePDS has increased the overall efficiency of the public distribution system as rank 1 goes to the same. The respondents are happy as they get updates on the availability of commodities regularly and is ranked 2. There is no need to wait in a long queue after the implementation of AePDS which was their 3rd priority. The beneficiaries are much more satisfied with the new system than the pre AePDS with regard to the weights, billing system, availability of PDS items, access to ration items and regularity in the working of ration shops. The implementation of AePDS has not brought much light on the working of Public Distribution System.

4.9 Importance of change to AePDS in the rationing system

Since the traditional AePDS had several limitations, it was necessary to implement a much more efficient system. From the table below, it is understood how important do the beneficiaries consider a change to the Aadhaar enabled Public Distribution System.

Table 4.9
Importance of change to AePDS in the rationing system

Change to AePDS	No.	Percentage
Very important	34	42
Important	31	39
Fairly important	15	19
Slightly important	0	0
Not important	0	0
Total	80	100

Source: Primary data

Aadhaar enabled Public Distribution System is a unique attempt in improving the quality of services under the public distribution system. Majority of the beneficiaries, about 42 per cent responded that the change to AePDS was very important in the rationing system to ensure food and nutritional security of the nation by making the food affordable, accessible and available to the poorest of the poor.

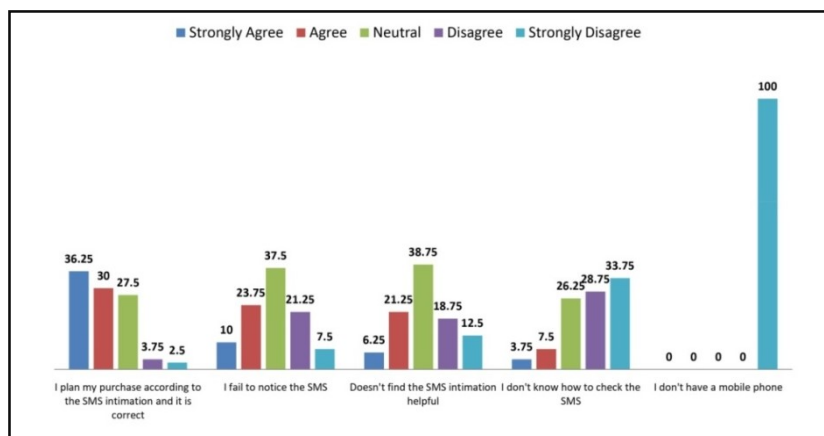
4.10 Satisfaction level of beneficiaries about the information through SMS

The information provided through SMS as part of the AePDS didn't find itself very effective. The following table shows the beneficiary's level of satisfaction on information through SMS.

Table 4.10
Satisfaction level of beneficiaries about the information through SMS

Statements	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	No .	Per cent	No .	Per cent	No .	Per cent	No .	Per cent	No .	Per cent
I plan my purchase according to the SMS intimation and it is correct	29	36.25	24	30	22	27.5	3	3.75	2	2.5
I fail to notice the SMS	8	10	19	23.75	30	37.5	17	21.25	6	7.5
Doesn't find the SMS intimation helpful	5	6.25	17	21.25	31	38.75	15	18.75	10	12.5
I don't know how to check the SMS	3	3.75	6	7.5	21	26.25	23	28.75	27	33.75
I don't have a mobile phone	0	0	0	0	0	0	0	0	80	100

Source: Primary data



Source: Primary data

Satisfaction level of beneficiaries about the information through SMS

Fig 4.7

From the above data, it is evident that most of the respondents plan their purchase according to the SMS intimation and all of them have a mobile phone. Sending text messages to ration card holders as soon as the concerned ration shop receives provisions from the government which helps to prevent ration shop owners from telling beneficiaries that they have run out of stock, while they sell the provisions in the black market. A number of beneficiaries fail to notice the SMS and doesn't find the SMS intimation helpful.

4.11 Attitude of the PDS dealer

The implementation of AePDS hasn't really changed the attitude of PDS dealers but still certain improvements are found in their attitude. The table below analyses the attitude of PDS dealers after the implementation of AePDS.

Table 4.11
Attitude of the PDS dealer

Attitude of the PDS dealer	No.	Percentage
Very Satisfied	5	6
Satisfied	39	49
Neutral	36	45
Dissatisfied	0	0
Very Dissatisfied	0	0
Total	80	100

Source: Primary data

From the above table, it is understood that only 49 per cent of the beneficiaries are satisfied with the attitude of the public distribution system dealer followed by 45 per cent who are neutrally satisfied. Most public-distribution-system dealers resort to malpractices like diverting food grains to open market to make profits, selling poor quality grains at ration shops, irregular opening of the shops, etc. Because of this reason only a meagre 6 per cent is highly satisfied with the attitude of the public distribution system dealer.

4.12 Importance of AePDS for the family

The implementation of AePDS has gained so much importance for the families as they provide essential items at subsidised rates for the beneficiaries. The table below shows the importance of AePDS for the family.

Table 4.12
Importance of AePDS for the family

Change to AePDS	No.	Percentage
Very important	29	36
Important	36	45
Fairly important	15	19
Slightly important	0	0
Not important	0	0
Total	80	100

Source: Primary data

There is a rising importance of public distribution system as more deprived sections are more dependent on public distribution system for food security. From the above data, it is evident that the AePDS is gaining importance in the family through which commodities namely wheat, rice, sugar and kerosene are distributed to the desired people. Some states also distribute additional items of mass consumption through the public distribution system outlets such as pulses, edible oils, iodised salt, spices, etc.

4.13 Overall functioning of the Pre-AePDS that of Post-AePDS

The overall functioning of PDS is much better after the implementation of AePDS as it offers easy access to ration commodities. The following table analyses the overall functioning of the pre and post AePDS.

Table 4.13
Overall functioning of the Pre-AePDS that of Post-AePDS

Time spend for the purchahse	No	Percentage
Much better	47	59
Somewhat better	24	30
Stayed the same	9	11
Total	80	100

Source: Primary data

From the above table, it is clear that the new system introduced by the government in public distribution system has improved the overall functioning of public distribution system today as compared to that of before. About 59 per cent said that the functioning is much better as the public distribution system today offers easy accessibility of commodities, regularity in availability of commodities, quantity supplied is much better and the working of public distribution system is efficient. A per cent of 30 responses said that the functioning is somewhat better as compared to that of pre AePDS followed by 11 per cent who responded that the current system stayed the same as before.

4.14 Comparison between Pre-AePDS and Post-AePDS

Most of the beneficiaries have positive opinions regarding the new system than the traditional PDS. The table below shows the comparison between the opinions of beneficiaries regarding pre and post AePDS.

Table 4.14
Comparison between Pre-AePDS and Post-AePDS

Aspects	Pre-AePDS		Post-AePDS	
	No.	Per cent	No.	Per cent
Accessibility	21	26.25	59	73.75
Regularity	15	18.75	65	81.25
Quantity supplied	19	23.75	61	76.25
Overall functioning	14	17.5	66	82.5
Efficiency	20	25	60	75
Services offered	19	23.75	61	76.25

Source: Primary data

From the above data, it is clear that the following aspects are considered much better in post AePDS. The majority of respondents were not satisfied with the services of ration shops prior to the adoption of AePDS. The implementation of AePDS mainly focused on targeted groups, reducing leakages, ensuring subsidies on commodities, efficient working of fair price shops, timely availability of food grains, and eliminating deterioration of food grains.

4.15 Beneficiaries satisfaction about existing AePDS provision

The level of satisfaction of overall functioning of AePDS differs from that of the system which existed earlier. The following table analyses the beneficiaries level of satisfaction about the various AePDS provisions.

Table 4.15
Beneficiaries satisfaction about existing AePDS provision

Provisions	Yes		No	
	No.	Per cent	No.	Per cent
Current system is perfect	69	75	19	25
Current system is confusing and troublesome	22	27.5	58	72.5
Measurement issue, block market and corruption exist	36	45	44	55
Card categorisation is based on favourism / corruption	36	41.25	44	58.75
Don't ensure food security	33	41.25	47	58.75
Much better system could be introduced	54	67.5	26	32.5

Source: Primary data

From the above data, it is evident that most of the respondents are happy with the existing AePDS provisions. Many of the beneficiaries responded that the current system is perfect as the overall functioning of the AePDS is much better than that of the system which existed earlier. People do not have to face any confusion or troublesome effects from the current system. Measurement issue, black market and corruption are eliminated. The card categorization is not based on favouritism or corruption and it is done properly so that the needy ones get the benefits properly. Even when the majority is happy with the current system, some of them proposed that a much better system could be introduced.

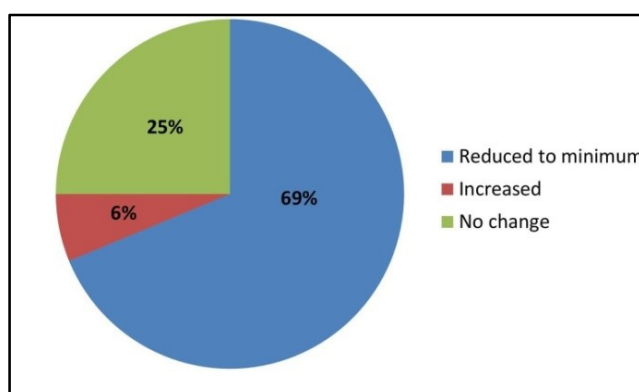
4.16 Impact of biometrics in number of visit to shop

There is a change in the number of visits to ration shops after the introduction of AePDS. The following table shows the impact of biometrics in the number of visits to ration shops.

Table 4.16
Impact of biometrics in number of visit to shop

Number of visit to shop	No.	Percentage
Reduced to minimum	55	69
Increased	5	6
No change	20	25
Total	80	100

Source: Primary data



Source: Primary data

Impact of biometrics in number of visit to shop
Fig 4.8

SMS facility is introduced in AePDS in order to ensure that there is no lack of information regarding the availability of food grains and other supplies from shop. If SMS information system is working effectively then the number of visits to shop should come to minimum. Because there will not be any futile visits to shop as it used to happen before AePDS. The above chart depicts that about 69 per cent responded that the number of visits to the ration shops has reduced to minimum due to the impact of biometric authentication followed by 25 per cent who said that there occurred no change in the number of visit to ration shop.

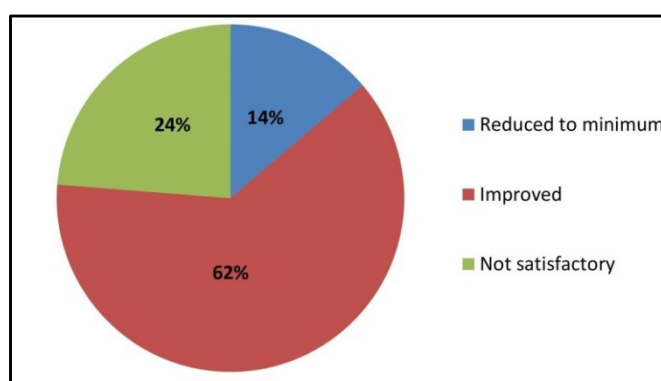
4.17 Impact of biometrics in quantity of commodities

One of the major aims of AePDS is to ensure proper quantity of supply of commodities. The following table analyses the impact of biometrics in the quantity of commodities supplied.

Table 4.17
Impact of biometrics in quantity of commodities

Quantity of commodities	No.	Percentage
Reduced to minimum	55	14
Increased	5	62
No change	20	24
Total	80	100

Source: Primary data



Source: Primary data

Impact of biometrics in quantity of commodities
Fig 4.9

As each card holder can get the exact information regarding the amount of commodities available for them during each month, is expected to have a positive impact on the quantity of commodity beneficiaries can avail. While 62 per cent of the total respondents responded that there is an improvement in the quantity available after AePDS but a meagre 14 per cent felt that the quantity they are getting is not sufficient even after the implementation of biometric validation.

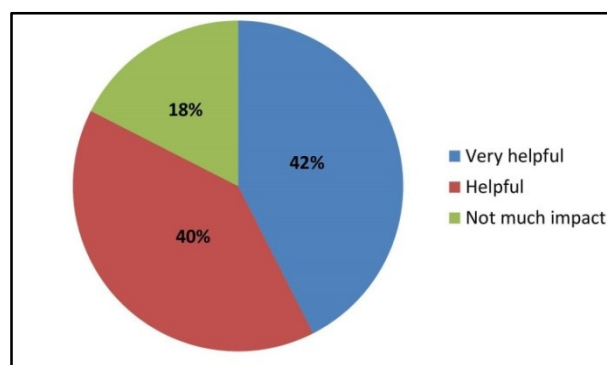
4.18 Impact of biometrics in information through SMS

SMS system introduced in AePDS helps the users to get timely information about the PDS system, and provides accurate information regarding the availability and supply of food grains. The following table analyses the impact of biometrics in providing information through SMS.

Table 4.18
Impact of biometrics in information through SMS

Information through SMS	No.	Percentage
Very helpful	34	42
Helpful	32	40
Not much impact	14	18
Total	80	100

Source: Primary data



Source: Primary data

Impact of biometrics in information through SMS
Fig 4.10

From the above data, it is clear that 42 per cent of the respondents felt that information through SMS as very helpful. This is because a majority of people plan to buy their PDS commodities for each month as per the information through the SMS. It helps them to know the subsidy available and the quantity of commodities available for their card. 18 per cent of the respondents said that there is not much impact of SMS on their purchase from public distribution system.

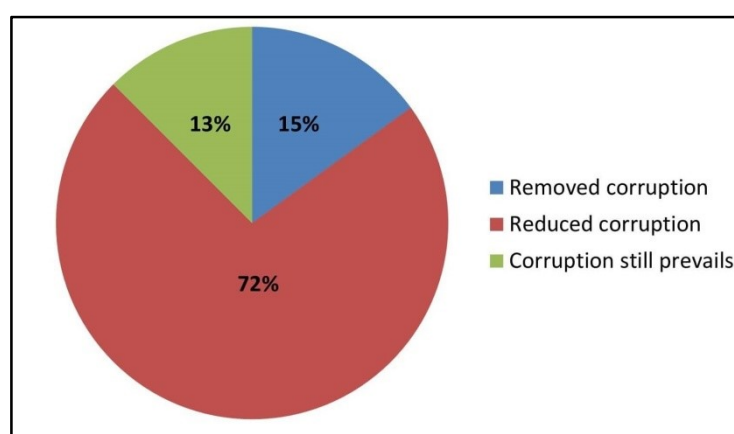
4.19 Impact of biometrics in biometric authentication

Biometric authentication is a measure to reduce corruption. The table below analyses the impact of biometric authentication in reducing corruption.

Table 4.19
Impact of biometrics in biometric authentication

Biometric authentication	No.	Percentage
Removed corruption	12	15
Reduced corruption	58	72
Corruption still prevails	10	13
Total	80	100

Source: Primary data



Source: Primary data

Impact of biometrics in biometric authentication
Fig 4.11

From the above data, it is impossible to say that the impact of biometrics in Public distribution system could remove the corruption prevailing in the Ration shops. Most of the beneficiaries about 72 per cent have responded that the new system reduced corruption but failed to completely eliminate corruption. And a small proportion of respondents about 13 per cent opened up and said that corruption still prevails.

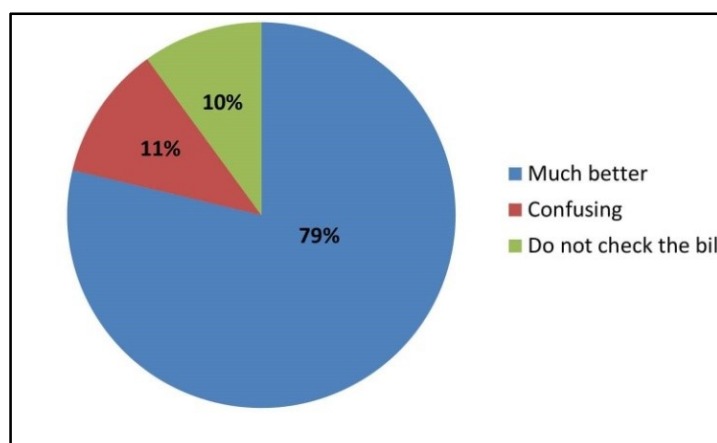
4.20 Impact of biometrics in billing

E-billing facility brought by AePDS shows the quantity and price of each commodity. The following table analyses the impact of biometrics in billing.

Table 4.20
Impact of biometrics in billing

Billing	No.	Percentage
Much better	63	79
Confusing	9	11
Do not check the bill	8	10
Total	80	100

Source: Primary data



Source: Primary data

Impact of biometrics in billing
Fig 4.12

The above data depicts that about 79 per cent of the respondents felt that billing is much better now due to the impact of biometrics in public distribution system. Prior to AePDS there was no e-billing facility. The PDS dealer notes on the ration card the commodities availed by the cardholder along with the price of the commodities. Thus the cardholder does not avail the correct quantity of commodities and also there existed a high price. But after the AePDS, e-billing facility came into existence which clearly shows the details of the quantity of commodities and the correct price for each commodity. Only a meagre share of 11 per cent of the respondents said that the billing system is still confusing which is followed by 10 per cent who does not even check the bill.

CHAPTER 5

SUMMARY OF FINDINGS,

SUGGESTIONS AND

CONCLUSION

CHAPTER 5

SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

This chapter deals with the major findings derived based on the data analyzed and the interpreted. Suggestions for future work and conclusion are also covered in this chapter. The study mainly focuses to examine the pre and post impacts of AePDS, to study the extent of awareness among people about the features of the new system, to understand the efficiency of Aadhaar enabled PDS in bringing about transparency in PDS and food security, to examine the satisfaction level of the respondents regarding the rationing system after the implementation of AePDS and to study the existing problems relating to the implementation of AePDS. The research design used in study is analytical and descriptive in nature. The present study is based on primary and secondary data. Convenience sampling technique is used to collect data from the respondents. The various statistical tools such as percentage, mean, rank are used for the data analysis of the study.

FINDINGS

- Majority of the respondents are regular buyers of PDS commodities. The respondents mentioned that the unique attempt piloted in improving the quality of services under the public distribution system, that is, AePDS has been an improvement in enhancing efficiency in PDS.
- The survey proved that, earlier there was wastage of more time by standing in queue, and uncertainty about timings and days of distribution of ration. Most of the beneficiaries responded that consumers had to wait for 10-30 minutes to get the PDS items. But now it has been reduced to less than 10 minutes.
- Even though the beneficiaries responded that consumers got regular updates on the availability of commodities, efficiency of billing system and issuance of printed receipts after purchase before the implementation of AePDS, the functioning of PDS was ineffective due to leakages and corruption, poor targeting of beneficiaries, inadequate infrastructure and logistics, non availability and poor quality of food grains, and lack of awareness and participation. But most of the beneficiaries were satisfied with the subsidy they got for their respective cards. Respondents also added that beneficiaries received full quota of food grains.

- Majority of the respondents agreed that the new system of public policy focuses mainly to provide food security to the poor and vulnerable sections of the society and ensure that the food grains reach the intended beneficiaries and succeeded in bringing out transparency in the PDS.
- A large number of beneficiaries said that the conversion to AePDS has led to efficient functioning of Fair Price Shops by receiving subsidy and timely availability of commodities. Efficiency in storage could be possible rather than leading to deterioration of grain by poor storage capacity.
- The study succeeded in finding out the awareness among people about the various features of the new system. A large number of respondents noted that they are aware of the biometric authentication through mobile OTP, SMS facility and the subsidy for each type of card. A vast majority of people find the SMS updates on the availability of commodities and its prices, now being provided, very helpful to them. Only a very few number of respondents are unaware of these provisions of the new system.
- The ration shops offer ration from 1st to 15th of every month but a large number of beneficiaries are unaware of this particular facility.
- Even though a large number of respondents are highly satisfied with the biometric authentication in the new system, it doesn't mean that the new system is problem free.
- Lack of awareness makes the respondents only partly satisfied with many of the features of AePDS.
- A good number of respondents are not able to access the ration shops, problems due to poor connectivity, receive full quota of food grains allowed by the government, due to corruption which do not make them fully satisfied. There has not been a drastic change in the time taken for purchase of commodities and in the services offered by the PDS.
- As per the responses of the beneficiaries, the change from the past rationing system has not made the beneficiaries full satisfied with the new system.
- All of the respondents have a mobile phone and beneficiaries agreed that they planned their purchase according to the SMS intimation and most of the respondents know how to check the SMS. A number of respondents neutrally

agreed that consumers failed to notice the SMS and said that beneficiaries don't find the SMS intimation helpful.

- A majority of respondents responded that the impact of biometrics in billing is much better nowadays which indicates that the new system is effective in bringing changes in the billing system.
- There has been an improvement in service delivery after the introduction of AePDS.
- One of the objectives of the study was to make a comparison between the pre and post AePDS. It was found that the initiative has definitely resulted in making the PDS more accountable.
- Commodities are received at the PDS in accurate measurements and have resulted in overall improvement of the system.
- Among the features of the new rationing system 1st rank has been given to efficiency, by a large number of respondents. Updates on availability of commodities via SMS were ranked as 2 which indicate that the new system is effective in updating the beneficiaries through SMS followed by 'No long queues'. Even though a large number of respondents are satisfied with the majority of the features of the new system, the beneficiaries are not fully satisfied with the overall working of PDS as it is ranked 10.
- The majority of the respondents said that the impact of biometric authentication in PDS has reduced corruption but could not completely eliminate it.
- A large number of respondents find the quantity of commodities improved due to the impact of biometrics in PDS.
- A number of respondents said that the change to AePDS was very important in the rationing system.
- A majority of respondents find that the SMS updates on the availability of commodities and its prices, now being provided, are very helpful to them.
- The respondents noted that the importance of the AePDS for the family is important to ensure food security and poverty alleviation by making available the essential commodities, especially food grains at an affordable and uniform price at the door steps of the consumers.
- Majority of respondents are satisfied with the attitude of the PDS dealer. This shows that AePDS is effective in bringing good conduct among the sales person.

- As per the responses of the beneficiaries, it is clear that the change from past rationing system to the new one (AePDS) is essential for managing scarcity through distribution of food grains at affordable prices and in improving the efficiency and transparency of the system.

SUGGESTIONS

- Many of the beneficiaries are still not aware that the ration shops offer ration from 1st to 15th of every month. Updating through SMS has to be done to make them aware of the time of ration distribution.
- Alternative facilities should be arranged to the old aged people whose Aadhaar authentication is not effective.
- Increase the capacity of the server in order to tackle with the malfunctioning of E-POS machines.
- There are many kinds of payment that can be done. Most of the problem occurs when the consumers are illiterate about the mode of payment. Implementation of a specific kind of payment can be convenient to everyone.
- Frequent sending of SMS by labeling the ration shop, or automatic calling machine can be implemented by the government for making people aware or to remember about the purchase of commodities from public distribution system, thereby lack of effectiveness of SMS intimation can also be avoided.
- PDS commodities given to NPS, PHH card holders on the basis of number of family members should be stopped. A fixed quantity should be allowed to them irrespective of the number of members.
- Stringent measures should be taken by the government to ensure that PDS items are supplied to the ration dealers in accurate weights.
- A provision should be made to bring the PDS commodities to home, for those who are not physically able to reach the ration shops and have no other family members for assistance.
- Ration cards are issued only to those people who have their proper residential addresses. Hence a large number of homeless poor fail to get ration from these shops. Proper steps should be taken to ensure that the basic commodities are made available to the needy people.

- Mobility restrictions made fresh produce less accessible to cardholders and irregularities in supply which made them partly satisfied with the PDS. Proper inspection has to be done to ensure the regularity of supply of PDS items.
- Many respondents raised their concern for implementing a much better system. An even more efficient system could be implemented to avoid the short comes of the present system.

CONCLUSION

The Public Distribution System has developed into a mechanism for controlling scarcity by providing food grains at reasonable costs. The Aadhaar enabled Public Distribution System made it necessary for beneficiaries to link their aadhaar cards to their ration cards. This allowed Fair Price Shops to use biometrics to authenticate beneficiaries, increasing the system's efficiency and transparency.

The main objective of the study was to compare Pre and Post impacts of Aadhaar enabled Public Distribution System. It was seen that this initiative has definitely made public distribution system more responsible. The transition to AePDS has resulted in efficient operations of fair price stores through receipt of subsidies and timely supply of products. A large number of respondents were very satisfied with the new system's biometric authentication. This does not mean that the new system does not cause problems. Goods are received at public distribution system with accurate measurements and provide an overall improvement to the system. It is also evident that majority of the people are aware of the facilities of the new system. The implementation of AePDS has increased the overall efficiency of the public distribution system. In contrast to the pre-AePDS system, the beneficiaries are far more satisfied with the new one. The study was effective in determining the amount that people knew about the different aspects of the newly implemented system. The switch from the previous rationing system to the new one brought transparency in public distribution system and food security. The satisfaction level of beneficiaries after the implementation of AePDS is better than that of before.

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APPENDIX

A STUDY ON THE EFFECTIVENESS OF AADHAAR ENABLED PUBLIC DISTRIBUTION SYSTEM

QUESTIONNAIRE

Sir/Madam,

This survey is conducted as part of the B Com Finance degree project. The survey aims to find the changes in Public Distribution System (Ration Shops) after its transformation into the Aadhaar enabled public distribution system (AePDS). It also aims to make a comparison between the pre and post AePDS. The information collected will be used only for academic purposes and will be kept confidential.

1. Type of card you possess: -

☐ White (NPNS) ☐ Blue (NPS) ☐ Pink (PHH) ☐ Yellow (AAY)

2. Pre-AePDS

a) How much time do you spend for the purchase of PDS items from ration shops?

☐ < 10 minutes ☐ 10 - 30 minutes ☐ 30 minutes <

b) Are you agreeing with the following statements: -

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Ration cardholders got updates on availability of commodities					
Ration cardholders had to wait in long queues					
There were chance of under weighing of the commodities					

Proper billing system was there					
There were chances for non-availability of PDS items					
Ration cardholders received full quota of food grains					
Issuance of printed receipts after purchase of the commodities					
Ration cardholders received subsidy on the commodities					

3. Post AePDS

a) How much time do you spend for the purchase of PDS items from ration shops?

☐ < 10 minutes

☐ 10 - 30 minutes

☐ 30 minutes <

b) What are the facilities for the implementation of AePDS:-

Facilities	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Focuses mainly on targeted groups					
Leakages will be reduced					
Receiving subsidy on commodities					

Storage could be done effectively rather than leading to deterioration of grain by poor storage capacity					
Efficient functioning of fair price shops					
Timely availability of food grains					

5. Are you aware of the facilities or services offered by the AePDS:-

Facilities/Services	Highly Unaware	Partly Unaware	Neutral	Partly Aware	Highly Aware
Alternative for biometric authentication - Mobile OTP					
SMS facility about the ration for the month					
Subsidy on commodities for each card					
1st to 15th of every month offers ration					

6. Are you satisfied with the following statements: -

Statements	Highly Satisfied	Partly Satisfied	Neutral	Partly Dissatisfied	Highly Dissatisfied
Quantity of commodities					
Services offered by PDS					
Biometric authentication					

Overall functioning					
Regularity in supply of commodities					
Accessibility of fair price shops					
Network issues					
Seamless machine					
Mode of payment					
Time taken for purchase of commodities					

7. Rank in the order of priority

(1 - Most important, 10 - Least important)

Statements	Rank
Efficiency	
Updates on availability of commodities via SMS	
No long queues	
Accurate weights	
Proper billing system	
Availability of PDS items	
Accessibility	
Regularity	
Quantity of commodities	
Working of PDS	

8. How important do you consider change to AePDS in the rationing system?

- ☐ Very important
 ☐ Important
 ☐ Fairly important
☐ Slightly important
 ☐ Not important

9. How useful is the SMS system in AePDS

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I plan my purchase according to the SMS intimation and it is correct					
I fail to notice the SMS					
Doesn't find the SMS intimation helpful					
I don't know how to check the SMS					
I don't have a mobile phone					

10. How would you describe the attitude of the PDS dealer?

- ☐ Very dissatisfied
 ☐ Dissatisfied
 ☐ Neutral
☐ Satisfied
 ☐ Very Satisfied

11. How would you describe the importance of the AePDS for the family?

- ☐ Very important
 ☐ Important
 ☐ Fairly important
☐ Slightly important
 ☐ Not important

12. How would you rate the overall functioning of the PDS today compared to that of before?

☐ Much better ☐ Somewhat better ☐ Stayed the same ☐ Much worse

13. Which would you rate better - PDS or AePDS in the following aspects
(Put a tick mark)

Aspects	Pre-AePDS	AePDS
Accessibility		
Regularity		
Quantity supplied		
Overall functioning		
Efficiency		
Services offered		

14. Are you happy with the existing AePDS provisions you have?

Provisions	Yes	No
Current system is perfect		
Current system is confusing and troublesome		
Measurement issue, black market and corruption exist		
Card categorisation is based on favourism/corruption		
Don't ensure food security		
Much better system could be introduced		

15. Impact of biometric in PDS - No of visit to shop
☐ Reduced to minimum ☐ Improved ☐ No change
16. Impact of biometric in PDS - Quantity of commodities
☐ Reduced to minimum ☐ Improved ☐ Not satisfactory
17. Impact of biometric in PDS - Information through SMS
☐ Very helpful ☐ Helpful ☐ Not much impact
18. Impact of biometric in PDS - Biometric authentication
☐ Removed corruption ☐ Reduced corruption ☐ Corruption still prevails
19. Impact of biometric in PDS - Billing
☐ Much better ☐ Confusing ☐ Do not check the bill

Thank You