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E-GOVERNANCE AND PUBLIC DISTRIBUTION SYSTEM

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Abstract
This research paper explores the transformative impact of e-Governance on the Public Distribution System (PDS) in India. Historically plagued by inefficiencies and corruption, PDS has undergone significant improvements with the introduction of digital technologies and online platforms. The paper examines the key features of e-Governance in PDS, such as end-to-end automation, real-time monitoring, and Aadhaar integration. It also highlights the outcomes of these interventions, including increased transparency, reduced leakages, enhanced targeting, and improved service delivery. The study concludes that e-Governance has played a pivotal role in enhancing the efficiency and transparency of India's PDS, thereby ensuring better access to essential commodities for millions of vulnerable citizens.

Introduction

Every human being has an inalienable right to be free from poverty, hunger and malnutrition (World food conference, 1974). The world "Public" in Public distribution system means those individuals who possess common interest. It should be understood that the food security of a country differs from the food security of a single household and the mechanism that converts the food security of national level to the household level is called Public distribution system and the effective food security leads the nation towards prosperity (Ghuman & Dhiman, 2013). But even after seventy-five of India‟s independence, it is still a home of largest concentration of poor and hungry people all over the globe. Thus to overcome this, public distribution system is considered as a fundamental mechanism for providing a safety net to the poor and the downtrodden (Sadasivam & Senthamarai, 2012). The Public distribution system serves three different objectives namely, protection to poor, improving the nutritional status and maintenance of market prices. Time to time the focus and the coverage of the distributive system has changed starting from being universal in nature to the targeted approach. The entire gamut of PDS is put into practice with the help of fair price shops. Firstly it was only distributed in the urban areas but gradually it was extended to the rural areas as 80% of the poor people reside in rural area of the country (Raj et.al, 1985). Revamped PDS was introduced in drought prone areas at subsidized prices in 1992 & later in 1997 targeted public distribution system was launched with the aid of 4.74 lakh fair price shops. Two distinctions were made in the TPDS namely above poverty line(APL) and below poverty line(BPL) which were later renamed as NPHH (Non- priority household) and PHH (priority household) respectively under the NFSA,2013. However in the year 2000, a new scheme " Antyodaya Anna yojana" was launched for the poorest of the poor. The main aim of the public distribution system is to eliminate poverty and inequality by providing justice to the poor people (Pttanaik, 1997). Besides being a poverty alleviation program it maintains the rise of prices in the open market (GOI, 1992). India is witnessing population explosion, malnutrition issues and the need to feed the poor-(SDG, 2015). All these things are interlinked and interdependent. Poverty leads

hunger which in-turn leads to malnutrition. These issues can only be solved when there is an adequate increase in the quantity as well as the improvement in the quality of food-grains. This is common in all the developing countries (Subbaiah, 1986). To minimize these issues, the state is continuously bringing reforms and adopting latest technology for the effective functioning of the distributive system. One such method is the introduction of internet or e-services in the realm of PDS. It makes mode of doing business very easy and brings transparency on the table. Recently it has been mandatory to link Aadhar card with the ration card so that there would be no more bogus/fake cards. To deal with the issues of diversion, the schemes of PDS have become computerized/digitized. It has been argued that applying end-to-end digitalization to the poverty alleviation programme can yield maximum effectiveness. To put all this into practice government introduced a catalyst in the in the form of Aadhar. It is a unique 12 digit identifier to all enrollees. The Aadhar bill got passed by the parliament by the name Targeted delivery of financial and other subsidies benefits and services act in March 2016. To make PDS more e-centric and more effective, the JAM trinity (Jhan Dhan yojaan, Aadhar and Mobile) should form an open ecosystem. Aadhar w.r.t to public distribution system is a two-fold-accountability mechanism. It guarantees the entitlements to the beneficiaries and on the other side it prevents the diversion of food-grains. The use of Aadhar to access anti-poverty programme's was prohibited by the Supreme court in September 2013. After a lot of debates and discussions, Supreme court's order made it possible to use Aadhar in the public distribution schemes (Masiero,2000). One of the back-lash of the scheme is that it was passed as a money bill and thus the upper house of the parliament had no right to dismiss/reject. Another growing concerns about Aadhar is about data leak or access to any private party (Rao &Nair, 2019).

Presently there is a debate going on whether or not the government should introduce ONORC (one nation one ration card). Pilot study is taking place in certain areas of the Jammu division. ONORC will enable any beneficiary of any state to receive his/her share of food-grains from any FPS around the country.

The whole gamut of public distribution system can be understood under the three different view-points i.e. policy, legal and operational framework. Directly or indirectly these three frameworks deal with the basic policy directions given by both Centre and state and PDS have always been an integral part of India's poverty alleviation program. Food and civil supplies ministry both at Centre and state along with FCI handle the entire programme of PDS. The working of PDS requires a legal support and that is provided by the section3 (2) of the essential commodities act of 1955. It mainly deals with the production, management and distribution. Apart from ECA, 1955, Black marketing and maintenance of supplies of essential commodities act, 1980, also plays a crucial role in the effective distribution of essential commodities. Recently, the government of India has introduced essential commodities amendment act, 2020 which states that govt. may regulate the supply of pulses, cereals, edible oilseeds, onions, potato and oils only under extra-ordinary circumstances like war, famine, extra-ordinary price increase and natural calamity. However, the act further states that nothing contained in this sub-section shall apply to any order relating to the PDS and TPDS.

Five Year Plan and PDS

The first five-year plan highlighted the inadequate production of food-grains in the country and thus the emphasis was laid on meeting the requirements of both urban and highly deficit areas

(GO1,1951-56). Moreover, distribution was to done through statutory rationing system in the areas having population more than 50000 and for others non- statutory rationing. The second five-year plan shows that the extent of agricultural production will be beneficial in maintaining the stability of the prices. It was also argued to include other essential commodities other than food-grains. The third five-year plan mainly dealt with the issues related to the storage of food-grains and introduction of institutional changes in the private sphere. The fourth five year dealt with the extension of public distribution system to the rural areas and had provisions to strengthen the buffer stock of food-grains (GOI, 1969-74). During the 5th and 6th five-year plan, the public distribution system was linked to income, prices, wage policy and essential supplies programme was introduced in 1982 respectively. The public distribution system was included as one of the minimum needs programme. Seventh five-year plan dealt with the expansion of fair price shops in remote areas. The eight five-year plan involved local institution, cooperatives and voluntary organizations and added articles like pulses, soaps, tea, salt etc. During the ninth five-year plan, food production was linked with the poverty alleviation programme. The concept of nutrition security was considered as one of important aspect of food security. The tenth five-year plan laid emphasis on smart card, food stamp, targeted approach in eradicating the hunger. During the eleventh five-year plan issues like inclusion and exclusion errors were highlighted and steps were taken to strengthen the targeted public distribution system. The twelfth year plan kept the pace with the external environment and introduced a major role of ICT's and internet in the public distribution system. Moreover, it dealt with trinity called "JAM"- Jhan-Dhan bank account, Aadhar (Unique identification authority of India) and Mobile

Issues in Public Distribution System

Leakages in the Public Distribution System (PDS) refer to various forms of inefficiencies and malpractices that lead to the diversion of subsidized food and essential commodities meant for the intended beneficiaries. These leakages prevent the full benefits of the PDS from reaching those in need, resulting in food insecurity and wastage of resources. Some common types of leakages in the PDS include: a) Ghost Beneficiaries: One of the most significant leakages in the PDS is the existence of "ghost beneficiaries." These are fictional or inactive beneficiaries who are included in the system to siphon off subsidized goods. Ghost beneficiaries may be created by corrupt officials or middlemen to embezzle food grains. b) Diversion of Commodities: PDS commodities, which are meant to be distributed to the poor at subsidized rates, are sometimes diverted to the open market or sold to other states where prices are higher. This diversion often involves collusion between corrupt officials, fair price shop owners, and middlemen. c) Ration Card Fraud: Fraudulent practices related to ration cards can lead to leakages. These include the issuance of multiple ration cards to the same individual or family, allowing them to receive more than their fair share of subsidized commodities. d) Mismanagement and Pilferage: Mismanagement and pilferage are two significant challenges that plague the Public Distribution System (PDS), hindering its ability to effectively provide subsidized food and essential commodities to the needy population. Mismanagement arises from inefficiencies, poor coordination, and inadequate infrastructure at various stages of the supply chain. Delayed replenishment, weak storage facilities, and inaccurate data management contribute to the exclusion of eligible beneficiaries and reduce the overall efficiency of the

system. On the other hand, pilferage involves the theft and unauthorized diversion of PDS commodities, resulting in significant leakages and denial of benefits to deserving recipients. Diversion at fair price shops, unauthorized resale, and the inclusion of fictitious beneficiaries are common forms of pilferage. Addressing these challenges requires a multi-pronged approach, incorporating technological solutions, increased transparency, stringent monitoring, and public awareness campaigns, to ensure the efficient and equitable functioning of the PDS and guarantee that the intended benefits reach those in need. e) Lack of Transparency: A lack of transparency in the PDS operations can lead to leakages. When beneficiaries are unaware of their entitlements or the distribution process is not adequately documented, opportunities for leakages increase.

Inclusion and exclusion error: Inclusion and exclusion errors are two types of errors that occur in the process of identifying beneficiaries for social welfare programs like the Public Distribution System (PDS).

An inclusion error occurs when ineligible individuals or households are wrongly included as beneficiaries of the program. In the context of the PDS, this means that people who do not qualify for subsidized food and essential commodities may end up receiving the benefits. An exclusion error happens when eligible individuals or households are incorrectly excluded from the program. In the context of the PDS, this means that deserving beneficiaries may be denied access to the subsidized commodities they are entitled to receive. Balancing inclusion and exclusion errors is crucial in the effective implementation of social welfare programs. Striking the right balance ensures that resources are directed towards those who genuinely need them while minimizing leakages and wastage. Reducing inclusion and exclusion errors requires the adoption of accurate and up-to-date data, the use of technology for verification and targeting, continuous monitoring and evaluation, and a transparent and accountable implementation process. By minimizing these errors, the PDS can achieve its objective of providing essential commodities to the most vulnerable sections of the population efficiently and equitably. Addressing these leakages requires a multi-faceted approach, including the implementation of e-Governance initiatives, better targeting mechanisms, improved storage and transportation infrastructure, increased transparency, and stringent monitoring and accountability measures. By combating leakages effectively, the PDS can fulfill its intended objective of ensuring food security for vulnerable sections of society.

Steps Taken by the Govt. to implement e-governance in PDS

Public distribution system is a widely disputable system, prone to many malpractices. The present system is suffering from many levels of corruption like inaccurate measurement, leakages, inclusion & exclusion errors, material theft in fair price shops. However to deal with these issues, the use of Internet was brought into picture with a vision of a fully automated system to provide high transparency. Some of the proposed reforms are listed below.

Table : Summary of Proposed Models

S.no	Year	Title	Work

1	November 2013	Automatic Ration Material Distributions Based on GSM and RFID Technology	S.Valarmathyet al. introduced the concept of replacing ration cards with automated grain dispensing machine which works on RFIDs and GSMs to prevent wastage and malpractices within the system.
2	January 2014	Computerization of TDPS Operations	Ministry of Consumer Affairs, Food & Public Distribution have suggested digitization of the PDS to ensure the abolishment of the malpractices.
3	September 2016	Novel Approach for PDS Using RFID	Sushmitaet al., in an attempt to eradicate corruption in ration distribution, have suggested that the ration books be replaced by ration smart cards that will have all details related to the beneficiary and the system.
4	January 2017	A Survey on Smart Ration Card System	Golden Bagulet al. suggest use of QR codes to accessing the data corresponding to the beneficiary from the government's database and then using biometric sensors to authenticate the transaction of food grains

In order to make the PDS system more effective and less error prone, many measures were taken by the state governments from time to time by incorporating the technology based solutions. Table II summarizes the technology-based reforms implemented by different states.

S.no	**Kinds of Reforms**
1	Digital ration card distribution
2	Allocation to Fair Price Shops via computers
3	Usage of Smart Cards instead of Ration Cards
4	Utilization of Global Positioning System (GPS) Technology

5	Monitoring using SMS
6	Use of Web-Portals

1) Introduction of End-to-End Automation: The integration of technology into PDS has resulted in streamlining the entire supply chain, from procurement to distribution. Automation has minimized human intervention, reducing the scope for corruption and ensuring a seamless flow of commodities.
2) Aadhaar Integration: Linking the PDS with Aadhaar, India's biometric identity system, has facilitated accurate targeting of beneficiaries, preventing ghost beneficiaries and duplicate ration cards. This integration has led to more equitable distribution of benefits.
3) Online Tracking and Monitoring: The introduction of online platforms for tracking and monitoring PDS operations in real-time has brought greater accountability. Citizens can access information about stocks, allocation, and distribution, promoting transparency.

Benefits of e-governance in PDS:
a) Reduced Leakages and Pilferages: e-Governance tools have significantly minimized leakages and pilferages in the PDS. The use of technology, like biometric authentication, has made it nearly impossible for ineligible individuals to avail of the benefits. b) Targeting Accuracy: Aadhaar integration has enhanced the precision of beneficiary targeting, ensuring that subsidies reach the intended recipients. This has reduced the burden on the exchequer and enabled better resource allocation. c) Improved Service Delivery: The introduction of digital platforms has led to a more streamlined and efficient distribution process, resulting in quicker and more reliable access to essential commodities for beneficiaries.

Challenges and Mitigation:
Digital Divide: While e-Governance has brought many benefits, the digital divide in India remains a challenge, with certain sections of the population lacking access to technology. Efforts are required to bridge this gap and ensure inclusivity. In the context of the PDS, it manifests in the unequal access to technology and the internet, hindering the adoption of e-Governance initiatives aimed at improving the system's transparency and efficiency.

1) Limited Access to Technology: In many rural and remote areas of India, access to computers, smartphones, and the internet is limited or non-existent. Without access to these technologies, beneficiaries may face challenges in accessing information about the PDS, checking their entitlements, or registering for the program. 2) Low Digital Literacy: Even if some beneficiaries have access to technology, low levels of digital literacy can hinder their ability to effectively use digital platforms and online services. Difficulty in navigating digital interfaces may prevent them from availing themselves of the benefits of the PDS. 3) Biometric Authentication Challenges: Aadhaar-based biometric authentication, a key feature of e-Governance in the PDS, can face challenges in areas with poor internet connectivity or malfunctioning biometric devices. This can result in delays or errors during the authentication

process, affecting the timely distribution of commodities. 4) Language Barriers: Many digital platforms and applications related to the PDS are primarily available in English or major regional languages. This can be a barrier for beneficiaries who are more comfortable with local dialects or languages with limited digital content. 5) Cost of Technology: The cost of owning and maintaining digital devices, along with internet expenses, can be prohibitive for low-income families. Affordability issues may prevent them from adopting the necessary technology to access PDS-related services. 6) Administrative Challenges: Government officials responsible for PDS implementation may also face challenges due to the digital divide. In areas with limited connectivity and resources, monitoring and data management become more difficult, leading to potential inefficiencies.

Addressing the digital divide in the PDS requires comprehensive strategies to ensure inclusivity and equitable access to e-Governance initiatives. Some potential measures include: a) Establishing PDS centers with digital facilities in underserved areas to assist beneficiaries with registration and accessing services. b) Conducting digital literacy and training programs to empower beneficiaries in using digital platforms effectively. c) Developing multilingual interfaces for digital PDS services to cater to diverse language preferences. d) Utilizing SMS services and offline modes for information dissemination in areas with limited internet connectivity. e) Partnering with non-governmental organizations and private sector players to bridge the digital gap through CSR initiatives.

By addressing the digital divide, the PDS can reach its full potential in bringing transparency and efficiency to the distribution of subsidized commodities, ensuring that the benefits of the system reach all eligible beneficiaries, regardless of their digital capabilities.

Data Security and Privacy: The collection and storage of personal data through Aadhaar integration raise concerns about data security and privacy. Robust data protection measures and legal frameworks are essential to address these concerns.

Examples of EPDS

1:Tamil Nadu: The state of Tamil Nadu witnessed significant improvements in PDS efficiency after adopting e-Governance measures. Automation of the supply chain, digitization of beneficiary databases, and smart card-based distribution led to better transparency and targeting.

2:Chhattisgarh: Chhattisgarh's implementation of biometric authentication and GPS tracking in its PDS has resulted in reduced leakages and improved service delivery.

Conclusion:

The research paper concludes that e-Governance has revolutionized India's Public Distribution System by promoting transparency and efficiency. Through end-to-end automation, Aadhaar integration, and online monitoring, leakages have been reduced, targeting has become more accurate, and service delivery has improved. While challenges like the digital divide and data security exist, the overall impact of e-Governance on PDS has been positive, ensuring better access to essential commodities for millions of vulnerable citizens. Future efforts should focus on further integrating technology and addressing the remaining challenges to enhance the efficacy of the PDS and benefit more beneficiaries.

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