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REVIEW ARTICLE

IMPACT OF ICT REFORMS ON PUBLIC DISTRIBUTION SYSTEM IN ANDHRA PRADESH – A REVIEW

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ABSTRACT

The Public Distribution System (PDS) plays a significant role in the Indian 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 subsidized rates. While the social objective is of protecting poor citizens from the vagaries of market forces, the PDS current system has several well documented problems such as lack of transparency, accountability, poor governance and poor service delivery mechanisms. An important problem is the inaccurate identification of beneficiary households, which has resulted in eligible households being excluded (exclusion errors) and some ineligible households being included (inclusion errors) in the system. Another major shortcoming of the PDS is that beneficiaries often do not receive their full entitlement. This can happen either due to the diversion of grains by FPS owners to the open market or the non-availability of food grains. Because of these problems the real benefits is not reaching to the beneficiaries. The Public Distribution System in Andhra Pradesh started in 1974. Andhra Pradesh State has undertaken various PDS reforms from time to time to make its implementation more effective. In recent years, the central government, with the help of several state governments, has embarked on an ambitious initiative towards the end-to-end digital transformation of the PDS to address these problems. A key component of this initiative is the digitization of the beneficiary database and linking ration cards to Aadhaar numbers, referred to as 'Aadhaar seeding'. This process intends to root out duplicate cards in the system and also prevent the creation of new ones in the future. Another key component, complementary to Aadhaar seeding, is the use of point of sale (POS) devices at FPSs. These devices help to reduce the diversion of grains by enabling authentication of beneficiaries through linkage to Aadhaar and biometric details, accurate recording of the quantity of grains sold to beneficiaries through the integrated weighing machine, and uploading of transaction data to the central server. To improve the efficiency of PDS introduction of Information Technology in the PDS is identified as the best practice. The present paper seeks to examine the objectives of Aadhaar Enabled Public Distribution System (AePDS) and this study also aims at the impact of ICT reforms increases the transparency of the commodities delivery process in PDS system. In this back drop, this paper finally studies the problems relating to the implementation of PDS and challenges of Aadhaar Enabled Public Distribution System (AePDS). Therefore, the purpose of this study reveals technology driven PDS will bring in transparency.

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INTRODUCTION

The Public Distribution System (PDS) means distribution of essential commodities to a large number of people through a network of Fair Price Shops on a recurring basis. It facilitates supply of food grains and essential commodities at subsidized prices. Andhra Pradesh State Public Distribution System is comprised of 3.85 crore beneficiaries (BPL card holders) and 28,599 Fair Price Shops (ration shop) spreading across all the 13 districts. The beneficiaries are issued smart ration card or Aadhaar-based household card that contains the UID number, demography and biometric details of each family member with a thumbnail photograph of every person in the family.

Smart ration cards enable the beneficiaries to make transactions at Fair Price Shops with a hand-held POS machine. Keeping in mind the delivery of food grains to the authentic beneficiaries, the officials to installed iris recognition equipment, and bio-metric and finger print-enabled e-POS machines in all Fair Price Shops (FPS) across the State. Y Vishwanath, Senior Consultant (Technical) and Head of PDS Aadhaar Linking Project, said, "As many as 7,595 e-POS devices-cum-electronic weighing machines have been installed at Fair Price Shops in the State. Besides, we have e-PDS and Supply Chain Management system to ensure delivery of commodities and monitoring at all levels, i.e. FCI godowns, Mandal Level Storage (MLS) and FPS."

Review of literature

Dreze and Sen (2013) make a distinction between old style PDS in operation in most states a few years ago and new style PDS in operation in the better performing states like Chhattisgarh, Tamil Nadu and Kerala etc. While the old style of PDS suffered from a number of problems like large scale diversion and exclusion errors, the new style of PDS has been able to tackle these interrelated problems through various state level initiatives notable among them being expansion of coverage, price reduction and the introduction of modern IT based technology. Most importantly, people now are much more aware of their rights and entitlements and are more willing to defend them. Planning Commission (2010) concentrated on several measures to strengthen the present structure of TPDS notable among them being the introduction of UIDAI Aadhaar and Technology –based reforms initiated by the states. The government has proposed to link the TPDS with the UID Aadhaar scheme and expects that the scheme would play an important role in addressing inclusion / exclusion errors, checking diversion and leakages, assisting food grain management and ensuring accountability. Shoshana Amielle Magnet, in her book *When Biometrics Fail* (2011), argues that biometric systems around the world have largely failed to provide their intended benefits and instead often ended up perpetuating gender, ethnic, cultural, and socio-economic inequalities.

Objectives

The main objectives of this paper are as follows.

- This study seeks to examine the objectives of Aadhaar Enabled Public Distribution System. (AePDS)
- This study aims at the impact of ICT reforms increases the transparency of the commodities delivery process in PDS system.
- To study the problems relating to the implementation of PDS and challenges of Aadhaar Enabled Public Distribution System.

MATERIALS AND METHODS

This study has been conducted on the basis of secondary data. The secondary data has been compiled from the Planning Commission, various journals, books, internet sources and other published papers etc.

Objectives of AePDS

Aadhaar enabled Public Distribution System is a unique attempt piloted in Krishna District in improving the quality of services under the public distribution system. The PDS program in Krishna leverages the Aadhaar platform in delivering the food commodities to the eligible beneficiaries. The Aadhaar enabled Public Distribution System (AePDS) is implemented in entire Krishna district since May 2015 covering 50 mandals (blocks) in 1254 villages through with 2161 Fair Price Shop outlets. The percentage of population covered The Aadhaar enabled Public Distribution System in Krishna involves 11.9 lakhs ration cards comprising 36.6 lakhs units (beneficiaries), which is 80.4% of the total population of the district - 45,17,398 (as per 2011 census).

Objectives of AePDS: The following are the main objectives of Aadhaar enabled Public Distribution System.

- To issue food rations to the genuine and eligible card-holders in time.
- To make a fool proof PDS System, free from hoarding, stock diversions and corruption.
- To monitor the movement of PDS stocks right from the FCI godown to fair price shop point until it reaches the consumers.
- To improve service delivery through online real time transactions.

Impact of ICT reforms on PDS

The impact of information Technology in the Public Distribution System increases the transparency and also positive impact in identifying the real beneficiaries. Still that the illiterate people and the old age group are not having aware about the uses of information technology they are having some insecurity feeling therefore it is better to create awareness about the Information Technology uses in Public Distribution System. Increase the efficiency in biometric authentication process. AePDS has been successfully able to improve the PDS services in Krishna district.

1. **Last mile delivery:** More than 3 million beneficiaries at every corner of the district, receive their food rations in time without causing any delays.
2. **Savings in subsidy:** The program has been able to save up to Rs.90 crores worth subsidy of food grains so far since its implementation in the district.
3. **Timeliness:** More than 80 percent of the PDS distribution happens within 10th of every month.
4. **Efficiency Enhancement:** There has been an improvement in enhancing efficiency in PDS. The volume of transactions processed i.e., 14,158 tonnes of rice and 547 tonnes of sugar, 1,174 tonnes of wheat and 1,174 tonnes of wheat flour, etc on a monthly basis to the beneficiaries are delivered with zero pilferage. The practices of improper closing balances (earlier shown as 0 every time) are now completely prevented. New stocks are replenished to the outlets based on the sale made as per the previous month and only the differential stock is supplied.
5. **Number of trips:** The Number of trips required by a beneficiary to avail rations has reduced from 4-5 times to 1time. Also the time taken to process, each transaction has been drastically reduced.
6. **Accuracy:** The beneficiary details are constantly updated so that there is accuracy of output. The server has been constantly updated with all the changes required from the beneficiaries end including their biometrics. Hence the database is completely saturated with latest details. Therefore the accuracy of the output is precise to percent.
7. **Abled or disabled beneficiaries:** For specially abled or disabled beneficiaries rations are delivered at their door step by Fair Price shop dealer taking their biometrics.
8. **Other Services – MDM, ICDS:** The AePDS is also catering its services to Mid-day meals program,

Integrated Child Development Scheme (ICDS) and Social welfare school hostels. 3,157 primary, upper-primary and high schools 3,812 Anganwadi centres and 113 hostels in Krishna District are availing their monthly food commodities from AePDS program. This eventually means that there are no pilferages in distribution of food commodities in these programmes as well.

9. **Sustainability and Scalability:** The AePDS program is very much sustainable and economically viable. This can be validated from the fact that Krishna district was able to save Rs.88.9 crores worth of subsidy in the last 15 months from May 2015. Compared to this savings, the installation cost for setting up infrastructure like computers and peripherals, e-PoS devices, Iris scanners is negligible.
10. **Replication in Andhra Pradesh:** The AePDS program, after its success in Krishna district, got replicated in all the 13 districts across the Andhra Pradesh in Oct 2015. All the 28,642 fair price shops in Andhra Pradesh deliver ration through online aadhaar biometric authentication. This has provided a great impetus to effective delivery of services under PDS. The state government is able to save approximately Rs.1200 crores worth subsidy since its roll-out in the state. Nearly 3.8 crore PDS beneficiaries in Andhra Pradesh receive their food entitlements in a hassle-free and comfortable way, importantly, in-time from any fair price shop outlet of the state of their choice.
11. **Recognition at National and International Level:** Ever since the implementation of AePDS program in Krishna district, the program has been well appreciated among various levels of governance. Many senior dignitaries including the Chief Economic Advisor to the Honourable Prime Minister, Shri. Arvind Subramian visited Krishna to see the implementation of AePDS. Senior Financial analysts from World Bank, US Consulate, Secretaries of Central and State governments have visited Krishna for studying the program. A high level team of Tanzanian officials have also come for a field-level survey to study the program. Implementation of AePDS is being documented by World Bank as one of the success stories with potential to be replicated in other countries as part of its Identity for Development initiative.

Problems and challenges relating to the implementation of aepds

Early evidence suggests that all the above intended benefits may not be realized due to operational problems.

1. **Exclusion Errors:** Firstly, the lack of an Aadhaar number automatically disqualifies eligible individuals from being listed in the household ration card. There is a risk of exclusion error due to either incorrect mapping of ration card to Aadhaar details or deactivation of Aadhaar numbers for a multitude of reasons, for instance, document verification failure or imprecise capture of biometric details.
2. **PoS Malfunction and Failed Fingerprint Authentication:** Beneficiaries could lose their

entitlements because of authentication failures due to either poor quality of fingerprints. The other problems that have been encountered during implementation are frequent breakdowns of POS machines and the consequent need for frequent maintenance.

3. **Poor Internet Connectivity:** The internet is the essential infrastructure on which the Aadhaar Based Biometric Authentication (ABBA) rests. Beneficiaries could lose their entitlements because of authentication failures due to either poor quality of fingerprints or even poor internet connectivity. Internet connectivity has frustrated not just beneficiaries but also dealers.
4. **Ration Card Woes:** There are several instances of persons still in possession of their old ration cards. Despite completing the application procedure and receiving official communication of approval via a paper slip or SMS, they had not received their new ration card and were not getting rations. They were not aware of any grievance redressal mechanism.
5. **Failure of Aadhaar authentication for old-aged people:** There are few cases of old aged beneficiaries who had problems with Aadhaar authentication were observed. Though the percentage of such people in the total population is low but this has been a universal problem to which a solution does not seem in sight.

Way ahead

With the successful computerization of all the components linked with Fair Price Shops in Krishna District, Government of Andhra Pradesh has rolled out the Krishna model to remaining 28,000 Fair Price Shops across the State. With this Biometric enabled foolproof system, the government of Andhra Pradesh saves about an amount of Rs.1300 Crores per annum. With the AePDS, Krishna District has emerged as first district in the country having 100 percent digitized Public Distribution System. This system helped in saving in subsidy to the government of India and government of Andhra Pradesh to the extent of 12 to 13 crores every month from Krishna District alone.

Conclusion

End-to-end automation of processes, along with digitization of beneficiary data, has made PDS in AP robust and accountable. Real-time information generation provides a clear digital trail for each transaction. This system was quite expensive and the set up cost of one FPS was approximately 55,000 (USD 808). This totals to 1,556 million (USD 23 mn) for 28,295 FPSs. However, the resultant savings, which in Micro Saves estimate are around 2,250 million (USD 34 mn) per annum, have made it a worthwhile investment. The best practices adopted by AP make it a case worthy of emulation by other states. Prioritizing both transparency and efficiency, these initiatives ensure that the poor households have access to their entitlements, are not inconvenienced, and save the government huge amounts by controlling the diversion of stocks and plugging leakages in the delivery channel. Technocratic understanding of the efficiency of Aadhaar Based Biometric Authentication (ABBA) is ignorant of the multiple hardships that ABBA has created as well as aggravated As Khera (2013) notes, while it is essential to deal with issues of duplication, less disruptive methods than Aadhaar such as food coupons, smart cards, and

last-mile tracking can be used to produce the same effectiveness with far less administrative burden.

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