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Public Distribution System in Tamil Nadu: Implications for Household Consumption

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About this paper

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Acronyms

AAY	Antyodaya Anna Yojana
AIADMK	All India Anna Dravida Munnetra Kazhagam
APL	Above Poverty Line
BPL	Below Poverty Line
DMK	Dravida Munnetra Kazhagam
FAO	Food and Agriculture Organization of the UN
FCI	Food Corporation of India
FPS	Fair Price Shop
GoI	Government of India
GoTN	Government of Tamil Nadu
GPS	Global Positioning System
IFPRI	International Food Policy Research Institute
KBK	Kalahandi Bolangir Koraput
MPCE	Monthly Per Capita Expenditure
NFSA	National Food Security Act
NSSO	National Sample Survey Organisation
PDS	Public Distribution System
RDA	Recommended Daily Allowance
RPDS	Revamped Public Distribution System
SMS	Short Message Service
TN	Tamil Nadu
TNCSC	Tamil Nadu Civil Supplies Corporation
TPDS	Targeted Public Distribution System
UNWFP	United Nations World Food Programme

Abstract

This paper explores the role of the Public Distribution System (PDS) on consumption and household savings, across different sections of population, in rural and urban Tamil Nadu. Using NSSO data for the year 2011-12 as well as data from a primary study conducted in 2015, the paper demonstrates a significant, positive contribution of PDS to cereal/calorie consumption and savings across all sections of the population in Tamil Nadu. In this, the importance of PDS is found to be much higher among the poorer sections of the population compared to the rest in both rural and urban areas of Tamil Nadu. The findings are important in the current context where direct food transfer programmes, such as the PDS, are seen to be less effective compared to cash transfers.

I. Introduction

Food and nutrition insecurity is a reality for a large number of people in India. This is reflected in the estimate of the number of hungry persons in India at 190.7 million in 2014-16, i.e., around 14.5 per cent of the population (FAO 2017). Further, India ranks 100 in the Global Hunger Index of 119 countries in 2017 (IFPRI 2017). Social safety nets to ensure food security of the poor and vulnerable become important in such a scenario. The Public Distribution System (PDS) in India is an example of one such safety measure. PDS distributes essential cereals such as rice and wheat as well as sugar and kerosene to people at subsidised prices through a network of fair price shops (FPS), popularly referred to as ration shops. Started as a war-time food rationing measure in India in 1942, it has been in operation for well over seven decades and functions under the joint responsibility of the central and state governments. The Food Corporation of India (FCI) established in 1965 procures essential foodgrains on behalf of the central government.

PDS is the world's largest public food distribution system and entails delivery of primarily rice and wheat through designated FPS throughout the country. It has seen many changes since inception; two major measures were moving from a universal system to a targeted approach under the revamped public distribution system (RPDS) in 1992. RPDS engaged in geographical targeting in that it made foodgrains more cheaply available in some regions as compared to the rest of the country. This was followed by the targeted public distribution system (TPDS) in 1997, limiting coverage at subsidised prices to below-poverty-line households.

The central government has the responsibility for procurement, storage, transportation and bulk allocation of foodgrains in the PDS, while the operationalisation and distribution of the foodgrains to consumers through a network of ration shops rest with state governments. The system of distribution of foodgrains varies from one state to another. Although PDS is a centrally-sponsored programme, effective implementation by the particular state government is critical to ensure the food security of the poor in that state. Kumar et al. (2015) observed that the contribution of PDS is not restricted to poverty reduction but also acts to improve nutrition intake. Himanshu and Sen (2013) in their country level analysis found that transfers from PDS have a positive impact on calorie intake. A study conducted by Rahman (2015) in the Kalahandi-Balangir-Koraput (K BK) districts of Odisha found that universal PDS entitlements in the K BK region had an impact on the nutrient intake and dietary patterns of the households.

This paper attempts to analyse and understand the role played by PDS in Tamil Nadu, which has been a pioneering state in implementing the programme and also in introducing initiatives over and above the national mandate. It was also the first state to introduce free and universal mid-day meals in primary schools in the year 1962-63 (Athreya 2011). Tamil Nadu has been ranked first among major Indian states with regard to the overall quality of five basic public services: the public distribution system, supply of drinking water, primary health care, primary education and public transport (Paul et al. 2006).

Political commitment for implementing PDS in the state started in 1967 when the political party Dravida Munnetra Kazhagam (DMK) promised 3 measures of rice per rupee through PDS in its election manifesto. DMK won the assembly elections with a thumping majority, defeating the then ruling Congress party. Post 1967, successive governments, even if from a different political party, attached great importance to PDS and ensured the availability of at least one ration shop in each revenue village.¹ It has also been noted that PDS issue prices in Tamil Nadu have always been lower than the central government's issue prices (Venkatsubramanian 2006).²

The state has a universal PDS and the FPS are managed by cooperative societies.

In 1992, when RPDS was introduced with the aim to cover only poorer regions, the All India Anna Dravida Munnetra Kazhagam (AIADMK) government continued with the universal system of PDS coverage in the state. Similarly, in 1997 when TPDS was introduced by the central government, the DMK government in the state did not accept it. Indicating the importance attached to PDS by political parties, the Food Minister of Tamil Nadu stated in 1998 that: "It is not an exaggeration if it is said that the success of PDS is the parameter for the successful governance of the state" (GoTN 1997:3). This condition holds good even today in the state.

Tamil Nadu's coverage and performance of PDS has been consistently better than most other parts of India. There were around 1.3 ration shops per revenue village in the state as against 0.68 ration shops per revenue village in India on the whole in 1992 when RPDS was introduced. While RPDS focused on increasing the number of ration shops across India, it had minimal impact in Tamil Nadu as the density of ration shops in the state was already nearly twice the national average. When TPDS was introduced by the Government of India in 1997, Tamil Nadu had TPDS only for four days and reverted back to the 'universal' system due to enormous pressure from the people as well as the political parties (Swaminathan 2009). The following reasons were cited for not following TPDS:

- Poverty being a relative concept, there is no acceptable criteria or methodology for error-free enumeration, as the indexing method is also not free from defects. There are chances in the existing system for a larger number of exclusion errors, resulting in high social costs.
- Being a dynamic concept, the status of being poor at the time of enumeration keeps changing. For instance, natural calamities like drought and flood may alter the position drastically and push large numbers of vulnerable families from APL category into actual BPL status, even if this is not officially recognised.

¹ In Tamil Nadu there was an increase in number of ration shops from 9300 in 1977 to 17536 in 1982.

² Issue price is the price at which the consumer is able to access the commodity in the ration shop. The Central Issue Price refers to the price at which the central government issues the commodity to the state.

- Agency bias and field level problems in enumeration make it administratively difficult and more risky to ensure better food security to the people (Gol 2009).

Khera (2011) found that the universal PDS implemented in Tamil Nadu had less leakage than the targeted PDS of Bihar. Dreze (quoted in Vivek 2015: xi) remarks: “...effective public services became one of the defining characteristics of Tamil Nadu’s approach to development”. Further, Jeyaranjan notes that “strengthening the PDS and subsidising the staple food, namely rice, by the state is a central agenda of Tamil Nadu politics since 1967” (Jeyaranjan 2011:71). On the same lines, Vivek, in his study on delivery of public services in Tamil Nadu, attributes the state’s performance to the government’s commitment combined with intense public action (Vivek 2015). Anjana Thampi observes that there is a significant positive impact of PDS on longer-term nutrition indicators in Tamil Nadu (Thampi 2016).

While a large number of studies have looked into aspects related to the functioning and management of PDS, there are only a few studies on the impact of PDS on poverty. An estimation of the impact of PDS on rural poverty by Dreze and Khera (2013) showed that Tamil Nadu and Chhattisgarh, both with a well-functioning PDS, showed better impact on rural poverty compared to Jharkhand and Uttar Pradesh where the performance of PDS was poor.

A review of literature (Kumar et al. 2015) indicates that though there are studies that look at the relationship between PDS and calorie consumption, there is hardly any literature on the impact of PDS across different sections of population. This paper attempts to address the gap in the literature by examining the contribution of PDS to household consumption in Tamil Nadu, a state where PDS is acknowledged to be functioning well.

The main objectives of the paper are:

- To examine the contribution of PDS to household cereal consumption and calorie intake across different sections of population in Tamil Nadu
- To examine the implications of in-kind food transfer on household savings across different sections of population in Tamil Nadu

In each case, the situation in Tamil Nadu is juxtaposed with the all-India picture.

The paper has six sections: section 2 surveys the data used in setting down the findings; section 3 presents the salient features of PDS in Tamil Nadu; section 4 is a discussion on household consumption of cereals (rice and wheat) across different monthly per capita consumer expenditure classes (MPCE³) in the state. This is supplemented by analysis of the contribution of PDS to household consumption across different sections based on primary survey. Section 5 describes the

³NSSO classifies the surveyed households into 12 classes on the basis of their monthly per capita consumption expenditure. “The MPCE classes for the rural sector were in fact so formed that the first two and the last two classes each contained about 5% of the rural population, according to the present survey...and the remaining classes each contained about 10%. The classes for the urban sector were formed similarly” (NSSO 2014: 6). The value of MPCE classes for rural and urban areas are different and to enable comparison the classes are numbered from 1 to 12. Class one (<=Rs.525 in rural and <=Rs. 725 in urban) represents the lowest expenditure group and the 12th class (>Rs.2625 in rural and >Rs.6015 in urban) the top expenditure group.

impact of PDS on household savings and section 6 provides the major results and the concluding observations.

2. Methodology

The study used data from published sources and from a primary survey in a village. To understand the macro scenario of consumption patterns in Tamil Nadu, the latest available data from the National Sample Survey Organisation (NSSO) 68th round for the period 2011-12 has been used. The focus of the secondary data analysis has been to understand the macro scenario with respect to PDS utilisation across different sections of the population, in Tamil Nadu and all India, during 2004-05 and 2011-12. Since May 2011, rice in PDS has been distributed free of cost in the state. In order to understand the implications of this 'zero cost' rice distribution, a primary survey was conducted in 2015 in Taludali, a revenue village in Villupuram district. The primary survey was in two stages. First, a complete house listing⁴ was done. The house-listing questionnaire collected information from all the households in the selected village. The aspects covered in the questionnaire pertaining to the households included: demography, caste, education, landholding, cropping pattern, ownership of productive assets, ownership of consumer durables, type of housing, nature of employment and details on PDS entitlement.⁵ Using the data, the households were classified into three categories based on their levels of food insecurity. At the second stage of the primary survey, a sample was drawn from each of the three categories of households for a detailed study on the functioning of PDS. The village survey provides information on various aspects of the functioning of PDS as also its impact on household consumption and savings. It also supplements the macro context provided using NSSO data.

3. Salient Features of PDS in Tamil Nadu⁶

3.1. Universal approach

The Tamil Nadu Civil Supplies Corporation (TNCSC) established by the Government of Tamil Nadu in 1972 plays the role of a wholesale agent for the state government in procuring and distributing all the commodities distributed in PDS, except kerosene. The Government of India (GoI) has nominated TNCSC as the authorised agency on behalf of the state under the decentralised procurement system (GoI 2002). While TNCSC procures essential commodities distributed in PDS, lead cooperative societies (consumer and marketing) procure these commodities from TNCSC and deliver them to primary agricultural co-operative societies that act as link societies in every district sub-division or taluk. Ration shops are run by both the lead and link societies and supply commodities to the card holders. TNCSC procures and stocks the essential commodities in its godowns spread across the state. The ration shops get their stock every month from the taluk-level godowns as per allocation made to them by the district authorities.

⁴ The house listing was carried out in January 2015.

⁵ We avoided collecting data on income of the households due to well known problems associated with that.

⁶ This section is largely drawn from policy documents of the Department of Food and Consumer Protection, GoTN, for various years through <http://www.tn.gov.in/documents/dept/5>.

Tamil Nadu implemented the National Food Security Act (NFSA), enacted in 2013, in November 2016. An important feature of PDS in Tamil Nadu, in both the pre- and post- NFSA periods, has been the adoption of a universal approach. In the pre-NFSA period, the universal approach entailed that households were not classified as Below Poverty Line (BPL) or Above Poverty Line (APL), a practice different from the rest of India. According to NFSA, only such households that are classified as 'priority households' are eligible for subsidised items from PDS. In implementing NFSA, the Government of India had fixed the percentage of priority households in Tamil Nadu at 62.55 per cent in rural areas and 37.79 per cent in urban areas. However, the state government decided to retain and continue with the universal PDS, wherein rice is supplied to all rice cardholders without any discrimination and at zero cost. Till October 2016 (pre-NFSA), Tamil Nadu had been following unit-based entitlement for cardholders and the norm was 4 kg of rice per adult and 2 kg of rice per child per month, subject to a minimum of 12 kg of rice and maximum of 20 kg of rice per month per card. Ten kg of wheat per card per month is the norm in all district headquarters while it is 5 kg of wheat per card per month in other areas. Further, in 2007, a special PDS (SPDS) came into operation and red gram, black gram, cooking oil and wheat products were supplied to cardholders at subsidised prices.⁷ While NFSA stipulates that every person belonging to priority households shall be entitled to 5 kg of foodgrains per month and Antyodaya Anna Yojana⁸ (AAY) families would be entitled to get 35 kg of foodgrains per month at subsidised prices, Tamil Nadu with its universal approach extended this entitlement to all households. Since November 2016, all rice card holders in the state have been eligible for 5 kg of rice per person per month and the quantity supplied is not less than the minimum entitlement of 12 kg per household prevalent in the PDS implemented in the pre-NFSA period. Moreover, the upper ceiling of 20 kg per card per month which was the norm has been removed. Thus, a single adult member household in Tamil Nadu is entitled to 12 kg of rice per month, though the monthly entitlement under NFSA is only 5 kg. Similarly, a household with two adult members will get 16 kg (12 kg + 4 kg) of rice per month as per the norms of the pre-NFSA period and not just their monthly entitlement of 10 kg under NFSA. Further, if there are 7 members in a household, they will get 35 kg of rice per month instead of the pre-NFSA entitlement of 20 kg per month. The increased quantity of rice distribution in PDS in Tamil Nadu has cost implications for the state, with the subsidy burden estimated to go up by Rs.11933 million a year from the pre-NFSA annual expenditure of Rs.23933 million (Govindarajan 2016). However, Tamil Nadu has broadened the scope of NFSA by retaining the universal approach in PDS as well as in safeguarding the minimum entitlement to a household.

The budget estimates towards food subsidy incurred by the state for supply of essential commodities under PDS — including special PDS — was Rs.53000 million in 2014-15 which was roughly around 0.55 per cent of the Gross State Domestic Product (GSDP).⁹

3.2. Low or zero issue price

Another significant feature is the issue price of rice distributed in PDS. The issue price of rice in PDS in Tamil Nadu has been the lowest in the country since June 2006. It was Rs.2/kg from June

⁷ Scale of supply and price under SPDS – Red gram (1 kg @ Rs.30/kg); Black gram (1 kg @ Rs.30/kg); Palmolein oil (1 litre @Rs.25/litre); Fortified wheat (1 kg @ Rs.11/kg) and Spices (2 packets per card @ Rs.25/packet).

⁸Antyodaya Anna Yojana (AAY) is a Government of India sponsored scheme to the "poorest of the poor" providing them 35 kilograms of rice and wheat at a highly subsidised cost of three rupees per kilogram of rice and two rupees per kilogram of wheat.

2006 to 14 September 2008 and it further reduced to Re.1/kg from 15 September 2008 to May 2011. Since June 2011, rice has been distributed at no cost (totally free) in PDS for all card holders (MSSRF-UNWFP 2008 and GoTN 2014). In the post-NFSA period also, the price of rice at Rs.3/kg stipulated in the Act is not being charged. One finds that the prevalent rules that were favourable for the households have been retained by the Tamil Nadu government even while implementing the NFSA.

3.3. Categories of cards

A system of optional ration cards is implemented in the state, where people have the option to choose from four different categories: rice cards, sugar cards, “no commodities” cards and khaki cards. Rice cards are issued to those who opt to procure rice and other commodities from PDS; sugar card holders are entitled to get sugar and other commodities except rice and they get 3 kg of extra sugar besides the normal quota of 500 gm/person/month; “no commodities card” (white card) holders are not entitled to draw any commodity from PDS and are used merely as identity cards; police cards or khaki cards are issued for police personnel.

As on June 2016, the state had around 20 million cards of which 94 per cent were rice cards. Further, there were 34686 PDS outlets of which 25532 (74 per cent) functioned as full-time shops while 9154 (26 per cent) operated as part-time shops.

In the post-NFSA period, all ration cards were seeded with Aadhar numbers. Tamil Nadu is in the process of issuing smart cards to the households to access PDS entitlements.

3.4. Management aspects

A significant aspect of PDS in Tamil Nadu is that no private trader is given license to operate a PDS outlet or ration shop. The ration shops are predominantly run by co-operatives registered under the Registrar of Co-operative Societies (94 per cent); a limited number (4 per cent) are directly run by Tamil Nadu Civil Supplies Corporation (TNCSC), one per cent by women self-help groups and one per cent by other co-operatives. This system has proved to be advantageous as the wholesaler is a government corporation and all the retail shops are either government-run cooperatives or under the control of the Civil Supplies Department. Since the early 2000s, many important administrative measures have been initiated to improve the functioning and effectiveness of PDS in Tamil Nadu (Policy Documents, GoTN, various issues).

An online allotment/billing system is in operation, where allotment details are put on a website for public scrutiny. The online allotment system is used by all Taluk Supply Officers. Data from this portal is made available to beneficiaries through Short Message Service (SMS). Tamil Nadu also has a system where PDS stock can be obtained by sending a SMS. The ration card holders can receive information on the availability of stocks in their respective PDS shop by sending a SMS. This simple transparency measure is intended to reduce the scope of leakages, smuggling and corruption.

Vehicles carrying foodgrains are fitted with Global Positioning System (GPS) for monitoring movement of foodgrains from the Food Corporation of India (FCI) to TNCSC godowns, to ensure that the grains reach the godowns without diversion or pilferage on the way.

All ration card data has been digitised and ration cards are issued through the online application software at district level. All the ration shops in the state have been provided with electronic weighing machines to ensure that the cardholders are supplied foodgrains and other items of the correct weight.

These salient features have evolved over the years and have implications for the reach and depth of PDS in Tamil Nadu.

In Tamil Nadu, the monthly offtake of rice under PDS, including AAY, was 3.23 lakh mt in October 2016 (pre-NFSA period). The monthly allotment from Government of India is 2.96 lakh mt and therefore an additional requirement of 27969 mt of rice per month was being met by additional allocation from the central government at Rs.5.65 per kg. The annual expenditure incurred towards supply of 38.93 lakh mt of rice is Rs.23933 million.

4. Impact of PDS on Cereal Consumption

Cereals are the major contributors for calorie intake in the Indian diet. It was estimated that on an average, 57 per cent (1273kcal) of total calorie intake per person in rural India came from consumption of cereals while the corresponding figure in urban India was 48 per cent (1.59 kcal) in 2011-12 (NSSO 2014). In Tamil Nadu, the total calorie intake per person from consumption of cereals was 53 per cent (1088 kcal) for rural and 46 per cent (972 kcal) for urban areas.

4.1. Cereal consumption of households

The discussion in this section examines actual consumption levels of cereals across households, as also their access to PDS, in Tamil Nadu and all India.

The two major cereals distributed in PDS in Tamil Nadu are rice and wheat, with rice being the staple diet of the people. In 2011-12, 93 per cent of all rural households and 82 per cent of all urban households possessed ration cards. Though the reach of PDS in Tamil Nadu is significantly high, it is important to note that nearly 7 per cent of rural households and 18 per cent of urban households remain without access to PDS. **Table I** presents the percentage of households that have ration cards across different MPCE classes in the state and it is seen that the coverage is uniformly better in rural areas compared to urban sites. Almost all households in the lowest MPCE class report possessing a ration card in rural Tamil Nadu. About 0.1 per cent of rural households and 14 per cent of urban households do not possess ration cards in the lowest MPCE class. In contrast, the corresponding percentage for all India is 18 per cent in rural and 22 per cent in urban areas.

Table 1: Percentage of households possessing ration cards in Tamil Nadu and all India, 2011-12

MPCE Classes	Households Possessing Ration Cards (%)			
	Tamil Nadu		All India	
	Rural	Urban	Rural	Urban
1	99.9	85.7	82.4	77.6
2	94.6	91.7	86.5	78.0
3	98.2	94.1	84.6	75.1
4	94.2	90.6	84.8	77.1
5	92.4	81.9	86.1	73.5
6	95.5	88.5	85.8	74.2
7	94.0	85.9	87.4	71.4
8	96.4	79.1	87.3	67.9
9	91.7	77.9	87.4	63.3
10	94.6	77.9	87.2	61.0
11	89.3	65.9	87.8	60.4
12	76.3	68.9	77.4	44.8
All	93.1	82.1	85.7	67.4

Source: NSSO (2015)

Access to PDS has two dimensions — the number of households having ration cards and the number of households using their ration cards to procure subsidised cereals.

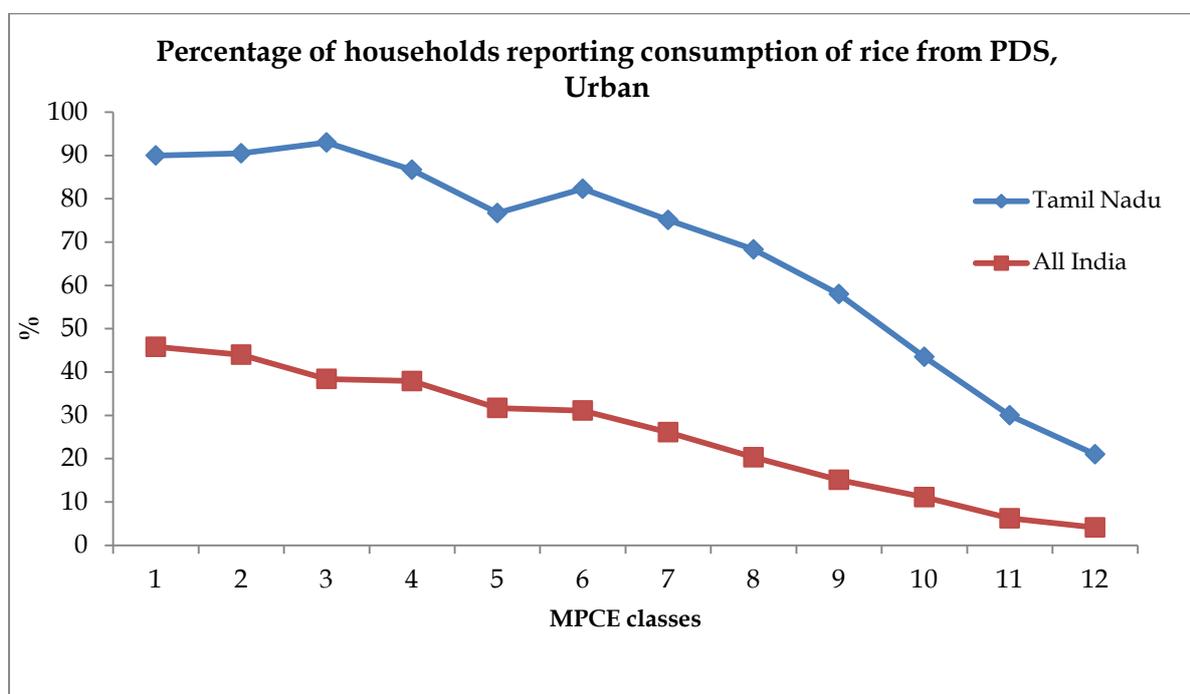
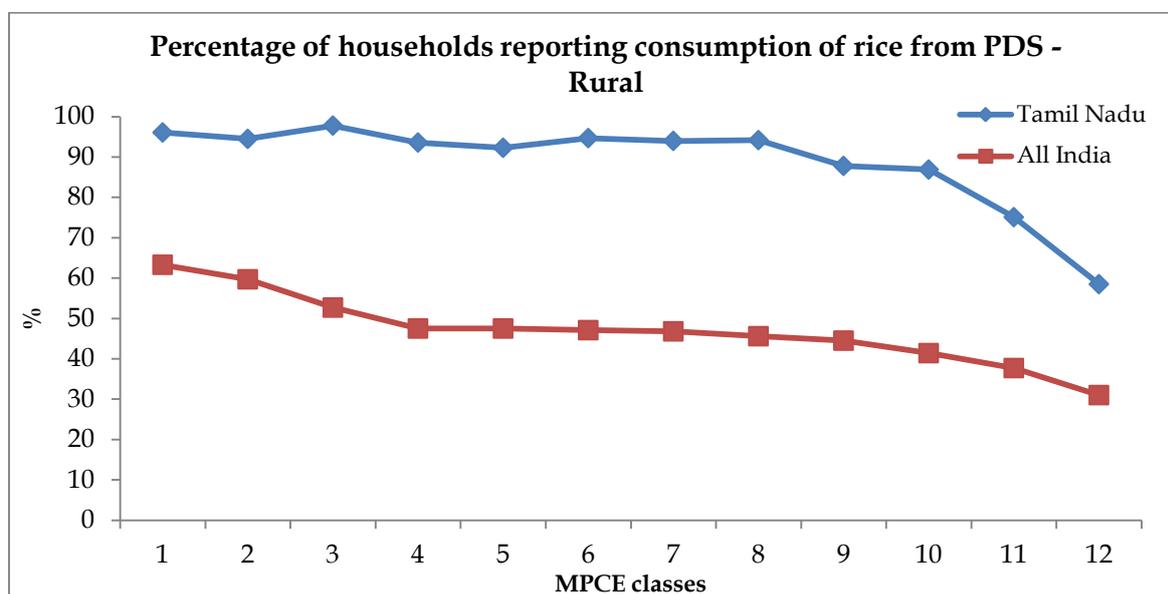
Table 2: Households reporting consumption of cereals from PDS, MPCE class-wise, Tamil Nadu and all India, 2011-12

MPCE Classes	Tamil Nadu				All India			
	Households Reporting Consumption of Rice (%)		Households Reporting Consumption of Wheat (%)		Households Reporting Consumption of Rice (%)		Households Reporting Consumption of Wheat (%)	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1	96.1	90.0	60.1	58.8	63.3	45.8	40.2	42.9
2	94.5	90.5	61.2	61.5	59.7	44.0	43.5	40.1
3	97.8	93.0	68.7	70.0	52.7	38.4	39.5	34.4
4	93.6	86.7	65.2	64.3	47.5	37.9	37.5	32.8
5	92.3	76.7	59.2	57.7	47.5	31.7	37.6	25.7
6	94.7	82.3	68.9	65.8	47.1	31.1	36.0	24.7
7	94.0	75.1	65.1	57.9	46.8	26.1	36.9	19.2
8	94.2	68.3	62.9	46.7	45.6	20.3	33.8	15.0
9	87.8	58.0	64.2	40.3	44.5	15.1	31.5	10.4
10	86.9	43.5	59.8	31.2	41.4	11.1	28.7	8.3
11	75.1	30.0	54.7	26.2	37.7	6.2	25.5	5.8
12	58.5	21.0	45.3	12.5	31.0	4.1	22.0	2.7
All	89.1	66.6	61.8	49.0	45.9	23.3	33.9	19.0

Source: NSSO (2015)

Table 2 shows that a significant percentage of households across all MPCE classes access rice and wheat from PDS, in Tamil Nadu. While 89 per cent of rural households and 66 per cent of urban households access rice from PDS, 62 per cent of rural households and 49 per cent of urban households access wheat. Up to the 8th MPCE class, 94 per cent of households access rice from PDS in rural areas while around 60 per cent access wheat. In general, the lower MPCE classes report a larger percentage of households consuming from PDS. That is, there is a general progression in the reach of PDS as we move from the higher MPCE classes to lower MPCE classes in rural and urban areas of Tamil Nadu. A larger percentage of rural households access rice from PDS compared to urban households across all MPCE classes in the state (Figure 1).

Figure I: Consumption of rice from PDS



However, the rural-urban differential is lower among the lower MPCE classes. Data presented in **Table 2** clearly show that the percentage of households accessing rice and wheat from PDS is quite significant, particularly in the lower MPCE classes. As a contrast, in the country as a whole, the percentage of households accessing rice among the bottom three MPCE classes is around 53 per cent in rural areas and 36 per cent in urban areas. With regard to access of wheat from PDS among the bottom three MPCE classes, it is 39 per cent of households in rural areas and 32 in urban areas (Anuradha 2017). A comparison of all India with Tamil Nadu indicates that the reach of PDS is far higher and better for the poorer sections in the state.

In addition to the reach of PDS, the quantum of grains accessed by different sections of households is also a significant indicator that reflects the importance of the system. Contribution of PDS to total cereal consumption is close to 70 per cent for households in the bottommost MPCE class. Considering the lowest three MPCE classes, more than 60 per cent of cereal consumption in the rural and urban areas of the state is from PDS. On an average, 54 per cent of total cereal consumption per capita per day in rural Tamil Nadu and 45 per cent in urban Tamil Nadu were contributed by PDS. As a contrast, in India as a whole, the share of cereals from PDS to total cereals (g/day/capita) was 28 per cent in the rural and 20 per cent in the urban regions in 2011-12. Thus the contribution of PDS in overall cereal consumption is significant in Tamil Nadu, in particular among the poorer sections.

Table 3: Consumption of cereals (rice + wheat) across different MPCE classes, Tamil Nadu, 2011-12

MPCE Classes	Consumption of Major Cereals (g/day/per capita)		Consumption of Major Cereals from PDS (g/day/per capita)		Contribution of PDS to RDA (%)	
	Rural	Urban	Rural	Urban	Rural	Urban
1	236.2	248.8	167.3 (71)	171.8 (69)	39.8	40.9
2	256.5	261.9	171.3 (67)	159.8 (61)	40.8	38.0
3	268.8	270.6	168.1 (63)	162.2 (60)	40.0	38.6
4	282.8	266.7	90.8 (32)	141.7 (53)	21.6	33.7
5	294.3	283.4	172.3 (59)	139.6 (49)	41.0	33.2
6	313.4	289.7	180.3 (58)	148.3 (51)	42.9	35.3
7	300.8	293.1	162.0 (54)	133.3 (45)	38.6	31.7
8	327.3	264.0	186.6 (57)	105.1 (40)	44.4	25.0
9	318.3	276.2	164.6 (52)	90.4 (33)	39.2	21.5
10	341.6	258.8	153.2 (45)	69.2 (27)	36.5	16.5
11	336.6	236.4	137.4 (41)	51.3 (22)	32.7	12.2
12	365.6	221.7	141.5 (39)	44.6 (20)	33.7	10.6
All	304.5	269.1	165.8 (54)	120.5 (45)	39.5	28.7

Note: Figures in brackets are percentage of contribution of PDS to total cereal consumption

Source: Derived from NSSO, 2015

The important point that is evident from **Table 3** is this: Per capita consumption of major cereals progresses with the MPCE classes and is higher among the higher MPCE classes. However, the consumption of cereals from PDS is generally higher among the lower MPCE classes, indicating the impact of the public distribution system on the consumption of cereals.

The recommended daily allowance (RDA) for cereal intake, stipulated by the Indian Council of Medical Research (ICMR) in 2010, is 420 g/day/capita (NIN 2011). A comparison of the stipulated RDA with the actual consumption pattern indicates that the average cereal intake is deficient across all MPCE classes. The extent of deficiency is found to be much higher among the lower MPCE classes in Tamil Nadu. It is precisely for these sections that the contribution of PDS has been significant. This suggests that while the total cereal consumption across size classes is below the RDA norm, without the contribution of PDS, the scenario would have been worse. **Table 3** shows that nearly 40 per cent of the recommended daily allowance for cereals is met from PDS among the lowest three MPCE classes both in the rural and urban areas of Tamil Nadu.

4.2. Contribution of PDS cereals to nutrition

Following a discussion on cereal consumption, this section discusses the contribution of PDS to calorie intake, across different MPCE classes.

Kumar et al. (2015) worked out the per capita calorie consumption and share of PDS across states in India for the period 1993-94, 2004-05 and 2011-12. Their analysis clearly shows that in Tamil Nadu, the per capita calorie consumption declined from 2039 to 2026 kcal between 2004-05 and 2011-12; however, they note that the share of PDS to total calorie consumption reported an increase from 22.1 to 27.6 per cent during the same period, indicating the consistency in performance of PDS in the state.

Using the cereal-to-calorie consumption conversion that is available from the nutrition chart, the per capita calorie intake from cereal consumption has been estimated across MPCE classes (NSSO 2014). The actual consumption is compared with the recommended daily allowance to understand the deficit or surplus over RDA.

Table 4: Contribution of PDS to calorie consumption, Tamil Nadu, 2011-12

MPCE Classes	Avg. Consumption of Calories kcal/day/per capita		Avg. Consumption of Calories from PDS in kcal/day/per capita		Contribution of PDS to Avg. Calorie Consumption (%)		Contribution of PDS to RDA (%)	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1	1229	1243	579	594	47	48	24	27
2	1321	1475	593	553	45	37	25	25
3	1387	1539	582	561	42	36	24	26
4	1500	1656	314	490	21	30	13	22
5	1488	1771	596	483	40	27	25	22
6	1569	1819	624	513	40	28	26	23
7	1672	1851	561	461	34	25	23	21
8	1873	2031	646	364	34	18	27	17
9	1849	2029	570	313	31	15	24	14
10	1979	2093	530	239	27	11	22	11
11	2077	2239	475	177	23	8	20	8
12	2387	2455	489	154	21	6	20	7
All	1682	1849	573	417	34	23	24	19

Note: 1) 2400 kcal/capita/day for rural and 2200 kcal/capita/day for urban areas are the RDA norms for calorie intake.

2) As per the nutrition chart, 1 kg of rice has 3460 kcal and 1 kg of wheat has 3410 kcal, and 1 kg of cereals (rice+wheat) is estimated as 3435 kcal.

Source: Derived from NSSO 2014

Table 4 presents an estimate of calorie intake from consumption of cereals from PDS. One-third of calorie intake in rural Tamil Nadu and nearly one-fourth of calorie intake in urban Tamil Nadu are attributed to consumption of cereals from PDS. Following the pattern of cereal consumption, with regard to calorie intake too, the contribution of PDS is higher among the lower MPCE classes, both in the rural and urban areas of the state. In addition to the contribution to calories, cereal consumption also adds to protein and fat intake. Given that the average intake level of calories is far below the RDA norms, any contribution towards enhancing the overall intake levels of these is important. Thus the contribution from PDS becomes significant, particularly so for the poorer sections of the population.

Pulses have been distributed under a special scheme in Tamil Nadu since 2006. Each household has been entitled to one kg of tur dhal (pigeon pea) and one kg of urad dhal (black gram), at subsidised prices. However, available evidence indicates only a marginal increase in household consumption and an almost negligible net nutritional impact in the states where pulses have been distributed through PDS (Chakrabarti et al. 2016). The authors further note that the quantity of pulses distributed through PDS has to be increased manifold to have any significant impact on total consumption and nutrition.

4.2.1 Findings from Village Survey

The analysis of the secondary data provides a macro picture on the reach of PDS as well as its importance in Tamil Nadu. These results are corroborated by findings from the primary survey undertaken in Taludali revenue village in September 2015. Taludali consists of 511 households of which a sample of 152 households was randomly selected for survey. The sample households were classified into three groups based on their food insecurity status computed using a set of socio-economic parameters 10 — low food insecure households (22), moderately food insecure households (85) and severely food insecure households (45). Rice is the major staple in the village and the consumption of wheat is negligible. Therefore, the discussion here takes into consideration only rice.

From **Table 5**, it is seen that of the 152 households, 10 households (less than 1 per cent) did not have a ration card; 8 out of these 10 households belonged to the ‘severely food insecure’ category. All the 22 households categorised as ‘low’ food insecure (that is, highly food secure) possess ration cards. All households with ration cards were accessing rice from PDS. The study found that the role of PDS in rice consumption was much greater for the ‘severely food insecure’ category compared to the rest. This emphasises the scope for improvement in issue of ration cards to needy households.

Table 5 presents the quantity of rice accessed from PDS by the different categories of households. The analysis clearly shows that more than 50 per cent of the cereal procured for household consumption is contributed by PDS across all three categories of households. However, the dependence of severely food insecure households on PDS is higher at 58 per cent compared to other groups.

Table 5: Access to PDS in Taludali, 2015

Category of Households	Sample Households (no.)	Households with Ration Cards (no.)	Households Purchasing Rice from PDS (no.)	Total Quantity of Rice Purchased (Market+PDS) Per Capita per Month (kg)	Quantity of Rice Purchased Per Capita per Month from PDS (kg)	Share of PDS Rice to Total Rice Purchased (%)
Severely food insecure	45	37	37	9.6	5.6	58.3
Moderately food insecure	85	83	83	9.0	5.1	56.7
Low food insecure	22	22	22	8.9	4.8	53.9
All households	152	142	142	9.2	5.2	56.5

Note: Data pertains to the previous month before the household survey was conducted

Source: Village Survey, 2015

It was interesting to note that the low food insecure households in the village mainly use the rice from PDS to prepare idli batter rather than for cooking, while on the other hand, the severely food insecure households cook the PDS rice for their daily meals and rarely use it for making idli batter.

The analysis in this section highlights the significant contribution of PDS to household consumption of cereals, particularly for the poorer sections in rural and urban areas of Tamil Nadu. The findings from the macro analysis for the state as a whole (discussed earlier) are corroborated by the primary village survey.

5. Impact of PDS on Household Savings

The price of items distributed in PDS is always lower than the market price due to the subsidy that is borne by the state. Therefore, purchase of cereals from PDS involves lower costs compared to market costs and therefore includes an element of saving for the households that access cereals. Research in the area of savings accruing to households due to PDS, including in Tamil Nadu, suggests that the savings were used by the households to increase the quantity of purchase of pulses, edible oils, vegetables and sugar (Kishore and Chakrabarti 2015).

In a study by Dreze and Khera (2013), it was found that PDS has a significant impact on poverty, especially in the states where the system is functioning well. In 2009-10, the average implicit subsidy for Tamil Nadu was Rs.107/month/capita in rural areas and Rs.86/month/capita in urban ones. The implicit income transfer for a particular MPCE class (say h) as a result of PDS is calculated as follows:

$Th = Qh (p-q)$, where Qh is the quantity of the subsidised commodity being provided, p is its market price, and q is the PDS issue price. Since the value of q is zero in Tamil Nadu, the formula is $Th = Qh * P$ (Table 6).

The market price p does vary across MPCE classes based on regional variations in production and transport costs, lack of market integration, and inter-household variations in the quality of rice purchased.

Table 6: An estimate of notional savings of rice across households from different MPCE classes, Tamil Nadu, 2011-12 (Rs/month)

MPCE Classes	Quantity of Rice Purchased from PDS per Month (kg)		Market Price of Rice (Rs./kg)		Average Notional Savings of Rice per Household	
	Rural	Urban	Rural	Urban	Rural	Urban
1	20.73	19.97	16.95	20.91	351.3	417.63
2	19.12	18.76	20.35	22.84	389.0	428.50
3	18.75	18.59	20.79	23.53	389.8	437.41
4	19.11	15.41	22.55	25.09	430.9	386.58
5	18.44	13.27	20.85	26.46	384.4	351.16
6	19.65	13.66	23.36	25.87	459.0	353.35
7	17.49	11.44	23.32	26.54	407.9	303.64
8	17.77	9.35	24.47	29.08	434.9	271.94
9	14.44	7.61	24.50	29.57	353.8	225.01

10	13.53	5.4	25.27	30.81	341.9	166.39
11	11.29	3.17	27.62	30.68	311.8	97.27
12	9.13	2.79	27.13	33.56	247.7	93.64
All	16.51	10.92	23.72	27.60	391.5	301.42

Note: The market price was calculated using the value and quantity of rice purchased from other sources by each MPCE class from the NSSO report; the notional savings for different MPCE classes were estimated using the same.

Source: Derived from NSSO 2015

The average implicit price is equivalent to the average notional saving in the case of Tamil Nadu as the issue price of rice in PDS has been 'zero' since 2011. The average saving per month per household from purchase of rice in PDS is Rs.391.50 in the rural and Rs.301.42 in the urban areas of the state. In the rural areas, the monthly savings made through purchase of rice from PDS among the lowest MPCE class is around Rs.350 and it gradually goes up to Rs.450 in the 6th MPCE class. The savings for the top two MPCE classes is lower than the bottom MPCE classes largely due to the lesser quantity of purchase from PDS. The savings in the urban areas is higher for the lower three MPCE classes at around Rs.430 while the top two MPCE classes have lower savings. The market price of rice in the urban areas is higher than the rural areas, especially for the lowest MPCE classes. This clearly reveals that the notional savings for the poor is substantial than that of the better-off sections of the population. A similar result was observed in the primary study in 2015. **Table 7** sets out the estimation of 'notional' savings to different categories of households due to accessing PDS rice.

Table 7: Notional savings by households due to PDS, Taludali

Category of Households	Quantity of Rice Purchased from PDS (kg)	No. of Households	Notional Savings per Household (Rs./month)
Severely food insecure	514	22	654.2
Moderately food insecure	1376	83	453.3
Low food insecure	375	37	233.3
All	2265	142	417.2

Note: The market price of rice in the study village was Rs.28/kg

Source: Village Survey, 2015

The notional gain from PDS is estimated as the difference between the estimated market value of the quantity accessed from PDS and the cost of purchase from PDS. The market value of rice in the study village was Rs.28/kg as it was broken rice and the sample households in the village largely purchased the same rice in the local market. As **Table 7** shows, the severely insecure households who met their requirement largely from PDS made the maximum savings to the tune of Rs.654 per month. The analysis presented in this section indicates that in the state as a whole as well as in the study village, the contribution of PDS to household savings is substantial.

6. Conclusion

This paper highlights the significant contribution of PDS to household food consumption, in particular, among the poorer sections in Tamil Nadu. The macro picture using NSSO 2011-12 data showed that the average contribution of PDS cereals to total per capita cereal consumption is 54.4 per cent in the rural areas and 44.8 per cent in the urban areas of the state. About 90 per cent of households in the lowest three MPCE classes in both rural and urban Tamil Nadu reported consumption of rice from PDS, indicating greater access by poorer households; the all-India average is substantially lower. The analysis also clearly shows that the contribution of PDS cereals to total cereal consumption of the lowest 3 MPCE classes is significant at 60 to 70 per cent, both in the rural and urban areas. Cereals are the major contributors of energy, and in Tamil Nadu consumption of cereals from PDS takes care of 40 per cent of recommended intake.

In 2011-12, the contribution of PDS to calorie consumption was highest in the lowest three deciles (between 36 and 48 per cent), both in the rural and urban areas of Tamil Nadu, addressing one-fourth of the RDA norms. Thus, the role of PDS becomes crucial in addressing the cereal, and thereby the calorie requirement, among the poorer sections of the population. The savings made by the households by accessing PDS rice was also substantial among the lower sections of the population, both in the rural and urban areas of the state. The results of the primary study in Taludali village, Villupuram district, also corroborates the macro picture as the share of PDS rice to the total rice consumption at about 58 per cent was highest among the severely food insecure households.

In the pre-NFSA period, the maximum entitlement of a household was fixed at 20 kg/month of rice and this was a major concern for families with more than 4 adult members. As NFSA has not stipulated a ceiling on the maximum entitlement per household per month, larger families stand to benefit with the implementation of NFSA in Tamil Nadu. It is significant that the state continues with the universal approach even while implementing NFSA, thereby safeguarding the interest of the people, particularly the poorer sections. The major finding of the paper, namely, the significant contribution of PDS to consumption of cereals, calorie intake and savings of households, particularly in the lower consumer expenditure classes, is a point to be noted; it is particularly important in today's context where cash transfers are being recommended to replace food transfer.

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