

# Penetration and coverage of Public Distribution System (PDS), Mid-Day Meals (MDM) and Integrated Child Development Scheme (ICDS) in Palghar district of Maharashtra

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## Abstract

*Public Distribution System (PDS) in India is one of the world's largest food distribution networks catering to the needs of all economic classes of the country. The special focus of the Indian PDS and food entitlement programmes are people belonging to the marginalized sections consisting of those below the poverty line largely composed of the scheduled castes, scheduled tribes and other backward sections of the Indian society. The present study measures the penetration and coverage of PDS, MDM and ICDS programmes in Palghar district of Maharashtra which has a high concentration of scheduled tribe population. The study, contrary to expectation, finds PDS has a higher coverage among the Above Poverty Line (APL) category than those in the Below Poverty Line (BPL) and those covered under Antyodaya Anna Yojana (AAY), implying gross exclusions of many among the BPL and AAY. Second, off-take to allocation ratio in cereals shows a greater preference for rice. There is also significant regional variation in coverage of these programmes signifying a challenge to effective service delivery. The study concludes that coverage and penetration of these essential food entitlement programmes are generally satisfactory in the district as a whole, but concealing important elements of spatial inequity in the utilization of PDS services.*

**Keywords:** *Public Distribution Ratio, PDS Coverage, Mid-Day Meal (MDM), Integrated Child Development Scheme (ICDS)*

## Introduction

Availability alone is not sufficient to achieve the objectives of food security unless there is access to and stability of food. Public Distribution System (PDS) plays an important role in food access and stability; however, its coverage is based on the 2011 census population. The system has not been updated on a regular basis based on predicted population data, and the state government has not issued new ration cards on a continual basis leading to a situation of exclusion of eligible poor. In a newly created

tribal district like Palghar, the ramifications of excluding the poor tribal people from the food entitlement programme are far-reaching in terms of nutrition and tribal people's livelihoods.

Food has a distinct place among the requirements of life due to its importance (Spitz 1985). It has a temporal, nutritional, socio-cultural and economic dimension (Gandhi and Zhou, 2014). Given this, the safety net programmes of the government

have to be channelised in such a way that it caters to multiple dimensions of food. One such programme is PDS which needs to focus on nutrition with adequate availability, and social and economic accessibility. Providing food at a reasonable cost and storage and distribution is not just enough through PDS. It has to incorporate the cultural dimension of food habits and nutrition too.

In a country like India where poverty is widespread, disparities in food availability and accessibility pose a challenge for all. Socially and economically backward areas face even greater challenges. The availability of food represents the supply side while the accessibility of food signifies physical and economic access. In the areas where food crops are not grown in sufficient quantity or some items are not locally available, Fair Price Shops (FPS) play a critical role in ensuring that the poor are not deprived of it (Rajput and Arora, 2020).

In India, agriculture is on the state list while the control of its production, supply and distribution is in the concurrent list. Hence, the responsibility of ensuring the supply and distribution of food lies with both the central as well as state governments. The Food Security Act of 2013 is a turning point in Indian history mandating PDS as a shared responsibility. The state governments store and deploy resources to improve the elements in the stock, measure and assurance to attain better performance of the supply chain.

PDS is an important food management strategy; the central government manages food-grain procurement and allocation through the Food Corporation of India (FCI) while the state governments identify the eligible families and distribution of food grains to FPS. In Maharashtra, the Department

of Food and Civil Supplies is the nodal agency for the implementation of the PDS. The primary responsibility of this department is to deal with the demand and supply of food grains in the open market and the PDS. Similarly, it is also vested with the enforcement of orders of the Essential Commodities Act, 1955, for price stabilization.

The effectiveness of PDS and their food entitlements are meaningless unless proper attention is provided towards Mid-Day Meal (MDM) and Integrated Child Development Scheme (ICDS). The impact of PDS on the nutritional supplement for the children had a significant positive effect (Thampi, 2016). Enabling the environment of ICDS and MDM schemes is a prerequisite to attain the nutritional security of children in the age group of 0-11 years. Most national level surveys including the National Family Health Survey-3 (NFHS), Annual Health Survey and District Level Health Survey did not find any correlation between PDS use and decline in malnutrition. Another expectation has been that households would increasingly buy higher quality grains from the market rather than the PDS with a rise in incomes. Ironically instead of diminishing, PDS usage has actually increased dramatically in both urban and rural areas not only for the poor but for the non-poor too (NITI Aayog, 2016). Hence, the distribution of food entitlement based on the economic status of the relatively better off (Above Poverty Line, hereafter APL), the poorest (Below Poverty Line, hereafter BPL) and poorest of the poor (Antyodaya Anna Yojna, hereafter AAY) is a prerequisite for the understanding of the efficacy of the PDS. The present research, therefore, evaluates the extent of success of the system by examining the access aspect of penetration and coverage

in the Palghar district. The evaluation is based on an inter-*tehsil* (subunits of a district) comparison of AAY, BPL, and APL ration cardholders, and by measuring the public distribution ratio, and the ratio of storage to the warehouse, which gives the study area's storing capacity of food per beneficiaries.

Rice is a staple food in the food basket offered under PDS. To understand the allocation of cereals, the percentage of cereal allocation under AAY, BPL, and APL ration card holders is calculated. The present study also discusses the penetration of other food entitlement programmes like MDM and ICDS due to their ancillary but pre-eminent role in household food security. The paper strategically analyses the information related to the coverage and functioning of FPS and the type of support provided through PDS to ration cardholders of AAY, BPL and APL beneficiaries.

### **The study area**

Palghar district is purposively chosen for the present analysis because it has 37.39 percent of its population consisting of the most socially and economically marginalized scheduled tribe (ST) population. The western part of the district, locally known as *Bandarpatti* is an area with better connectivity with nearby urban centers. The area has a relatively lower concentration of ST population, i.e. 7.32 percent in Vasai, and 30.56 percent in Palghar *tehsils*. Dahanu *tehsil*, included in this area however has greater (57.02%) ST in its population. The eastern half of the district called *Jangalpatti*, largely hilly and forested is almost exclusively tribal in its ethnic composition. The *tehsils* included in this area are Jawhar, Mokhada and Vikramgad, all with an ST population in excess of 91 percent. The Wada *tehsil* of the district is situated in

the plains and has a majority (57.02) of its population consisting of the STs though with a sizeable presence of non-ST population. About a fifth of the population in the district depends on PDS and is classified into yellow (poorest of poor, AAY, BPL), saffron (APL) and white (with annual household income in excess of Rs.1, 00,000) colour card holders. White ration card holders do not enjoy any benefit of subsidized food but the cards are used as residence proof, for the purposes of a property transaction or obtaining a driving license. The total ration card holders in the study area are 6,47,308 out of which, yellow cardholders (AAY+BPL) are 31 percent, saffron cardholders are 64 percent and the rest of them are white cardholders.

### **Methodology**

The study is mainly based on secondary data. Economic Survey of Maharashtra, District Statistical Handbook of Palghar, 2011 Census data and PDS related government websites (<http://mahafood.gov.in>, <https://nfsa.gov.in/State/MH>) are major sources of data. The public distribution ratio is an arithmetic ratio between the numbers of ration card holders (AAY+BPL+APL) to the number of fair price shops in the area. This ratio gives coverage and level of PDS penetration and analyses the extent of beneficiaries served by each FPS in the service area. As per the FPS allotment guidelines of the central government, FPS is allotted normally to 400 ration cards but considering inaccessible tribal, remote and forest areas of the district, Public Distribution Ratio has been modified to better represent PDS coverage and penetration as per ration cardholders per FPS for APL category (High: >500, Moderate:500-300, Low:300-100, and Very Low: <100) and for the AAY and BPL category as (High: >150, Moderate:150-100,

Low:100-50, and Very Low: <50). Finally, food entitlement programmes have been ranked as per their performance from high to very low. This categorization is based on available data in the study area to understand intra-district variations in PDS services.

## Results

### *Public Distribution Ratio*

The Ministry of Consumer Affairs, Food and Public Distribution Department provides guidelines for the establishment of FPS. As per the 2001 census, a population of 1350 in urban areas and 1900 in rural areas formed the critical basis for the establishment of fair price shops through PDS, and the same criteria are continued for the 2011 census. One FPS should serve equal to or less than the defined population in its service area. A higher load of beneficiaries for food entitlement services on an FPS affects the effective functioning and distribution.

Interestingly there is an inverse association between various beneficiaries (AAY+BPL+APL) and Public Distribution Ratio (PDR). The lesser the PDR, the better is the level of PDS penetration. On an average one FPS in Palghar district serves 576 ration cardholders per fair prices shop which is higher than expected average standards (400 ration cardholders per FPS). The PDR of Palghar district shows that FPS penetration is very low in Vada *tehsil* with a relatively low ST population. As evident in Fig.1, FPS penetration is comparatively better in *Jangalpatti tehsils*. It is lower in the *Bandarpatti* area where nearly half the population (48%) is urban coinciding with lower dependence on PDS. PDS penetration in the Palghar district as a whole appears satisfactory with 576 ration cardholders per FPS (Fig. 1). However new FPS needs to be allotted to serve the population in Vada *tehsil* located in the plains but has a majority tribal population. This would reduce the load on existing FPS and enhance better and effective distribution of food entitlement services.

### *Public Distribution Ratio of AAY, BPL, and, APL beneficiaries*

As mentioned earlier, a fifth of the total population of Palghar district depends on PDS. Out of this, a very high proportion of (69 percent) cardholders are APL and the rest are covered under BPL and AAY. The highest numbers of PDS cardholders are from Vada *tehsil* with lesser tribal concentration, whereas Jawhar *tehsil* has the lowest despite having almost the entire population classified as tribes. Interestingly Vada has a large number of cardholders from the APL category, whereas Jawhar has a fewer cardholder and most of them belong to AAY and BPL categories.

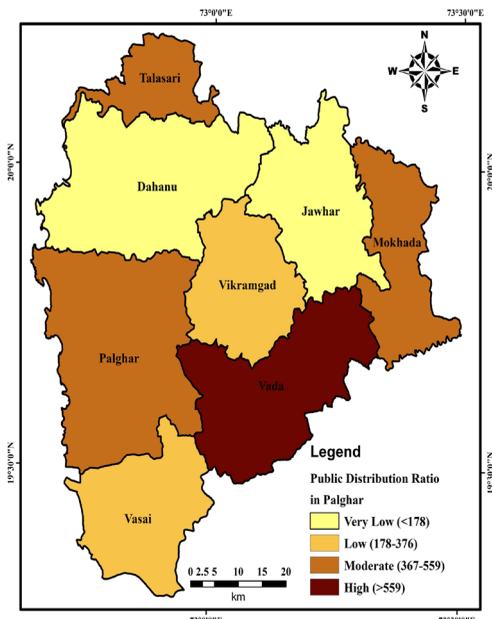


Fig. 1: Public Distribution Ratio of Palghar District

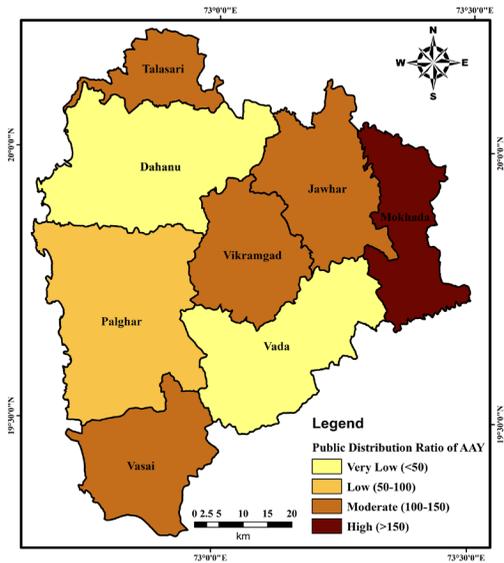


Fig. 2: Public Distribution Ratio of AAY of Palghar District

Field observation and discussion with beneficiaries in the study area brought out the factor of exclusion as well as inclusion error in enrolling eligible households. In inclusion error, non-poor were wrongly included, so food reached the non-needy households. In the tribal dominated *Jangalpatti*, prior attention was not given to the enrollment of PDS beneficiaries in BPL categories especially in Jawhar and Mokhada *tehsils*. While some of the eligible tribal households did not receive ration cards, some of them received saffron cards instead of yellow.

The AAY and BPL households are priority households in terms of food entitlement. According to the PDR of AAY and BPL households in the Palghar district, one FPS in the district supports 89 and 91 AAY and BPL card holders respectively, indicating a high degree of PDS penetration for all the *tehsils*. PDR for the AAY category in the district shows that Palghar, Vada and Dahanu *tehsils* with relatively lower tribal concentration

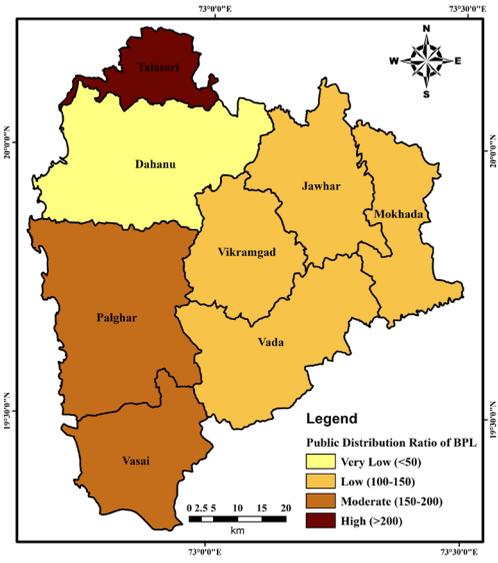


Fig. 3: Public Distribution Ratio of BPL of Palghar District

(30-70%) are better served with less than 100 beneficiaries dependent per FPS (Fig. 2). A greater proportion of the extremely poor is found in the tribal dominated Mokhada *tehsil*

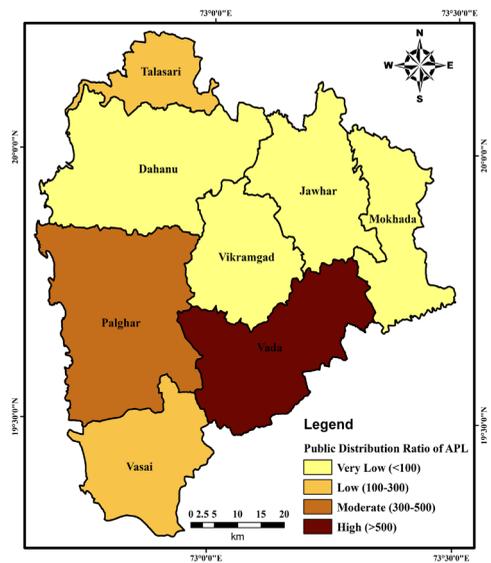


Fig. 4: Public Distribution Ratio of APL of Palghar District

with very high AAY beneficiaries per FPS (241 persons per FPS). For the BPL category, the PDR in the district is comparatively high in the tribal dominated Talasari *tehsil* revealing exclusion of the poorest from AAY and their inclusion under BPL (Fig. 3). Dahanu with lower tribal concentration shows better PDR in the BPL category as the numbers of BPL ration cardholders are comparatively less.

The tribal dominated Dahanu, Vikramgad, Jawhar and Mokhada *tehsils* have a higher PDR due to fewer APL beneficiaries. The greatest problem is seen in Vada (1916 persons per FPS) in the group of APL ration cardholders, indicating a high load in the delivery of entitlement services on FPS (Fig. 4). There is an urgent need to reallocate the new FPS in Vada to relieve the operational burden on the existing FPS.

### **Storage to warehouse**

The ratio of storage to the warehouse shows storing capacity of food grains for PDS. The availability of local storage helps in quick access to food in times of greatest need particularly during the rainy season when the dependence of the beneficiary on PDS is more.

Palghar district has a storage capacity of 9450 metric tons of food grains in 23 warehouses. Spatial distribution of warehouses however shows high storage capacity in *Bandarpatti* (semi-urban and coastal area) whereas *Jangalpatti* (hilly, forest and tribal) have less despite greater reliance of its people on PDS. It is, therefore, necessary to enhance the storage capacity of the *Jangalpatti* area in order to overcome the problem of delay in effective service delivery during the rainy season. An increase in storage capacity ensures stability in the distribution process in off-seasons too. Storage capacity is imperative to improve with special attention to priority households like AAY and BPL. Storage capacity for AAY and BPL beneficiaries is 18kg per person (Table 1), which is half of the food allotted to AAY and BPL beneficiaries (35 kg per household). To best-fit AAY and BPL families, storage space could be doubled.

### **Off-take to allocation in cereals**

The total amount of food taken in accordance with the allotted quota to states and union territories by the FCI under various central

Table 1: Ratio of storage to a warehouse

<b>Tehsils</b>	<b>Warehouse</b>	<b>Storage Capacity (Metric Tonnes)</b>	<b>Storage Capacity per person (AAY+BPL)</b>
Talasari	2	750	16.59
Dahanu	3	1500	28.01
Vikramgad	1	350	18.24
Jawhar	3	850	17.62
Mokhada	3	750	11.45
Vada	3	1500	31.04
Palghar	4	1750	11.32
Vasai	4	2000	11.22
District Total	23	9450	18.19

*Source: District Statistical Abstract, Palghar District 2015*

Table 2: Percent of off-take to allocation in cereals of AAY, BPL, and APL

Year	AAY		BPL		APL	
	Rice	Wheat	Rice	Wheat	Rice	Wheat
2010-11	92.3	87.5	90.90	87.2	52.6	15.40
2011-12	92.3	87.5	84.4	77.8	33.3	15.8
2012-13	100	100	97.8	94.4	34.6	27.3
2013-14	95.3	84.6	98.1	93.8	42.1	48.4
2014-15	94.73	87.5	73.33	78.94	50	50

Source: District Statistical Abstract, Palghar District 2015

schemes is referred to as off-take. Percentage of off-take to cereal allocation for AAY, BPL, and APL beneficiaries during 2010-15 provides a clear picture in terms of grain allocated for uplift for delivery in PDS of Palghar. Off-take can be a surrogate indicator of food utilization and in determining food demand patterns. Analysis of off-take to the allocation of cereals of AAY in 2010-15 shows underutilization of allocated rice and wheat (Table 2) except for the year 2012-13. Similarly, off-take to allocation in cereals for BPL during the same period indicates a decrease in the utilization of quota in cereals. The lowest utilization of off-take to allocation in cereals is seen in APL categories confirming that APL households are less dependent on PDS due to their preference in purchasing better quality food from the market.

Overall, the utilization of rice is more than wheat in an allocated quota of food grains. Rice is a staple food of the local people, and this may be the reason for greater uplift in off-take to allocation than wheat. Interviews with PDS beneficiaries also confirmed the preference for rice for household consumption. Distribution of wheat in the FPS instead of rice resulted in

food hoarding and black marketing of rice in local markets.

### ***MDM beneficiaries***

High dropout rates and undernourishment are problems of child education in India. Mid-day-Meals (MDM) Scheme, the largest in the world aimed at improving enrollment and retention of children in schools was launched by the Government of India in 1995. Under this scheme, cooked food is provided to children in primary schools in government and government-aided schools providing cooked mid-day meals with a minimum calorie content of 300 kcal and 8-12 grams of protein per day for at least 200 days.

In Palghar district, over 2.74 lakh children in the age group of 6-11 years are enrolled for MDM (Table 3) accounting for 9.17 percent of the population of the district. However, the enrollment varies greatly with areas of lower tribal concentration, such as Palghar and Vasai *tehsils* recording far lower enrollment while it is much higher in tribal dominated Talasari *tehsil* showing its popularity among the marginalized tribal children. Parents living in urban and semi-urban areas prefer private schools. This may be one of the reasons for the lower enrollment in MDM

Table 3: Percent of mid-day meal beneficiaries to the total population

Tehsil	Total Enrollment	Total Population	Percent
Talasari	28278	154818	18.26
Dahanu	59671	402095	14.84
Vikramgad	22558	137625	16.39
Jawhar	16591	140187	11.83
Mokhada	12744	83453	15.27
Vada	25768	178370	14.44
Palghar	50355	550166	9.15
Vasai	58336	1343402	4.34
District Total	274301	2990116	9.17

*Source: District Statistical Abstract, Palghar District 2015*

in more urbanised *Bandarpatti* compared to *Jangalpatti*.

### **ICDS beneficiaries**

The government of India launched the Integrated Child Development Services (ICDS) programme in the year 1975 to address the nutritional needs of children below six years, pregnant and lactating mothers, and adolescent girls. As per NFHS-3 data, fifty percent below three years of age are underweight and thirty-three percent of children are stunted. The scheme provides services like supplementary nutrition, immunization, health check-ups, referral services, non-formal pre-school education, nutrition, and health education for women.

In Palghar district, 2579 ICDS centers are operating through Anganwadi which is a network of rural childcare centers in India and is part of the ICDS. The dependence of mothers on the ICDS center is less than children below six years in the study area. The proportion of beneficiaries of ICDS to the total population is 5.88 percent, which is about 3, 00, 000 population (Table 4).

In the *Bandarpatti* area especially in Vasai (1.74%) and Palghar (4.13%), the utilization of ICDS services is relatively low whereas higher reliance is seen in the tribal dominated *Jangalpatti tehsils* of Jawhar, Mokhada, Vikramgad, and Talasari where the utilization is as high as 12-14 percent. The level of utilization in availing nutritional and referral services in urban or even semi-urban *tehsils* is much less. Understandably the rural and tribal people have limited access to health and nutrition services and they tend to avail the services provided by the ICDS more than their counterparts in urban areas where there are alternatives available in the private sector availed by non-poor as well as educated mothers from upper castes (Gangbar et al., 2014; Jawahar & Raddi, 2021; Paul et al., 2017).

### **Discussion**

Nearly half of the population in the Paghar district lives in urban areas. The scheduled tribe population is largely concentrated in Talasari, Jawhar, Vikramgad and Mokhada

Table 4: Percent ICDS beneficiaries to the total population

Tehsils	Children+ Mothers	Total Population	Percent
Talasari	22037	154818	14.23
Dahanu	42438	402095	10.55
Vikramgad	17939	137625	13.03
Jawhar	18030	140187	12.86
Mokhada	11068	83453	13.26
Vada	18294	178370	10.25
Palghar	22725	550166	4.13
Vasai	23491	1343402	1.74
District Total	176022	2990116	5.88

Source: District Statistical Abstract, Palghar District 2015

*tehsils* and is predominantly rural in their residence. The urbanised *tehsils* of Palghar and Vasai have fewer scheduled tribes.

Table 5 shows ranking in the performance of *tehsils* based on food entitlement programmes. Ironically, high storage capacity in *Bandarpatti* (Palghar, Vasai and Dahanu) has not translated in the high rank of PDS ratio as mere availability of storage capacity do not serve the purpose unless a proper distribution system through FPS is in place. *Jangalpatti* (Jawhar, Mokhada, Vikramgad)

shows a high ranking in PDS ratio, MDM and ICDS beneficiaries which in turn implies their high dependence and utilization on these services.

According to Koshy (1991), more purchasing power in cities, a large number of cardholders and differences in dietary preferences reduce resistance to accepting raw rice from fair price shops. The price difference in the open market and fair price shops has increased the dependency on PDS. The current study shows that the *tehsils* of

Table 5: Performance of tehsils in Food Entitlement Programs (Rank)

Tehsils	PDS Ratio	Storage capacity per beneficiaries	Mid-day meal beneficiaries (%)	ICDS Beneficiaries (%)
Talasari	6	4	1	1
Dahanu	1	1	4	5
Vikramgad	3	3	2	3
Jawhar	2	2	6	4
Mokhada	5	5	3	2
Vada	8	8	5	6
Palghar	7	7	7	7
Vasai	4	6	8	8

Source: Calculated by authors

Palghar and Vasai, which have a high urban population, have less dependence on fair price shops. Considering the fact that urban areas are more vulnerable to food crisis at the time of natural disasters and economic or political unrest; they require sufficient storage infrastructure (warehouses and cold storage). Several previous studies also claim that there is an urban bias in PDS in most states (George, 1985; Krishna and Chhibber, 1983; Gupta, 1977; Gulati and Krishnan, 1975 and Vyas and Bandyopadhyay, 1975). A contrary view can be found in Ahluwalia (1993) and Dev (1996) who claimed that there is no urban bias in the PDS. In a drought year, supplies to rural areas increase, which may skew the results towards the rural area (Rajkumar, 2013).

The food grain takeoff for wheat and rice in Palghar is 50 percent for APL as people in this category have greater affordability and hence prefer better quality food from open markets. Takeoff is high for AAY that is around 90 percent for wheat and 98 percent for rice. Importantly the food basket changes in coastal *tehsils* where people consume rice and seafood available with ease. Such findings can be useful as a policy intervention for people living in coastal areas such as Palghar, Vasai, and Dahanu. Parikh (1994) had rightly mentioned that though the urban population might have better coverage due to purchasing power and food choices, they opt to buy from open markets. The findings are relevant in the present context too.

The tribal districts of Jawhar and Mokhada have more beneficiaries for MDM

and ICDS schemes with a greater focus on the underprivileged communities like the scheduled castes and the scheduled tribes to increase the enrolment ratio and address the issue of nutrition. But, underutilization of food entitlement services (Table 5) in Jawhar and Mokhada *tehsils* continues to be a problem.

## Conclusions

Nearly one-third of the total population in the Palghar district depends on the food safety net programme. PDS has a higher coverage rate in the Above Poverty Line (APL) category than in the Below Poverty Line (BPL) and Antyodaya Anna Yojana (AAY), implying that exclusion errors are higher in the BPL and AAY. Hence, more attention is required towards BPL and AAY for their inclusion in PDS. Off-take to allocation in cereals shows that rice is preferred over wheat and this regional preference should be kept in mind in allocation under PDS for better utilisation and to stop black marketing. There is significant regional disparity in programme coverage; PDS, MDM, and ICDS coverage are greater in the *Bandarpatti* part of Palghar district which is a semi-urban, coastal plain with less tribal concentration than in *Jangalpatti* which is hilly, tribal, and forested, signifying a challenge to effective service delivery with a clear regional policy framework. Spatial inequalities in the distribution of FPS and storage capacity highlight poor coverage of geographically and socially marginalised tribal areas. The disparities can be addressed with more equitable service delivery. More inclusive policies should address the problem of exclusion especially that of the tribal communities.

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