An Improved PDS in a 'Reviving' State

Food Security in Koraput, Odisha

MIHIKA CHATTERJEE

The public distribution system is widely criticised for being ridden with chronic corruption and failing to deliver benefits in a systematic manner. Using a sample of 793 households in the district of Koraput in Odisha, this article reviews the performance of the PDS in the district and highlights three important points: first, distribution of foodgrains, specifically rice, through the PDS has undergone vast improvements in the past five years; second, while the PDS is fairly inclusive in the district, households excluded are massively deprived, supporting the need for an expansion of coverage; and third, access to grains is fundamentally important in a region where the primary source of livelihood is a combination of subsistence agriculture and casual labour, and where child under-nutrition is rampant.

I thank Sabina Alkire, Jean Drèze, Reetika Khera and Suman Seth for invaluable comments and suggestions on initial drafts. I am deeply grateful to Rajkishor Mishra for insights and information on the PDS in Odisha. I also gratefully acknowledge the efforts of the team of field investigators and funding from Oxford Poverty and Human Development Initiative and Oxford Department of International Development for making extensive fieldwork possible.

Mihika Chatterjee (*mihika.chatterjee@gmail.com*) is a researcher at Oxford Poverty and Human Development Initiative, University of Oxford.

1 Introduction

In August 2013, the National Food Security Bill (NFSB) was passed by both houses of the Indian Parliament. As per the provisions under the National Food Security Act, 2013 (as it is now termed), 75% of the rural population and 50% of the urban population are to be identified as belonging to households "eligible" for cheap foodgrains through the public distribution system (PDS). The existing Antyodaya Anna Yojana (AAY) scheme, wherein households identified as the poorest of poor receive 35 kg of subsidised foodgrains per month, is to continue as per central guidelines. All other eligible households will receive 5 kg of wheat, rice and coarse cereals per household member. The centrality of the PDS in a welfare scheme of unprecedented scale in India has given rise to debates about its capability as a mechanism for promoting food security (as a starting point, see Yardley 2013). While the Act is not limited to subsidised food through the PDS – mid-day meals for schoolgoing children, Integrated Child Development Services, and maternity benefits are some of the other comprehensive measures – it is largely responsible for polarising opinion on the Act.

Discontent with the PDS is on many grounds. The PDS is widely criticised for mis-targeting, being ridden with leakages and corruption, and failing to deliver benefits in a systematic manner (Ahluwalia 1993; Khera 2011a, 2011b, 2011c; Kumar 1979; Mooij 1999; Radhakrishna et al 1997; Suryanarayana 1995). Little attention is paid to evidence from states that have revamped the PDS in the past five years. Khera (2011a) classifies Odisha as a "reviving" state with respect to the PDS – not only are grains supplied regularly, but below the poverty line (BPL) and AAY households also receive their entitled amounts of rice in full. Aggarwal (2011) furnished further evidence on the encouraging state of affairs in two districts, Sundargarh and Nuapada, in Odisha. Instead of engaging with new evidence on the PDS, policy debate persists on labelling it as an "irreparably dysfunctional" system (Khera 2011a, 2011b).

Using a sample of 793 households in the district of Koraput in Odisha, this article reviews the performance of the PDS in the district, focusing primarily on BPL and AAY households. Extensive quantitative and qualitative fieldwork in the district highlights three important points: first, distribution of foodgrains, specifically rice, through the PDS has undergone vast improvements in the past five years; second, while the PDS is fairly inclusive in the district, the households excluded are massively deprived, supporting the need for an

expansion of coverage; and third, access to grains is fundamentally important for welfare in a region where the primary source of livelihood is a combination of subsistence agriculture and casual labour, and where child under-nutrition is rampant.

The article is structured as follows: Section 2 describes data collection and sample characteristics; Section 3 provides an overview of the PDS in the study setting, that is, outlines who has cards in the region and the nature of the benefits available through the scheme; Section 4 sheds light on its performance, specifically the utilisation of the PDS, availability of commodities, and gendered perceptions of its functioning among cardholders; Section 5 offers insights on the awareness of PDS entitlements among both male household heads and female adults; Section 6 engages with measuring food (in)security in the region and understanding the extent to which it differs among households with and without PDS access; Section 7 highlights the issue of "exclusion error" in Koraput and provides the profile of households currently excluded from the PDS; and Section 8 concludes.

2 Koraput District Data

Data used in this article is part of a larger study that explores the effect of the PDS on food security and child nutrition in Koraput district. A representative sample of households (at the district level) having at least one child between the age of zero and seven was surveyed between July and September 2012. The survey questionnaire was comprised of three parts:

- Part 1 was aimed at the male household head and comprised questions on socio-economic characteristics, consumption, and usage of the PDS;
- Part 2 collected information from a woman in the household, usually the spouse of the household head, on a detailed set of questions on consumption, and a few of the same questions on the PDS from Part 1 in order to obtain gendered data on key issues related to its performance;
- Part 3 involved collecting nutrition data for children between zero and seven years of age in the household through anthropometry;
- Qualitative interviews were also conducted with both men and women to gain a deeper understanding of the performance of the PDS.

The random sample of households surveyed was originally a part of a child nutrition survey called the Hunger and Malnutrition Survey (HUNGaMA). In 2010, the Naandi Foundation conducted the HUNGaMA survey to bridge "gaps in current data and knowledge on child malnutrition" in India (HUNGaMA Survey Report 2011: 4). HUNGaMA was designed to study 100 "focus" and 12 "best" rural districts, where focus and best were defined based on the UNICEF's Child Development Index. The index is a composite measure of child health, education, labour, and other factors. The top 12 districts as per the index were marked as "best" by HUNGaMA, while the bottom 100 comprised the "focus" districts. Furthermore, the sample in every district was restricted to rural villages in order to concentrate on deprivations in rural areas.[1] Since HUNGaMA was designed to explore child nutrition levels in the rural areas of districts, samples drawn in every state were representative at the district level. This study returned to the HUNGaMA sample of children and their households in Koraput – a "focus" district – a year and a half later in 2012. In order to understand the linkages between the PDS and child nutrition, data from the HUNGaMA study was treated as a baseline and the same children were followed up for a second wave.

Of the 842 households sampled by HUNGaMA in Koraput, this study was able to interview 793 households[2] in 13 blocks. Of these, 726 households were surveyed in full, meaning that Part 1 was answered by a male and Part 2 by a female. For 55 households, female adults, being the only household member

Table 1: Sample Characteristics – Households

Characteristic	All Sample
Total number of households	793*
Age of household head	
Median	31
Mean	32.8
Head of household by gender	
% Male	94
% Female	6
Literacy of household head	
% literate (can read and write)	49
Median years of highest level completed	0
Mean years of highest level completed	2.7
HH size	
Median	5
Mean	4.9
Undernourishment among children	
% households with at least 1 underweight child	55
% households with at least 1 stunted child	48
Undernourishment among mothers	
% households with undernourished mother	42
Type of housing	
% kuccha	44
% semi-pucca	30
% pucca	26
Religious affiliation	
Hindu	93%
Muslim	0.50%
Christian	5%
Not worshipping/Don't know	0.50%
Caste	
Dalits	16%
Adivasis	60%
Other Backward Castes	12%
General	10%
Don't know	1%
% HHs with electricity connection	44
Landownership	
% owning land	56
Median land size (in acres)	0.50
Mean land size (in acres)	1.17
Livestock	
% with no livestock	28
% owning cows	56
Durable assets	
No assets	51%
Median asset index score	0

* Unweighted number of households
Mean, median and proportions have been adjusted using sampling weights.

fulfilling the eligibility criteria for both parts of the survey, answered both Part 1 and Part 2. Similarly, in the case of five households, the male head served as the primary respondent throughout. After further adjusting for seven cases where either Part 1 or Part 2 was achieved, the male voice on the PDS is available for 734 households, and women's opinions are available for 785 households.

This article presents analysis on the PDS functioning in Koraput only; linked papers explore issues such as multidimensional poverty and child nutrition.

Sample Characteristics

Located in the hilly south-western region of the state, Koraput is a particularly deprived region with low socio-economic diversity. It is a part of the infamous "KBK" (Kalahandi-Balangir-Koraput) region, where mass starvation was not uncommon less than a decade ago (Banik 2011: 98).

Table 1 (p 50) summarises the socio-economic characteristics of the district. Koraput is a primarily Hindu, tribal region, with low rates of literacy, landholding, and other assets. Child under-nutrition is rampant: around 55% households have at least one underweight child and 49% have at least one stunted child. Estimates of child under-nutrition are based on anthropometric data collected by trained enumerators and analysed using the World Health Organization 2006 reference population. Underweight is represented by the weight-for-age (WFA) measure – $(m_i - m_r)/\sigma_{rm}$, where m_i is the observed weight of the child of specified gender and age, m_r is the median weight of the reference population, and σ_{rm} is the standard deviation for weight in the reference population for the age-gender group (Lokshin et al 2005: 620). A child is considered underweight if his or her WFA z-score is 2 standard deviations (2SD) below the median of the reference population. Similarly, a child is considered stunted if his or her height-for-age z-score is 2SD below the median z-score of the reference population.

Underweight is considered a comprehensive anthropometric measure comprising long and short-term health deficiency (Deaton and Drèze 2009: 48). Stunting is an indicator of "cumulative nutritional deprivation from birth (or rather conception)", and is relatively insensitive to short-term shocks in health or nutrition (ibid). While connections between the PDS and child health are not explored in this article, the descriptive statistics on child under-nutrition illustrate the intensity of deprivations in this realm, as half or more households have a child who is underweight or stunted, respectively.

Other economic and non-economic resources are equally lacking. While approximately 56% of households in the district own land, the median land size is 0.5 acres. Only 44% of households in the district have access to electricity. An asset score based on simply counting the number of durables – radio, fan, refrigerator, television, cycle, motorcycle, four-wheeler and cell phone – a household owns is shown here.[3] The median asset score for the district is zero, and approximately 51% of households own none of these assets. It is not entirely surprising, given that many durables in the list require electricity, access to which is limited to a minority.

Against this backdrop of vulnerability, the PDS serves as an important social safety net, especially in its improved state, which ensures the regular distribution of rice.

3 The PDS in Context

In Koraput, all households with any type of PDS card can purchase food commodities from the PDS. While the PDS does not cover all deserving households, it is fairly inclusive, with 61% of households having PDS cards and 97% of those obtaining the required quantity of rice on a regular basis.

In the KBK region of Odisha, APL households are entitled to PDS grains in addition to the BPL and other special category households (Aggarwal 2011; Khera 2011 a,b,c). In Koraput, the APL and BPL categorisation continues to be based on the BPL surveys from 1997. For the years 1999-2000, the Planning Commission had set the poverty estimate for Odisha at 48% (Sundaram 2003: 898). However, BPL identification conducted by the state government at the local level in 2002 revealed that the cap set by the centre was very low, and that identification strategies based on Planning Commission figures would result in large exclusion errors.[4] Following an upheaval on the discrepancies between estimates of the centre and the state, the Supreme Court issued a stay order on the usage of new estimates for the PDS, ensuring the continuation of lists from 1997.

Periodic "verification" surveys have been held in the past decade, a prominent round being the one conducted in 2010. These verification surveys often reveal the problems of using outdated data in a targeted system. Households that no longer require access to the PDS are found to possess BPL cards, while those in need are excluded. These surveys have allowed for minor revisions to the beneficiary lists.[5] When beneficiaries are found to have migrated, or no longer operate as a unique "household" during surveys, new households are issued PDS cards.

In Koraput, approximately 61% of households have access to the PDS (Table 2). A majority of the PDS cards belong to the BPL category – 38% of all households in Koraput and 62% of those who have cards.[6] Only 1% (eight households) of the entire sample has access to two PDS cards belonging to different categories. Furthermore, only seven non-PDS households admitted to using the PDS. These exceptions belong to different villages and are spread across caste, obviating the fear of a systematic "capture" of the PDS by any one community. Thus, corrupt practices like ineligible

Table 2: PDS Profile of Koraput

PDS Card Profile (n=795)	No Card (% HHs in District)	Primary Card (% HHs in District)	Second Card (# of HHs)*			
			APL	BPL	Antyodaya	Annapurna
APL	–	10.2	1	0	0	0
BPL	–	37.6	2	8	1	0
Antyodaya	–	13.2	3	2	1	0
Annapurna	–	0	0	0	0	0
No card	38.9	NA	NA	NA	NA	NA

† Estimates adjusted with sample weights.
* Number of households are unweighted.
Source: Primary data collected.

households acquiring BPL/AAY cards and diverting food commodities to non-PDS households appear to be largely absent. Observations of the study in this regard are consistent with those of Himanshu (2013).

Identification of new households and revisions to the PDS lists have been conducted in the past 10 years in the district, primarily as outcomes of the verification surveys. Approximately 32% households received PDS cards between one and five years before the survey in 2012. At least 66% received them within 10 years before the survey; the timing coincides with the 2002 BPL survey, which was allegedly not strictly enforced.[7] A negligible proportion – four households – was issued cards less than a year before the survey.

Benefits of the PDS

The PDS entitlement for the various categories differs by state. Koraput, as part of a set of "priority" districts in Odisha, has comparatively larger benefits. The figures shown in Table 3 reflect the entitlement amounts applicable in August 2012.

Table 3: PDS Entitlement for Koraput (2012)

Type of Beneficiary		Rice	Wheat	Sugar	Kerosene
BPL	Quantity	25 kg	–	2 kg	4 litres
	Price	Rs 2/-	–	Rs 13.50/-	Approx Rs 15/-
Antyodaya	Quantity	35 kg	–	2 kg	4 litres
	Price	Rs 2/-	–	Rs 13.50 /-	Approx Rs 15/-
APL (KBK)	Quantity	25 kg	10 kg	–	4 litres
	Price	Rs 2/-	Rs 7/-	–	Approx Rs 15/-
Annapurna	Quantity	10 kg	–	–	–
	Price	Free	–	–	–

Source: Office of Advisor to the Commissioner of the Supreme Court on Right to Food.

Rice is the main grain distributed through the PDS. APL households are, in theory, entitled to wheat over and above rice. The benefits of the universal system, including 10 kg of wheat for the APL category, were retained even after the switch to a targeted system in 1997 (Wadhwa Report 2009: 14). In 2002, rice entitlement was increased to 20-25 kg for all card categories, seemingly making benefits for the APL more generous than those for the BPL (ibid). However, in practice there is massive diversion of wheat to the open markets, and the entitlement hardly ever reaches the rural APL households of Koraput.

The price of rice was revised down to Rs 2 per kg in 2008, which has been exceptionally important to the beneficiaries. The PDS cardholders in the district use the year "rice became Rs 2 per kg" as a chronological reference point in evaluating the scheme. In 2012, BPL and Antyodaya households became entitled to 2 kg of sugar every month, in addition to rice and kerosene.[8]

4 Performance of the PDS

The PDS in Koraput functions well in many areas: rice is supplied regularly, available items are utilised by PDS users, and satisfaction with the scheme is widespread. However, there is room for improvement, specifically in ensuring regularity in the distribution of sugar, providing the entitled quantity of kerosene in full, and increasing awareness on entitlements among PDS users.

Utilisation of the PDS, that is, purchase of PDS commodities by cardholders, is high in Koraput, both as a result of people's needs and willingness to access subsidised grains, and the regular supply of certain items. Table 4a (p 53) shows that in the 12 months preceding the survey, rice and kerosene, on an average, were drawn every month. The regularity of rice and kerosene was cited as one of the reasons for the PDS being important in the district: "it [PDS] is important for people like us. Rice and kerosene comes every month. We need it …."[9] Other food commodities were not drawn with regularity.

Utilisation of PDS commodities is entirely contingent on the delivery of these commodities. Delivery of PDS rice has improved vastly over the years and is impressively regular now. However, distribution is not nearly as meticulous in relation to sugar, and non-existent in the case of wheat for APL families. Low utilisation of the sugar entitlement among the eligible categories of beneficiaries (BPL and AAY) is a result of sporadic supply, as information on the PDS "report card" will further reveal. It was clear that when items are available, households make use of their entitlement: "… only if it [sugar] comes will I be able to get it, *didi*. When it is available we buy it, but mostly it does not come".[10]

The distribution of wheat to APL households, as mentioned earlier, is particularly problematic. As the study focused on the PDS at the household level and did not collect primary data on supply and diversion trends at administrative units, a detailed analysis is beyond the scope of this article. However, evidence from secondary sources indicates that wheat supply in states like Odisha, Andhra Pradesh and Tamil Nadu is irregular because of uncertainty about the entitlement among Fair Price Shop (FPS) dealers as well as beneficiaries (Khera 2011a), or diversion to open markets and non-PDS households (Wadhwa Report 2009).

Table 4b (p 53) provides data on the average quantity of rice, sugar and kerosene received by entitled households in the months of July, June and May, a spectrum of three months prior to the survey period.

The questionnaire was designed to first record responses from recall, followed by information reported in PDS cards as observed by investigators, to prevent contaminating respondents' recollection by card records. Information from both methods is reported here. There is a discrepancy between the results from recall and that from card observation. Data in card records is unreliable because: (i) handwriting very often made records illegible and prone to inaccuracy due to investigator interpretation; (ii) recording was not methodical, in terms of noting down records under the correct month and year. The median and the mean for items purchased are closer for recall than estimates from observations, as the latter method produced more outliers. Aggarwal (2011: 22) finds similar disorderliness in card records for Odisha. Further, for questions on monthly PDS usage for a relatively short time period – three months – recall appears to be fairly accurate. The vitality of the PDS in the district makes it an important matter for regular discussion and reflection. The PDS items, as will become clear in the next section, is of such

significance in this food insecure area that recall on whether the entitlement was received in the past three months is dependable.

On average, nearly all households – approximately 97% of cardholders in the district – received their entitlement of rice in the months of July, June and May. Khera (2011a) terms PDS commodity purchased as a proportion of the total entitlement for the item, the "purchase-entitlement ratio". The median quantity of rice drawn, as per both recall and card observation – 25 kg for the APL and the BPL, and 35 kg for the Antyodaya – align with entitled quantities. Khera (ibid) found a similarly high purchase-entitlement ratio in the districts she studied in Odisha – 97-100% for the BPL and 100% for Antyodaya for the three months preceding the survey period.

Records of sugar and kerosene in the PDS card were particularly tardy, resulting in large differences in data collected through recall and observation. Only 24% of entitled households (BPL and AAY) purchased sugar over three months, and the purchase-entitlement ratio was close to 0%, further highlighting the dismal state of sugar supply.

In the case of kerosene, while most households received kerosene every month (Table 4a), and 73% of cardholders on an average bought some kerosene during the three months (Table 4b), the purchase-entitlement ratio was very low.

Table 4a: Usage of the PDS in Past Year

Usage of PDS	Median†	Mean†	No of Households*
Number of times received rice in the last 12 months	12	11.7	472
Number of times received sugar in the last 12 months	2	7.5	472
Number of times received kerosene in the last 12 months	12	8.6	475
Number of times received wheat in the last 12 months	0	0	471

† Estimates adjusted with sampling weights.
* Number of HHs are unweighted.
The number of households accessing items includes the six households accessing the PDS with cards that belong to others.
Source: Primary data collected.

Table 4b: Utilisation of PDS Entitlements in July, June and May

Items	% Elgibible Cardholders Received Entitlement		Average Quantity Received: APL		Average Quantity Received: BPL		Average Quantity Received: Antyodaya	
	Recall	Card Record	Recall	Card Record	Recall	Card Record	Recall	Card Record
Rice	97.4	81.6	25 (25)	25 (20.3)	25 (25)	25 (21.4)	35 (34.5)	35 (28.5)
Sugar**	24.1	14.5	0 (0)	0 (0)	0 (0.7)	0 (0.5)	0 (0.8)	0 (0.6)
Kerosene	72.9	38.9	0.6 (1.2)	0 (0.39)	2 (1.9)	0 (1.4)	2.3 (2.1)	1.3 (1.6)

* Value reported in parenthesis is the mean.
** % cardholders that received entitlement pertains to only BPL and Antyodaya as the others are not eligible.
All estimates adjusted with sampling weights.
Source: Primary data collected.

Despite a low rate of electrification in the district, the amount of kerosene purchased by households is consistently low. For an entitlement of 4 litres for all categories of PDS cardholders, APL households on an average purchased around 15% of their entitlement, and BPL and AAY households on an average purchased 2 litres, that is, they recorded a 50% purchase-entitlement ratio across three months.

Debates around the use of kerosene suggest several explanations for the low purchase-entitlement ratio, but informal discussions during fieldwork implicate insufficient supply as the primary reason, which is further highlighted in the PDS "report card".[11] It is not that kerosene is not distributed through the FPS every month, but it is the case that the quantity of kerosene supplied is insufficient to cover the full entitlement amount of all beneficiaries. Inadequate kerosene availability is plausibly due to a combination of regular diversion to the open market and irregular supply to the districts/blocks (Khera 2011a).

Overall PDS Performance – Perceptions

Access to cheap grains is vital to the district of Koraput. Households that have access to the PDS consider its benefits of paramount importance for their physical and psychological welfare.

In qualitative interviews on the performance of the PDS, it was not uncommon for households with PDS cards to associate "death" with the absence of subsidised rice:

> ...without the card, I will die, *didi*. I will try to do more *coolie* (casual labour) work. I will have to ask my wife and children to do coolie work as well...Nine to ten years ago *this* had happened. I had no BPL card. The monsoons were tough. There were days we did not eat. But then we did not have children. If this happens today, the children will die.[12]

Households without land are more vulnerable and articulated a deep necessity for the PDS. The most common coping strategy in the absence of the PDS among landless households was that of migration. A household comprised of two adults and a child, and entirely dependent on herding as the source of livelihood, was interviewed. According to the male household head, "if the PDS did not exist today, we would have to go to Andhra [Pradesh] and work as *coolies*. Whatever we get from that we'd eat or go hungry. We have no land, what else can we do?"[13]

Survey responses on "satisfaction" with the existing system reflect contentment with the overall functioning of the PDS. Table 5a provides perceptions about the PDS among both male and female adults. The cohort of male respondents in the table is comprised of male heads who answered Part 1 of the questionnaire, and data on women consists of responses to identical questions on the PDS asked in Part 2 of the survey, typically to the spouses of male heads.[14] Satisfaction with the PDS does not differ between men and women: approximately 69% of men and 70% of women are "very satisfied with the PDS" overall. A slightly higher proportion of men are "not satisfied" with its overall performance (4.4% men versus 2.5% women).

Table 5a: Overall Satisfaction with the PDS

Satisfaction	Men		Women	
	Satisfied with PDS 'Overall' (% HHs)	Satisfied with PDS Grain Quality (% HHs)	Satisfied with PDS 'Overall' (% HHs)	Satisfied with PDS Grain Quality (% HHs)
Very satisfied	68.6	54.7	69.9	49.9
Partially satisfied	23.9	38.7	23.9	45.5
Not satisfied	4.4	4.4	2.5	1.3
Don't know	0.4	0.0	0.0	0.0
Data missing	2.6	2.2	3.7	3.3
	100	100	100	100

† Estimates adjusted with sample weights.
Source: Primary data collected.

However, perceptions on the PDS are overall similar across gender.

It is interesting that satisfaction with the quality of PDS grains is lower than overall satisfaction: while 55% men are very satisfied with the quality of grains, a higher proportion is very satisfied with the overall PDS. A similar trend is observed among women. Thus, high levels of satisfaction with the overall PDS does not exactly map on to appreciation for the grains. Conversely, a negative opinion of grain quality does not dampen the overall satisfaction with the PDS. Of the small proportion of respondents who are "not satisfied" with the quality of PDS grains, over half of them – 58% men and 53% women – are either very satisfied, or partially satisfied with the PDS overall.

It is clear from Table 5b that the PDS is perceived as an important social safety net, and despite imperfections, people are satisfied with its very presence. Almost all households (93%) that have access to the PDS consider it "very important" for overall family welfare. Questions on perceptions on the overall satisfaction with a service received in many developing countries tends to be positively skewed; in several African settings, for example, people are reluctant to voice negative opinions on overall health services, but are more forthcoming about critiquing the specific aspects of a service (Agha and Do 2009; Vo et al 2012). While this cannot be entirely ruled out in the context of the PDS in Koraput, responses to "objective" questions on specific aspects of the PDS presented in the next section further demonstrate the overall optimism with the scheme.

Table 5b: PDS and Family Welfare

Importance of PDS for Family Welfare	# of HHs*	% of HHs
Very important	454	93.0
Partially important	15	3.8
Not important	2	0.5
Don't know	1	0.3
Missing data	13	2.4
	485	

This table comprises responses from 452 male heads and 33 adult females, typically spouses of heads, who answered both Part 1 & Part 2.
*Number of HHs are unweighted.

PDS Report Card

Tables 6a and 6b present PDS "report cards" from the perspectives of both genders. Following Khera (2011a), the survey used in the study was designed to ask respondents whether common issues associated with the PDS had been faced by them in the past 12 months, and if these problems in general had improved, remained the same, or worsened in the last two years.

The first notable observation from the above data is that more men reported facing problems with the PDS than women – for every issue, a larger proportion of male respondents admitted to having experienced it in the last one year in comparison to women. Two problems continue to plague the district. First, non-grain items, like sugar and kerosene, are not available regularly and are not supplied in sufficient quantities, respectively. Second, cardholders have to wait in line for a long time in front of the collection point (FPS or SHG office) on the assigned days of distribution. The issue of non-grain items being unavailable every month has persisted through the years. Approximately 59% of all male respondents and 64% of those who face the problem today (that is, of those who said "yes" to the issue) believe that the issue has remained the same over the past two years. A greater number of women view the change in this issue in better light – only 41% of all women believe that the problem has remained unaddressed over the years. However, on the issue of waiting time at the distribution centres, nearly half the male respondents and 43% of female respondents believe that it has improved in the past two years.

More optimistically, a large proportion of cardholders, that is, 76% of men and 84% of women, believe that grains come regularly, and that they are able to access the supplies on assigned days. Significantly, only 7% of male respondents complained about having to pay more than the PDS price, and 6% reported being cheated on quantity. In the case of women, while more women than men complained that they had to pay more than the designated price for PDS commodities, only 4% expressed concern over receiving a lower quantity than the entitlement. This is in sharp contrast with a state like Bihar, where Khera (2011a: 42) shows that only 18% of the respondents sampled said they "normally" received their full entitlement of grains. In fact, insofar as rice distribution is concerned, Koraput fares better than even states like Tamil Nadu and Andhra Pradesh, which are touted as the best-performing PDS states in the country; the same study shows that 85% and 79%, respectively, normally receive their full entitlement, compared to the 93% in Koraput.

Khera (2011b: 4) finds that the PDS in general functions better in a "rice-consuming state". The performance of the PDS

Table 6a: PDS Performance as Appraised by Male Heads of Households with Access to the PDS (n=452)

Issues	Faced in the Past Year		State of Issue in Comparison to Two Years Ago			
	Yes (%)	No (%)	Improved (%)	Same (%)	Worse (%)	Do not Know (%)
Grain does not come every month	21.4	75.9	66.9	23.9	1.6	4.9
Grain does not come on time	26.4	71.2	67.2	23.9	1.8	4.1
Non-grain items are not available	69.9	26.6	25.4	58.5	6.9	5.8
PDS is not open on the assigned days	28.9	68.7	67.3	22.2	3.3	3.6
Have to pay more than the PDS price	6.9	90.0	54.1	35.8	3.0	3.2
Have to wait a long time	68.4	29.0	47.8	40.5	4.1	3.6
Receive lower quantity than what entitled to	6.3	–	–	–	–	–

* Two male households heads (<1% of cardholders in the sample) complained about "fights and quarrels" when asked if there were "other issues" they wanted to report.

Table 6b: PDS Performance as Appraised by Male Heads of Households with Access to the PDS (n=452)

Issues	Faced in the Past Year		State of Issue in Comparison to Two Years Ago			
	Yes (%)	No (%)	Improved (%)	Same (%)	Worse (%)	Do not Know (%)
Grain does not come every month	12.8	84.2	53.4	31.1	8.1	3.7
Grain does not come on time	20.7	75.9	49.3	34.7	8.3	4.1
Non-grain items are not available	54.1	42.7	36.6	41.5	10.1	7.1
PDS is not open on the assigned days	19.8	76.2	52.1	33.0	6.5	3.5
Have to pay more than the PDS price	10.1	86.1	41.2	45.9	5.2	3.5
Have to wait a long time	54.5	42.2	42.7	43.8	6.4	2.5
Receive lower quantity than what entitled to	3.8					

*16 household heads (<4% of cardholders in the sample) complained about "fights and quarrels" when asked if there were "other issues" they wanted to report.

in Koraput in rice-consuming Odisha certainly corroborates the assertion.

5 Knowledge of the PDS

An administrative area related to the PDS that needs strengthening in Koraput is empowering citizens by making them aware of their entitlement. A rights-based approach to public services would argue that knowledge about entitlements enhances the ability to garner collective action, and serves as a "weapon in the battle for government accountability" (Jenkins and Goetz 1999: 606). An article in *The Economist* (2013), reporting improvements in the PDS in Chhattisgarh, extolled the state in encouraging "…people to think of benefits as a right, not a privilege".

PDS cardholders in Koraput are largely unaware of their entitlement. Not only is any formal method of disseminating information about the PDS absent, but periodic revisions to entitled quantities and prices by state authorities also makes staying abreast of the exact benefits challenging. Tables 7a and 7b demonstrate the knowledge gap in Koraput regarding the extent of benefits among men and women. Of all the items available through the PDS, cardholders are most accurately informed about the quantity and price of rice. Among the male respondents, while 58% of APL cardholders and 66% of AAY cardholders are aware of the quantity of rice to which they are entitled, only 40% of the BPL cardholders share the same knowledge. Similarly, a relatively lower proportion of women in the BPL category are aware of rice entitlement, compared to the other categories. One of the main reasons for this knowledge gap is that the BPL entitlement of rice was changed to 25 kg per month (at Rs 2 per kg) in October 2008. The switch was not made systematically and was not accompanied by any announcement, leaving beneficiaries confused even four years later about whether the change was a temporary phenomenon or a permanent one. However, the mode of responses provided in the fourth column under each card-type matches the correct entitlement quantity for rice and kerosene, implying that among respondents who provided a concrete figure, the majority were correct.

With respect to the price of PDS items, cardholders in Koraput are more in the dark. As in the case of quantity, cardholders are most knowledgeable about the price of rice. However, knowledge regarding the price of PDS sugar and kerosene is glaringly missing; only a small percentage of the cardholders got the price per unit of sugar and kerosene correct. Of those who provided a specific number for the price per kg of sugar, the majority were wrong. While the price of sugar is Rs 13.50 per kg, the statistical mode of responses for both men and women with access to BPL cards was Rs 15. The mode of sugar price among women with AAY cards was Rs 15 as well. This possibly indicates that, in the district of Koraput, beneficiaries are being charged a price higher than the stipulated amount for sugar.

6 The PDS and Food Security

The significance of a PDS that delivers grains regularly becomes more prominent when juxtaposed against the state of hunger and food security in the district. Drawing on the experiential school of food security, this study aimed to measure the issue at the household level as a "complex and meaningful experience that is related to, yet distinct from, poverty and malnutrition" (Radimer et al 1990, cited in Coates et al 2006: 1439).

The USAID-funded Food and Nutrition Technical Assistance Project (FANTA) has forwarded a set of nine questions to operationalise the experiential notion of household food security. The questions have been validated through field studies in Burkina Faso and Bangladesh, and belong to three dimensions of experiences related to food access:

Table 7a: Knowledge of PDS Entitlement – Men (n=452)

Items	APL				BPL				Antyodaya			
	% Correct	% Do Not Know	Range of Values (kgs/mon)*	Mode*	% Correct	% Do Not Know	Range of Values (kgs/mon)*	Mode*	% Correct	% Do Not Know	Range of Values (kgs/mon)*	Mode*
Knowledge on Entitlement – Quantity of Items												
Rice	57.7	14.9	25-60	25	39.6	35.2	25-100	25	65.6	24.1	25-70	35
Sugar	13.6	55.6	0-5	0	8.0	62.4	0-10	3	5.0	54.8	0-5	3
Kerosene	15.6	41.9	0-6	3	15.6	51.9	0-10	4	25.2	39.9	0-5	4
Wheat	14.8	50.9	0-25	0	22.8	62.7	0-25	0	22.8	62.3	0-40	0
Knowledge on Entitlement – Price of Items												
Rice	78.6	14.9	1.25-2	2	58.1	35.4	0.8-5	2	64.5	24.1	0.7-3	2
Sugar	16.5	58.0	0-20	0	0.0	67.6	0-25	15	0.0	59.0	0-22	16.7
Kerosene	15.1	43.2	0-17	16	11.4	53.2	0-19	16	13.1	42.2	0-23.3	16
Wheat	8.1	52.4	0-10	0	22.8	65.9	0-10	0	22.8	63.1	0-10	0

*Mode among responses other than "don't know".

Table 7b: Knowledge of PDS Entitlement – Women (n=481)

Items	APL				BPL				Antyodaya			
	% Correct	% Do Not Know	Range of Values (kgs/mon)*	Mode*	% Correct	% Do Not Know	Range of Values (kgs/mon)*	Mode*	% Correct	% Do Not Know	Range of Values (kgs/mon)*	Mode*
Knowledge on Entitlement – Quantity of Items												
Rice	41.5	27.0	25-70	25	27.9	30.8	5-150	25	44.7	32.1	25-100	35
Sugar	26.5	49.4	0-10	0	7.5	37.6	0-13	3	3.6	43.9	0-35	3
Kerosene	14.7	38.2	0-10	4	18.7	33.2	0-15	3	22.3	36.6	0-50	4
Wheat	1.9	49.6	0-25	0	33.0	47.1	0-50	0	27.5	51.4	0-60	0
Knowledge on Entitlement – Price of Items												
Rice	59.9	29.0	1-4	2	61.1	32.0	1-10	2	56.3	35.2	1-3	2
Sugar	26.5	51.6	0-20	0	0.0	39.1	0-35	15	0.0	50.3	0-50	15
Kerosene	13.4	44.9	0-20	15	10.4	38.1	0-20	16	9.7	41.7	0-21.3	15
Wheat	1.5	52.3	0-10	0	33.0	51.4	0-16.7	0	27.5	57.4	0-25	0

*Mode among responses other than "don't know".

(1) anxiety/uncertainty over depletion of household food supply; (2) inadequate quality of food, including notions of personal preference and socially accepted varieties; and (3) inadequate quantity of food consumption.

This study explored interactions between the PDS and food security using the same set of questions. Questions associated with each of the nine food-related adversities were framed to understand if, "in the past 30 days", anybody in the household had experienced that specific problem. For example, "In the past 30 days, did you or any member in the household eat just a few kind of foods day after day (like only rice/millet with salt/tamarind paste), due to a lack of resources?" was a question pertaining to the inadequate food quality domain. Theoretical underpinnings of experiential food security measures, the use of the FANTA questions in a multidimensional food security index, and a detailed analysis of linkages between the PDS and food security in Koraput are elaborated elsewhere (Chatterjee 2013). However, a brief discussion on the state of food (in)security among both households with and without access to the PDS illuminates the programme's vitality in the district.

Any comparison of food security between households with and without access to the PDS would be meaningful if the two groups are similar, particularly in terms of how vulnerable they are to food shortages. The term "vulnerable" is used to describe susceptibility to food insecurity, which may or may not be related to income poverty alone. In a targeted system, households excluded from the PDS are, in theory, not deprived, and consequently not deserving of benefits. Conversely, households with PDS access are theoretically more "poor", making them systematically different from the non-PDS households. In reality, however, errors in targeting are substantial (detailed discussion in the next section), ensuring a sizeable proportion of vulnerable households among those not covered by the PDS.[15]

In order to focus only on vulnerable households, some criteria of poverty are necessary. The global Multidimensional Poverty Index (MPI) is an international measure of acute multidimensional poverty (Alkire and Seth 2013). It identifies "poor" households based on deprivations of household members according to 10 indicators spread across three dimensions of basic human functioning – health, education and standard of living (Alkire and Santos 2010). Indicators representing the health dimension are adult and child nutrition and child mortality; achievement in the education dimension is determined by years of schooling among members over 15 years of age and child school attendance; standard of living indicators are electricity, flooring type, improved sanitation, source of water, type of cooking fuel used, and a list of household assets. Each dimension is weighted equally and all indicators within a dimension are further equally weighted (ibid 7). A deprivation cut-off is defined for each indicator. A household is considered "MPI poor" if it is deprived in one-third or more indicators.[16]

In the sample for rural Koraput, 88% of households are MPI-poor (henceforth, poor).[17] Among the small proportion of households that are not MPI-poor, a little over half does not have PDS access (Table 8a). The pattern of PDS access among poor households largely mirrors the overall sample – approximately 60% households have PDS access. A comparison of the state of food security among households with and without PDS access among this vulnerable cohort only is more instructive, as it overcomes the issue of evaluating two systematically different groups.[18]

Table 8a: PDS Access among MPI-Poor and Non-Poor Households (in %)

	MPI-Poor	Non-Poor
PDS access	63	49
No PDS access	37	51
Total	100	100

Table 8b provides information on food security among poor households. It presents the proportion of PDS and non-PDS households that responded in the affirmative to the questions on experiential food security.[19] It illustrates two important facts: first, food insecurity is widespread, as a majority of households experienced inadequacies in the quality and quantity of food they consumed; and second, prevalence of food insecurity, as measured by items shown, is higher among non-PDS households.

While conclusive assertions about the PDS' effectiveness in shielding households from extreme food insecurity cannot be made based on a comparison of proportions alone, it appears that fewer households with access to the PDS had negative experiences with food access, particularly shortages in food quantities. In the quantity-inadequacy domain, a larger proportion of non-PDS households experienced food shortages, than those with PDS access. The largest disparity was in the case where a member had to eat "smaller meals due to a lack of resources": the share of non-PDS households where these occurred is approximately 7 percentage points (pp) higher than PDS households, and the difference is significant at 1% level of statistical significance. Arguably one of the more intense experiences of food insecurity, where a member had to go a whole day without food, is higher among non-PDS households, and the difference of 6.5 pp is statistically significant.

Table 8b: Difference in Food Insecurity among 'Poor' Households with and without PDS Access (in %)

Domain	Question	Proportion of Household Heads Who Said 'Yes' to Question		
		PDS	Non-PDS	Difference
Anxiety	Worry that household would not have enough food	92.2	94.7	-2.5*
Quality	Ate just a few kinds of food	69.0	71.9	-2.8
Quality	Ate food did not want to eat	69.2	73.8	-4.6
Quantity	Ate a smaller meal	80.7	88.0	-7.2***
Quantity	Ate fewer meals	68.2	74.6	-6.4
Quantity	No food at all in the house	56.5	59.9	-3.4
Quantity	Any household member slept hungry	27.8	29.7	-1.9
Quantity	Any member went a whole day without food	14.6	21.2	-6.5**
(Coping)	Borrowed food from neighbours or kin	69.0	72.2	-3.2

Estimates adjusted with sampling weights.
*p<0.10, **p<0.05, ***p<0.01.

Anxiety regarding food shortages is rampant. Almost all households worry about running out of food. However, anxiety is slightly higher among non-PDS poor households and the difference is statistically significant.

The experience of borrowing food is typically not used in the experiential food insecurity index, as questions on coping strategies are problematic. "Borrowing" does not necessarily identify those that are most food insecure. In Bangladesh, for example, Coates et al (2006: 1424) find that while the "least food insecure" do not need to borrow food (and lend instead), the most food insecure do not borrow because nobody is willing to lend to them. However, the statistically significant difference on the last item is noteworthy, because the fact that non-PDS households are more prone to borrowing is corroborated by both quantitative data and qualitative interviews, one such cited in the next section. Given the social stigma associated with borrowing food, it is important that a lower proportion of the PDS households feel the compulsion to borrow food.

The results on food security need to be placed in context. Koraput is a gravely food insecure district. While experiences of food insecurity appear to be slightly lower among PDS households as compared to non-PDS households, adversities related to food access are staggering across the board. On the one hand, the analysis above focuses on vulnerable households in an exceptionally deprived region, and on the other, it indicates that the differences in experiences related to food access among PDS and non-PDS households are not as stark as one would expect. This raises the issue of "exclusion error" – vulnerable and food-insecure households getting excluded – which is discussed next.

7 Exclusion Error

Access to the PDS is not universal in Koraput, and households currently with PDS cards have been identified as "deserving" at various points using BPL surveys. An error of such a targeting exercise is the exclusion of the vulnerable, or the "exclusion error", as it is commonly referred to in the literature (Indrakant 2000: 265). A descriptive evaluation of indicators of material and non-economic well-being of non-PDS households is useful in understanding the extent of exclusion error in Koraput, and the necessity for quasi-universalisation – borrowing a term from Drèze and Khera (2010) – of the PDS in many rural districts. A quasi-universalisation methodology entails including all households in the PDS except for those that clearly meet a predetermined exclusion criteria. Table 9 presents information on household characteristics and certain measures of well-being for the entire sample, all PDS households and non-PDS households.

A larger proportion of households belonging to the general and OBC castes fall under the non-PDS category. The difference in proportion between PDS and non-PDS categories is significant, at the 1% level of statistical significance for the general category and at the 10% level for OBCs. Additionally, a larger proportion of ST households are covered by the PDS, and the difference in proportions is significant at the 1% level of statistical significance. The trend is consistent with provisions within the methodology of BPL identification, which aim to prioritise households belonging to the STs. However, as the distribution of PDS and non-PDS households across economic and health indicators reveal, deprivations in Koraput are widespread and not limited to a single class category.

For approximately 42% of non-PDS households, casual labour, or coolie work, is the primary source of income. The seasonality of casual labour makes such families vulnerable to income shocks, and consequently, food shortages. An interview with a woman in one such household (no access to the PDS and entirely dependent on casual labour) illustrates the plight of many excluded:

> Last month, my husband could not find work so we had to leave our children with their grandparents for five days. I cannot keep children hungry but I also cannot always borrow rice from neighbours...if we had a [PDS] card, then maybe we would not have to borrow.[20]

Among households that either engage in self-employed agriculture or a combination of agriculture and casual labour, the median land size is one acre.[21] Agricultural activity is primarily for subsistence, making households employed in agriculture equally susceptible to food shortages. Over half of the excluded households have no assets, not even a cell phone.

Table 9: Socio-economic Characteristics of Excluded Households

Characteristics	All Sample Statistic	PDS HHs Statistic	Non-PDS HHs Statistic	Difference between PDS and Non-PDS
Household size - mean	4.9	5.3	4.3	1***
Type of house				
Kuccha	44%	44.2%	43.6%	0.006
Semi-pucca	30%	26.4%	34.2%	-0.079**
Pucca	26%	29.2%	21.5%	0.076**
Missing values	0%	0.3%	0.7%	
Caste				
SC	16%	16.2%	16.9%	-0.007
ST	60%	63.3%	54.4%	0.088***
OBC	12%	11.2%	13.6%	-0.023*
General	10%	7.7%	14.4%	-0.066***
Missing values	1%	1.6%	0.7%	
Occupation				
Self-employed agriculture only	24%	25.8%	22.1%	0.037
Wage labour only	36%	32.4%	41.7%	-0.094***
Self-employed agriculture and wage labour	22%	23.6%	19.3%	0.042*
Self-employed non-agriculture	9%	9.1%	9.0%	0.001
Salaried	8%	8.7%	6.7%	0.019
Missing values	1%	0.5%	1.1%	
Quantity of land owned (among those in agriculture)				
Mean (in acres)	1.8	1.8	1.6	0.2
Median (in acres)	1	1.3	1	0.3
Range (in acres)	0-28.7	0-12	0-28.7	
Assets			0	
% with 0 asset	51%	49.6%	53.3%	-0.037
% with 1 asset	24%	24.0%	23.7%	0.003
% with cell phones	29%	28.7%	29.4%	-0.007
Health				
% household with at least one underweight child	55%	46.6%	58.4%	-0.12*
% hh with at least one stunted child	48%	48.4%	47.9%	0.004
% hh with at least one mother with BMI<18.5	42%	45.5%	36.5%	0.090**

Estimates adjusted with sampling weights.
*p<0.10, **p<0.05, ***p<0.01.
Source: Primary data collected.

Around 24% have only one asset, which in most cases is either a bicycle or a cell phone 13% – of non-PDS households list a bicycle as the only asset and 8% have a cell phone. It is clear that there is widespread material deprivation and vulnerability among excluded households. Further, excluded and included households are almost identical on these measures of deprivation.

The condition of child health among excluded households is of considerable concern. At 58%, the proportion of households with at least one underweight child is higher than the district average of 55%. A higher proportion of non-PDS households have at least one underweight child compared to households that are currently covered by the PDS, and the difference in proportions is significant at the 10% level of statistical significance. Almost half the non-PDS households have at least one stunted child which, although the same as the district average, is jarring, given that these households are excluded based on the premise that they are non-deprived. In contrast to the trend in child health, a lower proportion of non-PDS households have an undernourished mother (BMI<18.5), and the difference between PDS and non-PDS households is statistically significant. At 36%, however, the proportion of households with an underweight mother among non-PDS households is not trivial.

Given that the PDS has been working well in many respects for the majority of the districts who have access, and that the deprivations of those excluded are often as stark as those of current PDS users, it is essential to expand coverage in Koraput. A quasi-universalisation is an efficient way of ensuring access to the deserving if the intention is indeed to provide food security in an area with a high prevalence of food shortages and child under-nutrition.

8 Conclusions

The aim of this article was to highlight the progress made in foodgrain distribution through the PDS in the deprived district of Koraput, while delineating areas of deficiencies in the system. A major achievement of the PDS is that it effectively distributes rice and inspires confidence among the beneficiaries. It is highly utilised, specifically vis-à-vis rice, and is perceived as essential to the overall welfare of beneficiaries. While knowledge related to exact benefits is not widespread, cardholders have been regularly accessing the right quantity of grains and at the right price. Regular access to PDS rice appears to be cushioning food insecurity among beneficiaries by protecting against shortfalls in the quantity of available foodgrains for consumption.

An issue that needs to be addressed urgently is irregularity in the distribution of kerosene, sugar and wheat. Another major drawback of the system is that "exclusion error" in the district is substantial, and a large section of deserving households currently does not have PDS access. Among these excluded households, material deprivations are high, and child undernutrition is prevalent. Despite current deficiencies, the improvements made are neither trivial, nor are they unacknowledged by those who directly benefit from the revival of the system. Using Koraput as a case in point, Odisha is truly a state being "revived".

NOTES

1 "Rural" was defined using the Census of India definition: http://censusindia.gov.in/Data_Products/Library/Indian_perceptive_link/Census_Terms_link/censusterms.html

2 A few households from the HUNGaMA survey could not be located, while some had migrated or were temporarily away. In one village, the number of households located dropped below the minimum threshold required to have a representative cross-sectional sample. Therefore, "new households" had to be selected. Three households of the 793 are new households that were randomly selected after a census of all eligible households to replace unidentifiable households.

3 For a detailed discussion on asset score calculation, see Chatterjee (2013).

4 Rajkishor Mishra, Advisor to the Commissioner of the Supreme Court on Right to Food, interviewed in August 2012, Bhubaneswar.

5 Ibid.

6 Poor-Left-Out (PLO) cards, introduced in 2011 to cover poor households without any PDS card, were not observed at the time of survey. According to Rajkishor Mishra, distribution of the PLO cards in Koraput was ridden with delays and irregularities, explaining their absence even in 2012.

7 Data on the year in which cards were issued are missing for 16% of the sub-sample. The cards had no information on the issue date, and the cardholders were unable to recall it. It is safe to assume that these households have had cards for a relatively long period of time.

8 Motivated by local panchayat elections in Koraput, rice was made Re 1 per kg for BPL and AAY cardholders in February 2013.

9 Interview with male respondent on 11 August 2012 in village Kurmakote, block Kotpad.

10 Interview with male respondent on 15 August 2012, in village Semlaguda, block Borigumma.

11 Rehman et al (2005) is a good starting point for debates on the use of kerosene.

12 Interview with male respondent on 5 August 2012, in village Macchara, block Koraput.

13 Interview with male respondent on 11 August 2012, in village Kusumi, block Kotpad.

14 In cases where female respondents answered both Parts 1 and 2, the question was just asked once (in Part 1) in the survey questionnaire. These responses have been included under women's perceptions.

15 Econometric methods, like biprobit and treatment-effects regression specifications, that aim to account for over-coverage of the poor through targeting, further support the absence of any systematic differences between PDS and non-PDS households (Chatterjee 2013).

16 More technically, a household is MPI-poor if it is deprived in a combination of indicators whose weighted sum is 33.3% or more of the dimensions. For a more detailed discussion on the methodology (Alkire and Santos 2010; Alkire and Seth 2013).

17 MPI calculations were not possible for 18 households due to missing data on indicators.

18 This does not statistically resolve the issue of systematic difference. However, since targeting is inaccurate, over-coverage of the poor among the PDS is not a major concern.

19 One quality-specific question on "not eating foods preferred" was not analysed because of problems with the question design. It was clear during fieldwork that the question was conveying a notion of aspiration, instead of the intended idea of constraint.

20 Interview with woman on 12 August 2012, in village Kuhudigam, block Kotpad.

21 I use median and not mean because the presence of one landed household with 28.7 acres of land inflates the latter as a measure of central tendency.

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