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TRENDS IN DIVERSION OF PDS GRAIN

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Abstract: This article estimates the proportion of grain "diverted" from the Public Distribution System (PDS) to the open market, using the well-established method of matching state offtake figures published by the government, with household purchase reported by the NSS. The limitations of this methodological are discussed, and alternative estimates are presented. Though the alternative estimates are not significantly different, the discussion here indicates that estimates using the conventional method must be treated as an upper-bound on diversion. Though at the all-India level diversion of grain remains a serious issue, looking at state-level trends reveals interesting contrasts. States can be categorized into three groups based on estimated diversion - "functioning", "reforming" and "languishing" states. The paper also discusses possible reasons for the PDS turnaround in the reforming states.

Trends in Diversion of PDS Grain

Reetika Khera*

1. Introduction

In most debates around the Public Distribution System (PDS), the large-scale "diversion" of grain has been a major cause of concern. Diversion (or, "leakages") has been estimated periodically (Government of India 2002, Jha and Ramaswami 2010, Khera 2011, Himanshu and Sen 2011, among others). In these estimates, "diversion" refers to the proportion of grain that does not reach beneficiary households. While there could be several causes for these losses (e.g., during transportation or due to poor storage), the general practice has been to attribute all such losses to the illegal sale of PDS grain, meant for ration card holders, on the open market. In this paper, the conventional interpretation of diversion is adhered to, as there are no reliable estimates of losses due to other reasons.

The main purpose of this paper is one, to discuss the methodological issues involved in undertaking such an exercise and two, to look at the level *and* trend in state-wise diversion of PDS grain in India over the past decade. I find that there are divergent trends across states in so far as per capita PDS purchase of wheat and rice and proportion of grain diverted are concerned. The estimates suggests that the states can be divided into three broad categories: in a handful of states, diversion of grain is *not* a major concern ("functioning" states). In others, high levels of diversion has been accompanied in recent years by a reduction in diversion ("reforming" states). In yet others, the situation remains grim where levels of diversion are high with no improvement over time ("languishing" states). PDS reforms that are on the anvil need draw upon the experience of the first two sets of states that manage to run a functional and non-leaky PDS.

In this short paper, I present estimates of diversion for the following years: 1999-2000, 2001-2, 2004-5, 2006-7 and 2007-8. Though the targeted PDS (or, TPDS) was introduced in India in 1997, in effect, the subsidy for households deemed above poverty line (APL) ended only in 2000-2001. Thus, though each of the years for which I calculate diversion is, strictly speaking, from the post-TPDS period, it can be used to say something, however qualified, about the formal transition to a targeted PDS on diversion.[1] One could think of the figures from the 55th round of the NSS (pertaining to 1999-2000) as the pre-TPDS figures and those from subsequent years as diversion under the TPDS. The state-level variations in food policy, especially since 2006, are another reason why the choice of years is of interest. It allows us to look at whether the divergent patterns in leakages across states (referred to above), have

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[1] Note that even though the PDS was, in principle, universal until 1992, in practice it was universal only in Kerala.

anything to do with state policy (be it the proportion of households covered by the TPDS, or the difference between market and PDS price of grain or something else.)

I start with a discussion the data and methodology. I then present the trends at the state level in per capita PDS purchase of wheat and rice for the relevant years and trends in diversion. Diversion figures are presented for wheat and rice separately, for each of the major Indian states and at the all India level for different points of time in the past 10 years. This is followed by a detailed discussion of the methodological caveats. In the concluding section, possible explanations for the observed trends and divergence across states, including some state-level initiatives in the PDS are discussed.

2. Data and Methodology

As mentioned above, I estimate the proportion of grain diverted at the all India and state level over the past decade. As mentioned above, "diversion" in this paper refers to leakages due to corruption, transport losses, losses due to spoilage and so on. In that sense, the figures presented here are the "upper-bound".[2]

The analysis here roughly covers the past decade, including two "thick" rounds of the NSS, 55th round (1999-2000) and 61st round (2004-5), and three "thin" rounds 57th (2001-2), 63rd (2006-7) and 64th (2007-8). The 64th round pertaining to 2007-8 is the latest round for which data are available from the NSS.[3]

The proportion of PDS grain that is diverted from the system can be estimated by combining data on "offtake" by state governments from the Food Corporation of India (FCI) with data on household purchase from PDS shops, collected by the NSS. "Offtake" refers to the amount of grain that the states take from the FCI for distribution through the PDS. These data are available from the Department of Food and Civil Supplies which publishes monthly data (state-wise, for rice and wheat separately) in the "Monthly Foodgrains Bulletin".

On the other hand, the NSS collects data on monthly purchase of rice and wheat from the PDS as part of its consumer expenditure surveys. This can be aggregated up, to the state level, by multiplying per capita per month purchase by total population for the relevant year. The Census of India publishes projected population which can be used for scaling up per capita purchases to the state level.

I aggregate the data on monthly offtake from FCI to match the period of the NSS surveys (i.e. from July to June).[4] The difference between offtake and total purchase gives an estimate of the amount of grain that is diverted.

3. Purchase and Diversion of PDS grain

[2] The diversion figures presented here are the upper-bound in another sense too. In an informal conversation with an NSS investigator, it has been learnt that investigators mark items on the NSS schedule that are consumed by the household during their household visit, but data on actual quantities consumed involves an element of informed guesswork (Jean Drèze, personal communication).

[3] Since from the NSS is used only at the state level, I am able to use data from the "thin" rounds of the NSS also.

[4] I also try introducing lags between the offtake and purchase, but that does not affect the main results, so those tables are not reported here.

As the level and trend in per capita purchase of grain is of as much interest as diversion, this section begins with a discussion on purchase.

3.1 Per capita purchase of rice and wheat

Tables 1A and 1B report the per capita purchase of wheat and rice for rural and urban areas separately for each of the relevant years. For rural areas, two points are worth noting: first, average per capita purchase of grain is quite low: in the case of rice, it is approximately 1kg per month and less than 500 grams in the case of wheat. Second, there is a lot of variation in the state-wise trends in purchase of wheat and rice over the reference period. Based on per capita purchase of PDS graint, three groupings of states are possible.

The first category is that of "languishing" states (see Figure 1A). Roughly these are states where per capita purchases have remained below 1kg/month. This group comprises of several north Indian states (Haryana, Punjab, Rajasthan) and the east (Assam, Bihar, Jharkhand and West Bengal). Surprisingly, it also includes the state of Gujarat, which is one of the few states where there has been a monotonic decline in per capita purchase of PDS grain.

The second group of states are the "reforming" states. It includes states where per capita purchases were roughly 1kg/month at the beginning of the period being studied, but has risen since then. This is a mixed group comprising of Orissa in the east, Chhattisgarh and Madhya Pradesh in central India, Uttarakhand and Uttar Pradesh in the north. Note however, that in the case of Uttar Pradesh the signs of reform are only barely perceptible - average purchase has risen from 0.29kg/month/capita to 1.02kg/month/capita. The most remarkable state in this group is Chhattisgarh where per capita purchase in 2007-8 was 3.2kg/month, making Chhattisgarh's PDS among the top five in the country (after Himachal, Tamil Nadu, Jammu and Kashmir and Andhra Pradesh).

The states that do well and have improved over the reference period ("functioning" states, where per capita purchase of PDS grain has been greater than 1kg/month throughout the period under study). These include two from the south (Andhra Pradesh and Tamil Nadu) and two from the north (Jammu and Kashmir and Himachal Pradesh). Further, per capita purchase of PDS grain (wheat and rice combined), is of similar magnitude in Kerala, Karnataka and Maharashtra (see Figure 1C). Note that, the "functioning" states are primarily rice-consuming states.

Another noteworthy trend emerges from Kerala - where average purchase of rice crashes from 4.1kg/capita in 1999-2000 (the highest across states in that year) to 1.71kg/capita in 2004-5, and then recovers partially in subsequent years to 2.24kg/capita at the end of the reference period. This is, however, lower than the highest reported purchase for 2007-8 from Tamil Nadu (4.84kg/capita).

In general, the PDS seems to function better in rice-consuming states. As far as wheat is concerned, per capita purchases remained low throughout the reference period (between 300-400 grams per capita) with only Himachal doing well both in terms of level and trend (where average purchase rose from 1.27kg/capita in 1999-2000) to 2.46kg/capita in 2007-8).

Average purchase per capita in urban areas is nearly half of the corresponding figures for rural areas (0.69kg/capita for rice and 0.21kg/capita for wheat). In urban areas, the same (as

in rural areas) rice states do well: Tamil Nadu, Andhra Pradesh, Himachal Pradesh, Jammu and Kashmir and Chhattisgarh. In the case of wheat, only Himachal Pradesh crosses the 1kg/capita barrier (average purchase of wheat in urban Himachal was 2.01kg/capita).

3.2 Diversion of rice and wheat

Table 2 reports the estimated proportions of wheat and rice that were diverted for two "thick" NSS rounds (the 55th round, 1999-2000 and the 61st round, 2004-5) and three "thin" rounds (2000-1 and 2006-7). Three major caveats - under-recording of PDS purchase, choice of multipliers and accounting practices - are discussed in the next section.

First, the level of diversion of rice is lower than wheat in each of the years. In 1999-2000, about one-tenth of the rice was diverted, whereas nearly half (49%) of all wheat was diverted. However, the proportion of rice that is diverted has been increasing rapidly - from just 9.9% in 1999-2000 to 18.2% in 2001-2 and to 41.3% in 2004-5. Since 2004-5, there has been a marginal decline (approximately five percentage points) in the rice that is diverted.

Second, comparing performance of the states between the two thick rounds, we find that across states things got worse. At the all India level, the leakages from the PDS increased from 24% to 54%. Even among the better performing southern states (for instance, Kerala) there was a deterioration.

Next we compare the performance between the last "thick" round (i.e., 61st, pertaining to 2004-5) and more recent but "thin" rounds of the NSS for which data is available (63rd and 64th round).[5] This comparison indicates that things have improved, though only marginally, at the all India level. The overall diversion of grain has come down from 54% in 2004-5 to 44% in 2007-8. In spite of this marginal improvement, diversion rates were higher in 2007-8, than in the pre-TPDS period (i.e., in 1999-2000 when 24% of wheat and rice were diverted).

Third, for the recent years, except for a few states, in most we see some improvement as far as leakages are concerned since 2004-5. These overlap with the "languishing" states mentioned in section 3.1 above. With the exception of Rajasthan, the languishing states are concentrated in the eastern part of the country (Assam, Bihar, Jharkhand and West Bengal). They are among the worst performing states (in 2007-8 and also in terms of the trend).

Among the states which show an improvement four states deserve a more detailed discussion on the possible explanations for the improvement. These four states are Andhra Pradesh, Chhattisgarh, Himachal Pradesh and Tamil Nadu. As mentioned earlier, one possible explanation for the better performance of certain states (than others or over time) could be that the PDS remained (or became) universal because of extra commitment of resources by the state government. The states that have done this include Tamil Nadu (where the PDS is universal, both in rural and urban areas), Himachal Pradesh (where APL families continue to get wheat and rice from the PDS, albeit at a higher price than BPL households), Chhattisgarh (where the state provides an additional subsidy and has improved the coverage of the PDS). Andhra Pradesh, like Chhattisgarh runs a quasi-universal PDS: it covers many more households than the Centre provides for and also provides an additional subsidy on the issue price (only Rs. 2/kg for rice). Not surprisingly, each of these performing states (in 2007-8)

[5] Even though the data from the 63rd round, pertaining to 2006-7 is a thin round, it is possible to generate reliable estimates at the state-level.

have shown a consistent improvement over the reference period. At least two (Himachal and Tamil Nadu) of these states have a well established record of good performance in social welfare schemes.[6] In Chhattisgarh, the revival of the PDS in recent years has also received some attention.[7]

A counter-example to this is Kerala. Though the PDS was, in theory, universal in the pre-1997 period, in fact Kerala is the only state in which access was close to universal. In most other parts of the country, PDS coverage in rural areas remained poor. The initial crash in per capita purchase has already been referred to in section 3.1 (see also Tables 1A and 1B).

4. Methodological Issues

4.1 Under-recording of PDS purchases in the NSS

The main concern here is whether there are measurement errors in the NSS data as far as purchase of PDS grain is concerned. There are three reasons why this may need investigation: one, in Deaton and Dreze (2009, pp. 67-68), they find that the NSS somewhat understates total cereal consumption in India, compared with total availability that Ministry of Agriculture calculates. Using the method outlined above would lead us to automatically attribute this underestimation, or some part of it, to diversion, and thus overstate the amount diverted. Second, NSS data is based on recall for the past 30 days. To what extent NSS investigators spend time on reconstructing the purchase is not clear. As mentioned above, there could be an element of informed guesswork recorded purchase. If that is the case, it is possible that when marked changes occur in the performance of the PDS, these are reflected in the NSS data with a lag. This could be the case as knowledge of such "jumps" takes time to become widespread enough to inform guesses. Third, that such informed guesswork and lags could exist is illustrated in the case of Chhattisgarh, where field evidence from other sources suggests that households get their full quota regularly but it is not yet reflected entirely in the NSS data.

The Indian Human Development Survey (IHDS) conducted in 2004-5 collects information on total cereal consumption as well as PDS purchase of wheat and rice from all sample households.[8] Despite its smaller sample, the IHDS data offer an important opportunity to check the accuracy the data on PDS purchase in the NSS.[9]

In Table 3, I compare recorded per capita purchase of wheat and rice from two sources: the IHDS and NSS data, both pertaining to 2004-5. These averages have been reported separately for rural and urban areas. The table suggests that average PDS purchase are of similar magnitude irrespective of which data source we use.[10] To illustrate, according to NSS data, at the all India level per capita purchase of rice (wheat) was 0.84 (0.35) and 0.54 (0.17) in rural

[6] See S. Vivek (2010), Bhatty (2006).
[7] See Dhand et al (2008), Drèze (2010), Drèze and Khera (2010b), Patnaik (2010) and Himanshu and Sen (2011).
[8] The IHDS questionnaire is modelled on the CES of the NSS,
[9] On the other hand, PDS grain might be of poor quality, in the sense that the grain is not cleaned. This could lead to an under-estimation of diversion. However, recent field evidence suggests that quality of PDS grain is not a major concern. For instance, according to IHDS data, only one percent of households reported poor quality being the reason for not using their ration card.
[10] In the case of the IHDS data, all "missing" values have been recoded as zeros. Coding in this manner has the effect of allowing us to calculate the "upper bound" for diversions. The average per capita purchase declines from 3.05kg/month to 0.91kg/month for rice in rural areas when missing values are treated as zeros.

and urban areas respectively. According to the IHDS survey, the corresponding figures are 0.91 (0.37) and 0.56 (0.21) respectively. Further, the state-wise patterns remain the same for both data sets: states that perform well according to the NSS also perform well according to IHDS data. Andhra Pradesh, Himachal Pradesh, Jammu and Kashmir, Karnataka, and Tamil Nadu are the top five states according to both data sources and Bihar is at the bottom no matter which data set we use.

Table 3 also compares the overall diversion using NSS and IHDS. Overall, diversion is marginally lower if one uses IHDS (50.5%) than NSS (54.0%). In a handful of states, diversion of grain is higher as per IHDS. These include mainly the stagnating states (Assam, Bihar, West Bengal, Punjab and Haryana), but also Madhya Pradesh and Kerala. In several of the other states, diversions as per IHDS data are lower by a margin of more than ten percentage points (including states like Jharkhand and Rajasthan). However, given the considerably smaller sample size of IHDS survey (approximately 40,000 households), one can only treat these estimates as supplements to NSS data.

4.2 Choice of Multiplier: NSS vs. Census projections

Another issue to bear in mind is the choice of multiplier for aggregating per capita PDS purchase up to the state level. There are two obvious choices for this: census population projections and NSS population multipliers. The norm, in so far as estimation of diversion is concerned, has been to use census population projections. Using NSS multipliers can provide a useful check for the reliability of population projections made by the Census of India.[11]

Table 4 presents the estimated diversion using these two alternative methods using the multipliers from the 61st NSS round (pertaining to 2004-5). The proportion of grain diverted if one uses the NSS multipliers is very similar to the estimates that we got using population projection calculated by the Census of India. At the all India level, 47 and 73 per cent of the rice and wheat respectively are diverted. These estimates are slightly higher than the ones using census population projections - 41 and 70 per cent respectively for rice and wheat. In this note therefore, I use the census projections to calculate diversion over the different years.

4.3 Procurement by state governments and Accounting practices

The FCI procures wheat and rice through its network across the country. In addition to procurement by FCI directly, in some states, the state's food and civil supply corporations also procure grain through the "Decentralized Procurement Scheme". Grain thus procured may be used to contribute to the central pool of grain, or by the state to augment its supply of grain for the PDS or in some cases, even sold to other state governments for their PDS.[12]

Statewise procurement figures for 2004-5, 2006-7, 2007-8 and 2008-9 are given in Table 5. It is evident from this table that, decentralized procurement was much more of a success in the case of rice, than wheat. In 2008-9, Andhra Pradesh and Punjab contributed just over half of total paddy procurement by FCI; further, there has been substantial improvement in procurement by Chhattisgarh, Orissa, Uttar Pradesh (each state contributes close to one-tenth of total procurement). On the other hand, in the case of wheat, procurement remains heavily

[11] The NSS does not use census figures. The NSS multipliers are based on their own methods of house listing etc. and are likely to be more reliable (Angus Deaton, personal communication).

[12] For example, the Government of Tamil Nadu purchases grain from the Andhra Pradesh Civil Supplies Corporation.

concentrated in a two states: in 2004-5, more than 90 per cent of the wheat was procured from Haryana and Punjab alone. In the last year for which data is available (2008-9), the share of these two states declined to about 70 per cent of total wheat procurement.

The centre allocates grain to states in accordance with the number of BPL families fixed by the Planning Commission. Where states have expanded the PDS (e.g., Andhra Pradesh, Tamil Nadu, among others, see Table 7) the actual number of BPL households is higher than that sanctioned by the Central government. When states increase the coverage of BPL households, their grain requirements rise above what the Centre provides to them at BPL prices. One option that states have is to spread the Centre's allocation (of 35 kg per BPL household) over a larger number of households by reducing per household entitlements. For instance, the Government of Tamil Nadu gives only 20kg per household but to all households irrespective of whether they are APL or BPL. The second option available to states is to purchase the additional grain required either from the Food Corporation of India, or procure it locally (i.e., within the state, through the state civil supplies corporation). This is being done, for instance, in Chhattisgarh and Tamil Nadu. By combining these two measures, the government of Tamil Nadu has been able to convert its PDS into a universal system. Yet another option is to take grain provided for APL households at higher prices and use it to meet the needs of the additional BPL households.

Chhattisgarh, Tamil Nadu, Himachal Pradesh and Andhra Pradesh (among others) are states that augment centrally allocated grain (through OMS or DCP). Where states augment foodgrain supply through local procurement, using the allocation and offtake figures reported in the Monthly Foodgrains Bulletin would be incorrect because that only reports allocation and offtake from what is called the "central pool". This would lead to underestimation of grain diversion. To get an accurate estimate, in such cases one would have to add to the offtake figure, the grain allocated/offtake to the PDS by the state from local procurement and other sources.

There are two types of accounting practices that need to be examined when estimating diversion in this manner: one, accounting for state contribution either through locally procured grain or by purchasing elsewhere and two, to what extent are data from the Monthly Foodgrains Bulletin reliable.

I take a closer look at these two issues using data from Chhattisgarh and Tamil Nadu for 2007-8. The choice of year is obvious: it is the first year in which the state began to contribute rice (on top of allocations from the central pool) in order to run an expanded PDS. The Department of Food of the Government of Chhattisgarh provides data on rice and wheat by source: the state's contribution as well as allocation and offtake from the central pool of the FCI. In the case of Tamil Nadu, the Department of Food provided offtake and "liftment" from the central pool.[13] "Liftment" refers to the data that is sold at the PDS outlet. Note, that Tamil Nadu is probably the only state in the country that has a system for tracking sales at the PDS outlet. These data are presented in Table 6.

The first point to note is that there is a small discrepancy in "offtake" data as reported in the Monthly Foodgrains Bulletin and the data provided by the respective state governments. Though the reason for this discrepancy is not clear, it could be attributed to leakages, transit losses, lags in accounting and so on.

[13] In 2007-8, Tamil Nadu did not augment its foodgrain supply from either the state pool or OMS.

The second important point is that when we add Chhattisgarh state's contribution to our calculations, then the proportion of foodgrain diverted in Chhattisgarh in 2007-8 jumps from -1 percent to 37.7 percent - only marginally lower than the all India diversion average of 44.3%.[14] This suggests that one needs to take into account the contribution of grain by states for distribution through the PDS. Note, however, that this data does not seem to be have been compiled at the Central level. In fact there are other gaps in the data availability at the Central level which need to be remedied (on this see concluding section).

Another minor clarification relates to making a distinction between the state's offtake from the FCI and what is actually sold through ration shops. Data on sales from PDS outlets is available from the Tamil Nadu Civil Supplies Corporation.[15] Comparing diversion figures using FCI offtake data and sales data, the diversion figures for Tamil Nadu come down from 13% to 8%.

Finally, note that for some states, using the method above, the estimated proportion of grain diverted is *negative*. This means that more grain is bought from ration shops than is supplied according to the Monthly Foodgrain Bulletin. Using lags (i.e., offtake of grain allocated this month may happen in subsequent months) does not resolve this issue. This also suggests that further streamlining of this methodology is required and diversion figures must be taken as illustrative.

4.4 Data gaps

There are several data gaps that hinder an exercise of this sort. For instance, data on the states' contribution to the PDS are not readily available. There is no easy way of finding out which states are augmenting FCI supplies of grain with their own purchases. Further, details of the entitlements of different categories of ration card holders are also not available from the Ministry of Food and Civil Supplies' website. Table 7 which reconstructs these entitlements relies on state government websites, online newspaper reports and so on. There are other such gaps: e.g., the Monthly Foodgrains Bulletin which used to be available on the website of the Department of Food and Civil Supplies until 2005, is no longer publicly available. These and other data gaps need to be addressed immediately.

5. Conclusion

In this paper, I estimate the "leakages" of wheat and rice through the PDS in India. In doing so, I discuss several methodological issues which make the precise estimation of such leakages difficult. In particular, I discuss the effect of measurement errors in the NSS data on PDS purchase by households, the unreliability of population projections made by the Census of India and the effect of decentralized procurement by state food and civil supplies corporations. The discussion on methodological issues, including the fact that all leakages (storage and transport losses included) have to be attributed to corrupt practices, indicates that estimates of diversion estimated in this manner, must be treated as the upper bound on illegal diversion of PDS grain.

[14] Though this runs contrary to what field reports suggest, it could be possible that there is a larger measurement error in the case of Chhattisgarh, on account of the discrete jump in what households get from the PDS.

[15] It is possible to get this data from Tamil Nadu because stock holdings are computerized down to the ration shop level.

Imprecise as these estimates may be, computing these proportions over a period of time is still a useful exercise because one can get a sense of which direction things are moving in. Looking at the *overall* proportion of grain diverted, between 1999-2000 and 2007-8 (i.e., the 55th and 64rd rounds of the NSS), the situation is far from encouraging. At the beginning of the period, 24% of grain was diverted. The situation got worse until 2004-5 when 54% of grain leaked but since then, there has been a reversal of that trend. At the end of the period, 44% of PDS grain was diverted at the all India level.

However, when one studies trends disaggregated by state, the picture is very mixed. Based on level of per capita PDS purchase and trends, I classify states into three broad categories: "functioning" states, "reforming" states and "languishing" states. The states that fall in the first category are not surprising, as they have a good record on implementation of various social welfare schemes. Apart from the southern states, this category includes HP and JK in the north and Maharashtra. On the other hand, the "languishing" states are not very surprising either. Assam, Bihar, Jharkhand, West Bengal have a poor record on other socio-economic indicators too. The interesting category is that of "reforming" states, which includes Chhattisgarh, Madhya Pradesh, Orissa and Uttar Pradesh (though the last state just about manages to join this category).

What could be behind the turnaround in the reforming states. Some of the demand and supply side factors that could affect PDS purchase by households have been discussed in Khera (2011). A common feature across the reforming states is that the PDS has been expanded (e.g. by increasing coverage, or the implicit subsidy) in recent years in these states. The expansion of the PDS has been accompanied by other supply-side PDS reforms (e.g., computerization of records, deprivatization of PDS shops). Field-based evidence from these states suggests that when the issue price is lowered, say to Re 1/kg or Rs. 2/kg, people are unwilling to let go of their grain.

Some of the recent state-level initiatives are listed in Table 7. When the TPDS was introduced, the Central government began allocating subsidized foodgrain for those households that were classified as below poverty line (BPL). The proportion of BPL households in each state, in turn, was decided on the basis of the 1993-4 poverty estimates of the Planning Commission. This compelled state governments to "downsize" their PDS in accordance with what they got from the Central government once the TPDS was introduced. However, a few years into the TPDS, several states realised that the TPDS led to the exclusion of several poor households. For instance, according to NSS data from 2004-5, only 53% of rural households belonging to the poorest MPCE quintile had a BPL ration card.[16] These large exclusion errors can be attributed to the small TPDS coverage (in other words, the Planning Commission's poverty estimates were too low) and also because the poor design and implementation of the survey for selection of BPL households. As a partial remedy to this, (at least) since 2006, state governments began to spend state resources to increase the coverage, or provide additional subsidy to those households covered by the TPDS. As Table 7 shows, in several states, the PDS is now quasi-universal (Tamil Nadu, Andhra Pradesh, Chhattisgarh, Karnataka, Himachal Pradesh). In many others, states governments have expanded the coverage (e.g., Rajasthan) and/or reduced prices (e.g., Jharkhand). The additional subsidy burden is borne either by reducing quantities (e.g., from 35kg or 20kg in Madhya Pradesh) supplied to eligible households and by putting in additional state resources.

[16] See Drèze and Khera (2010a).

Another factor behind the observed pattern in the reforming states, could be the increased difference between market price and PDS price in recent years. The gap between market and PDS price has grown because of a rise in market prices *and* because many states have lowered the PDS issue price. This has had the effect of increasing the interest of both the state government and of BPL cardholders in taking as much as possible from the central pool and PDS shop respectively. As market prices of wheat and rice have risen, grain sold at APL prices by the FCI has become cheaper than the open market. This is one of the reasons why state offtake of APL grain has been high in recent years.[17]

The performance of the PDS is a typical case of the glass being half full and half empty at the same time. This paper touches upon both sides of the story, to highlight the need for further research on both these questions, especially in the context of the proposed Food Security Act in which the PDS is likely to be an important part.

[17] Another important reason for high APL offtake rates is that in 2006, FCI fixed APL allocation for states based on the state's offtake record prior to that year (Himanshu, 2011).

Figure 1A: Per Capita Consumption of PDS Grain (rural)
"Languishing" states

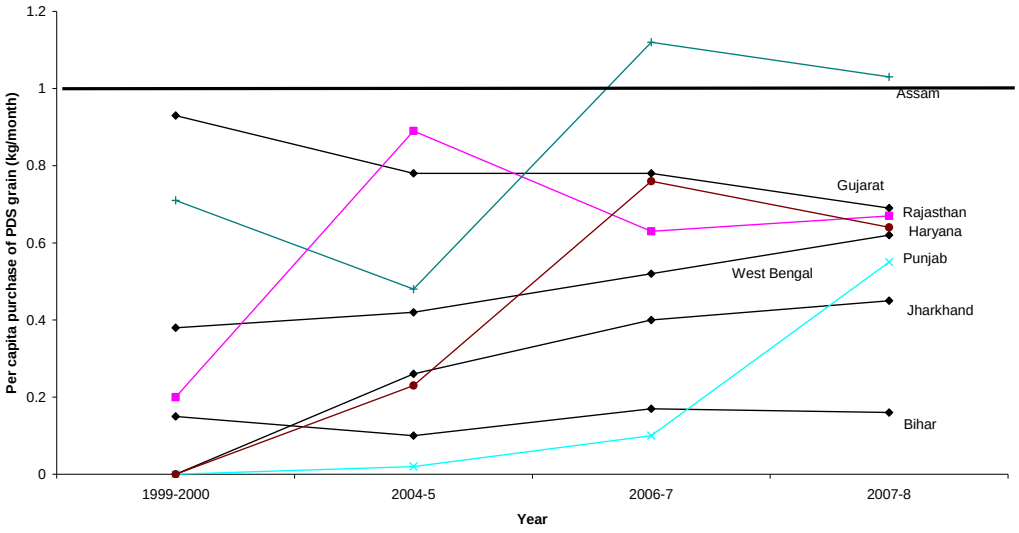

Figure 1B: Per Capita Consumption of PDS Grain
"Reforming" states

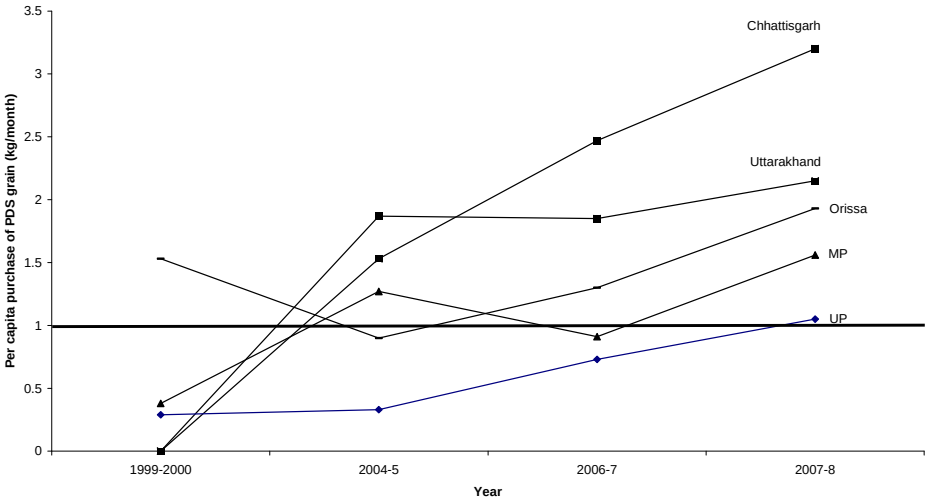

Figure 1C: Per Capita Consumption of PDS Grain
"Functioning" States

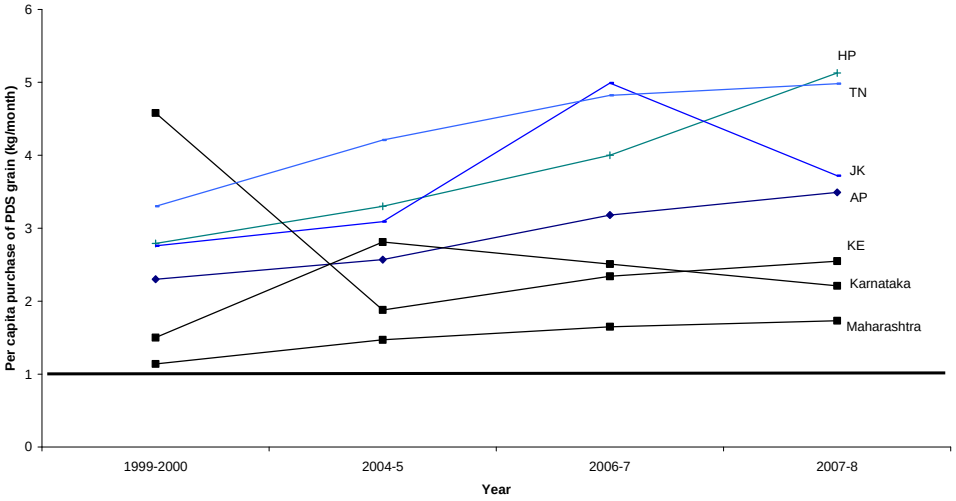

Table 1A. Per capita purchase of PDS rice

	rural				**Urban**			
	1999-2000	*2004-5*	*2006-7*	*2007-8*	*1999-2000*	*2004-5*	*2006-7*	*2007-8*
AP	2.3	2.57	3.17	3.48	1.21	1.39	1.9	1.85
AS	0.71	0.48	1.11	1.01	0.57	0.18	0.47	0.03
BI	**0**	0.04	0.1	0.07	0.07	0.04	0.06	0.06
Chh	NA	1.45	2.4	3.17	NA	0.94	1.08	1.2
Guj	0.38	0.24	0.3	0.26	0.19	0.06	0.08	0.05
Har	**0**	0	0.12	0.09	0	0	0.16	0.04
HP	1.52	2.05	2.33	2.67	0.67	0.68	1.12	1.56
JK	2.1	2.78	4.52	3.05	4.11	4.65	5.2	4.68
JH	NA	0.15	0.22	0.31	NA	0.12	0.07	0.08
KA	1.2	2.39	2.16	1.85	0.85	1.01	0.92	0.56
KE	4.14	1.71	2.04	2.24	3.48	1.22	1.54	1.54
MP	0.22	0.36	0.29	0.46	0.09	0.1	0.17	0.19
MA	0.47	0.61	0.77	0.85	0.24	0.13	0.17	0.13
OR	1.53	0.9	1.29	1.93	1.34	0.31	0.71	0.97
PU	**0**	0	0.05	0.01	0	0	0	0
RAJ	**0**	0	0.03	0.04	0	0	0.11	0.07
TN	3.16	4.13	4.7	4.84	2.14	2.46	3.36	3.19
UP	0.11	0.14	0.43	0.64	0.08	0.05	0.16	0.14
UTT	NA	1.04	1.1	1.14	NA	0.09	0.19	0.43
WB	0.23	0.27	0.35	0.4	0.23	0.14	0.16	0.14
INDIA		0.84	1.05	1.18		0.54	0.75	0.69

Table 1B Per capita purchase of PDS wheat

	Rural				Urban			
	1999-2000	2004-5	2006-7	2007-8	1999-2000	2004-5	2006-7	2007-8
AP	0	0	0.01	0.01	0.27	0.01	0.04	0.05
AS	0	0	0.01	0.02	0	0	0.02	0.01
BI	0.15	0.06	0.07	0.09	0.16	0.08	0.06	0.09
Chh		0.08	0.07	0.03		0.14	0.03	0.03
Guj	0.55	0.54	0.48	0.43	0.3	0.16	0.18	0.13
Har	0	0.23	0.64	0.55	0	0.36	0.57	0.27
HP	1.27	1.25	1.67	2.46	0.7	0.36	1.19	2.01
JK	0.66	0.31	0.47	0.67	0.97	0.46	1	0.94
JH		0.11	0.18	0.14		0.09	0.07	0.05
KA	0.3	0.42	0.35	0.36	0.31	0.17	0.18	0.1
KE	0.44	0.17	0.3	0.31	0.54	0.17	0.29	0.29
MP	0.16	0.91	0.62	1.1	0.15	0.55	0.41	0.62
MA	0.67	0.86	0.88	0.88	0.32	0.28	0.3	0.19
OR	0	0	0.01	0	0.34	0.02	0.09	0.05
PU	0	0.02	0.05	0.54	0.11	0.05	0.06	0.32
RAJ	0.2	0.89	0.6	0.63	0.18	0.16	0.48	0.54
TN	0.14	0.08	0.12	0.14	0.34	0.12	0.2	0.17
UP	0.18	0.19	0.3	0.41	0.19	0.1	0.2	0.15
UTT		0.83	0.75	1.01		0.07	0.05	0.44
WB	0.15	0.15	0.17	0.22	0.39	0.08	0.1	0.14
INDIA		0.35	0.31	0.39		0.17	0.22	0.21

Source: Author's calculations using NSS data.

Table 2: Diversion of PDS grain

	1999-2000			2001-2			2004-5			2006-7			2007-8		
	Rice	Wheat	Foodgrain	Rice	Wheat	Foodgrain	Rice	Wheat	Foodgrain	Rice	Wheat	Foodgrain	Rice	Wheat	Foodgrain
AP	15.2	14.4	15.2	12.3	-210.8	11.2	22.3	93.0	23.2	16.1	66.9	17.0	19.2	50.3	19.6
AS	54.7	100	65.3	69.4	98.1	74.9	83.5	100.0	88.7	72.4	98.4	76.6	73.0	97.5	77.5
BI	94.6	75.2	80.2	77.3	91.6	88.3	84.8	92.8	91.0	83.6	84.4	84.0	92.4	85.1	89.5
Chh				45.8	33.4	43.2	45.1	82.6	51.8	28.9	65.3	30.9	-3.1	57.0	-1.5
Guj	-23.9	8.2	-2.5	35.6	27.3	29.8	52.7	51.3	51.7	66.1	39.6	53.2	73.0	53.3	63.1
Har	0	100	100		94.0	94.0	-	82.7	82.7	39.5	29.4	31.4	61.8	48.8	51.1
HP	-	-	-	26.0	43.8	31.2	7.0	46.2	27.0	11.6	32.4	21.8	12.9	14.3	13.6
JK	-1.4	-80.3	-12.3	54.1	79.0	60.7	-8.9	79.4	23.0	-36.5	66.4	-1.0	7.6	59.1	24.3
JH				71.5	83.0	79.1	82.3	87.9	85.2	86.4	80.9	84.4	83.3	85.2	84.0
KA	17.1	21.0	18.0	47.0	53.7	48.4	25.8	41.7	28.7	32.6	34.4	32.9	42.2	33.4	41.0
KE	-44.7	5.9	-36.9	-28.6	66.9	0.0	-1.9	78.9	25.6	0.8	55.3	14.8	3.5	55.6	16.2
MP	59.3	18.2	46.9	50.8	46.4	47.4	12.9	56.7	50.1	52.8	64.0	61.1	20.8	39.9	35.5
MA	24.4	33.3	29.9	40.0	53.2	48.3	46.5	51.0	49.3	44.6	38.5	41.4	40.7	44.1	42.5
OR	26.8	87.5	36.7	21.4	-	21.0	74.1	99.0	76.3	53.4	91.5	57.0	46.2	97.1	50.2
PU	100	-107.0	-52.9	92.5	87.7	87.9	100.0	93.1	93.2	71.9	81.1	78.5	17.6	18.4	18.4
RAJ	100	53.0	53.4	76.1	75.8	75.8	100.0	93.9	93.9	69.8	83.5	81.9	75.7	82.0	81.2
TN	-12.3	-21.7	-13	-79.2	-	0.0	9.4	-86.7	7.3	2.4	-105.6	-0.7	8.7	-186.1	4.4
UP	46.6	17.4	31.1	77.4	67.1	69.7	85.4	36.7	58.0	72.3	7.8	50.5	52.9	-14.5	26.7
UTT				-109.8	-810.0	0.0	44.2	84.8	59.4	44.2	88.3	63.3	33.3	70.9	48.5
WB	23.8	70.9	57.3	42.4	84.0	67.3	70.4	85.0	80.6	72.4	80.4	76.8	70.8	77.9	74.8
INDIA	**9.9**	**48.6**	**23.9**	**18.2**	**66.8**	**39.0**	**41.3**	**70.3**	**54.0**	**39.6**	**61.9**	**46.7**	**37.2**	**57.7**	**43.9**

Notes: 1. For a discussion of "negative" diversion estimates, see section 4.3.
Sources: "Offtake" data from Monthly Foodgrains Bulletin published by Government of India. I use total (BPL, APL and Antyodaya) offtake figures. For 2004-5, population projections for 1 March, 2005 have been used. Similarly for 2006-7 (2007-8), projected population on 1 March 2007 (2008) has been used. Population projections have been taken from Office of the Registrar General and Census Commissioner (2006).

Table 3 Purchase and Diversion of grain (2004-5): NSS vs. IHDS

	Panel A: Per capita purchase of PDS								Panel B: Diversion of wheat and rice:					
	Rice				Wheat									
	Rural		Urban		Rural		Urban		IHDS			NSS		
	IHDS	NSS	IHDS	NSS	IHDS	NSS	IHDS	NSS	Rice	Wheat	Foodgrain	Rice	Wheat	Foodgrain
AP	2.89	2.57	1.44	1.39	0.02	0	0.02	0.01	13.77	49.35	14.25	22.27	93.04	23.23
AS	0.12	0.48	0.13	0.18	0	0	0.01	0	95.43	99.89	96.83	83.46	100.00	88.68
BI	0.01	0.04	0.03	0.04	0.01	0.06	0.03	0.08	95.39	98.60	97.85	84.75	92.82	90.95
Chh	1.6	1.45	0.76	0.94	0.17	0.08	0.07	0.14	41.78	72.01	47.18	45.05	82.55	51.75
Guj	0.23	0.24	0.2	0.06	0.41	0.54	0.28	0.16	39.40	55.46	50.50	52.66	51.29	51.71
Har	0	0	0	0	0.09	0.23	0.01	0.36	-	95.81	95.81	-	82.68	82.68
HP	1.91	2.05	1.16	0.68	2.18	1.25	1.02	0.36	10.67	4.24	7.38	6.95	46.17	27.03
JK	4.52	2.78	4.52	4.65	0.28	0.31	0.47	0.46	-51.10	80.60	-3.49	-8.94	79.43	23.01
JH	0.28	0.15	0.13	0.12	0.21	0.11	0.11	0.09	69.51	78.53	74.19	82.25	87.91	85.19
KA	2.61	2.39	0.93	1.01	0.58	0.42	0.21	0.17	21.35	20.99	21.28	25.80	41.67	28.68
KE	1.13	1.71	0.47	1.22	0.28	0.17	0.12	0.17	38.24	70.30	49.17	-1.91	78.85	25.62
MP	0.28	0.36	0.17	0.1	0.73	0.91	0.68	0.55	24.79	61.81	56.23	12.90	56.67	50.07
MA	0.83	0.61	0.18	0.13	1.46	0.86	0.35	0.28	27.07	21.34	23.49	46.53	51.04	49.34
OR	0.94	0.9	0.56	0.31	0	0	0.03	0.02	71.81	98.43	74.13	74.14	98.95	76.31
PU	0.01	0	0	0	0	0.02	0	0.05	-50.92	100.00	98.58	100.00	93.14	93.20
RAJ	0	0	0	0	0.67	0.89	0.25	0.16	100.00	82.68	82.69	100.00	93.90	93.90
TN	3.7	4.13	2.41	2.46	0.29	0.08	0.35	0.12	16.16	-262.47	9.95	9.44	-86.71	7.29
UP	0.24	0.14	0.1	0.05	0.26	0.19	0.1	0.1	74.57	35.21	52.40	85.38	36.69	57.95
UTT	1.19	1.04	0.13	0.09	0.85	0.83	0.1	0.07	35.61	86.46	54.70	44.17	84.81	59.43
WB	0.13	0.27	0.03	0.14	0.12	0.15	0.03	0.08	87.08	85.00	85.63	70.38	85.02	80.61
INDIA	0.91	0.84	0.56	0.54	0.37	0.35	0.21	0.17	36.97	67.70	50.45	41.30	70.27	54.01

Source: Author's calculation using IHDS and National Sample Survey data.

Table 4: Diversion of PDS Grain, 2004-5:
Census population projection vs. NSS multipliers

	Based on Census projections		**Based on NSS multipliers**	
	Rice	*Wheat*	*Rice*	*Wheat*
AP	22.27	93.04	28.4	94.1
AS	83.46	100.00	84.8	100.0
BI	84.75	92.82	87.4	94.1
Chh	45.05	82.55	45.7	83.8
Guj	52.66	51.29	56.9	55.9
Har	-	82.68	-	84.0
HP	6.95	46.17	10.0	47.9
JK	-8.94	79.43	31.8	87.1
JH	82.25	87.91	84.9	89.7
KA	25.80	41.67	32.1	46.6
KE	-1.91	78.85	4.2	80.3
MP	12.90	56.67	17.2	59.4
MA	46.53	51.04	50.1	54.7
OR	74.14	98.95	74.6	99.1
PU	100.00	93.14	100.0	94.0
RAJ	100.00	93.90	100.0	94.5
TN	9.44	-86.71	17.6	-69.1
UP	85.38	36.69	86.4	40.9
UTT	44.17	84.81	46.8	85.8
WB	70.38	85.02	71.7	85.5
INDIA	41.30	70.27	46.7	72.8

Sources: Population projections have been taken from Office of the Registrar General and Census Commissioner (2006).

Table 5. Procurement of rice and wheat (lakh tonnes),

	2004-5		**2006-7**		**2007-8**		**2008-9**	
	Rice	*Wheat*	*Rice*	*Wheat*	*Rice*	*Wheat*	*Rice*	*Wheat*
Andhra	39.0	-	53		74		90.61	
Bihar	3.4	0.01	4.6	0.08	5.12	5.0	10.83	4.97
Chhattisgarh	28.4	-	28.65		27.43		28.48	
Haryana	16.6	45.3	17.77	33.5	15.72	52.31	14.25	69.24
Madhya Pradesh	-	4.8		0.57		24.1		19.68
Maharashtra	2.1	-	0.97		1.6		2.61	
Orissa	15.9	-	20.02		23.38		27.90	
Punjab	91.1	90.1	78.29	67.81	79.08	99.39	85.53	107.25
Rajasthan		1.6		3.83		9.35		11.52
Tamil Nadu	6.5	-	10.77		9.68		11.99	
Uttaranchal		0.4		0.02		0.85		1.45
Uttar Pradesh	29.7	5.6	25.59	5.46	28.91	31.37	36.87	38.82
West Bengal	9.4	-	6.42		15.08		16.67	
Others	4.7	0.02						
Total	246.8	147.9	251.07	111.27	284.91	226.82	336.84	253.82

Source: Government of India (2005) and Government of India (2010), Table 8.19. Also available online at www.indiabudget.nic.in

Table 6: Comparison of data on Offtake: State vs. FCI

	Panel A *Offtake data from FCI*		**Panel B** *Offtake data from state*		**Panel C** *"Liftment" data from state*	**Panel D** *State contribution to PDS*
	Tamil Nadu	Chhattisgarh	Tamil Nadu	**Chhattisgarh**	**Tamil Nadu**	Chhattisgarh
July, 2007	308.644	77.683	280.772	69391.84	386.327	36340
Aug, 2007	354.127	51.303	277.467	64619.89	405.43	33290
Sept, 2007	294.281	42.367	278.145	61261.13	336.648	33290
Oct, 2007	316.008	45.775	282.468	67136.66	361.783	33290
Nov, 2007	257.272	64.064	283.514	67137.66	321.336	42878
Dec, 2007	208.505	67.242	288.683	67137.66	275.747	42878
Jan, 2008	227.201	66.783	289.286	58751.76	293.984	36944
Feb, 2008	234	66.854	289.848	71682.57	300.854	41508
Mar, 2008	414.908	66.678	287.966	64246.07	481.586	42029
Apr, 2008	288.026	63.979	285.174	64229.4	352.005	43436
May, 2008	414.908	66.678	284.647	65350.37	481.586	51728
Jun, 2008	283.188	63.979	286.872	64220.25	347.167	37179
	3601.07	743.39	3414.84	785.17	4344.45	474.79

Notes: 1. "Offtake from FCI" refers to offtake figures by state as reported in the Monthly Foodgrains Bulletin. 2. "Offtake from state" refers to offtake figures provided by respective state governments. 3. "Liftment" refers to what has been purchased by households from PDS ration shops. Tamil Nadu has a system to track these purchases. 4. "State contribution to PDS" refers to the rice allocated by the Government of Chhattisgarh. This is over and above the rice allocations to the state from FCI.

Sources: 1. Panel A: Data from Monthly Foodgrains Bulletin, Various Issues, published by Government of India; 2. Panel B: Unpublished data kindly provided by the Department of Food, Government of Chhattisgarh and Government of Tamil Nadu; 3. Panel C: Unpublished Data provided by Deparment of Food, GoTN; 4. Panel D: Unpublished Data provided by Department of Food, Government of Chhattisgarh.

Table 7: Some State-Level Initiatives in the PDS

State	Year	BPL cards (lakhs)		BPL	APL
		Allocated	Actual		
Andhra Pradesh	Price reduction, 7 April 2008	40.63	175.5	20kg rice max (Rs. 2/kg)	30kg rice (Rs. 9/kg)
Chhattisgarh	Price reduction 2007 & December 2008; Expansion in 2007	18.75	36	35kg (Rs. 2/kg),	-
Himachal Pradesh	-	5.14	3.17	35kg (Central Issue Price)	35kg (Central Issue Price)
Jammu & Kashmir	-	7.36	4.8	35kg (Central Issue Price)	35kg (Central Issue Price)
Jharkhand	Price reduction, October 2010	23.94	14.76	35kg (Rs. 1/kg rice)	-
Karnataka	April 2005	31.29	76.77	25 kg rice/wheat (Rs. 3/kg)	13 kg rice, 3 kg wheat (Rs. 6.7/9/kg)
Kerala	At least since 2006	15.54	14.82	25kg rice (Rs. 3/kg)	35kg (Rs. 8.9 rice; Rs. 6.7 wheat)
Madhya Pradesh	Price and quantity reduction in April 2008	41.25	52.65	20kg (Rs. 3/kg for wheat and Rs. 4.50/kg for rice)	-
Orissa	1 July 2008, reduction of issue price	32.98	37.63	25kg/month (Rs. 2/kg rice)	-
Rajasthan	Price and quantity reduction, expanded coverage, 1 May 2010.	24.85	35.57	25kg (Rs. 2/kg)	35kg (6.50)
Tamil Nadu	Price reduction 15 September, 2008; universal since 2006	48.63	181.9	Max 20 kg rice and wheat: 5-10kg (Rs. 1/kg rice and Rs. 7.50/kg wheat)	

Notes: Central Issue prices are APL Rice Rs. 8.30; Wheat Rs. 6.10 BPL Rice Rs. 5.65; Wheat 4.15.

Sources: Number of BPL cards from the Monthly Foodgrain Bulletin (as on 30 June 2009). PDS Entitlements data from state government websites. Andhra Pradesh: http://www.aponline.gov.in/quick%20links/departments/consumer%20affairs%20food%20&%20civil%20supplies/a%20p%20state%20civil%20supplies%20corporation/about/index_old.html#file2; Chhattisgarh: http://cg.nic.in/khadya/documents/CM%20Khadya.pdf; Himachal: http://admis.hp.nic.in/ehimapurti/function.htm; Karnataka: http://des.kar.nic.in/ecsurveynew/chapter5_eng.pdf (2008-9) and http://www.kfcsc.com/pds.htm; Kerala: http://www.civilsupplieskerala.gov.in/PDS_details.aspx; Orissa: http://www.orissa.gov.in/foodsupplies/index.htm; Tamil Nadu: See also http://www.tn.gov.in/policynotes/pdf/food.pdf; Data on starting date of state-level initiative are from http://economictimes.indiatimes.com/articleshow/1367204.cms, http://www.hindu.com/thehindu/holnus/004200712172030.htm, http://www.sify.com/news/bjp-offers-rice-at-1-re-per-kg-news-election-jegv1wfjhic.html, http://www.hindu.com/2010/04/24/stories/2010042460320500.htm, http://www.hindu.com/2007/07/11/stories/2007071157090400.htm, http://www.hinduonnet.com/2005/04/21/stories/2005042110910400.htm, http://www.thaindian.com/newsportal/politics/madhya-pradesh-to-provide-wheat-rice-at-subsidised-rates_10026700.html, http://www.indianexpress.com/news/rice-at-re-1-kg-in-tn-from-sept-15/355474/

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