Revival of Rural PDS: Expansion and Outreach

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Abstract

Using the recent rounds of NSS data, this paper evaluates the performance and outreach of India's public distribution system (PDS) in the rural areas. The results suggest a significant improvement in the performance of PDS in terms of its outreach and offtake. States like Bihar and Jharkhand which were lagging behind earlier have shown a marked improvement. We find greater coverage and utilisation of the PDS by SCs and STs. Using a seemingly unrelated regression (SUR), we find that the share of PDS in total household consumption of rice and wheat has increased over the years, specially for the households in lower income brackets.

Keywords: PDS, India

JEL Code: I38, H42, Q18

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Introduction

This article lends further credence to the argument that the Public Distribution (PDS) has improved as has been discussed in the recent past. An improvement in the PDS has been an important debate at various forums recently. Dreze & Khera (2013) and Himanshu & Sen (2013) have documented the fact that the improved PDS has brought about a reduction in the poverty and improved caloric intake through an implicit income transfer. In the earlier issues, Khera (2011a, 2011b) and Himanshu & Sen (2011) had documented a revival in the PDS with better functioning and lower leakages from the system.

In this paper, we revisit some of those key issues that have been actively discussed and debated in the context of the reform, revival and the future of India's public distribution system (PDS). The overarching issue has been the debate over the implications of the National Food Security Act 2013. The two contentious issues have been the following - food grains procurement policy, and distribution and coverage. This paper focuses on the second issue, that of distribution and coverage of PDS. By distribution and coverage one refers to two aspects of the PDS – the beneficiary households and quantity purchased.

In the literature, the characteristics of beneficiary households have been examined using data from various rounds of survey of consumption expenditure conducted by National Sample Survey Organisation (NSSO). One of the important findings is that PDS does not reach the poor and the discussion has focused on exclusion error (poor households being left out) and inclusion error (non-poor households benefitting from the PDS)[1]. Another important finding is the widespread leakages from the PDS which increases the cost of distribution. For any particular state, leakage from PDS is typically measured as the ratio of consumption as reported in the NSSO survey to the allocation of rice or wheat for distribution in the state[2].

Responding to the stream of criticism on the functioning of the PDS, quite a few state governments have taken initiatives with a view to improve the system. Among the measures include: changes in grain entitlements (Bihar, Tamil Nadu, Andhra Pradesh, Rajasthan), universalization of PDS (Tamil Nadu and Himachal Pradesh), expanded coverage (Bihar, Andhra Pradesh, Chhattisgarh, Tamil Nadu, Rajasthan) and a better monitoring service (Chhattisgarh, Tamil Nadu, Andhra Pradesh) with greater commitment to providing food grains to the poor. A reduction in the PDS price (Andhra Pradesh, Chhattisgarh, Jharkhand, Odisha, Rajasthan, Tamil Nadu) has helped increase in PDS off-take. Some states (Jharkhand, Tamil Nadu, Bihar, Andhra Pradesh) have also prepared their own list of below poverty line households and issued ration cards accordingly. Many states have increased the

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[1] See Ahluwalia (1993); Dev and Suryanarayana (1991); Geetha and Suryanarayana (1993); Howes and Jha (1992); Parikh (1994)

[2] Leakages from the PDS has been calculated by Himanshu and Sen (2011) and Khera (2011b)

commission for the fair price shop owners with a view to lowering the incentive for them to cheat and sell the grains in open market (Khera, 2011a).

The extent of progress in improvements in the PDS across the states is an empirical question. Towards understanding the extent of progress, this paper uses data from three rounds of survey on consumer expenditure conducted by NSSO in 2004-05, 2009-10 and 2011-12. First we evaluate the performance of PDS in terms of targeting and providing foodgrains to households across monthly per capita expenditure (MPCE) deciles over the years 2004-05, 2009-10 and 2011-12. We look at the changes that have happened in terms of outreach of PDS across the states and offer plausible reasons for the same. We evaluate the progress in revitalizing the PDS along three dimensions - targeting, access and the reliance. The first step in implementing a targeted program is to identify the target group i.e. the group towards which the benefits have to be rendered. After identifying the target group, it needs to be ensured that the public services as desired are accessible to the targeted beneficiaries. This is followed by the issue of deciding the amount of service to be provided. Though, the debate continues over all the three stages of providing grains through PDS, the most crucial one is the issue of targeting, or rather the lack of it. In the context of the coverage specified in the National Food Security Act, 2013, based on NSSOs 2011-12 survey, we provide estimates of the distance that needs to be covered to reach the targets set in the Act.

We undertake a multivariate analysis by pooling the three rounds of data. We estimate a seemingly unrelated regression model where the dependent variable is share of consumption from home produce, purchase from PDS and purchase from the open market. We find clear improvement in the coverage of PDS across states. Some states embarked on PDS reforms earlier than others and their progress can be benchmarked against states like Tamil Nadu which have a well-functioning PDS. We find that for the early movers like Odisha the improvements are evident over the period 2004-05 and 2009-10 while for the late movers like Bihar and Jharkhand it is evident over the period 2009-10 and 2011-12. The improvement in the coverage of PDS has also been found to more "inclusive" with greater participation of the vulnerable social groups and households belonging from lower consumption deciles.

Data

We use data from the consumption expenditure survey conducted by the National Sample Survey Organization (NSSO) in the years 2004-05, 2009-10 and 2011-12. Given the focus of the paper, we analyse only the rural sample. The number of rural households surveyed in the three rounds is 79,297, 59,119 and 59,695 respectively. For the years 2009-10 and 2011-12, we use the Type-I schedule since it is comparable with data for the year 2004-05. The recall period for the consumption expenditure is 30 days and 365 days preceding the survey. The measure of monthly per capita expenditure (MPCE) used is the mixed reference period. The survey is comparable across the rounds except for the classification of household type where

one more category was introduced in the year 2011-12. For the survey years 2004-05 and 2011-12, we have additional information on whether the household possesses a ration card or not and the type of ration card: Antyodaya Anna Yojana (AAY), Below Poverty Line (BPL) and Above Poverty Line (APL). We use this information to compare the differences by source of consumption among households with different ration cards. For the goods which are generally sold at PDS outlets (rice, wheat, kerosene and sugar), the survey provides information on the quantity of the good consumed from PDS. Also, for rice and wheat, there is information on the quantity consumed out of own produce together with consumption from open market purchase.

Distribution of Ration Cards

Purchase of subsidised commodities from the PDS outlets is contingent on households possessing a ration card. When the PDS became targeted in 1997 with a greater stress on reaching to the poor with a higher allocation to them, it became important to distinguish between poor and non-poor. Based upon estimates by the Planning Commission, the population was divided into BPL and APL categories. At the time of introduction of targeted public distribution system, BPL households were entitled to 10 kilogram (kg) of grains at a much lower price than APL households. Based upon the state-wise poverty level, the central government had to supply to the states their BPL requirement of rice and wheat together with an additional allocation for the APL households in each state. In April 2000, the size of the food grain ration to the BPL households was raised further from 10 to 20 kg per month at a price of 50% of the economic cost of the Food Corporation of India. The price of APL food grains was raised to the full economic cost, thus completely eliminating any price subsidy. With effect from April 2002, grain entitlement for both APL and BPL households have been increased to 35 kg per family per month. In December 2000, another category of households were added under the "Antyodaya Anna Yojana (AAY)" catering to the poorest of the poor with a much lower price. Under this scheme, poorest of the poor families from amongst the BPL population covered under targeted public distribution system were identified and provided food grains at Rs.2 and Rs.3 per kg. for wheat and rice respectively. The costs of distribution have to be borne by the state governments. With effect from 1st April 2002, the entitlement under AAY was increased from 25 to 35 kg per family per month. As on 31.08.2011, 243.871 lakh AAY families have been covered by under this scheme. Today,

there are three kinds of ration cards distributed by the state governments: APL, BPL and AAY[3].

The state-wise allocation for the PDS is decided by the central government while distribution through FPS remains the task of the state governments. The state governments though are provided flexibility to allocate the BPL and APL entitlements as they deem fit. In many states, the state governments have spread their allocation thinner by lowering the BPL category entitlement and providing to the APL category. Also, some states like Chhattisgarh provide salt and other items through PDS out of their own resources. One of the most important features of the revival of PDS has been an increase in the population coverage. While Tamil Nadu, Himachal Pradesh and the hunger-prone "Kalahandi-Bolangir-Koraput" region in Odisha did it through making PDS universal, states like Rajasthan, Andhra Pradesh, Bihar and Jharkhand expanded their BPL list to include more rural households within the ambit of the PDS. Since possessing a ration card is the first step towards access and subsequent purchase from the PDS, importance of the distribution of ration cards cannot be overlooked. In the discussion that follows, we look at the profile of those with ration cards and its types (APL, BPL or AAY).

The state-wise distribution of ration cards across the years 2004-05 and 2011-12 is presented in Table 1. While 29.5 percent of the households were identified beneficiaries in 2004-05 (i.e. had either a BPL or AAY card) this proportion increased to 42.59 percent in 2011-12. Also, the number of households with no ration card has come down from 18.72 percent to 14.07percent. Using the yardstick of possession of ration cards, it is apparent that the coverage of PDS has expanded over the period 2004-05 and 2011-12. The proportion of households with "Other" card has declined by 9 percentage points to 42.34 showing a reduction of the APL category.

----- (Table 1) -----

Looking at the distribution of cards within each state, we observe a similar pattern. In some states a large proportion of households have a AAY or a BPL card. Amongst them are

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[3] There are other types of ration card as well like Annapurna cards which entitles 10 kg of free rice to those above 65 years of age and not availing any benefit under the *Indira Gandhi National Old Age Pension Scheme*. Some state governments also have other type of cards as well for specific purpose. Overall, the three major classifications hold since the rest are smaller in number and many of them come under the BPL category.

Himachal Pradesh, Uttar Pradesh, Jharkhand, Assam, Maharashtra and Tamil Nadu in the AAY category. Amongst the states with an increase in proportion of households with a BPL card are Bihar, Assam, Andhra Pradesh, Karnataka and Tamil Nadu. More than 11 percent of households in both Uttar Pradesh and Himachal Pradesh had an AAY card in 2011-12 as compared to 3 and 6 percent respectively in 2004-05. In 2011-12, 47 percent of households in Bihar possessed a BPL card as compared to 15 percent in 2004-05. Combining the AAY and BPL categories, households with ration cards in Bihar increased three fold from 17 percent in 2004-05 to 51 percent in 2011-12. In Karnataka and Andhra Pradesh 63 and 85 percent of households respectively have BPL cards. There has been a large increase in proportion of households with AAY and BPL cards in Tamil Nadu with 40 percent of households having either of these cards in 2011-12.

----- (Table 2) -----

The proportion of scheduled tribe (ST) households with BPL or AAY cards increased from 44 percent in 2004-05 to 58 percent in 2011-12 while in case of scheduled caste (SC) households it increased from 38 percent to 54 percent and in case of Other Backward Castes (OBC), it increased from 27 percent to 40 percent (Table 2).

Next we look at the distribution of ration cards across the households. The classification and distribution of ration cards into APL or BPL is done on the basis of the official poverty line which implies that no non-poor should possess a BPL card. This is not often the case. The official poverty line figures have a level of arbitrariness and hence there occurs "inclusion" and "exclusion" errors of targeting[4]. For the same reason, a number of states have expanded the BPL coverage. Hence, instead of using the poverty figures to look at the distribution of ration cards, we look at their distribution across MPCE classes. Since the focus of the analysis is on state wise differences we group the households into 10 decile classes based on the state in which they live. The figures are reported in Table 3. It is evident that the proportion of households possessing a AAY or BPL card in the households belonging to the higher MPCE decile is low while it is high in the lower MPCE deciles. Also, we find that a greater proportion of the population in the lower MPCE classes possess either BPL or AAY card. This is what should be the outcome of the targeted PDS. In the lowest decile, 7.3

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[4] In this paper we do not provide an overview of the methodology for identifying below poverty line households and the subsequent exclusion of the poor from the availing the social benefits. Interested readers can refer to Planning Commission (1993); Hirway (2003), Jalan and Murugai (2006), Ram et. al . (2009).

percent of the households possessed an AAY card while 37.6 percent of them held a BPL card in 2004-05. This has increased to 13.5 percent and 55 percent respectively in 2011-12. Those with other or no card in the lower deciles saw a large decline. In 2004-05, 55 percent of the bottom most decile had either an APL or no card. In 2011, this number has decreased to 30 percent. Since, we expect most of the households in the lowest MPCE class to be poor and eligible for AAY or BPL card, the current findings suggest a notable improvement implying a decline in the errors of exclusion. When we look at the upper deciles, there is evidence of larger proportion of households in 2011-12 than in 2004-05 holding AAY or BPL card. This suggests the persistence of errors of inclusion. Any targeted program will suffer from this error due to problems in identification following an expansion in coverage of PDS and greater number of ration cards being distributed.

----- (Table 3) -----

To sum up, in this section we looked at the distribution of ration cards across the states, social groups and MPCE class. We also analysed the corresponding change between 2004-05 and 2011-12 in light of the above argument that identification of the beneficiaries are problematic and targeting errors pervasive in the system. We find a more equitable distribution of ration card across in 2011-12 as compared to 2004-05 with notable improvements in greater ration card coverage in some of the states whose PDS performance was found to be unsatisfactory earlier. We also find that the representation of socially disadvantageous groups has improved from 2004-05 to 2011-12 with a greater share of them being provided ration cards. Across the MPCE classes, as well, we find a decline in the errors of exclusion over time.

PDS Access

By access we refer to whether households consume any quantity of food grains from the PDS. A greater access to PDS adds to the real income transfers and saves them from high and fluctuating open market prices. From Table 4, we can see that in 2004-05, 24 percent of the households reported consumption of rice from the PDS while 11 percent of the households purchased wheat from the PDS. In 2011-12, it increased to 46 and 34 for rice and wheat respectively suggesting that the access to PDS has increased. Looking at the distribution of reported consumption from PDS across the states, we find a similar picture. The increase is sizable amongst the rice consuming states. In the states of Jammu and Kashmir, Himachal Pradesh, Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, more than 70 percent of the people purchase rice from PDS. At the same time, reliance on consumption from home

produce and purchase from market has declined by large amount in these states. In Tamil Nadu and Himachal Pradesh, only 10 percent of the households purchased rice from non-PDS sources. Similarly, purchase of rice from other sources was low in the states of Andhra Pradesh (13 percent), Kerala (20 percent) and Karnataka (25 percent). This suggests that the households are having greater access to the PDS. The other rice consuming states with less than 70 percent households reporting any consumption from PDS are West Bengal (34 percent), Jharkhand (33 percent), Odisha (55 percent), Assam (52 percent) and Chhattisgarh (61 percent). The access to PDS in these states has improved considerably by almost 30 percentage points between 2004-05 and 2011-12. None of the wheat consuming states report such a high access to PDS apart from Himachal Pradesh (84 percent) and Uttarakhand (68 percent). This confirms the finding by Khera (2011b) that rice consuming states are better in terms of access to PDS. Notable is the lower consumption from other sources for both rice and wheat from 2004-05 to 2011-12 implying a greater reliance on the PDS. This can be explained by a greater access to PDS and a rise in the prices in the open market while the PDS prices have gone down during the same period.

----- (Table 4) ----

----- (Table 5) ----

When we look at the access to PDS across the social groups, we find that almost 50 percent of the SC, ST and OBC households were purchasing from the PDS in 2011-12 (Table A.1). There has been a sharp increase in the access PDS for the socially disadvantageous groups. In 2004-05, almost 70 percent of the SCs and STs relied upon the non-PDS sources for rice consumption. Similarly, we find that the PDS as a source of wheat consumption has become more important for SC, ST and OBC households. Across the different type of ration cards, we see that 85 percent of those with an AAY or BPL card are now purchasing from the PDS in 2011-12, a large increase from 70 and 58 percent respectively in 2004-05 (Table A.2). In the case of wheat too, a similar pattern exists with 70 and 56 percent of the AAY and BPL card holders consuming from the PDS. These results confirm a revival of the PDS which is inclusive in nature by reaching more to those at the margins. Across the MPCE classes based upon state wise MPCE deciles, we find a decline in the proportion of households consuming from PDS in the higher deciles for both rice and wheat. In each MPCE class, we find higher proportion of households purchasing from the PDS in 2011-12 as compared to 2004-05. In the lowest MPCE class, reliance on PDS is 65 percent for rice while 50 percent for wheat.

Even, the highest MPCE class, we see an increase in the households reliant on PDS as a source of consumption. (Table A.3)

In Relation to Targets Specified in the NFSA 2013

With the National Food Security Act 2013 (NFSA henceforth) being passed in the Indian Parliament, the PDS coverage is bound to expand. The Act envisages further reforms in the PDS to make it deliver efficiently on such a large scale. Two key questions that now come up with such an important role being assigned to the PDS in the implementation of the Act. The first being the question about the ability of the PDS to widen its coverage to such a massive scale and the second is about the fiscal implications of the food security program (Mishra, 2013; Sinha, 2013). Since our focus is on the distribution and coverage under PDS, we use the latest NSSO 2011-12 data to present a comparison of the current PDS coverage to what is desired under the Act (Table 5). Against the desired 75 percent, 50 percent of the rural population had access to PDS in 2011-12. Large state-wise differences exist in terms of current access and what is desired under the Act. In the southern states of Andhra Pradesh, Tamil Nadu, Karnataka and Kerala and the northern states of Jammu and Kashmir, Himachal Pradesh and Uttarakhand, PDS coverage is greater than the targeted population. These are also the states where the PDS has been classified as "functional"[5].In Chhattisgarh and Odisha where the PDS is "reviving", 45 and 68 percent of the population is covered under PDS against the desired 84 and 82 percent respectively. The states which really lag behind in terms of PDS coverage are the so called "languishing" states of Bihar, Uttar Pradesh, Madhya Pradesh and Jharkhand which have a large number of poor. The food surplus states of Punjab (25 percent) and Haryana (18 percent) also report low levels of PDS coverage. Against the mandated 5 kg of grains per person per month, we find as per the NSSO 2011-12, those with access to PDS are consuming almost 4.9 kg from the PDS which is pretty much the desired amount.

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[5]Based upon the functioning of the PDS, (Khera, 2011b) has grouped states into the following three categories: Functioning, Reviving and Languishing. Among the states which were functioning i.e. states where PDS "purchases are relatively high and diversion of grain is not a major concern" were Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Maharashtra, Jammu and Kashmir and Himachal Pradesh. The reviving states i.e. states that witnessed a "marked increase in PDS purchases in recent years, starting from a low base, associated with a decline in diversion" were Odisha, Chhattisgarh, Madhya Pradesh, Uttarakhand and Uttar Pradesh. The languishing states, i.e. states where "the situation remains grim where low purchases, high diversion, and little improvement over time" were Haryana, Punjab, Rajasthan, Assam, Bihar, Jharkhand and West Bengal.

Reliance on PDS

We next look at the changes in the quantity and share of foodgrains from PDS, home produce and open market over time. We find that total consumption of rice has decreased over time while consumption from PDS has increased (Table 6). Total quantity of rice consumed from different sources was 31 kg. in 2004-05, declined to 28 kg. in 2009-10 and then further to 27 kg. in 2011-12. Quantity of rice purchased from PDS increased from 4 kg. in 2004-05 to 7.67 kg. in 2011-12 while consumption from home produce and open market declined. A closer look at the state-wise consumption provides interesting patterns. From 2004-05 to 2011-12, we do not see any substantial increase in the consumption of rice from PDS in Andhra Pradesh, Karnataka, Tamil Nadu, and Himachal Pradesh. In contrast in the states of Chhattisgarh and Odisha, quantity purchased from PDS has increased by more than 10 kg during the same time while the reliance upon open market purchase has almost halved. While improvements in Odisha and Chhattisgarh are observed between 2004-05 and 2009-10, a similar improvement is observed in the states of Bihar, Jharkhand and Assam. In terms of share of rice consumed from PDS, there has been a steady improvement over time (Table A.4). At an all-India level, the consumption of rice from PDS has more than doubled from 13 percent in 2004-05 to 28 percent in 2011-12. During the same period, the share of home produce and market purchases has gone down. In Tamil Nadu, Himachal Pradesh and Jammu and Kashmir, close to 50 percent of the rice is consumed from PDS alone. In the rice surplus states (Haryana and Punjab), there is almost no consumption from PDS. In Uttar Pradesh, Bihar, Assam and Jharkhand, the share of PDS in the total rice consumption was miniscule in 2004-05, but has increased to above 20 percent in 2011-12. In West Bengal too, the share of consumption from PDS has increased and is close 10 percent. In Odisha and Chhattisgarh, the PDS share has increased from 7 and 11 percent respectively in 2004-05 to above 30 percent in 2011-12. In Maharashtra as well, consumption of rice from PDS is above 30 percent.

----- (Insert Table 6 about here) ----

----- (Insert Table 7 about here) ----

Total consumption of wheat from PDS has also increased over time and this is true amongst the wheat consuming states, viz. Himachal Pradesh, Jammu and Kashmir, Punjab, Haryana, Uttarakhand, Rajasthan, Bihar, Uttar Pradesh, Madhya Pradesh and Maharashtra (Table 7). Most notable increase in consumption of wheat from PDS is in Bihar and the food surplus states of Haryana and Punjab. From less than 1 kg of average PDS consumption of wheat in

2004-05, it has increased to more than 5 kg. in Punjab and Bihar in 2011-12. Himachal Pradesh and Uttarakhand which have an improved PDS report a higher than the all-India average consumption of wheat from PDS. In terms of share, Jammu and Kashmir and Himachal Pradesh report more than 40 percent of the wheat consumption from PDS in 2011-12 which is higher as compared to 2004-05 (Table A.5). This increasing trend is visible across most wheat consuming states.

Looking at the average consumption of foodgrains across the social groups and ration card type. The average consumption of rice and wheat has increased markedly in case of ST, SC and OBC households. While the quantity of rice consumed by ST households has declined from 35 kg in 2004-05 to 30 kg in 2011-12, their purchase of rice from PDS has doubled to 10 kg (Table A.6). Consumption from home produce and open market purchase has declined. Total consumption of wheat has increased amongst the ST households mainly on account of greater consumption from PDS and home produce. Across the type of ration cards, we find that the total consumption of rice amongst the AAY households has remained the same from 2004-05 to 2011-12. The increase in the consumption from PDS has enabled them to maintain the same level of total consumption since their consumption from market went down while consumption from home produce remained almost unchanged (Table A.7). Amongst the households that held the BPL cards, total consumption of rice declined marginally by 2 kg while the consumption from PDS increased by more than 4 kg. These patterns suggest that the PDS could have acted as an important buffer to maintain their level of foodgrains consumption.

Extent of Transfer in Monetary Terms

Another way of assessing the improvement in the PDS is to analyze the "implicit income transfer" as a result of greater in-kind transfer of food. Over the period 2004-05 to 2011-12, large increase in the price of rice and wheat together with the increase in the consumption of food grains from PDS has led to a substantial increase in the implicit income transfer to the households. This income transfer has a significant effect on decreasing poverty (Himanshu & Sen, 2013). According to Dreze & Khera (2013), in the States with a functioning PDS, poverty decline has been larger as compared to other states where it not much effective. We present here a comparison of the implicit income transfer from PDS across the three NSS rounds. As per the existing literature, the implicit income transfer is calculated as the quantity consumed from the PDS multiplied by the difference between the average open market price

and the PDS price across the districts[6]. The results are presented in Table 8. Calculations are done by deflating the prices at the 2004-05 level for the ease of comparison[7]. The numbers in the table match with the figures in Dreze & Khera (2013) and Himanshu & Sen (2013). While they have calculated the figures at the per-capita level, we do so at the household level. In 2004-05, the income transfer was Rs. 31.10 per household which increased by more than twice its value to Rs. 82.80 in 2009-10 and further to Rs 85.21 in 2011-12. There are differences across the states. In 2004-05, the income transfers due to PDS were almost negligible in Punjab (Rs. 0.20) and Bihar (Rs. 1.80) while the households in Tamil Nadu and Karnataka gained Rs. 134.47 and Rs. 104.81 per month as implicit transfers. In 2009-10, there was a substantial gain in the income transfers across all states. While the increase was to the extent of Rs 127.29 in Tamil Nadu, Rs 100.68 in Himachal Pradesh, Rs 105.5 in Jammu and Kashmir and Rs 91.71 in Andhra Pradesh, the biggest increase was in Chhattisgarh at Rs. 165.49. Implicit income transfers increased by more than Rs. 100 per month in Odisha over the period 2004-05 and 2009-10. The change in income transfer from PDS is markedly different in 2011-12 as compared to 2009-10 for the states which did not have a well functioning PDS earlier. The implicit income transfer increased by Rs 49.63, by Rs 45.05, Rs 99.80 and Rs 39.93 in Bihar, Jharkhand, Uttarkhand and Assam respectively.

Econometric Specification and Results

Having described the important features apparent from the three rounds of NSSO data, we undertake a econometric exercise is to understand how the share of total consumption from PDS, home produce and market purchases has changed over time using the three years, 2004-05, 2009-10 and 2011-12. We also seek to understand in which states are the improvement evident after controlling for household characteristics. Estimating the three equations (for PDS, home produce and open market) separately could be erroneous since it is plausible that the error terms across the three equations are correlated which would make the estimates inefficient. Using seemingly unrelated regression (SUR) as proposed by Zellner (1962), one can jointly estimate these equations even in the presence of serial correlation across the error terms.

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[6] Dreze & Khera (2013) use the median price paid by the households while Himanshu & Sen (2013) use the mean price at the FSU level as the open market price. The numbers presented here use mean prices at the district level. The overall income transfer using any of these measures of central tendency does not vary much.

[7] We use the change in the poverty lines arrived at by Expert Group on Methodology for Estimation of Poverty chaired by Suresh D. Tendulkar to arrive at the price deflator for each of the states.

Empirical Model

The three seemingly unrelated equations which we are trying to estimate are the following:

$$Y_{1,i} = \beta_{11}X_{1i,1} + \beta_{12}X_{1i,2} + \beta_{13}X_{1i,3} + \ldots\ldots + \beta_{1k}X_{1i,k} + u_{1i}$$
$$Y_{2,i} = \beta_{21}X_{2i,1} + \beta_{22}X_{2i,2} + \beta_{23}X_{2i,3} + \ldots\ldots + \beta_{2k}X_{2i,k} + u_{2i} \qquad (1)$$
$$Y_{3,i} = \beta_{31}X_{3i,1} + \beta_{32}X_{3i,2} + \beta_{33}X_{3i,3} + \ldots\ldots + \beta_{3k}X_{3i,k} + u_{3i}$$

where, $Y_{1,i}$, $Y_{2,i}$ and $Y_{3,i}$ are the shares of PDS, open market purchase and home production in total consumption for the individual households In the matrix notation, the set of equations above equations can be written as:

$$\begin{bmatrix} Y_1 \\ Y_2 \\ Y_3 \end{bmatrix} = \begin{bmatrix} X_1 & 0 & 0 \\ 0 & X_2 & 0 \\ 0 & 0 & X_3 \end{bmatrix} \begin{bmatrix} \beta_1 \\ \beta_2 \\ \beta_3 \end{bmatrix} + \begin{bmatrix} u_1 \\ u_2 \\ u_3 \end{bmatrix} \qquad (2)$$

Here the observations are stacked over one another in the form of a block matrix. One can also write them as:

$$Y = X\beta + U \qquad (3)$$

Y and X are matrix of dimension $(i \bullet 3) \times 1$ and $(i \bullet k) \times (i \bullet 3)$ respectively. Similarly, the β is a $(3 \bullet k) \times 1$ coefficient matrix. The variance-covariance matrix for the error term is written as:

$$\Sigma = \begin{bmatrix} \sigma_{11}I & \sigma_{12}I & \sigma_{13}I \\ \sigma_{21}I & \sigma_{22}I & \sigma_{23}I \\ \sigma_{31}I & \sigma_{32}I & \sigma_{33}I \end{bmatrix} = \begin{bmatrix} \sigma_{11} & \sigma_{12} & \sigma_{13} \\ \sigma_{21} & \sigma_{22} & \sigma_{23} \\ \sigma_{31} & \sigma_{32} & \sigma_{33} \end{bmatrix} \otimes I = \Sigma_c \otimes I \qquad (4)$$

Where I is an identity matrix of order (3 x 3) and σ_{ij} is the variance covariance of error between the equations i and j. Here, the coefficient β is estimated using the Generalised Least Squares (GLS) method to get the best unbiased linear estimate (BLUE) in the following manner:

$$\beta = (X'\Sigma_c^{-1}X)^{-1}(X'\Sigma_c^{-1}Y) \qquad (5)$$

In the case where the explanatory variables are same across the set of equations, i.e. $X_1 = X_2 = X_3$, both the OLS and GLS give the same result (Kmenta, 1997). To sum up,

using a seemingly unrelated regression equation (3) we estimate the determinants of the share of different of sources of consumption.

Variables

Our unit of observation is the household. The dependent variable is the share of consumption of rice and wheat from the three sources: PDS, home produce and market. Amongst the explanatory variables, we have dummies for the NSS rounds 2004-05, 2009-10 and 2010-11 and for the states. The round dummy for 2004-05 is the reference category. While running the regressions on rice share, Tamil Nadu is our reference for category while Himachal Pradesh is the reference state for wheat share regressions. Himachal Pradesh is primarily a wheat consuming state and Tamil Nadu is rice consuming one. They are two states in India with a universal PDS and their performance exceeds other states in terms of coverage and quantity purchased. Hence, we have chosen Himachal Pradesh as the reference state for wheat share regression and Tamil Nadu for rice share equations.

We control for the household characteristics: social groups (ST, SC, OBC and others), religion (Hinduism, Islam, Christianity and Others), household size, cooking fuel (LPG, gobar gas, kerosene and electricity are classified as clean fuels; coke, coal, firewood and chips, dung cake and charcoal are considered dirty fuels, no cooking arrangement or any other source are considered as others) and source of lighting (electricity/gas and others), land held (dummy for 8 landsize class: less than 0.01 hectares; 0.01-0.40 hectares; 0.41-1.00; 1.01-2.00 hectares; 2.01-4.00 hectares; 4.01-10.00; greater than 10 hectares) by the households and the MPCE decile to which the household belongs. The descriptive statistics of the variables used is presented in Table A.8.

Regression Estimates

We run 3 sets of separate regression for rice and wheat. In the first, we regress the share of rice and wheat from different sources of consumption on the household characteristics and include a dummy variable for the 3 years of NSS rounds. We also control for the state level variations by including a state dummy variables. The year dummies are found to be significant and positive for the PDS shares implying that the share of PDS in total consumption of rice and wheat has significantly increased over time (Tables A.9 and A.10). The share of consumption from market and home produce is found to have declined over the years for rice as well as wheat. The share of PDS is found to decline while the shares from

home produce and open market decline with higher MPCE decile class. Relative to STs, households belonging to other social groups consume less from the PDS and more from other sources. Similarly, households belonging to higher landsize classes, consume more from the home produce and open market and less from the PDS.

In the second regression, the state dummies are interacted with the year dummy (2009-10 and 2011-12) to capture the effect of any improvement of the performance of the states in terms of having a greater share of consumption from PDS. In the third regression, the dummy variables for land size classes are interacted with the year dummy to examine any effect of any change in the consumption share from PDS over years for the households belonging to the same land size class. This will give us an idea about share of PDS, home produce and open market purchase for those who possess lesser amount of land.

When we look at the interaction term between the state and the dummy for the year 2009-10, we find that the share of PDS in total rice consumption is less than Tamil Nadu for most states except Jammu and Kashmir, Meghalaya, Odisha, Chhattisgarh and Goa (Table 9). For the year 2011-12 and the state interaction term, Uttarakhand, Uttar Pradesh, Bihar, Assam, Jharkhand, Chhattisgarh, Odisha and Kerala have positive and significant coefficients. This shows that the PDS share in total rice consumption increased in the states of Odisha and Chhattisgarh in 2009-10 while in Uttarakhand, Bihar, Jharkhand and Assam it happened in 2011-12. In most of these states, the share of rice consumed from home produce declined in 2011-12. Since, these are also the major rice producing states, this result might suggest that people are selling their home produce to the government at a higher minimum support price and then possibly buy from the PDS for domestic consumption at a lower price provided PDS is accessible.

Looking at the interaction term between the land-size class with the year dummy, we find that compared to those with less than 0.01 hectare of land in 2004-05, households with land holding less than 1 hectare consume a greater proportion of rice from PDS while those with greater than 2 hectare of land, the PDS share declines (Table 10). In 2012, the share from PDS for those with less than 1 hectare of land has increased and the share for households with greater than 1 hectare of land has declined.

The share of wheat consumed from PDS has increased over the years 2009-10 and 2011-12 with a corresponding decline in the share from home produce and open market purchase (Table 11). As compared to 2004-05, the share of wheat consumed from PDS increased by

27.36 percent in 2009-10 and then further by 32.19 percent in 2011-12. The share of wheat as consumed from the open market purchase declined by 11.39 percent in 2009-10 and by 19.19 percent in 2011-12. For the same years, the share of wheat consumed out of home produce declined by 14.97 percent and 11.66 percent respectively. Across higher MPCE deciles and land size classes, we find a greater share of wheat consumption from non-PDS sources. When we look at the interaction term between the year 2009-10 and the states, we find that relative to Himachal Pradesh in 2004-05, the share of PDS in total wheat consumption has not increased in any state but Tamil Nadu. Though, wheat is hardly produced and consumed in Tamil Nadu, the state government is promoting its consumption through greater sale of wheat through PDS outlets[8]. The same result holds when we look at the interaction term between the year 2011-12 and the states suggesting no significant change. From the interaction term between the year dummy and the land size class, we find that the households whose size of land holdings are less than 0. 40 hectares have a greater share of wheat from PDS in 2009-10 and 2011-12 (Table 12).

Conclusion

There is a clear-cut and consistent evidence of PDS improving over time. It is important to discuss reasons for this turn-around and further implications it has especially in the context of National Food Security Act now. Beyond doubt, it is the greater political will and the commitment on part of the various state governments to make PDS viable. Since 2004-05, an expansion in the coverage of PDS across all states is very visible. It is encouraging to find that the expansion has covered those who are the most vulnerable and live at the margins such as the SCs and the STs. Also, a greater number of households in the lower income classes now not only have a greater access to PDS but are consuming larger quantities from the PDS.

To implement the commitment to greater food security, state governments took up a battery of measures right from end-to-end computerisation to greater commission to FPS owners. Still, some states are lagging behind and their performance continues to remain less than satisfactory. The recent data suggests that the performance of PDS in some of the "languishing" states such as Bihar and Jharkhand has improved considerably in 2011-12

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[8] Wheat purchase on the rise in Tamil Nadu PDS outlets, Times of India, May 31, 2011. Accessed from http://articles.timesofindia.indiatimes.com/2011-05-31/chennai/29604031_1_wheat-purchase-lakh-metric-tonnes-rice

while the reviving states of Chhattisgarh and Orissa improved considerably in 2009-10. Since the onus on implementing the food security act depends entirely on the efficient functioning of the PDS, the improvements have been extremely important. In terms of coverage and outreach to the poor, there is still quite a distance needs to be covered.

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Table 1: Distribution of ration card across states (in percentages)

	AAY		BPL		APL		No Card	
	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Jammu & Kashmir	0.52	2.37	22.68	24.11	73.41	66.38	3.39	7.15
Himachal Pradesh	6.19	11.36	10.64	18.4	75.99	65.12	7.19	5.12
Punjab	0.14	1.13	11.91	28.51	75.71	56.67	12.23	13.69
Chandigarh	0	0	5.74	0.03	28.98	27.23	65.29	72.74
Uttarakhand	2.49	1.79	23.25	31.28	66.32	58.52	7.94	8.41
Haryana	2.61	3.03	15.97	19.24	68.32	66.79	13.1	10.93
Delhi	0	0	0	5.91	41.09	50.76	58.91	43.33
Rajasthan	2.78	2.79	15.71	23.22	77.88	68.37	3.63	5.62
Uttar Pradesh	2.84	11.24	13.54	17.74	65.14	53.07	18.48	17.96
Bihar	2.32	5.17	15.11	46.95	60.06	34.57	22.51	13.31
Sikkim	0.96	1.78	39.46	56.33	32.37	27	27.21	14.89
Arunachal Pradesh	0.69	4.52	16.1	31.61	59.82	43.94	23.39	19.93
Nagaland	0.35	0	6.29	31.78	2.96	17.99	90.4	50.22
Manipur	0	3.21	22.28	31.94	15.49	19.77	62.23	45.07
Mizoram	1.67	13.28	36.36	43.1	60.56	42.98	1.42	0.63
Tripura	1.55	6.79	38.9	30.66	57.16	59.32	2.39	3.23
Meghalaya	2.61	3.57	23.63	52.21	51.03	23.6	22.73	20.62
Assam	0.56	5.68	11.79	40.82	63.07	34.61	24.58	18.89
West Bengal	3.19	3.02	27.3	35.12	61.13	58.27	8.38	3.59
Jharkhand	2.98	6.97	22.82	28.95	51.12	24.76	23.08	39.32
Odisha	1.98	5.49	42.45	47.86	22.45	18.22	33.12	28.43
Chhattisgarh	4.41	5.72	34.86	53.82	32.13	19.63	28.6	20.83
Madhya Pradesh	3.3	6.69	30.79	35.41	38.03	41.83	27.88	16.08
Gujarat	0.81	1.53	36.1	31.23	50.43	54.35	12.67	12.9
Daman & Diu	0	0	10.61	0.89	71.74	28.13	17.64	70.98
Dadra & Nagar Haveli	5.78	6.55	19.51	30.92	25.36	21.43	49.35	41.09
Maharashtra	4.36	7.69	30.47	27.07	46.32	46.46	18.84	18.77
Andhra Pradesh	2.76	3.63	53.7	85.07	16	2.57	27.54	8.74
Karnataka	9.59	6.16	42.13	62.99	25.72	16.12	22.55	14.73
Goa	5.08	3.25	13.36	10.02	72.86	79.8	8.7	6.93
Lakshadweep	3.26	9.49	6.17	19.21	80.64	60.19	9.93	11.12
Kerala	1.82	1.55	27.72	28.76	57.07	61.42	13.39	8.27
Tamil Nadu	1.47	5.32	18.89	35.62	68.87	52.19	10.76	6.87
Puducherry	0.31	0	60.41	43.47	29.06	34.6	10.22	21.94
Andaman & Nicobar	0.99	0	11.38	9.99	70.45	81.42	17.19	8.6
India	2.94	5.67	26.53	37.92	51.8	42.34	18.72	14.07

Table 2: Distribution of ration cards across social groups (in percentages)

	AAY		BPL		APL		No Card	
	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ST	5.02	7.72	39.59	50.72	30.84	24.86	24.55	16.7
SC	4.4	8.99	34.85	45.43	43.73	32.56	17.03	13.01
OBC	2.3	4.87	24.52	36.95	54.5	43.85	18.68	14.32
Others	1.9	3.12	17.34	26.66	63.03	56.93	17.73	13.28
Total	2.94	5.66	26.54	37.93	51.8	42.34	18.72	14.07

Table 3: Distribution of ration cards across MPCE deciles (in percentages)

MPCE Deciles	AAY		BPL		APL		No Card	
	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
0-10	7.31	13.44	37.61	55.03	34.69	19.89	20.4	11.64
10-20	4.62	9.87	38.78	50.89	39.34	28.07	17.25	11.17
20-30	3.48	7.24	34.28	46.73	45.05	32.63	17.19	13.4
30-40	3.4	6.93	31.46	42.1	48.39	37.51	16.75	13.46
40-50	2.95	5.45	29.93	41.26	49.94	40.44	17.18	12.85
50-60	2.77	5.03	27.38	40.09	52.64	43.04	17.2	11.84
60-70	2.46	4.25	23.72	37.86	56.6	45.42	17.21	12.48
70-80	1.81	3.48	21.86	32.46	57.7	51.16	18.64	12.9
80-90	1.51	2.45	17.77	27.49	60.64	55.11	20.08	14.95
90-100	0.95	2.4	12.47	19.18	62.96	55.95	23.62	22.46
Total	2.94	5.67	26.53	37.92	51.8	42.34	18.72	14.07

Table 4: Source of Consumption for households (in percentages)

	Rice						Wheat					
	PDS			Any Other Source			PDS			Any Other Source		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Jammu & Kashmir	30.8	57.25	74.59	69.2	42.75	25.41	15.19	43.19	54.97	84.81	56.81	45.03
Himachal Pradesh	50.01	81.5	89.45	49.99	18.5	10.55	24.37	75.1	84.07	75.63	24.9	15.93
Punjab	0.06	0.03	0.35	99.94	99.97	99.65	0.29	21.87	24.17	99.71	78.13	75.83
Chandigarh	5.53	0	0	94.47	100	100	4.16	0	8.99	95.84	100	91.01
Uttarakhand	23.68	26.41	62.13	76.32	73.59	37.87	21.28	29.55	68.02	78.72	70.45	31.98
Haryana	0.07	0.02	0.89	99.93	99.98	99.11	4.02	19.85	17.26	95.98	80.15	82.74
Delhi	4.27	28.42	5.91	95.73	71.58	94.09	1.81	23.27	11.73	98.19	76.73	88.27
Rajasthan	0.03	0.47	0.8	99.97	99.53	99.2	12.73	17.44	27.79	87.27	82.56	72.21
Uttar Pradesh	5.79	21.13	24.54	94.21	78.87	75.46	5.63	22.12	25.68	94.37	77.88	74.32
Bihar	1	13.48	46.1	99	86.52	53.9	1.74	14.05	45.83	98.26	85.95	54.17
Sikkim	43.21	46.77	58.93	56.79	53.23	41.07	0.64	2.19	1.08	99.36	97.81	98.92
Arunachal Pradesh	38.84	47.16	49.98	61.16	52.84	50.02	2.24	3.98	4.21	97.76	96.02	95.79
Nagaland	0	0	19.2	100	100	80.8	0.15	0	0	99.85	100	100
Manipur	0.51	8.43	6.17	99.49	91.57	93.83	0	0	0	100	100	100
Mizoram	69.07	94.65	97.46	30.93	5.35	2.54	1.52	4.3	3.81	98.48	95.7	96.19
Tripura	37.2	71.13	84.69	62.8	28.87	15.31	1.73	21.29	11.9	98.27	78.71	88.1
Meghalaya	21.44	63.72	66.44	78.56	36.28	33.56	0.21	0.26	2.15	99.79	99.74	97.85
Assam	8.99	30.58	52.38	91.01	69.42	47.62	0.21	1.61	6.01	99.79	98.39	93.99
West Bengal	12.78	25.03	34.37	87.22	74.97	65.63	9.04	31.25	43.87	90.96	68.75	56.13
Jharkhand	4.39	23.56	33.27	95.61	76.44	66.73	4.35	22.92	1.33	95.65	77.08	98.67
Odisha	21.54	53.78	55.26	78.46	46.22	44.74	0.2	5.45	11.76	99.8	94.55	88.24
Chhattisgarh	21.66	65.46	60.84	78.34	34.54	39.16	5.31	25.77	25.52	94.69	74.23	74.48
Madhya Pradesh	17.92	21.61	31.9	82.08	78.39	68.1	20.35	43.95	38.94	79.65	56.05	61.06
Gujarat	31.54	35.33	29.14	68.46	64.67	70.86	28.67	36.26	25.76	71.33	63.74	74.24

	Rice						Wheat					
	PDS			Any Other Source			PDS			Any Other Source		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Daman & Diu	8.91	35.4	1.21	91.09	64.6	98.79	5.49	29.2	0.35	94.51	70.8	99.65
Dadra & Nagar Haveli	28.21	52.4	51.96	71.79	47.6	48.04	10.31	7.42	10.62	89.69	92.58	89.38
Maharashtra	27.48	46.98	44.22	72.52	53.02	55.78	25.85	43.1	42.08	74.15	56.9	57.92
Andhra Pradesh	62.22	82.69	86.36	37.78	17.31	13.64	0.6	2.21	9.5	99.4	97.79	90.5
Karnataka	58.52	75.95	75.02	41.48	24.05	24.98	45.63	70.02	70.31	54.37	29.98	29.69
Goa	8.5	58.03	70.99	91.5	41.97	29.01	4.46	14.81	42.36	95.54	85.19	57.64
Lakshadweep	95.73	87.49	82.98	4.27	12.51	17.02	1.83	16.21	5.64	98.17	83.79	94.36
Kerala	34.57	53.19	79.64	65.43	46.81	20.36	12.25	36.75	54.41	87.75	63.25	45.59
Tamil Nadu	78.94	90.62	89.65	21.06	9.38	10.35	8.88	56.22	60.41	91.12	43.78	39.59
Puducherry	71.59	78.59	79.6	28.41	21.41	20.4	2	39.38	50.29	98	60.62	49.71
Andaman & Nicobar	59.01	75.36	79.18	40.99	24.64	20.82	3.38	25.54	32.55	96.62	74.46	67.45
India	24.36	39.17	45.81	75.64	60.83	54.19	11.04	27.61	33.88	88.96	72.39	66.12

Source: Computed from NSSO 2004-05, 2009-10 and 2011-12

(1) & (4) sum to 100 percent. Similarly, (7) & (10) sum to 100 percent.

Table 5: Access to PDS-Comparison with Planning Commission Estimates

	Planning Commission estimated % of population with access to PDS under NFSB	% of population with access to PDS from NSS 2011-12	Average per-capita Grains from PDS (in kgs.) from NSS 2011-12*
Andhra Pradesh	60.96	89.26	4.0
Arunachal Pradesh	66.31	52.17	7.4
Assam	84.17	55.15	5.1
Bihar	85.12	44.88	5.3
Chhattisgarh	84.25	61.86	6.8
Delhi	37.69	19.48	2.8
Goa	42.24	74.10	3.6
Gujarat	74.64	32.50	2.5
Haryana	54.61	18.43	6.1
Himachal Pradesh	56.23	93.90	5.8
Jammu & Kashmir	63.55	80.76	7.1
Jharkhand	86.48	34.86	6.1
Karnataka	76.04	76.06	3.8
Kerala	52.63	85.02	3.6
Madhya Pradesh	80.1	40.00	5.3
Maharashtra	76.32	48.12	5.3
Manipur	88.56	6.47	3.6
Meghalaya	77.79	69.56	4.5
Mizoram	81.88	97.67	6.9
Nagaland	79.83	20.75	4.2
Odisha	82.17	68.21	5.9
Punjab	54.79	25.18	4.7
Rajasthan	69.09	27.70	4.9
Sikkim	75.74	63.40	7.3
Tamil Nadu	62.55	94.68	5.2
Tripura	74.75	88.06	6.5
Uttar Pradesh	79.56	26.96	5.7
Uttarakhand	65.26	73.72	5.0
West Bengal	74.47	51.15	3.2
Andaman & Nicobar	24.94	86.86	6.7
Chandigarh	38.54	9.44	3.6
Dadra & Nagar Haveli	84.19	72.72	3.3
Daman & Diu	26.66	1.95	1.7
Lakshadweep	35.3	93.87	7.8
Puducherry	59.68	83.08	5.1
India	75	50.03	4.9

Source: Planning Commission and NSSO 2011-12
*Averages have been calculated only for those households who consumed any quantity of grains from PDS

Table 6: Average household consumption of rice (in kg.)

	PDS			Market			Home			Total		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
Jammu & Kashmir	15.71	23.47	22.39	9.95	8.55	12.14	26.94	13.39	8.60	52.59	45.41	43.12
Himachal Pradesh	9.52	7.99	9.50	7.63	9.01	9.35	1.83	1.23	0.93	18.98	18.23	19.77
Punjab	0.00	0.00	0.01	2.81	2.98	3.19	1.01	0.97	0.80	3.83	3.96	3.99
Chandigarh	0.79	0.00	0.00	6.42	6.23	9.94	0.09	0.04	0.01	7.30	6.27	9.95
Uttarakhand	5.27	4.06	8.81	12.95	9.15	10.14	7.02	3.61	3.45	25.25	16.82	22.40
Haryana	0.00	0.00	0.15	2.75	2.65	2.75	0.70	1.02	0.77	3.45	3.66	3.67
Delhi	0.96	3.31	0.24	9.07	1.95	7.34	0.00	0.00	0.00	10.02	5.26	7.59
Rajasthan	0.00	0.01	0.08	0.89	1.04	1.09	0.06	0.10	0.01	0.95	1.15	1.18
Uttar Pradesh	0.80	4.07	4.76	12.21	10.32	9.65	9.85	8.88	7.89	22.87	23.28	22.30
Bihar	0.20	1.99	7.05	21.14	20.56	14.84	14.86	9.90	9.73	36.19	32.45	31.62
Sikkim	14.94	15.22	18.25	28.86	22.99	17.88	0.56	0.53	0.81	44.37	38.74	36.94
Arunachal Pradesh	16.60	16.44	17.68	12.05	12.35	10.80	36.20	30.41	23.55	64.84	59.21	52.02
Nagaland	0.00	0.00	4.67	13.94	20.02	19.94	51.02	47.28	44.38	64.96	67.30	68.98
Manipur	0.21	1.49	1.18	20.90	23.02	22.91	57.81	48.76	49.17	78.91	73.27	73.27
Mizoram	25.44	27.48	32.59	17.18	20.57	19.25	24.01	12.84	8.41	66.63	60.89	60.25
Tripura	12.19	19.06	23.09	24.06	24.10	20.85	15.08	13.34	10.33	51.33	56.50	54.27
Meghalaya	6.25	15.85	15.82	24.00	25.86	22.64	22.98	10.56	10.92	53.22	52.27	49.39
Assam	2.45	7.37	13.91	23.36	22.95	19.42	37.15	31.38	24.37	62.96	61.71	57.70
West Bengal	1.25	2.57	4.05	33.27	28.45	27.72	19.98	9.23	9.15	54.50	40.26	40.93
Jharkhand	0.75	4.98	10.19	25.84	24.47	19.16	22.33	10.88	13.61	48.93	40.33	42.96
Odisha	4.25	14.02	15.84	34.98	22.54	18.69	21.36	16.93	16.11	60.59	53.50	50.64
Chhattisgarh	7.24	21.18	18.56	23.36	14.57	12.53	32.11	14.27	22.29	62.71	50.02	53.37
Madhya Pradesh	1.87	1.95	2.21	6.62	5.75	5.15	3.42	2.71	2.98	11.91	10.41	10.34
Gujarat	1.13	1.86	1.32	6.32	5.85	6.61	1.04	1.24	2.16	8.49	8.95	10.09
Daman & Diu	0.90	6.74	0.07	5.74	14.35	9.85	0.49	1.84	0.03	7.13	22.93	9.95
Dadra & Nagar Haveli	5.84	7.79	10.15	4.70	18.60	8.77	7.07	11.63	10.91	17.61	38.03	29.83
Maharashtra	2.80	4.93	4.98	7.60	6.85	6.51	2.76	2.74	2.14	13.16	14.52	13.64
Andhra Pradesh	10.03	12.82	12.57	28.70	23.52	20.97	4.39	3.30	4.74	43.12	39.64	38.28
Karnataka	11.21	11.51	11.08	9.67	10.91	11.80	3.22	2.07	2.64	24.11	24.49	25.52
Goa	2.57	8.11	8.98	19.89	15.09	15.43	6.01	9.11	1.25	28.47	32.30	25.65
Lakshadweep	41.54	36.38	34.47	7.24	4.67	6.49	0.00	0.00	0.00	48.78	41.05	40.96
Kerala	7.31	8.20	11.01	27.34	21.76	18.30	1.58	0.70	0.30	36.24	30.67	29.61
Tamil Nadu	15.41	17.46	16.60	20.24	13.88	13.68	2.53	1.84	1.76	38.18	33.18	32.05
Puducherry	13.25	19.20	11.56	19.77	21.97	14.58	5.80	0.59	1.45	38.82	41.77	27.58
Andaman & Nicobar	16.67	17.48	20.22	14.93	13.14	8.94	10.80	7.22	6.20	42.40	37.84	35.36
India	4.10	6.64	7.67	17.30	14.61	13.11	9.74	6.80	6.69	31.13	28.06	27.47

Source: Computed from NSSO 2004-05, 2009-10 and 2011-12

Table 7: Average household consumption of wheat (in kg.)

	PDS			Market			Home			Total		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
Jammu & Kashmir	1.73	5.95	8.02	5.46	7.05	6.30	8.53	5.73	3.92	15.72	18.73	18.24
Himachal Pradesh	5.84	12.61	14.39	13.79	11.37	9.82	8.28	3.64	4.65	27.91	27.62	28.86
Punjab	0.10	5.21	5.62	30.34	21.46	21.73	14.98	13.22	11.89	45.42	39.89	39.24
Chandigarh	1.04	0.00	1.24	20.80	17.91	17.83	1.23	0.36	1.03	23.06	18.27	20.11
Uttarakhand	4.21	3.20	7.90	17.09	12.19	17.81	10.03	4.94	6.47	31.32	20.33	32.18
Haryana	1.18	6.27	5.39	26.68	21.03	19.92	20.57	18.13	17.19	48.43	45.43	42.50
Delhi	0.74	4.87	2.06	25.53	14.72	24.59	1.13	0.01	2.31	27.40	19.59	28.96
Rajasthan	4.84	4.20	6.70	23.17	24.24	21.14	18.12	17.13	17.52	46.13	45.57	45.35
Uttar Pradesh	1.11	3.07	3.67	21.66	17.23	16.00	25.43	20.93	19.45	48.20	41.23	39.12
Bihar	0.31	1.66	5.29	16.44	18.00	14.80	11.66	9.24	8.56	28.40	28.90	28.65
Sikkim	0.02	0.07	0.02	2.33	2.38	2.11	0.00	0.00	0.00	2.35	2.45	2.13
Arunachal Pradesh	0.16	0.30	0.24	1.22	1.13	1.36	0.19	0.08	0.06	1.57	1.50	1.66
Nagaland	0.00	0.00	0.00	0.16	0.07	0.04	0.00	0.00	0.00	0.16	0.07	0.04
Manipur	0.00	0.00	0.00	0.04	0.16	0.02	0.00	0.00	0.00	0.04	0.17	0.02
Mizoram	0.04	0.15	0.12	0.18	0.10	0.17	0.00	0.00	0.00	0.22	0.25	0.29
Tripura	0.09	0.52	0.29	0.51	0.34	0.46	0.01	0.00	0.00	0.60	0.87	0.74
Meghalaya	0.00	0.00	0.04	0.38	0.53	0.78	0.00	0.00	0.00	0.38	0.53	0.82
Assam	0.00	0.05	0.18	2.73	2.24	2.30	0.02	0.00	0.00	2.75	2.29	2.48
West Bengal	0.68	1.92	2.75	3.48	2.81	3.20	0.13	0.04	0.06	4.30	4.76	6.01
Jharkhand	0.59	2.56	0.20	12.39	11.33	11.69	1.50	0.28	1.55	14.48	14.17	13.44
Odisha	0.01	0.39	0.80	2.13	1.96	1.94	0.01	0.01	0.01	2.15	2.36	2.75
Chhattisgarh	0.39	1.37	1.80	1.69	2.12	1.84	0.32	0.23	0.53	2.40	3.73	4.16
Madhya Pradesh	4.75	8.25	7.62	16.17	13.57	13.85	18.74	16.63	18.34	39.66	38.45	39.81
Gujarat	2.50	3.47	2.59	11.45	11.94	11.28	2.96	5.74	3.20	16.91	21.16	17.08
Daman & Diu	0.56	1.62	0.01	11.38	7.74	4.79	0.00	0.00	0.00	11.95	9.36	4.81
Dadra & Nagar Haveli	1.07	0.82	0.23	1.82	9.42	1.73	0.00	0.00	0.00	2.88	10.24	1.97
Maharashtra	3.96	5.83	5.76	8.71	9.75	10.31	2.43	3.32	2.43	15.10	18.89	18.50
Andhra Pradesh	0.02	0.05	0.12	0.55	0.66	0.86	0.00	0.00	0.00	0.57	0.71	0.98
Karnataka	1.95	1.91	1.88	1.32	1.49	1.76	0.32	0.39	0.37	3.59	3.80	4.01
Goa	0.48	0.43	1.30	5.86	4.84	3.72	0.00	0.00	0.00	6.34	5.27	5.02
Lakshadweep	0.06	0.80	0.31	3.53	3.46	3.59	0.00	0.00	0.00	3.59	4.26	3.90
Kerala	0.71	1.38	1.63	1.96	1.76	1.43	0.00	0.00	0.00	2.67	3.14	3.05
Tamil Nadu	0.30	1.37	1.55	0.44	0.29	0.33	0.00	0.00	0.00	0.74	1.66	1.88
Puducherry	0.11	1.88	2.40	0.65	0.84	0.59	0.00	0.00	0.00	0.76	2.72	2.99
Andaman & Nicobar	0.22	1.63	2.78	4.21	2.40	2.26	0.00	0.00	0.00	4.42	4.03	5.05
India	1.50	2.85	3.50	10.66	9.71	9.29	8.31	7.24	6.98	20.47	19.80	19.77

Source: Computed from NSSO 2004-05, 2009-10 and 2011-12

Table 8: Implicit Income Transfer to households (in Rs.)

	2004-05	2009-10	2011-12
Andhra Pradesh	58.46	150.17	121.56
Arunachal Pradesh	21.39	108.01	91.59
Assam	10.05	45.58	85.61
Bihar	1.86	20.72	70.35
Chhattisgarh	26.24	191.73	154.78
Delhi	4.48	74.99	10.00
Goa	18.42	81.12	92.57
Gujarat	27.99	53.48	31.32
Haryana	3.47	33.91	23.85
Himachal Pradesh	47.17	147.85	147.72
Jammu & Kashmir	39.78	145.28	170.50
Jharkhand	7.51	53.79	98.84
Karnataka	104.81	162.33	104.38
Kerala	42.31	98.98	129.18
Madhya Pradesh	17.58	57.54	49.10
Maharashtra	29.37	74.26	60.16
Manipur	0.05	11.87	5.93
Meghalaya	23.78	99.87	93.56
Mizoram	85.47	149.09	214.02
Nagaland	0.00	0.00	25.56
Odisha	14.38	121.27	138.65
Puducherry	92.75	190.76	72.50
Punjab	0.21	26.48	25.03
Rajasthan	14.13	22.14	34.03
Sikkim	88.11	151.29	188.06
Tamil Nadu	134.47	262.76	218.25
Tripura	58.06	127.42	128.39
Uttar Pradesh	8.18	41.28	36.72
Uttarakhand	33.19	46.65	146.45
West Bengal	10.22	38.38	56.66
India	31.10	82.80	85.21

Source: Computed from NSSO 61, 66 and 68

All calculations are at 2004-05 prices which was arrived at using the poverty line estimates as arrived at by the Expert Group on Methodology for Estimation of Poverty Chaired By Prof. S. D. Tendulkar.

	PDS Share		Market Share		Home Share	
	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
Year Dummy (2004-05)						
2009-10	11.94***	(0.63)	-11.45***	(0.95)	-0.17	(0.75)
2011-12	11.56***	(0.63)	-10.68***	(0.95)	-0.94	(0.75)
*2009-10*State*						
Jammu & Kashmir	10.69***	(1.14)	2.39	(1.71)	-13.69***	(1.35)
Himachal Pradesh	-9.32***	(1.09)	10.30***	(1.63)	-0.62	(1.29)
Punjab	-12.17***	(1.08)	16.02***	(1.62)	-0.92	(1.29)
Chandigarh	-19.40***	(5.71)	13.93	(8.54)	9.98	(6.78)
Uttarakhand	-8.88***	(1.27)	11.37***	(1.90)	-3.37**	(1.50)
Haryana	-12.00***	(1.16)	5.65***	(1.74)	6.81***	(1.38)
Delhi	-5.15	(5.04)	-7.08	(7.53)	3.92	(5.98)
Rajasthan	-11.67***	(0.95)	20.97***	(1.41)	2.74**	(1.12)
Uttar Pradesh	0.61	(0.79)	4.24***	(1.18)	-2.44***	(0.93)
Bihar	-7.31***	(0.89)	11.99***	(1.33)	-5.98***	(1.06)
Sikkim	-12.91***	(1.55)	12.20***	(2.32)	0.84	(1.84)
Arunachal Pradesh	-8.71***	(1.27)	17.67***	(1.89)	-9.08***	(1.50)
Nagaland	-10.91***	(1.49)	20.51***	(2.23)	-10.14***	(1.77)
Manipur	-7.61***	(1.13)	16.26***	(1.69)	-9.64***	(1.34)
Mizoram	-4.11***	(1.58)	18.12***	(2.37)	-13.88***	(1.88)
Tripura	-0.72	(1.18)	9.83***	(1.76)	-9.52***	(1.40)
Meghalaya	5.84***	(1.38)	3.68*	(2.06)	-10.52***	(1.63)
Assam	-4.35***	(0.95)	11.60***	(1.42)	-7.68***	(1.13)
West Bengal	-8.64***	(0.87)	15.94***	(1.30)	-7.41***	(1.03)
Jharkhand	-2.12**	(1.06)	16.92***	(1.59)	-15.04***	(1.26)
Odisha	4.63***	(0.92)	-4.22***	(1.37)	-1.48	(1.09)
Chhattisgarh	9.71***	(1.12)	2.09	(1.68)	-12.00***	(1.33)
Madhya Pradesh	-14.30***	(0.93)	17.68***	(1.39)	-0.90	(1.10)
Gujarat	-8.30***	(1.07)	6.40***	(1.60)	1.91	(1.27)
Daman & Diu	6.30	(4.60)	-10.04	(6.87)	10.85**	(5.45)
Dadra & Nagar Haveli	-12.29***	(3.56)	26.83***	(5.32)	-5.34	(4.22)
Maharashtra	-1.99**	(0.85)	4.11***	(1.28)	0.56	(1.01)
Andhra Pradesh	-3.94***	(0.85)	3.97***	(1.27)	-0.14	(1.01)
Karnataka	-13.08***	(1.01)	13.27***	(1.51)	-0.68	(1.20)
Goa	10.53***	(3.11)	-3.79	(4.64)	-5.32	(3.68)
Lakshadweep	-9.11*	(4.93)	4.71	(7.37)	1.32	(5.85)
Kerala	-5.58***	(0.95)	5.42***	(1.42)	-0.57	(1.13)
Puducherry	-1.10	(3.28)	9.99**	(4.90)	-7.60*	(3.89)
Andaman & Nicobar	-5.79**	(2.42)	10.15***	(3.62)	-5.27*	(2.87)
*2011-12*State*						
Jammu & Kashmir	20.62***	(1.07)	3.54**	(1.61)	-24.23***	(1.27)
Himachal Pradesh	-4.32***	(1.09)	4.53***	(1.63)	0.90	(1.29)
Punjab	-12.04***	(1.09)	23.04***	(1.62)	1.65	(1.29)
Chandigarh	-13.90***	(4.60)	13.74**	(6.87)	-0.04	(5.45)
Uttarakhand	4.71***	(1.27)	1.94	(1.90)	-6.62***	(1.50)
Haryana	-10.38***	(1.16)	9.31***	(1.74)	6.52***	(1.38)
Delhi	-18.26***	(4.94)	18.41**	(7.39)	2.75	(5.86)
Rajasthan	-11.79***	(0.95)	26.97***	(1.42)	4.18***	(1.12)
Uttar Pradesh	2.91***	(0.79)	0.69	(1.18)	-0.54	(0.93)
Bihar	9.45***	(0.89)	-4.68***	(1.33)	-4.36***	(1.06)
Sikkim	-7.04***	(1.55)	10.71***	(2.32)	-3.71**	(1.84)

Arunachal Pradesh	-5.91***	(1.26)	15.15***	(1.88)	-8.95***	(1.49)
Nagaland	-3.74**	(1.51)	20.68***	(2.25)	-16.99***	(1.79)
Manipur	-7.87***	(1.13)	15.94***	(1.69)	-8.65***	(1.34)
Mizoram	6.12***	(1.58)	9.00***	(2.36)	-14.78***	(1.87)
Tripura	7.98***	(1.18)	1.85	(1.76)	-9.88***	(1.40)
Meghalaya	7.04***	(1.38)	4.38**	(2.06)	-12.21***	(1.64)
Assam	9.12***	(0.95)	3.63**	(1.42)	-13.02***	(1.13)
West Bengal	-4.35***	(0.87)	12.43***	(1.30)	-7.56***	(1.03)
Jharkhand	6.61***	(1.07)	2.84*	(1.59)	-9.34***	(1.26)
Odisha	8.50***	(0.92)	-6.47***	(1.37)	-1.46	(1.09)
Chhattisgarh	6.72***	(1.13)	-2.11	(1.69)	-4.46***	(1.34)
Madhya Pradesh	-4.84***	(0.93)	14.86***	(1.39)	1.44	(1.10)
Gujarat	-13.19***	(1.07)	6.37***	(1.60)	7.10***	(1.27)
Daman & Diu	-12.43***	(4.60)	12.66*	(6.87)	6.88	(5.45)
Dadra & Nagar Hav.	-8.70**	(3.56)	13.67**	(5.32)	2.39	(4.22)
Maharashtra	-1.24	(0.85)	3.90***	(1.28)	1.17	(1.01)
Andhra Pradesh	-3.00***	(0.85)	-0.39	(1.27)	3.86***	(1.01)
Karnataka	-12.03***	(1.01)	12.01***	(1.51)	-0.04	(1.20)
Goa	12.95***	(3.10)	-11.73**	(4.64)	0.20	(3.68)
Lakshadweep	-9.00*	(4.74)	5.89	(7.08)	-0.03	(5.62)
Kerala	4.90***	(0.95)	-5.24***	(1.42)	0.41	(1.13)
Puducherry	0.64	(3.28)	5.71	(4.90)	-5.36	(3.89)
Andaman & Nicobar	5.85**	(2.41)	0.12	(3.60)	-5.15*	(2.86)
Constant	58.20***	(0.58)	48.62***	(0.86)	-12.07***	(0.68)
R-squared	0.31		0.18		0.34	

The regressions also include MPCE decile class, household size, landsize class, social group, religion and the sources of cooking and lighting as regressors. For the sake of brevity, only the state and year interaction terms are presented in this table. Tamil Nadu is the reference state and 2004-05 is the reference year.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 10: SUR Estimates for the sources of rice consumption (Landsize class interacted with year)

	PDS Share		Market Share		Home Share	
	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
*Landclass*2009-10*						
0.01-0.40 hectare	1.80***	(0.41)	-0.74	(0.62)	-2.09***	(0.49)
0.41-1.00 hectare	1.10**	(0.46)	4.78***	(0.69)	-6.69***	(0.54)
1.01-2.00 hectare	-0.03	(0.53)	5.29***	(0.80)	-6.01***	(0.63)
2.01-4.00 hectare	-2.20***	(0.62)	7.24***	(0.92)	-4.67***	(0.73)
4.01-10.00 hectare	-4.45***	(0.75)	9.78***	(1.12)	-2.63***	(0.89)
> 10 hectare	-4.79***	(1.54)	11.69***	(2.29)	-4.55**	(1.82)
*Landclass*2011-12*						
0.01-0.40 hectare	3.98***	(0.41)	-3.90***	(0.62)	-2.50***	(0.49)
0.41-1.00 hectare	2.23***	(0.46)	3.38***	(0.69)	-7.40***	(0.55)
1.01-2.00 hectare	-1.08**	(0.54)	8.00***	(0.81)	-8.33***	(0.64)
2.01-4.00 hectare	-3.81***	(0.62)	9.28***	(0.93)	-5.08***	(0.73)
4.01-10.00 hectare	-7.91***	(0.78)	15.65***	(1.16)	-5.51***	(0.92)
> 10 hectare	-9.56***	(1.57)	14.27***	(2.34)	-2.99	(1.86)
Constant	60.33***	(0.50)	45.43***	(0.74)	-12.46***	(0.59)
R-squared	0.30		0.17		0.34	

The regressions also include MPCE decile class, household size, state, social group, religion and the sources of cooking and lighting as regressors. For the sake of brevity, only the state and year interaction terms are presented in this table. Tamil Nadu is the reference state and 2004-05 is the reference year.
*** p<0.01, ** p<0.05, * p<0.1

Table 11: SUR Estimates for the sources of wheat consumption (State interacted with year)

VARIABLES	PDS Share Coeff.	Std. error	Market Share Coeff.	Std. error	Home Share Coeff.	Std. error
Year Dummy (2004-05)						
2009-10	27.36***	(0.96)	-11.39***	(1.41)	-14.97***	(0.88)
2011-12	32.19***	(0.96)	-19.19***	(1.41)	-11.66***	(0.89)
*2009-10*State*						
Jammu & Kashmir	-3.91***	(1.40)	16.75***	(2.07)	9.53***	(1.30)
Punjab	-15.29***	(1.35)	-0.42	(1.99)	13.98***	(1.25)
Chandigarh	-31.13***	(6.19)	9.64	(9.15)	25.46***	(5.73)
Uttarakhand	-25.43***	(1.52)	16.23***	(2.25)	7.40***	(1.41)
Haryana	-15.24***	(1.42)	2.99	(2.10)	11.37***	(1.31)
Delhi	-22.42***	(5.46)	4.25	(8.08)	15.90***	(5.06)
Rajasthan	-26.33***	(1.22)	13.85***	(1.80)	17.38***	(1.13)
Uttar Pradesh	-20.15***	(1.08)	7.86***	(1.60)	11.68***	(1.00)
Bihar	-22.78***	(1.17)	11.36***	(1.73)	10.96***	(1.08)
Sikkim	-23.77***	(1.80)	8.94***	(2.67)	15.76***	(1.67)
Arunachal Pradesh	-24.27***	(1.52)	13.62***	(2.25)	11.33***	(1.41)
Nagaland	-27.48***	(1.74)	5.39**	(2.57)	18.51***	(1.61)
Manipur	-25.61***	(1.39)	8.99***	(2.06)	14.95***	(1.29)
Mizoram	-24.18***	(1.83)	6.72**	(2.71)	16.61***	(1.69)
Tripura	-8.39***	(1.43)	2.74	(2.12)	15.57***	(1.33)
Meghalaya	-28.00***	(1.63)	15.63***	(2.41)	20.86***	(1.51)
Assam	-25.71***	(1.22)	9.60***	(1.81)	16.15***	(1.13)
West Bengal	-11.33***	(1.15)	1.83	(1.70)	15.94***	(1.07)
Jharkhand	-12.52***	(1.33)	8.44***	(1.96)	12.12***	(1.23)
Odisha	-21.62***	(1.19)	12.80***	(1.77)	14.85***	(1.11)
Chhattisgarh	-13.73***	(1.38)	15.96***	(2.05)	14.40***	(1.28)
Madhya Pradesh	-20.34***	(1.20)	4.93***	(1.78)	16.96***	(1.11)
Gujarat	-25.44***	(1.33)	13.06***	(1.97)	21.91***	(1.23)
Daman & Diu	-13.07***	(4.99)	19.12***	(7.39)	15.02***	(4.62)
Dadra & Nagar Haveli	-32.41***	(3.89)	73.57***	(5.76)	17.62***	(3.60)
Maharashtra	-20.01***	(1.14)	6.38***	(1.68)	18.90***	(1.05)
Andhra Pradesh	-26.18***	(1.13)	19.36***	(1.68)	15.48***	(1.05)
Karnataka	-16.74***	(1.28)	14.68***	(1.89)	16.73***	(1.18)
Goa	-21.94***	(3.41)	28.62***	(5.04)	17.49***	(3.16)
Lakshadweep	-11.55**	(5.35)	2.65	(7.92)	15.20***	(4.95)
Kerala	-7.48***	(1.22)	6.50***	(1.81)	15.79***	(1.13)
Tamil Nadu	17.82***	(1.17)	0.96	(1.74)	15.90***	(1.09)
Puducherry	1.97	(3.60)	4.62	(5.32)	16.47***	(3.33)
Andaman & Nicobar	-9.50***	(2.69)	-4.32	(3.98)	15.66***	(2.49)
*2011-12*State*						
Jammu & Kashmir	0.17	(1.34)	28.46***	(1.98)	1.05	(1.24)
Punjab	-19.11***	(1.35)	8.13***	(1.99)	8.87***	(1.25)
Chandigarh	-28.25***	(4.99)	8.33	(7.39)	17.73***	(4.62)
Uttarakhand	-21.42***	(1.52)	12.50***	(2.25)	5.83***	(1.41)
Haryana	-21.77***	(1.42)	12.02***	(2.10)	9.08***	(1.32)
Delhi	-34.97***	(5.36)	12.53	(7.93)	25.07***	(4.96)
Rajasthan	-26.41***	(1.22)	14.40***	(1.81)	17.99***	(1.13)
Uttar Pradesh	-23.73***	(1.08)	12.52***	(1.60)	9.58***	(1.00)
Bihar	-15.37***	(1.17)	7.33***	(1.73)	7.85***	(1.08)
Sikkim	-28.97***	(1.80)	29.82***	(2.67)	8.60***	(1.67)
Arunachal Pradesh	-27.36***	(1.51)	21.66***	(2.24)	8.22***	(1.40)

Nagaland	-30.45***	(1.75)	12.58***	(2.60)	12.40***	(1.62)
Manipur	-30.78***	(1.39)	14.11***	(2.06)	12.71***	(1.29)
Mizoram	-26.85***	(1.83)	11.43***	(2.70)	14.31***	(1.69)
Tripura	-21.83***	(1.43)	15.07***	(2.12)	12.90***	(1.33)
Meghalaya	-30.71***	(1.63)	37.13***	(2.41)	15.26***	(1.51)
Assam	-26.11***	(1.23)	13.75***	(1.81)	13.60***	(1.13)
West Bengal	-2.82**	(1.15)	4.82***	(1.71)	12.87***	(1.07)
Jharkhand	-35.90***	(1.33)	20.57***	(1.97)	15.18***	(1.23)
Odisha	-21.63***	(1.20)	26.70***	(1.77)	11.79***	(1.11)
Chhattisgarh	-19.55***	(1.39)	29.42***	(2.06)	12.75***	(1.29)
Madhya Pradesh	-25.68***	(1.20)	12.75***	(1.78)	15.68***	(1.11)
Gujarat	-32.37***	(1.33)	20.56***	(1.97)	18.06***	(1.24)
Daman & Diu	-30.20***	(4.99)	14.97**	(7.39)	14.73***	(4.62)
Dadra & Nagar Haveli	-31.98***	(3.89)	21.63***	(5.76)	12.10***	(3.60)
Maharashtra	-24.02***	(1.14)	15.80***	(1.68)	13.34***	(1.05)
Andhra Pradesh	-25.43***	(1.13)	39.64***	(1.68)	13.10***	(1.05)
Karnataka	-17.78***	(1.28)	22.86***	(1.89)	11.58***	(1.18)
Goa	-10.51***	(3.41)	12.77**	(5.04)	16.44***	(3.15)
Lakshadweep	-32.91***	(5.14)	37.47***	(7.61)	10.83**	(4.76)
Kerala	1.63	(1.23)	6.38***	(1.81)	13.20***	(1.13)
Tamil Nadu	15.62***	(1.17)	8.53***	(1.74)	12.51***	(1.09)
Puducherry	16.58***	(3.60)	5.68	(5.32)	14.99***	(3.33)
Andaman & Nicobar	-7.50***	(2.68)	2.29	(3.96)	14.96***	(2.48)
Constant	32.29***	(0.77)	42.87***	(1.13)	1.15	(0.71)
R-squared	0.24		0.19		0.40	

The regressions also include MPCE decile class, household size, landsize class, social group, religion and the sources of cooking and lighting as regressors. For the sake of brevity, only the state and year interaction terms are presented in this table. Himachal Pradesh is the reference state and 2004-05 is the reference year.

*** p<0.01, ** p<0.05, * p<0.1

Table 12: SUR Estimates for the sources of wheat consumption (Landsize class interacted with year)

	PDS Share		Market Share		Home Share	
	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error
*Landclass*2009-10*						
0.01-0.40 hectare	0.51	(0.45)	0.42	(0.66)	-0.31	(0.41)
0.41-1.00 hectare	-2.55***	(0.50)	4.65***	(0.73)	-1.13**	(0.46)
1.01-2.00 hectare	-4.42***	(0.58)	3.22***	(0.85)	0.10	(0.53)
2.01-4.00 hectare	-8.10***	(0.67)	3.75***	(0.98)	1.02*	(0.61)
4.01-10.00 hectare	-10.88***	(0.82)	1.34	(1.20)	4.83***	(0.75)
> 10 hectare	-10.02***	(1.67)	4.97**	(2.44)	4.54***	(1.52)
*Landclass*2011-12*						
0.01-0.40 hectare	2.26***	(0.45)	-4.08***	(0.66)	0.97**	(0.41)
0.41-1.00 hectare	-2.04***	(0.50)	2.36***	(0.74)	-0.42	(0.46)
1.01-2.00 hectare	-5.60***	(0.59)	1.63*	(0.86)	1.47***	(0.54)
2.01-4.00 hectare	-9.55***	(0.68)	2.07**	(0.99)	3.68***	(0.62)
4.01-10.00 hectare	-13.67***	(0.85)	1.63	(1.24)	5.72***	(0.78)
> 10 hectare	-13.13***	(1.71)	4.07	(2.50)	4.87***	(1.56)
Constant	42.77***	(0.62)	35.59***	(0.91)	-6.60***	(0.57)
R-squared	0.21		0.18		0.40	

The regressions also include MPCE decile class, household size, states, social group, religion and the sources of cooking and lighting as regressors. For the sake of brevity, only the state and year interaction terms are presented in this table. Himachal Pradesh is the reference state and 2004-05 is the reference year.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Appendix

Table A.1: Sources of Consumption by social group (in percentages)

	Rice						Wheat					
	PDS			Any Other Source			PDS			Any Other Source		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ST	29.32	47.11	53.79	70.68	52.89	46.21	15.7	32.14	34.87	84.3	67.86	65.13
SC	29.26	42.86	52.27	70.74	57.14	47.73	13.95	34.08	42.97	86.05	65.92	57.03
OBC	25.78	41.74	46.67	74.22	58.26	53.33	9.72	27.47	32.9	90.28	72.53	67.1
Others	15.87	27.8	34.42	84.13	72.2	65.58	8.81	19.89	26.97	91.19	80.11	73.03
Total	24.37	39.17	45.82	75.63	60.83	54.18	11.05	27.61	33.88	88.95	72.39	66.12

Source: Computed from NSSO 2004-05, 2009-10 and 2011-12

(1) & (4) sum to 100 percent. Similarly, (7) & (10) sum to 100 percent.

Table A.2: Sources of Consumption by ration card type (in percentages)

	Rice				Wheat			
	PDS		Any Other Source		PDS		Any Other Source	
	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AAY	69.85	85.78	30.15	14.22	51.72	70	48.28	30
BPL	58.08	84.46	41.92	15.54	27.17	56.01	72.83	43.99
APL	12.3	19.63	87.7	80.37	3.99	19.51	96.01	80.49
No Card	2.79	4.36	97.21	95.64	1.31	2.93	98.69	97.07
Total	24.36	45.81	75.64	54.19	11.04	33.88	88.96	66.12

Source: Computed from NSSO 2004-05, 2009-10 and 2011-12

(1) & (3) sum to 100 percent. Similarly, (5) & (7) sum to 100 percent.

Table A.3: Sources of consumption by MPCE class (in percentages)

MPCE Decile Class	Rice						Wheat					
	PDS			Any Other Source			PDS			Any Other Source		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
0-10	36.39	60.46	65.65	63.61	39.54	34.35	16.75	42.21	50.02	83.25	57.79	49.98
10-20	34.55	54.34	60.23	65.45	45.66	39.77	15.6	39.23	43.41	84.4	60.77	56.59
20-30	31.83	49.11	55.1	68.17	50.89	44.9	14.34	33.62	40.76	85.66	66.38	59.24
30-40	28.18	47.37	49.61	71.82	52.63	50.39	12.58	33.17	36.95	87.42	66.83	63.05
40-50	26.88	42.6	50.37	73.12	57.4	49.63	11.98	31.7	35.9	88.02	68.3	64.1
50-60	24.75	39.81	46.54	75.25	60.19	53.46	11.75	27.87	35.21	88.25	72.13	64.79
60-70	21.82	36.39	46.37	78.18	63.61	53.63	9.29	24.11	32.34	90.71	75.89	67.66
70-80	20.89	31.63	40.77	79.11	68.37	59.23	9.58	20.34	30.41	90.42	79.66	69.59
80-90	16.42	29.02	34.15	83.58	70.98	65.85	7.58	21.5	25	92.42	78.5	75
90-100	11.13	18.19	24.85	88.87	81.81	75.15	5.12	14.08	19.86	94.88	85.92	80.14
Total	24.36	39.17	45.81	75.64	60.83	54.19	11.04	27.61	33.88	88.96	72.39	66.12

Source: Computed from NSSO 2004-05, 2009-10 and 2011-12

(1) & (4) sum to 100 percent. Similarly, (7) & (10) sum to 100 percent.

Table A.4: Share of sources of rice consumption (in percentages)

	PDS			Market			Home		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Jammu & Kashmir	29.87	51.69	51.92	18.92	18.83	28.15	51.21	29.48	19.94
Himachal Pradesh	50.15	43.83	48.03	40.21	49.40	47.29	9.64	6.76	4.69
Punjab	0.10	0.03	0.17	73.46	75.43	79.86	26.44	24.54	19.97
Chandigarh	10.86	0.00	0.00	87.96	99.41	99.95	1.18	0.59	0.05
Uttarakhand	20.88	24.12	39.32	51.30	54.43	45.26	27.82	21.45	15.42
Haryana	0.02	0.02	4.01	79.75	72.21	74.96	20.23	27.77	21.02
Delhi	9.55	62.98	3.19	90.45	37.02	96.80	0.00	0.00	0.01
Rajasthan	0.05	0.77	6.52	93.68	90.44	92.34	6.27	8.79	1.15
Uttar Pradesh	3.50	17.49	21.36	53.41	44.35	43.25	43.08	38.17	35.39
Bihar	0.54	6.12	22.29	58.40	63.37	46.94	41.06	30.51	30.77
Sikkim	33.68	39.29	49.40	65.06	59.34	48.42	1.26	1.37	2.18
Arunachal Pradesh	25.60	27.77	33.98	18.58	20.87	20.75	55.82	51.37	45.27
Nagaland	0.00	0.00	6.77	21.46	29.75	28.90	78.54	70.25	64.33
Manipur	0.26	2.03	1.62	26.49	31.42	31.28	73.25	66.55	67.11
Mizoram	38.18	45.12	54.09	25.78	33.78	31.95	36.03	21.09	13.95
Tripura	23.75	33.74	42.55	46.87	42.65	38.42	29.38	23.61	19.03
Meghalaya	11.74	30.32	32.04	45.09	49.48	45.85	43.18	20.20	22.11
Assam	3.90	11.95	24.11	37.09	37.20	33.65	59.01	50.85	42.23
West Bengal	2.29	6.38	9.90	61.04	70.68	67.73	36.67	22.94	22.36
Jharkhand	1.54	12.35	23.71	52.82	60.66	44.61	45.64	26.99	31.68
Odisha	7.01	26.21	31.29	57.73	42.14	36.90	35.26	31.65	31.81
Chhattisgarh	11.54	42.35	34.76	37.25	29.12	23.48	51.20	28.53	41.76
Madhya Pradesh	15.70	18.76	21.37	55.61	55.24	49.77	28.68	26.00	28.86
Gujarat	13.35	20.81	13.06	74.41	65.38	65.56	12.23	13.81	21.38
Daman & Diu	12.63	29.39	0.68	80.54	62.57	98.98	6.82	8.04	0.34
Dadra & Nagar Haveli	33.17	20.49	34.03	26.69	48.92	29.39	40.14	30.59	36.58
Maharashtra	21.25	33.98	36.55	57.76	47.14	47.75	20.99	18.89	15.70
Andhra Pradesh	23.26	32.34	32.83	66.56	59.32	54.78	10.18	8.33	12.38
Karnataka	46.51	46.98	43.41	40.13	44.55	46.25	13.36	8.47	10.34
Goa	9.02	25.10	34.99	69.85	46.71	60.16	21.13	28.20	4.85
Lakshadweep	85.15	88.63	84.16	14.85	11.37	15.84	0.00	0.00	0.00
Kerala	20.18	26.74	37.17	75.46	70.97	61.82	4.36	2.30	1.01
Tamil Nadu	40.36	52.60	51.79	53.00	41.84	42.70	6.64	5.56	5.50
Puducherry	34.14	45.97	41.90	50.92	52.61	52.85	14.93	1.41	5.25
Andaman & Nicobar	39.32	46.19	57.19	35.22	34.73	25.29	25.46	19.08	17.52
India	13.16	23.68	27.91	55.56	52.07	47.72	31.28	24.25	24.36

Source: Computed from NSSO 2004-05, 2009-10 and 2011-12

(1), (4) and (7) add to 100 percent

Table A.5: Share of sources of consumption of wheat

	PDS			Market			Home		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Jammu & Kashmir	11.00	31.78	43.95	34.75	37.65	34.54	54.25	30.58	21.51
Himachal Pradesh	20.91	45.67	49.87	49.41	41.15	34.01	29.68	13.18	16.12
Punjab	0.22	13.07	14.31	66.80	53.79	55.38	32.98	33.14	30.31
Chandigarh	4.50	0.00	6.19	90.19	98.02	88.70	5.32	1.98	5.12
Uttarakhand	13.43	15.73	24.55	54.55	59.99	55.34	32.01	24.28	20.11
Haryana	2.43	13.81	12.69	55.09	46.29	46.87	42.48	39.90	40.44
Delhi	2.69	24.86	7.11	93.18	75.11	84.92	4.13	0.03	7.97
Rajasthan	10.49	9.22	14.77	50.23	53.19	46.61	39.28	37.59	38.63
Uttar Pradesh	2.30	7.45	9.39	44.94	41.79	40.89	52.77	50.76	49.71
Bihar	1.08	5.74	18.45	57.87	62.28	51.67	41.04	31.98	29.88
Sikkim	0.95	2.92	0.86	99.05	97.08	99.14	0.00	0.00	0.00
Arunachal Pradesh	10.28	19.74	14.70	77.69	75.19	81.71	12.03	5.07	3.59
Nagaland	0.91	0.00	0.00	99.09	100.00	100.00	0.00	0.00	0.00
Manipur	0.00	0.00	0.00	100.00	98.17	100.00	0.00	1.83	0.00
Mizoram	16.76	58.84	42.09	83.24	41.16	57.91	0.00	0.00	0.00
Tripura	14.40	60.28	38.56	83.84	39.72	61.44	1.75	0.00	0.00
Meghalaya	0.65	0.73	5.35	99.35	99.27	94.48	0.00	0.00	0.17
Assam	0.14	2.02	7.34	99.05	97.82	92.63	0.81	0.16	0.03
West Bengal	15.93	40.32	45.75	81.00	58.92	53.18	3.07	0.76	1.07
Jharkhand	4.07	18.10	1.52	85.56	79.94	86.95	10.37	1.95	11.53
Odisha	0.55	16.68	29.06	99.03	82.87	70.51	0.42	0.45	0.43
Chhattisgarh	16.21	36.85	43.18	70.47	56.93	44.18	13.32	6.22	12.65
Madhya Pradesh	11.97	21.46	19.15	40.78	35.30	34.79	47.25	43.24	46.06
Gujarat	14.81	16.41	15.19	67.71	56.45	66.06	17.48	27.14	18.75
Daman & Diu	4.70	17.31	0.23	95.30	82.69	99.77	0.00	0.00	0.00
Dadra & Nagar Haveli	37.00	8.02	11.83	63.00	91.98	88.17	0.00	0.00	0.00
Maharashtra	26.21	30.84	31.15	57.68	51.61	55.72	16.11	17.55	13.13
Andhra Pradesh	3.09	7.07	12.54	96.13	92.77	87.25	0.78	0.16	0.20
Karnataka	54.38	50.40	46.96	36.76	39.31	43.84	8.85	10.29	9.20
Goa	7.54	8.09	25.92	92.46	91.91	74.08	0.00	0.00	0.00
Lakshadweep	1.69	18.83	7.93	98.31	81.17	92.07	0.00	0.00	0.00
Kerala	26.68	43.86	53.26	73.32	56.12	46.74	0.00	0.02	0.00
Tamil Nadu	40.25	82.55	82.26	59.71	17.45	17.74	0.04	0.00	0.00
Puducherry	14.76	69.05	80.30	85.24	30.95	19.70	0.00	0.00	0.00
Andaman & Nicobar	4.94	40.54	55.15	95.06	59.46	44.85	0.00	0.00	0.00
India	7.32	14.41	17.70	52.10	49.02	46.99	40.58	36.57	35.31

Source: Computed from NSSO 2004-05, 2009-10 and 2011-12

(1), (4) and (7) add to 100 percent

Table A.6: Consumption of rice and wheat by social groups (in kgs.)

	Rice											
	PDS			Market			Home			Total		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
ST	4.98	8.94	10.26	15.43	12.84	11.11	14.54	9.64	9.35	34.96	31.42	30.72
SC	4.87	7.07	8.93	19.05	15.46	14.16	5.72	3.83	3.77	29.64	26.36	26.87
OBC	4.37	7.02	7.64	16.87	14.05	12.72	9.01	6.83	6.65	30.26	27.90	27.01
Others	2.64	4.58	5.30	17.31	15.58	13.86	12.23	8.23	8.14	32.18	28.38	27.30
Total	4.10	6.65	7.67	17.29	14.61	13.11	9.74	6.80	6.69	31.13	28.06	27.47
	Wheat											
	PDS			Market			Home			Total		
	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12	2004-05	2009-10	2011-12
ST	2.48	4.04	4.71	5.22	5.65	5.44	2.94	3.51	4.05	10.65	13.20	14.20
SC	2.08	4.01	5.08	14.90	13.00	11.65	5.09	4.63	4.17	22.06	21.64	20.89
OBC	1.22	2.51	2.96	11.15	10.04	9.75	10.53	8.64	8.33	22.90	21.19	21.04
Others	1.06	1.86	2.50	8.63	7.89	8.14	9.64	8.89	8.44	19.33	18.64	19.08
Total	1.50	2.85	3.50	10.66	9.70	9.29	8.31	7.24	6.98	20.47	19.80	19.78

Source: Computed from NSSO 2004-05, 2009-10 and 2011-12

Table A.7: Consumption of rice and wheat by ration card type (in kgs.)

	Rice							
	PDS		Market		Home		Total	
	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12
AAY	13.74	18.39	13.81	8.57	3.37	3.56	30.92	30.52
BPL	9.06	14.04	19.80	13.01	6.33	5.27	35.19	32.32
APL	2.31	2.85	15.51	13.06	12.30	8.22	30.11	24.13
No Card	0.51	0.67	19.24	15.35	8.49	7.18	28.24	23.20
Total	4.10	7.67	17.30	13.11	9.74	6.69	31.13	27.47
	Wheat							
	PDS		Market		Home		Total	
	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12
AAY	7.67	9.45	8.24	7.70	2.38	4.24	18.29	21.39
BPL	3.56	6.14	7.47	5.85	2.60	2.48	13.63	14.46
APL	0.57	1.39	12.68	11.87	12.81	12.21	26.06	25.47
No Card	0.18	0.35	10.00	11.45	4.85	4.50	15.03	16.29
Total	1.50	3.50	10.66	9.29	8.31	6.98	20.47	19.77

Source: Computed from NSSO 2004-05, 2009-10 and 2011-12

Table A.8 : Variable Description

	2004-05	2009-10	2011-12
Dependent Variables [Mean Share]			
Rice PDS	14.54	21.77	26.06
Rice Market	54.07	53.50	51.09
Rice Home	25.41	20.19	19.55
Wheat PDS	7.83	18.40	22.06
Wheat Market	43.55	43.59	43.71
Wheat Home	15.73	14.28	14.30
Social Group [Freq. %]			
STs	16.20	16.51	16.76
SCs	17.31	18.13	17.08
OBCs	37.87	38.33	39.8
Others	28.62	27.03	26.36
Land Size Class [Freq. %]			
0.00-0.10 hectare	21.28	22.09	20.76
0.01-0.40 hectare	29.93	33.78	36.67
0.41-1.00 hectare	21.64	19.22	19.25
1.01-2.00 hectare	12.83	11.58	10.99
2.01-4.00 hectare	8.58	7.57	7.35
4.01-10.00 hectare	4.69	4.83	4.12
> 10 hectare	1.05	0.93	0.86
Household Size [Mean]	5.08	4.85	4.78
Cooking Source [Freq. %]			
Clean	15	21.71	25.69
Dirty	82.19	75.97	71.1
Others	2.91	2.32	3.21
Lighting Source [Freq. %]			
Electricity or Gas	64.05	74.56	81.15
Kerosene and Others	35.95	25.44	18.85
Religion [Freq. %]			
Hinduism	76.9	77.06	76.4
Muslims	10.64	11	11.8
Christianity	7.1	7.21	7.2
Others	5.36	4.73	4.61

Table A.9: SUR Estimates for the sources of rice consumption

	PDS Share		Market Share		Home Share	
	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
Year Dummy (2004-05)						
2009-10	7.26***	(0.15)	-2.48***	(0.22)	-3.56***	(0.18)
2011-12	11.45***	(0.15)	-5.26***	(0.23)	-3.67***	(0.18)
MPCE Decile Class						
10-20	-5.33***	(0.33)	5.03***	(0.50)	1.96***	(0.39)
20-30	-8.29***	(0.33)	7.84***	(0.49)	2.64***	(0.39)
30-40	-10.52***	(0.33)	9.08***	(0.48)	3.83***	(0.38)
40-50	-12.20***	(0.32)	9.68***	(0.48)	4.86***	(0.38)
50-60	-13.66***	(0.32)	10.43***	(0.47)	5.84***	(0.38)
60-70	-15.35***	(0.32)	11.58***	(0.47)	6.59***	(0.37)
70-80	-17.06***	(0.31)	12.20***	(0.47)	7.68***	(0.37)
80-90	-19.74***	(0.31)	13.36***	(0.46)	9.14***	(0.36)
90-100	-24.09***	(0.31)	15.46***	(0.46)	11.05***	(0.37)
Social Group[STs]						
SCs	-1.02***	(0.25)	4.51***	(0.38)	-4.36***	(0.30)
OBCs	-3.02***	(0.23)	4.08***	(0.34)	-1.43***	(0.27)
Others	-3.82***	(0.24)	4.83***	(0.36)	-1.09***	(0.29)
Religion[Hindus]						
Muslims	0.61***	(0.22)	1.18***	(0.33)	-1.48***	(0.27)
Christians	-1.86***	(0.36)	2.18***	(0.53)	-0.50	(0.42)
Others	1.59***	(0.39)	-3.29***	(0.58)	1.31***	(0.46)
Landsize Class [0-0.01]						
0.01-0.40 hectare	1.18***	(0.18)	-1.20***	(0.27)	1.64***	(0.22)
0.41-1.00 hectare	-1.82***	(0.20)	-24.32***	(0.30)	27.42***	(0.24)
1.01-2.00 hectare	-3.39***	(0.24)	-32.61***	(0.35)	36.55***	(0.28)
2.01-4.00 hectare	-4.29***	(0.27)	-33.59***	(0.41)	38.34***	(0.32)
4.01-10.00 hectare	-5.41***	(0.34)	-29.02***	(0.51)	35.22***	(0.40)
> 10 hectare	-3.86***	(0.66)	-25.70***	(0.99)	31.03***	(0.78)
Household Size	-1.48***	(0.03)	1.13***	(0.04)	0.95***	(0.03)
Cooking Source [Clean]						
Dirty	6.66***	(0.18)	-10.31***	(0.26)	2.36***	(0.21)
Others	-0.15	(0.41)	-22.49***	(0.61)	1.48***	(0.49)
Lighting Source [Electr./Gas]						
Kerosene and Others	0.06	(0.17)	0.78***	(0.26)	-1.07***	(0.20)
State	Yes		Yes		Yes	
Constant	59.89***	(0.48)	44.24***	(0.71)	-10.33***	(0.56)
Observations	197,772		197,772		197,772	
R-squared	0.30		0.17		0.34	

*** p<0.01, ** p<0.05, * p<0.1

Table A.10: SUR Estimates for the sources of wheat consumption

	PDS Share		Market Share		Home Share	
	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
Year Dummy (2004-05)						
2009-10	10.48***	(0.16)	-2.35***	(0.24)	-0.39***	(0.15)
2011-12	13.97***	(0.17)	-3.01***	(0.24)	0.05	(0.15)
MPCE Decile Class						
10-20	-2.75***	(0.36)	4.49***	(0.53)	0.89***	(0.33)
20-30	-3.96***	(0.36)	6.58***	(0.52)	1.58***	(0.32)
30-40	-4.95***	(0.35)	8.44***	(0.52)	2.61***	(0.32)
40-50	-5.86***	(0.35)	10.02***	(0.51)	3.29***	(0.32)
50-60	-6.48***	(0.35)	11.16***	(0.50)	4.06***	(0.31)
60-70	-8.29***	(0.34)	12.48***	(0.50)	4.96***	(0.31)
70-80	-9.52***	(0.34)	13.44***	(0.50)	6.21***	(0.31)
80-90	-10.42***	(0.34)	15.18***	(0.49)	7.18***	(0.31)
90-100	-13.04***	(0.34)	19.03***	(0.49)	8.09***	(0.31)
Social Group[STs]						
SCs	-1.10***	(0.28)	13.27***	(0.40)	-1.52***	(0.25)
OBCs	-3.03***	(0.25)	10.51***	(0.36)	3.98***	(0.23)
Others	-4.74***	(0.26)	9.09***	(0.38)	7.26***	(0.24)
Religion[Hindus]						
Muslims	-0.38	(0.24)	2.77***	(0.36)	-7.03***	(0.22)
Christians	-3.39***	(0.39)	3.52***	(0.57)	-1.82***	(0.35)
Others	-0.23	(0.42)	-4.09***	(0.62)	2.61***	(0.39)
Landsize Class [0-0.01]						
0.01-0.40 hectare	1.00***	(0.20)	-5.58***	(0.29)	6.46***	(0.18)
0.41-1.00 hectare	-0.73***	(0.22)	-18.35***	(0.32)	19.42***	(0.20)
1.01-2.00 hectare	-1.93***	(0.26)	-23.95***	(0.38)	25.99***	(0.23)
2.01-4.00 hectare	-4.51***	(0.30)	-29.43***	(0.44)	32.62***	(0.27)
4.01-10.00 hectare	-7.01***	(0.37)	-35.99***	(0.54)	39.68***	(0.34)
> 10 hectare	-8.95***	(0.72)	-42.16***	(1.05)	47.13***	(0.66)
Household Size	-0.57***	(0.03)	1.46***	(0.05)	0.68***	(0.03)
Cooking Source [Clean]						
Dirty	3.02***	(0.19)	-12.73***	(0.28)	2.02***	(0.18)
Others	1.77***	(0.45)	-22.43***	(0.65)	1.54***	(0.41)
Lighting Source [Electr./Gas]						
Kerosene and Others	-0.11	(0.19)	-5.11***	(0.27)	-0.60***	(0.17)
State						
Constant	43.88***	(0.60)	35.09***	(0.88)	-6.83***	(0.55)
Observations	197,772		197,772		197,772	
R-squared	0.20		0.18		0.40	
*** p<0.01, ** p<0.05, * p<0.1						