

Himanshu

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Poverty and Food Security in India

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ABSTRACT

This paper is an attempt to analyze the impact of two of India's largest food security interventions—the Public Distribution System (PDS) and the Mid Day Meal Scheme (MDM)—on poverty outcomes and on nutritional intake. This paper offers a simple methodology to take into account the impact of food-based transfers by including the implicit transfers from these schemes along with generating consumption expenditure estimates consistent with the transfers.

The preliminary analysis shows the significant impact of the PDS and MDM in terms of poverty reduction and calorie intake. While there are large variations across states, the analysis shows that the schemes have not only improved efficiency in the last 2 decades but have also contributed significantly to poverty reduction. Almost half of the poverty reduction in the distribution-sensitive measures such as the squared poverty gap (SPG) between 2004–2005 and 2009–2010 is explained by the improved efficiency and coverage of these schemes. There is also evidence that the functioning of these schemes, particularly the PDS, has improved in recent years. This is particularly true in states that have followed a universal or quasi-universal coverage along with low cereal prices.

Keywords: food policy, food security, Mid Day Meal Scheme, poverty, poverty analysis, Public Distribution System

JEL Classification: I32, I38, Q18

I. INTRODUCTION

The issue of food security is back on the agenda for developed countries but more so for developing countries. The recent spells of global food price inflation have once again exposed the vulnerability of the population in developing countries, particularly the poor.¹ Among the most affected are the countries in South Asia, which remains the geographical region with the highest level of malnutrition. Within Asia, India is home to the largest number of malnourished persons in the world. While the high levels of malnutrition are worrying, the fact that there has not been any significant reduction in malnutrition in the recent past despite India being the second-fastest growing economy of the world² is intriguing. On the other hand, there has been concern about the deterioration in the food security situation in recent years because of a continuous spell of inflation which has remained above 10% for the last 3 years.

The fact that this episode of slow improvement in most nutritional indicators—and even the worsening of some, including intake indicators—has coincided with the period of the highest-ever growth of the Indian economy is puzzling. It is puzzling also because the most recent period between 2004–2005 and 2009–2010³ shows a significant decline in poverty. While at the aggregate level, this may suggest that the growth of the economy has also led to improvements in the incomes of the poor, this is not true when disaggregated at the state level. This shows that there is a very poor correlation not only between the growth rates of state domestic product (SDP) and poverty reduction, but also with relative food prices and agricultural growth at the state level.

However, further examination suggests that the extent of poverty reduction as well as nutritional improvements may have more to do with policies at the state level, particularly redistributive policies and the governance of public services, including the primary channel of ensuring food security, the Public Distribution System (PDS). It is in this context that a reexamination of the functions of various social safety nets, including those specifically meant for food security, is undertaken. While the main focus will be the PDS, other schemes such as the Integrated Child Development Scheme (ICDS), a scheme for supplementary nutrition for children under 6 and for pregnant and lactating mothers, and the Mid Day Meal Scheme (MDM), a scheme providing free meals to school children, have also contributed in improving the access to and assuring the supply of better food to poor households.

The analysis suggests a reversal of the trend of worsening PDS access by the poor after the introduction of the Targeted Public Distribution System (TPDS). The TPDS performs poorly not only in terms of its stated objective of better access to subsidized food for poor households, but also in terms of program implementation, which is marked by leakages and corruption. Precisely because of dissatisfaction with the TPDS, many state governments have undertaken state-specific measures of expanding coverage to universal or quasi-universal access, along with further subsidies to provide cheap food grains. These schemes, initially implemented only in richer states such as Tamil Nadu and Andhra Pradesh, have been adopted by poorer states

¹ The food price inflation of 2008 was followed by the food price inflation of July 2010. Although prices moderated after that, the recent spell of drought in the United States (US) has also pushed global prices upwards, particularly in corn and other cereal products. India has been witness to high food price inflation since 2008, and the droughts in 2009 and 2012 have also exposed the vulnerability of the food economy in India.

² The Indian economy has grown at more than 8% per annum during 2004–2010. Although the growth rate of the gross domestic product (GDP) has decelerated in the recent years, India remains the second-fastest growing economy in the world.

³ Throughout this paper, 2004–2005 refers to the survey year beginning 1 July 2004 and ending 30 June 2005. The survey year is also intended in reference to 2009–2010.

such as Chhattisgarh and Odisha, which have seen significant poverty reduction between 2004–2005 and 2009–2010. The other states that have made progress toward expanding the coverage are Jharkhand and Bihar. Close scrutiny of the data suggests that the high poverty reduction at the national level is largely because of the significant poverty reduction in states with high poverty incidence, such as Odisha. The analysis also suggests that the high growth of the gross domestic product (GDP) during 2004–2010 may not have been as effective in either reducing poverty or improving access to food as the food security interventions such as the PDS and MDM. This has implications not only for food security for a vast majority of the population but also for poverty reduction.

This paper uses existing secondary data sources such as the National Sample Surveys (NSS) and other official data to analyze the trends in food consumption, impact on poverty, and malnutrition. This will be looked into with respect of their elasticity to growth as well as responsiveness to various interventions by the government. Particular focus will be on the PDS, which is the largest program for ensuring food security in the country. The analysis will also look at the differential impact on different types of households such as those that are poor and marginalized. The final section will draw policy conclusions based on the analysis. In particular, the analysis will focus not only on existing mechanisms but also on the proposed National Food Security Bill of the Government of India, which is currently in Parliament.

II. BACKGROUND

The link between food security and poverty exists not only because of poverty–nutrition traps in developing countries, but also because poorer households tend to spend more on food as a share of their total expenditure.⁴ Therefore, improvements in income do tend to improve nutritional outcomes, but this may not always be the case. In particular, while the elasticity of total expenditure to nutritional intake such as calories and proteins remains high, the Indian experience suggests a worsening of nutritional intake even though overall incomes and expenditures have increased. This has been a long-standing puzzle in the Indian context and in other countries in the South Asian region (Deaton and Dreze 2009). For example, while aggregate poverty by official poverty estimates declined by 15.5 percentage points between 1993–1994 and 2009–2010, it was accompanied by a decline of 210 calories in per capita per day calorie intake during the same period. Recent nutritional outcome data do not suggest a worsening of the situation during the same period, but they do confirm the slow progress on improvements in nutritional outcomes.

Various explanations have been offered for this puzzle of declining nutritional intake along with declining poverty incidence. However, there has not been any conclusive solution to this puzzle. One of the prominent arguments offered by Deaton and Dreze (2009) suggests that the decline in calorie intake with improved incomes may be due to a declining requirement of calories with an improvement in living conditions. On the other hand, their study also confirms the declining calorie Engel curves. Many others including Patnaik (2010); Gaiha, Jha, and Kulkarni (2010); and Gaiha et al. (2012) have challenged the conclusion with the alternative suggestion of declining calorie intake resulting from falling real income levels and lower calorie demand because of rising prices. This line of thought has questioned not only the appropriateness of inflation indices used in measuring welfare improvements over time, but also the claim of poverty reduction as measured by the official estimates.

⁴ On the existence of poverty–nutrition traps in India, see Jha, Gaiha, and Sharma (2006); Behrman and Deolalikar (1987); and Bliss and Stern (1978).

This debate on declining calorie intake has also been central to the debate on the measurement of poverty in India. It was partly in response to the growing criticisms against the existing poverty lines based on an expert group report (1993) that another expert group was set up in 2005, chaired by Suresh Tendulkar. The Tendulkar Committee Report (2009) sought to redefine the measurement of poverty in India by delinking it from calorie norms while retaining the link with nutritional outcomes as available from the National Family Health Survey (NFHS).⁵

The most recent estimates of poverty and food consumption are given in the 2009–2010 consumption surveys of the NSS. The poverty estimates released by the Planning Commission, which were based on the revised poverty lines suggested by the Tendulkar Committee, have already generated a debate in the country. The main point of the debate is that certain unexplained issues had arisen regarding the food–nutrition aspect of poverty, and that, in this context, it was necessary to test the robustness of the Tendulkar poverty estimates and attempt a decomposition of poverty reduction.

The Tendulkar poverty estimates do raise important questions on the dynamics of poverty reduction in a period of severe drought and unprecedented inflation, particularly in food. Although the period after 2004–2005 did witness an acceleration of growth rates to an average of 8.4% per annum between 2004–2005 and 2009–2010 from less than 6% per annum during the preceding 5-year period, it could be argued that the drought and the global recession make a significant poverty reduction less likely, as seen during 2004–2005 and 2009–2010. It does appear that the adverse effect of these two external shocks on rural areas was less than earlier expected, despite the fact that the 2009 drought was the worst in 30 years. Although this did not lead to an absolute decline in agricultural output, it did generate inflationary pressures that could have created distress. However, some of the distress that the drought and the recession could have caused was mitigated by other measures.

First, since recession restrained prices of manufacture, inflation itself was accompanied by a significant movement of terms of trade in favor of agriculture. Second, the 2009–2010 Employment–Unemployment Surveys of the NSS show casual real wage rates growing at 4% per annum for rural males and 5% for rural females between 2005 and 2010, suggesting that those most vulnerable to inflation were much better protected during that period. The third defining feature of 2004–2005 to 2009–2010 has been the increase in social sector spending by the states as well as the central government. An obvious case of this is the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA). For example, with 2009–2010 showing an eightfold increase in participation in public works over 2004–2005 and a doubling compared to 2007–2008, the impact of the MGNREGA is clearly visible. Recent research has confirmed the role of the MGNREGA in not only influencing wage rates but also creating employment opportunities in the nonfarm sector in rural areas.

While the MGNREGA was largely a central government-led program, state governments were also seen as primary catalysts as far as food-related schemes were concerned. Most of them expanded the scope of existing programs such as the PDS and MDM by not only expanding the coverage of households eligible for benefits, but also significantly reducing the prices of essential cereals. More generally, the effects of the financial crisis were also muted because of the fiscal stimulus, which involved both a significant step-up in construction activity in the public sector and debt-relief for farmers. Taking into account that rural areas also witnessed a significant flow of resources in the run-up to the 2009 general elections, all this

⁵ For details, see Himanshu (2010).

meant that the external shocks, although important, were not so severe as to recreate the earlier situation of sustained distress.

Seen in this backdrop, there does appear to be an evident case of growth contributing to the significant poverty reduction since 2004–2005. This is consistent with previous literature on poverty reduction, where growth appears to be the primary driver of poverty reduction. However, a disaggregated analysis of the different states also cautions at drawing such casual inference. While it is true that the aggregate growth rate accelerated during 2004–2005 to 2009–2010 compared to the period between 1993–1994 and 2004–2005, the growth rates across states also varied a great deal. In fact, the coefficient of variation of the SDP across states does show an increase in the subsequent period. Notably, after 2004–2005, the hitherto poorer states such as Bihar, Uttar Pradesh, Chhattisgarh, and Odisha emerged with the highest growth rates, whereas the traditional drivers of growth such as the western and southern states have not seen any significant acceleration in growth rates in recent years. However, the extent of poverty reduction does not suggest any significant positive correlation with the growth rates of the GDP of the different states. Barring Odisha, which also shows a high reduction in poverty between 2004–2005 and 2009–2010, Bihar, Chhattisgarh, and Uttar Pradesh are among the states with negligible poverty reduction—with poverty actually increasing in the case of Chhattisgarh. Most of these states have very high concentrations of poverty, and the fact that growth did not result in poverty reduction raises questions on the transmission mechanism of growth in these states. While it is difficult to argue that growth did not contribute to significant poverty reduction in a period of rising inequality and associated factors, it is also true that the role of transfers from the state was crucial in insulating poorer households from external shocks, but more importantly, in ensuring an increase in their welfare.

These were some of the issues that an analysis of the official data should have addressed. Unfortunately, criticisms have been leveled against the official poverty measures, making data from official agencies or private researchers unavailable. While the Tendulkar poverty lines released by the Planning Commission appear robust and superior to earlier poverty lines in capturing the spatial and inter-temporal price differential, issues have arisen. How in-kind transfers are treated in calculating expenditures and the valuation of implicit transfers from the state which have become more important since 2004–2005 have been raised with regard to the MDM expenditures. However, another issue that needs clarity is that of the valuation of PDS items particularly after 2004–2005, when there were claims of PDS revival and its contribution to poverty reduction. In this regard, the current practice of valuing PDS consumption at paid-out prices leads not only to an underestimation of the actual consumption of households on food—and thereby total consumption expenditure, even though the aggregate welfare may be better in terms of realized consumption—but also to problems of comparison, since the Tendulkar lines are more sensitive to implicit transfers due to the PDS and its impact on commodity weights.

As mentioned earlier, the issue of implicit in-kind food transfers as a result of government schemes such as the PDS and the MDM has arisen because the 2009–2010 data include MDM expenditure which was not included in the past. The inclusion of MDM expenditure as part of private household expenditure in the 2009–2010 consumption survey had the effect of increasing the monthly per capita expenditure (MPCE). Poverty using the official poverty lines based on the Tendulkar method was thus underestimated. The inclusion of MDM expenditure also lowered measured inequality since the majority of the households that reported MDM expenditure are concentrated in the bottom half of the distribution. A preliminary exercise using official poverty lines suggests that after excluding MDM expenditure from the total household consumption expenditure, the actual poverty estimates for 2009–2010 are 35.2% in rural areas

as against 33.3% reported by the Planning Commission, 21.5% in urban areas against 20.9%, and 31.5% for all India against 29.9%. That is, the real decline in poverty during 2004–2005 and 2009–2010 as against the Planning Commission estimates is only 6.63 (against 8.0) in rural areas, 4.3 (against 4.8) in urban areas, and 5.7 (against 7.4) percentage points in all India. The inescapable conclusion even after this correction is that poverty has declined faster than it was declining in the previous period, even though the Planning Commission may have overestimated the extent of decline. It also implies that the total number of poor people in the country in 2009–2010 was 373 million, 18 million more than the reported estimate of 355 million for the country as a whole—a decline of 34 million and not of 52 million, as reported by the Planning Commission.

In this context, the Planning Commission's official view seems to be that it is necessary to include MDM expenditure in total household expenditure because, after all, the beneficiaries are getting these transfers which leads to welfare improvement. However, since this is also the case with many other transfers which lead to measured improvement, the issue of in-kind transfers needs to be examined carefully not only from the perspective of measuring welfare and poverty, but also from the comparability of poverty estimates over time, since previous quinquennial surveys did not include in-kind transfers as part of private household expenditure. Moreover, the issues are not limited to in-kind transfers such as the MDM but also include PDS consumption, which has the effect of lowering MPCE but at the same time increasing consumer welfare as a result of transfers from either lower commodity prices or the expansion of the coverage and entitlement of households to these commodities.

This paper is about evaluating the impact of these transfers, especially on the welfare of households as measured by the poverty estimates. This is essential not only because doing so will result in a correct analysis of changes in poverty over time, but also because these food-based transfers have become important components of the “inclusive growth” strategy at a time when inequalities have continued to rise since the early 1990s. A decomposition of the changes in poverty is then as much an evaluation of the efficiency of these transfers as it is about their importance to the welfare of households below the poverty line. However, this paper restricts itself to only the food-based transfers without undermining the importance of other transfers. This is done by first evaluating the impact of these transfers on simple poverty measures such as head count ratio (HCR), and on distribution-sensitive measures such as the depth of poverty (poverty gap) and severity of poverty (squared poverty gap). This is followed by a decomposition of the poverty change into various components, in particular, growth and the transfers.

III. FOOD-BASED TRANSFERS AND POVERTY ESTIMATES

The MDM is relatively easy to understand because it is a zero price transfer—that is, it does not involve any out-of-pocket (OOP) expenditure. The NSS has been imputing it and adding it to OOP expenditure since the 64th round.⁶ Prior to that, any in-kind transfer not involving OOP expenditure was not included as part of consumption expenditure. However, there is merit in the argument that in-kind transfers such as the MDM do improve the welfare of their recipients. An evaluation of the impact of such transfers on poverty would therefore be an important component of poverty reduction. But since MDM expenditures were included in the 2009–2010 survey but not in any of the prior surveys, the poverty estimates based on the consumption expenditure for that year are not comparable to those for earlier years. Nonetheless, the availability of data on MDM expenditures as part of the consumption expenditure survey in 2009–2010 offers an opportunity to look at their impact on the welfare of households that benefit from it.

One way of maintaining the comparability of poverty estimates in view of the inclusion of MDM expenditure in the consumption expenditure in 2009–2010 is to exclude it for that year. As mentioned earlier, this leads to comparable estimates, which suggest lower poverty reduction than the official estimates from the Planning Commission. However, since this raises questions on the welfare implications of the MDM transfers on poverty measures, a better way would be to keep the MDM expenditure as part of consumption expenditure. While this can easily be done for 2009–2010 where this item has been explicitly included, there are problems of quantifying these in-kind transfers for previous years for comparison purposes. Fortunately, there is some information on the number of free meals received by households from employers or from schools and *balwadis* (preschools), collected as part of the demographic block. Since this information was retained in 2009–2010, it is possible to compare the estimates of meals consumed from the demographic block and those from the consumption block. These estimates from the two sources are fairly close to each other, not only at the national level but also at the state level.

Since the estimate on the number of meals consumed is also available in previous rounds, it is possible to calculate the consumption expenditure of households including free school meals. There is no information on the value of these school meals in previous surveys, but since the 2009–2010 survey gives the prices of school meals and meals purchased by households, it is possible to impute the values of school meals in other rounds with the assumption that the consumption ratio of market-purchased meals to school meals would not change over time.⁷ The school meals consumed by each of the households were thus valued at the prices as a constant ratio of the meals purchased in each state and sector. These

⁶ The details and the rationale for shifting to a different concept of consumption expenditure are available in the instruction manuals for the NSS 64th and 66th rounds. According to the National Sample Survey Office (NSSO), since the 64th round, the survey has shifted to a mixed concept of consumption, which includes (i) the use approach, (ii) the first use approach, and (iii) the expenditure approach. The justification of including MDM expenditure as part of the MPCE is based on the use approach since the household members are consuming these foods—therefore, they are used by the household. Previously, this was not included based on the expenditure approach since the households did not make any expenditure in exchange for the free food. While MDM expenditure has been recorded as a separate item of expenditure (item 302), it is not clear whether the same rule was applied to other free benefits such as school uniforms, textbooks, medicine, and so on.

⁷ NSS consumption surveys have always included an item on the number of meals purchased by households. Information on the imputed value of meals consumed is also available. Using 2009–2010 data for the per unit cost of a meal for purchased meals and free meals in schools, the data for free meals consumed in other rounds were valued as a constant ratio of the purchased meal unit values.

can then be added to the private MPCE to arrive at a comparable estimate of the MPCE with school meals.

While this takes care of the comparability problem as far as MDM expenditure is concerned, the issue of implicit transfers from the PDS is complicated. The practice has been to value the PDS at prices paid by the consumers and other purchases at their relevant market prices, again retaining the concept of OOP expenditure. The extent to which the benefits of PDS in-kind transfers are captured can then be measured as the differential of the prices paid by consumers at PDS stores and the implicit market prices of the commodities consumed. While this can give an estimate of the absolute value of transfers received by the households for the commodities consumed from the PDS, the adjusted MPCE may not be useful for poverty comparison. Since the Tendulkar method currently does not value the PDS consumption at market prices but at paid-out prices, poverty estimates based on this method do not allow any measurement of in-kind transfers.

However, it is possible to measure the impact of in-kind transfers through a suitable modification of the Tendulkar poverty lines. This can be done by raising the poverty line to the extent to which the cost of commodities consumed in a given month would thereby increase because they are now valued at market prices. Since the Tendulkar poverty lines use unit values as implicit prices, the value of PDS consumption by state, sector, and consumption classes can be replaced with their appropriate market prices. A minor adjustment is also required in determining the poverty line class, since the consumption aggregates and the corresponding commodity weights change if PDS items are valued at market prices rather than paid-out prices. This has been done by revaluing items consumed through the PDS at market prices. Table 1 gives the adjusted poverty lines after valuing PDS items at their respective market prices instead of paid-out prices.

Since the purpose of this paper is to look at the impact of in-kind transfers and implicit transfers such as the PDS on food consumption and poverty, this adjustment has only been done for rice, wheat, and sugar, and not for kerosene. Ideally, the inclusion of PDS items in the poverty estimates should leave the estimates unchanged if the same procedure is applied to the household consumption expenditure. That is, adding the PDS prices to the MPCE should ideally give the same poverty estimates as obtained by using the official poverty lines on the unadjusted MPCE. Accordingly, a revaluation of consumption expenditure was also done to account for MDM expenditure and PDS items.⁸ There are then four different MPCE estimates that can be computed for each of the survey rounds:

1. MPCEMRP – OOP expenditure;
2. MPCE_MDM – OOP expenditure plus the imputed value of free school meals given in the MDM;
3. MPCE_PDS – OOP expenditure for all items except those purchased from the PDS, for which market prices have been used instead of OOP expenditure; and
4. MPCE_PDS_MDM – MPCE_PDS plus the value of free school meals given in the MDM.

⁸ For MDM expenditure, the procedure of assigning implicit welfare gain due to free meals from schools has already been explained. The adjustment for PDS transfers was made according to the following procedure. For households that have both PDS and market consumption, the market price used to revalue PDS consumption was the market price of the purchased commodity. For households where there is no market purchase but only home-produced consumption, the price taken is the implicit price assigned by the NSSO. For households with only PDS consumption, the price used for imputing market price is the median expenditure of all households in the district with market consumption.

Table 1: Tendulkar Poverty Lines Adjusted for Public Distribution System Commodities
(in Rs. Per capita per day)

State	1993–1994		2004–2005		2009–2010	
	Rural	Urban	Rural	Urban	Rural	Urban
Andhra Pradesh	251.6	288.1	443.0	563.6	741.1	960.0
Assam	267.8	312.7	478.3	600.0	710.0	878.9
Bihar	237.4	268.4	434.0	526.2	661.6	779.0
Chhattisgarh	231.1	285.3	406.6	513.7	686.1	838.7
Delhi	319.2	327.1	543.2	643.2	769.6	1044.0
Goa	326.7	314.0	608.8	673.8	947.6	1043.7
Gujarat	284.7	322.9	505.8	659.2	742.8	957.2
Haryana	295.3	312.4	529.4	626.7	798.4	980.3
Himachal Pradesh	276.5	318.4	536.1	608.7	746.0	917.1
Jharkhand	229.7	306.1	406.7	531.4	637.8	836.9
Karnataka	272.0	301.4	446.1	589.3	674.2	930.7
Kerala	294.5	297.3	540.7	587.5	801.4	847.7
Madhya Pradesh	234.7	277.3	414.0	532.3	654.0	782.6
Maharashtra	270.2	330.0	491.0	633.2	767.8	967.6
Manipur	322.3	366.3	578.1	641.1	875.1	960.5
Meghalaya	286.6	399.9	514.2	745.7	714.7	1000.6
Mizoram	325.0	370.9	653.8	711.3	894.9	976.3
Nagaland	381.7	412.4	687.3	782.9	1016.8	1147.6
Odisha	225.7	282.3	407.8	497.3	605.4	757.2
Puducherry	221.6	269.9	415.7	506.2	683.3	795.7
Punjab	288.2	343.0	543.5	642.5	838.8	966.8
Rajasthan	272.8	301.4	478.6	568.2	761.2	851.5
Sikkim	267.9	366.1	540.3	741.7	767.4	1038.5
Tamil Nadu	260.6	299.2	485.2	576.2	725.4	865.6
Tripura	284.4	322.2	461.3	558.7	696.8	815.8
Uttar Pradesh	244.4	283.1	435.5	532.1	674.2	807.5
Uttarakhand	254.5	310.1	491.4	604.9	739.2	907.2
West Bengal	236.9	299.8	445.7	572.7	656.1	836.2

Source: Author's calculations.

The first estimate, MPCEMRP, is the one which has been used so far officially in Tendulkar poverty estimates; however, it does not include MDM expenditure in 2009–2010. Accordingly, there are four different but comparable estimates of poverty and related measures available for the three rounds. State estimates are presented in the Appendix. Table 2 summarizes the estimates for all India.

Of these four measures of consumption expenditure, the MPCEMRP is the Mixed Recall Period (MRP)⁹ measure as reported in the NSS surveys and reports. This, in fact, is the measure of the MPCE that has been used for poverty estimation by the Tendulkar Committee official estimates, and corresponds to a measure based entirely on reported OOP expenditure by the households. However, the MPCE estimates are different from the consumption expenditure in 2009–2010 because the MPCEMRP measure does not include MDM expenditure. Official measures of poverty reported by the Tendulkar Committee are based on

⁹ Consumption expenditure data are collected by the NSSO using a recall period of 30 days for all items consumed. This is usually referred to as the Uniform Recall Period (URP) estimate of consumption expenditure. However since 1999–2000, the NSSO has also experimented with using shorter recall periods such as a week for some food items, and a longer recall period of 1 year for low-frequency items such as clothing, footwear, and durables. This estimate of consumption expenditure, which uses monthly as well as annual recall periods, is usually referred to as the MRP.

this measure alone, except for the 2009–2010 report, where they have been applied to the MPCE_MDM, which includes MDM expenditure.

The poverty estimates reported in Table 2 are based on the adjusted poverty line and therefore are not strictly comparable to the official poverty estimates. The comparable estimates are those in which the adjusted poverty lines of the MPCE_PDS have been applied, since these correspond to the same treatment of PDS goods in the poverty line as well as the MPCE. This is expected since the adjustment of PDS prices in the poverty line leaves the poverty estimates unchanged. This broad result also confirms the robustness of the procedure for the correction of poverty lines for PDS prices. While this is true for 1993–1994 and 2004–2005 with the poverty estimates applied to the MPCE_PDS, the official poverty estimates are different for 2009–2010. In fact, they correspond to the estimates of poverty when these poverty lines are applied to the MPCE_PDS_MDM. It is primarily this use of different sets of MPCE measures that renders the 2009–2010 estimates incomparable to the earlier estimates of 2004–2005 and 1993–1994. The measure of MPCE_PDS_MDM is an entirely synthetic construct taking into account the direct transfers due to the MDM along with implicit transfers from the PDS.

Table 2: Head Count Ratio, Poverty Gap, and Squared Poverty Gap by Different Measures of Monthly Per Capita Expenditure
(%)

	MPCEMRP			MPCE_MDM		
	Rural	Urban	Total	Rural	Urban	Total
HCR						
1993–1994	51.11	32.56	46.25	50.94	32.37	46.07
2004–2005	43.29	25.80	38.22	41.78	25.23	36.98
2009–2010	38.82	22.60	33.85	36.93	22.04	32.36
PG						
1993–1994	12.77	7.79	11.46	12.66	7.72	11.36
2004–2005	9.69	5.81	8.57	9.03	5.51	8.01
2009–2010	8.65	5.13	7.57	7.87	4.82	6.94
SPG						
1993–1994	4.49	2.72	4.02	4.43	2.69	3.97
2004–2005	3.10	1.89	2.75	2.80	1.74	2.50
2009–2010	2.79	1.71	2.46	2.44	1.55	2.17
	MPCE_PDS			MPCE_PDS_MDM		
	Rural	Urban	Total	Rural	Urban	Total
HCR						
1993–1994	50.18	31.50	45.28	49.99	31.32	45.09
2004–2005	41.89	25.01	36.99	40.29	24.42	35.69
2009–2010	35.34	20.85	30.89	33.57	20.24	29.48
PG						
1993–1994	12.33	7.42	11.04	12.23	7.35	10.95
2004–2005	9.09	5.51	8.05	8.46	5.22	7.52
2009–2010	7.28	4.50	6.42	6.57	4.23	5.85
SPG						
1993–1994	4.29	2.56	3.83	4.23	2.53	3.78
2004–2005	2.84	1.75	2.52	2.57	1.62	2.29
2009–2010	2.19	1.44	1.96	1.91	1.30	1.72

HCR = head count ratio, MPCEMRP = out-of-pocket (OOP) expenditure, MPCE_MDM = OOP expenditure plus the imputed value of free school meals, MPCE_PDS = OOP expenditure except the Public Distribution System, MPCE_PDS_MDM = MPCE_PDS plus the value of school meals, PG = poverty gap, SPG = squared poverty gap.

Source: Author's calculations.

Since the MPCE_PDS_MDM estimates also include the implicit transfers as part of household consumption expenditure, these show the lowest estimate of poverty among the four estimates. On the other hand, the MPCEMRP, which is based on the OOP principle, shows the highest poverty incidence for any year. The difference between these two estimates for any survey year can be treated as the benefit incidence of the PDS and MDM. In between these two extremes are the two estimates of MPCE_MDM and MPCE_PDS, which are derived by including only one kind of income transfer—only the MDM in the case of the MPCE_MDM, and only the PDS in the case of the MPCE_PDS. The difference between these estimates and the MPCEMRP gives the impact of the transfers on poverty estimates in any survey year. A difference in the poverty estimates in a particular survey year will also allow us to quantify the impact of one or both of these transfers on poverty incidence.

In quantifying the impact of the MDM, poverty incidence without accounting for free transfers from the MDM must be compared to the poverty estimate when the MDM transfers are added as part of household expenditure. The incremental impact of the MDM was only 0.2% in 1993–1994 but increased to 1.2% by 2004–2005 after a significant expansion of the MDM in 2001 and 2002.¹⁰ In 2009–2010, the inclusion of MDM expenditure alone accounted for a 1.5% decrease in the poverty estimate, marginally higher than in 2004–2005. This was the case in rural areas where poverty was lower by 1.9% in 2009–2010 after the inclusion of MDM expenditure alone, whereas the decrease in poverty was only 0.6% in urban areas. While this partially reflects the overwhelming percentage of children in public educational institutions in rural areas compared to urban areas, it also reflects the significant expansion in the amount of benefit received by the children and the expansion of coverage to upper primary schools.

However, there are large variations across states as far as the impact of MDM meals is concerned. Very few states had MDM programs in 1993–1994. In all India, the impact of the MDM in 1993–1994 was only 0.18 in rural areas, 0.19 in urban areas, and 0.18 percentage points in all areas. Among the states, only Tamil Nadu (1.85%) and Puducherry (1.22%) showed lower poverty in 1993–1994 after including the imputed value of school meals. For most other states, the imputation of the value of school meals had no impact on poverty estimates. It was only in 2004–2005, after the expansion of the program in 2001, that the MDM transfers showed some impact—1.51% in rural areas, 0.57% in urban areas, and 1.23% for all areas in all India. Other than Tamil Nadu, the states that showed lower poverty estimates after the imputation of free school meals are Andhra (1.69%), Chhattisgarh (5.76%), Himachal Pradesh (2.99%), Karnataka (2.33%), Madhya Pradesh (1.81%), Maharashtra (1.36%), Odisha (1.04%), and Uttaranchal (3.01%). After 2004–2005, not only was there an expansion in terms of coverage but there was also an increase in access for some of the poorest states. By 2009–2010, the imputation of MDM meals accounted for lower poverty estimates by 1.89% in rural areas, 0.56% in urban areas, and 1.48% for all areas. Other than the states where MDM transfer had a significant impact on poverty reduction in 1993–1994 and 2004–2005, Gujarat, Odisha, and West Bengal showed significant income transfer from MDM—around 2%—in 2009–2010.

The PDS has been in operation for a far longer period than the MDM, which did not exist before 1995. There have been significant changes in the nature of the PDS in terms of access, prices paid for PDS items, and coverage of commodities. For simplicity and comparability

¹⁰ Originally, the MDM Scheme was implemented in very few states. It was initiated at the state level in Tamil Nadu in 1982 by Marudhur Gopalan Ramachandran, and on a smaller scale in Gujarat and Puducherry. It was officially launched as a national nutrition program in August 1995, was made universal following a Supreme Court order in 2001, and was further expanded in 2002 and in 2004. It was extended to upper primary school children in 2007, and again expanded in 2009. During 2009–2010, the MDM Scheme benefited an estimated 84.1 million primary school children and 33.6 million upper primary school children, or a total of 117.7 million children.

purposes, we have included only the food items covered by the PDS even for the earlier years; that is, the PDS adjustment in 1993–1994 was only for rice, wheat, and sugar. This resulted in poverty estimates that were lower by 0.97% in 1993–1994, 1.22% in 2004–2005, and 2.95% in 2009–2010 for all India, for all sectors. In 1993–1994, the change in poverty incidence was 0.94 in rural areas and 1.06 percentage points in urban areas, reflecting the urban bias in the PDS before it was targeted. By 2004–2005, this was reversed, with poverty estimates after PDS transfers lower by 1.40% in rural areas and 0.79% in urban areas. By 2009–2010, the poverty estimates after PDS transfers were even lower by 3.49% in rural areas and 1.75% in urban areas. When the PDS was universal, the impact on poverty HCR in 1993–1994 was significant among the major states such as Andhra Pradesh (2.66%), Kerala (2.65%), and Tamil Nadu (2.73%)—and almost negligible in most of the poorer states such as Bihar, Jharkhand, Madhya Pradesh, Uttar Pradesh, Chhattisgarh, and Odisha. However, after the introduction of the TPDS, there was a shift in income transfers toward households at the bottom of the distribution, and from urban to rural areas. By 2004–2005, the impact of the TPDS on poverty HCR could be felt not only in Andhra Pradesh, Kerala, and Tamil Nadu, but also in Chhattisgarh, Himachal Pradesh, and Karnataka. For majority of the states, the impact was higher compared to the poverty reduction in 1993–1994, with the highest impact in Tamil Nadu, where poverty went down by 6.39% in 2004–2005 after adjusting for income transfer due to the PDS. The situation continued to improve dramatically in 2009–2010, with many other states feeling the impact of PDS transfers on the population below the poverty line. Odisha, Maharashtra, and Madhya Pradesh saw significant improvement in the impact of the PDS by 2009–2010. In Odisha and Chhattisgarh, along with Tamil Nadu and Andhra Pradesh, the adjustment of PDS transfers had the impact of more than 6% of the population being counted as nonpoor compared to when only OOP expenditure was factored in.

As far as inter-temporal changes in poverty are concerned, the record is at best mixed. Table 3 gives the annual percentage-point decline in poverty HCR, PG, and SPG for the four measures for 1993–1994, 2004–2005, and 2009–2010. At the all-India level, comparing only OOP expenditure, poverty reduction between 2004–2005 and 2009–2010 was about 0.87 percentage points per annum (0.89 rural and 0.64 urban) as against 1.22 percentage points per annum (1.31 rural and 0.83 urban) when implicit transfers are included as part of the expenditure. While this is still higher on an annual basis compared to the poverty reduction between 1993–1994 and 2004–2005,¹¹ it is clear that a significant part of the reduction between 2004–2005 and 2009–2010 was due to the increase in PDS transfers. This occurs throughout the country but is particularly large not only in states where the PDS has traditionally been strong such as Tamil Nadu, Andhra Pradesh, Himachal Pradesh, and Karnataka, but also in states like Odisha and Chhattisgarh.

¹¹ Based on OOP expenditure, poverty reduction in percentage points between 1993–1994 and 2004–2005 was 0.71 in rural areas, 0.62 in urban areas, and 0.73 for all India; and 0.88 in rural areas, 0.63 in urban areas, and 0.86 for all India, after including the implicit transfers.

Table 3: Percentage Point Decline Per Annum of Various Measures of Poverty

	MPCEMRP			MPCE_MDM		
	Rural	Urban	Total	Rural	Urban	Total
HCR						
1993–1994 to 2004–2005	0.71	0.62	0.73	0.83	0.65	0.83
2004–2005 to 2009–2010	0.89	0.64	0.87	0.97	0.64	0.92
PG						
1993–1994 to 2004–2005	0.28	0.18	0.26	0.33	0.20	0.30
2004–2005 to 2009–2010	0.21	0.14	0.20	0.23	0.14	0.21
SPG						
1993–1994 to 2004–2005	0.13	0.08	0.12	0.15	0.09	0.13
2004–2005 to 2009–2010	0.06	0.04	0.06	0.07	0.04	0.07
	MPCE_PDS			MPCE_PDS_MDM		
	Rural	Urban	Total	Rural	Urban	Total
HCR						
1993–1994 to 2004–2005	0.75	0.59	0.75	0.88	0.63	0.86
2004–2005 to 2009–2010	1.31	0.83	1.22	1.31	0.83	1.22
PG						
1993–1994 to 2004–2005	0.29	0.17	0.27	0.34	0.19	0.31
2004–2005 to 2009–2010	0.36	0.20	0.33	0.38	0.20	0.33
SPG						
1993–1994 to 2004–2005	0.13	0.07	0.12	0.15	0.08	0.14
2004–2005 to 2009–2010	0.13	0.06	0.11	0.13	0.06	0.11

HCR = head count ratio, MPCEMRP = out-of-pocket (OOP) expenditure, MPCE_MDM = OOP expenditure plus the imputed value of free school meals, MPCE_PDS = OOP expenditure except the public distribution system, MPCE_PDS_MDM = MPCE_PDS plus the value of school meals, PG = poverty gap, SPG = squared poverty gap

Source: Author's calculations.

This is clearly evident in the case of the HCR, but distribution-sensitive measures such as the PG and SPG suggest the opposite trend on all measures—except for the MPCE_PDS, where the annual poverty reduction rate during 2004–2005 and 2009–2010 was better than that between 1993–1994 and 2004–2005. In fact, except for the poverty gap estimates based on the MPCE_PDS_MDM, the per annum decline was lower during the latter period for PG as well as SPG measures by all four measures of the MPCE. This worsening performance by the higher-order measures of poverty is evident, irrespective of poverty line and MPCE measure used.¹² This result, which has largely remained unnoticed in the euphoria of higher poverty reduction based on HCR measures, also appears muted using the unadjusted poverty measure because of the impact of PDS transfers. Netting out the impact of PDS transfers, the results suggest that the annual rate of reduction almost halved for the higher-order measures of poverty based only on OOP expenditure. Clearly, the improved performance of the PDS resulted in better outcomes not only in terms of the number of people who came out of poverty, but more so in terms of their distance from the poverty line. However, even after including the implicit transfers in the consumption expenditure, the annual percentage-point reduction after 2004–2005 is lower

¹² Using official poverty lines on comparable MPCE measure gives similar results. While poverty HCR declined at the annual rate of 1.25 percentage points per annum for all India (1.32 in rural and 0.86 in urban areas) during 2004–2005 and 2009–2010, it was higher than the corresponding decline of 0.71 percentage points per annum for all India (0.75 in rural and 0.54 in urban areas) during 1993–1994 and 2004–2005. However, for the SPG, percentage point decline per annum between 2004–2005 and 2009–2010 at 0.10 for all India, 0.11 for rural, and 0.06 for urban areas was lower than the corresponding decline during 1993–1994 and 2004–2005 at 0.11 for all India, 0.13 for rural, and 0.07 for urban areas. The trends are similar even using the Lakdawala poverty estimates, where all three measures show lower annual reduction after 2004–2005 compared to the decade before that.

than the annual reduction in SPG during 1993–1994 and 2004–2005 with the adjusted poverty line measure.

IV. A DECOMPOSITION EXERCISE

A better way of understanding the relative contributions of the PDS and MDM is to decompose the poverty decline in various components. This can easily be done using the different estimates reported earlier. While the difference in poverty estimates based on OOP expenditure alone is the growth contribution to poverty reduction, the reduction in poverty decline due to the MDM and PDS is simply the difference in poverty estimates after including these transfers.¹³ Table 4 gives the results of a decomposition exercise based on the estimates reported above.

Table 4: Decomposition of Poverty Reduction

	1993–1994 to 2004–2005				2004–2005 to 2009–2010			
	Growth	PDS	MDM	Total	Growth	PDS	MDM	Total
In Percentage Points								
HCR								
Rural	–0.71	–0.04	–0.13	–0.88	–0.89	–0.42	–0.03	–1.34
Urban	–0.62	0.03	–0.04	–0.63	–0.64	–0.19	–0.01	–0.84
Total	–0.73	–0.02	–0.10	–0.85	–0.87	–0.35	–0.02	–1.24
PG								
Rural	–0.28	–0.02	–0.05	–0.34	–0.21	–0.15	–0.01	–0.38
Urban	–0.18	0.01	–0.02	–0.19	–0.14	–0.06	0.00	–0.20
Total	–0.26	–0.01	–0.04	–0.31	–0.20	–0.13	–0.01	–0.33
SPG								
Rural	–0.13	–0.01	–0.02	–0.15	–0.06	–0.07	0.00	–0.13
Urban	–0.08	0.00	–0.01	–0.08	–0.04	–0.03	0.00	–0.06
Total	–0.12	0.00	–0.02	–0.14	–0.06	–0.05	0.00	–0.11
In Percentages								
HCR								
Rural	80.7	4.8	14.5	100	66.4	31.1	2.5	100
Urban	98.1	–4.0	5.9	100	76.4	23.0	0.6	100
Total	85.4	2.7	11.9	100	70.4	27.9	1.8	100
PG								
Rural	81.5	4.5	14.0	100	55.2	41.0	3.8	100
Urban	93.1	–3.1	10.0	100	68.9	32.3	–1.2	100
Total	84.4	2.9	12.7	100	59.9	37.8	2.4	100
SPG								
Rural	83.4	3.8	12.8	100	47.2	49.8	3.0	100
Urban	91.5	–2.5	11.1	100	58.4	41.0	0.6	100
Total	85.5	2.5	12.0	100	51.4	46.5	2.1	100

HCR = head count ratio, MDM = Mid Day Meal Scheme, PDS = Public Distribution System, PG = poverty gap, SPG = squared poverty gap.

Source: Author's calculations.

¹³ Growth here represents the residual component after netting out the impact of the PDS and MDM. However, it is fair to say that even the growth component includes the contribution of public programs such as the MGNREGA and other transfers from the government. Further decomposition of the growth component has not been attempted here but should be an agenda of future research.

As is evident from Table 4, growth contributed more than 80% in rural areas as far as poverty reduction between 1993–1994 and 2004–2005 is concerned, but it was almost overwhelmingly the case in urban areas with more than 90% of the poverty reduction being contributed by growth alone. While the contribution of the PDS was positive and less than 5% in rural areas, it was actually negative in urban areas as a result of the reversal of the urban bias in the PDS that existed before the TPDS was introduced. However, the MDM did contribute between 10% and 15%. Growth continues to remain important for poverty reduction after 2004–2005, but less so, with its relative contribution at 66.4% in rural areas and 76.4% in urban areas. Even though the contribution of the PDS and MDM in percentage terms is almost one-third after 2004–2005, it is important to note that in absolute terms they are almost half of the total annual decline based on growth alone.

A peculiar aspect of the poverty decline after 2004–2005 is that the relative contribution of growth also declines as we move to distribution-sensitive measures such as PG and SPG. Growth alone accounted for less than 50% of total poverty reduction after 2004–2005 in rural areas and around 58% in urban areas. The incremental impact of the MDM is also negligible after 2004–2005. One important result of this analysis is the emergence of the PDS as a significant contributor of poverty reduction. But while its contribution to poverty reduction was only 31% in rural areas and 23% in urban areas, its contribution to the reduction in PG was 41% in rural areas, 32.5% in urban areas, and 37.8% for the country as a whole. The PDS was also the dominant contributor in rural areas, accounting for almost half of the total reduction in SPG after 2004–2005, although it was lower at 41.3% in urban areas. It is also worth noting that in terms of absolute contribution of growth as far as higher-order measures are concerned, there was a clear decline after 2004–2005 compared to the decade before that. The contribution of the PDS to the reduction in SPG in rural areas outweighed the contribution of growth alone. A significant part of the explanation of poverty reduction after 2004–2005 does point to the fact that the PDS came in to check what would have happened because of drought and recession. Our estimates suggest that 35 million more people would have been poor and the SPG would have been roughly a third higher.

While it is obvious that the expansion of the PDS and MDM explains a large and significant part of the reduction in poverty after 2004–2005, growth continues to be important, with roughly two-thirds of poverty reduction being explained by the growth component alone. At the same time, it is obvious that a large part of this growth was driven not only by direct spending by the government in the form of increased allocation for employment generation programs, but also by indirect means—through increases in the Minimum Support Price (MSP), for instance. Nonetheless, the fact that the PDS alone accounted for half of the reduction in SPG in rural areas and almost two-fifths in urban areas should be seen as an example of redistributive policies in poverty reduction. The fact that these benefits are far more evident in the case of distribution-sensitive measures such as the PG and SPG also implies better access to the PDS by disadvantaged and poorer households.

V. IS THE PDS EFFICIENT?

An important issue then is whether the PDS has been instrumental in improving the welfare of the population, particularly those at the bottom of the distribution—and if so, what its contribution is in total poverty reduction. However, given that the PDS has recently come into criticism on account of its leakages, an issue that needs to be investigated is whether it is efficient in terms of delivering to the poor. In the preliminary analysis presented above, it is clear that the PDS does contribute to poverty reduction and that its performance has improved

significantly after 2004–2005. Nonetheless, its performance varied over the years with very little contribution in 1993–1994 to improved access and benefits to the poor after the TPDS. However, although its impact in terms of distribution-sensitive measures did improve after the TPDS, including reversing the earlier trend of urban bias, its impact increased significantly after 2004–2005. This was not only in terms of access by the poorer households but also in the quantum of transfer received, which is reflected in the decomposition of the PG and SPG.

The story of the revival of the PDS after 2004–2005 is now evident from many sources. Field surveys have shown very low levels of leakage in terms of both prices paid and the quantum of food grains received.¹⁴ This was also brought out in our earlier paper (Himanshu and Sen 2011), which reported distinct improvement in PDS performance using data up to 2007–2008. The 2009–2010 data also confirm the trend of improvement in the PDS. This is not restricted to states which were doing better historically, such as the southern states of Tamil Nadu, Karnataka, and Andhra Pradesh, along with Himachal Pradesh, but can be seen across all states. However, some of the largest improvements have been seen in the poorer states, such as Chhattisgarh and Odisha, as well as Madhya Pradesh, Maharashtra, and Uttar Pradesh. In most of the states, the strategy has been twofold: the expansion of coverage to near-universal access, and the reduction in PDS prices for rice and wheat. As of March 2013, rice and wheat are sold at prices below the proposed Rs3 per kilogram (kg) for rice and Rs2 per kg for wheat in 15 states. Expanding PDS coverage and reducing prices had the immediate impact of reduced leakages by 2009–2010. The improvement in the case of rice was much more pronounced than in wheat because most of the states that introduced these reforms were primarily rice-consuming states. The leakage in rice distribution—which had increased from 19% in 1993–1994 to 40% in 2004–2005—went down to 25% by 2009–2010. In the case of wheat, leakages increased from 41% in 1993–1994 to 73% in 2004–2005 before going down to 59% in 2009–2010. However, it is still a matter of concern that 40% of food grains were unaccounted for even in 2009–2010, even though the leakage rate had gone down from a high of 54% in 2004–2005.

Table 5: Leakages in the Public Distribution System
(%)

Item	1993–1994	2004–2005	2009–2010
Rice	19	40	25
Wheat	41	73	59
Total	28	54	40

Note: The leakages presented are the difference between consumption reported by National Sample Survey (NSS) consumption expenditure surveys and official off-take from the Food Corporation of India (FCI).

Source: Author's calculations based on data from NSS consumption surveys and official off-take figures from the FCI website, www.fciweb.nic.in

While the reduction in leakage was evident in almost all states, it was particularly sharp in the case of Chhattisgarh and Odisha, as well as in Tamil Nadu, Andhra Pradesh, Karnataka, and Himachal Pradesh, which have historically low PDS leakages. Incidentally, these are also the states with the highest impact of PDS transfers on poverty. The positive relationship between poverty reduction and the improvement in PDS is true for the simple measure of HCR as well as for distribution-sensitive measures of PG and SPG. Table 6 gives the extent of leakages in these states in 2009–2010 and the change in poverty estimates when PDS

¹⁴ For details, see Khera (2011).

transfers are included in the consumption expenditure. Figure 1 gives the scatter plot of the same.

Table 6: The Public Distribution System: Leakages per State and Impact on Head Count Ratio, 2009–2010

State	Leakages (%)	Impact on Poverty HCR (percentage point)
Andhra Pradesh (AP)	14.7	6.4
Assam (AS)	64.8	1.5
Bihar (BH)	64.6	0.9
Chhattisgarh (CH)	0.0	7.7
Gujarat (GJ)	45.1	1.6
Haryana (HA)	39.1	0.7
Himachal Pradesh (HP)	20.4	4.1
Jharkhand (JH)	50.6	2.0
Karnataka (KA)	19.9	5.2
Kerala (KE)	29.3	3.0
Madhya Pradesh (MP)	46.6	2.7
Maharashtra (MH)	40.8	2.6
Odisha (OR)	25.7	6.1
Punjab (PU)	68.9	1.1
Rajasthan (RJ)	66.7	1.2
Tamil Nadu (TN)	2.4	8.7
Uttar Pradesh (UP)	56.6	1.5
Uttarakhand (UT)	57.8	2.4
West Bengal (WB)	68.7	2.5
Correlation = -0.88		

HCR = head count ratio.

Note: The impact of poverty HCR is the percentage-point change in poverty HCR between poverty estimates using out-of-pocket monthly per capita expenditure, and poverty estimates using monthly per capita expenditure with income transfer included.

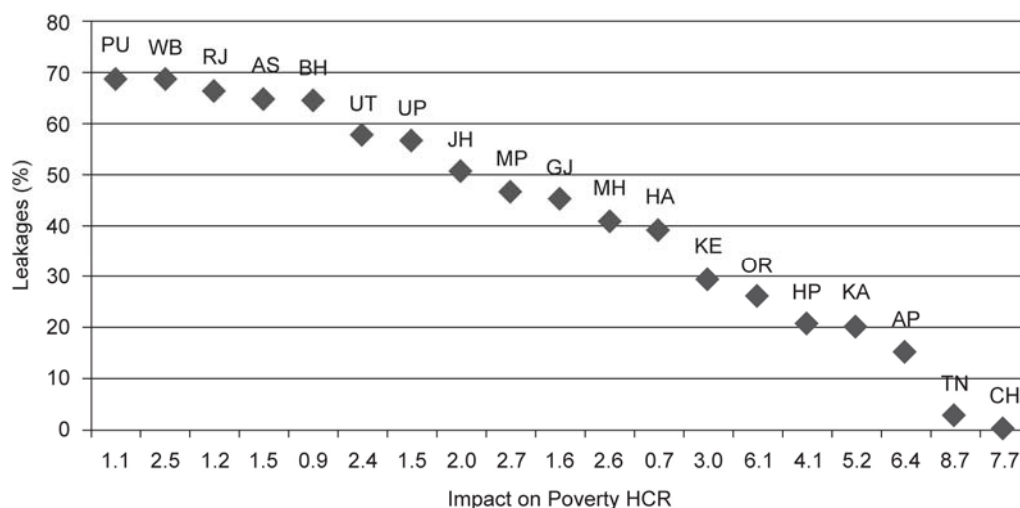
Source: Author's calculations.

While the expanded coverage and the reduction in cereal prices did have an impact on the efficiency of the PDS, there were other factors involved—including the streamlining of the distribution mechanism, the de-privatization of the Fair Price Shops (FPS), and the use of technology for tracking the movement of grains as well as for monitoring and evaluation systems. The combined effect of these was a higher off-take by the households at the bottom of the distribution. While this was seen in the case of all states, it was particularly significant in the states mentioned as better-performing states.¹⁵ Across India, 62% of the rural households belonging to the bottom 20% class and 52% of the urban households purchased cereals from the PDS in 2009–2010. This was significantly higher than 34.8% (rural) and 29.9% (urban) in

¹⁵ For example, the percentage of households in rural areas purchasing from the PDS in Chhattisgarh went up from 10.6% in 1993–1994 and 25.7% in 2004–2005 to 66.3% in 2009–2010. For Odisha, it was 5% in 1993–1994, 20.6% in 2004–2005, and 59.1% in 2009–2010. For Madhya Pradesh, it went up from 10.8% in 1993–1994 and 23.5% in 2004–2005, to 47.3% in 2009–2010. This was also the case in many states other than Tamil Nadu, Andhra, Karnataka, and Himachal Pradesh, where the percentage of households purchasing from the PDS has been more than 75%. For example, West Bengal also saw PDS purchase increase from 10.7% in 1993–1994 to 15% in 2004–2005, and 39% in 2009–2010.

2004–2005, and 30.1% (rural) and 37.1% (urban) for the bottom 20%. Overall, it increased from 27.3% in 1993–1994 to 39.3% in 2009–2010. The introduction of the TPDS did increase access by the poorest 40% in rural areas; the percentage of households in the top 60% remained almost the same by 2004–2005. However, a significant reduction in purchase was seen in almost all classes in urban India, particularly among the top 60%. While this did reverse the earlier urban bias in the TPDS, the rural areas also benefited from various other measures such as the Annapurna and the Antyodaya schemes, which particularly benefited those at the bottom 20% of the distribution.

Figure 1: PDS Leakages and Impact on Poverty Head Count Ratio, 2009–2010



AP = Andhra Pradesh, AS = Assam, BH = Bihar, CH = Chhattisgarh, GJ = Gujarat, HA = Haryana, HCR = head count ratio, HP = Himachal Pradesh, JH = Jharkhand, KA = Karnataka, KE = Kerala, MP = Madhya Pradesh, MH = Maharashtra, OR = Odisha, PDS = Public Distribution System, PU = Punjab, RJ = Rajasthan, TN = Tamil Nadu, UP = Uttar Pradesh, UT = Uttarakhand, WB = West Bengal.

Note: The leakages presented are the difference between consumption reported by National Sample Survey consumption expenditure surveys and official off-take from the Food Corporation of India. The impact of poverty HCR is the percentage-point change in poverty HCR between poverty estimates using out-of-pocket monthly per capita expenditure, and poverty estimates using monthly per capita expenditure with income transfer included.

Source: Table 6.

Table 7: Percentage of Households Purchasing from the Public Distribution System

Households	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Bottom 20%	30.1	37.1	31.8	34.8	29.9	33.5	62.0	52.0	59.2
Next 20%	29.9	38.0	32.0	32.0	23.0	29.6	55.3	39.5	50.8
Next 20%	28.0	33.1	29.3	28.9	16.4	25.5	47.2	28.9	41.9
Next 20%	26.7	27.6	27.0	25.8	9.4	21.2	39.5	16.8	32.7
Top 20%	20.5	17.3	19.6	16.0	3.4	12.3	28.5	7.7	22.0
Total	26.6	29.1	27.3	26.6	14.7	23.3	44.9	26.1	39.3

Source: National Sample Survey consumption expenditure surveys.

Improved access by the households at the bottom of the distribution was due to increased PDS transfers—but it was also due to the lower prices of PDS items in most of these states. While Tamil Nadu continues to have the lowest PDS prices, most of the other states also reduced the prices of PDS cereals between 2004–2005 and 2009–2010. As many as 13 major states have reduced the prices of rice and wheat in PDS shops to Rs3 or less per kg.¹⁶ This has two impacts. First, given that food grain prices were rising during 2004–2005 and 2009–2010, particularly after March 2008, many more households were likely to buy from the PDS than from the open market, provided they had access to it. Secondly, the large differential between PDS prices and market prices also meant that the quantum of transfer in terms of value was much more than in terms of quantity. This was in complete contrast to the situation prevailing in 2004–2005 when PDS prices were lower than, but close to, market prices. As against this, PDS issue prices in 1993–1994 were fixed between the MSP and economic cost, thereby nullifying any price advantage to PDS consumers even though the PDS was universal. While average market prices increased by almost three times for both rice and wheat between 1993–1994 and 2009–2010, average PDS rice prices declined in rural and urban areas; they increased marginally in the case of wheat.

Table 8: Average Prices Paid by Consumers for Rice and Wheat
(Rs per kilogram)

	Rural		Urban		Economic Cost
	PDS	Market	PDS	Market	FCI
Rice					
1993–1994	4.8	6.9	5.3	8.0	6.7
2004–2005	5.1	11.0	5.2	13.9	13.0
	3.9	18.3	3.4	24.0	18.2
Wheat					
1993–1994	3.8	5.1	4.1	5.6	5.3
2004–2005	4.5	9.3	5.7	10.6	10.2
2009–2010	5.2	15.1	6.8	17.2	14.3

FCI = Food Corporation of India, PDS = Public Distribution System.

Source: PDS and market prices are from National Sample Survey consumption surveys. Economic cost is from the FCI website, www.fciweb.nic.in

It is obvious that the increase in transfer through the PDS was largely a result of the difference between PDS prices and market prices. However, in majority of cases the efficiency was achieved by not only reducing the prices of PDS items but also expanding coverage. In fact, in most of the states, both of these strategies complemented each other. Clearly, this strategy was useful not only in expanding access and improving the efficiency of the PDS, but also in maximizing its impact on the welfare of the bottom half of the distribution.

However, since the PDS is a food-related scheme, the question that needs to be asked is whether it improved access to and absorption of food grains for the poor—in particular, those accessing the PDS for food grain purchase. This is important not only from the perspective of nutrition alone, but also because the poverty line, at least in popular parlance, was seen as anchored to some measure of minimum nutritional norms. While the Lakdawala estimates and earlier poverty measures were explicitly linked to the calorie norm, the Tendulkar Committee made a conscious decision to do away with the calorie anchor. In doing so, it justified the

¹⁶ These include Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, Madhya Pradesh, Rajasthan, Chhattisgarh, Odisha, Jharkhand, Gujarat, Uttarakhand, West Bengal, and Puducherry.

normative requirements of food in the Tendulkar poverty lines through the outcome indicators based on the malnutrition indicators from the National Family Health Surveys (NFHS). However, an assessment of nutritional outcomes for 2009–2010 is not possible since the NFHS surveys, which are used to track nutritional outcomes, are not available after 2005–2006. The limited information available from the Hunger and Malnutrition (HUNGaMA) Survey (HUNGaMA 2012) and the calorie intake information from the NSS confirm the trend that has been seen since the early 1990s, of slow or negligible improvements in nutritional outcome indicators or intake indicators such as calorie intake. There is now clear evidence of decline in cereal and pulse intake, which is also reflected in the declining intake of calories and proteins.

Nonetheless, it is worth looking at the consumption of cereal—in particular, rice and wheat—across categories of households, as a measure of nutritional intake. While this may not be the best proxy for either nutritional intake or nutritional outcome, the fact that cereal consumption still contributes to 60% of total energy intake in rural areas and 50% in urban areas makes it an important indicator of nutritional intake. The share of cereals in calorie intake for the bottom decile is 73% in rural areas and 66% in urban areas. These percentages are similar to those for protein intake, another indicator of nutritional intake. Further, the analysis focuses on rice and wheat, which constitute the bulk of cereal intake. Also, because PDS consumption has been restricted to rice and wheat since the introduction of the TPDS, any impact would be visible primarily in these grains. Table 9 gives the total per capita intake of rice and wheat, and per capita intake purchased from the PDS.

On average, the per capita intake of rice and wheat in 1993–1994 was 10.92 kg in rural areas and 11.77 kg in urban areas. It was 8.19 kg (rural) and 8.25 kg (urban) for the bottom 20%, as against 13.25 kg (rural) and 9.52 kg (urban) for the top 20%. PDS consumption accounted for roughly 10% of the total consumption in rural and urban areas, with higher per capita consumption as well as percentage consumption in urban areas reflecting the urban bias in the PDS in 1993–1994. There was marginal difference between per capita consumption from the PDS between the bottom 20% and the top 20%. The TPDS did lead to higher PDS consumption for all classes in the rural areas partly because it was accompanied by a reduction in PDS prices. However, it increased consumption from the PDS in urban areas for only the bottom 20%. It did reverse the earlier trend of higher consumption from urban areas to rural areas. By 2009–2010, PDS consumption accounted for one-third of the total consumption of rice and wheat in rural areas, and around one-fourth in urban areas. Moreover, in contrast to the decline in rice and wheat consumption by almost 2 kg for the upper quintile in rural areas, the consumption increased for the bottom 20% by 0.6 kg per capita. Even in urban areas, the per capita consumption of the bottom 20% was almost the same as that of the other classes, unlike in 1993–1994 when it was almost 1 kg per capita lower.

**Table 9: Per Capita Consumption of Rice and Wheat:
Total and Public Distribution System
(in kilograms)**

	Rural			Urban			Total		
	Total	PDS	% PDS	Total	PDS	% PDS	Total	PDS	% PDS
1993–1994									
Bottom 20%	8.19	0.90	10.99	8.25	1.18	14.30	8.21	0.97	11.81
Next 20%	10.08	0.91	9.03	9.55	1.33	13.93	9.94	1.01	10.16
Next 20%	11.06	0.89	8.05	9.85	1.20	12.18	10.77	0.97	9.01
Next 20%	12.01	0.88	7.33	9.98	1.09	10.92	11.50	0.93	8.09
Top 20%	13.25	0.73	5.51	9.52	0.74	7.77	12.33	0.74	6.00
Total	10.92	0.86	7.88	9.43	1.11	11.77	10.54	0.92	8.73
2004–2005									
Bottom 20%	8.75	1.33	15.20	8.44	1.19	14.10	8.68	1.30	14.98
Next 20%	9.94	1.28	12.88	9.24	0.97	10.50	9.77	1.21	12.38
Next 20%	10.69	1.21	11.32	9.56	0.73	7.64	10.40	1.08	10.38
Next 20%	11.30	1.13	10.00	9.25	0.44	4.76	10.77	0.95	8.82
Top 20%	12.15	0.78	6.42	8.87	0.16	1.80	11.33	0.63	5.56
Total	10.58	1.15	10.87	9.07	0.70	7.72	10.18	1.03	10.12
2009–2010									
Bottom 20%	8.81	2.71	30.76	8.15	2.18	26.75	8.64	2.57	29.75
Next 20%	9.69	2.37	24.46	8.79	1.55	17.63	9.44	2.14	22.67
Next 20%	10.22	2.02	19.77	8.84	1.19	13.46	9.85	1.80	18.27
Next 20%	10.83	1.74	16.07	8.87	0.70	7.89	10.31	1.46	14.16
Top 20%	11.52	1.29	11.20	8.32	0.35	4.21	10.66	1.04	9.76
Total	10.22	2.03	19.86	8.60	1.20	13.95	9.78	1.80	18.40

PDS = Public Distribution System.

Source: National Sample Survey consumption surveys.

This increase in consumption for the bottom 20% certainly owed itself to increased access to and purchase from the PDS. Table 10 gives the per capita consumption of rice and wheat for PDS and non-PDS households in each quintile. The consumption of PDS users in rural areas in the bottom 20% increased by almost 2 kg per capita between 1993–1994 and 2009–2010, compared to a marginal decline in the case of non-PDS households. The increase was highest in the case of the bottom 20%, but was seen for all classes up to the bottom 60%. This was also seen in urban areas but only for the poorest 20%. Interestingly, while the per capita consumption of rural PDS households was almost 2 kg lower in 1993–1994, it was only 0.2 kg lower in 2009–2010. However, in each quintile it was higher among PDS households compared to non-PDS households. In 1993–1994 as well as 2004–2005, it was the other way round. On the other hand, in urban areas it was higher by 1 kg per capita.

**Table 10: Per Capita Consumption of Rice and Wheat:
Public Distribution System and Non-Public Distribution System
(in kilograms)**

	Rural		Urban		Total	
	NON-PDS	PDS	NON-PDS	PDS	NON-PDS	PDS
1993–1994						
Bottom 20%	8.8	6.9	8.5	7.8	8.7	7.1
Next 20%	10.8	8.3	9.7	9.3	10.5	8.6
Next 20%	11.7	9.3	9.9	9.8	11.3	9.5
Next 20%	12.6	10.4	9.9	10.2	11.9	10.3
Top 20%	13.6	11.8	9.3	10.5	12.6	11.4
Total	11.5	9.1	9.5	9.4	11.1	9.2
2004–2005						
Bottom 20%	9.1	8.1	8.4	8.5	8.9	8.2
Next 20%	10.1	9.5	9.2	9.6	9.9	9.5
Next 20%	10.9	10.0	9.5	10.1	10.5	10.0
Next 20%	11.4	10.9	9.1	10.2	10.8	10.8
Top 20%	12.1	12.3	8.8	10.5	11.2	12.1
Total	10.8	9.8	9.0	9.4	10.3	9.7
2009–2010						
Bottom 20%	8.7	8.9	7.8	8.5	8.4	8.8
Next 20%	9.6	9.8	8.4	9.5	9.2	9.7
Next 20%	10.2	10.2	8.5	9.8	9.7	10.2
Next 20%	10.7	11.1	8.6	10.4	10.0	11.0
Top 20%	11.3	12.1	8.2	9.8	10.3	11.8
Total	10.3	10.1	8.3	9.3	9.7	10.0

PDS = Public Distribution System.

Source: National Sample Survey consumption surveys.

Better access to cereals by PDS consumers is also reflected in their daily calorie intake. Table 11 gives the per capita per day calorie intake among PDS households and non-PDS households. Unlike their non-PDS counterparts, households consuming from the PDS show a trend of increasing calorie intake among the bottom quintile. This is true for rural as well as urban areas. Note that while calorie intake has declined among the remaining households for the remaining quintiles, the extent of decline is significantly lower among the PDS households compared to non-PDS households. So much so that by 2009–2010, PDS households showed higher calorie intake among all quintile groups in rural as well as urban areas. It was the other way around in 1993–1994 and 2004–2005 among all quintile groups in rural areas, and also among all quintile groups in urban areas except for the bottom two in urban areas.

Table 11: Calorie Intake per Capita per Day

	Rural		Urban	
	Non-PDS	PDS	Non-PDS	PDS
1993–1994				
Bottom 20%	1,599	1,492	1,569	1,513
Next 20%	1,925	1,778	1,851	1,816
Next 20%	2,149	1,995	2,037	2,020
Next 20%	2,389	2,246	2,269	2,241
Top 20%	2,896	2,686	2,689	2,650
Total	2,211	1,988	2,118	1,973
2004–2005				
Bottom 20%	1,584	1,509	1,565	1,579
Next 20%	1,836	1,770	1,803	1,821
Next 20%	2,044	1,934	2,017	2,016
Next 20%	2,227	2,161	2,153	2,227
Top 20%	2,638	2,591	2,551	2,593
Total	2,097	1,896	2,052	1,850
2009–2010				
Bottom 20%	1,473	1,527	1,456	1,574
Next 20%	1,705	1,761	1,702	1,815
Next 20%	1,879	1,918	1,865	1,970
Next 20%	2,057	2,116	2,036	2,180
Top 20%	2,420	2,466	2,322	2,370
Total	1,974	1,870	1,937	1,835

PDS = Public Distribution System.

Source: National Sample Survey consumption surveys.

The evidence shown earlier confirms that access to the PDS has improved not only cereal consumption but also overall calorie intake. This is despite the fact that overall calorie and cereal intake has continued to show a declining trend. Aside from being consistent with the downward shift of calorie Engel curves over the years as suggested by Deaton and Dreze (2009), this evidence adds credence to the body of research that suggests the efficacy of food security interventions such as the PDS in improving access to cereals and calories. While the demand-based analysis as suggested by Gaiha et al. (2012) does find evidence in the previous discussion, the reality lies between the two competing arguments of declining energy requirements over the years due to improvements in material well-being, and of lower improvements than what would have been the case otherwise. A large part of the demand-based explanation is based on the fact that the decline in calorie intake and in cereal consumption may have been due to the price variable. Gaiha et al. (2012) do suggest a weakening of the expenditure elasticity and price elasticity while confirming the role of food security interventions in improving access to food.

VI. CONCLUSION

The decline in poverty between 2004–2005 and 2009–2010 has come as a surprise, despite the fact that the period after 2004–2005 has been marked by the highest-ever growth of the Indian economy. To a certain extent, the element of surprise is justified, given that 2009–2010 was marked by drought and the economic recession, and that there has been an unprecedented run of inflation since March 2008. This is somewhat borne out by the analysis which shows a lower contribution of growth to overall poverty reduction. What did contribute directly to significant poverty reduction were the increased transfers from the PDS and the MDM, both of which have shown expansion and increase in access largely benefiting the poorer sections of society. The

revival of the PDS is now confirmed from primary as well as secondary surveys, and the fact that it is led by state governments—in particular, some of the poorest states—has meant that it is now delivering to the poor where it matters. While this is muted in the case of the HCR measure, it is much larger and more robust when viewed through the higher-order measures of poverty.

The fact that the PDS and MDM did contribute to the significant poverty reduction after 2004–2005 should not be surprising. The elasticity of public expenditure to poverty reduction has always remained high in the Indian context; previous literature has already shown this in the poverty reduction during 1983 and 1987–1988.¹⁷ A large body of literature which examined the reasons for the sharp decline in poverty during the 1980s attributed it to the significant step-up in public expenditure. Incidentally, this was also the case during 2004–2005, when public expenditure-led social safety nets contributed to poverty reduction in a significant way directly and indirectly—through public employment programs and the increase in wages for casual labor households. But even the growth of household incomes benefited largely from the step-up in public expenditure. The MGNREGA may not be the only factor contributing to wage rate growth acceleration, but the increase in the number of person-days of employment by roughly eight times between 2004–2005 and 2009–2010 was certainly helpful in providing additional incomes to poorer households. Similarly, while consumers benefited from the lower prices of cereals in the PDS, the producers also benefited from the significant increase in the MSP and in procurement.

The large variation across performance among states shows that differences in how PDS is implemented can have differential impacts on poverty, calorie intake, or cereal consumption. The clear message is primarily that states which have continued to retain the framework of the TPDS have seen less improvement in terms of either poverty or nutritional indicators. On the other hand, states which have expanded coverage beyond the officially mandated poverty estimates have seen not only improvements in consumption but also significantly lower leakages. In most cases where the strategy of expanding PDS coverage has been adopted, it has been accompanied by a decrease in cereal prices in the PDS, which has led to improvements in expenditure as well as nutritional intake.

Finally, while lowering PDS prices to below-market prices did lead to larger transfers to PDS users, thereby improving welfare for the poor in both income and cereal intake, it also leads to the question of whether this was the efficient way of doing so. This assumes importance in the wake of the recent debate on using in-kind transfers, such as the PDS and MDM, versus cash transfers—proponents of which have repeatedly argued that it would lead to better prices for farmers without distorting the market prices, and to fewer leakages. In fact, apart from being criticized for huge leakages, the PDS has been criticized on account of the inefficient functioning of the Food Corporation of India (FCI) (Jha and Ramaswami 2010). This is largely because the economic costs of the FCI for rice and wheat have been higher than market prices, thereby leading to losses. Thus, the move to cash transfers is based on the argument that it will involve less leakage and will also be cost-effective, allowing the population to have the same purchasing power as in the case of in-kind transfers. The analysis of Jha and Ramaswami (2010) was based on data from 2004–2005, when the economic costs of rice and

¹⁷ There are a large number of similarities between 1983 and 1987–1988, and 2004–2005 to 2009–2010. Both 1987–1988 and 2009–2010 were severe drought years. Both periods were witness to the fastest growth of agricultural output and casual wages, with very similar rates of growth of output as well as wages. Both these periods were also characterized by a significant step-up in public expenditure, particularly in public employment creation. Lastly, both these periods also saw a gain in terms of trade in favor of agriculture.

wheat were certainly higher than the market prices in rural areas.¹⁸ However, they were lower than the market prices in urban areas. On the other hand, the economic cost of rice remained lower than market prices in 1993–1994 as well as in 2009–2010.¹⁹ This was also the case for wheat, except for 1993–1994 in the rural areas.²⁰ This is no justification for the various inefficiencies of the FCI, but the fact that the market prices have remained higher on average than economic costs does indicate that it may not be as inefficient as it is made out to be after all. Moreover, it must be kept in mind that part of the economic cost of FCI is a result of the 12%–15% tax on food procurement, which the private traders do not pay.

The argument that cash transfers do not necessarily imply actual purchases by the households for which the transfers are made was given earlier in this context. This exercise is also crucial for looking at the impact of the PDS on food security and nutrition, which remains the primary purpose of a scheme like the PDS. The evidence presented above does suggest that the consumption of rice and wheat has increased for households with access to the PDS compared to non-PDS households. It also shows improvement in per capita consumption among the poorer households against a trend of declining cereal consumption among the top 40% households. This has implications for the design of the proposed National Food Security legislation which has so far hinged on a targeted approach.

¹⁸ Rice market price was lower than economic cost in 25 out of 30 states, excluding union territories in rural areas, and 14 out of 30 states in urban areas.

¹⁹ In 1993–1994, only nine rural states and two urban states had market prices lower than the economic cost. In 2009–2010 this was the case in 14 rural states and three urban states.

²⁰ In 1993–1994, market prices were lower than economic cost in 12 rural states and 10 urban states; in 2009–2010, this was the case in 6 rural and 5 urban states.

APPENDIX

**Table A.1a: Poverty Head Count Ratio Based on the MPCEMRP
(%)**

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	50.85	36.87	47.08	34.43	23.37	31.18	31.22	21.01	27.88
Assam	55.82	29.14	52.74	36.38	21.78	34.45	42.78	27.49	40.65
Bihar	63.14	45.00	61.25	55.87	43.73	54.56	56.49	39.86	54.63
Chhattisgarh	57.03	28.51	51.86	56.85	28.39	50.80	66.20	25.38	56.87
Delhi	16.20	17.33	17.23	17.85	12.87	13.11	12.09	14.55	14.48
Goa	28.01	18.71	23.97	28.09	22.21	24.88	11.27	8.26	9.44
Gujarat	45.33	28.76	39.48	39.90	20.05	32.10	30.77	19.04	25.84
Haryana	40.40	24.17	36.21	24.82	22.41	24.07	20.54	23.49	21.54
Himachal Pradesh	38.32	13.83	36.12	27.36	4.55	25.10	15.11	16.90	15.29
Jharkhand	66.52	42.16	61.27	51.95	23.82	45.50	46.61	32.48	43.24
Karnataka	58.21	35.49	50.99	44.67	25.88	37.96	35.83	21.85	30.52
Kerala	35.96	26.64	33.52	20.63	18.66	19.97	14.03	14.14	14.08
Madhya Pradesh	49.50	32.86	45.23	54.97	35.05	49.58	48.54	24.81	42.01
Maharashtra	59.87	30.61	48.25	49.11	25.76	38.96	34.93	19.14	27.84
Manipur	64.44	67.19	65.17	39.28	34.51	38.03	48.25	47.52	48.04
Meghalaya	38.85	24.91	36.22	15.69	24.68	17.47	21.80	25.83	22.60
Mizoram	19.39	8.29	14.17	25.15	8.95	17.01	38.06	14.11	25.78
Nagaland	20.10	22.09	20.45	10.02	4.26	8.77	19.70	25.19	21.21
Odisha	63.56	35.57	59.69	60.78	37.59	57.16	48.44	29.37	45.30
Puducherry	25.58	25.91	25.80	23.59	9.91	14.40	0.69	2.47	1.91
Punjab	20.56	27.43	22.68	22.12	18.71	20.92	16.09	18.37	16.94
Rajasthan	41.15	30.15	38.62	35.99	29.69	34.48	28.92	20.46	26.83
Sikkim	33.79	20.57	32.51	33.38	25.95	32.24	23.62	7.23	19.87
Tamil Nadu	54.09	36.94	47.77	47.03	21.69	35.47	33.94	18.16	26.38
Tripura	37.91	26.36	36.09	47.50	22.85	42.52	25.14	11.54	21.75
Uttar Pradesh	50.92	38.74	48.51	42.85	34.06	40.97	42.57	32.40	40.32
Uttarakhand	39.05	20.02	34.14	36.36	26.22	33.58	21.03	26.82	22.76
West Bengal	43.31	32.25	40.25	38.32	24.45	34.23	33.90	22.79	30.41
All India	51.11	32.56	46.25	43.29	25.80	38.22	38.82	22.60	33.85

MPCEMRP = monthly per capita expenditure as out-of-pocket expenditure.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.1b: Poverty Head Count Ratio Based on the MPCE_MDM (%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	50.84	36.84	47.06	32.47	22.48	29.53	28.84	20.34	26.06
Assam	55.82	29.14	52.74	36.15	21.78	34.25	41.71	27.11	39.68
Bihar	63.13	44.80	61.22	54.90	43.61	53.69	56.03	39.62	54.19
Chhattisgarh	56.99	28.51	51.83	50.65	25.08	45.21	65.29	25.10	56.11
Delhi	16.20	17.11	17.03	17.85	12.83	13.07	7.73	14.47	14.28
Goa	28.01	18.71	23.97	28.09	22.21	24.88	11.27	8.26	9.44
Gujarat	44.92	28.53	39.14	38.46	19.42	30.97	27.49	18.10	23.55
Haryana	40.25	24.17	36.10	23.76	21.96	23.20	19.02	23.29	20.47
Himachal Pradesh	38.32	13.83	36.12	24.10	4.11	22.13	11.96	15.57	12.32
Jharkhand	66.36	42.16	61.15	51.01	23.80	44.77	44.95	32.25	41.92
Karnataka	58.18	35.42	50.95	41.71	24.96	35.73	32.80	21.22	28.40
Kerala	35.40	26.60	33.09	19.43	17.78	18.87	13.22	13.06	13.15
Madhya Pradesh	49.48	32.85	45.22	52.88	34.13	47.81	46.65	24.31	40.50
Maharashtra	59.77	30.56	48.16	47.25	25.14	37.64	31.99	18.52	25.94
Manipur	64.44	67.19	65.17	39.28	34.49	38.02	48.25	47.50	48.03
Meghalaya	38.85	24.91	36.22	15.69	24.68	17.47	19.49	25.83	20.76
Mizoram	19.39	8.29	14.17	25.15	8.95	17.01	36.23	12.66	24.14
Nagaland	20.10	22.09	20.45	9.85	4.26	8.65	19.25	24.93	20.81
Odisha	63.49	35.52	59.62	59.60	37.43	56.14	46.17	28.56	43.27
Puducherry	23.13	25.45	24.63	23.44	9.02	13.74	0.34	1.61	1.21
Punjab	20.56	27.43	22.68	21.92	18.71	20.79	15.19	18.21	16.31
Rajasthan	41.15	30.15	38.62	34.86	29.50	33.57	27.34	20.23	25.58
Sikkim	33.79	20.57	32.51	29.45	25.95	28.91	20.62	4.21	16.87
Tamil Nadu	52.03	35.47	45.93	43.48	20.35	32.93	30.77	17.06	24.20
Tripura	37.91	26.36	36.09	45.06	21.73	40.35	23.21	11.33	20.24
Uttar Pradesh	50.92	38.67	48.50	42.17	33.94	40.41	41.15	32.17	39.17
Uttarakhand	39.05	20.02	34.14	32.56	25.79	30.70	15.88	26.35	19.02
West Bengal	43.31	32.25	40.25	37.18	24.41	33.42	31.48	22.16	28.55
All India	50.94	32.37	46.07	41.78	25.23	36.98	36.93	22.04	32.36

MPCE_MDM = monthly per capita expenditure as out-of-pocket expenditure, plus the imputed value of free school meals given in the Mid Day Meal Scheme.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.1c: Poverty Head Count Ratio Based on the MPCE_PDS
(%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	48.01	34.74	44.43	31.61	22.25	28.85	23.51	17.88	21.67
Assam	54.80	27.57	51.66	35.72	21.78	33.87	41.23	26.42	39.17
Bihar	62.60	44.70	60.73	55.81	43.73	54.50	55.59	39.48	53.78
Chhattisgarh	56.22	27.86	51.08	54.96	27.63	49.15	57.51	22.39	49.49
Delhi	16.20	15.35	15.43	17.85	11.96	12.24	12.09	14.45	14.38
Goa	24.67	14.14	20.09	24.08	21.15	22.48	11.03	8.17	9.29
Gujarat	44.01	27.82	38.30	38.81	19.89	31.37	28.76	18.08	24.28
Haryana	40.16	23.96	35.98	24.68	22.07	23.87	19.81	23.01	20.90
Himachal Pradesh	37.02	13.62	34.92	25.05	3.93	22.96	10.86	13.94	11.16
Jharkhand	66.21	42.16	61.03	51.79	23.47	45.30	44.23	31.97	41.31
Karnataka	57.50	34.57	50.22	39.26	23.80	33.74	29.17	19.29	25.42
Kerala	33.55	23.29	30.85	19.16	17.89	18.73	11.05	10.89	10.98
Madhya Pradesh	48.96	32.31	44.69	53.96	34.42	48.68	45.31	23.72	39.37
Maharashtra	59.25	30.04	47.65	47.42	25.37	37.83	31.00	18.37	25.33
Manipur	64.07	67.10	64.87	39.12	34.51	37.91	48.20	46.98	47.84
Meghalaya	37.16	22.96	34.48	13.61	23.51	15.57	15.93	23.89	17.52
Mizoram	16.53	6.79	11.95	22.74	7.84	15.25	30.78	11.50	20.89
Nagaland	19.74	21.95	20.12	10.02	4.26	8.77	19.70	25.19	21.21
Odisha	63.20	35.15	59.32	60.37	37.31	56.77	41.87	25.89	39.24
Puducherry	24.54	22.51	23.22	22.91	8.03	12.91	0.31	2.01	1.47
Punjab	20.35	27.09	22.42	22.12	18.71	20.92	14.85	17.66	15.89
Rajasthan	40.46	29.82	38.01	35.51	29.58	34.09	27.62	19.52	25.62
Sikkim	32.98	20.57	31.78	28.78	25.41	28.26	18.43	7.23	15.87
Tamil Nadu	51.21	34.48	45.05	38.92	18.06	29.41	23.18	11.93	17.79
Tripura	35.27	24.53	33.58	44.53	22.66	40.12	18.63	9.31	16.30
Uttar Pradesh	50.77	38.20	48.29	42.60	33.99	40.76	40.82	31.76	38.82
Uttarakhand	37.63	17.30	32.38	34.38	26.01	32.09	17.97	26.29	20.46
West Bengal	42.60	31.67	39.58	37.69	24.43	33.78	30.76	22.27	28.09
All India	50.18	31.50	45.28	41.89	25.01	36.99	35.34	20.85	30.89

MPCE_PDS = monthly per capita expenditure as out-of-pocket expenditure for all items except those purchased from the Public Distribution System, for which market prices have been used.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.1d: Poverty Head Count Ratio Based on the MPCE_PDS_MDM (%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	47.98	34.72	44.40	29.50	21.23	27.07	21.93	16.74	20.23
Assam	54.80	27.57	51.66	35.50	21.78	33.68	40.16	25.90	38.17
Bihar	62.59	44.51	60.71	54.84	43.61	53.63	54.70	39.40	52.99
Chhattisgarh	56.17	27.86	51.04	49.24	23.92	43.86	55.55	22.02	47.89
Delhi	16.20	15.13	15.23	17.85	11.92	12.21	7.73	14.38	14.19
Goa	24.67	14.14	20.09	24.08	21.15	22.48	11.03	7.60	8.94
Gujarat	43.69	27.82	38.09	37.12	19.30	30.11	26.70	17.67	22.91
Haryana	40.02	23.96	35.87	23.41	21.62	22.85	18.48	22.81	19.95
Himachal Pradesh	37.02	13.62	34.92	22.18	3.66	20.34	8.45	12.31	8.84
Jharkhand	66.06	42.16	60.91	50.84	23.46	44.57	42.83	31.56	40.15
Karnataka	57.47	34.49	50.17	35.81	23.36	31.36	25.75	18.66	23.05
Kerala	33.07	23.25	30.49	17.83	17.20	17.62	10.27	10.33	10.30
Madhya Pradesh	48.95	32.30	44.67	51.90	33.37	46.89	43.97	23.03	38.21
Maharashtra	59.15	29.99	47.56	45.70	24.80	36.61	28.75	17.69	23.78
Manipur	64.07	67.10	64.87	39.12	34.49	37.91	48.20	46.97	47.83
Meghalaya	37.16	22.96	34.48	13.61	23.51	15.57	15.00	23.89	16.78
Mizoram	16.53	6.79	11.95	22.74	7.84	15.25	30.56	10.63	20.34
Nagaland	19.74	21.95	20.12	9.85	4.26	8.65	19.25	24.93	20.81
Odisha	63.13	35.09	59.25	59.18	37.15	55.74	39.05	25.45	36.81
Puducherry	18.41	20.25	19.60	18.13	7.10	10.71	0.31	0.62	0.52
Punjab	20.35	27.09	22.42	21.92	18.71	20.79	13.95	17.50	15.27
Rajasthan	40.46	29.82	38.01	34.27	29.39	33.10	26.24	19.20	24.50
Sikkim	32.98	20.57	31.78	23.87	25.41	24.11	13.77	4.21	11.58
Tamil Nadu	48.94	33.06	43.09	34.48	16.37	26.22	20.20	10.32	15.47
Tripura	35.27	24.53	33.58	41.56	21.54	37.52	16.88	8.83	14.87
Uttar Pradesh	50.77	38.13	48.27	41.94	33.82	40.20	39.18	31.51	37.48
Uttarakhand	37.63	17.30	32.38	30.07	25.59	28.84	13.40	25.86	17.13
West Bengal	42.60	31.67	39.58	36.50	24.33	32.91	28.65	21.61	26.43
All India	49.99	31.32	45.09	40.29	24.42	35.69	33.57	20.24	29.48

MPCE_PDS_MDM = monthly per capita expenditure as out-of-pocket expenditure for all items except those purchased from the Public Distribution System, for which market prices have been used, plus the value of free school meals given in the Mid Day Meal Scheme.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.2a: Poverty Gap Based on the MPCEMRP
(%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	12.44	8.84	11.47	7.54	4.83	6.74	6.73	4.80	6.10
Assam	11.58	5.45	10.88	7.05	4.23	6.68	8.64	6.25	8.30
Bihar	16.20	11.39	15.70	12.74	11.43	12.59	14.26	10.59	13.85
Chhattisgarh	12.76	6.08	11.55	14.49	7.20	12.94	19.04	7.31	16.36
Delhi	1.85	4.07	3.87	1.97	2.01	2.00	0.98	3.07	3.01
Goa	7.14	2.74	5.23	5.56	4.37	4.91	1.80	1.50	1.62
Gujarat	11.17	6.48	9.51	9.59	3.92	7.36	6.07	3.97	5.19
Haryana	9.62	4.61	8.33	4.73	4.94	4.80	4.11	4.72	4.32
Himachal Pradesh	7.69	2.21	7.19	4.87	1.08	4.49	2.63	3.27	2.70
Jharkhand	17.22	10.19	15.71	11.30	5.77	10.03	11.43	8.59	10.75
Karnataka	15.77	9.04	13.64	8.71	6.23	7.82	7.66	5.29	6.76
Kerala	8.59	6.05	7.92	4.47	4.11	4.35	2.94	2.60	2.79
Madhya Pradesh	13.33	7.36	11.80	13.14	8.59	11.91	12.51	6.08	10.74
Maharashtra	17.59	8.17	13.84	12.39	6.52	9.84	7.50	4.41	6.11
Manipur	12.13	15.08	12.91	5.71	5.12	5.55	7.16	9.19	7.76
Meghalaya	6.68	4.04	6.18	1.68	2.80	1.90	2.33	5.22	2.91
Mizoram	3.59	0.96	2.35	3.95	1.12	2.53	7.11	2.37	4.68
Nagaland	3.05	3.49	3.13	1.02	0.54	0.91	2.56	3.17	2.73
Odisha	16.27	8.60	15.21	17.37	9.60	16.16	12.45	6.25	11.42
Puducherry	4.72	5.35	5.13	5.39	1.33	2.66	0.09	0.33	0.25
Punjab	3.74	5.22	4.20	3.76	3.17	3.55	2.34	3.99	2.95
Rajasthan	8.95	6.68	8.43	7.05	5.75	6.74	5.24	4.14	4.96
Sikkim	5.95	3.10	5.67	6.07	3.35	5.65	4.48	1.43	3.78
Tamil Nadu	14.61	8.86	12.50	10.56	4.57	7.83	7.68	3.59	5.72
Tripura	8.86	5.38	8.31	10.43	3.90	9.11	3.86	2.18	3.44
Uttar Pradesh	12.99	9.82	12.37	9.19	7.80	8.90	8.75	7.69	8.52
Uttarakhand	7.12	4.22	6.37	6.11	5.17	5.85	3.14	5.83	3.95
West Bengal	8.90	7.30	8.46	7.94	5.29	7.16	6.57	4.96	6.06
All India	12.77	7.79	11.46	9.69	5.81	8.57	8.65	5.13	7.57

MPCEMRP = monthly per capita expenditure as out-of-pocket expenditure.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.2b: Poverty Gap Based on the MPCE_MDM
(%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	12.43	8.83	11.46	6.74	4.46	6.07	6.04	4.35	5.49
Assam	11.58	5.45	10.88	6.97	4.22	6.61	8.16	6.09	7.88
Bihar	16.19	11.38	15.69	12.47	11.38	12.35	13.83	10.47	13.46
Chhattisgarh	12.74	6.08	11.53	11.60	5.76	10.36	17.32	6.89	14.94
Delhi	1.85	4.05	3.85	1.97	1.93	1.93	0.42	3.01	2.94
Goa	7.14	2.74	5.23	5.56	4.37	4.91	1.75	1.39	1.53
Gujarat	10.95	6.42	9.35	8.70	3.65	6.71	5.13	3.70	4.53
Haryana	9.59	4.61	8.30	4.15	4.81	4.36	3.86	4.67	4.13
Himachal Pradesh	7.69	2.21	7.19	4.03	0.95	3.73	1.88	2.75	1.97
Jharkhand	17.14	10.19	15.65	11.00	5.72	9.79	10.19	8.06	9.68
Karnataka	15.74	9.04	13.61	7.41	5.83	6.84	6.45	4.75	5.80
Kerala	8.41	5.90	7.75	4.06	3.77	3.96	2.59	2.36	2.48
Madhya Pradesh	13.33	7.36	11.80	12.16	7.74	10.96	11.76	5.81	10.12
Maharashtra	17.56	8.16	13.83	11.36	6.23	9.13	6.48	4.06	5.39
Manipur	12.08	15.06	12.87	5.70	5.11	5.55	7.16	9.18	7.75
Meghalaya	6.67	4.04	6.18	1.67	2.80	1.89	2.22	5.17	2.81
Mizoram	3.58	0.96	2.34	3.95	1.12	2.53	6.20	2.21	4.16
Nagaland	3.05	3.49	3.13	1.01	0.54	0.91	2.47	3.12	2.65
Odisha	16.23	8.60	15.18	16.56	9.34	15.43	11.14	5.94	10.29
Puducherry	3.77	4.49	4.24	3.08	1.03	1.70	0.01	0.13	0.09
Punjab	3.74	5.22	4.20	3.74	3.17	3.54	2.06	3.85	2.72
Rajasthan	8.95	6.68	8.43	6.67	5.67	6.43	4.52	3.88	4.36
Sikkim	5.94	3.10	5.67	5.03	3.22	4.75	3.00	0.75	2.48
Tamil Nadu	13.12	8.21	11.31	8.74	3.87	6.52	6.34	3.09	4.78
Tripura	8.86	5.38	8.31	9.19	3.59	8.06	3.27	1.98	2.95
Uttar Pradesh	12.99	9.82	12.36	8.93	7.70	8.67	8.10	7.54	7.98
Uttarakhand	7.12	4.22	6.37	4.96	4.85	4.93	2.36	5.29	3.24
West Bengal	8.90	7.30	8.45	7.49	5.23	6.83	5.76	4.65	5.41
All India	12.66	7.72	11.36	9.03	5.51	8.01	7.87	4.82	6.94

MPCE_MDM = monthly per capita expenditure as out-of-pocket expenditure plus the imputed value of free school meals given in the Mid Day Meal Scheme.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.2c: Poverty Gap Based on the MPCE_PDS
(%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	11.02	7.94	10.19	6.50	4.28	5.84	4.75	3.70	4.41
Assam	11.09	5.19	10.41	6.78	4.09	6.43	7.46	5.83	7.24
Bihar	16.05	11.23	15.55	12.68	11.39	12.54	13.58	10.26	13.20
Chhattisgarh	12.43	5.80	11.23	13.57	6.82	12.13	12.95	5.13	11.17
Delhi	1.55	3.64	3.45	1.97	1.93	1.93	0.98	2.98	2.92
Goa	6.36	2.38	4.63	5.09	4.03	4.51	1.35	1.33	1.34
Gujarat	10.67	6.16	9.08	9.05	3.78	6.98	5.43	3.77	4.74
Haryana	9.44	4.52	8.17	4.68	4.85	4.73	3.65	4.53	3.95
Himachal Pradesh	7.23	1.99	6.76	3.97	0.91	3.67	1.87	2.70	1.96
Jharkhand	16.93	10.03	15.44	11.08	5.69	9.85	9.88	8.19	9.47
Karnataka	15.23	8.64	13.14	6.68	5.51	6.26	5.34	4.28	4.94
Kerala	7.49	5.22	6.89	3.84	3.62	3.77	2.21	1.94	2.09
Madhya Pradesh	13.09	7.16	11.57	12.51	8.33	11.38	10.90	5.51	9.42
Maharashtra	17.22	7.97	13.54	11.63	6.31	9.32	6.09	4.06	5.18
Manipur	12.02	15.02	12.82	5.70	5.11	5.55	7.04	9.04	7.63
Meghalaya	6.38	3.64	5.86	1.44	2.78	1.71	1.71	4.91	2.35
Mizoram	3.02	0.62	1.89	3.26	0.94	2.09	5.28	1.63	3.41
Nagaland	2.99	3.39	3.06	1.02	0.54	0.91	2.56	3.17	2.73
Odisha	16.06	8.40	15.00	16.79	9.43	15.64	9.06	5.00	8.39
Puducherry	4.27	4.93	4.70	4.27	1.01	2.08	0.07	0.16	0.13
Punjab	3.67	5.13	4.12	3.76	3.17	3.55	2.06	3.72	2.67
Rajasthan	8.70	6.52	8.20	6.81	5.72	6.55	4.82	3.81	4.57
Sikkim	5.55	3.01	5.31	4.47	3.29	4.29	2.83	1.43	2.51
Tamil Nadu	13.26	8.00	11.33	7.61	3.46	5.72	4.34	1.97	3.20
Tripura	8.12	4.85	7.60	8.50	3.46	7.49	2.38	1.63	2.19
Uttar Pradesh	12.92	9.60	12.26	9.00	7.72	8.73	7.84	7.24	7.71
Uttarakhand	6.55	4.08	5.91	5.46	5.05	5.35	2.62	5.58	3.50
West Bengal	8.70	7.02	8.24	7.71	5.19	6.97	5.83	4.64	5.45
All India	12.33	7.42	11.04	9.09	5.51	8.05	7.28	4.50	6.42

MPCE_PDS = monthly per capita expenditure as out-of-pocket expenditure for all items except those purchased from the Public Distribution System, for which market prices have been used.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.2d: Poverty Gap Based on the MPCE_PDS_MDM
(%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	11.00	7.93	10.18	5.74	3.95	5.21	4.20	3.30	3.90
Assam	11.09	5.19	10.41	6.70	4.07	6.35	7.02	5.67	6.83
Bihar	16.05	11.22	15.55	12.42	11.34	12.30	13.17	10.15	12.83
Chhattisgarh	12.41	5.80	11.21	10.75	5.39	9.61	11.32	4.76	9.82
Delhi	1.55	3.62	3.43	1.97	1.85	1.86	0.42	2.92	2.85
Goa	6.36	2.38	4.63	5.09	4.03	4.51	1.30	1.22	1.25
Gujarat	10.45	6.10	8.92	8.18	3.50	6.34	4.54	3.52	4.11
Haryana	9.40	4.52	8.14	4.11	4.71	4.30	3.43	4.48	3.79
Himachal Pradesh	7.23	1.99	6.76	3.23	0.78	2.99	1.29	2.26	1.39
Jharkhand	16.85	10.03	15.38	10.78	5.64	9.60	8.68	7.68	8.44
Karnataka	15.20	8.64	13.12	5.55	5.12	5.40	4.40	3.78	4.17
Kerala	7.32	5.08	6.73	3.46	3.30	3.40	1.90	1.74	1.83
Madhya Pradesh	13.08	7.16	11.56	11.54	7.49	10.45	10.20	5.25	8.84
Maharashtra	17.19	7.96	13.53	10.62	6.02	8.62	5.14	3.72	4.51
Manipur	11.98	15.01	12.78	5.70	5.10	5.54	7.04	9.02	7.62
Meghalaya	6.38	3.64	5.86	1.43	2.78	1.70	1.68	4.86	2.32
Mizoram	3.01	0.62	1.88	3.26	0.94	2.09	4.47	1.51	2.95
Nagaland	2.99	3.39	3.06	1.01	0.54	0.91	2.47	3.12	2.65
Odisha	16.03	8.40	14.97	15.99	9.16	14.92	7.85	4.70	7.33
Puducherry	3.35	4.11	3.85	2.05	0.74	1.17	0.00	0.05	0.04
Punjab	3.67	5.13	4.12	3.74	3.17	3.53	1.79	3.58	2.45
Rajasthan	8.70	6.52	8.20	6.44	5.64	6.25	4.13	3.56	3.99
Sikkim	5.55	3.01	5.31	3.65	3.16	3.58	1.77	0.75	1.53
Tamil Nadu	11.83	7.38	10.19	6.04	2.84	4.58	3.32	1.62	2.51
Tripura	8.11	4.85	7.60	7.38	3.16	6.53	1.93	1.45	1.81
Uttar Pradesh	12.92	9.59	12.26	8.74	7.62	8.51	7.22	7.09	7.19
Uttarakhand	6.55	4.08	5.91	4.39	4.73	4.48	1.94	5.05	2.87
West Bengal	8.70	7.02	8.23	7.27	5.13	6.64	5.08	4.35	4.85
All India	12.23	7.35	10.95	8.46	5.22	7.52	6.57	4.23	5.85

MPCE_PDS_MDM = monthly per capita expenditure as out-of-pocket expenditure for all items except those purchased from the Public Distribution System, for which market prices have been used, plus the value of free school meals given in the Mid Day Meal Scheme.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.3a: Squared Poverty Gap Based on the MPCEMRP
(%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	4.32	3.04	3.98	2.48	1.49	2.19	2.33	1.69	2.12
Assam	3.43	1.57	3.21	2.02	1.14	1.90	2.40	2.14	2.36
Bihar	5.74	4.10	5.57	3.94	3.86	3.93	4.88	3.85	4.76
Chhattisgarh	4.01	1.86	3.62	5.27	2.58	4.70	7.01	2.82	6.06
Delhi	0.28	1.43	1.32	0.36	0.53	0.52	0.10	0.99	0.96
Goa	2.44	0.88	1.76	1.66	1.56	1.60	0.40	0.41	0.40
Gujarat	3.85	2.09	3.23	3.26	1.15	2.43	1.73	1.20	1.51
Haryana	3.25	1.40	2.77	1.33	1.62	1.42	1.24	1.31	1.27
Himachal Pradesh	2.39	0.55	2.23	1.31	0.41	1.22	0.76	0.98	0.78
Jharkhand	5.98	3.45	5.43	3.45	1.90	3.09	3.79	3.22	3.66
Karnataka	5.86	3.21	5.02	2.40	2.15	2.31	2.34	1.89	2.17
Kerala	2.98	2.08	2.75	1.51	1.35	1.46	0.96	0.79	0.88
Madhya Pradesh	5.01	2.40	4.34	4.40	2.93	4.00	4.58	2.08	3.90
Maharashtra	7.01	3.14	5.47	4.46	2.31	3.52	2.29	1.48	1.93
Manipur	3.24	4.45	3.56	1.25	1.03	1.20	1.51	2.66	1.85
Meghalaya	1.71	1.02	1.58	0.29	0.53	0.33	0.46	1.37	0.64
Mizoram	0.98	0.17	0.59	1.01	0.24	0.63	1.91	0.61	1.24
Nagaland	0.71	0.77	0.72	0.19	0.10	0.17	0.58	0.52	0.56
Odisha	5.79	2.97	5.40	6.63	3.50	6.14	4.60	2.07	4.18
Puducherry	1.44	1.89	1.73	1.38	0.29	0.64	0.02	0.08	0.06
Punjab	1.00	1.55	1.17	0.97	0.77	0.90	0.52	1.20	0.77
Rajasthan	2.84	2.08	2.66	2.01	1.68	1.93	1.40	1.30	1.38
Sikkim	1.46	0.66	1.38	1.58	0.89	1.47	1.17	0.51	1.02
Tamil Nadu	5.54	3.27	4.71	3.30	1.42	2.45	2.52	1.09	1.84
Tripura	3.09	1.77	2.88	3.23	0.99	2.77	0.86	0.56	0.78
Uttar Pradesh	4.54	3.54	4.34	2.78	2.53	2.73	2.59	2.57	2.58
Uttarakhand	1.91	1.34	1.76	1.51	1.44	1.49	0.86	1.78	1.14
West Bengal	2.66	2.44	2.60	2.36	1.64	2.15	1.91	1.60	1.81
All India	4.49	2.72	4.02	3.10	1.89	2.75	2.79	1.71	2.46

MPCEMRP = monthly per capita expenditure as out-of-pocket expenditure.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.3b: Squared Poverty Gap Based on the MPCE_MDM
(%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	4.32	3.03	3.97	2.12	1.34	1.89	1.97	1.41	1.79
Assam	3.42	1.57	3.21	1.98	1.13	1.86	2.22	2.04	2.20
Bihar	5.74	4.10	5.57	3.85	3.83	3.85	4.71	3.79	4.60
Chhattisgarh	4.00	1.86	3.61	3.88	1.90	3.46	5.94	2.58	5.18
Delhi	0.28	1.43	1.32	0.36	0.51	0.50	0.02	0.96	0.93
Goa	2.44	0.88	1.76	1.66	1.56	1.60	0.37	0.38	0.38
Gujarat	3.72	2.06	3.14	2.82	1.03	2.11	1.35	1.08	1.24
Haryana	3.24	1.40	2.76	1.12	1.56	1.26	1.15	1.28	1.19
Himachal Pradesh	2.39	0.55	2.23	1.02	0.33	0.95	0.49	0.79	0.52
Jharkhand	5.94	3.45	5.41	3.32	1.88	2.99	3.23	2.90	3.15
Karnataka	5.85	3.21	5.01	1.90	1.91	1.91	1.84	1.57	1.74
Kerala	2.90	2.01	2.66	1.33	1.19	1.28	0.80	0.66	0.74
Madhya Pradesh	5.01	2.40	4.34	3.92	2.49	3.53	4.24	1.96	3.61
Maharashtra	7.00	3.14	5.46	3.91	2.15	3.14	1.84	1.31	1.60
Manipur	3.22	4.44	3.54	1.25	1.03	1.20	1.51	2.66	1.85
Meghalaya	1.71	1.02	1.58	0.28	0.53	0.33	0.45	1.35	0.63
Mizoram	0.97	0.17	0.59	1.01	0.24	0.62	1.53	0.56	1.03
Nagaland	0.71	0.77	0.72	0.19	0.10	0.17	0.56	0.50	0.55
Odisha	5.78	2.97	5.39	6.15	3.30	5.70	3.87	1.93	3.55
Puducherry	1.12	1.48	1.36	0.62	0.19	0.33	0.00	0.02	0.01
Punjab	1.00	1.55	1.17	0.96	0.77	0.89	0.44	1.13	0.70
Rajasthan	2.84	2.08	2.66	1.88	1.65	1.82	1.12	1.15	1.13
Sikkim	1.46	0.66	1.38	1.26	0.82	1.19	0.68	0.17	0.56
Tamil Nadu	4.69	2.94	4.04	2.50	1.10	1.86	1.89	0.88	1.40
Tripura	3.09	1.77	2.88	2.70	0.88	2.33	0.67	0.47	0.62
Uttar Pradesh	4.54	3.54	4.34	2.69	2.48	2.64	2.31	2.48	2.35
Uttarakhand	1.91	1.34	1.76	1.11	1.29	1.16	0.68	1.55	0.94
West Bengal	2.66	2.44	2.60	2.19	1.62	2.02	1.60	1.47	1.56
All India	4.43	2.69	3.97	2.80	1.74	2.50	2.44	1.55	2.17

MPCE_MDM = monthly per capita expenditure as out-of-pocket expenditure plus the imputed value of free school meals given in the Mid Day Meal Scheme.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.3c: Squared Poverty Gap Based on the MPCE_PDS
(%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	3.68	2.63	3.40	2.08	1.27	1.84	1.58	1.23	1.47
Assam	3.21	1.48	3.01	1.89	1.06	1.78	1.89	1.90	1.89
Bihar	5.68	4.03	5.51	3.91	3.83	3.91	4.53	3.67	4.43
Chhattisgarh	3.87	1.74	3.48	4.73	2.40	4.24	4.09	1.69	3.54
Delhi	0.22	1.26	1.17	0.36	0.51	0.51	0.10	0.94	0.92
Goa	2.08	0.77	1.51	1.46	1.33	1.39	0.28	0.36	0.33
Gujarat	3.60	1.94	3.02	3.03	1.08	2.26	1.49	1.11	1.33
Haryana	3.17	1.36	2.70	1.31	1.58	1.40	1.05	1.23	1.11
Himachal Pradesh	2.21	0.46	2.06	1.00	0.33	0.93	0.52	0.81	0.55
Jharkhand	5.85	3.38	5.31	3.32	1.85	2.98	3.08	3.00	3.06
Karnataka	5.57	3.04	4.77	1.67	1.79	1.71	1.45	1.42	1.44
Kerala	2.47	1.71	2.27	1.19	1.10	1.16	0.69	0.56	0.63
Madhya Pradesh	4.89	2.32	4.23	4.07	2.80	3.73	3.68	1.78	3.16
Maharashtra	6.82	3.05	5.32	4.06	2.19	3.25	1.73	1.33	1.55
Manipur	3.21	4.42	3.53	1.25	1.03	1.20	1.48	2.61	1.81
Meghalaya	1.64	0.90	1.50	0.24	0.53	0.30	0.33	1.24	0.52
Mizoram	0.75	0.09	0.44	0.78	0.19	0.48	1.26	0.36	0.80
Nagaland	0.70	0.74	0.70	0.19	0.10	0.17	0.58	0.52	0.56
Odisha	5.70	2.88	5.31	6.27	3.40	5.82	2.98	1.50	2.74
Puducherry	1.32	1.78	1.62	0.94	0.20	0.44	0.02	0.04	0.03
Punjab	0.98	1.51	1.14	0.97	0.77	0.90	0.45	1.10	0.69
Rajasthan	2.73	2.01	2.56	1.92	1.67	1.86	1.26	1.18	1.24
Sikkim	1.30	0.62	1.24	1.04	0.87	1.01	0.64	0.51	0.61
Tamil Nadu	4.88	2.90	4.15	2.16	0.99	1.63	1.17	0.56	0.88
Tripura	2.78	1.58	2.59	2.39	0.81	2.07	0.45	0.38	0.43
Uttar Pradesh	4.50	3.44	4.29	2.69	2.49	2.65	2.20	2.33	2.23
Uttarakhand	1.68	1.30	1.58	1.29	1.38	1.31	0.69	1.65	0.98
West Bengal	2.59	2.33	2.51	2.26	1.60	2.07	1.64	1.43	1.58
All India	4.29	2.56	3.83	2.84	1.75	2.52	2.19	1.44	1.96

MPCE_PDS = monthly per capita expenditure as out-of-pocket expenditure for all items except those purchased from the Public Distribution System, for which market prices have been used.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

Table A.3d: Squared Poverty Gap Based on the MPCE_PDS_MDM (%)

State	1993–1994			2004–2005			2009–2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	3.68	2.63	3.39	1.75	1.14	1.57	1.28	0.98	1.18
Assam	3.21	1.48	3.01	1.86	1.05	1.75	1.75	1.80	1.75
Bihar	5.68	4.03	5.51	3.83	3.81	3.83	4.37	3.62	4.28
Chhattisgarh	3.86	1.74	3.48	3.46	1.76	3.10	3.24	1.51	2.84
Delhi	0.22	1.26	1.17	0.36	0.49	0.48	0.02	0.91	0.89
Goa	2.08	0.77	1.51	1.46	1.33	1.39	0.25	0.34	0.30
Gujarat	3.49	1.92	2.93	2.60	0.97	1.96	1.15	1.00	1.09
Haryana	3.16	1.36	2.70	1.11	1.51	1.23	0.97	1.20	1.05
Himachal Pradesh	2.21	0.46	2.06	0.75	0.26	0.70	0.33	0.66	0.36
Jharkhand	5.81	3.38	5.29	3.20	1.84	2.89	2.60	2.70	2.63
Karnataka	5.55	3.03	4.75	1.29	1.58	1.40	1.09	1.14	1.11
Kerala	2.39	1.65	2.20	1.04	0.95	1.01	0.56	0.46	0.52
Madhya Pradesh	4.89	2.32	4.23	3.62	2.38	3.28	3.38	1.67	2.91
Maharashtra	6.81	3.05	5.31	3.54	2.04	2.89	1.36	1.17	1.27
Manipur	3.19	4.42	3.51	1.25	1.03	1.19	1.48	2.60	1.81
Meghalaya	1.64	0.90	1.50	0.24	0.53	0.29	0.33	1.22	0.51
Mizoram	0.74	0.09	0.43	0.78	0.19	0.48	0.98	0.33	0.65
Nagaland	0.70	0.74	0.70	0.19	0.10	0.17	0.56	0.50	0.55
Odisha	5.68	2.88	5.30	5.80	3.20	5.39	2.37	1.38	2.21
Puducherry	1.05	1.39	1.27	0.36	0.13	0.21	0.00	0.01	0.01
Punjab	0.98	1.51	1.14	0.96	0.76	0.89	0.38	1.03	0.62
Rajasthan	2.73	2.01	2.56	1.78	1.64	1.75	1.00	1.04	1.01
Sikkim	1.30	0.62	1.24	0.83	0.80	0.82	0.36	0.17	0.31
Tamil Nadu	4.10	2.61	3.55	1.57	0.75	1.19	0.80	0.43	0.62
Tripura	2.78	1.57	2.59	1.97	0.72	1.72	0.33	0.31	0.33
Uttar Pradesh	4.50	3.44	4.29	2.59	2.44	2.56	1.95	2.24	2.02
Uttarakhand	1.68	1.30	1.58	0.93	1.24	1.01	0.54	1.44	0.81
West Bengal	2.58	2.33	2.51	2.09	1.58	1.94	1.36	1.31	1.35
All India	4.23	2.53	3.78	2.57	1.62	2.29	1.91	1.30	1.72

MPCE_PDS_MDM = monthly per capita expenditure as out-of-pocket expenditure for all items except those purchased from the Public Distribution System, for which market prices have been used, plus the value of free school meals given in the Mid Day Meal Scheme.

Note: See Table 1 for the poverty lines used.

Source: Author's calculations.

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Poverty and Food Security in India

From 2004 to 2010, India's economy grew at more than 8% per annum, making it the world's second fastest growing economy. Interestingly, however, this did not translate to improved nutrition for its people. It is in this context that this paper examines the country's food security programs and their contribution to the reduction of poverty and malnutrition. Using household survey data, Himanshu analyzes the impact of the Public Distribution System and the Mid Day Meal Scheme on poverty and nutritional intake, focusing on the efficiency of these programs in light of their importance to the survival of poor households.

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