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India's National Food Security Act (NFSA): Early Experiences

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About this paper

In September 2013, the Parliament of India passed the National Food Security Act (NFSA) that made 'right to food' a legal entitlement for approximately three-fourths of the rural population and half of the urban population of India. Besides ensuring access to highly subsidised foodgrain, NFSA also made maternity benefits and nutrition for children aged six months to 14 years a legal entitlement. While it is too early to provide a comprehensive evaluation of the impact of NFSA, this paper attempts to document its rollout and to discuss important innovations and challenges emerging from NFSA's early experiences in different states and union territories (UTs).

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About LANSA

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Acronyms

AAY	Antyodaya Anna Yojana
APL	Above Poverty Line
BPL	Below Poverty Line
CAG	Comptroller and Auditor General
CFSA	Chhattisgarh Food Security Act
COREPDS	Centralised Online Real-time Electronic Public Distribution System
FCI	Food Corporation of India
FPS	Fair Price Shop
DGRO	District Grievance Redress Officer
ICDS	Integrated Child Development Services
ICRIER	Indian Council for Research on International Economic Relations
IGMSY	Indira Gandhi Matritva Sahyog Yojana
INR	Indian Rupee
MDM	Mid-Day Meal
NCAER	National Council for Applied Economic Research
NFSA	National Food Security Act
PDS	Public Distribution System
PEEP	Public Evaluation of Entitlement Programme
PER	Purchase-Entitlement Ratio
PoS	Point of Sale
RPDS	Revamped Public Distribution System
SECC	Socio-Economic Caste Census
SFC	State Food Corporation
TPDS	Targeted Public Distribution System
UID	Unique Identification
UT	Union Territory

Introduction

The National Food Security Act (NFSA) that came into effect1 on July 5, 2013 aims to ensure "food and nutritional security in human life cycle approach, by ensuring access to adequate quantity of quality food at affordable prices to people to live a life with dignity" (GOI 2013). The Act provides a legal entitlement (or the 'right to food') of subsidised foodgrain to 75 per cent of the rural population and 50 per cent of the urban population of India. NFSA relies on four existing programmes to provide food and nutritional security: the Targeted Public Distribution System (TPDS), the Integrated Child Development Services (ICDS), the Mid Day Meal (MDM) programme and the Indira Gandhi Matritva Sahyog Yojana (IGMSY). While TPDS provides foodgrains to approximately 813.4 million Indians under NFSA, the ICDS and MDM programmes ensure a free meal to all children aged six months to 14 years at the anganwadi (childcare centres) and schools, respectively. The IGMSY programme provides all pregnant and lactating mothers a maternity benefit of INR 6000.

While it is too early for a comprehensive evaluation of the impact of NFSA on food security, a review of the experiences of various states/UTs in implementing the Act would be helpful to both document the process and discuss important innovations and challenges emerging from these observations. For instance, three UTs have opted for direct benefit transfers (DBT) of the food subsidy and findings from preliminary studies provide a rare insight into how cash transfers (in lieu of in-kind food subsidies) work in the Indian context. As NFSA is implemented by the states/UTs, there has been a proliferation of eligibility criteria to select beneficiaries, methods of identification (using the socio-economic census data, a self-declaration process or existing state-level data) and use of technology (biometric authentication, smart cards or offline transactions). These state-level variations give us an opportunity to appreciate the advantages and limitations of different approaches to improving the effectiveness of TPDS. This review also discusses three major challenges faced by NFSA: first, the delay in implementation of the Act; second, a lack of universal maternity entitlements and third, the impact of the recommendations of the 14th Finance Commission (that of fiscal devolution of taxes to the states) on NFSA-related programmes.

On November 1, 2016 (three and a half years after the Act came into effect), all states/UTs in India either had implemented or were in the process of implementing NFSA. This report reviews the early experiences of different states/UTs in rolling out the Act. The first part provides a brief overview of NFSA by discussing the provisions of the Act and issues relating to its rollout. The second part summarises findings from six studies conducted over the past three years in order to understand the important issues associated with NFSA implementation. The third part highlights some of the innovations and challenges in its functioning by looking at case studies from specific states/UTs. The aim of this report is to provide the reader with an overview of what we know about the implementation of NFSA.

[1] The NFSA initially came into effect as an ordinance (National Food Security Ordinance, 2013) on July 5. It received assent from the President of India on September 10, 2013 and came into effect retroactively from July 5, 2013.

Overview of NFSA

The National Food Security Act (NFSA), 2013 received assent from the President of India on September 3, 2013 after being in effect as an Ordinance since July 3, 2013. The Act aims to provide "food and nutritional security in human life cycle approach, by ensuring access to adequate quantity of quality food at affordable prices to people to live a life with dignity" (GOI 2013). The first part of this section provides an introduction to NFSA by discussing important provisions of the Act that ensure food security and the second part highlights key issues during its rollout.

I. NFSA Provisions

The following are the important provisions of NFSA

1. Converting welfare benefits to legal entitlements

The most important provision of NFSA is that it makes 'right to food' a legal entitlement. According to Article 42 of the Constitution of India, it is the "duty of the State to raise the level of nutrition and the standard of living and to improve public health." Providing the 'right to food' helps attain each of these objectives.

2. Increase in coverage of the targeted public distribution system (TPDS)

Section 3(2) of NFSA extends the coverage of TPDS to 75 per cent of the rural population and 50 per cent of the urban population. This is a major shift from the pre-NFSA coverage of TPDS, which was limited to households living below the poverty line2 (BPL). However, it is important to note that many states/UTs had expanded the coverage of their TPDS by introducing 'State BPL' categories that covered households that were poor but did not meet the Central Government's BPL 'cut-off' (Puri 2012). NFSA also simplifies the different categories of beneficiaries from three3 in the pre-NFSA TPDS to two by replacing the Above Poverty Line (APL) and BPL categories with a single 'priority' category and retaining the Antyodaya Anna Yojana (AAY). This is important as one of the major criticisms of the pre-NFSA TPDS was the high diversion of foodgrains in the APL category (Dréze and Khera 2015c).

3. Uniform entitlement of 5 kg of foodgrains per person

Under Section 3(1) of NFSA, every person belonging to a priority household is entitled to receive five kg of rice per person per month from TPDS. In the pre-NFSA period, all BPL households would receive 35 kg of foodgrain, irrespective of the number of members in each household. NFSA, however, accounts for the differences in number of members in each household by making entitlements per person. However, NFSA retains the pre-NFSA entitlements for the AAY households that will continue to receive 35 kg of foodgrain per household.

[2] In 2014-15, a person earning INR 47/day in urban areas and INR 32/day in rural areas was considered living below the poverty line (Rangarajan 2014).

[3] In the pre-NFSA TPDS, there were three categories of beneficiaries: Above Poverty Line (APL), Below Poverty Line (BPL) and Antyodaya Anna Yojana (AAY). While BPL covered those living below the poverty line, the AAY targeted the 'poorest of poor'.

4. Reduction in prices of foodgrains

In the pre-NFSA period, the Central Government set the ‘central issue prices (CIP)’ for subsidised foodgrains distributed through TPDS. The prices were INR 5.65, 4.15 and 3 for rice, wheat and coarse grains, respectively. However, many state governments provided state subsidies to further reduce prices (Chhattisgarh reduced the price of TPDS rice from INR 5.65/kg to INR 3/kg in 2007 and INR 2/kg in 2012).

According to Schedule I of NFSA, all eligible households shall be entitled to foodgrains at subsidised prices not exceeding INR 3, 2 and 1 for rice, wheat and coarse grains, respectively, for the first three years since the commencement of the Act. After the three-year period is over, the Central Government may set prices that should not exceed the minimum support prices of each of the three foodgrains. The figure in the **Appendix** traces the TPDS process and **Table 1** gives a comparison of TPDS provisions pre and post NFSA.

5. Identification of eligible households by state governments

Under section 10 (1a and 1b) of NFSA, state governments are required to identify households to be covered under AAY and priority categories within a year from the commencement of NFSA and place the list of identified eligible households in the public domain. This provision addresses the high prevalence of inclusion and exclusion errors that were synonymous with the pre-NFSA TPDS due to its reliance on the 2002 BPL survey for rural areas and the 2007 BPL survey for urban areas (as mentioned earlier, some states did expand coverage of their TPDS beyond these BPL surveys through state subsidies).

6. Nutritional support for women and children

Section 4 of NFSA makes it the Central Government’s responsibility to provide a free meal through local anganwadis (childcare centres) and a maternity benefit of at least INR 6000 for pregnant and lactating (until six months after childbirth) mothers.

NFSA also includes provisions for food entitlements for children aged six months to 14 years. Section 5 entitles all children aged 6 months to 6 years to a free meal at the anganwadis and a free mid-day meal for all school-going children up to class VIII (or age 14). NFSA also states that these schools and anganwadis will have facilities for cooking meals, and providing drinking water and sanitation.

7. Food security allowance

Section 8 of NFSA entitles all eligible persons to a food security allowance in case they are not provided the entitled quantities of foodgrains or meals. This payment has to be made by the state government to each person. The ‘Food Security Allowance Rules, 2015’ were notified by the Central Government on January 21, 2015 and provide the norms for calculating and disbursing this allowance. The amount can be calculated by multiplying the difference between 1.25 times the minimum support price (MSP) of the relevant foodgrain for that marketing season and the prices specified in Schedule I of the Act, with the quantity of non-supply. This amount has to be paid by the end of the third week of the month following the month in which the foodgrain was not supplied (GOI 2015c).

8. Grievance redress mechanism and penalty

Sections 15 and 16 of NFSA require State Governments to appoint District Grievance Redress Officers (DGROs) and constitute a State Food Commission (SFC) for the purpose of monitoring and reviewing the implementation of the Act. Section 33 allows the State Commission to impose a penalty of not more than INR 5000 on any public servant or authority found guilty of failing to provide relief recommended by the District Grievance Redress Officer.

9. Cost of intra-state transportation and handling of foodgrains

Section 22 of NFSA lists the obligations of the Central Government in the implementation of the Act. According to sub-section 4(d), it is the responsibility of the Central Government to provide financial assistance to state governments for intra-state movement and handling of foodgrains (i.e. from the Central Government warehouses in the states to the FPSs). This is a significant provision as it promotes 'doorstep delivery' of foodgrains, a TPDS reform that has been important and successful in states/UTs where it was implemented in the pre-NFSA period.

10. Reforms of TPDS

Section 12 of NFSA makes it the responsibility of Central and State Governments to "progressively undertake necessary reforms of the TPDS" such as:

- doorstep delivery of foodgrains to FPSs
- application of information and communication technologies with the aim of end-to-end computerisation of TPDS
- transparency of records
- shifting management of FPSs from private owners to public bodies such as women's cooperatives
- diversification of commodities distributed
- leveraging Aadhaar for identification of beneficiaries
- introducing programmes such as cash transfers and food coupons

Table 1 Comparison of TPDS provisions before and after NFSA

Provisions		**Pre-NFSA**	**Post-NFSA**
Coverage (by Central Government)		BPL Population (29.5% in 2011-12)	813.4 million (75% in Rural Areas and 50% in Urban Areas)
Selection Criteria		Below Poverty Line (BPL) Survey – 2002 (Rural) and 2007 (Urban)	Determined by State Government
Quantity of Rations	APL	15 kg (depending on availability)	Excluded
	BPL (Priority)	35 kg	5 kg per member
	AAY (AAY)	35 kg	35 kg
Price of Food Items (per kg)	APL	Rice – Rs. 8.30; Wheat – Rs. 6.10	Excluded
	BPL (Priority)	Rice – Rs. 5.65; Wheat – Rs. 4.15; Coarse Grains – Rs. 3	Rice – Rs. 3; Wheat – Rs. 2; Coarse Grains – Rs.1
	AAY (AAY)	Rice – Rs. 3; Wheat – Rs. 2	

II. Rollout of NFSA

The National Food Security Act was first rolled out as the National Food Security Ordinance (NFSO) on July 5, 2013. Haryana became the first state to begin implementation on August 20, 2013. The National Food Security Bill was eventually tabled in the Indian Parliament and received assent from the President of India on September 10, 2013. In this section, three important issues regarding the rollout of NFSA are discussed. These include the delay in the implementation of the Act, the lack of universal maternity benefits and the impact of the fiscal devolution resulting from the recommendations of the 14th Finance Commission on NFSA-related programmes. **Table 2** provides a detailed timeline of the major events relating to the rollout of NFSA.

Table 2 Important Dates

Date	Event
July 5, 2013	National Food Security Ordinance (NFSO) promulgated
August 20, 2013	Haryana becomes first state to start implementing NFSA
August 26, 2013	National Food Security Act passed by Lok Sabha
September 10, 2013	National Food Security Act (NFSA) receives assent from President of India
February 11, 2014	Press Note issued by Central Government indicating that ICDS, MDM and IGMSY will deliver entitlements listed in Section 4, 5 and 6 in NFSA
June 30, 2014	First extension of NFSA deadline by three months till October 4, 2014
November 28, 2014	Second extension of NFSA deadline by six months till April 4, 2015
January 25, 2015	Food Security Allowance Rules, 2015 notified by the Central Government
March 20, 2015	Targeted Public Distribution System (Control) Order, 2015 published – Section 3 (3) stated that no new AAY households will be identified
April 4, 2015	Third extension of NFSA deadline by six months till September 30, 2015
August 21, 2015	Cash Transfer of Food Subsidy Rules, 2015 notified by Central Government
October 28, 2015	Targeted Public Distribution System (Control) Amendment Order, 2015 published – Section 3 (3) limiting AAY removed
November 1, 2015	All States/UTs implementing NFSA (after Kerala and Tamil Nadu agree to implement NFSA)
December 31, 2016	Prime Minister announces maternal entitlement of INR 6000 for pregnant women under IGMSY

Source: Compiled by author using information from http://pib.nic.in/newsite/AdvSearch.aspx

1. Delay in implementation

According to Section 10(1b) of NFSA, State Governments were required to identify eligible households "within such period not exceeding three hundred and sixty-five days from the commencement of the Act." However, one of the first setbacks was the delay in implementation due to the inability of state governments to complete the identification process. Only 11 of the 36 states/UTs had started receiving allocation of foodgrains under NFSA (i.e. based on the number of eligible NFSA households rather than the pre-NFSA TPDS) from the Central Government by July 4, 2014. Of these, six states/UTs (Chhattisgarh, Haryana, Karnataka, Maharashtra, the Punjab and Rajasthan) had completed the process of identifying beneficiaries while the remaining five (Bihar, Delhi, Himachal Pradesh, Madhya Pradesh and Chandigarh) were still in the process of completing identification of beneficiaries (PIB 2013).

The Central Government, in a letter to all states/UTs that had failed to meet this deadline, extended it by three months. However, none of the states/UTs were able to meet the new deadline and the Central Government issued a second letter that further extended the deadline for identification of NFSA beneficiaries by six months to April 4, 2015. To address this issue, the Minister of Consumer Affairs, Food and Public Distribution invited Food Secretaries of all 25 states/UTs that were yet to begin NFSA implementation to Delhi on December 24, 2014 to discuss their preparedness for implementing the Act. Nine months after the second deadline for identification of beneficiaries had passed, only 11 of the 36 states/UTs had started implementing NFSA (PIB 2014). The Central Government, once again, extended the deadline by six months to September 30, 2015.

During the third extension, two states/UTs (West Bengal and Lakshadweep) started implementation, increasing the total number of NFSA states/UTs to 13. This number further increased to 18 states/UTs as Tripura, Puducherry, Uttarakhand, Jharkhand and Telangana started implementing the programme in September-October 2015. According to a CAG audit of the preparedness of states/UTs for the implementation of NFSA, as of October 2015 only 18 states/UTs had implemented NFSA, covering only 51 per cent (415.7 million) of the 813.4 million eligible NFSA beneficiaries (CAG 2015, 8). The CAG audit also noted that while 18 states/UTs had started the implementation, only eight had identified all beneficiaries. The remaining 10 states/UTs had not completed the identification process — approximately 54.34 million beneficiaries were yet to be identified and provided with their NFSA entitlements (CAG 2015, 15).

Over the next nine months, 16 more states/UTs started implementation of NFSA. Tamil Nadu and Kerala were the only states that had not started implementing the programme three years after the Act came into effect. While the former was concerned about the extra financial burden that would be imposed on its budget,4 the latter could not begin implementation due to the ongoing elections in May 2016. It was not until November 2016 that all states/UTs were implementing NFSA (PIB 2016b).

A major hurdle in effective implementation, especially in identifying the eligible beneficiaries, was the lack of transparency in the Socio-Economic Caste Census (SECC) data. According to PUCL (2015), the Central Government was "grossly negligent in releasing this data" which could have played a pivotal role in identifying beneficiaries, considering this was the latest census data available. The SECC collected data in all 640 districts of India — however, in February 2015 draft and final data was only available for 500 and 141 districts, respectively (PUCL 2015: 57). The limited availability of SECC data played an important role in delaying the rollout of the Act by state governments.

[4] Tamil Nadu has had a universal PDS and the implementation of NFSA – that does not provide APL foodgrain allocation – would reduce its total foodgrain allocation from the Central Government.

The delay raises important questions regarding the inability of the states/UTs to deliver foodgrains to all eligible beneficiaries under the Act within a year of it coming into effect. As highlighted in the public interest petition filed by the Peoples' Union of Civil Liberties (PUCL) in May 2015, the validity of these extensions provided by the Central Government are questionable. Section 10 of the Act makes it the state government's responsibility to ensure the identification of beneficiaries to allow for the implementation of the Act (PUCL 2015). Millions of eligible beneficiaries in the 25 states/UTs that were unable to implement the Act on time were denied their foodgrain entitlement for more than a year. **Table 3** provides a timeline indicating when states/UTs started implementing NFSA.

Table 3 Timeline of NFSA Implementation

Month-Year	States
Sep-13	Haryana
Oct-13	Delhi, Himachal Pradesh, Rajasthan
Dec-13	Punjab
Jan-14	Chhattisgarh, Karnataka
Feb-14	Chandigarh, Maharashtra
Mar-14	Bihar, Madhya Pradesh
Aug-14	Lakshadweep
Jun-15	West Bengal
Sep-15	Puducherry, Tripura
Oct-15	Jharkhand, Telangana, Uttarakhand
Nov-15	Odisha, Daman & Diu
Dec-15	Goa, Assam, Andhra Pradesh
Jan-16	Sikkim
Feb-16	Jammu & Kashmir, Andaman & Nicobar Islands
Mar-16	Meghalaya, Mizoram, Uttar Pradesh, Dadra & Nagar Haveli
Apr-16	Gujarat, Manipur, Arunachal Pradesh
Jul-16	Nagaland
Nov-16	Kerala, Tamil Nadu

Source: Compiled by Author using information from http://dfpd.nic.in/regular.htm

2. Lack of universal maternity benefits

One of the important features of NFSA is its emphasis on the "life cycle" approach to nutrition. Section 4 requires the Central Government to provide all pregnant and lactating (until six months after childbirth) mothers a hot meal at their local anganwadi and a cash entitlement of not less than INR 6000. When NFSA came into effect on July 5, 2013, the Central Government's Ministry of Women and Child Development (MoWCD) already had a cash-based maternity entitlement programme in place — the

Indira Gandhi Matritva Sahyog Yojana (IGMSY). However, unlike the NFSA requirement that mandates the Central Government to provide a universal maternity entitlement of not less than INR 6000 to all pregnant and lactating women, this programme provided only INR 4000 to women in 53 “pilot” districts. In September 2013, MoWCD increased the amount to INR 6000 to comply with NFSA but did not expand the geographic coverage to make it universal.

According to Falcao and Khanuja (2016), MoWCD did announce a plan to expand the coverage of IGMSY to 200 “high burden” districts in 2015-16, but did not provide adequate funds to make this happen. The budget allocation for IGMSY was increased from INR 3580 million in 2014-15 to INR 4380 million in 2015-16: an increase of only INR 800 million for an extension in coverage from 53 to 200 districts in the same period (Falcao and Khanuja 2016). The intention to make this programme universal was finally announced on December 31, 2016 when Prime Minister Narendra Modi made his post-demonetisation speech. However, there are still limitations to the universality of the maternity entitlements. According to the IGMSY rules on the MoWCD website, maternity entitlements are only provided for the first two live births, which is in contradiction with the provisions of the Act (Falcao and Khanuja 2016).

3. Impact of fiscal devolution on NFSA implementation

The Government of India accepted the 14th Finance Commission’s recommendation to increase tax devolution to states from 32 per cent to 42 per cent, starting April 2015 (PIB 2015). Accordingly, states have begun receiving a larger share of the divisible pool of taxes. However, devolution of taxes was accompanied by a change in the funding pattern of the existing 66 centrally- sponsored schemes (CSSs). In 2016, the Central Government accepted recommendations of the ‘Sub-Group of Chief Ministers on Rationalisation of CSS’ and reduced the number of CSSs from 66 to 30 (PIB 2016a). The Sub-Group further recommended grouping CSSs under three groups: Core of Core (schemes that are for “social protection and social inclusion”), Core (schemes where the Centre and states can work together) and Optional (schemes that states can choose to implement).

These three groupings had major financial implications as Core of Core schemes would follow the existing funding pattern and Core schemes would require states to fund 40 per cent of the expenditure (10 per cent in the case of 11 mountainous states). Three important NFSA-related programmes — the Mid-Day Meal (MDM), Integrated Child Development Services (ICDS) and Maternity Benefits — were all classified as Core schemes, implying that states would have to fund two-fifth of the expenditures incurred in implementing these programmes (PIB 2016a). This move by the Central Government raises two important concerns: first, should the Central Government exclude “legally mandated” programmes from the Core of Core schemes and second, will the states be able to fund the extra costs using the extra 10 per cent of taxes devolved to them.

Table 4 provides details of budget allocations made to the four main NFSA-related programmes: TPDS (food subsidy), ICDS, Maternity Benefit and MDM. While the food subsidy has seen a considerable increase owing to NFSA implementation starting 2014-15, ICDS and MDM have seen a slight decline.

Table 4 Budget Allocations for NFSA-Related Programmes (in INR Millions) from 2011-12 to 2017-18				
Year	**Total Food Subsidy**	**ICDS Services**	**Maternity Benefit**	**Mid-Day Meal**
2017-18 (BE)	1453386	152452	27000	100000
2016-17 (RE)	1351730	145606	6340	97000
2015-16	1394190	154331	2334	91449
2014-15	1176712	165523	3425	104466
2013-14	920000	163626	2319	109176
2012-13	850000	157116	821	108492
2011-12	728221	142662	2898	98907
Source: http://indiabudget.nic.in/ (Accessed on January 15, 2017) BE – Budget Estimates; RE – Revised Estimates				

Before moving to the next section that looks at findings from preliminary studies of NFSA implementation, it is important to look at the impact of its rollout on coverage of TPDS. **Table 5** provides TPDS coverage rates before and after the implementation of NFSA. Coverage rates are calculated by dividing total ration cards (BPL/PHH and AAY) by the total number of households in each state as per the 2011 Census for both pre-and post-NFSA periods.

The administrative data shows that, at the national level, coverage of TPDS increased from approximately 15 per cent to 59 per cent. This is a large increase and reflects the impact of NFSA which aims to increase its coverage to approximately 75 per cent of the rural population and 60 per cent of urban population. Some states (such as Kerala and Tamil Nadu) have coverage over 100 per cent; while this is not technically possible, the use of the only available data (Census 2011) underestimates the total number of households pre- and post-NFSA, which causes the figures to be above 100 per cent. It is important to note that the figures in **Table 5** should be used to look at trends rather than absolute values of change in coverage.

Table 5 Change in TPDS Coverage After NFSA Rollout					
State	Pre-NFSA		Post-NFSA		Change
	Total Ration Cards	% of Households Covered	Total Ration Cards	% of Households Covered	
Andhra Pradesh	215.51	102.51	198.19	94.27	-8.24
Arunachal Pradesh	0.99	36.59	1.79	66.05	29.46
Assam	19.06	29.75	58.74	91.69	61.94
Bihar	64.23	33.96	154.01	81.43	47.47
Chhattisgarh	18.75	33.18	50.99	90.24	57.05
Delhi	3.17	9.23	19.61	57.07	47.85
Goa	0.31	9.02	1.23	35.80	26.78
Gujarat	33.21	27.11	63.28	51.66	24.55
Haryana	12.86	26.47	29.40	60.53	34.05
Himachal Pradesh	5.14	34.65	6.98	47.03	12.38
Jammu and Kashmir	7.36	34.72	16.46	77.65	42.93
Jharkhand	23.94	38.27	51.70	82.66	44.38
Karnataka	97.79	73.21	109.25	81.79	8.58
Kerala	20.43	26.01	82.67	105.27	79.26
Madhya Pradesh	68.3	45.25	118.57	78.56	33.31
Maharashtra	70.52	28.88	148.28	60.72	31.84
Manipur	1.66	29.76	5.27	94.54	64.79
Meghalaya	1.83	33.39	4.22	77.01	43.62
Mizoram	0.68	30.51	1.37	61.39	30.88
Nagaland	1.24	31.31	2.84	71.61	40.30
Odisha	49.43	51.29	83.67	86.82	35.53
Punjab	4.68	8.49	28.64	51.94	43.45
Rajasthan	25.85	20.34	97.13	76.42	56.08
Sikkim	0.43	33.33	0.99	76.38	43.05
Tamil Nadu	195.43	105.50	202.86	109.51	4.01
Tripura	2.95	34.48	5.99	70.02	35.54
Uttar Pradesh	106.79	31.93	319.86	95.63	63.70
Uttarakhand	4.98	24.21	13.30	64.68	40.47
West Bengal	54.72	26.85	552.18	60.45	33.60
INDIA	**373.67**	**14.98**	**2375.07**	**74.13**	**59.15**

Figures based on Author's Calculations using data from Website of Department of Food and Public Distribution (Government of India) – latest data available was from 27 June, 2016

Notes: Percentage of Households Covered calculated using 2011 Census Household Numbers;
Households with Ration Cards includes BPL and AAY (pre-NFSA) and PHH and AAY (post-NFSA);
West Bengal distributes individual ration cards (and not households); Andhra Pradesh includes Telangana

Findings from the Field

The rollout of NFSA has led to a limited number of studies in the past two years (2015-2016). This section discusses findings from some of the prominent studies that have been conducted. **Table 9** gives a summary of the different studies on NFSA implementation. While it is too early to give a verdict on the ability of NFSA to achieve its objectives (that of ensuring food security in the country), these studies provide preliminary insights into its functioning on the ground. Most studies focus on states/UTs that were frontrunners in implementation such as Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan and West Bengal. Before delving into the findings of these studies, it is important to highlight the commonly used metrics for measuring the outcomes of the Act:

- **Coverage:** the number of eligible beneficiaries (depending on the criteria used by each state/UT) covered by TPDS (or other programmes such as ICDS and MDM).
- **Purchase-Entitlement Ratio (PER):** the amount of entitled foodgrain actually received by the beneficiary (often expressed as a percentage).
- **Inclusion and Exclusion Errors:** the number of ineligible beneficiaries covered by TPDS and the number of eligible beneficiaries not covered by TPDS, respectively.

1. NFSA Survey – 2016

Between 1-10 June, 2016, student volunteers from the Indian Institute of Technology (IIT-Delhi) conducted a survey of NFSA beneficiaries in six of the poorest states in India: Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha and West Bengal. In each state, six villages were selected in two districts (three in each district) and all households in these 36 villages were interviewed — approximately 3600 households were interviewed. The results have been summarised in **Table 6**.

Table 6 Results from NFSA Survey (Dréze *et al* 2016)

State	Coverage		PER		Quality
	Pre-NFSA	Post-NFSA	Pre-NFSA	Post-NFSA	Respondents reporting 'good or fair'
Bihar	64	83	68	84	58
Chhattisgarh	81	95	99	97	99
Jharkhand	50	76	78	84	91
Madhya Pradesh	55	84	49	98	72
Odisha	62	88	97	99	86
West Bengal	51	86	NA	95	57

Notes: Pre-NFSA PER figures from Public Evaluation of Entitlement Programmes (PEEP) 2013. Important to note that the PERs of villages, though randomly selected, are not exactly comparable in the pre- and post-NFSA periods.
Source: Dréze et al (2016) and Dréze and Khera (2014)

Following are the findings from the survey:

- NFSA implementation has considerably increased coverage of TPDS in all six states. While Chhattisgarh already had a quasi-universal TPDS (with a coverage of 88 per cent in the pre-

NFSA period), the remaining six states saw coverage increase from approximately half of the population to more than three-fourths of the population.

- While PERs have increased relative to findings from a similar survey — the Public Evaluation of Entitlement Programmes (PEEP) in 2013 — across all six states, Bihar and Jharkhand are lagging behind in ensuring that entitled foodgrain reaches all intended beneficiaries.

2. J-PAL Process Monitoring of DBT in TPDS – 2016

The Jameel Poverty Action Lab (J-PAL) conducted a process monitoring study of direct benefit transfers (DBT) in TPDS in three Union Territories — Chandigarh, Puducherry and Dadra Nagara Haveli. DBT (or cash transfers in lieu of foodgrains) was first introduced in Chandigarh and Puducherry in September 2015, followed by Dadra Nagar Haveli in March 2016. Section 12 of NFSA requires states to undertake reforms of TPDS (one of which is replacing in-kind benefits with cash transfers) and these 'DBT pilots' provide, perhaps for the first time, a glimpse of how cash transfers would work.

The study was conducted in two periods: late 2015 (P1) and mid-2016 (P2). The main objective was to assess the quality of programme implementation by quantifying beneficiary experiences. In P1, 5044 beneficiaries were sampled from the NFSA lists in Chandigarh (2498) and Puducherry (2546). Approximately half the respondents reported not receiving their cash regularly and about 67 per cent preferred in-kind transfers from TPDS over cash through DBT (J-PAL 2016: 5).

In P2, follow-up interviews were conducted with 998 respondents from Chandigarh and 1056 respondents from Puducherry. Another 1015 respondents were identified in Dadra Nagar Haveli and added to the P2 sample. Of the 3069 respondents, 8 per cent reported receiving no payments in their back accounts, 26 per cent reported receiving less than full payment and more than half reported receiving full (or more) payment. According to J-PAL (2016), beneficiaries took 74 minutes more and spent INR 84 more under DBT (collecting cash from bank and buying foodgrains from the market) than TPDS. The study also found that beneficiaries had to spend additional money to buy the amount of foodgrain they were getting from TPDS: INR 32 in Chandigarh, INR 120 in Puducherry and INR 28 in Dadra Nagar Haveli.

3. National Council for Applied Economic Research (NCAER) Study – 2015

In 2014, Government of India's Department of Food and Public Distribution requested the National Council of Applied Economic Research (NCAER) to evaluate TPDS with the aim of assessing whether state governments had addressed the weaknesses identified in previous studies. As NFSA had come into effect in 2013, the study focused on six states: those that had implemented NFSA (Bihar, Chhattisgarh and Karnataka) and those that were yet to implement the Act (Assam, Uttar Pradesh and West Bengal). The NCAER study consisted of two components: first, a household survey of 6734 beneficiaries and 1000 non-beneficiaries between October-December 2014 and second, a systems evaluation to measure targeting errors (i.e. inclusion and exclusion errors) and the diversion (or leakage) of foodgrains from TPDS.

Listed below are the main findings from the NCAER study:

- Among the six states, Chhattisgarh has the highest Purchase-Entitlement Ratio (PER) in the APL and BPL/Priority Households (PHH) categories. Though NFSA has abolished the APL category, Chhattisgarh's Food Security Act (CFSA) provides foodgrain to the 'General' category which is similar to APL. PER is lowest in Assam and West Bengal in the BPL/PHH categories and Chhattisgarh in the AAY category (see **Table 7**).

Table 7 Purchase-Entitlement Ratios from NCAER Study

State	APL		BPL/PHH		AAY	
	Entitlement (kg)	PER (%)	Entitlement (kg)	PER (%)	Entitlement (kg)	PER (%)
Assam	10	66.5	35	83.5	35	94.8
Bihar	-		5	89.8	35	96.9
Chhattisgarh	15	96.8	35	96.6	35	92.2
Karnataka	-		30	90.4	35	95.9
Uttar Pradesh	10	51.6	35	93.1	35	99.4
West Bengal	2	71.5	7	85.1	7	84.1

Notes: Bihar and West Bengal have individual entitlements; Chhattisgarh has a 'General' category that replaces the APL category from the pre-NFSA period.
Source: Author's calculations using data from Table 4.8 from NCAER (2015)

- While PER can only indicate leakage at the level of the beneficiary (as it measures the amount of entitlement a beneficiary was able to purchase), leakage estimates take into account the whole process of TPDS (i.e., it includes leakage taking place at various stages of the process). The study finds a decrease in leakage (diversion) of foodgrain compared to estimates by Dréze and Khera (2015) using the National Sample Survey data from 2011-12. Leakage was lowest in Chhattisgarh (7 per cent), followed by Bihar (16 per cent) and Karnataka (17 per cent). Leakage was highest among APL beneficiaries in Assam (70 per cent), Uttar Pradesh (35 per cent) and West Bengal (39 per cent), the three non-NFSA states (see **Table 8**).

Table 8 Leakage Estimates (in %) from NCAER Study

Non-NFSA States	APL	BPL	AAY
Assam	70.7	36.8	12.1
Uttar Pradesh	35.3	32.9	5.1
West Bengal	38.6	28.2	10.6
NFSA States	**Priority Households (PHH) and AAY**		
Bihar	16.3		
Chhattisgarh	6.7		
Karnataka	17.3		

Notes: For NFSA states, PHH and AAY categories have been combined as foodgrain allocation for both categories is made together.
Source: Adapted from Tables 6.4 and 6.5 from NCAER (2015)

4. Comptroller and Auditor General (CAG) Audit – 2015

The Comptroller and Auditor General (CAG) of India audited the preparedness of states/UTs for the implementation of NFSA between July 2013 and March 2015. The main objective of the audit was to assess the preparedness of selected states/UTs with respect to the following: first, identification of eligible beneficiaries and issuing of ration cards; second, existence of required infrastructure (storage, transportation and distribution); third, initiation of TPDS reforms (such as computerisation and doorstep delivery of foodgrain) and finally, a functioning grievance redress system. The CAG selected nine states/UTs for this purpose depending on the stage of NFSA implementation: fully implemented (Chhattisgarh, Karnataka and Maharashtra), partially implemented (Delhi, Bihar and Himachal Pradesh) and not implemented (Assam, Jharkhand and Uttar Pradesh). The study covered 84 blocks and 336 Fair Price Shops (FPSs) across 42 districts in these nine states.

The CAG audit found the following:

- Many states/UTs did not come up with new criteria to identify eligible beneficiaries but 'stamped' old BPL and AAY ration cards as new 'priority' and AAY households under NFSA. This was the case in Himachal Pradesh, Karnataka and Maharashtra (CAG 2015: 21). Not issuing new ration cards also violates Section 13(1) of NFSA that requires ration cards to be issued with the eldest woman as the head of the household.
- Doorstep delivery of foodgrains was not taking place in Assam, Karnataka and Himachal Pradesh. In Uttar Pradesh, only 15 of the 75 districts had doorstep delivery of foodgrains. In Maharashtra, doorstep delivery was taking place only in tribal and drought- prone areas.
- End-to-end computerisation of TPDS includes two components: component I requires digitisation of ration cards, computerisation of supply chain management and setting up of grievance redress mechanism while component II requires FPS automation by installing Point of Sales (PoS) machines in all FPSs. The CAG audit found that only 26 states/UTs had ration card digitisation, 14 had online allocation, 8 had online supply chain management, 26 had transparency portals and 21 had online grievance redress systems.
- Only six of the nine selected states/UTs had grievance redress systems in place. However, in most cases they were not fully functional.

5. NFSA Madhya Pradesh Survey – 2015

Student surveyors from the Indian Institute of Technology - Delhi visited eight villages of Mandla and Shivpuri districts in Madhya Pradesh to study the implementation of NFSA. These interviews were conducted in June 2015 and involved revisiting 200 households that were interviewed two years previously as part of the Public Evaluation of Entitlement Programmes (PEEP). Dréze and Khera (2015a) mention three important findings from this survey:

- NFSA has led to a "dramatic reduction" in exclusion errors as Madhya Pradesh had moved away from the old BPL list to the new 'Social Security Mission' database. Among the many eligibility criteria adopted by the state is the provision that all Scheduled Caste (SC) and Scheduled Tribe (ST) households are covered by NFSA. This was evident among the survey sample as all SC and ST households had NFSA ration cards.
- Improvement in the reliability and regularity of foodgrain distribution in all sample villages.
- A large increase in the Purchase Entitlement Ratio (PER) — from 37 per cent during 2013 (PEEP) to 96 per cent in 2015.

Dreze and Khera (2015a) attribute this turnaround in the Madhya Pradesh TPDS to "broad coverage, clear entitlements and low issue prices." They also discuss three concerns expressed by respondents. First, more than one-third of the households rated the quality of foodgrain as "poor." Second, many complained about having to pay bribes ranging from Rs. 100 to Rs. 2000 for getting their new NFSA ration cards. Third, there were concerns about the regular updating of births and deaths in the Social Security Mission database (as entitlements are now per capita as opposed to per household, the number of members listed in the database determines the quantity of the foodgrain entitlement).

6. NFSA Bihar Survey – 2014

Dréze (2015) presents findings from a survey of approximately 1000 randomly selected households in four districts of Bihar to evaluate the implementation of NFSA in the state. They found that 89 per cent of the households were eligible for NFSA (which was close to the 86 per cent figure in the NFSA for rural Bihar): of these 83 per cent had a new NFSA ration card, 4 per cent had their old AAY ration cards and 13 per cent were yet to receive their new NFSA ration cards. The study also found that households with ration cards were able to purchase 77 per cent of their foodgrain entitlements in the previous month (November 2014).

According to Dréze (2015), the findings from this survey corroborate the leakage figures from the National Sample Surveys (NSSs); in Bihar, leakage declined from 75 per cent in 2009-10 to 24 per cent in 2011-12, according to the corresponding rounds of the National Sample Surveys. The survey also found that using data from the Socio-Economic Caste Census (SECC) has considerably improved the identification of beneficiaries as compared to the "notorious BPL list."

This finding is further corroborated by a World Bank study in Bihar in March 2015 that interviewed 1091 households in 50 villages across 9 districts. The study found an average Purchase-Entitlement Ratio of 80.29 per cent (Bhattacharya and Puri 2015). In most villages, beneficiaries were receiving 4 kg per person foodgrain rather than the 5 kg per person requirement under NFSA, which explains the PER of 80 per cent.

Table 9 Summary of Studies on NFSA Implementation				
No.	**Title**	**States/UTs Covered**	**Sample**	**Findings**
1	NFSA Survey	Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha and West Bengal	3600 (all households in six villages of two districts in each state)	Chhattisgarh and Odisha continue doing well. Madhya Pradesh sees major improvements. Bihar and Jharkhand lag behind.
2	J-PAL Study	Chandigarh, Puducherry and Dadra Nagar Haveli	5044 in Round 1 and 2054 in Round 2	Many DBT beneficiaries not receiving full amount of cash transfer in their bank accounts. Beneficiaries reported taking more time (and paying more) to purchase foodgrains compared to TPDS.
3	NCAER Study	NFSA (Bihar, Chhattisgarh and Karnataka) and non-NFSA (Assam, Uttar Pradesh and West Bengal)	6734 beneficiaries and 1000 non-beneficiaries	Leakage estimates higher among non-NFSA states (especially APL and BPL categories).
5	CAG Audit	Fully implemented (Chhattisgarh, Karnataka and Maharashtra), partially implemented (Delhi, Bihar and Himachal Pradesh) and not implemented (Assam, Jharkhand and Uttar Pradesh)	84 blocks and 336 FPSs in all nine states	Many states/UTs did not issue new ration cards (stamped old ration cards with 'NFSA'). More than half the states/UTs do not have online allocation of foodgrains. Three of the nine sample states do not have doorstep delivery of foodgrain
6	NFSA Survey	Madhya Pradesh	200 households in 8 villages across two districts	Large increase in PER (compared to 2013). Exclusion errors low due to new 'Social Security Mission' database and eligibility criteria that includes SCs and STs.
7	NFSA Survey	Bihar	1000 households in 4 districts	89 per cent of households had NFSA ration cards. Households could purchase 77 per cent of entitlement.
8	World Bank Time-Motion Study	Bihar	1091 households in 50 villages across 9 districts	PER for sample villages 80 per cent. Households report getting 4 kg foodgrain per person.

Innovations and Challenges

The governments of states/UTs play a pivotal role in the successful implementation of NFSA. They decide the eligibility criteria, identify beneficiaries, distribute FPS licenses and ensure foodgrain reaches all beneficiaries. Owing to the highly decentralised nature of NFSA, states/UTs have had varied experiences during its implementation. This section discusses important innovations and challenges faced in the process by highlighting cases from particular states/UTs.

1. Reducing Inclusion and Exclusion Errors — Identification of Beneficiaries

One of the main objectives of NFSA is to reduce the high inclusion errors that had become synonymous with TPDS over the past decade. As most states had used BPL lists that relied on data collected in 2002 and 2007 for rural and urban areas, respectively, they were fraught with errors. NFSA came as an opportunity to rectify this problem by allowing states/UTs to identify eligible beneficiaries by using more recent data and new eligibility criteria. This led to a proliferation of eligibility criteria across states.

Broadly, there were three methods used by states:

1. Using recently collected data

This could include SECC data or a state-level database. In Bihar, the Department of Food and Civil Supplies applied the state's inclusion and exclusion criteria to the SECC data to select beneficiaries under NFSA. In Madhya Pradesh, the State Social Security (Samagra Samajik Suraksha) Mission database was used to identify beneficiaries. Following the identification process, new NFSA ration cards for all beneficiaries were printed and distributed.

2. Using a self-declaration process

A self-declaration process requires all eligible beneficiaries to apply for the new NFSA ration card if they meet the inclusion criteria decided by their state government. Two good examples of this approach were that of Chhattisgarh and Odisha. In Odisha, the Department of Food Supplies and Consumer Welfare published six inclusion and nine exclusion criteria to determine eligibility for NFSA.

All households meeting the following criteria in Odisha were included:

- without shelter
- with destitute living on alms
- primitive tribal groups
- with a widow pensioner
- with 40 per cent or more disability
- with a transgender person

All households meeting the following criteria were excluded:

- owning a motorised vehicle
- owning mechanised agricultural equipment
- with a member who is a government employee
- with a member earning more than INR 15000 a month (urban) or INR 10000 a month (rural)
- with pensioners having a monthly income of more than INR 15000 (urban) or INR 10000 (rural)
- with enterprises registered with the government
- paying income tax
- consuming an average of 300 units of energy a month
- with three or more rooms with pucca (permanent) walls and roof

A self-declaration process, combined with a post-application verification procedure, helps circumvent the problem of high exclusion errors when government agencies use existing data to identify beneficiaries (as was the case with the old BPL survey data) by ensuring that all eligible beneficiaries have an opportunity to apply. In the case of Odisha, all applications were digitised and deduplication was carried out. The applicant database was also linked to external databases with information on exclusion criteria in order to identify applicants who were not eligible (Satpathy 2016).

3. Using the old TPDS beneficiary database

As discussed above, NFSA provides a great opportunity to rectify the inclusion and exclusion errors resulting from the use of old BPL lists. However, some states such as Karnataka, Madhya Pradesh, Himachal Pradesh and Maharashtra have included all old TPDS beneficiaries (CAG 2015). Doing so results in high inclusion errors due to two reasons: first, it includes non-poor households that were incorrectly included in the old BPL lists and second, it includes households that were poor during the BPL surveys conducted more than a decade ago but are not poor anymore.

2. Benefits of Technology — COREPDS in Chhattisgarh

With the Government of India putting a lot of emphasis on technological solutions to improve programme delivery — especially through Jan Dhan Bank Accounts, Aadhaar and Mobile Phones (or JAM) — there has been a renewed focus on "end-to-end computerisation" of TPDS. While most states have computerised their procurement and transportation processes, the distribution process is still manual. The distribution process here refers to the final transaction that takes place in TPDS between the FPS and the beneficiary. A majority of states rely on 'sales registers' which are used to make manual entries of these transactions (usually requiring the beneficiary to either sign or provide a thumb impression to verify the transaction). However, these manual entries are often unverifiable as they can be forged very easily. In fact, one of the main avenues of 'leakage' of foodgrain in TPDS is forging of sales information by FPS managers (particularly when beneficiaries do not take their foodgrains for the month — common among APL households — or when there are fake or 'ghost' ration cards).

In order to address this 'last-mile delivery' problem, Chhattisgarh's Department of Food and Civil Supplies launched the Centralised Online Real-time Electronic Public Distribution System (COREPDS) that uses Point of Sale (PoS) machines and chip-based smart cards to record the transaction between FPSs and beneficiaries. Unlike a conventional FPS, where transactions are recorded in a sales register, COREPDS transactions are recorded online. When the beneficiary arrives at the FPS with her COREPDS smart card, the FPS manager inserts the smart card into the PoS machine. The PoS machine retrieves the information of the beneficiary from the server (the PoS machines have to be connected to the internet) and allows the beneficiary to purchase the NFSA entitlements. Once the transaction is complete, the beneficiary gets a receipt with details of the quantity purchased and price paid for each item (Vaidya and Somashekhar 2013).

Other than ensuring that all transactions are captured by the TPDS information system, COREPDS provides two benefits that have the potential to improve quality and reduce corruption. First, COREPDS allows 'portability of benefits': i.e., as beneficiaries and FPS managers have smart cards and PoS machines, respectively, beneficiaries can choose which FPS they want to purchase their NFSA entitlements from. Not only does this provide beneficiaries with choice, but also increases competition among various FPSs. One of the major criticisms of TPDS is the monopoly that FPS managers have over beneficiaries that are 'attached' to their FPS. With COREPDS, this 'attachment' ceases to exist as beneficiaries can choose to purchase their NFSA entitlements from any FPS.

The second benefit, which plays an important role in streamlining the transportation and distribution process, is that COREPDS provides real-time information of stock availability at each FPS to the State Food Corporation (the government agency responsible for transporting foodgrain to all the FPSs). In the conventional TPDS, the SFC provides TPDS foodgrains to all FPSs at the beginning of each month based on the number of TPDS beneficiaries attached to each FPS. This leads to two problems: first, limited storage at the FPS does not allow for proper storage of foodgrain and second, this incentivises corruption as FPS managers make fake entries for the leftover foodgrain and sell it off in the open market. Under COREPDS, there is real-time allocation of foodgrain based on the availability of stock at each FPS. As and when each FPS sells half of its existing stock, an alert is sent to the respective FPS managers to place an order for more stock (based on the information on the COREPDS server). Once the order for more allocation is received, foodgrain is dispatched to the concerned FPS.

A recent evaluation by the World Bank found that while COREPDS had improved the functioning of TPDS, there are concerns that need to be addressed before a similar system can be scaled up to rural areas (COREPDS is only operational in urban areas of Chhattisgarh) and other states (Bhattacharya et al. 2016). First, internet connectivity is crucial for the success of a COREPDS-like system. Second, adoption of any new technology has to be preceded by extensive training of all stakeholders (especially government agencies and FPS managers). Third, there is a need to carry out widespread awareness campaigns to ensure all beneficiaries have the required information to be able to access and use new technologies. Finally, for a system like COREPDS to work, the government has to invest in good quality PoS machines and smart cards. It should also be mentioned that the Department of Food and Civil Supplies of Chhattisgarh provided an option for offline transactions in case there were technical difficulties. However, the concerned FPS manager had to get in touch with the Department for prior approval to use this option.

3. Limitations of Technology — Aadhaar and Biometrics in Rajasthan and Jharkhand

While COREPDS shows how technology can be used to improve the food distribution system by providing choice to TPDS beneficiaries, ensuring timely delivery of foodgrains to FPSs and increasing accountability of all stakeholders, it is important to ensure that new technologies do not create hurdles in the effective implementation of NFSA. The adoption of Aadhaar for biometric identification of beneficiaries in the Rajasthan TPDS illustrates the limitations of new technologies when adopted without the necessary infrastructure and administrative preparedness.

Beginning in November 2015, the Government of Rajasthan installed Point of Sale (PoS) machines in FPSs across seven districts and made biometric authentication mandatory for all purchases of NFSA foodgrains. Yadav (2017) recounts her experiences from Ajmer and Baran districts where she met many beneficiaries who were unable to purchase foodgrains due to "technical glitches." These included four problems: poor network leading to low internet connectivity (delaying distribution of foodgrains), errors in capturing fingerprints during Aadhaar enrolment, changes in fingerprints due to abrasions, and problems during "seeding" (i.e. linking of Aadhaar to NFSA ration card). Yadav (2017) also quoted the Additional Director of UIDAI who said that fingerprints for 10 to 15 per cent of beneficiaries do not match (similar to the experience in Andhra Pradesh) and they are in the process of introducing iris scanners to address this problem.

Similar experiences have also emerged from Jharkhand, where the Department of Food and Public Distribution introduced biometric authentication in all FPSs of Ranchi district in mid-2016 (Bhatnagar 2016). Data from July and August (2016) show that beneficiaries received only half their NFSA foodgrain entitlements after the introduction of PoS machines. Once again, common problems included "faulty seeding" (errors in data entry making authentication impossible), "biometric failure" (failure to recognise beneficiaries' fingerprints) and incorrect quantities being displayed in the PoS device due to errors in data entry (ibid.).

It is important to mention that, in principle, the use of Aadhaar-based authentication can be very beneficial in ensuring that the intended beneficiary benefits from NFSA. However, new technology can only help improve the existing system if prerequisites exist. In the case of Aadhaar-enabled PoS machines, basic requirements include high-speed internet, uninterrupted power supply, good quality PoS device, training for all stakeholders involved in the TPDS process, careful seeding of data and, most importantly, an effective grievance redress system. The experience in both states suggests that these basic prerequisites were not in place before the new system was introduced.

It is also essential to highlight that there is no one particular way to introduce PoS machines in TPDS. A note by the Government of Madhya Pradesh on their plan to introduce FPS automation discusses three available options:

- **Online ASAR (Apni Suvidha Apna Ration):** All FPSs will have a PoS machine that is connected to the internet. Both, biometric authentication and transaction will take place in real-time with the Aadhaar and central TPDS server, respectively. Will be implemented in large cities only. All beneficiaries in these cities can choose which FPS they want to purchase their NFSA foodgrain entitlements from. Similar to COREPDS in Chhattisgarh.
- **Online non-ASAR:** All FPSs will have a PoS machine and FPS managers will have to download the list of all eligible households from the central server at the beginning of every month. Transaction data will be uploaded to the central TPDS server at the end of the business day. However, biometric authentication will take place in real-time through GPRS connectivity. No choice available as customers will be "attached" to a particular FPS.
- **Offline Mode:** All FPSs will have a PoS machine and the FPS managers will have to download the list of all eligible households from the central TPDS server at the beginning of every month. Transaction data will be uploaded to the central TPDS server once every week (when the FPS manager will visit an area where there is network and connect the PoS device to the central TPDS server). Beneficiaries will be identified using the SAMAGRA ID (which is a unique household ID provided to all families in Madhya Pradesh).

The benefits of introducing different technologies depending on the availability of the prerequisites discussed earlier allows for the efficient functioning of TPDS.

4. Going beyond Foodgrains — Pulses in the PDS

Though TPDS is an important source of foodgrain (rice and wheat) for a large part of India's population, there has often been criticism of its ability to go beyond food security and ensure nutritional security. Over the past decade, many states/UTs have introduced subsidised pulses in TPDS with the aim of providing a rich source of protein. **Table 10** lists the type, quantities and prices of subsidised pulses for these states/UTs. Pulses are an important source of protein and diversify the nutritional composition of existing TPDS items that primarily consist of carbohydrates. NFSA, though promoting the distribution of millets (in addition to rice and wheat), does not make any provision for distribution of pulses. However, it does urge states to diversify commodities available through TPDS (GOI 2013).

Distribution of pulses by states/UTs in TPDS can have a positive impact on both beneficiaries and farmers. While the former will benefit from the nutritional value of pulses, the latter can diversify the crops they grow and increase agricultural incomes. With the prices of pulses reaching very high levels over the past few years, it would be very beneficial for TPDS beneficiaries if they could purchase these at subsidized rates.

Table 10 Distribution of Subsidised Pulses through the TPDS			
State	**Type of Pulse**	**Issue Price (INR/kg)**	**Quantity (kg)**
Andhra Pradesh	Red Gram	50	1
Chhattisgarh	Kala Chana	5	2
	Dal	10	2
Haryana	Chana Dal or Masur	20	2.5
Himachal Pradesh	Whole Moong	50	1 (for HH with >5 members)
	Urad	35	1
	Chana	25	1 (for HH with >3 members)
Punjab	Dal	20	0.5 per member (max. 2.5 kg/family)
Tamil Nadu	Tur	30	1
	Urad	30	1
Telangana	Red Gram	50	1

Source: Department of Food and Public Distribution Website (Accessed on January 15, 2017)

5. Cash or Food? Early Experiences from the Puducherry and Chandigarh DBT Pilots

Over the past decade, many academics and policy makers have suggested replacing in-kind food transfers with cash transfers as a way to address the issues of leakage and poor quality of foodgrain from TPDS (Saini and Gulati 2015). The idea is simple: rather than going through the process of procurement, transportation and distribution of foodgrains that in itself entails high costs, the government should transfer an equivalent amount of cash in all beneficiaries' bank accounts and let them buy the foodgrains themselves. Though this sounds very efficient in principle, many have raised concerns about the negative impacts of such a move on TPDS beneficiaries.

Khera (2016) presents findings from qualitative interviews with TPDS beneficiaries across nine states that asked them about their preferences between foodgrains from TPDS and a hypothetical cash transfer that allowed them to purchase the same quantity of foodgrains from the market. Approximately 67 per cent preferred food over cash — the figure ranged from 91.3 per cent in Andhra Pradesh (where TPDS is functioning well) to 20.8 per cent in Bihar (where TPDS was "languishing") when the survey was conducted in the summer of 2011. According to Khera, the main reasons highlighted by respondents for preferring food over cash included: food security (cash could be spent on non-food items), poorly developed rural markets (irregular supply of foodgrains), limited access to banks (costs involved in accessing far away banks), experience with other cash transfers (delays in payment and hassles in accessing banks) and inflation ("what if the price of foodgrains increases?").

This debate, as contentious as it is, relies heavily on hypothetical situations (or on the experience of other cash transfer programmes such as old age, widow and disability pensions) making it difficult to understand how cash transfers would actually work. With section 12(h) of NFSA encouraging states/UTs to introduce "cash transfers and food coupons" as part of efforts to reform TPDS and the Government of India notifying the 'Cash Transfer of Food Subsidy Rules' (Government of India 2015b), states/UTs can now move from in-kind food transfers to cash. However, despite notification of the cash transfer rules, no state has showed interest in replacing TPDS with cash transfers. As of early 2017, only three Union Territories (UTs) had implemented direct benefit transfers (DBT) of the food subsidy.

In September 2015, Chandigarh and Puducherry became the first states/UTs to replace their TPDS with DBT. Six months later, Dadra Nagar Haveli also replaced its TPDS with DBT. Findings from a study by J-PAL (2016) of the first year of DBT implementation in the three UTs show that in all the cases many beneficiaries did not receive a "significant proportion of total disbursement" with some "still receiving zero per cent" of the benefit. The report also mentions that on average beneficiaries had to spend more time and money to purchase foodgrains and often spend more than the cash transfer amount to purchase the same quantity of foodgrains that they would purchase from TPDS. While any new programme experiences teething troubles, beneficiaries not receiving their full benefit amount six months after implementation is of concern. More importantly, if cash transfers of food subsidies are not working in UTs that are predominantly urban and have relatively well-functioning markets, will they work in rural areas of the country where more than three-fourths of TPDS beneficiaries live?

Conclusion

The rollout of NFSA, combined with a slew of TPDS reforms undertaken both before and because of NFSA, is turning around a system that had become synonymous with corruption. While it is too early to give a verdict on the impact of NFSA, preliminary studies of its implementation have shown an increase in coverage of eligible beneficiaries, a decline in exclusion error, a rise in the purchase-entitlement ratio (PER) and improvements in the transportation of foodgrains. States/UTs that have implemented reforms such as doorstep delivery of foodgrains, end-to-end computerisation of TPDS (procurement, transportation and distribution), simplifying eligibility criteria and improving grievance redress mechanisms are reaping benefits in the form of more food security as well as political success.

Though NFSA has improved the general functioning of TPDS, several areas require more focus. As some of the studies reviewed in this report suggest, various states/UTs have not implemented NFSA in letter and spirit. To begin with, the delay in the implementation in most states/UTs was a major violation of the Act. Many states/UTs did not issue new ration cards and some made all old TPDS beneficiaries eligible for NFSA benefits. More importantly, states/UTs that did not use NFSA as an opportunity to initiate TPDS reforms have been unable to reap all the benefits.

The long delay in providing universal maternity benefits has been a major infringement of NFSA. Considering the Central Government already had a maternity benefit programme (IGMSY) in place in

200 districts, this lack of concern reflects its apathy towards maternal and child health. The two other NFSA-related programmes — ICDS and MDM — also did not receive the required financial support from the Central Government. NFSA requires the Central Government to ensure all anganwadis (childcare centres) and schools have the required infrastructure to provide hot-cooked meals to children. Instead, the Central Government has transferred the financial burden of these programmes on the states/UTs by changing the fund pattern of these programmes.

As the first evidence of the experience of replacing in-kind food subsidies with cash transfers emerges, states/UTs will have more information to make the decision on whether to adopt this path. The 'direct benefit transfer pilots' in the three UTs shed light on the limitations of the effectiveness of cash transfers in highly urban settings. In a country where more than 70 per cent of the population lives in rural areas, it would be essential to ensure that the prerequisites for cash transfers exist.

Another important theme that emerges from this review is the different experiences states/UTs have had with various technologies that are being adopted to improve TPDS. The aim of adopting new technologies should be to improve the functioning of TPDS without leaving anyone worse off. However, experience from some states/UTs show that the reliance on biometric authentication for 'weeding out fake ration cards' requires basic infrastructure such as high speed internet connectivity, good quality Point of Sales (PoS) machines and ease of use for all stakeholders' involved. Forcing new technologies on populations, without having the perquisites in place, can be more detrimental than beneficial to the overall functioning of a system.

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Appendix – TPDS Process