

# What Is the Effective Delivery Mechanism of Food Support in India?

## A Demand-side Assessment of Alternative Apparatus

MAMATA PRADHAN, DEVESH ROY, VINAY SONKAR

The public distribution system is the cornerstone of anti-poverty initiatives in India to address the issue of hunger and malnutrition, but is plagued with leakages and corruption. Though several possible reasons account for these problems, one factor that is generally overlooked is the lack of assessment of the preference of the beneficiaries in terms of product portfolio, selection, and delivery mechanisms. Through a mixed methods analysis across Bihar, Odisha and (eastern) Uttar Pradesh, this paper assesses the factors explaining the diversity in the preference for the delivery mechanism. What would be a straightforward choice problem among delivery mechanisms turns out to be far more intricate when mediated by contextual heterogeneity and unequal power relations at different levels. The results highlight the centrality of demand and build a case for demand assessment in improving the effectiveness of the system.

The authors would like to thank IFPRI-Tata Cornell Institute (TARINA), New Delhi Office, for receiving partial financial support for conducting the research used in this paper. The authors declare no potential conflicts of interest with respect to the research, authorship and/or publication of this paper.

Mamata Pradhan ([mp2226@cornell.edu](mailto:mp2226@cornell.edu)) is with the Tata-Cornell Institute, Cornell University. Devesh Roy ([d.roy@cgiar.org](mailto:d.roy@cgiar.org)) and Vinay Sonkar ([v.k.sonkar@cgiar.org](mailto:v.k.sonkar@cgiar.org)) are with the International Food Policy Research Institute, New Delhi.

Broadly, two lines of arguments characterise the policy debate regarding the ideal delivery mechanism for the public distribution system (PDS) of foodgrains. The first supports a gradual move towards a system based on food coupons or direct cash transfers (DCT), either of which could be used at private retail like a standard food stamp (Kotwal et al 2011; Chaudhuri and Somanathan 2011). The alternative argument supports reforms of the existing PDS of in-kind transfers (Khera 2011) with increased monitoring and enforcement, and expansion of coverage well past the current below poverty line (BPL) population, making it more extensive as well as more generous.

The main context for this debate comes from the issues in the existing PDS, several reforms and the advent of the National Food Security Act (NFSA) 2013 notwithstanding. The PDS continues to be plagued with charges of corruption, overpricing and delivery of low quality grains (Jha et al 2013; Swaminathan 2008).<sup>1</sup> Additionally, significant power asymmetries are visible in the delivery of services, time-consuming bureaucratic procedures and ineffective grievance redressal systems.

Amid the debate, one issue that gets overlooked is the following: Irrespective of the discourse among policymakers and officials, what is the delivery mechanism preferred by the beneficiaries considering preference heterogeneity? This debate is often steered by the binary choice between cash and in-kind transfers as in the current PDS. The system, unless it considers the contextual factors in delivery and weighs in the needs and preferences, would be constrained in its effectiveness. The disconnect between the existing design of delivery mechanism and what is desired and suitable for the beneficiaries remains, despite several rounds of changes, experiments and corrections. It also reflects the changing times where information flow is quick, comparatively cheap and effective.

Our empirical enquiry is an attempt to fill the knowledge gap in terms of the determinants of needs and preferences after considering preference heterogeneity based on gender, caste, and class and the intersection of the three components mediated through both the experiences with the PDS as well as the aspirations. Akin to our research, Gentilini (2007) too reiterates the importance of beneficiaries' preferences as one of the cornerstones of understanding the appropriateness of transfers.

Programme objectives, economic analyses, market assessments, capacity requirements and beneficiary preferences play important roles in cash or in-kind (food) selection. Additionally,

the beneficiary preferences for cash or food are context-specific and difficult to generalise. Gentilini (2007) argues that if there is a mismatch between preference and provision, the resultant transfer may not serve its purpose. Thus, irrespective of the policy stance, it is important to analyse the preferences to make the system more effective.

In this paper based on primary surveys, we assess the preference for DCT equal to market value of grains over the existing PDS. DCT, however, is not the only alternative that has been tried or is being considered or contested in various states. There are also food coupons that have been tried in Bihar or are in consideration elsewhere (see Choithani and Pritchard [2015] for an evaluation of coupon-based PDS in Bihar). Here we also study the preferences for food coupons albeit prospectively, akin to a food stamp where it can be used in any food distribution or retail outlet (Basu 2011). Thus, respondents were asked to choose between food coupons, the current PDS and DCT.

Our paper, on the one hand, contributes to the ongoing cash versus in-kind debate. On the other, it also explores the role of social heterogeneity in terms of class, caste, gender and political affiliation, while determining preferences for delivery mechanisms. Our comparative analyses across Odisha, Bihar and eastern Uttar Pradesh (UP) capture very different demographic profiles. In preferences for delivery mechanisms, ostensibly a simple choice problem becomes complex because of inherent heterogeneity, implementation issues and experiences from other sectors and cases. The choice problem is made more intricate when mediated by unequal power relations and the role of institutions at each level.

### Research Questions

Based on first principles of consumer choices in economics, there should be a strong preference for DCT. If entitlements are protected (from price fluctuations) and there are no significant direct or indirect costs in accessing cash, by widening the choice set, DCT should be preferred (Wydict 2018; Maboshe and Woolard 2018; Barham et al 2018). However, different considerations related to experiences bear on this choice. Importantly, social fragmentation and differentiation based on caste and gender play a pivotal role.

Though the system of DCT for welfare programmes is still in its nascent stage in India, evidence from the rest of the world shows the potential for benefits from such schemes. One of the biggest and most successful DCT programmes is Brazil's "Bolsa Familia" covering 11 million households to deliver educational subsidies. Subsequently, it included services like food and fuel to 2.6 million households. Zepeda (2006) shows that Bolsa Familia was responsible for 12% reduction in poverty. Similarly, the Mexican government started the principal anti-poverty DCT—Opportunities, in 2002—that achieved some success in making an impact on education, health, and nutrition outcomes of children (Rawlings and Rubio 2003; Kugler and Rojas 2018). For the poorest 5% of the population, in both Brazil and Mexico, transfers amount to 10% or more of their total income. Thus, bottom-sensitive measures of poverty reveal a greater impact than headcount ratio.

In November 2012, the Indian government announced that subsidy programmes such as scholarships for poor students, liquid petroleum gas (LPG) and kerosene subsidies, pensions and employment guarantee scheme payments would be converted into DCT in a phased manner starting in January 2013 (Barnwal 2016). Food subsidy through PDS is not yet a part of the proposed DCT. Aside from that, Gujarat started the country's first cashless system in PDS where eligible households under the NFSA need to carry only Aadhaar cards for getting their entitlements. The impacts of this system have not yet been assessed.

Bihar, Andhra Pradesh (AP), Madhya Pradesh (MP) and Delhi are conducting pilots for moving to DCT. An earlier pre-pilot study in lieu of the targeted public distribution system (TPDS) in Bihar, suggests that more than 95% respondents prefer DCT (Muralidharan et al 2011). However, this study did not comprise a formal analysis of the factors determining the preferences, something that this paper does. Khera (2011), through rural surveys in nine states, that is, AP, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Odisha, Rajasthan, Tamil Nadu, and UP looks at this question.<sup>2</sup> Her finding is that households usually receive 84% to 88% of their entitlement where the PDS functions well, and in that situation tend to prefer PDS. The Self-Employed Women's Association (SEWA), Delhi, looked at the preference for DCT over PDS among 150 households in three localities in Delhi in 2009 and found 60% households preferring DCT over PDS.

While this study too has similar findings, we however examine and demonstrate other nuanced factors that determine the differentiated preferences, including for food coupons. The additional factors that we highlight are experiences with PDS and the roles of social differentiation and locational heterogeneity. This paper in effect addresses the following research questions: First, which households have preference for DCT equal to market value of grains and alternative such as food coupons over existing PDS? Second, how does this preference vary by gender, social identity (that is, caste) and education? Third, how does the experience with existing PDS bear on preference over delivery mechanisms? And finally, what are the factors that inhibit preference for DCT, food coupons or PDS?

Why are these issues important? The foremost reason is that delivery mechanisms bear on the choice sets of the households. If households have an option to go to the PDS or to the open market to buy grains with DCT or a food stamp, this expands their choice set. There are several logistical reasons because of which households might prefer a *kirana* shop (a small neighbourhood retail store) over a fair price shop (FPS) that includes distance to the FPS, frequency at which the FPS opens and the quality or variety of grains disbursed.

### Data and Methodology

Policies to ensure access to food for the poor form the genesis of safety nets such as the PDS (Kattumuri 2011). Notwithstanding the changing preferences, the focus on calorie norms has continued in the recently enacted NFSA 2013. The coverage and entitlements under the NFSA have undergone change

compared to TPDS. The NFSA 2013 provides for coverage of up to 75% of the rural population and up to 50% of the urban population. Under the NFSA, the priority households are entitled to receive foodgrains (5 kilogram [kg] per person per month at ₹3, ₹2 and ₹1 per kg for rice, wheat and coarse grains respectively). The Antyodaya Anna Yojana (AAY) households continue to receive 35 kg grains per month (wheat at ₹2 per kg and rice at ₹3 per kg).

Note that the BPL list is based solely on economic status. With social disparity and errors in income and/or expenditure measurement, such a classification might not be preferred by those excluded or those who are near the cut-off income. Also, incomes are highly variable, and it takes only a shock to move a household from the above poverty line (APL) to the BPL status. Indeed, the current PDS has several inclusion and exclusion errors (Jha et al 2013). All these institutional factors and changes bear on the preference over the different delivery mechanisms.

**Surveys:** Our surveys covered 1,600 households in Bihar, Odisha and eastern UP. These areas comprise different states of the functioning of the PDS. It is important that our surveys were conducted in February 2016, that is, after the legislation of the NFSA 2013. The PDS is the nodal unit for the implementation of the NFSA. Also, there have been claims about reviving the PDS in the surveyed states. It is thus opportune to study the PDS from the point of view of needs and preferences.

Our surveys collected detailed data on household characteristics, the consumption patterns and engagement with the PDS, both existing and prospective. Specifically, the surveys provided information on the purchases of rice and wheat, and issues of access to the PDS. The data is stratified based on caste, gender, class and location.

On the functioning of the existing PDS, the information includes how many months beneficiaries get ration, as well as experiences encountered while accessing PDS. Specifically, the surveys collected information on preferences for DCT, food coupons and existing PDS. Qualitatively also, we examined the reasons for the preferences for alternative delivery mechanisms.

**Data and analysis:** The scant literature on needs assessment has been largely qualitative and descriptive. Studies have not used methods addressing the basic empirical problems of inadequate measurement of the determinants, such as, how to measure power relations and the issues related to potential bias in estimation. In our research, we try to assess the influence of contextual factors in relation to valuation and utilisation of the PDS by location and by population groups.

A combination of quantitative and qualitative methods maximises the contributions of each method by building on their relative strengths to provide a richer pool of data and greater analytic power than by using each method in isolation (Brewer and Hunter 1989; Creswell and Clark 2007; Roelen and Camfield 2015).

Our qualitative study comprised three components of semi-structured interviews, focus group discussions and the

non-observant participation method. We followed qualitative research to understand in depth what people think and how they feel about their needs and preferences in relation to the PDS delivery mechanism and how it can serve them better.

What alternative “proactive” delivery mechanisms and innovations in the PDS can be integrated with existing delivery systems, which can potentially ensure improved food security, improve access and reduce vulnerability while meeting the quality standards in services? We employ approaches to explore how delivery systems can be reformed. Using data through random sampling and by using relevant econometric methods that control for location-specific unobserved factors (such as, village level unobserved heterogeneity), discrete and ordered responses, we try to address the potential biases because of confounding factors. We obtain results that are then validated through qualitative methods.

We also measure the preferences for delivery mechanism in terms of a rank ordering on a Likert scale. We examine the effects of contextual determinants of access to the PDS comprising the role of social, economic, political, structural and policy-driven factors. We take special care in getting the contextual variables by categories, namely, gender, caste, class and levels of economic and political power. In terms of heterogeneity, the analysis internalises the effects of location-specific observed and unobserved heterogeneity.

### Profile of Sample Households

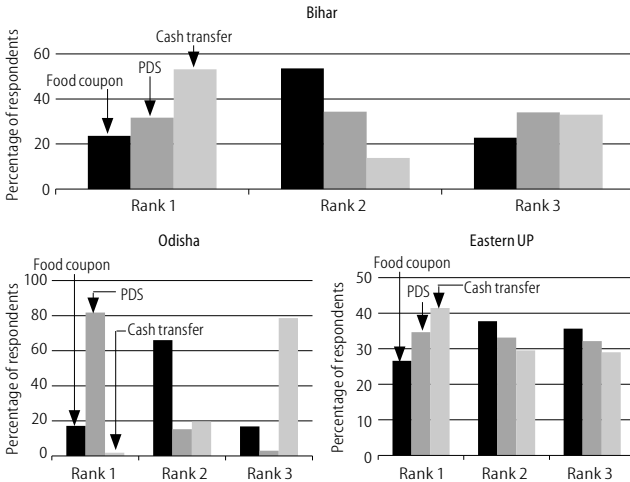
Family size has a direct relationship with food demand and therefore engagement with the PDS and its experience (Deaton and Paxson 1998). The average family size of the sample households in Odisha is four, while in both eastern UP and Bihar it is six. In tandem, the households in Bihar and eastern UP have a greater requirement for foodgrains.

On the other hand, only 6% of the respondents in Odisha reported migration in the last one year, while 20% and 27% households in UP and Bihar, respectively, report male migration. Male migration leads to female headed households (FHH) who face different conditions when accessing the PDS (Quisumbing et al 1995; Chant 1997, 2001, 2003; Kabeer 2003). If the whole family migrates seasonally, our conjecture is that they at least for sometime lose legal access to PDS as the entitlement is linked to the location via the assigned FPS. Hence, migration is likely to bear on the choice of the delivery mechanisms associated with PDS.

Moreover, the lower strata of the society depend more on the PDS for food (Thorat and Lee 2006). In terms of social composition there are five main social groups in our surveys: (i) Scheduled Castes (SCs), (ii) Scheduled Tribes (STs), (iii) Other Backward Classes (OBCs), (iv) Minorities, and (v) Upper/General Castes. In Bihar most respondents belong to OBC at 55%, followed by SC at 20%, while in Odisha, majority belongs to ST at 61%. In eastern UP, a majority of the respondents comprised OBCs at around 88%, followed by SCs at 8%.

Additionally, in Odisha, nearly 68% of the households have their primary source of income from wage labour, while in UP only 46% are wage labourers, and an almost equal proportion (48%)

**Figure 1: Statewise Ranking among Preferences of Food Coupons, PDS, and Cash Transfer**



Source: IFPRI-TCI (TARINA) Survey Data, 2016.

are self-employed. This heterogeneity is important where landlessness or small landholdings result in greater stakes in the PDS as a supplier of food. Land, being an important source of economic and political power for the rural households, also has an effect on the dealings within the PDS (Nagavarapu and Sekhri 2016).

In the sample, nearly 50% of the respondents never went to school, 12% have education till high school, and only 3% have education till the intermediate level. Education level of the respondents is likely to be one of the crucial factors, which could affect the preferences for the DCT, PDS and food coupons (Ghatak et al 2016). Further, 82% of the households have Aadhaar cards and more than 85% of the households have bank accounts. In Odisha and UP, more than 95% of the households have Aadhaar and bank accounts with the corresponding figure of 73% in Bihar. For the cash transfer scheme, bank account is a prerequisite.

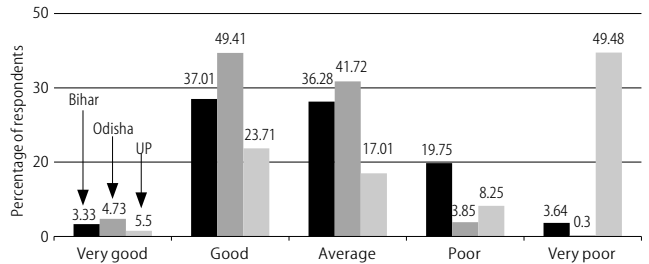
**Preferences for Alternative Apparatus**

With the PDS as base, we look at the summary of the responses across the three states (Figure 1). In Odisha, a significant proportion of the respondents (nearly 80%) preferred the PDS as their first choice, followed by food coupons and DCT. This is understandable given that around 49% of the respondents felt that the PDS’s performance has improved overtime in meeting their needs. However, a slightly different pattern was observed in UP: 41% respondents prefer DCT as their first choice.

This might not be surprising, considering that nearly 62% respondents reported that performance of the PDS in meeting their needs has not improved over the years. Yet, 35% of the respondents continued to prefer the PDS as their first choice, followed by food coupons. The preferences of these households seem to be in line with what the proponents for preserving the basic PDS structure argue, in part, that the PDS insures households against increases in food prices in a way that DCT may not, and the expectation that DCT may encourage even greater corruption at the local level.

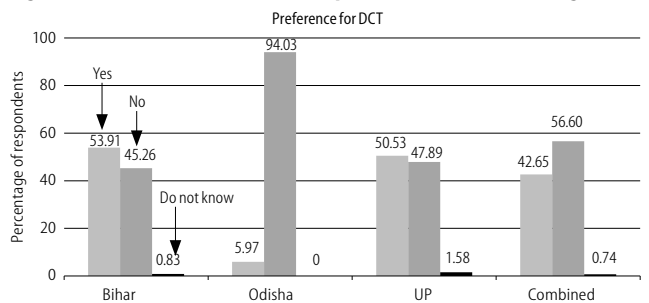
In Bihar, with a historically badly governed PDS, though there is a clear preference for DCT with 53% stating this as

**Figure 2: Ranking PDS in Terms of Experience in Shopping at PDS**



Source: IFPRI-TCI (TARINA) Survey Data, 2016.

**Figure 3: Overall Preferences for DCT Equal to Market Value of Foodgrains**



Source: IFPRI-TCI (TARINA) Survey Data, 2016.

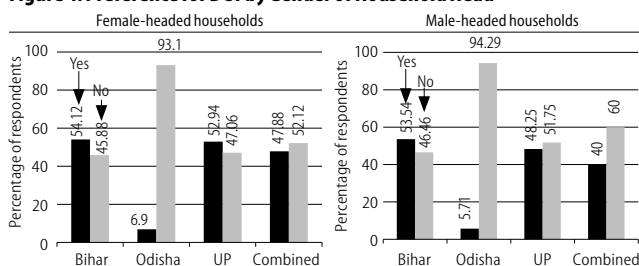
their first choice, followed by food coupons and PDS, 31% of the respondents continue to prefer the current system the most, as in the PDS. The revealed preference for cash in Bihar is stronger and because of a comparatively tribal and relatively poorer Banka district the figure comes down to 53%. Considering that Bihar has undergone several reforms in the PDS over the years, (75% of the respondents assert that over time PDS performance has improved in meeting their needs), there is also an indication that much still needs to be done if the current in-kind transfer system, as in the PDS, was to continue.

**Preference for PDS:** Figure 2 shows the ranking of the PDS in terms of experience in shopping at the PDS. Less than 5% of the households in all states rated the experience with the PDS as “very good.” Approximately 49% of the households from Odisha rated it as “good” and around 42% rated it as “average,” while 37% households from Bihar rated it as “good” and 36% as “average.” Very strikingly, around 50% of the households in eastern UP rate shopping at PDS as “very poor.”

**Preference for DCT:** On the question of choice between the current in-kind transfer system of PDS and the DCT, the responses from these three states are quite diverse. There seems to be considerable variation across these states (Figure 3).

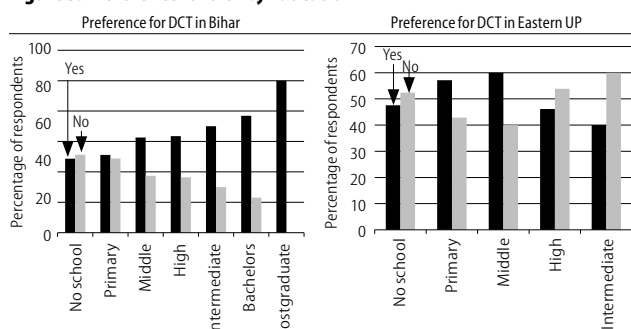
In remote tribal areas of Odisha, a sizeable proportion of respondents (nearly 94%) do not prefer DCT in lieu of PDS, and around 92% feel that cash transfer is not the right way to go even in future. In UP, the responses are divided, with 51% preferring DCT while almost 48% do not seem to be in favour of it. Given the prospective nature of the delivery mechanism in terms of DCT, it is remarkable that the majority (51%) in eastern UP preferred DCT over in-kind transfer. In Bihar as well, nearly 54% are in favour of DCT and almost 50% think that cash is the right way to go.

**Figure 4: Preference for DCT by Gender of Household Head**



Source: IFPRI-TCI (TARINA) Survey Data, 2016.

**Figure 5: Preference for DCT by Education**



Source: IFPRI-TCI (TARINA) Survey Data, 2016.

Approximately, 30% of the households in the sample are female-headed. Generally, females go to the FPS to get the ration. It is important to see their preference for DCT as they interface with the existing PDS system most closely. Approximately equal proportion, that is, 54% male-headed, and female-headed families prefer cash in Bihar, while around 53% female-headed families in eastern UP prefer DCT (Figure 4).

Lack of awareness and understanding of DCT is an important factor determining the preferences over delivery mechanisms. Indeed, as education level rises, the preference for DCT also increases in tandem (Figure 5). Especially striking is the near 100% preference for DCT among postgraduate respondents in Bihar. The relationship, however, is not clear in the eastern UP sample. The sample sizes in our data for high school and beyond is quite small in eastern UP.

In both Bihar and eastern UP, we explore the possible reasons (subjectively assessed) for advocating a move towards DCT. We recorded the responses on a Likert scale with rank 1 being the highest and rank 5 the lowest in the order. The summary figures for reasons for preferring DCT are presented in Table 1.

**Table 1: Reasons for Preferring DCT**

	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Share of households citing the reason of preference as:					
DCT is easier	71.53	12.68	11.24	4.07	0.48
Money can be used the way as is wanted	24.2	45.65	23.78	5.52	0.85
Buy better quality food since PDS quality is not good	21.92	39.42	33.85	3.85	0.96
With money transferred automatically, do not have to deal with officials	7.34	24.31	27.52	37.61	3.21
Money transferred in banks helps in planning what to spend, what to save	5.34	17.48	35.44	28.16	13.59
DCT provides better proof of entitlements being provided	35.71	16.84	8.67	27.04	11.73

Source: IFPRI-TCI (TARINA) Survey Data, 2016.

Essentially, the arguments in favour of DCT are on the lines of widening the choice sets. A DCT should make consumers at least as well-off as in-kind transfer, if the earlier available bundle continues to be affordable. This could change if this is not the case or other factors such as convenience and the lack of understanding in handling cash come into play. Also, based on qualitative survey, some preference for cash followed from the possible minimisation of the interface with the PDS dealer. In both Odisha and UP, most of the respondents think this as one of the primary reasons for preferring cash.

On the other hand, reasons for not preferring DCT comprise the tribulations reflected in the following: “money unlikely to come in time,” “purchasing power will not be preserved as price change will not be properly accounted for,” and that “cash transfer can be misused” (Table 2). For most women in Bihar, one of the primary reasons for not preferring DCT is the following: “Bank would create problems in disbursing including their commission,” and followed by a significant percentage who think that “money is unlikely to come on time.”

**Table 2: Perceived Problems in DCT for Food**

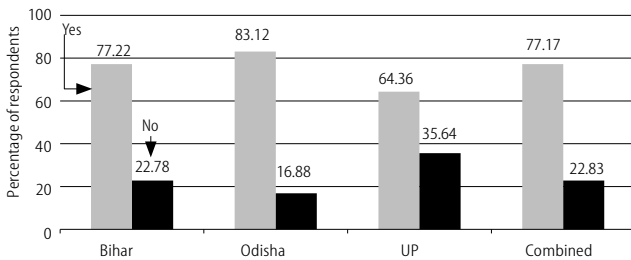
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7
Share of households citing the reason of problems as:							
Money unlikely to come in time	48.75	28.19	14.49	5.67	2.64	0.26	
Bank would create problems in disbursing including their cut	37.72	39.79	14.19	5.02	2.94	0.17	0.17
Purchasing power will not be preserved	37.24	27.29	27.56	6.55	1.36		
DCT can be misused	41.02	27.43	18.93	10.32	1.82	0.36	0.12
Getting money is unsafe	12.04	28.01	30.89	14.92	13.09	1.05	
Dealing with banks complex with many formalities	12.39	31.33	26.23	14.94	6.92	7.1	1.09
DCT system is unknown and entails lot of uncertainty	17.06	21.76	20.88	12.35	9.12	6.76	12.06

Source: IFPRI-TCI (TARINA) Survey Data, 2016.

Interestingly, in Odisha a majority of both women and men think that “cash transfer can be misused” and cite it as a primary reason for not preferring cash and a significant percentage of women also feel that “dealing with banks is complex with too many formalities.” In Odisha, women themselves felt that they would be the ones who would “misuse” cash by buying local toddy and tobacco. In Odisha, a majority of men doubted DCT assuming that “money is unlikely to come in time.” In UP, both women and men thought of this as their primary reason for not preferring cash. Here, the reason cited by women was that “cash transfer can be misused,” while men cited it as “purchasing power will not be preserved.”

**Preference for food coupons:** Another change possible in delivery is employing a food coupon system. Food coupons were introduced in Bihar, but not with universal validity. We investigate the preference not for the Bihar-type food coupon (the system has been discontinued now), but a coupon system akin to a food stamp programme that can be used across FPS and non-PDS outlets. In that sense, it is like DCT in the domain of food access.

While there is mixed preference for DCT, there is a clear-cut preference for food coupons in all states. In Odisha, around 83%

**Figure 6: Preferences for Food Coupon**

Source: IFPRI-TCI (TARINA) Survey Data, 2016.

households prefer food coupons, while in Bihar it is 77% (Figure 6). In eastern UP, the preference for food coupons is comparatively small. Qualitative analysis shows that in Bihar, the preference is not for the type of coupons that was introduced in the PDS but for food stamps. Food coupons of this nature give choice to buy grains from the market. However, there was apprehension that the stores in the open market might not acknowledge these coupons. With cash, some thought that it might tempt them to use it for repaying their loans, hence food coupons would be preferred. In Odisha, there was apprehension that like the PDS, the open market shops might not give them the right quantity and quality, and timely supply after knowing that food coupon is the medium of payment.

### Insights from Qualitative Analysis

A qualitative analysis across the four villages in Odisha shows that most households did not prefer DCT in lieu of PDS. This is partly attributable to the lack of awareness among beneficiaries regarding how banks operate, and there is a prevalent fear of the unknown. Importantly, in all locations, the bank was situated quite far away. Additionally, there had been prior experiences that could feed into this fear. In 1989, the Indian government launched the programme “Shelter to all” under the Pradhan Mantri Gramin Awaas Yojana as a DCT. In some villages in Odisha, beneficiaries never received money that was promised for building houses (Pradhan and Rao 2018).

Further, the fear is there that money might not be disbursed on time, and like old-age pension, it might also get delayed from when it is due, that is, every month. Additionally, there was apprehension about paying some amount of commission to the bank officials. The respondents wary of DCT also thought that money might be misused, not just by men in buying local alcohol but also by women themselves who were addicted to local tobacco (Pradhan and Rao 2018).

For PDS ration, beneficiaries must go once in a month to the PDS shop for collection, but with DCT, two trips are needed, once to the bank to withdraw the money, and then to the market to buy the ration. Since banks are far away (on average 9 to 18 kilometres away), it entails spending money on transportation. There is both the opportunity cost in terms of foregone income, and the energy and time involved in the process. Further, the fear was that if DCT is not price indexed, beneficiaries would end up paying from their own pockets. Moreover, the general refrain was that being illiterate and being unfamiliar with how to withdraw money, the PDS seemed an easier option, in terms of accessibility.

In UP, for those who did not prefer DCT, the reasons were almost like those in the tribal belt of Odisha (namely, unfamiliarity with how banks operate). In Bihar, on the other hand, even among social groups and gender there was a clear preference for DCT, and the most significant demand for it was from women themselves. Next in preference were food coupons. Yet, women were also careful in mentioning that the cash should be transferred in the name of women, otherwise men could spend on other non-food items. Most respondents, however, asserted that they do not care much about the mode of disbursement, if it can limit their interface with the dealer.

Moreover, the notion that domestic violence would increase if there was cash inflow, was rejected. Importantly, minority women (Muslims) seemed more vocal in favour of DCT. Since for many, their husbands worked in Gulf countries as migrant workers, they were equipped to manage their homes alone, and could draw money from the bank. Muslim women, especially the younger ones, who feel a bit inhibited to go to the PDS, felt that DCT is a comparatively good option.

Though most women showed a clear preference for cash as a delivery mechanism, there were some caveats that included concerns around indexation of cash transfer to prices, such as, whether it will be disbursed monthly or in one go, whether they will have to pay to open an account, etc. Additionally, though majority preferred an alternative to the PDS, some did want to give the PDS a chance to improve, and if it still did not get its act together, they would prefer cash.

### Econometric Analysis

We have looked at both quantitative and qualitative analyses to understand the preferences. Here, we use regression analysis to further understand the preferences over alternative delivery mechanisms, namely DCT, food coupons and the existing PDS. Here, the dependent variables being dichotomous, ordinary least squares becomes an inefficient estimation technique. We use the binary choice PROBIT model for the analysis. We run regression as three separate equations using the PROBIT model.

Table 3 (p 43) presents the marginal effects. The results strongly suggest positive correlation of preference for DCT and food coupons with several attributes. In the survey, just 40% (overall) households are getting the full entitlement, with 18% from UP and 35% from Bihar. In the regression results, FHH strongly prefer DCT because of the expansion of the opportunity sets. The regression results also suggest that education level plays a crucial role regarding the preference for DCT. Further, the results suggest that there is no social group specificity for the preference of DCT and food coupons and there is also no significant association with homophily, that is, belonging to same caste group as the dealer.

Further, as landholding size increases, the preference for DCT also increases but for the food coupon preferences, it is the reverse. Hence, large farmers prefer DCT, while small farmers tend to prefer food coupons. The results also suggest that among households which have experienced discrimination based on caste, there is preference for DCT. Note that, besides other factors, in Bihar, the quality/variety of rice came up as a major issue in

favour of DCT during our qualitative research. Apart from socio-economic characteristics, we also capture the experience with the existing PDS by capturing “wedge,” which is defined as the difference between entitlement and what households actually get from the PDS. The AAY households, for instance, are entitled to 35 kg of foodgrains, but they often get less than the allotted amount. The difference between entitlement and actual amount obtained from the PDS, is the wedge.

**Table 3: Determinants of Preference for Delivery Mechanisms**

Dependent/Independent Variables	Preference for DCT	Preference for Food Coupons	Preference for Existing PDS
Wedge	0.021**	0.027***	-0.011
	0.008	0.008	0.008
Household size	0	-0.027	-0.051***
	0.023	0.024	0.019
Female-headed household	0.382**	-0.016	-0.137
	0.155	0.215	0.222
Scheduled Caste	-0.021	-0.074	-0.161
	0.199	0.231	0.184
Scheduled Tribe	0.342	-0.351	-0.259
	0.264	0.271	0.371
General	0.094	0.24	-0.609**
	0.134	0.282	0.238
Minority	-0.111	-0.388	1.798***
	0.485	0.415	0.199
Primary education	0.222*	0.07	-0.036
	0.113	0.149	0.157
Secondary education	0.344***	0.025	-0.209
	0.111	0.15	0.136
Tertiary education	0.504*	0.007	-0.292
	0.263	0.236	0.294
Migration	-0.309*	-0.244	0.218
	0.183	0.235	0.258
FPS availability in village	0.789***	-0.084	-0.011
	0.148	0.509	0.46
Aadhaar card holder	0.075	0.117	-0.164
	0.179	0.221	0.14
Bank account holder	0.047	0.086	-0.047
	0.18	0.214	0.168
BPL status	-0.18	0.112	-0.005
	0.198	0.192	0.23
Months of getting rice from PDS	-0.033	0.185***	-0.034
	0.05	0.047	0.043
Months of getting wheat from PDS	0.002	-0.033	-0.008
	0.052	0.039	0.046
Know quantity	0.311**	0.038	0.166
	0.124	0.202	0.143
Know price	-0.061	0.213	-0.355***
	0.117	0.2	0.137
Use electronic weighing scale	-0.031	-0.236	0.196
	0.144	0.148	0.157
Caste-based discrimination	0.397**	0.183	-0.572***
	0.161	0.231	0.167
Gender-based discrimination	-0.123	0.818***	0.439*
	0.185	0.27	0.238
Landholding size in acre	0.042**	-0.037**	-0.014
	0.018	0.015	0.023
Homophily-social group	0.075	-0.068	0.181
	0.113	0.134	0.127
Village fixed effect	Yes	Yes	Yes
Constant	-0.082	4.595***	0.283
	0.553	0.538	0.67
Number of observations	984	974	902

Standard errors are clustered at village level.

\* p<.10, \*\* p<.05, \*\*\* p<.01.

Our hypothesis is that as the wedge increases, the preferences for the food coupon and DCT should increase. We include several other measures of experience with existing PDS. These comprise the number of months of rations obtained, experience of caste- and gender-based discrimination, use of electronic balance at FPS, etc. We also control for level of awareness about quantities and price mandated by law that helps households anchor their experience in the PDS.

## Conclusions

As part of the needs and preferences related to the PDS, we put significant weight on delivery mechanisms because they are critical in solving the last mile problems and are often the main source of differentiation in accessing the PDS. We positioned the issue of delivery mechanisms related to the PDS in the context of the wider global as well as in-country debate on cash versus in-kind transfers. In line with the priority assigned to heterogeneity as being the driver of preferences, we find that the three states show very significant differences in preferences over delivery mechanisms, even more pronounced based on gender, caste and class distinctions.

The Government of India has barely started implementing the DCT, it is being tried only on a pilot basis. Based on the findings, there is a possibility that other important welfare programmes will also be brought in the ambit of DCT. Towards this, the preference assessment with the investigation of reasons for support and apprehensions regarding DCT or food coupons provide valuable information from the programme design perspective. We emphasise that a comparative perspective and a granular approach are required in understanding the optimality of the specific delivery mechanisms, including the need for physical infrastructure as well as administrative capital.

We also delineate the importance of political economy where often the arguments in favour of or against a delivery mechanism is driven by ideology rather than facts and sound empirical assessment. As the government plans to move the food subsidy system to replace the PDS, the location-specific differences can be crucial. Also, we find a preference for food coupons akin to the food stamp programmes, over both the PDS as well as DCT. This is particularly important as in India a true food stamp programme has not been tried yet. The closest the system has come to has been in Bihar with food coupons, but those were redeemable only at PDS shops.

In conclusion, in terms of the preferences, there is no evidence that the beneficiaries of the PDS always prefer one type of modality. Instead, beneficiaries' preferences depend on context. In assessing preferences over delivery mechanisms, several of the fears such as beneficiaries selling their food transfers or cash transfers being used for undesirable purposes (alcohol or betting) across the three study states do not seem to hold. The preferences for the form of benefits transfer interact with several household and community characteristics, including programme design and implementation, households' socio-economic characteristics, and the access to markets.

## NOTES

- 1 Planning Commission (GoI) survey of 2004 states that 58% of the subsidised foodgrains do not reach the BPL families, with 36% on the black market, and the rest reaching the non-poor.
- 2 In Bihar and Uttar Pradesh, 54% and 34% households prefer DCT while just 2.1% in Chhattisgarh.

## REFERENCES

- Barham, T, K Macours and John A Maluccio (2018): "Experimental Evidence of Exposure to a Conditional Cash Transfer During Early Teenage Years: Young Women's Fertility and Labor Market Outcomes," CEPR Discussion Paper No DP13165.
- Barnwal, P (2016): "Curbing Leakage in Public Programs with Direct Benefit Transfers: Evidence from India's Fuel Subsidies and Black Markets," World Bank Working Paper, <http://pubdocs.worldbank.org/en/826341466181741330/Barnwal-DBTIndia.pdf>.
- Basu, Kaushik (2011): "India's Food Grain Policy: An Economic Theory Perspective," *Economic & Political Weekly*, Vol 46, No 5, pp 37-46.
- Brewer, J and A Hunter (1989): "Multimethod Research: A Synthesis of Styles," *Sage Library of Social Research*, Thousand Oaks, CA, US: Sage Publications, Inc, Vol 175.
- Chant, S (1997): "Women-headed Households: Poorest of the Poor? Perspectives from Mexico, Costa Rica and the Philippines," *IDS Bulletin*, Vol 28, No 3, pp 26-48.
- (2001): "Female Household Headship, Privation and Power: Challenging the Feminisation of Poverty 'Thesis'," Working Paper No 01-09b, Princeton: Center for Migration and Development, University of Princeton.
- (2003): "Female Household Headship and the Feminization of Poverty: Facts, Fiction and Forward Strategies," LSE Research Online, London, UK.
- Chaudhuri, Arka Roy and E Somanathan (2011): "Impact of Biometric Identification-based Transfers," *Economic & Political Weekly*, Vol 46, No 21, pp 77-80.
- Choithani, C and B Pritchard (2015): "Assessing Bihar's Coupon-based PDS: Importance of Local Context," *Economic & Political Weekly*, Vol L, No 3, pp 61-68.
- Creswell, J W and V L Plano Clark (2007): *Designing and Conducting Mixed Methods Research*, Thousand Oaks, CA: Sage.
- Deaton, Angus and C Paxson (1998): "Economies of Scale, Household Size, and the Demand for Food," *Journal of Political Economy*, The University of Chicago Press, Vol 106, No 5, pp 897-930.
- Ghatak, M, C Kumar and S Mitra (2016): "Cash Versus Kind Understanding the Preferences of the Bicycle Programme Beneficiaries in Bihar," *Economic & Political Weekly*, Vol LI, No 11.
- Gentilini, U (2007): "Cash and Food Transfers: A Primer," Occasional Papers No 18, World Food Programme, Rome, Italy.
- Jha, S, A Kotwal and B Ramaswami (2013): "Safety Nets and Food Programs in Asia: A Comparative Perspective," ADB Working Paper Series No 371, Asian Development Bank, Metro Manila, Philippines.
- Kabeer, N (2003): "Gender Mainstreaming in Poverty Eradication and the Millennium Development Goals: A Handbook for Policy-makers and Other Stakeholders" (London: Commonwealth Secretariat), UK.
- Kattamuri, R (2011): "Food Security and the Targeted Public Distribution System in India," Asia Research Centre Working Paper 38, London School of Economics, UK.
- Khera, R (2011): "Revival of the Public Distribution System: Evidence and Explanations," *Economic & Political Weekly*, Vol 46, Nos 44-45.
- Kotwal, A, M Murugkar, and B Ramaswami (2011): "PDS Forever?" *Economic & Political Weekly*, Vol XLVI, No 21, pp 72-76.
- Kugler, Adriana D and Ingrid Rojas (2018): "Do CCTs Improve Employment and Earnings in the Very Long-term? Evidence from Mexico," NBER Working Paper No 24248.
- Maboshe, M and Ingrid D Woolard (2018): "Revisiting the Impact of Direct Taxes and Transfers on Poverty and Inequality in South Africa," WIDER Working Paper, No 2018/79, ISBN 978-92-9256-521-3, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki.
- Muralidharan K, P Niehaus and S Sukhtankar (2011): "The Right to Choose Your Food," *Indian Express*, 2 August.
- Nagavarapu, S and S Sekhri (2016): "Informal Monitoring and Enforcement Mechanisms in Public Service Delivery: Evidence from the Public Distribution System in India," *Journal of Development Economics*, Elsevier, Vol 121(C), pp 63-78.
- Pradhan, M and N Rao (2018): "Gender Justice and Food Security: The Case of Public Distribution System in India," *Progress in Development Studies*, Vol 18, No 4, pp 252-66.
- Quisumbing, A, L Haddad and C Peña (1995): "Gender and Poverty: New Evidence from Ten Developing Countries," International Food Policy Research Institute, Food Consumption and Nutrition Division, Discussion Paper No 9, Washington, DC, US.
- Rawlings, L B and G M Rubio (2003): "Evaluacion del impacto de los programas de transferencias condicionadas en efectivo: Lecciones desde America Latina," Cuad. Desarro. Hum. 10. Mexico: Sedesol. 44 pp.
- Roelen, K and Laura Camfield (eds) (2015): *Mixed Methods Research in Poverty and Vulnerability: Sharing Ideas and Learning Lessons*, Palgrave Macmillan, UK.
- Swaminathan, M (2008): "Public Distribution System and Social Exclusion," *Hindu*, 7 May, <http://www.hinduonnet.com/2008/05/07/stories/2008050754981000.htm>.
- Thorat, S and J Lee (2006): "Caste Discrimination and Food Security Programmes," *Economic & Political Weekly*, pp 4198-4201.
- Wydick, Bruce (2018): "When Are Cash Transfers Transformative?" Working Paper Series No WPS-069, Center for Effective Global Action, Berkeley: University of California.
- Zepeda, E (2006): "Do CCTs Reduce Poverty?" One Pager #21, Brasilia: International Poverty Centre, United Nations Development Programme.

# Economic & Political WEEKLY

## REVIEW OF ENVIRONMENT AND DEVELOPMENT

September 14, 2019

Labouring Nature, Labour in Nature: Intertwinings and Intersectionalities

—Nandan Nawn, Sudha Vasani

Water and H<sub>2</sub>O: 'Elements of Labo(u)r'

—Savyasaachi

Towards a Conception of Socially Useful Nature

—Archana Prasad

Many Environments: Rethinking Development and Environment in North Andaman

—Anupama Ramakrishnan

The Scientific Worker and the Field: Seeing Value in Fisheries Science

—Aarthi Sridhar

Eco-labour's Challenge to the Neo-liberal Understanding of Nature: Conversations with Workers

—Dunu Roy

For copies write to:

Circulation Manager,

**Economic & Political Weekly,**

320-322, A to Z Industrial Estate, Ganpatrao Kadam Marg,

Lower Parel, Mumbai 400 013.

email: [circulation@epw.in](mailto:circulation@epw.in)