Impact of Biometric Identification-Based Transfers

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The National Food Security Bill, as drafted by the National Advisory Council, contains various reforms to reduce theft. However, the track record of previous legislation does not inspire confidence that the proposed reforms will be sufficient to ensure secure access to food for those who need it. This article spells out a biometric-based identification mechanism for cash transfers and evaluates its possible impact on the percentage of the transfer reaching the poorest fraction of the population.

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Jha and Ramaswami (2010: 23) show that of the Rs 20,000 crore spent on the grain subsidy in India in 2004-05, only about Rs 2,000 crore, or 10%, reached the poor. Another 19% went to the non-poor, 43% was diverted, and 28% was excess cost due to the inefficiency of government management of procurement, storage, transport and distribution. That is, fully 71% of government expenditure on the grain subsidy was either stolen or lost due to waste. The data analysed by Khera (2011) suggest that the all-India situation was not much better in 2007-08.

In 2004-05, as the National Sample Survey (NSS) 61st round data suggests, although all households were entitled to 35 kilograms of rice or wheat per month at the then public distribution system (PDS) prices, or about seven kg per capita, households in fact availed of only about one kg per capita per month on average from the PDS and either bought seven to nine kg per capita per month from the open market or in the case of some farm households, produced it themselves (Figure 1).

Even this average figure of one kg per capita per month from the PDS conceals the fact that many households get less, or even nothing, because they are unable to get ration cards, or get rations when they migrate. Even those with ration cards are sometimes unable to get PDS grain. Particularly in badly governed states, which have the largest numbers of needy people, the likelihood that poor people will be able to securely and assuredly get the subsidies to which they are officially entitled, is low.

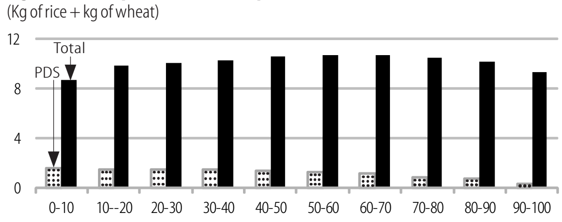
What this means is that if the National Advisory Council's (NAC) draft proposal of providing 35 kg per month of grain to all households at negligible prices (Rs 2 per kg or Rs 3 per kg) is to become a reality, the expenditure on that grain would have to be multiplied by a factor of three if implementation is to happen under the current system. PDS distribution is the responsibility of the states. Making the system substantially more efficient over most of the country is not under central government control. The plan is thus unrealistic.

Moreover, all proposals currently on the table seem to involve some degree of identification of needy households. Thus, they all run into the basic problem that the identification process will be manipulated so that subsidised grain can more easily be siphoned off. The existence of the subsidy itself creates strong incentives for theft. The National Food Security Bill as drafted by the NAC (2011) contains various reforms to reduce theft. However, the track record of previous legislation, such as the Mahatma Gandhi National Rural Employment Guarantee Act (NREGA), in ensuring local accountability has been far from satisfactory. It is wishful thinking to suppose that the reforms proposed by the NAC will be sufficient to ensure secure access to food for those who need it in the next few years. The purpose of this note is to spell out, in some detail, an identification mechanism that is immune to these problems.[1]

Before we proceed to describe the mechanism, we note that a comparison of Figure 1 and Figure 2 (p 78) shows that the inequality in grain consumption is fairly low compared to the inequality in total expenditure.[2]

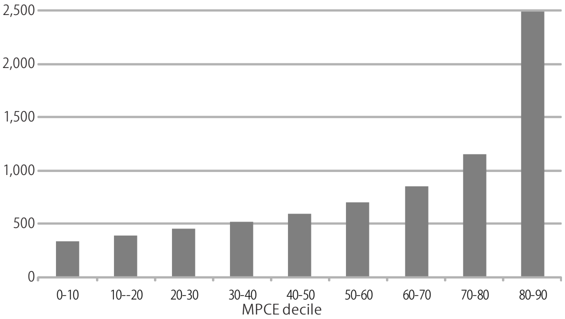
The main reason that the poor suffer from food insecurity is not that their average grain consumption is low. Rather it is because of the uncertainty they face about whether, in any given week or month, they will earn enough to get adequate food, and second, because they are unable to afford as varied and balanced a diet as those with higher incomes. It follows that it is most important to make available to them an assured source of income. Grain is not the main issue.

Figure 1: Per Capita Grain Consumption, PDS and Total
(Kg of rice + kg of wheat)



MPCE: Monthly per capita expenditure.
Source: Household-level data from the NSS 61st round, 2004-05, Consumer Expenditure (Schedule 1).

Figure 2: Per Capita Consumption Expenditure by MPCE Decile (Rs per month)



MPCE: Monthly per capita expenditure.
Source: Same as Figure 1.

Biometrics to Eliminate Diversion and Excess Costs

Biometric identification and transfers to individuals, rather than households, offer a way of ensuring that transfers reach intended recipients. Every resident of India can get a unique identification number (UID) from the Unique Identification Authority of India (UIDAI).[3]

At the local UID office or camp, a person gets photographed, fingerprinted, and gets an iris scan. Associated with this biometric information is the UID number of the person. Once everyone has a UID, the government can simply make an electronic transfer to a person's bank account once a week.[4]

The amount can be indexed to the price of food, and updated monthly. Of course, many people do not have bank accounts. But with weekly government transfers in place, shopkeepers will have a strong incentive to invest in a fingerprint scanner that can connect to the government network. A person can identify themselves at such a shop by means of their fingerprints, and the transfer can be made to the shopkeeper electronically. He then hands over the cash to the person and avails of the potential customer's business. Of course, shopkeepers will need to charge a commission to cover the Rs 4,000-6,000 that the device costs, but competition among shopkeepers will keep this commission small in practice. Regulation will not be necessary.

The central database will ensure that there are no duplicates. This eliminates the possibility of theft. The rupee amount to be transferred to each person per week can be set to be equivalent to any desired grain amount at market prices. This method will provide an assured transfer of money, equivalent to a fixed amount of food, to every adult every week, and will go a long way towards assuring food security for the poor.

There is no need, moreover, to make transfers to those who are automatically identified as not needing the transfers. Those individuals who pay income tax and have Permanent Account Numbers (PAN) can be required to obtain a UID, and automatically excluded from the cash transfers. Similarly, government servants and other salaried employees whose salary exceeds an appropriate limit, those who own motor vehicles, and those who own other fixed assets that are registered, such as land and buildings, and whose value exceeds a suitable threshold, can be automatically excluded through the required UID. This will result in the automatic exclusion from the transfer of approximately the top 10% of households in terms of income. As the economy grows, this share will grow.

Transition

The government can first try out the system in a few blocks or districts to ensure that it works as planned and to correct any problems that may arise. In the selected trial areas, an intensive campaign to inform the public of the scheme has to be launched, followed by biometric recording equipment camps throughout the area. After 99% of the population in a trial area has received UIDs, the government can announce the date on which cash transfers will begin. Following an initial period of a few weeks, if no problems are encountered, the PDS grain ration in those areas can be discontinued. This will ensure that no one is deprived of benefits during the transition. Once the trials have been completed successfully, the programme can be scaled up in phases to the rest of the country.

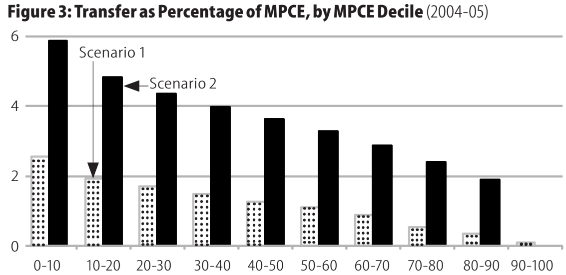
Impact

We use 2004-05 NSS data on consumption to illustrate the impact of such a programme. Scenario 1 in Figure 3 shows the per capita value of the grain subsidy or transfer as a percentage of monthly per capita expenditure (MPCE) that households in each MPCE decile actually received in 2004-05 through the PDS. It can be seen that households in the bottom decile of the population received on average about 2.5% of their MPCE as a grain subsidy.

Scenario 2 (the second set of bars in Figure 3) computes the percentage of MPCE that households would have received if the amount the government actually spent had instead been transferred equally as cash transfers to all adults, excluding the top decile. As can be seen, this dramatically increases the transfer expressed as a percentage of MPCE that reaches the lower nine deciles. In the case of the bottom decile, the amount roughly triples. The increase is due to the savings accrued both from the theft that is prevented, and from the excess cost avoided in the PDS. It is worth remarking that diversions from the PDS are almost certainly going entirely to people in the top decile of the expenditure distribution.

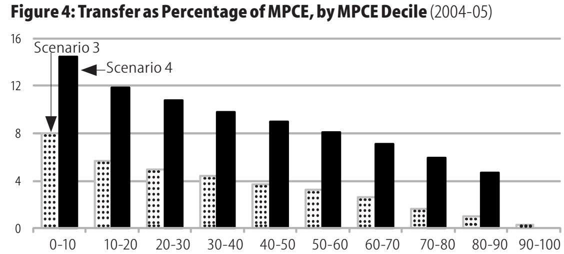
Figure 4 compares the transfers that we estimate households would get under the National Food Security Bill as drafted by the NAC (scenario 3), with what they would get if the same expenditure were used for transfers to individuals in the manner outlined by us above (scenario 4). The NAC proposal would result in about 8% of MPCE-reaching households in the bottom decile, while our proposal would result in about 14% of MPCE-reaching households in the bottom decile.

Figure 3: Transfer as Percentage of MPCE, by MPCE Decile (2004-05)



For calculations underlying this figure, see the Appendix.

Figure 4: Transfer as Percentage of MPCE, by MPCE Decile (2004-05)



For calculations underlying this figure, see the Appendix.

It bears repeating that while our proposal would result in a substantial increase in the average incomes of lower-income households, the high coverage, predictability, and lack of harassment in getting it probably constitute the greatest part of this proposal's value.

Wider Ramifications

So far, we have focused on the immediate implications of our proposal for the welfare of those who are not economically secure. The introduction of this system will, however, carry wider ramifications. First, the fact that transfers go to individuals whose physical presence is required will empower women. They will get an independent and assured source of income. Second, the existence of an entitlement with no harassment involved in realising it protects the recipient's dignity. Third, the existence of the UID and its use in excluding income taxpayers and other high-wealth persons from the transfer will enable better integration of tax systems, and reduce tax evasion. This will improve the fiscal position of the government as well as the fairness and progressivity of the overall tax system, giving the government more leeway to implement social programmes. Fourth, the provision of a truly assured and significant source of income to formerly economically insecure people can only have a healthy impact on electoral politics. It will bring an electoral reward to any government that implements it. This, in turn, will stimulate political parties to rely more on universal programmes to improve their electoral chances, and move India's political economy towards universal social security, education and healthcare, and away from its current pattern of price-based regressive subsidies and controls that favour various interest groups.

Although some of these implications are necessarily speculative, when put together with the direct economic gains for the majority of citizens, they constitute a powerful argument for giving this outcome a good chance. The National Food Security Act should contain an enabling clause to permit trials of such a cash transfer system and the replacement of the PDS if the trials establish that the beneficiaries receive more via cash transfers than they do through the PDS. Not to do so will be to delay an option that could have revolutionary implications for the welfare of most of India's people.

NOTES

1 Both the Report of the Expert Committee on the National Food Security Bill (Economic Advisory Council 2011), and the Chief Economic Adviser to the Government of India, Kaushik Basu (2011) have, at the end of their respective writings, suggested the use of smart cards and cash transfers to reduce theft from the PDS. These authors have not, however, explained precisely how this will be achieved.

2 Figure 2 shows that the top decile is far above the others. In fact, this is an understatement of the inequality because it is well known that the NSS undersamples the top of the income distribution.

3 More than a million persons are already in the database (UIDAI 2011).

4 Transfers should be made only to adults, although the UID can be issued to both children and adults. This means that adults will have to be identified. A simple procedure for identification would be to require and scan birth certificates from those who can present them, and for others to simply claim that their age is such-and-such. Their photographs can be examined by more than one set of examiners located in different places, to eliminate bribery and collusion, who can admit their claims unless the photographs manifestly show someone who could not be 18. This procedure will admit some people below the age of 18, but the inclusion errors will be limited.

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Appendix

All figures have been generated using household-level data from the 61st round of the NSS 2004-05. The bars in Figure 3 indicate the transfer amounts as percentages of MPCE under scenarios 1 and 2. To calculate the transfer amounts in scenario 1, i e, the actual transfers in 2004-05, we multiplied the average per capita foodgrains (rice and wheat) obtained from the PDS for each decile and then multiplied those numbers with the amount of subsidy received per kg, i e, the difference between the retail price that the household paid to buy non-PDS rice and wheat and the price paid under the PDS.

To generate the transfer amounts for scenario 2, we first calculated the total amount that the government spent on the PDS. This was obtained by multiplying the total offtake figures for 2004-05 with the economic cost incurred by the government in procuring, transporting and distributing grain to various stock points (Jha and Ramaswami 2010). Then the total revenue obtained from the PDS was subtracted from this total cost to arrive at the net cost incurred by the government. This was the total amount of transfer made by the government. We then assumed that this money was distributed equally among all adults, except those in the topmost decile of consumption expenditure, and under the assumption of a 1% rate of exclusion for the rest of the nine deciles. Having done this, we then calculated the total transfer that each household received (note that this depends on the number of adults in the household), and then divided by household size to obtain the per capita transfer received by a household. These data were then averaged over each MPCE decile to generate scenario 2.

The bars in Figure 4 indicate the transfer amounts as percentages of MPCE under scenarios 3 and 4. We first calculated the average per capita entitlements implied by the NAC proposal. We then assumed a rate of diversion of 50%. This is slightly less than the actual rate of diversion under PDS for 2004-05 which was 55 % (Jha and Ramaswami 2010). The 50% seems reasonable because of forces working in opposite directions – on the one hand, the proposed reforms in the National Food Security Bill are likely to reduce diversion; on the other, the incentive to divert grain will be greatly increased due to the larger subsidy per kg applying to a greater volume of grain.

The next assumption we made was that this NAC entitlement reaches households in the various expenditure deciles in the same ratio as the present PDS. To obtain the price that priority households pay for this entitlement, we deflated the figures mentioned in the NAC for priority households to arrive at comparable figures for 2004-05. For those in the general category, the NAC recommends that households pay no more than half of the minimum support price (MSP) for their entitlement. Now implementing the NAC proposal means that the government needs to increase its procurement, which can only be possible if the government increases the MSP relative to the wholesale price. We assumed that households in the general category pay an average of the MSP price and the wholesale price in 2004-05 to access PDS grain under the NAC proposal. Using these price estimates for the general and priority categories, we obtained a price of Rs 2.06 per kg to be paid by an average household in the country in accessing PDS grain under the NAC proposal. (Note that the percentage of households in rural areas deemed priority is 46% and deemed general is 44%, while the corresponding figures for urban areas are 28% and 22%.) Then to calculate the transfer amount under scenario 3, we multiplied the average per capita foodgrains obtained under the NAC proposal by households in the different expenditure deciles with the amount of subsidy received, i e, Rs 2.06 per kg.

For scenario 4, just like scenario 2, we first calculated the transfer amount by multiplying the total grain that is to be distributed under the NAC proposal with the economic cost incurred by the government, and subtracted this figure from the revenues generated. We then assumed that this money is distributed equally among all adults except those in the topmost decile of consumption expenditure and with an assumed 1% rate of exclusion for households in the bottom nine deciles. We then calculated the average per capita transfer received.