

# PDS Forever?

ASHOK KOTWAL, MILIND MURUGKAR, BHARAT RAMASWAMI

There is a case to be made for cash transfers replacing the sale of food through the public distribution system. This article argues that cash transfers offer many advantages over in-kind food transfers, and that their design can address potential pitfalls pointed out by critics. The more salient of such objections are discussed, and models for implementing cash transfers based on existing technology and infrastructure are proposed. However, in conclusion, it is recommended that instead of centralised dismantling of the public distribution system, the decision on the means of delivery should be left to the states.

When good policy goals are frittered away through wasteful government schemes, it gives fodder to those who had little sympathy with such goals in the first place. The National Food Security Bill is a worthy goal. However, it will do little for the poor if the government insists on implementing it only through the deeply flawed public distribution system (PDS). We will make a case here that the proposed alternatives to PDS such as food coupons and smart cards (effectively cash transfers) are viable in the Indian context and will be much more effective in the long run from the point of view of the poor. However, we do not conclude that these alternatives have to immediately and totally displace the PDS. States that prefer in-kind transfers and implement them well should continue to do so. The role of cash transfers in food policies rests on (1) the greater likelihood of structuring effective subsidies with a variety of approaches, and (2) the near impossibility of universalising food subsidies without cash transfers.

In this article, we consider the salient objections raised against cash transfers by those who think that PDS is the only way to deliver food subsidy in India. In addition, it is possible that some resistance to any alternative to PDS springs from the anxiety caused by a new and relatively untried system. Theoretical arguments alone may not make a convincing case for a new system as practical problems may reveal themselves only after it is activated. Indeed, it makes sense to proceed cautiously. In this article, we propose such models of gradual transition.

Nonetheless when the present system is patently flawed, it behoves us not to dismiss alternatives without any experimentation. We believe that the bill should not be so drafted as to preclude alternatives to PDS. There is great diversity across India and what works in one state may not work in others. If an individual state wishes to experiment with food coupons or smart cards or cash transfers in some form, it

should be allowed to do so. It is only through such experimentation that a desirable system will evolve. Also, a parliamentary act once passed is difficult to amend. Things change over time. Technology improves, markets evolve and infrastructure gets built. It is a mistake to legislate the means of delivery the effectiveness of which very much depends on the states of technology, markets and infrastructure. The Act should define only the entitlement (say, for example, 35 kgs to a household) and coverage (near universal) and leave it to individual states to choose their own means of delivery.

## The Present Course

The course traversed by the proposed bill so far fails to inspire confidence in its future. It was conceived by the National Advisory Council (NAC), where much of the progressive legislation of recent times such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), Right to Information, Right to Education has been conceived. It is difficult to imagine that such progressive legislation would have ever gained momentum if it had not been pushed by a very energetic NAC. Indeed, the dubious distinction of having the greatest number of malnourished people in one of the fastest growing countries in the world is a disgrace, and deserves to be acted on with the utmost urgency.<sup>1</sup> It is about time we had a National Food Security Bill.

There is little doubt that it is practically impossible to identify the poor, however classified. According to the National Commission for Enterprises in the Unorganised Sector (NCEUS) (2007: 1), some 92% of the Indian labour force works in the informal sector where employment and incomes are intermittent and salary records are non-existent. Add to that the problems of corruption at the local level where lists of the eligible recipients are produced, and the appeal of universal coverage becomes immediate. In addition, 77% of India's population lives on consumption levels of Rs 20 a day (NCEUS 2007: 1). It seems hardly worthwhile to expend resources to identify the poor. The case made by the NAC for the coverage of food subsidy to be near universal is therefore quite compelling.

The NAC draft proposal, while endorsing the principle of near-universal coverage,

Ashok Kotwal ([ashokk@interchange.ubc.ca](mailto:ashokk@interchange.ubc.ca)) is at the Department of Economics, University of British Columbia.

Milind Murugkar ([milind.murugkar@gmail.com](mailto:milind.murugkar@gmail.com)) is with Pragati Abhiyan, Nasik, and Bharat Ramaswami ([bharat@isid.ac.in](mailto:bharat@isid.ac.in)) is at the Planning Unit, Indian Statistical Institute, Delhi.

recommended expanded coverage (75%) with phased universalisation (NAC 2011). The draft proposal, however, precluded the delivery of food subsidy through any means other than the PDS. The Expert Committee (EC) convened by the government to review the NAC proposal recommended a reduction of coverage from 75% to 46%, creating a great deal of dismay among ardent supporters of the food bill (EAC 2011). The rationale for the EC's recommendations was not only the high costs but also the difficulties of being able to increase the procurement of grain by such a massive margin. Both the high costs and procurement difficulties are problems that stem from the inefficiency and unwieldiness associated with the PDS, and yet the implicit assumption under which the EC responded to the NAC draft proposal was that the food subsidy would continue to be delivered through the PDS.

Interestingly, the EC strongly recommended that alternatives such as food coupons or smart cards be tried (EAC 2011). However, the discussion about the alternatives appears in a separate section, almost as an afterthought, and is not linked either with the issue of the cost of the programme or with the difficulties of procurement. Why did the EC not say that the coverage that NAC had asked for would be met with a gradual move from the PDS to smart cards?

We believe that the EC balked at asking for moving away from PDS for fear that the NAC would never give in on considering alternatives to PDS. The consequence is the worst of all possibilities – targeted and inadequate coverage to be administered through a broken delivery system. This can hardly be much of an improvement over what we have presently. We believe that near-universal coverage is possible through the more efficient alternative of cash transfers in some form. Procurement problems would not arise as the government would not have to do the procurement and the costs in delivering the subsidy would be much lower. A political stalemate of the sort that we are witnessing would be a disappointing outcome for this highly worthy initiative.

### How Do the Alternatives Work?

Food coupons are distributed to the recipients who can take them to the shop to pay for the subsidy part of the grain purchase.

The shopkeeper can redeem them in a post office or bank or at a government office. The shopkeeper thus gets the market price by selling to a ration cardholder and has no incentive to divert the grain to the open market. The coupons have the exchange value of the subsidy and can circulate as cash. This is why food coupons can be viewed effectively as a cash transfer.

Smart cards are a technologically more sophisticated way of accomplishing what the food coupons do. Every recipient would be issued a card with an electronic chip that can work almost like a debit card. The government agency given the responsibility of implementing food subsidy would arrange to deposit the subsidy amount in the cardholder's account. The customer swipes the card through the cash register in any grocery shop to pay the subsidy part of his payment. This transfers the amount to the shopkeeper's account. The transaction is authenticated by biometric identification of the customer.

### Problems with PDS

There is almost a consensus that PDS is deeply flawed. There is, however, a lively debate on whether it is more desirable to reform PDS or to try other alternatives such as food stamps or smart cards. Before making our case for the latter, we first briefly review the problems intrinsic to PDS that do not arise with cash transfers.

It is useful to point out at the outset that targeting is not a problem of the delivery system, and therefore it is not a problem that alternatives like food coupons or smart cards can solve. Identifying the poor in a country like India is a formidable task for all the reasons mentioned earlier. Only universal coverage can solve it, and this is why we favour it. However, universal coverage can be had with either PDS or cash transfers.

It is implicit in the arguments made by the supporters of PDS (see, for example, Himanshu 2011) that the exclusion error caused by the problem of identifying the poor is the only serious problem with the PDS. Once coverage is made universal, the rest of the problems are not insurmountable. Is this a valid contention?

Jha and Ramaswami (2010) estimate that the breakdown of the total costs of the food subsidy delivered through PDS is as follows

– 43% are the illegal diversion costs, 28% are the excess costs, 19% income transfer to the non-poor and only 10% is the transfer to the poor. The excess costs refer to the purchase and distribution costs incurred by the government in excess of what private market channels would have cost. These costs are evidently quite substantial.

Making the coverage universal is likely to reduce illegal diversion. As more households receive subsidised grain, their demands on the market will fall, leading to a decline in diversion. However, a substantial reduction in diversion is contingent on how much additional grain households receive through subsidised channels, which in turn depends on the extent of diversion in the first place. Thus, a relatively honest system will remain honest on universalisation. On the other hand, a relatively corrupt system will remain so even with universalisation, unless it is accompanied by effective monitoring and policing of the distribution chain.

The incentive to divert grain does not exist under a system of cash transfers, as the shops will be selling the grain at market price to all customers. Since a shopkeeper gets the market price even when he is making a subsidised sale, the incentive to defraud is extinguished. This means even cheating by offering lower quality of grain to the ration cardholders would not occur.

In addition, a cash transfer system offers a few more advantages over the present system. One of these is to the producers and consumers of so-called coarse grains like jowar and bajra. Presently, wheat and rice are the foodgrains that are distributed through PDS shops all over India. Most of the grain is procured in Punjab, Haryana and western UP. Jowar and bajra – rather than wheat and rice – are the main staples in Maharashtra. There are many other states such as Karnataka, Gujarat, Rajasthan and many tribal belts across the country where other local cereals are the main staples. These coarse grains figure most prominently in the diet of the poor in these states. Under cash transfers, the consumers would be free to buy the grain of their choice.

The possibility of including coarse grains has huge ramifications for the whole issue of poverty alleviation in India,

and it is possible that similar processes may be at work elsewhere in the world. A local grain that is not included in the subsidised basket clearly suffers from a disadvantage in having to compete with a subsidised substitute. Typically, local coarse grains like jowar and bajra are grown in arid and semi-arid areas, characterised by low agricultural productivity. They become the staples of the poor mostly because much of the rural population living in these areas is poor. Development is yet to make inroads in these typically agrarian areas. Many of the poor are farmers.

In a system with in-kind transfers, the government needs to engage in procurement, storage and distribution. Naturally, it is logistically convenient to procure grain in two or three large surplus states and then distribute the procured grain. Typically, farmers in these surplus states are well-to-do. As subsidised wheat and rice get distributed in poorer areas, they put a downward pressure on the prices of coarse grains, to the detriment of poor growers of these grains. The rationing system of in-kind transfers thus invariably generates inequality between farmers in surplus states and those in arid and semi-arid areas. It is easy to see that cash transfers would do the opposite, as consumers in poorer areas would choose to spend their cash on local grains, and thus boost their demand and hence their market prices.

It should be pointed out that the NAC draft proposal does recommend that local grains be included in the procurement for PDS. Indeed, such a recommendation has been part of the rhetoric of the PDS for a very long time. However, once you have a centralised procurement system as under the Food Corporation of India (FCI), practical considerations always dictate ignoring local grains, as has been evident through the history of PDS.

At a micro level, the sheer unfriendliness of the PDS cannot be overlooked. Even when the poor possess ration cards, they face problems with respect to the low quality of grain, and the irregular hours of operation of the PDS shops. Shopkeepers do not allow customers to split their entitlement into multiple purchases. This discourages the poor who do not always have the cash when supplies are available. Some 40% of

the poor who have below the poverty line cards do not bother to use the PDS even though they purchase grain from the market (Jha and Ramaswami 2010:14).

There are, thus, some straightforward reasons why a cash transfer system would be cheaper to implement and cover more people with the same budget. It would be administratively simpler and more flexible than an in-kind transfer system. Unlike grain, cash can be moved easily from a central disbursement point (say, a government office in a state capital) to individual consumers through an information technology (IT) network. This means that cash can bypass local government functionaries at various levels and to that extent, can reduce the scope for corruption. In other words, corruption would have to be monitored at fewer points for example, where the smart cards or food coupons are issued and the point of electronic disbursement.

### Objections to Cash Transfers

#### (1) Citizens Will Be at the Mercy of the Vagaries of the Market Price of Grain:

This is the most serious objection to any sort of cash transfer. Food prices fluctuate and a commitment to the poor in terms of a certain quantity of food per person cannot be maintained very easily. To tackle this in the context of cash transfers, we need two things: (1) the government commitment, as written into the law, should be in terms of the amount of grain rather than in rupees. (2) Each state should have a price-monitoring agency with a direct link to the subsidy disbursement agency of the state that would be legally bound to adjust the subsidy amount as the price changes. Once established, the IT system could facilitate a change in the subsidy amount as frequently as appropriate.

#### (2) Cash Will Be Spent on Items Other Than Food:

It is certainly possible that there will be some misuse of cash. For example, in some cases, men will buy intoxicants rather than food. This is one reason why cash transfer programmes in much of the developing world prefer to make women the recipients. The same could be done with the cash transfer programme in India. In fact, making women entitled to

cash may enhance their bargaining power in the households.

It is also important to note that though there is anecdotal evidence all over the world on the misuse of this sort, the available empirical evidence indicates that the fraction of the subsidy so frittered away is quite low (Cunha 2010; Harvey 2005). Also, even in-kind subsidy may release some of the cash incomes of households for what we consider as undesirable expenditure.

Lastly, paternalism has its limits. We cannot claim to know what the best possible use for cash is for an individual household at a specific point in time. It is not difficult to imagine that a family puts a medical contingency or a debt payment or a child's education or fixing a leaky roof ahead of improving its nutrition at a certain point. It should be free to exercise that choice. In fact, there is increasing evidence from National Sample Survey (NSS) expenditure data (Paul 2011) that even the poor are spending a smaller part of their consumption expenditure on food, at the same level of income than they did in the past. Obviously, they are finding items in the consumption basket that they consider of greater value than food. Is it advisable or even desirable to intervene in this process? Can we, even if we wanted to?

#### (3) No Self-Selection of the Needy Under a Cash Transfer System:

Himanshu (2011) has argued that cash transfers would make it difficult to have universal coverage while the inconvenience of standing in the line at PDS shops make the rich self-select out of the pool of recipients. First, will there not be savings from not having government godowns and trucks and illegal diversions and monitoring of every fair price shop (FPS)? Further, is it clear that self-selection under the present system when the rich can send their servants to stand in line is more effective than under a smart card system that uses biometric identification?

#### (4) PDS Can Be Fixed. Why Try a New System?

A great deal of optimism about the prospects of reforming PDS stems from two case studies – Chhattisgarh and Tamil Nadu. In both these states, coverage was enlarged, and that may have played a role in reducing the leakage. In addition, some

further reform measures were undertaken: (1) extensive use of IT; (2) the promotion of cooperatives and self-help groups to either operate or monitor the behaviour of FPS; and (3) an increase in commissions to FPS. It is clear that replacing private shopkeepers by cooperatives would not have been enough to bring down corruption and leakages. There had to be extensive monitoring. A big factor in reducing corruption was IT that made monitoring easier. The use of IT (including the Global Positioning System or GPS) was principally for tracking shipments of grain headed for FPS, and making all relevant information available to beneficiaries.

However, this is hardly an argument against cash transfers. In fact, it should comfort those who are pessimistic about the cash transfer option on account of the daunting technological challenge it must overcome. The IT network in Chhattisgarh across 146 blocks in 18 districts was set up within two years after the Raman Singh government was elected. Should this not make us much more optimistic about the prospects of cash transfers where the main practical challenge is to set up the requisite technology in a reasonable period of time?

Other measures like replacement of private operators by cooperatives, as well as an increase in commissions to FPS owners were undertaken presumably because there were huge incentives for corruption associated with the in-kind transfers of PDS. If there is no incentive to divert the grain to open markets, and there is none under cash transfers, all these extra measures for monitoring would be unnecessary.

Two relative successes do not convincingly swing the case in favour of PDS, when the system has failed consistently in most states. The case for PDS is even less compelling when it is realised that most of the success of the PDS in these states is because of the use of IT, which is also the foundation of cash transfers. States differ in their capacities to monitor and police the PDS distribution chain. They also differ with regard to the strength of local civil society organisation. Cash transfers are much less demanding of these factors.

**(5) Role of Local Community:** Although it is never explicitly introduced, ideology

plays a big role in the debate on cash versus in-kind transfers. Cash transfers are tinged with their association with markets, the World Bank, and neo-liberal economics. We do not need neo-liberal economics to tell us that corruption is rampant when there is an incentive to be corrupt and the best way to get rid of corruption is to get rid of such an incentive. The case for cash transfers is just that but it smacks of a market-based solution and therefore seems distasteful.

But the government too is not to be trusted. It has also lost its credibility. It is corrupt, incompetent and does not really work for the poor. The role of keeping governments accountable has therefore been taken up by civil society (social activists and non-governmental organisations or NGOs). Indeed, this arrangement has worked to some extent in India. Typically, the way it has worked so far is to get progressive legislation passed by the Parliament that requires government action. But since the government is corrupt, it must be monitored by using the muscle of collective action at the local level. For example, organise the local community to monitor, to make grievances and to picket. Social activists and NGOs have thus come to place their faith in the community. This is why the favoured solution of the supporters of PDS, many of whom are social activists and NGOs, is to keep using the corrupt government-operated PDS, but under active surveillance by the community.

We believe that this model has worked in some areas and has managed to get some poverty alleviation schemes implemented. However, this is too unwieldy a method to be a generic solution. First, some communities are more amenable to it than others. Second, there are not enough capable NGOs to go around.

The concept of a village community capable of collective action towards a common goal has immense appeal but is not always relevant to ground realities. There are many communities in India that are captured by local elites. When the community seems to be working in unison, the puppet masters are sometimes the local elite. A recent study in Maharashtra (Anderson, Francois and Kotwal 2011), where the authors surveyed 9,000 households in 300 villages, found that the villages dominated by landlords of a dominant caste had a much

greater incidence of pro-poor schemes being blocked. Yet the poor have been electing the candidates sponsored by these landlords. There was strong evidence of the existence of a patron-client relationship, cemented by the offer of consumption insurance. The dependence of the clients on their patrons for help during contingencies made them so beholden to these patrons that they were voting in candidates who were blocking their long-term interests.

If we want the community of the rural poor to act in their own interests, we should try to break this dependence. One way to do this is to shore up their bargaining position by making sure that they get assured consumption every month. This can be done either through in-kind transfers or through cash transfers. However, in-kind transfers through the PDS are once again routed through the local government, making the interests of the poor adversarial to their patrons and thus nipping in the bud any possibility of collective action. Cash transfers could bypass these government intermediaries and thus succeed in weakening the dependency relationship thereby facilitating the functioning of otherwise blocked pro-poor schemes.

### Implementing Cash Transfers

How can cash transfers be implemented? There are at least two possible models. In the first model, cash transfers can piggyback on existing programmes such as NREGA, pension schemes and the Sanjay Gandhi Niradhar Yojana. In the last two years, these programmes have shifted to direct deposit in the bank accounts of the beneficiaries. A food cash transfer scheme can utilise this existing and tested infrastructure. The principal concern with the bank account transfer model is whether beneficiaries can be ensured easy access to banking facilities. Some states, notably Andhra Pradesh, have used banking correspondent intermediaries, together with biometric cards for beneficiaries, for this purpose. Although this has worked well, it would work even better if the fixed costs of this model can be spread over the volumes of multiple programmes. Complementarities strengthen the delivery of all social programmes.

A second model would build on the existing structure of the PDS. This has the advantage of a graduated transition.

Already, several states issue food coupons to ration cardholders. These coupons are redeemed for grain, on payment of the issue price, at the ration shop. The coupons are then transferred back to the relevant state department. The purpose of these coupons is to curb the use of ghost cards that facilitate the diversion of grain. The first step in this transition would be to replace the ration cards by a biometric card and coupons issued against biometric identification. Nothing else would change. The technology of biometric identification and its use would be tested in this step.

The second step would be to change the pricing structure of the PDS. The lifting of the PDS grain would take place at the economic cost, and not at the issue price. As the economic cost is close to the market price, incentives for diversion would be substantially lower. The PDS dealer would be reimbursed for the subsidy, i.e., the difference between the economic cost and the issue price, on the deposit of food coupons at a bank or a post office. This stage would test the payment system. Notice that in this model, biometric readers are only required for the issue of coupons and not for their redemption. Hence the infrastructure needs are relatively modest.

The final stage is when a monetary value, corresponding to entitlements in terms of quantity, is assigned to the coupons. This value is now deducted from the consumer's purchases, which now happen at the market price.

It is frequently argued that as long as we have minimum support prices (MSP), there will have to be government procurement and that we need the PDS in order to unload the stocks so accumulated. The second leg of this argument is a non sequitur.

First, the MSP is designed to shore up the market price that the farmers receive through a demand management system. If the market price falls below a prescribed level, the government adds to the demand by buying grain on the market and stockpiling it. If the market price goes up, the government can sell on the open market. It does not need PDS to unload its stocks. It can do so under cash transfers. However, it is important to remember that cash transfers, too, boost the demand for grain and shore up the market price.

Second, just because the government has to have some stocks, it does not follow that the stocks have to be of the order of magnitude that would support a PDS, leave alone a universal PDS. Not all countries that have a system of MSP to support their farmers have an in-kind transfer system like the PDS. The point is simple: the MSP commitment of the government does not require it to buy the large quantities required by a near-universal PDS. Cash transfers can coexist with and supplement procurement necessitated by MSP obligations.

Since the 1990s, with the exception of a single year, the government has bought more grain than it has sold through the PDS. Of course, the politics around the procurement price is a proximate reason. But there are other reasons too, most notably government miscalculation. At the higher levels of the government, there is immense paranoia about food shortages affecting the PDS. Politicians and bureaucrats perceive the costs of insufficient supplies, but nobody is held accountable for excessive stocks and high prices. Predictably, the errors are in one direction.

A near-universal PDS will considerably amplify the tendency of the government to carry excess stocks. Private trade will be displaced and so excess stocks in any one year will continue to the next, unless the cycle is broken by an exceptional event such as a drought. Cash transfers will limit excess stocks, and the damage caused by them.

## Conclusions

The debate about the relative merits of in-kind and cash transfer has been longstanding in academic and policy analysis. It is therefore not surprising that there are many who favour in-kind transfers over cash transfers. It is also not surprising to find scepticism about cash transfers because of concerns of how it may be implemented. What is surprising, however, is the stance of the NAC and its supporters in ruling out any alternative to the PDS, to the extent of proposing a draft framework for the National Food Security Bill that specifies the legal entitlements, as well as the means to achieve it.

This article has made a case for cash transfers. Such transfers offer many advantages over in-kind transfers; their design can

address many of the potential pitfalls pointed out by critics, and one can think of models of implementing them based on existing technology and infrastructure.

However, despite these advantages, we do not recommend that the central government disband the PDS and put a system of cash transfers in its place. This, in our view, should be a decision of the state governments that are responsible for delivering food subsidies. Many worthwhile initiatives in social protection such as employment guarantees, school feeding and cheap rice programmes, stem from enterprising state-level politicians finding ways to mobilise new constituencies in democratic politics. The National Food Security Bill must recognise this and promote flexibility and adaptability. A centralised formulaic approach to food subsidies risks the loss of sensible innovations in social protection and politics.

## NOTE

- 1 Recent research (Deaton and Dreze 2008) indicates that the source of malnutrition in India is not poverty alone. However, when three-quarters of the population lives on an income of just double the poverty line, it is clear that poverty is also a significant factor.

## REFERENCES

- Anderson, S, P Francois and A Kotwal (2011): "One Kind of Democracy", Working Paper, University of British Columbia.
- Cunha, J M (2010): "Testing Paternalism: Cash vs In-Kind Transfers in Rural Mexico", Stanford University Working Paper, accessed 30 April, [http://www.stanford.edu/~jcunha/Cunha\\_Testing\\_Paternalism.pdf](http://www.stanford.edu/~jcunha/Cunha_Testing_Paternalism.pdf)
- Deaton, A and J Dreze (2008): "Nutrition in India: Facts and Interpretations", Working Paper, Princeton University.
- Economic Advisory Council (2011): "Report of the Expert Committee on National Food Security Bill", Government of India, New Delhi, accessed 28 April, [http://eac.gov.in/reports/rep\\_NFSB.pdf](http://eac.gov.in/reports/rep_NFSB.pdf).
- Harvey, P (2005): "Cash and Vouchers in Emergencies", Discussion Paper, Humanitarian Policy Group, Overseas Development Institute, London.
- Himanshu (2011): "Food or Cash: The Subsidy Conundrum", *Mint*, 1 March, accessed 26 April, <http://www.livemint.com/2011/03/01211232/Food-or-Cash-the-subsidy-conu.html?h=B>
- Jha, S and B Ramaswami (2010): "How Can Food Subsidies Work Better: Answers from India and the Philippines", Economics Working Paper 221, Asian Development Bank, Manila.
- National Advisory Council (2011): "Note on the Draft National Food Security Bill", accessed 28 April, [www.nac.nic.in/foodsecurity/nfsb.pdf](http://www.nac.nic.in/foodsecurity/nfsb.pdf)
- NCEUS (2007): "Report on Conditions of Work and Promotion of Livelihoods in the Unorganised Sector", NCEUS, New Delhi, accessed 30 April, [http://nceus.nic.in/Condition\\_of\\_workers\\_sep\\_2007.pdf](http://nceus.nic.in/Condition_of_workers_sep_2007.pdf)
- Paul, S (2011): "Essays on Indian Development", PhD Thesis, Department of Economics, University of British Columbia.