

Clearing the air on LPG

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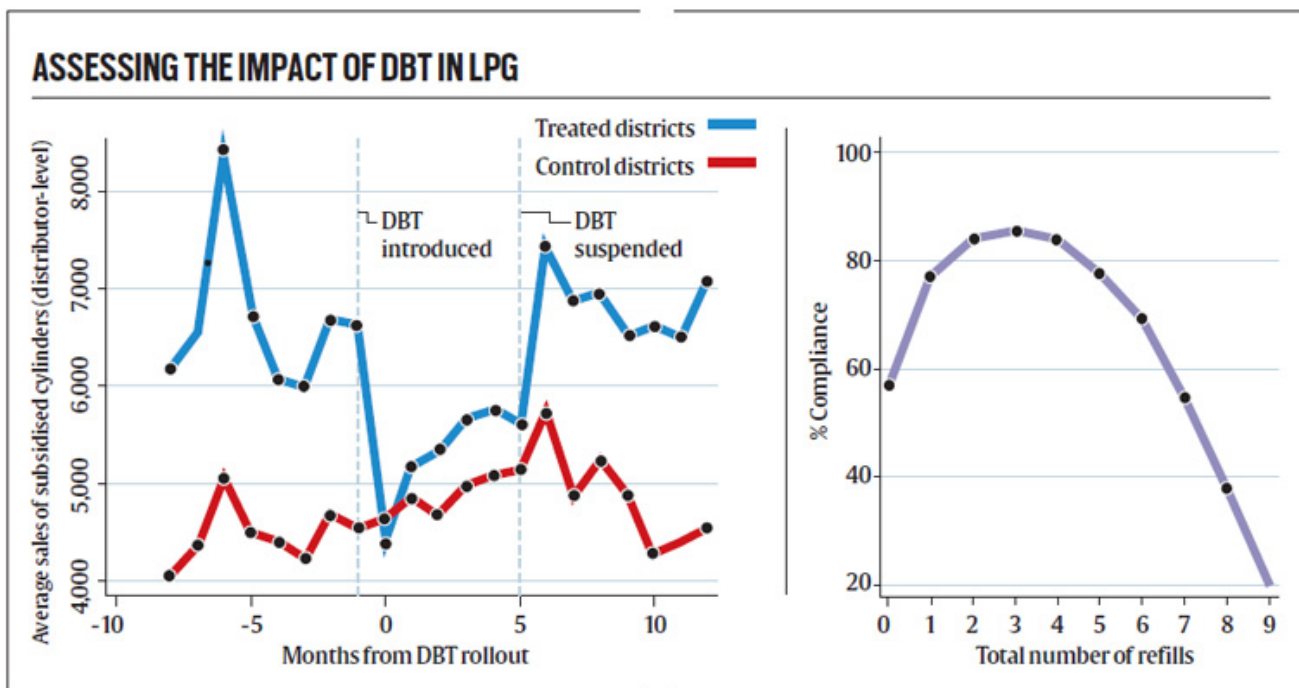


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Direct cash transfers have the potential to improve the economic lives of the poor by transferring benefits to households quickly and directly. Achieving these benefits requires thoughtful design of schemes, and careful, rigorous analysis of ongoing programmes is an important input to the design process.

In this vein, last year, we studied the impact of the government's programme to deliver LPG subsidies via direct benefit transfer (DBT). Our work was first presented at a public forum at a UNDP Roundtable on cash transfers in July 2015 and was featured in the recently released Economic Survey 2015-16 (Chapter 3, "Spreading JAM across India's Economy"). Several recent articles, including by the International Institute of Sustainable Development (IISD), have raised questions about how we estimated the benefits of the cooking gas DBT scheme. In this article, we respond to these claims by describing in detail our methodology and findings.



All parties in this debate, including the IISD, acknowledge and accept our estimate that DBT reduced subsidised sales by about 24 per cent. The differences relate to translating this percentage into a fiscal savings number in absolute (that is in Rs crore) terms.

Before we begin discussing how we estimate the percentage number, an important methodological point is worth stressing. Assessments of government programmes and projects often rely on simple before-after comparisons. Such comparisons can be problematic because it can be difficult to isolate the programme's impact from those of other events that occurred around the same time. In this case, one cannot simply compare LPG consumption in districts before and after DBT was introduced, because other things that affect LPG consumption, such as international prices, changes in the household cap and the number of LPG consumers, also changed during these months. A simple before-after comparison would conflate the effect of DBT and these other factors.

To address this problem, we relied on a "natural experiment" afforded by the fact that DBT introduction was phased. DBT was first implemented in certain districts in late 2013, then surprisingly suspended in early 2014 before being re-introduced in late 2014.

Our research design was to compare the change in consumption in "treated" districts (which saw DBT introduced early) against the change in "control" districts (where DBT was introduced later). This comparison isolates the impact of DBT from other factors that would affect LPG consumption. In the academic literature, this methodology is referred to as "difference-in-difference". We expect that DBT reduces consumption in treated districts because the scheme makes it more difficult for LPG distributors to divert subsidised cylinders to "ghost beneficiaries". Using this approach and data on sales from over 12,000 LPG distributors from January 2013 to April 2015, we estimate that DBT reduces sale of subsidised household cylinders by 24 per cent.

The first figure depicts the key findings graphically. It shows that when DBT is introduced, subsidised cylinder sales reduce in DBT districts relative to non-DBT districts; and the converse happens when DBT is suspended. The 24 per cent estimate comes from a regression that quantifies these changes.

Corroboratory evidence supports the idea that DBT constrained black market activity. We should expect DBT to increase black market prices by curtailing black market supply, as more stringent ID requirements make it harder for distributors to create "ghost" household connections in order to resell subsidised cylinders for a profit. By contrast, DBT's suspension should cause black market prices to fall. Indeed, Michigan State University Professor Prabhat Barnwal's research suggests that black market prices fell by about 20 per cent in treated districts (relative to control districts) when DBT was suspended in early 2014.

A key finding of our research is that DBT reduces consumption of subsidised LPG cylinders — and thus the

fiscal expenditure on LPG subsidies — by on average 24 per cent. This tells the government how much it can roughly expect to save due to DBT in any given fiscal year.

How should we move from a percentage number to an absolute rupee number for savings? We need to know how much the actual subsidy amount will be in any year, which depends in turn on how many cylinders households buy and the per-cylinder subsidy. Both of these vary with market conditions.

For illustrative purposes, if one were to use FY15's average per-cylinder subsidy and total sales as an indicative benchmark, the annual savings from introducing DBT could be about Rs 12,700 crore per year. This was the number attributed to our research.

But in the Economic Survey, we phrased our findings as follows: “Based on prices and subsidy levels in 2014-15, we estimate that the potential annual savings [of Pahal] will be Rs 12,700 crore in a subsequent FY”. In other words, we made clear that the saving was potential not actual and was conditional on prices and subsidy levels. We did not — and did not intend to — assert that that absolute figure was in fact the actual saving in 2014-15.

What the IISD has done is take our 24 per cent savings estimate and scale it by the number of district-months that had actually introduced DBT during FY15. In FY15, many districts introduced DBT only towards the end of the financial year (in January or February 2015). As such, the amount “actually” saved by DBT in FY15 was much smaller than Rs 12,700 crore, as the scheme had not yet been introduced in most districts for most of the year. This does not however call into question our savings estimate for a prospective fiscal year and under conditions of full rollout; other parties, including the IISD, acknowledge this.

It is very important to note that we do not equate lower subsidised cylinder sales in DBT districts with reduced leakages. It is possible that genuine beneficiaries may have been excluded from receiving the LPG subsidy under the DBT system because they lacked a bank account or for some other reason found it difficult to negotiate the new system. It is important to study the extent of exclusion directly.

Our research provides some suggestive evidence that exclusion rates were relatively low. The next figure shows that DBT compliance rates are lowest among customers who bought the largest amount of LPG during 2013-14 (the year preceding DBT introduction). These are more likely to be rich or “ghost” households, and unlikely to be the poorest consumers. Hence, the figure provides suggestive evidence that leakage reduction rather than exclusion of poor beneficiaries is responsible for the 24 per cent reduction in subsidised cylinder sales.

In conclusion, we think that rigorous evaluation of government programmes is a key input into the policy design process. We hoped to contribute to this effort through our attempt to estimate the benefits of the DBT programme in LPG. Our calculations suggest that the benefits of implementing DBT have been quite substantial.

However, given the differences between LPG and other commodities, policymakers seeking to design DBT schemes in other areas should be careful in drawing lessons from the LPG case. Many important policy questions related to DBT remain unanswered. Given DBT's potential to improve the economic lives of India's poor, we welcome more research on DBT to help design better schemes going forward.

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