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MONITORING AND EVALUATION OF AGRICULTURAL SUBSIDY PROGRAMS

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Monitoring and evaluation (M&E) is a critical aspect of agricultural input subsidy policy and programs. The M&E of subsidies should not only focus on implementation issues such as targeting effectiveness, but also on the key development outcomes sought in establishing a subsidy program. Only by rigorously evaluating the impact of a program of subsidies can the value obtained for the public resources expended on the program be determined.

EX-ANTE ASSESSMENT BEFORE THE SUBSIDY PROGRAM IS IMPLEMENTED

Estimates of the type and value of the likely benefits of an agricultural inputs subsidy program can be made before a subsidy program is implemented using ex-ante assessment techniques. Such assessments will permit policy makers to determine if, for example, the use of fertilizer or other inputs by farmers is sufficiently profitable under free market conditions to even require subsidy. Such an appraisal should be based on quantitative research that takes into account farmers' relative access to the inputs and economic theory on how farmers' input use increases if the effective cost for the inputs for the farmer are reduced through a subsidy. Although the marginal returns from fertilizer often seems high[1] and African farmers generally may be applying fertilizer to their crops at rates that are less than economically optimal,[2] such positive marginal returns may quickly diminish.[3] Generally low returns coupled with the riskiness of input use under rain-fed cropping conditions, in particular, often result in less elastic demand for inputs – that is, a subsidy may help in reducing the cost of inputs, but may not increase rates of their use by farmers.

Some researchers suggest that randomized control trials (RCT) can be useful for ex-ante assessments of the demand elasticity of agricultural inputs, estimates of which are required to determine appropriate subsidy rates. (See Box A for more discussions on using RCTs for M&E of subsidy programs.)

EX-POST MONITORING WHILE OR AFTER THE PROGRAM IS IMPLEMENTED

The outcomes of an agricultural inputs subsidy program need to be monitored carefully. Many desired results that justify public expenditure on a subsidy program have both short-term and long-term payoffs. There are several key indicators that should be observed to be able to safely conclude that the subsidy is achieving some of its intended objectives. Such indicators, depending on the goals of the subsidy program, include input use levels of target beneficiaries, cost of inputs, crop yields, famer incomes, nutritional intake of individuals in farming households, or improved soil nutrient levels, such as soil organic carbon or nitrogen levels. If reducing poverty is the goal of a subsidy program, it is important to assess the distributions of subsidy benefits across the population. Fertilizer subsidies often have been found to be regressive, providing greater benefits to non-poor farmers, even when poor farmers are the intended beneficiaries of the subsidies.[4]

If developing and strengthening domestic private sector input supply systems is the goal, important outcome indicators to monitor will include reduced transaction costs per unit of input and increased volumes of economic activity by input suppliers,[5] improved efficiency by private sector input suppliers, and the extent of crowding in or out of private input suppliers by the subsidy program. The crowding out of private input suppliers has been seen relatively commonly under fertilizer subsidy programs in Zambia[6] and Malawi.[7] Seed subsidies in Africa, including emergency assistance through vouchers, often crowd out the local informal seed market.[8] In Malawi, the development of a strong private-sector input distribution system has not occurred under the long-running fertilizer subsidy programs that the government of Malawi has implemented, primarily because of the monopoly of state enterprises on fertilizer distribution. The recent input voucher subsidy system in Tanzania, on the other hand, seems to have performed better in not displacing private dealers.[9]

Another important outcome indicator to monitor is any increased savings or long-term investments made by subsidy program beneficiaries. Some farmers in Africa tend to use their profits on extra consumption rather than saving and long-term investment.[3] Enticing farmers to increase their rate of saving and investment from higher income realized through the benefits of the subsidy program can be one way to make sure that the subsidy helps farmers shift to a pattern of sustainable higher agricultural productivity after the subsidy is phased out. Providing beneficiaries with saving accounts can be one option, and an impact evaluation on just such an approach is now being done in Mozambique.[10]

Overall, subsidy programs need to be formulated and implemented with a good understanding of the following issues:

- What are the intended outcomes in the design of the subsidy program, how can they be monitored, and how should the impact of the subsidy program on these outcomes be evaluated?
- Is there ex-ante evidence indicating that such a subsidy program can achieve the goals for which it is designed?

Are monitoring systems in place to gather evidence ex-post on the impact of the program?

BOX A: RANDOMIZED CONTROL TRIALS (RCT) FOR EX-ANTE AND EX-POST ASSESSMENT OF INPUT SUBSIDY PROGRAMS

Randomized experimental approaches such as RCTs have been increasingly used to estimate the benefits of public interventions. To the extent that there are no ethical or significant political consequences arising, it may be worthwhile to randomize the provision of a subsidy initially at a small pilot-scale in order to assess the impact of the program. For the purposes of the investigation, the subsidy benefits should be randomly distributed or withheld from farmers in the study area. Thereafter the outcomes for the study participants can be assessed and the benefits realized through the provision of the subsidy accurately measured.

Such accurate evaluations are more difficult to achieve when a subsidy is provided non-randomly, since the unobservable characteristics of the beneficiary farmers will affect their chances of receiving the subsidy. For example, a village head may disproportionately selects subsidy program beneficiaries from among farmers cultivating plots with declining soil fertility – a characteristic of these farmers which is usually known to the village residents but not to outsiders. Although a fertilizer subsidy may have significant impact on crop productivity among those beneficiaries, the bias in selecting them will lead to the false inference that a similar subsidy could also work similarly elsewhere where soil fertility levels are higher and crops are less responsive to fertilizer application. An RCT approach to evaluation can reduce the risk of such biased assessments.

Some of the general challenges to RCTs are the ethical issues arising due to the risk of better-off farmers benefiting at the expense of worse-off farmers and the political tensions that may arise between beneficiaries and non-beneficiaries. Moreover, while RCTs may be appropriate for evaluating the short-term, direct benefits of an agricultural subsidy program on farmers, they generally are inappropriate for evaluating the indirect impacts of such programs, such as reduced food prices or increased rural employment that benefit a wider segment of society.[11] Historically, a significant share of benefits from increased use of improved agricultural production technologies that subsidy programs seek to foster has accrued from such indirect effects, rather than through the direct benefits realized by the farmers involved.[12, 13] Therefore, RCTs may be more useful in evaluating subsidy programs that are small scale and localized, rather than large scale programs, such as a national subsidy on fertilizer.

RCTs can also be useful for undertaking ex-ante assessments of subsidy programs for agricultural inputs that are commercially available, but for which a subsidy is judged to be required to encourage increased adoption.[11] RCTs can provide information that is difficult to obtain from input markets. For example, the price of commercially distributed agricultural inputs can be discounted randomly to different beneficiaries, and information of their uptake used to assess how input demand changes depending on price. Such assessments can be difficult when simply relying on price information gathered from competitive input markets, because these prices may not vary sufficiently within a short period of time. Such information from an RCT can then be used to determine the level of subsidy that maximizes input uptake while minimizing subsidy costs.[11]

Notes

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