

6. Input subsidies

Input subsidies have been suggested as a way of increasing agricultural production and thereby reducing poverty and improving food security. There has been a particular revival of interest in Africa, where sectoral performance has been relatively poor. The diagnosis has been as follows (see Wiggins and Brooks (2011) for supporting data). Food production in Africa has grown much more slowly than in Asia and Latin America. This has resulted in rising of cereals and other staples, and more people who are hungry and undernourished. Yields of staples have barely risen, largely since farmers have not applied fertiliser in sufficient amounts to take advantage of improved varieties. Farmers have not done so because inputs have been too costly and they have been too poor, with little or no access to credit. In order to break this impasse, it has been argued that it is necessary to subsidise the costs of inputs, thus creating a virtuous circle of higher yields, higher incomes, more food, and less hunger and poverty. Allied to this is the perception that a new generation of “smart” subsidies, such as those applied in Malawi, have managed to unlock this potential.

Politically, subsidies are a highly visible gesture to rural voters, as well as potentially also being an instrument of patronage. Yet perhaps the greatest attraction lies in the apparent simplicity of a single measure, a subsidy, to meet a wide range of economic, social and political objectives.

The broad argument that input subsidies can lead to higher incomes, reduced poverty and improved food security is based on specific claims with respect to a range of underlying objectives. Most of these underlying objectives have either an economic efficiency rationale (i.e. reflect a market failure of some kind), or are concerned with reallocating income to a particular constituency (for reasons of social equity or political patronage). The main economic objectives are:

- Stimulate agricultural production.
- Compensate for high costs of transport from port or factory to farms that raise costs of inputs.
- Improve soil quality and combat soil degradation (in the case of fertiliser).

- Offset high costs of supplying inputs when markets have low volumes and economies of scale in logistics cannot be achieved.
- Make inputs affordable to farmers who cannot buy them, owing to poverty, lack of access to credit, and inability to insure against crop losses.
- Learning — to allow farmers to try novel inputs and become familiar with their advantages.

Further objectives are:

- Social equity – to transfer income to farmers who are poor, live in remote disadvantaged areas, or both.

In practice it may be difficult to disentangle these objectives, particularly the social one, from the implicit motive of political patronage – to win favour with voters and reward supporters.

Raising the level of output (objective 1) is not in itself an efficiency issue. However, this objective reflects the notion that output may be less than optimal because of underlying market failures, for example the sub-optimal use of inputs, and the possibility that higher output could lead to external economies of scale (a “thickening of markets”). The benefits of using input subsidies need to be compared with the costs of tackling those market failures directly.

The same goes for objectives 2 and 3. The optimal way of offsetting high transport costs is to invest in infrastructure. Similarly, while applying more fertiliser can raise soil fertility and prevent soil degradation, there are other ways of doing this that may be more effective and economical, such as terracing to prevent soil erosion. Moreover, too much application of fertiliser can lead to environmental degradation.

Arguments four and five are central to current debates: these aims are about correcting market failures affecting input supply, finance and insurance. One set of failures (objective 4) arises in the supply chain. When potential input dealers know too little about the demand for inputs, and suspect that demand may be low, they will not stock them. What little stock they may carry then has a high mark-up to cover both the risk of not being sold as well as high unit costs for transport and storage of small lots, since scale economies are not achieved. Another set of failures (objective 5) affects farmers. They lack the cash to buy inputs early in the crop season and cannot obtain credit. Banks or input dealers will not offer credit if they do not know enough about the competence and character of farmers seeking loans, or will only do so if they can get collateral and character references — requirements that many small farmers cannot meet. Farmers,

moreover, may be reluctant to accept the risk of credit in any case, since they would be unable to repay the loan if the harvest fails. Formal insurance policies are usually absent in rural Africa, since would-be insurers face similar problems to the bankers: the underlying risks are difficult to calculate, the character of farmers is unknown. Offering them insurance would be foolhardy without this information.

If market failures are severe, farmers could become locked into low levels of productivity, even when the technology and economic opportunity exist, since they cannot access and afford the seeds and inputs to take advantage; and thus they remain trapped in poverty, too poor to work themselves out of this condition (Dorward *et al.* 2004, Duclos and O’Connell 2008). If this applies to many farmers, as it may in some countries where the majority of rural households are poor, then a household poverty trap becomes a major drag on national economic growth as well. It is not then surprising that there have been calls for governments to intervene to correct the failures, if necessary by subsidising costs — and if necessary by providing inputs directly to farmers. A lively current debate in Africa turns on how widespread and severe are these rural market failures; and whether there are other ways of remedying them than input subsidies.

Reason number six, on learning, is another form of market failure. Farmer demand for improved inputs may be low simply because they have too little experience of their advantages. There is a strong case for a subsidy in such cases, but since farmers can try out inputs and assess their advantages within a couple of seasons, a subsidy on these grounds would be short-lived. Moreover, since farmers tend to try out new ideas on limited areas, the subsidy need only cover a small amount of seed, fertiliser, chemical, etc., per farmer: there is no need to grant a blanket subsidy in such cases. It is thus not surprising that a common alternative to a subsidy for learning is to distribute, free, starter packs with improved seed and fertiliser sufficient to plant an acre or less.

Finally, argument seven, the use of input subsidies to transfer income to poor farmers or those disadvantaged by location needs to be set against the effectiveness and economy of doing the same by direct payments,¹ food aid distribution, or employment programmes paid in cash or kind.

For all of the market failure (efficiency) reasons commonly cited for subsidising inputs, there are theoretically superior ways of achieving the same objective. Similarly, input subsidies are not the optimal way of transferring incomes to a target constituency. The arguments therefore come down to the relative cost-effectiveness of different instruments and practicalities of implementation. In this respect, it is important to consider the disadvantages and drawbacks associated with input subsidies.

Arguments against subsidies include the following:

- Subsidies may be ineffective in raising use of inputs and increasing yields. It is not always the case that the volume of inputs applied is sensitive to price. Studies in Sri Lanka (see below), for example, report low elasticities of fertiliser application with respect to its own price: instead the volume of fertiliser applied corresponds more closely to the area under irrigated rice and to the price of rice. The corollary in these cases is that much of the subsidised fertiliser merely displaces fertiliser that would have been bought without the subsidy.
- Heavy subsidies on inputs potentially distort the relative costs of factors, leading to inefficient allocation of inputs, with the subsidised inputs substituted for other factors. This applies particularly where inputs are substitutes, rather than cases where they are complementary. The most often cited case for agriculture is that of farm machinery, where capital grants and tax exemptions for tractors and harvesters lead to farmers using machinery to displace day labourers — in places where there are many landless looking for work. Fertiliser is typically thought of as a complementary input, but there may be cases in which it is a substitute.²
- Subsidies intended to benefit specified groups of farmers, or to stimulate particular crops, may be less effective than intended as leakages occur. For example:
 - When farm profits rise, landlords may be able to raise land rents and thus effectively appropriate the value of the subsidy. The degree of this leakage depends on the extent to which farmers rent rather than own land (or have otherwise secured land rights), and the extent to which the price of land is bid up. The analysis in section 2 suggests that this may be significant, but less important than in many developed OECD countries.
 - When subsidy programmes allow discretion to local officials and field workers in allocating subsidies inputs, there is the danger that they will use their power to extract bribes.
 - The same local discretion may be used to divert subsidised inputs from intended beneficiaries to others, such as local elites and political supporters. In some cases this arises since field workers have different priorities to policy-makers. For example, in Malawi some field staff reportedly prefer to allocate subsidy vouchers to farmers they consider most likely

to make good use of the input, rather than those who cannot afford fertiliser at commercial prices (Dorward and Chirwa, 2011).

- When subsidised inputs are intended for use on a particular crop — often food, they may be switched to higher value cash crops. For example, some of the subsidised fertiliser in Sri Lanka intended for rice is reportedly diverted to vegetable production. This may not be a problem in economic terms, but it subverts the intended objective, which in the case of Sri Lanka is greater self-sufficiency in rice.
- Subsidy programmes may be implemented in ways that repress the development of private supply of inputs, by delivering inputs through state agencies and bypassing nascent local input dealers.
- When subsidised inputs dominate the supply of a particular input, then subsidies may become closely linked to government budget cycles, or to electoral cycles with pronounced swings in availability; so that supplies whether or not they are subsidised, may not be regular, reliable and timely.
- All this said, often the main objection to subsidies is their high cost. In the three cases outlined below of India, Malawi and Sri Lanka, input subsidies have taken up 10%, 15% or more of the total government budget — sometimes more than what the government spends on education. When state agencies are used to distribute subsidised inputs, there may little incentive for them to economise on logistics.
- What is more, the cost of subsidies can rise if:
 - the subsidy is effective in encouraging greater use of inputs;
 - policy makers are tempted to use the subsidy as a way to stabilise input prices, so that when the cost of inputs rises, the subsidy is used to maintain the same nominal cost to producers;
 - subsidised inputs are smuggled across borders to neighbouring countries where inputs are more expensive (a problem if the subsidy is not rationed or otherwise limited); and, if
 - political competition for rural votes leads parties to make election pledges to increase subsidies.

- Once in place, subsidies can be difficult to remove. They can be seen as a political signal of support to farmers, around which farmers sometimes form electorally powerful lobbies for their continuation.

How do these benefits and costs weigh up? Evidence from case studies of India, Malawi and Sri Lanka suggests that subsidies have had an impact over the short to medium term, promoting input use, raising output and thus reducing poverty. The programmes have been costly, although the absence of a counter-factual makes it difficult to evaluate whether the same benefits could have been achieved at a lower cost with alternative instruments. It is also possible that, because of high budgetary costs, the pursuit of other objectives, for example in the areas of health and education, has been compromised.

A further question is whether the benefits have been enduring? In other words, have the subsidies propped up incomes temporarily or led to a sustained increase in incomes that would survive removal of the subsidy? Experience from India is that there were early returns during the Green Revolution, but the subsidies became increasingly ineffective as they were not complemented by deeper investments to improve agricultural productivity and strengthen the rural economy. Hence there was relatively weak progress in facilitating the agricultural transformation and raising rural incomes. In general, for subsidies to have had any long-term effect, they have required complementary investments to make input use profitable, for example in rural roads, agricultural research and extension, and in some cases irrigation. Indeed, the extent of adoption of high-yielding varieties and use of irrigation may have more influence on the amount of fertiliser used than the price of fertiliser. There is also evidence that the benefits of input subsidies are higher in the early stages of provision, as farmers increase their use of external inputs from a low base. They are markedly lower once a certain level of use has been achieved, agricultural production is greater and markets have become wider. Furthermore, the tendency is for costs to rise, for the subsidies to increasingly displace government spending in other areas, and for them to become a source of income transfer from which the government has difficulty extracting itself. Hence they can pass from being a help to becoming a hindrance to agricultural development.

The effectiveness of input subsidies will depend on specific market conditions and the way in which the subsidy programme is implemented.³ Evidence from Sri Lanka suggests that fertiliser use might not be sensitive to price (in which case the subsidy simply replaces commercial sales). An open-ended subsidy is also favours larger producers, making it a poor instrument for tackling poverty. Effectiveness may also be constrained by design features. For example, the state's distribution of vouchers in Malawi has led to a diminished role for private dealers. On the other hand, there is

evidence from Kenya to suggest that indexation of the subsidy, with the value of the subsidy declining gradually over time, can lead to the replacement of state action with private markets.

Input subsidies need to be contemplated with caution, with a clear consideration of the costs and benefits compared with conventional best practice of addressing market failures directly and using social policies to address social objectives with respect to poverty and food insecurity. The technology transfer (“learning”) argument is one that corresponds to this best practice advice, because of its public good aspect. However, this calls for a relatively small, time-bound subsidy. What is being proposed, particularly in Africa, is intervention on a much larger scale and for a longer duration, in order to address the specific circumstances of countries at a low level of economic development

If input subsidies are to be used more extensively, then there are important lessons that need to be absorbed. These lessons are reflected in the principles for “smart” subsidies, espoused by the World Bank and others. Subsidies should be:

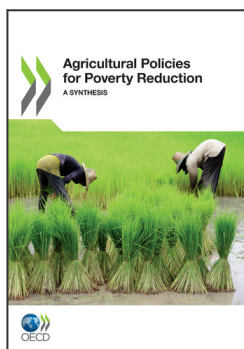
- **Targeted** to those farmers for whom inputs may be otherwise unaffordable — for example, poor farmers, farmers in remote areas;
- **Work with the market** to help develop commercially viable supply chains — for example, by giving farmers vouchers that they can redeem from input dealers; and,
- **Limited in time**, until the market failures that justified the subsidy have been overcome.

Above all, the rationale for using a subsidy needs to be kept clear. Despite the attraction, there is a fundamental difficulty in using a single instrument to address multiple market failure (*i.e.* long-term development) and social objectives. If the aim is to reduce market failures, then there need to be an exit strategy for when that objective has been accomplished, as noted above. But that in turn means planning for alternative ways of addressing social objectives, ideally by putting social safety nets in place. This conflict has become a clear problem in India and Sri Lanka, where programmes have outlived their original rationale and become a budgetary millstone.

Finally, as far as possible, the use of input subsidies should not crowd out spending in other important areas, or compromise a long-term approach of eliminating market failures – as opposed to offsetting them – and getting private markets working.

Notes

1. Cash transfers may be conditional on the clients sending children to school, or on mothers attending primary health care clinics with infants.
2. For example, women farmers in Swaziland have been seen to substitute fertiliser for weeding: they are chronically short of labour, but have remittances from their miner husbands in South Africa, and hence it makes sense to push up yields with fertiliser even as yields are depressed by weeds.
3. See background paper for a discussion of implementation issues, including alternative approaches to targeting (including rationing), the conditions under which a subsidy should be provided, the point at which the subsidy should be provided, the means of provision (including vouchers) and the time frame over which the subsidy should be in operation.



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