Policy Brief
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POLICIES FOR THE EFFECTIVE MANAGEMENT OF FOOD PRICE SWINGS IN AFRICA

INPUT SUPPORT PROGRAMS AND PRICE SWINGS

INTRODUCTION

Input support programs, such as direct input distribution, universal input subsidies and targeted market-smart subsidies help cash-constrained farmers and resolve problems related to risk, uncertainty and markets that do not function well. In developing countries, private sector participation is plagued due to the small size of markets and their geographical dispersion. Variable input demand by smallholders and high transaction costs limit the economies of scale, resulting in poor input marketing systems. In addition to limited market access, volatile prices and income risks may also blunt the adoption of efficient technologies, such as improved seed and fertilizers. Smallholders may decide to apply less productive technologies in exchange for greater stability.

This brief focuses on the role of market-smart input subsidies in offsetting the negative impact of food price increases. In summary, the assessment of these programs suggests that targeted input support:

- enhances the ability of smallholders to respond to the increase in food prices and contributes towards national and household food security;
- leads to increases in production which, in turn, result in price upswings in the domestic market becoming shorter in terms of time and less pronounced in terms of magnitude, thus benefiting the consumers;
- improves the ability of poor farmers to save part of the price windfall either in cash or in other assets; but,
- involves high costs and is difficult to manage, especially during periods characterized by volatile food and output prices.

A QUICK VIEW OF INPUT SUBSIDIES

Subsidies play an important role in increasing the profitability of agricultural production by raising productivity and lowering input costs. The provision of extension services and the practice of soil management techniques are also crucial factors in enhancing this positive impact. Input subsidies are also important for poor smallholders who do not have access to input markets, or are not able to finance the purchase of productive inputs through own-savings or by borrowing.

Input support programs may have social objectives

In many cases, the objectives of input subsidies are social rather than economic, as support is targeted at poor and vulnerable smallholders to enhance food security. In fact, rural households' decisions on how much to produce and consume cannot be viewed separately. During periods of sustained food price increases, food safety nets and targeted cash transfers can also have immediate positive effects on supply response. Enhanced liquidity realized through such schemes can allow households to purchase productive inputs. In a similar manner, input support programs stimulate supply response and thus ensure food security at the household level.

And they may have a significant positive impact during price booms

Within the context of the recent food price episode, input support programs became more relevant due to the significant and rapid increases in the international price of fertilizers, relative to those of food prices. As the increase in food prices lagged behind the increase in fertilizer prices, lower profitability may have resulted in significant reduction in the use of fertilizers, affecting the livelihood of smallholders and hindering supply response.

Often, universal input subsidies are thought of as maintaining soil fertility levels and improving productivity gains and food security. Nevertheless, they distort production decisions and may lead to inefficient use of inputs.

Universal input subsidy programs distort the market and are not sustainable

Universal input subsidies benefit large commercial farmers who are not in need of support, and harm the private sector as they displace fertilizer purchases that would have been made without the subsidy. In the past, such input subsidy programs have been associated with very high fiscal costs, as compared with the benefits they have provided.

TARGETED MARKET-SMART SUBSIDIES

In many fora and development policy think-tanks the viewpoint on input subsidies, especially for Africa, has evolved. Policy makers, experts and donors view input subsidies as having a wider set of objectives. These include food security, improvements in soil fertility, input market development and poverty reduction. This change in thinking is the result of the poor performance of input markets after the liberalization of African markets, as well as the evidence of the role of input subsidies in 'jump-starting' agricultural development in the Asian Green Revolution[1]. In addition, the recent food price episode has somehow shifted the policy focus from household poverty to national food security through food self-sufficiency, rather than through trade. In this context, input subsidies are seen as a solution to rapidly stimulate supply response.

Specific input market-smart support schemes are the focus of governments in many countries, especially in Eastern and Southern Africa (see Box). Such schemes selectively reduce the cost of fertilizer and seed to smallholders and aim to assure food security at both the household and national levels. Smart input subsidy programs target farmers who would use no inputs, or who would respond to the support by increasing their input application substantially.

Targeting depends on farmers' characteristics

Farmers respond differently to input subsidies depending on the constraints they face. Subsidies stimulate substantial increases in input use by farmers that either have no means to finance input purchases, or have no access to credit. For these households input subsidies provide significant benefits in terms of increased productivity, income and food availability. Households that are less constrained tend to increase input application by very small amounts.

These programs also target those who may perceive that fertilizer application is a highly risky activity either due to lack of knowledge and information, or due to the high variability of crop prices that discourages investments. Well-informed and less risk-averse producers are more likely to purchase their own fertilizer and seed. Others, especially the poor, may consider input application risky and may prefer not to adopt such practices.

Such diverse responses to support suggest that input subsidy programs would be more efficient and effective if the participants were appropriately targeted. Depending on the accuracy of the targeting and the participation of the private sector, these subsidy schemes involve minimal market distortions – hence the term market-smart subsidies.

Input Market Smart Support Programs in Africa

Fertilizer subsidies have been an important policy instrument in Zambia. The Fertilizer Support Program (FSP) was initiated in 2002, and disburses an average of over 66 thousand tonnes of subsidized fertilizer per year. The fertilizer is imported by private companies under government tender and then distributed to smallholders through cooperative societies. The program is estimated to achieve benefits that are higher than its costs, with an economic cost benefit ratio that is greater than 1. Additional investments in longer term research and infrastructure are expected to increase the program's cost-effectiveness.

The National Accelerated Agricultural Input Program (NAAIP) was initiated by the government of Kenya in 2007. NAAIP aims to promote food security, agricultural input use, input market development, and agricultural productivity. It has been expanded with plans to provide 2.5 million farmers with maize seed and fertilizers for 0.4 hectare each through vouchers issued to targeted disadvantaged households with land, and subsequent redemption through private input sellers who would also be eligible for trade credit guarantees.

In Malawi, a series of national input subsidy programs have been implemented during the past decade. The Agricultural Input Subsidy Program (AISP), the Targeted Input Program (TIP) and the Starter Pack Program (SP) have been subject to extensive analysis and evaluation and have attracted considerable international interest. The SP was implemented between 1998 and 2000 and involved the distribution of an input 'starter pack' comprising 15 kg of fertilizer and 2 kg of maize seed to all farm households. In 2000–01, the distribution of inputs was targeted to smallholders only, through the TIP. From 2005–06, however, the government has taken a different approach with a very large scale program, the AISP, providing about 50 percent of farm households with vouchers for 100kg of fertilizer and small quantities of maize seed, with mainly privately imported fertilizers delivered principally, and in some years exclusively, by two parastatal input suppliers.

Adopted from Xu, Z., Burke, W.J., Jayne, T.S. & Govereh, J. 2008. Do input subsidy programs "crowd in" or "crowd out" commercial market development? Modeling fertilizer demand in a two-channel marketing system. Agricultural Economics, 40(1): 79-94 and Doward, A. 2009. Rethinking agricultural input subsidy programs in a changing world. Mimeo, School of Oriental and African Studies, University of London.

[1] See for example Johnson, M., Hazell, P. and Gulati, A. 2003. The role of intermediate factor markets in Asia's Green Revolution: Lessons for Africa? American Journal of Agricultural Economics 85: 1211-1216.

Targeted market-smart input programs ensure food availability

In addition to generating benefits to smallholders without distorting the markets, targeted input subsidies contribute towards increased output. In the 2006–07 marketing year in Malawi, the Agricultural Input Subsidy Program (AISP), in conjunction with a seed subsidy scheme, brought about a total maize production increase of approximately 24 percent as compared with the previous year[2]. As increased supply lowers the price of food, smart input subsidies result in welfare gains for poor farmers and consumers, while less poor farmers and taxpayers carry the costs of the policy.

The participation of the private sector in the distribution of inputs is also vital. Given the proper incentives, private dealers can improve access to subsidized inputs for many farmers. Targeted input subsidies can foster the growth of input markets and facilitate private sector development. The marketing of increased input volumes helps traders and distributors to invest in marketing systems and therefore achieve economies of scale which, in turn lower transaction costs. Further improvements in the efficiency of the input marketing chain can be realized as the increase in the demand for inputs by farmers attracts new entrants, increasing the number of traders and enhancing competitiveness.

THE ROLE OF MARKET-SMART INPUT SUBSIDIES IN PRICE SWINGS

Within the context of both food and input price upswings, such as the recent price episode, targeted fertilizer subsidy programs bring about a number of benefits.

When prices surge, smart input subsidies lower input costs and stimulate supply response

Input subsidies lower input costs and increase the profitability of agricultural production for the poor, especially when food prices rise faster than input costs. If the increase in the prices of inputs is larger than that exhibited by food prices, input subsidies can assist in offsetting the negative impact on income. They enhance the ability of smallholders to respond to the increase in food prices and assure national and household food security. Increases in production result in price upswings in the domestic market becoming shorter in terms of time, as well as less pronounced in terms of magnitude, thus benefiting the consumers. It is important to note that targeting smallholders contributes to national food security, as smallholders often tend to be more efficient in the cultivation of staple crops.

In periods of sustained price increases, smart subsidies lower input costs, therefore improving the ability of poor farmers to save part of the price windfall either in cash or in other assets. Such savings or investments assist poor households in smoothing their consumption effectively, providing crucial self-insurance against future shocks. Private traders also benefit from input subsidies during price upswings. Rapid increases in the price of inputs result in a contraction in their demand, thus eroding input suppliers' profits. Input subsidy programs assist in maintaining the volumes marketed and benefit input suppliers.

The extent to which market-smart input subsidies benefit producers and consumers depends on many factors including the accuracy of targeting, availability of adequate inputs, the timing of delivery, extension services and others.

Accurate targeting of farmers who then increase input applications will result in increased food availability at both the national and household levels at a lower cost. Extending subsidies or input vouchers to middle-sized producers, who could finance input purchases, may result in a reduction in the demand for commercial fertilizers, harming the private sector and increasing the costs of the policy.

Accurate targeting of input subsidies and adequate input supplies are important factors

Many researchers suggest that support ought to be targeted only at vulnerable smallholders, thus emphasizing household security. For example in Malawi, in 2006–07, the fertilizer subsidy program resulted in significant incremental use of fertilizer by smallholders that were characterized by a low value of household assets. Nevertheless, significant quantities of subsidized fertilizer were acquired by less poor households, displacing commercially purchased fertilizer[2]. This suggests that better targeting is necessary to lower the costs of the policy.

It is also important to note that the effect of fertilizer applications on yields depends on adequate rainfall. Correct application and adequate rainfall cause the ratio of the quantity of maize produced over the quantity of fertilizer applied to be twice as much as the ratio realized under poor rainfall. This implies that, on average, the benefits of such schemes in rain-fed systems are subject to significant risk.

In most sub-Saharan African countries fertilizer is imported, and the ability of traders to import sufficient quantities of inputs is vital for the success of the program. As input subsidies strengthen the demand for fertilizers, inadequate imports may result in the prices of fertilizer increasing, thus eroding the benefits of the policy.

2 Doward, A., Chirwa, E., Kelly, V., Jayne, T., Slater, R. & Boughton, D. 2008. Evaluation of the 2006/07 input subsidy program in Malawi. Final report for DFID, USAID, and Future Agricultures Consortium.

The timeliness of the delivery of fertilizer is important in increasing the effectiveness of the scheme. Fertilizer should be made available to producers well before the time of its application, as is recommended by good agronomic practice. Furthermore, extension services are vital in providing information to farmers to ensure that applications are effective.

Although market-smart input subsidies have the potential to succeed in offsetting the negative effect of price upswings, they represent a large fiscal burden and their effectiveness should be assessed against their costs. For example, the fertilizer subsidy program in Malawi represented approximately 43 percent of the Ministry's of Agriculture total budget in 2006–07 and 12.1 percent of total government spending[3]. The high cost of input subsidies suggests that the extent to which such programs can be scaled-up during price upswings is limited, and may depend on the government budget constraints and foreign exchange reserves. Ethiopia provides an example of a country where the recent fertilizer price hike exacerbated foreign exchange difficulties. These were addressed by a grant and credit amounting together to US$ 250 million to provide foreign exchange for importation of fertilizers[4].

Input support programs involve high costs and are difficult to manage

Food and input price upswings place significant demands on the management of input subsidy policies in terms of planning and timing. This may be illustrated by Malawi's experience with input subsidies during the recent price boom and slump. Rapid food and fertilizer international price rises in late 2007 and early 2008 meant that the relatively low priced fertilizer stocks - bought in the middle of 2007 - were used to produce maize harvested in 2008, a period when international prices were very high. The purchase of fertilizer for the 2008–09 input subsidy program was realized when prices were high, while the maize produced will be harvested between March and May 2009, when international maize prices are low, as compared with the previous season. These complexities, in conjunction with the effects on the budget, are likely to make management and control of input subsidy program expenditures very difficult[3]. They also highlight the need for complementary measures at other levels. For example, food price stabilization policies, the provision of financial services, such as credit and price insurance, can also assist in multiplying the input subsidy program benefits.

THE WAY FORWARD

Governments should assess the potential of input subsidy programs in light of the costs and benefits. Political pressures for expansion of input subsidies may lead to an unsustainable fiscal burden that may hinder rather than promote long-run growth. During price upswings, domestic food availability may be assured at a lower cost by resorting to the international food market, depending on international food and input prices and the production constraints a country faces.
Establishing good schemes requires considerable efforts in terms of targeting and setting-up distribution channels in cooperation with the private sector. Better nutrient use is also important and subsidies should promote a better fertilizer mix. Additional investments are also necessary to upgrade the transport infrastructure and provide the necessary extension services.

DFID Department for International Development

The implementation of market-smart input schemes presents a challenge for African governments. Unlike in Asia, where input subsidies provided a strong drive for the Green Revolution, Africa is characterized by poorer infrastructure that can hinder the development of efficient input marketing systems and rain-fed agriculture. Nevertheless the benefits of such schemes during price swings, as well as in the long term are significant. In the long term, well targeted input schemes result in rapid adoption of new technologies, efficient use of inputs, well developed marketing systems and increases in the income of rural households.

3 Doward, A.R. & Chirwa, E. 2009. The Agricultural input subsidy program 2005 to 2008: Achievements and challenges. School of Oriental and African Studies, London.

4 World Bank 2008. Report No. 46658-ET in Emergency program paper for proposed additional financing IDA grant and credit for a fertilizer support project.

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