

# Market-Smart? Lessons from the 2008 and 2009 Fertilizer Subsidy Programs in Ghana

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In 2008, Ghana instituted a voucher-based fertilizer subsidy program. The program was unique in Sub-Saharan-Africa in its strong involvement of the private fertilizer market. The program relied on a public private partnership in which the sourcing of fertilizer was handled solely by existing fertilizer importers and distribution was by private retail outlets, while the role of the public sector was confined to the distribution and reimbursement of the vouchers. This project note presents the findings from a survey covering all agricultural input dealers identified throughout the country. The survey results indicate that the rules for redeeming the vouchers prevented a considerable share of fertilizer retailers from participating in the program. This finding has important lessons for the design of “market-smart” fertilizer programs.

## Fertilizer subsidies: They’re back!

Along with the recognition of the role of agriculture as a motor for pro-poor development, there is a general renewed enthusiasm for the use of fertilizer subsidies to increase fertilizer use in Africa. Fertilizer subsidies are however, not new to the continent. Subsidy programs were ubiquitous on the continent in the period prior to Structural Adjustment Programs (SAP), however, their effect was largely disappointing.<sup>i</sup> Administrative weaknesses resulted in pervasive problems of late delivery of fertilizer, delivery of inappropriate fertilizer or insufficient amounts of fertilizer. Rent seeking activities and political manipulation led to rampant leakages and diversion of fertilizer from intended beneficiaries. The programs had some success in boosting fertilizer use and food production but these improvements were not sustained. By diverting resources from complementary investments in education, road infrastructure, agricultural research and extension, the subsidy programs may have exacerbated the issues of profitability and access which kept fertilizer use low to begin with.<sup>ii</sup>

The pre-SAP programs relied mainly on direct price subsidies. This is, however, only one of many alternatives that can be employed to reduce prices and improve farmers’ access to fertilizer.

For instance, there is evidence from across Sub-Saharan Africa that the bulk of the large price difference between farm gate and port prices is constituted of distribution and transportation costs, taxes and other regulatory charges, and, finance charges.<sup>iii</sup> Investments in road infrastructure, policies that improve the efficiency of ports, elimination of bureaucratic hurdles and augmenting the performance of the financial system will likely lead to significant cost reductions.<sup>iv</sup> However, these alternatives generally do not seem as attractive to policy-makers as direct price subsidies.

## A new approach to subsidizing fertilizer

The current fertilizer subsidy programs in Africa are not only based on a renewed interest in using direct fertilizer subsidies as a policy instrument, but also on the premise that a new approach to subsidizing fertilizer can avoid the problems that plagued the programs of the past. The new paradigm of fertilizer subsidies eschews the old methods of universal subsidies through parastatal monopolies and calls for temporary interventions reserved for poor small-holders and implemented in a way that supports private fertilizer markets. Subsidies that follow these design principles are considered to be ‘market-smart’, according to an influential World Bank publication on fertilizer use in Africa.<sup>i</sup> The use of agricultural input vouchers has emerged as

mechanism for simultaneously targeting subsidies and developing private fertilizer markets as well as encouraging relationships between agricultural input dealers and financial institutions.<sup>v</sup> Public private partnerships have also been promoted to encourage government programs to both exploit private sector efficiencies and to avoid distorting private markets.

A widely publicized example of the success of voucher-based fertilizer subsidy program is in Malawi, where record harvests have arguably been achieved as a result of this program. However, the tendency of governments has been to adopt only some of the recommendations for 'market-smart' subsidies. Nevertheless, it is the aggregate use of the innovations aimed at making subsidies market-smart, and not a few elements of the set, that is expected to avoid the downsides of the past fertilizer subsidy programs. The Malawi programs, for example, utilize vouchers but the government has typically sidelined the private sector in the procurement and distribution of fertilizer. The programs are known to have had negative effects on the private agricultural input sector. It is estimated that about 40% of fertilizer distributed under the 2006/7 program would have been purchased even in the absence of the subsidy.<sup>vi</sup> Furthermore, despite attempts at targeting, less poor male farmers were the primary beneficiaries.

### **Ghana's subsidy program design**

With the back drop of the international food, energy and fertilizer price hikes the government instituted a country-wide subsidy on 50Kg bags of four specific types of fertilizers in 2008. Farmers received the subsidy in the form of fertilizer-specific and region-specific vouchers distributed by agricultural extension agents. A voucher could be used towards the purchase of the relevant fertilizer (i.e. one voucher plus an announced amount of cash to purchase one 50kg bag) from any retailer in the region of issue that was willing to accept it. To redeem the value of a voucher, the retailer was to submit vouchers used towards fertilizer purchases in their establishment to a fertilizer importer. The importer in turn was to transmit an invoice for the value of vouchers to the Ministry of Food and

Agriculture (MoFA) and receive payment within a week.

As it was designed, the program incorporated several of the best practices for a fertilizer subsidy: it was announced to be temporary, running from July to December 2008; there was the prospect for targeting specific beneficiaries as the subsidy was administered through vouchers; a public-private partnership was arranged, in which the sourcing of fertilizer was handled solely by existing fertilizer importers and distribution was by private retail outlets. The general belief is that by engaging the private sector the way it did, the subsidy program would not disrupt the private fertilizer sector. It was also thought that by reducing prices of fertilizer, the program would serve as a way of increasing demand for fertilizer the private markets. There was a consciousness of the need for the program to score highly on the 'market smart' measure.

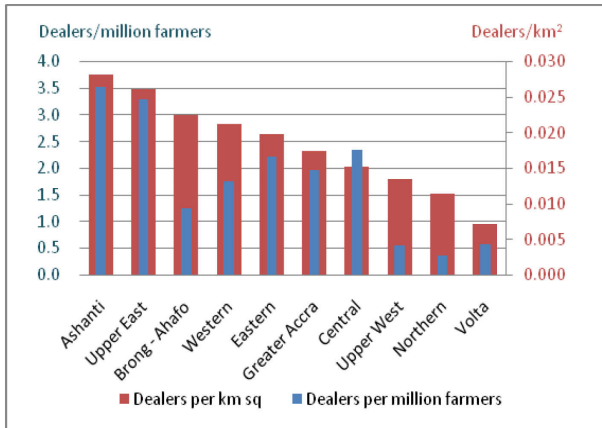
However characteristics of the agricultural input dealer network, such as the number of dealers, what inputs they sell, the level of horizontal or vertical integration with other dealers, the level of competition and other marketing practices in the sector were not known. Such information was required to design the policy framework of the subsidy program so that its effect on the private fertilizer retail sector could be predicted.

### **Characteristics of Ghana's agricultural input network**

In 2009, the International Food Policy Research Institute (IFPRI) and the International Fertilizer Development Center (IFDC) jointly implemented a survey of agricultural input dealers in Ghana with the objective to produce geo-referenced data on a wide range of characteristics of the agricultural input retail network, as well as data pertaining to the 2008 and 2009 subsidy programs. The survey intended to reach not a sample but all of the agro-input dealers in the country. 3389 agricultural input dealers were identified across the nation. Figure 1 shows the density of the agricultural input retailers in the ten administrative regions of Ghana. The data indicate that in Ghana, 80% of agricultural input dealers sell fertilizer; 91% sell crop protection

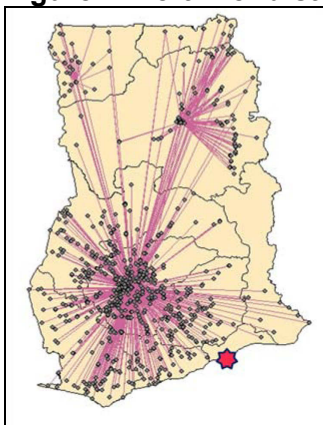
chemicals; 67% sell agricultural tools, 59% seeds and only 3% sell animal feed. There is significant regional variation in the number of agricultural input dealers as well as in the products they sell.

**Figure 1: Fertilizer retail network density in Ghana**



The supply chain for fertilizer in Ghana is dominated by four importers at the top, and six large wholesalers at the second level. One single wholesaler in southern Ghana was linked to 20% of retailers in the country. While the fertilizer arrives mainly at the port in Accra, the analysis has shown that it is distributed mainly from Kumasi in the Ashanti region in the center of the country. Other supply hubs are Tamale in the Northern region and Wa in the Upper West region. Figure 2 shows the top three fertilizer suppliers in the southern Ghana, and the top three suppliers for northern Ghana each linked by a line to a retailer which they supply.

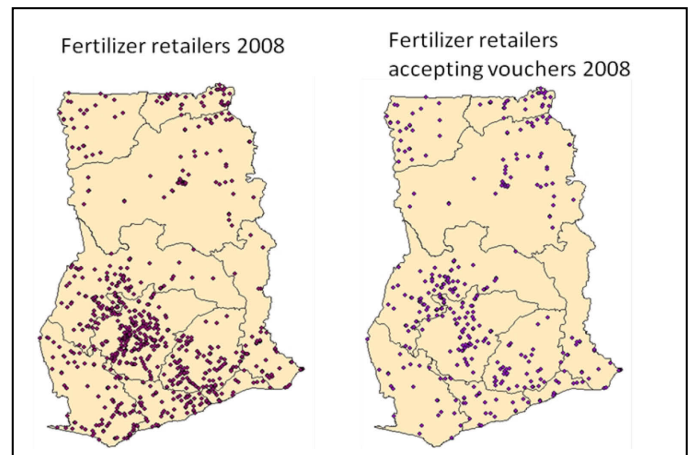
**Figure 2: Fertilizer distribution in Ghana**



## Fertilizer retailers' response to the subsidy program

By requiring vouchers to be redeemed from fertilizer importers, the subsidy design made the critical assumption that a good proportion of fertilizer retailers had relationships with the fertilizer importers. However, analysis of the network in 2009 showed that only about 11% of fertilizer retailers have direct links to importers through their supply channels. The rules of the program implicitly restricted the sale of subsidized fertilizer to only about 11% of fertilizer retailers. In 2008, the actual size of the subsidized fertilizer retail network grew to about 30% of fertilizer retailers (Figure 3) because retailers improvised ways to redeem value of vouchers through other retailers. This practice saved the network from being dramatically reduced but, it may also have exposed retailers to exploitation by forcing them to rely on informal channels to redeem the vouchers.

**Figure 3: Fertilizer distribution network and distribution network participating in voucher program.**



87% of fertilizer retailers who did not accept vouchers said it was because they had no way of redeeming them. The proportion of fertilizer retailers who were in the subsidized fertilizer network was higher in regions where supply chain concentration was higher underlining the importance of the relationship to an importer, or to a dealer who has a direct relationship with an importer. However, this situation also creates incentives for fertilizer retailers to source their

supply from specific suppliers who can provide access to importers for voucher redemption. This incentive may lead to reduced competition in the supply chain and the associated risks of undesirable marketing practices such as price collusion and the ability to erect barriers to entering the fertilizer retail business.

**Table 1: Summary of fertilizer retail response to subsidy program**

<b>Primary reason for not participating in subsidy program (%)</b>	<b>2008</b>	<b>2009</b>
<i>No way to redeem voucher</i>	87	86
Too difficult to redeem vouchers	7	8
Could not obtain fertilizer	6	5
<b>Redeemed voucher from (%):</b>		
Yara	31	30
Dizengoff	5	3
Golden Stork	9	8
<i>Another agricultural input dealer</i>	47	52
Other	21	17

## Lessons to glean

These findings elucidate two important lessons for the design of “market-smart” subsidies. First, to design the rules under which vouchers can be redeemed, it is important to know that the size and the structure of a country’s agro-input dealer network. Prior to the IFPRI-IFDC survey, information about the input dealer network was limited. Otherwise, the government may well have designed rules that would have allowed a larger percentage of the retailers to participate without relying on informal mechanisms. Second, to be truly “market-smart”, one has to identify mechanisms that allow a significant proportion of agro-input dealers to redeem vouchers. This may well be a challenging task. From the government’s perspective, making payments to only a limited number of entities (like fertilizer importers) has the advantage of limiting transaction costs as well as the entry points for fraudulent redemptions. On the other hand, a more decentralized system of reimbursing retailers for the value of the vouchers,

would allow a larger number of input dealers to participate. For example, vouchers could be redeemed at banks. Such a system would have to be accompanied by substantial data management and transparency measures.

Ghana’s experience also illustrates the complex political economy of fertilizer subsidies. Vouchers are a useful instrument for targeting and stimulating private sector participation, but they can also be used as political instrument. In the 2008 subsidy program, districts that had supported the opposition in previous elections vouchers tended to receive a larger number of fertilizer vouchers, keeping other factors constant.<sup>vii</sup> Implementing an exit strategy constitutes another challenge. Even though the fertilizer subsidy program was justified as a temporary response to the 2008 crisis, it mushroomed and continued in 2009 even though the crises had subsided.

A recent study in the Upper East Region of Ghana suggests that increasing farmers’ access to finance would substantially increase fertilizer use at non-subsidized prices.<sup>viii</sup> The challenges of implementing “market-smart” fertilizer subsidies lend support to reconsider the alternatives to direct price subsidies.

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<sup>i</sup> Morris, M, V. Kelly, Kopicki, and D. Byerlee. 2007. *Fertilizer Use in African Agriculture: Lessons Learned and Good Practice Guidelines*. Washington DC: World Bank.

<sup>ii, iv</sup> Donovan, G. 2004. *Fertilizer subsidy in Sub-Saharan Africa: A policy note*. Draft paper. Washington, D.C.: World Bank

<sup>iii</sup> Chemonics International Inc., and International Center for Soil Fertility and Agricultural Development, 2007. *Fertilizer supply and costs in Africa*. Publication for review by the Bill and Melinda Gates Foundation. Washington, D.C.

<sup>v</sup> Gregory, I. 2006. *The Role of Input Vouchers in Pro-Poor Growth*. Background Paper for the African Fertilizer Summit. Abuja, Nigeria. 9-13 June.

<sup>vi</sup> Dorward et al. 2008. *Evaluation of the 2006/07 Agricultural Input Subsidy Programme*. Final Report. Ministry of Agriculture and Food Security. Lilongwe, Malawi.

<sup>vii</sup> Banful, A. 2010. Old problems in the new solutions? Innovations in fertilizer subsidies and politically motivated allocation of program benefits . Unpublished working paper

<sup>viii</sup> IFPRI, 2009. Integrating Knowledge from Computational Modeling with Multi-stakeholder Governance: Towards More Secure Livelihoods through Improved Tools for Integrated River Basin Management. Challenge Program on Water and Food. Project Report.

The Ghana Strategy Support Program (GSSP) is a research, communication, and capacity-strengthening program to build the capabilities of researchers, administrators, policymakers, and members of civil society in Ghana to develop and implement agricultural and rural development strategies. With core funding from the U.S. Agency for International Development (USAID)/Ghana and a mandate to develop a multi-donor-funded program, IFPRI launched GSSP as a partnership between Ghana and its development partners. Any opinions stated in this note are those of the author(s) and do not necessarily reflect the policies or opinions of IFPRI.

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