

Research Application Summary

The impact of responding to the actual constraints expressed by farmers' experience from the Malawian inputs subsidy initiative

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Abstract

Rather than continue with the promotion of an agricultural strategy developed independently of the smallholder community the Government of Malawi has responded to the urgent demand from farmers for access to fertiliser to counteract the soil depletion which they see as their dominant constraint. A large section of the smallholder community in Malawi cannot afford intensifying inputs at commercial prices and so the Government subsidised them to a level affordable by a majority of farmers. A strategy was developed to provide redeemable coupons to 60% of smallholders. The result has been a sharp increase in grain production and a corresponding decline in household food insecurity.

Key words: Farmer response, fertiliser subsidy, household food security, smallholder demand

Résumé

Plutôt que de continuer avec la promotion d'une stratégie agricole développée indépendamment de la communauté des petits exploitants, le gouvernement du Malawi a répondu à la demande pressante des agriculteurs pour l'accès aux engrais à contrecarrer l'appauvrissement des sols qu'ils considèrent comme leur contrainte dominante. Une grande partie de la communauté des petits exploitants au Malawi ne peut pas se permettre d'intensifier les intrants au prix du marché. Le gouvernement les subventionne à un niveau abordable par une majorité d'agriculteurs. Une stratégie a été élaborée pour fournir de bons de réduction à 60% des petits exploitants. Le résultat a été une forte augmentation de la production céréalière et une baisse correspondante de l'insécurité alimentaire des ménages.

Mots clés: La réponse de Fermier, la subvention des engrais, la sécurité alimentaire des ménages, la demande des petits exploitants

Background

Malawi is unusual among African countries in several ways. It is the only country in Sub-Saharan Africa which has population densities of over 250 to the square kilometer whilst having only

one four and a half month wet season per year. Other densely populated areas of the continent have either year round rainfall or two distinct growing seasons. As a consequence of this combination the agricultural sector is dominated by smallholders who have access to less than one hectare of farmland and are unable to grow perennial food or cash crops. Because of limited markets both internally and internationally only 30% sell any significant amount of produce from their farms so that the majority only grow crops for home consumption. With a limited area of land and a short growing season smallholders have naturally concentrated their efforts on the most productive cereal crop available to them. The countryside is dominated by maize which occupies up to 90% of the arable land in the most densely populated areas. The country is overwhelmingly rural with little industrial development so that there are limited opportunities for off-farm work. As a consequence of the absence of both market opportunities for agricultural produce and the difficulty of finding alternative sources of income the majority of farm families found it impossible to afford the purchase of farm inputs to intensify the use of their land. Years of annual maize cropping with little or no return of plant nutrients led to a decline in soil fertility and yields. A small number of wealthier families have used fertiliser and hybrid seed for a number of years so that the impact of these inputs was well known to farmers across the country and a demand for access to these inputs became the dominant concern of the smallholder sector. For a number of years the major donors resisted attempts to subsidise intensifying inputs but finally the Malawi government ignored these objections and initiated a major subsidy scheme to meet farmers' demands. The impact of that decision is the subject of this paper. Although Malawi has unusual features its experience of giving farmers access to essential inputs is of relevance to a wider group of African countries in which crop production can no longer rely on traditional methods of maintaining soil fertility.

Development Challenge

The challenge. The population of Malawi grew by almost twenty fold over the past hundred years and in consequence farm size has steadily declined until the majority of smallholders now have access to less than one hectare of farmland (World Bank, 2004). The country enjoys a comparatively high and dependable rainfall with no meteorological station recording a long term average of less than 800 mm. per year while half have averages of over 1,000 mm. per year (Dept.Met. Seviles, unpubl.). Unfortunately this rain is concentrated in only four to five months per year so that rainfed farming is confined to a

single short cropping season. In response to this situation smallholders have focussed their efforts on growing the most productive grain available to them which is maize. This crop dominates the farming system. In the most densely populated areas in which some four million people live CIMMYT recorded that over 90% of the arable land was occupied by maize or maize/legume mixtures. This allows for no crop rotation and many fields had carried 20 or more successive maize crops with little or no fertilisation. The shortage of soil nutrients therefore became the principal concern of the majority of farmers. At the same time up to 40% of wealthier farmers had used some fertiliser and hybrid seed at some point in time (Conroy, 1992) and in virtually every village farmers have been able to see the impact of these inputs. In addition there have been a number of initiatives by government and NGOs to provide farmers with small quantities of fertiliser and hybrid seed so that large numbers have had a “taste” of how effective these can be at increasing yields. Hence the overwhelming demand by farmers for access to adequate quantities of these inputs.

Why have farmers not bought these inputs if the demand is so high? Because of a lack of either local or international markets for high value cash crops from Malawian farmers. About 70% of smallholders sell no significant amount of farm produce. This is despite considerable efforts to identify possible alternative crops and markets. With only 15% of the population living in urban areas there are few opportunities for steady remunerative off-farm work. As a result off-farm incomes provide an average of \$US 77 per rural family per year (IHS, 2005). At current prices this is not enough to purchase 100kg. of fertiliser and 10 kg. of hybrid seed. In fact over 60% of these earnings are used to buy food and are just not available for farm inputs (IHS, 2005). The great majority of survey respondents have stated that the reason why they do not use fertiliser and hybrid seed is because of a shortage of cash. (Conroy, 1992). Smallholder credit is not the answer. This is because the two million farm families in need of help were in a food deficit situation and the supply of a modest amount of essential inputs would just allow them to achieve an improved level of food security but could not also cover the current commercial cost of those inputs and interest charges. Successive governments have therefore been faced with the challenge of falling yields, under-nutrition, severe “hungry seasons” and the need for food imports and all too frequent calls for famine relief

in a situation in which the technical knowledge of how to address the situation was well known.

Donor response. In the 1980's the World bank did provide funding for modest subsidies to farmers and this enabled up to 40% of farmers to use fertilizer and hybrid seed. There was then an increase in the ideological objection by donors to African governments subsidising their farmers. The basis of this was not clear as it was accepted that European, American and Asian farmers had to have subsidies to enable them to use the intensive methods of agriculture which were providing the necessary increases in food needed by a rapidly growing global population. In Malawi strong pressure to remove all subsidies started to be applied in 1993 but then there was a referendum and elections and it was appreciated that removing subsidies at such times was not practical. In 1995 the donors insisted that all subsidies be removed and despite excellent rains there was a disastrous harvest. Donor embarrassment led to the provision of small free packs of fertiliser and seed to 2.8 million farm families and this led to an increase in production until donor governments tired of this approach and production again slipped back well below the country's needs. By 2004/05 the maize crop was more than a million tons below the national need. Donor response took a number of forms. These included proposals that Malawian farmers should stop growing maize and focus on high value cash crops while maize was imported from South Africa (DAI, 1999; Esser, 2005) but no such crops were identified. Another proposal was that land should be concentrated in the hands of the best 25% of farmers and all the rest should work on those large farms as labourers (DFID, 2005). Farmers were urged to abandon maize and move into alternative food crops, which were not specified. There was emphasis and investment on extension services, soil conservation, agro-forestry and marketing but none would agree to respond to what farmers actually asked for-which was access to the inputs which had transformed agriculture elsewhere in the world.

Malawi Government Response

The Malawian government acquiesced to donor pressures for some years and focused its agricultural interventions on the various proposals of donors while not responding to farmers' expressed needs. This lasted until the disastrous harvest of 2004/05 when the newly elected President stated that he was not prepared to spend his term in office with a begging bowl in hand petitioning donors for famine relief. Ignoring strong donor objections he announced that his government would put an

adequate subsidy on fertilizer and seed and so enable large numbers of farmers to gain access to intensifying inputs. Some behind the scenes discussions managed to divert the worst of donor threats but only one offered to actually help with the proposed initiative. Despite this opposition the government finally embarked on an intervention which actually responded to farmer constraints and demands.

The strategy. The government was aware of the problems which had been faced elsewhere with a universal subsidy of which the wealthy took advantage, both for their own estates but also for illegal export to neighbouring countries with higher fertiliser prices. It was therefore decided to work on the basis of distributing coupons for single bags of fertiliser and small quantities of seed to selected families who could then redeem the coupons at designated outlets. It was estimated that the budget would be able to fund modest quantities of inputs for 60% of the farming population. There was some tension between those that felt that the subsidised fertiliser should go to the better off farmers who would make the most use of it and the group which felt that it should be allocated to the poorest who were most in need of additional food. In the end a compromise was reached in which the wealthiest group, which had bought fertiliser for cash in the past, would be excluded as would the very poorest who would not be able to raise the money to buy the inputs nor have the resources of land and labour to use them effectively. The subsidised inputs were therefore directed to the 60% of smallholders who had not been able to afford fertiliser in the past but who were capable of using the inputs effectively. Although soils obviously differ across the country it was decided that it would be far too complicated to allocate different fertilisers to different villages on the basis of soil nutrients and so the maize “package” consisted of one formula of basal dressing and urea as a top dressing, with farmers able to choose between taking hybrid or open-pollinated seed. The price was set at a level which household survey data suggested would be within financial resources of the target group.

Implementation. The strategy was first implemented in the 2005/06 season with the government feeling its way into uncharted territory. Coupons were issued to 1.37 million families who used them to buy 109,000 tons of fertiliser for maize and 6000 tons of improved seed. The fertiliser was sold at K950 per bag which represented a 64% subsidy. Obviously one of the most difficult aspects of the programme was the selection

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of beneficiaries in a rural society where most people consider themselves as “poor” and therefore eligible for government help. The task was allocated to traditional leaders and the number of coupons issued per district was based on the estimated maize area. There were widespread complaints of the misallocation of coupons to chiefs and the families of village headmen which led to later modification of the distribution system, but overall the strategy was immensely popular with the rural community which saw it as a major benefit which had taken fertiliser and hybrid seed use to a scale which had never been seen before. Over the following years the system of coupon allocation has been modified and is now based on population figures with distribution at village level being the responsibility of village development committees at open meetings. The number of farm families has increased to 2.5 million with a commensurate increase in the amount of fertiliser distributed under the programme.

Table 1. Summary of 2005/06 to 2008/09 Programmes.

	2005/06	2006/07	2007/08	2008/09
Households receiving vouchers	1,370,060	1,772,280	n.a.	2,448,000
Sales of subsidised maize fertiliser. Tons	108,986	152,989	192,976	178,400
Subsidy as % of unsubsidised price	64%	72%	79%	92%
Subsidised maize seed sales. Tons% hybrid seed	6,0000	4,52461%	5,54153%	5,36592%

From Dorward and Chirwa, 2010.

There have naturally been reports of fake coupons, the sale of coupons, corruption and bribery at the point of sale. These flaws have not reached the extent predicted by the press and unsympathetic observers. The use of fake coupons reached a peak of 2% in one year. The sale of coupons and subsidised fertiliser has been recorded at 10% (Dorward, 2009) but many of these transactions are by poorer people who cannot raise the money to redeem the coupons which they have been allocated. The end result of these sales is that fertiliser is used by someone in that community and contributes to the overall local food supply for the villages involved. There is a more serious problem of corruption in the two parastatals which are the sole distributors of subsidised fertiliser and almost 50% of respondents reported that they had to pay a “tip” at the point of sale in order to redeem their coupons (Dorward, 2009). This puts an additional cost on the price of the commodity which could discourage the most needy from taking advantage of the programme.

The percentage of the sale price which had to be subsidised rose sharply from 64% to 92% in response to the rise in fertiliser prices which more than trebled between 2005/06 and 2008/09. This has put a major burden on the national budget which will hopefully be reduced with the recent decline in fertiliser costs.

The problems. The programme has faced three major problems during its implementation to date. These are:

- 1) Late delivery of inputs. Partly because of the fact that the Malawi budget is not debated until July, which has delayed the signing of contracts for September delivery, and partly because of the size of the programme and Malawi's landlocked position and difficult transport links, there have been delays in the delivery of basal fertiliser which reduced the impact of this input and, in consequence the effectiveness of the programme. Government is well aware of this and is putting measures in place to minimise such late deliveries:
- 2) The selection of beneficiaries. There is a deep seated objection in Malawian rural society to selecting individuals to receive benefits which are denied to their neighbours. The situation is exacerbated when people see their traditional leaders making sure that they and their families are beneficiaries. There is no doubt that this has been a divisive factor in rural life but use of committees elected by the village from respected members of their own number combined with allocation and distribution of coupons being carried out in public has helped to reduce the tensions. It is not easy for village people to realise that the national budget just cannot support a subsidy which applies to the whole population but the point is steadily gaining understanding.
- 3) The cost to the national budget. The rapid increase in fertiliser prices combined with the growth in the number of beneficiaries has meant that the budgetary allocation to this initiative has grown to a proportion of the GDP which is much larger than was originally envisaged. This has led to cuts in other budgetary heads but the programme has meant that the country has been able to avoid the traditional large imports of grain from South Africa with its heavy transport costs and drain on the budget. It makes much more sense to carry one ton of fertiliser over extended and expensive transport routes than to carry, over the same route, the five tons of grain which that fertiliser will produce.

The Impact

The dominant impact of the programme has been an increase in household food security. The fertiliser and improved seed has been used by millions of small scale farmers on their own land and over 80% of these have used the incremental production for home consumption (Dorward, 2009). The quantity of maize produced from the subsidised fertiliser and seed has been estimated by studying the average response ratios to Nitrogen being achieved by the large number of farmers who were involved. Survey data show a grain yield of 19.8 kg per kg of N for hybrid maize and 14.8 for “local” seed. The overall average is 15.7 kg. of grain for each kg. of N applied (Dorward, 2009). Using this formula Table 2 records the quantities of grain which can be attributed to the fertiliser supplied under the subsidy programme.

Table 2. Maize production resulting from subsidised fertiliser application.

	2006	2007	2008	2009
Tons of N in Subsidised Fertiliser	37,599	53,130	66,586	62,896
Tons of grain produced at 15.7kg. maize/kg.N	590,304	834,141	1,045,400	987,475

From Dorward and Chirwa (2010).

In addition to the direct benefit to the growers there have been benefits from the readily available supply of grain in the market throughout the year which has marked the “subsidy period” with none of the acute shortages which have been a feature of Malawi in the past when there were delays in the delivery of imported maize.

A further benefit at the family level has been a slowing of soil degradation as a result of annual mining of soil nutrients. Before the subsidy was initiated it was estimated that Malawian soils were losing 150,000 tons of soil nutrients per year and farmers were replacing 85,000 tons from all sources, leaving an annual deficit of 65,000 tons (World Bank, 2004). The subsidised fertiliser in 2009 contained a total of 92,400 tons of nutrients and, although the increased production resulted in a higher draw down of nutrients, the country is now much closer to balancing nutrient losses and replacements which has long term implications for the productivity of smallholder farms.

There is evidence that casual labour rates have increased considerably as a result of the subsidy (Dorward, 2009) because fewer families have been driven by hunger to work for neighbours. This is particularly important for the poorest

members of the community who rely heavily on casual labour on local farms for their survival.

At the national level the subsidy programme has been accompanied by a decline in poverty incidence from 52% in 2004/05 to a rate of 40% over the past three years (Dorward, 2010). In addition the need to import grain has fallen sharply from an average of 132,000 tons per year from 1996 to 2005 to an average of 1,000 tons per year since the start of the subsidy programme (Dorward 2010). Agricultural output plays an important role in the estimation of Malawi's GDP and the increases in maize production attributable to the subsidy programme have been linked to a steady growth in GDP since the start of this strategy.

Conclusion

There has been a tendency for governments and donors to decide what would be best for the farming community rather than responding to smallholders' expressed concerns. The result has all too often been limited uptake of the suggested changes and little impact on either individual welfare or the productivity of the sector. The government of Malawi's decision to respond to farmer demand has resulted in an immediate and universal uptake of the proposed technology and a striking impact on both family food security and national progress. It is to be hoped that this example of the benefits of responding to the expressed needs and constraints of farmers will have an impact on decision making in other parts of the continent.

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