

■ ■ ■ Food security: reviving agricultural production or ensuring social welfare? The example of Malawi

Mathilde Douillet, FARM

To fight poverty and food insecurity in Africa, governments and donors have first given priority measures to revive agriculture. Recently, however, strengthening social protection has become more and more popular. Following pilot initiatives, social safety nets are now being scaled up across the African continent. Comparing the effectiveness of these two types of measures makes sense. In Malawi, input subsidies have increased maize production, but are ineffective at reducing rural poverty and ensuring food security when the context is unfavourable. Social welfare, in the form of cash transfers, may appear to compete for the same funding, but its effects are complementary. It is by combining these two programs – social support for the most vulnerable, productive support for poor farmers – that Malawi could better respond to the diverse needs of its population.

With the succession of price spikes on the agricultural markets since 2006, a number of African governments have become starkly aware that the food security of their population depended on imports from global agricultural markets. This new interest in local food production has led to the creation of ambitious agricultural revival programs in countries such as Burkina Faso, Côte d'Ivoire, Egypt, Mozambique and the Democratic Republic of the Congo, among others. Most of these programs have in common the use of subsidies for food crop inputs (seeds and fertilizers). Countries such as Malawi or Tanzania that already had ambitious agricultural programs have even increased the budget allocated to this measure.

Nevertheless, today in Malawi the 8 year old input subsidy program is receiving a great deal of criticism, particularly since it was discovered that this support was not sufficient to reduce rural poverty (Government of Malawi 2012) and hasn't prevented a new food crisis from emerging since the end of 2012 (Fewsnets 2012). Furthermore, in the array of tools in the fight against poverty and food insecurity in Africa, African governments and their technical and financial partners have shown increasing enthusiasm for social protection, which they envision as a powerful tool to protect vulnerable populations .

■ The emergence of social protection in Africa and Malawi

Introduced with the structural adjustment programs of the 1990s, social protection measures have been increasingly adopted in Africa following their recent success in Latin America in fighting child labour and improving first aid, health and education. Cash transfers, one of the instruments of social assistance, are used to fight against poverty and vulnerability, as do other social protection tools such as social insurance, which protects against risk and adversity throughout life, and social inclusion, which helps marginalised people to participate fully in economic and social life (HLPE 2012). Cash transfers¹ have also been successful because they are easy to implement compared to the food aid or food-for-work programs. In Malawi, following the success of the pilot cash transfers program for in the Mchinji region (2006-2008), the government has begun a phase of expansion for the 2012-2015 period.

■ Agricultural revival and social welfare: why compare them?

Despite the current enthusiasm for agricultural revival and social welfare, these two kinds of

¹ In Latin America, cash transfers are generally public and tied to conditions such as sending the children of beneficiaries to school or to a consultation centre. These conditions increase the administrative costs and the complexity of operating the programs, but this type of transfer enjoys greater political support. The most widespread transfers in Africa are non-conditional.

program are rarely compared because they are often implemented by different institutions under the direction of distinct ministries (Dorward et al. 2009). It is nevertheless interesting to compare them for several reasons. To start with, in Malawi, as in a number of African countries, they share the goals of fighting poverty and food insecurity. In theory, their targets differ, with input subsidies meant for farmers only, while cash transfers include families without land and specifically target households with limited labor (for example young orphans or poor elderly). But in fact, the two programs partially reach the same vulnerable families, who are mostly rural and involved in farming activities. The difference in terms of targeting is even less obvious in Malawi than in other countries, such as Ghana which has higher diversity of rural poverty profiles, or Tanzania whose government has specifically targeted input subsidies to households who will use fertilizers in the most economically efficient way. Agricultural revival and social welfare programs may therefore appear to compete for funding, even more so because they have common donors. But are they really rivals in their implementation and impact?

■ Theoretical comparison of their design and impacts

As part of the input subsidy program (Box 1), coupons are sent to village leaders who, by working with the Ministry's local agents, ensure distribution to the most vulnerable maize farmers. In theory, each beneficiary receives annually three coupons for maize, which can be exchanged for a bag containing a few kilos of domestically produced improved seeds and two 50 kg bags of chemical fertilizer. In practice the coupons are spread, meaning they are divided up among the communities, sold or exchanged, and each beneficiary receives less than the three coupons for maize. Each fertilizer coupon corresponds to only a portion of the price for a bag of fertilizer and the farmer has to pay for the remainder. The compensation paid by the farmer has evolved from more than US\$ 7 per 50 kg bag in 2006 (i.e. a 64% subsidy) to around US\$ 3.5 in 2009 (i.e. a 90% subsidy). Until 2008 fertilizer and seed for cash crops such as tobacco, cotton and coffee were sometimes subsidised. Since 2008 legume seeds have also been included, with the goal of diversifying sources of monetary revenue and household diets, and increasing long-term soil fertility (Government of Malawi, 2011).

The cash transfer program run by the ministry for gender, children and community development with the support of UNICEF (United Nations Children's Fund) distributed approximately US\$ 13 per month

Box 1: The FISP, a success story

As an historical importer of maize, known for the poverty of its population and its serious food crises, Malawi brought attention to itself in 2008 by symbolically committing to supply several hundred tonnes of maize to the World Food Program and to its neighbours that were experiencing maize food shortages (see the New York Times article "Ending Famine, Simply by Ignoring the Experts", Dugger, 2007). The country owes this transformation to its input subsidy program called FISP, "Farm Input Subsidy Program", launched in 2005 against the advice of the World Bank, following the serious food crises of 2001 and 2004, which required highly expensive food imports. Thanks to the annual distribution of approximately 160,000 tonnes of fertilizer for maize – the main staple of its population- intended for 1.5 million families, this program enabled the country to go from being a structural importer to an occasional exporter of its population's staple food. This change was noticed by the international community, and Malawi is often cited as an example of the success of a voluntary agricultural policy. Managed by the Malawian ministry of agriculture and food security, this policy has often been presented as a "smart subsidy" because the beneficiaries have access coupons that can be exchanged in stores for all or some of the inputs. Thus, in theory it is possible to involve the private sector and target beneficiaries according to their needs (Douillet, 2011).

to more than 24,000 families in 2010. In 2012, it was expected that this program would reach 10% of the population with an overall cost of US\$ 57 million (compared to 50 % of the population and US\$ 140 million for the FISP). Compared to input subsidies, cash transfers are much easier to implement because the logistical cost of subsidised fertilizers can be very high as it involves organising imports, storing and distributing fertilizers to sales offices around the country. Since 2005 these administrative and logistical costs have represented more than 20% of the total FISP cost.

In theory, one drawback of cash transfers is to be fully consumed by the beneficiaries, whereas the subsidized inputs are productive. However, cash transfers do support the economy and the development of local markets indirectly because vulnerable households consume few imported goods. Using a model with the assumption of total consumption of the cash transfers, Douillet, Pauw and Thurlow (2012) have found that the input subsidy program has the same effect on consumption than cash transfers. But the FISP has the advantage of also directly stimulating Malawi's economic activity. Therefore it is more sustainable, since the growth thereby created is able to contribute to financing the program.

■ FISP implementation is widely criticised

In Malawi the most common criticisms of the input subsidy policy focus on its implementation:

- For a long time its objectives have not been clear.

Initially directed towards poor households to the exclusion of estates, the focus was left largely to the discretion of local leaders, which led to considerable diversion of funds to the least poor farmers (Farmers Union of Malawi, 2011). The government gradually reformed the procedure for distributing coupons to make it more transparent, and emphasised the targeting criteria in favour of the most vulnerable households (Government of Malawi, 2011).

- Its costs are high and difficult to control due to the political capture of the measure – temptation to print more coupons – and due to its dependence on the international prices of fertilizers (which have

risen significantly since 2005), and the procedure for attributing public contracts to fertilizer importers which has long enabled misappropriations. The program’s budget also weighs on the government’s overall budget and represents a significant opportunity cost for other agricultural programs, particularly research.

- The government has forbidden most private actors from participating in selling subsidised inputs since 2008 due to suspected fraud. Hence, in practice, the structuring of the private suppliers of inputs (fertilizers, seeds) is very limited.

Box 2: FISP justification, dependence on maize for food security

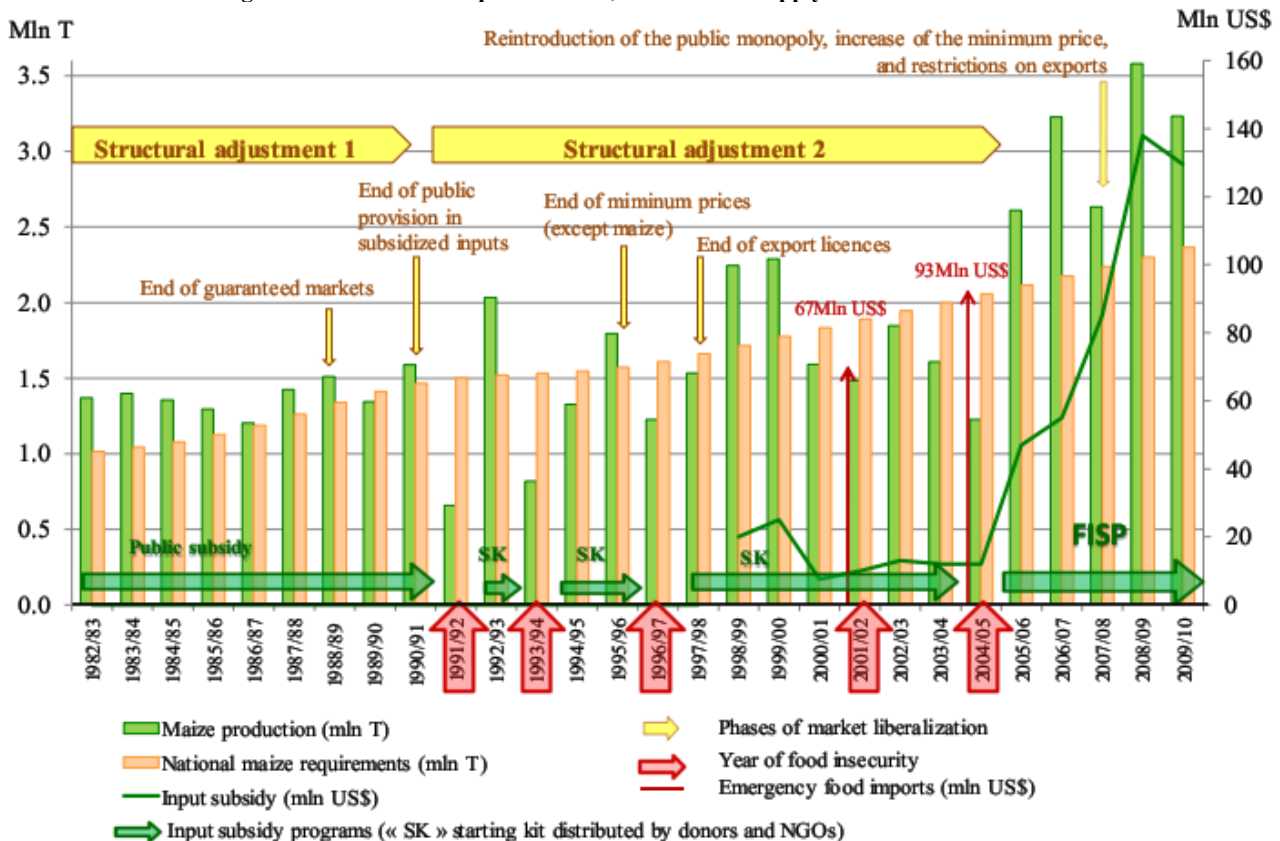
In Malawi maize, represents more than 50% of the average calorie intake (FAOSTAT, 2009). It is grown by more than 97% of families for self-consumption. The food security of the country is therefore closely linked to maize production. The majority of food insecure households rely on agriculture for their income. As they are not self-sufficient in food, they seasonally sell their labor to supplement their food resources up to 6-8 months per year (FEWS NET).

For most farmers, using chemical fertilizers to grow maize is neither financially accessible because of their poverty, their lack of liquidity and their limited access to credit, nor physically accessible in isolated rural areas due to the lack of reliable distribution networks, nor is it economically profitable due to their low yields and the high cost of fertilizer. As a result, there is a high demand for subsidies, which explains its

importance as a leading political measure, especially during electoral periods.

The production of maize has long been supported with the distribution of subsidized fertilizer and seeds and the control of its market by a public agency since the country gained independence in 1964. Until the public supply of inputs was stopped in 1991, the country was more or less self-sufficient in maize. But with the second phase of structural adjustment, however, the variability of the maize production of maize increases considerably linked to climate shocks. The country then experiences regular food crises requiring expensive food imports. Donors and NGOs respond to these crises by distributing start-up kits containing fertilizer and maize seeds, with immediate productive impacts (*figure 1*, Douillet 2011).

Figure 1 : Evolution of input subsidies, demand and supply of maize in Malawi



- Other criticisms have been made about the program, such as favouring the traditional green revolution rather than alternative models, encouraging farmers to use seeds that must be bought regularly and decreasing the diversity of production systems and diets, increasing their dependence on maize.
- No exit strategy has yet been devised for the program.

Faced with these criticisms, the Malawian government has already begun to change the way in which the program is implemented by specifying targeting criteria, changing the way fertilizer import contracts are allocated, and subsidising more varieties of seeds, including legumes. Given its importance for the country's citizens (Box 2), it is unlikely that the input subsidy policy will see much reform before the 2014 presidential elections.

■ FISP impacts are difficult to assess

A number of studies have been dedicated to estimating the effects of the FISP in Malawi, especially the direct effects on production. It should be noted that the results are incomplete and sometimes contradictory. The main impediment is the lack of reliable data. Analytically, the impacts of input subventions can be considered gradually from the direct effects on the production of beneficiaries, to the indirect effects on food prices and wages, and on the country's macroeconomic balance and economic performance. A thorough review of this literature, supplemented with economic simulations (Douillet, Pauw and Thurlow, 2012) has made it possible to draw a few conclusions.

■ Effects on maize production are known but uncertain

The main impediment for assessing the FISP is that official data on the evolution of the production of maize in Malawi since 2005 are known to have been manipulated and probably overestimated by at least 30% (Jayne et al. 2010). However, the consensus is that maize production is indeed on the rise.

Furthermore, at the national level, it is difficult to piece together the effects of the FISP linked to use of additional fertilizers, for two reasons.

First, the precise quantity of additional fertilizer used by farmers as a result of the subsidy is not known with any certainty. When receiving the subsidised fertilizer, some farmers reduced their purchase of non-subsidised fertilizer, causing a "displacement" effect which is thought to be around 20% (in other words, for 100 kg of subsidized fertilizer, only 80 kg are actually additional, the remaining 20kg would have

been bought by the farmers anyway). But this estimate is unsure and very likely varies each year.

Second, little is known on how beneficiaries change their production systems. Since the bags are shared, the exact number of beneficiaries of subsidised fertilizer and seeds remain unknown. Neither is there reliable information on farmer's usual practices, nor on the agronomical recommendations (Dorward and Chirwa, 2009). Several additional studies have tried to examine the changes in yield and land use following the program. The initial performance of surveyed farmers varies considerably among these studies, as does the average increase in yield due to the combined use of hybrid seeds and additional fertilizers. The results show an average increase in yield of between 32% (+ 0.16 MT/ha, Ricker-Gilbert and Jayne, 2010) and 82% (0.92 MT/ha, Holden and Lundunka, 2010). In terms of land use, two mechanisms seem to be in action. The beneficiaries of subsidies have a tendency to reduce the area dedicated to maize and increase the area for other crops, once their self consumption is secured. However, at the national level, the diversity of crops seems to have fallen because more farmers started growing maize to become eligible for the subsidies (Kankwamba et al., 2012).

■ Targeting criteria reduce the economic effectiveness of the FISP

The decision to target the poorest households impacts the economic effectiveness of the program. According to existing studies their use of fertilizers is less optimal and leads to a smaller increase in production. Indeed, for the most impoverished farmers, the price of chemical fertilizer is not the only restriction to increasing production. The low use of fertilizer and the weak productivity of maize for these growers can also be explained by the lack of cash and access to credit, the lack of prospects and the post harvest losses. Thus, the input subsidy which over several consecutive years should have enriched the soil with nutrients does not seem to have had the expected effect (Ricker-Gilbert, 2011).

Furthermore, the decision to boost the production of a mostly self-consumed product limits the creation of economic activity resulting from the subsidy: assuming that the distribution of fertilizer in the cropping year 2006-2007 led to an average increase of maize yields by 30%, the economic model of Malawi of Douillet, Pauw and Thurlow (2012) estimates a 14% increase in maize production and only 4% for GDP. This suggest nevertheless an important contribution to the 6-8% growth seen in the country since 2005.

■ **Positive effects concealed by an unfavourable situation**

High hopes have been placed on the reduction in maize prices and the increase in farm wages from the subsidy. These are actually expected to have higher impacts on poverty reduction than the direct effects of the maize production increase.

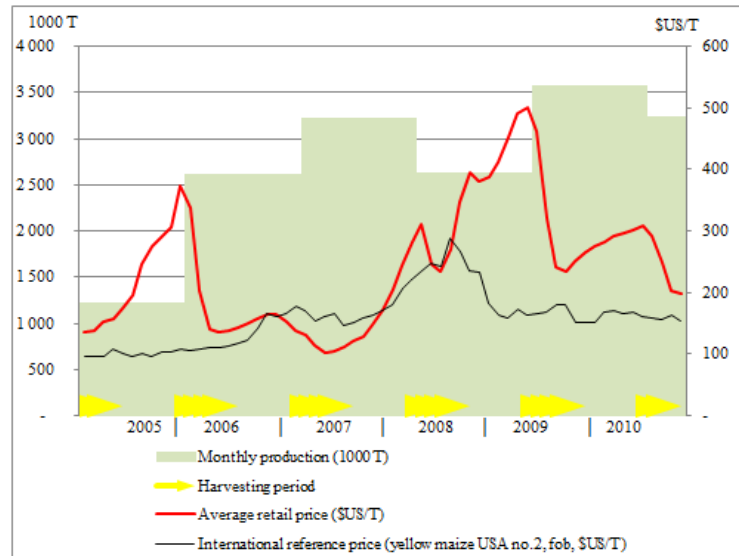
The additional production of maize should have led to a reduction in maize prices by at least a few percentage points. In reality, after dropping in 2006 and early 2007, prices in Malawi peaked at the end of 2008 in spite of the fact that the government was announcing a successfully high maize harvest (Figure 2). Several observers have attributed Malawi's climbing maize prices to the reactions of actors of the market due to the tensions observed in the supply of some local markets and the significant rise in the price of chemical fertilizers and fuel.

As for farm wages, they seem to have slightly increased (Ricker-Gilbert, 2012). The farmers who occasionally sold their labor to supplement their income discontinued doing so once they achieved their self-sufficiency in maize thanks to the program. On the other hand, other beneficiaries intensified their production and increased their need for hired labor (Douillet, Pauw and Thurlow 2012).

From a macroeconomic perspective, increasing fertilizer imports tends to increase the balance of payments deficit and contributes to the depreciation of the Malawi kwacha². With a fixed exchange rate, as in Malawi, this depreciation is mainly reflected on the parallel (unofficial) foreign exchange market. But the overvaluation of the kwacha forced the country to devalue its currency in 2012. This increased the cost of its imports in a context where the country had already been experiencing a more than 40% rise in the price of imported fuel and fertilizer since 2005. Even if this devaluation made exports more competitive, the international price of tobacco, Malawi's main export product, happen to have been decreasing annually since 2010 by more than 20%. Thus, since 2005, the country has therefore faced an extremely unfavourable situation.

The increase in maize production and the self-sufficiency of poor families, as well as the drop in maize prices, combined with a rise in farm wages, should have had positive effects on poverty and food security. However, the government's 2012 report on poverty indicates that poverty has not decreased much nationally (-1.5%) and has even slightly increased in rural areas. According to Douillet, Pauw

Figure 2 : Evolution of production and prices of maize in Malawi



Sources : Ministry of Agriculture and Food Security of Malawi, OECD/FAO 2011

and Thurlow (2012), the shocks that have affected the country (rise in the price of imported fertilizers and fuel, decreasing tobacco exports earnings) have had considerable negative impacts, even calling into question the benefits of the input subsidy program on the reduction of poverty, particularly in rural areas. Thus, the disappointing results of the program can mainly be explained by the external context. The economic simulations show that this context, without input subsidies, would have led to a significant increase in the national poverty level.

Finally, the FISP is ineffective in the event of crop failures, related to a climate disasters or epizootics. In southern Malawi, which is very densely populated and poorly connected to the rest of the country, climate disasters affect several hundreds of thousands of people every year, compromising their food security (FEWS NET). After six years of relatively favourable climate conditions, two consecutive years of drought have resulted in severe food insecurity for nearly two million people since June 2012.

■ **Could the cash transfer program be more effective?**

In Malawi, several pilot experiments of cash transfers have been carried out, but none were implemented on a scale comparable to that of the input subsidies program. It is thus difficult to compare the two types of programmes.

Those pilot experiments have been closely followed by teams of researchers who have demonstrated their relevance to the African context. Conclusive effects

² The maize imports required to fill the country's food deficit without the FISP program would have a similar effect but probably a higher cost because maize prices have risen even more than fertilizer .

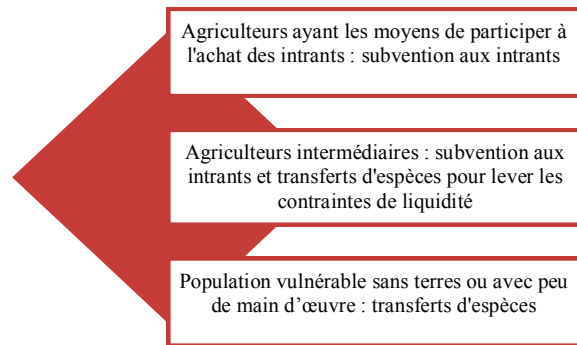
on the school enrolment of girls, poverty reduction, food security and the diversification of food of targeted households have been highlighted, for both temporary programs in response to emergencies and structural social protection programs (HLPE 2012). Evaluations of the Mchinji pilot program have shown that some beneficiaries also invest in activities that generate income, such as agriculture. But this inclination to invest is not very well known and is extremely difficult to estimate (Miller et al., 2011). Nevertheless, even assuming that 30% of the amount of the cash transfer is invested in agriculture, Filipisky and Taylor (2011) find that the input subsidy is still the most effective transfer measure for a country like Malawi where most poor people are net consumers of food. This is because a cash crop subsidy has the advantage of stimulating food production and avoiding an increase in consumption prices. A subsidy of the scale of the FISP can even bring down the price of food, as shown by the general equilibrium simulations of Douillet, Pauw and Thurlow (2012).

Cash transfers are not sufficient for stimulating economic activities or ensuring food security when markets are under-developed and the prices of goods are high and unstable. In Malawi, where the input markets are very fragmented and incomplete, large areas of the country are not profitable for retailers. In these areas, at least in the short term, the inputs would not necessarily be available, even if farmers were able to buy them thanks to the cash transfers. As a result, the supply of inputs by public stores is essential to increase the use of fertilizers in these areas. Similarly, in the areas of the country where the physical supply of maize to some local markets is uncertain and the prices are particularly unstable, it may be difficult to guarantee food security for households with cash transfers.

The current humanitarian response is an illustration of this. Several tools are required to respond to the food crises that regularly blight southern Malawi: boosting production by implementing the FISP, emergency food distributions (more than 600,000 beneficiaries in December 2012), and cash transfers more than 70,000 people by the end of 2012). Various cash transfers schemes have been tested, some where the amount of cash is adapted to the local price of the food basket and some distributed by mobile phone. It is the combination of these different tools that enables an effective response suited to the local context.

To ensure the food security of the population in the longer term, cash transfers must play a role alongside input subsidies: the “twin track strategy for food security” suggested by the High Level Panel of

Figure 3 : Différenciation des mesures de soutien



Experts (HLPE) on food security and nutrition in their report on social protection and food security combines social support for the most vulnerable citizens with productive support for poor workers. In Malawi, this strategy could apply to at least three categories of beneficiaries (Figure 3). For poor farmers with the means to participate in the purchase of inputs, subsidies alone would be sufficient. For the most vulnerable population whose access to production factors is restricted (with little or no land, or limited labor), support would be restricted to cash transfers. Finally, the remaining poor farmers, who have enough production factors to efficiently use inputs but lack liquidity would receive both the input subsidy and cash transfers. The latter would enable them to purchase the subsidised inputs.

■ Conclusion

Thanks to its input subsidy program, Malawi is often presented as the good student of the agricultural revival, notably abiding of the commitment taken by African leaders in Maputo ten years ago to allocate 10% of their budget to agriculture. But the country’s agricultural policy is still focused on this key measure whose impacts are not clearly established: even if this policy has contributed to a significant growth in maize production, this productive performance is not reflected by improvements in the quality of life of the country’s citizens. On the contrary, rural poverty increased between 2005 and 2012 and hundreds of thousands of people in the south of the country depend each year on food distributions.

Within the economic crisis and the budgetary restrictions, affecting both the Malawian governments and donors, the weak economic effectiveness of this subsidy program may detract the program. Could the country’s new social welfare policy be an alternative?

Few analyses emphasise the extent to which the recent international situation has been unfavourable to Malawi. Economic simulations show that the external context has largely undermined the benefits

of the input subsidy program. As a consequence, the program must not be evaluated only on the basis of traditional indicator of poverty and food insecurity, but must rather be compared to other options.

The decision to make the input subsidy program a social measure by targeting the poorest households reduces its economic effectiveness, strictly speaking. However, it is simplistic to evaluate the program in monetary terms because it was also useful to include part of the population in the economic activity. But is it effective to offer subsidised access to fertilizer to all the poorest households, even those that lack liquidity to buy them and will resell their coupons? Wouldn't be more effective to transfer cash directly to them?

The social welfare program in Malawi also has drawbacks. Even if the pilot projects contributed to lift beneficiaries out of poverty, improve their food security and diversify their diet, they have not overcome market deficiencies. In remote areas, they have not been sufficient to make fertilizers available in time.

If Malawi wishes to confirm its agricultural success, the country must reform its agricultural policy. As it is currently implemented, the input subsidy program has not supported the organization of a strong input

supply sector despite its potential for "smart subsidies". In order to do this, the private sector would have to be integrated in it and other restrictions to the development of agriculture would have to be lifted.

Beyond this, reflections should be conducted on a better differentiation of political measures and on the advantages of combining the two current programs in Malawi that do not seem to be implemented coherently. Malawi could thus become a pilot country for the twin-track strategy of food security recommended by the HLPE combining social support for the most vulnerable and productive support for poor farmers. ♦

Mathilde Douillet is Project Manager « Agricultural markets and policies » at FARM.

Contact : mathilde.douillet@fondation-farm.org

The author wishes to thank Karl Pauw (IFPRI, International Food Policy Research Institute), James Thurlow (UNU-WIDER, World Institute for Development Economics Research of the United Nations University), the IFPRI team in Malawi and participants to the Séminaire « Food Security » Seminar of Cirad of december 13 2012 in Montpellier for the exchanges that have been very useful to prepare this note.

■ References

Dorward, A. and E. Chirwa, 2010, *A review of methods for estimating yield and production impacts*, Miméo

Dorward, A. and E. Chirwa, 2011, *The Malawi Agricultural Input Subsidy Programme: 2005-6 to 2008-9*. International Journal of Agricultural Sustainability, 9(1): 232-247

Dorward A. , Guenther B. et R. Sabates-Wheeler, 2009, *Agriculture and Social Protection in Malawi* FAC Working Paper No. SP02

Douillet M., 2011, *La relance de la production agricole au Malawi : succès et limites*, Paris : Fondation pour l'agriculture et la Ruralité dans le Monde

Douillet M., K. Pauw et J. Thurlow, 2012, *Macro evaluation of program impacts and risks: The case of the Malawi Farm Input Subsidy Program (FISP)*, International Food Policy Research Institute, Miméo

Dugger, C, 2007, 'Ending Famine, Simply by Ignoring the Experts', New York Times, 2 December 2007 <http://www.nytimes.com/2007/12/02/world/africa/02malawi.html>

Farmers Union of Malawi, 2011, *Promoting the Participation of Civil Society in the Management of the Farm Input Subsidy Programme (FISP)*, Lilongwe: Farmers Union of Malawi

Fewsnet, 2012, *Malawi food security update October 2012*, USAID Famine Early Warning Systems Network

Filipski, M. and E. Taylor, 2012, *A simulation impact evaluation of rural income transfers in Malawi and Ghana*, Journal of Development Effectiveness, 4(1): 109-129

Government of Malawi, 2011, *Medium term plan for the input subsidy programme 2011-2016*, Revised July 2011

Gouvernement of Malawi, 2012, *Integrated Household Survey (IHS) 2010-2011. Household Socio-Economic Characteristics Report. August 2012*. National Statistical Office (NSO), Zomba, Malawi

HLPE 2012, *Social protection for food security. Report of the High Level Panel of Experts on food and nutrition security for the Committee on World Food Security*, Rome

Holden, S., Lunduka, R., 2010. *Too poor to be efficient?*, Norwegian University of Life Sciences

Jayne, Thomas S. & Rashid, Shahidur, 2010, *The Value of Accurate Crop Production Forecasts*, International Development Working Papers n°97032, Michigan State University

Kankwamba H., M. Mapila and K. Pauw, 2012, *Determinants and Spatio-Temporal Dimensions of Crop Diversification in Malawi*, International Food Policy Research Institute, Miméo

Miller, C., 2009, *Economic Impact Report of the Mchinji Social Cash Transfer Pilot*, Boston University School of Public Health, Center for Global Health and Development, Boston, MA

Ricker-Gilbert, J. and T. Jayne, 2011, *What are the Enduring Effects of Fertilizer Subsidy Programs on Recipient Farm Households? Evidence from Malawi*. Staff Paper 2011-09, Michigan State University

Ricker-Gilbert, J. and T. Jayne, 2012, *Do Fertilizer Subsidies Boost Staple Crop Production and Reduce Poverty Across the Distribution of Smallholders in Africa?* Presented at the 28th International Conference of Agricultural Economists, 18-24 August, Foz do Iguacu, Brazil

Notes takes stock of topical subjects or research themes, to feed reflection and prompt debates. The analysis and conclusions of the authors do not necessarily reflect FARM's institutional position .



Fondation pour l'agriculture et la ruralité dans le monde
Foundation for World Agriculture and Rurality

Postal address

12, place des Etats-Unis
92127 Montrouge Cedex

www.fondation-farm.org

Physical address

100, boulevard du Montparnasse
75014 Paris

contact@fondation-farm.org