

# Targeting in the Farm Input Subsidy Programme in Malawi: Issues and Options

Andrew Dorward and Ephraim Chirwa

June 2013

## Abstract

This paper examines targeting issues that emerge from FISP evaluations undertaken since 2006/07, and puts forward various options for improving targeting. Targeting objectives depend upon programme objectives. In the FISP targeting occurs at area and beneficiary levels – the former targeting subsidies to different zones or districts, the latter targeting beneficiaries within already targeted areas. Targeting is important because it affects achievement of programme objectives through its impacts on displacement (the extent to which purchases of subsidised inputs replace purchases of unsubsidised inputs that farmers would have bought anyway without the subsidy), productivity of input use, the direct benefits to beneficiaries, and wider economic, social and environmental benefits. Achievement of these benefits is generally supported by pro-poor targeting (with lower displacement and stronger growth linkages) but the effects of pro-poor targeting on the productivity of input use are not known and are an important (but difficult) field of further research. Relations of targeting with area and beneficiary graduation and with environmental benefits are complex, and also require further research.

## 1. Introduction

Targeting plays a critical role in the Farm Input Subsidy Programme (FISP), as it determines who gets how much of what inputs under the programme, and hence how these inputs are used and their varied impacts: on household and national production, food self-sufficiency and food security; beneficiary households' asset building and graduation; maize prices and *ganyu* wage rates; vulnerable groups' welfare (such as female, elderly or child headed households, or people with chronic illnesses or disabilities); unsubsidised sales' displacement by subsidised sales; relationships within rural communities and commitment to development activities; and overall social and economic returns to economic and fiscal investment in the programme. Targeting is controversial, as it determines whether or not, how and how much particular people and groups will benefit from the programme. Targeting is also difficult –and the large scale of the programme across the country adds to the challenges and costs in implementing and supervising targeting.

This discussion paper sets out issues that emerge from the 2010/11 FISP evaluation and earlier evaluations regarding targeting, and suggests various options that may be considered to improve targeting. We begin in section 2 by setting out the objectives of targeting and its potential impacts. This leads on, in section 3, to consideration of the processes and stages of targeting, interpreted broadly as the determinants of the final pattern of access to subsidised inputs. In the light of this, section 4 reviews targeting outcomes observed over the course of the Agricultural Input Subsidy Programme (AISP) and FISP. Section 5 then sets out various options for improving targeting. Section 6 concludes. ]

## 2. Targeting Objectives and Impacts

Targeting objectives depend upon the overall objectives of the programme. Table 1 illustrates how these may be related. It does not attempt to provide a comprehensive description of the range of possible programme objectives, nor to explore in any depth their implications for targeting and targeting objectives. It does, however, introduce key issues that need to be considered about the impacts of targeting and the critical outcomes that targeting systems attempt to influence.

The different objectives in table 1 are related in two ways. First some of them are complementary, as shown by the similarities and overlaps in targeting objectives and implications. This is made explicit by labelling them in groups (A, B, C etc). A different set of relationships between targeting systems, outcomes and impacts are set out in Figure 1.

Figure 1 distinguishes between the *targeting system* (intentions, implementation and costs), *targeting outcomes* (the number of beneficiaries, the inputs received per beneficiary, the characteristics of beneficiaries, and the characteristics of areas in which the beneficiaries reside and farm), and *targeting impacts*. These interact with other policies and stakeholder interests. The targeting system influences targeting outcomes through broad targeting design and implementation (determining the quantities of subsidised inputs in different areas, and hence the characteristics of areas receiving inputs and of potentially eligible beneficiaries) and through more detailed processes of coupon allocation, issue and redemption (determining the quantities of subsidised inputs received by different individuals and households, and hence the characteristics of beneficiaries and the number of beneficiaries receiving different input combinations). These of course interact. We examine the targeting system and implementation processes in more detail later, in section 3, but note here that intentions are commonly modified or subverted to some extent during implementation, and this needs to be explicitly allowed for in targeting system design.

The key targeting impacts in Figure 1 are concerned with four key processes which determine the subsidy programme's effectiveness in achieving the different objectives listed in Table 1:

- Displacement
- Productivity
- Economy-wide effects
- Graduation

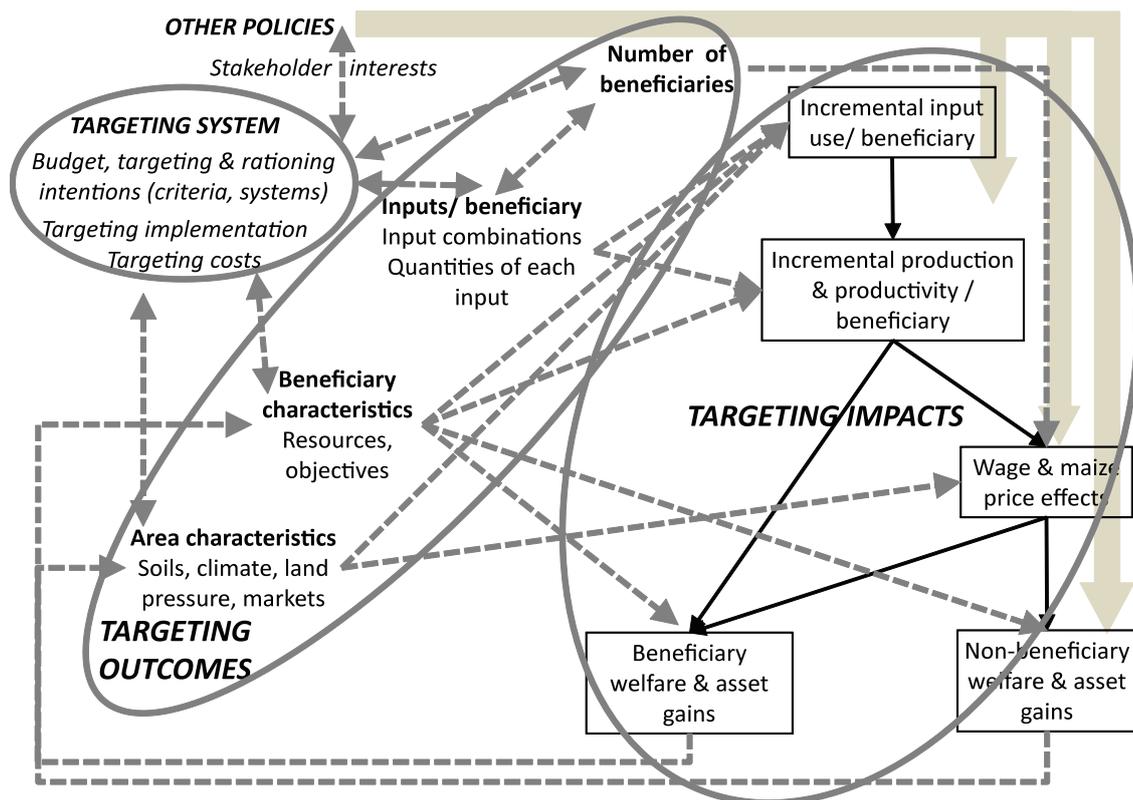
We discuss each of these, and their links with targeting, in turn.

Table 1 Programme objectives and their implications for targeting			
	Programme Objective	Targeting objectives	Implications
A1	Increased production	Maximise incremental input use (minimise displacement) & productivity of incremental input use.	Identify geographical areas & household types with low displacement (ie unable to buy unsubsidised inputs) & high input use efficiency – poorer able bodied ‘good’ farmers in productive maize growing areas?
A2	National food self sufficiency	As above	As above
B1	Beneficiary household food self sufficiency	Target <u>food deficit/insecure</u> households in productive maize growing areas & able to redeem the coupons & use the inputs effectively – complementary safety nets to aid financing of redemption by poor targeted households	Identify such households
B2	Beneficiary household food security	As in B1 above	As in B1 above
B3	Social protection for beneficiaries	Target <u>most vulnerable</u> households in productive maize growing areas & able to redeem the coupons & use the inputs effectively	Identify such households. Complementary safety nets to aid financing of redemption
C1	Wider household food security	As in (A1) above,	Complementary policies to promote access to maize markets with low & stable prices in rural and urban areas, higher ganyu wages, complementary social protection (eg cash transfers)
C2	Social protection for all households	As in (C1) above	As in (C1) above
C3	Poverty reducing broad based growth	Some combination of (B2), B3 and (C1) above,	Combination depends on the relative effectiveness/ efficiency of direct impacts for targeted beneficiaries and indirect impacts benefiting the poor more generally
D	Programme graduation – area	As in (C3)	Together with development of (private sector) input supply systems and produce markets
E	Programme graduation – households	As in (B1)	May need mechanisms to help beneficiary household saving / other forms of affording input access to enable graduation (ability to afford unsubsidised fertiliser) after specified time as programme beneficiary
F	Environmental protection	As in (C3)	Together with focus on areas with fragile and sloping soils, particular land pressure and pressure on forested hills. Complementary promotion of integrated soil fertility management

## 2.1 Displacement

Displacement describes the process whereby households’ access to subsidised inputs causes them to reduce their purchases of unsubsidised inputs so that the incremental input use as a result of the subsidy is less than the amount of subsidised inputs received. Displacement rates are affected by beneficiary

characteristics (their access to cash, land and labour), input and output prices, and market access - but displacement is difficult to estimate. Analysis of panel household survey data gave estimates of 22%, 3% and 15% in 2006/7, 2008/9 and 2010/11, taking account of input and output price changes on specific households who previously (in 2004/5) bought unsubsidised fertiliser (Ricker-Gilbert et al., 2010, Ricker-Gilbert and Jayne, 2010, Chirwa et al., 2011).



**Figure 1 Targeting variables and impacts**

None of these estimates allow for displacement of unsubsidised fertiliser by diverted subsidised fertiliser that was not bought by smallholders (suggesting an underestimate) nor of the potential for the subsidy programme to stimulate unsubsidised purchases as a result of its impacts on farm household wealth and ability to finance unsubsidised purchases (suggesting an overestimate). Irrespective of differences in bias between these estimates, however, all estimates agree that there is less displacement with poorer households (unless they sell their coupons, which may be under-estimated in the household surveys). It is also likely, although the empirical evidence is mixed, that displacement will be lower in areas where market access is poorer and inputs more expensive<sup>1</sup>. This suggests that to reduce displacement, targeting should be aimed at areas with poorer market access and a greater proportion of poorer households, and, within those areas, at poorer households.

## 2.2 Productivity

Productivity is best described in terms of incremental production per unit of incremental input used (where incremental input use per unit of subsidised input is determined by the displacement rate). It is affected by beneficiaries' farming skills and knowledge, crop management, and ability to apply complementary inputs such as seed or organic or inorganic fertiliser and timely planting or weeding labour. It will also be affected by the overall rate of input application per hectare (and its spread across part or all cultivated land) allowing for both subsidised and unsubsidised inputs, by time of access to inputs, by soils and by rainfall. It is again very difficult to estimate, and to our knowledge no reliable or recent

estimates exist of average productivity, let alone of the relative effects of the different determinants of productivity (Dorward and Chirwa, 2010).

As regards implications for targeting, it would seem clear that targeting should focus on areas with higher productivity potential (as regards rainfall and soils). It is not so clear what types of household should be targeted to get higher productivity – wealthier households may be able to use subsidised inputs more efficiently as a result of their being more able to complement them with other inputs – but this may not be the case. There is a longstanding and large literature that demonstrates higher yields per hectare on smaller farmers as compared with larger farms, but this may or may not mean higher returns to other inputs. If less poor farms offer higher returns then there may be trade-offs between displacement and productivity gains affecting the type of beneficiary that gives the highest incremental production per unit of subsidy. This is important if the programme is aiming to increase production or national food self-sufficiency. However if the programme is intended to benefit poorer households or to promote wider economic growth then there may be further trade-offs between maximising production and promoting gains to poorer beneficiaries and non-beneficiaries.

## 2.3 Economy-wide effects

Economy-wide effects of the subsidy programme are principally falling maize prices and higher wages with increasing labour and land productivity, and consequent wider economic growth. Since higher wages and lower maize prices are particularly beneficial to the poor (who spend more of their total income on food, tend to be net

maize buyers, and earn more of their income from unskilled wages), promotion of these economy-wide benefits is aligned with pro-poor growth objectives. These benefits will be affected by improved productivity (as discussed above), by trade and other policies affecting maize prices, and by the distribution of income benefits between different types of households in different areas (as this affects both the supply and demand of labour for *ganyu* and for off-farm services<sup>2</sup>) and linkages to wider national maize and labour markets. The linkage or multiplier effects are difficult to estimate but are likely to be higher where poorer households are the main income beneficiaries (see Dorward and Chirwa, 2011c).

The implications for targeting are that inputs should be focussed on households yielding the greatest incremental production benefits (with possible trade-offs between higher input productivity and displacement if less poor households use inputs more productively). Although this corresponds with maximising productivity impacts, concerns for wage and linkage impacts strengthen arguments for more targeting of poorer households and poorer areas. (Modelling by Dorward, 2010; Dorward and Chirwa, 2012 and reported by School of Oriental and African Studies et al., 2008 finds greater effects in poorer areas with higher concentrations of poorer people.)

## 2.4 Graduation

Graduation is the process by which poor, food insecure, vulnerable households and areas benefit from subsidised inputs to the extent that improved assets and livelihood opportunities allow these subsidies to be withdrawn without reversion to their former poor, food insecure, vulnerable state. It is critical in looking both for dynamic impacts from the subsidy programme and for programme efficiency. Chirwa *et al.*, 2010a distinguish between graduation by individual beneficiary households and graduation by the rural economy of specific areas. This distinction allows identification of key variables affecting the potential for graduation. However, determination of threshold values and of trade-offs between variables is complex and has not been investigated. In addition, the

potential for individual beneficiary households to graduate will be affected by their characteristics and initial conditions (for example household size, land ownership and quality, dependency ratio, skills, health, shocks, assets, social capital, etc), by the size of subsidy received each year, the number of years they participate in the programme, weather, prices, growth in the wider economy of which they are a part and by working capital accumulation and/or livelihood diversification. However, Chirwa *et al.*, 2011; Ricker-Gilbert and Jayne, 2011 find little evidence of capital accumulation by beneficiary households although Chirwa *et al.*, 2011 do find some evidence for improvement in participation in education and in under-5 children's health. Similarly, the potential for particular areas or economies to graduate will be affected by their characteristics (for example population density, land quality, location and links to markets, economic structure), by the number and nature of beneficiary households, by the scale of the subsidy, and by changes in the wider environment (prices, weather, political change, etc).

The implications for targeting are that if graduation is being sought, targeting should try to bring households and/or areas over 'thresholds'. This raises a difficult set of questions:

- Is it better to focus limited resources each year and across years on more households or areas for whom graduation is easier (with potential linkage effects assisting or excluding poorer households or areas), or on fewer poorer households or areas for whom graduation is more difficult (with more limited linkage effects)?
- What are the graduation thresholds for different households and areas?
- How are households and/or areas for whom graduation is more or less difficult and with greater or lesser linkages to be identified?

The answers to these questions have profound implications for targeting for graduation.

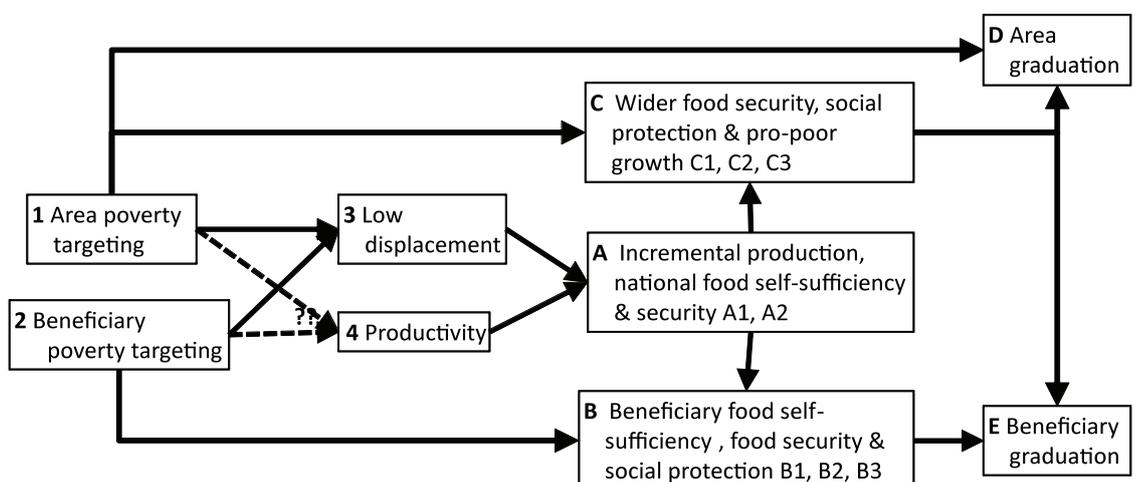


Figure 2 Relationships between targeting and programme objectives

## 2.5 Conclusions

It is clear from this discussion that different targeting outcomes (determining which households and areas get what subsidised inputs for how many years) have a critical influence on the achievement of different objectives. Figure 2 presents a broad summary of these influences, showing how area and beneficiary targeting (1 and 2) may influence displacement and input productivity (3 and 4, the latter ambiguously), how these in turn influence incremental productivity (A) which then, again depending upon targeting, influences beneficiary and wider programme impacts and potential graduation (the major determinants of environmental protection impacts are not specified).

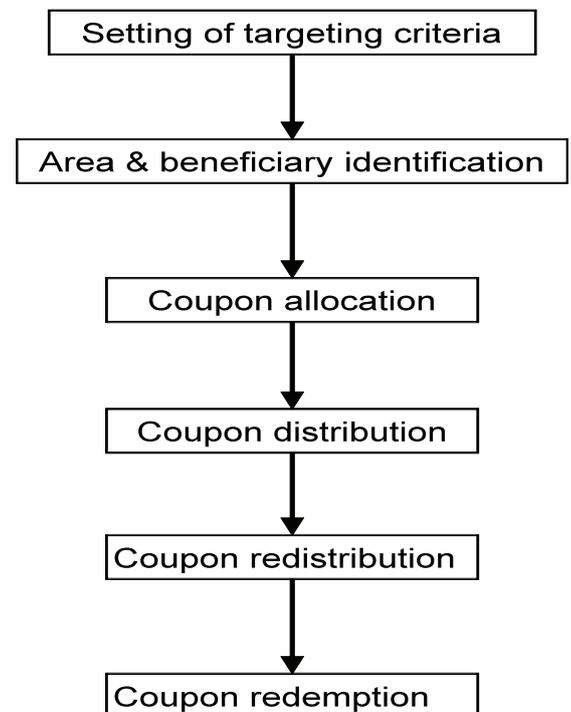
Ideally the analysis in Figure 2 would be developed further in a decision tree specifying what targeting outcomes should be pursued to achieve each objective. This is difficult, however, for a number of reasons:

- Objectives may be unclear and contested – with different stakeholders pursuing different objectives. Political objectives have not been explicitly discussed above, but they are critical. They are also highly variable (between different stakeholders with different interests or operating at national, regional or local levels) and fluid (changing rapidly as wider political concerns change).
- As the discussion above shows, there are critical issues about which we have only limited information. Specific information gaps highlighted above include limited information about differences in displacement, input productivity and labour market effects between subsidies provided to different households and areas, the relative effectiveness of different graduation strategies, and appropriate thresholds.
- At the heart of many of these information difficulties are difficulties in determining and deciding on technical and political trade-offs between targeting different households and areas, between the size of subsidies per beneficiary or per area and the number of beneficiaries and areas served.
- The effectiveness of subsidies in meeting different objectives for and through different households and areas is also affected by maize price policy, by macro-economic conditions, by complementary policies, and by programme management - as these affect input productivity (if they affect, for example, integrated soil fertility management, timing of subsidies, or provision of extension support), displacement (if they affect unsubsidised input prices and availability<sup>3</sup>), and investment in market and communications infrastructure.

It is also important to note, however, that targeting outcomes themselves depend critically upon the processes of targeting, to which we now turn.

## 3. Targeting Processes

There are six main stages that lead up to coupon redemption and affect the pattern of access to subsidised inputs and to subsidy benefits. Although some of these are not normally considered to be part of 'targeting', they affect the targeting outcomes discussed above, and may therefore be considered as stages in the 'targeting system'. These are illustrated in figure 3.1



**Figure 3 Stages in the targeting system**

We discuss changes in each of these, and their impacts on targeting outcomes, in turn, but note that they can also interact, so that beneficiary identification may or may not be affected by the setting of targeting criteria, depending upon these criteria and upon procedures for beneficiary identification.

Table 2 sets out the main changes in targeting criteria, beneficiary identification, and coupon distribution, redistribution and redemption from 2005/6 to 2009/10.

### 3.1 Targeting criteria and area allocations

In broad terms, area targeting has shifted from an emphasis on allocating coupons in proportion to maize and tobacco crop areas in the first two years of the programme to allocating them more in proportion to farm households. This is in line with a shift in objectives from emphasis on increasing productivity to emphasis on improving food self sufficiency of vulnerable groups, also reflected in the criteria for targeting beneficiary households. However, transitional allocation mechanisms were used to avoid an abrupt shift from one system to another. From 2006/7 to 2008/9 district allocations were also affected by informal 'supplementary allocations'. The

**Table 2 Principal changes in targeting processes, 2005/6 to 2009/10**

	2005/6	2006/7	2007/8	2008/9	2009/10
Area targeting criteria	District allocation nominally by EPA maize & tobacco areas, but highly variable between districts. Ad hoc district allocation of supplementary coupons.	District & EPA allocation by maize & tobacco areas, but highly variable between districts. Ad hoc district allocation of supplementary coupons.	District & EPA initial allocation by farm hh & maize & tobacco areas, highly variable between districts. Ad hoc allocation of supplementary coupons. Overall criteria opaque but (with exceptions) more in line with farm hh / district.	District & EPA initial allocation by farm hh & maize & tobacco areas, but highly variable between districts. Ad hoc district allocation of supplementary coupons. Overall criteria opaque but (with exceptions) more in line with farm hh / district.	District & EPA allocation criteria not clear, variable between districts. Overall criteria opaque but more in line with farm hh / district.
Beneficiary targeting criteria	Beneficiary selection criteria unclear.	Full time smallholder farmers unable to afford purchase of 1 or 2 unsubsidized fertiliser bag.	n.a.	Resource poor local resident with land; guardians looking after physically challenged. Vulnerable hholds (child or female headed, PWLHIV)	Resource poor local resident with land; guardians looking after physically challenged. Vulnerable hholds (elderly, child or female headed, PWLHIV)
District/ TA/ Village coupon allocations	District allocation by MoAFS HQ, Village allocation by TAs,	District allocation by MoAFS HQ. Village allocation by DDC, ADCs, TAs.	District allocation by MoAFS HQ. Village allocation by DDC, ADCs, TAs.	District allocation by MoAFS HQ. EPA/ village allocation by MoAFS staff, DDC, ADCs, TAs.	District allocation by MoAFS HQ. EPA / village allocation by MoAFS district staff, DDC, ADCs, TAs.
Beneficiary identification / coupon allocation	Largely by TAs, VDCs	Systems highly variable between areas - by 'local leaders' TAs, VDCs, MoAFS staff. Reallocation by VH common.	Systems highly variable between areas - by 'local leaders' TAs, VDCs, MoAFS staff. Reallocation by VH common.	Use of farm hhold register, open meetings for allocation led by MoAFS (participation unclear). Reallocation by VH common.	Farm household register, allocation in MoAFS led open meetings (unclear participation). Voter reg. nos & ID required. Reallocation by VH common.
Coupon distribution system	See above: allocation and distribution simultaneous	See above: allocation and distribution simultaneous	Distribution varied, more by MoAFS and VDCs. Open disbursement led by MoAFS. Redistribution by VH common	Open meetings for disbursement led by MoAFS (degree of participation unclear). Redistribution by VH common	Open meetings led by MoAFS (unclear participation). Voter reg. numbers & ID required for receipt & redemption. Redistribution by VH common
Coupon redemption systems	Only through SFFRFM & ADMARC	Fertilisers also through major retailers; flexible maize seed coupons through wide range of seed retailers	Fertilisers also through major retailers; flexible seed coupons through range of seed retailers; cotton inputs through ADDs	Fertilisers also through major retailers; flexible seed coupons through range of seed retailers; cotton inputs through ADDs	Fertilisers only through ADMARC & SFFRFM; separate maize & legume seed coupons through retailers, variable top up for maize seed max MK100

criteria for these, and indeed their precise distribution, are somewhat opaque, but they allowed allocations to respond, to some extent, to perceived grievances and shortages, and to political demands for greater allocations in some areas.

Allocations to different areas may also have been affected by differential rates of growth in registered farm families in different areas. Dorward and Chirwa, 2011a report very rapid increases in Ministry of Agriculture and Food Security (MoAFS) farm family registrations in the central region from 2005/6 to 2009/10 (9.1% annual average growth in the central region compared with 2.2% in the southern region), with both these figures higher than the 1% average annual growth in National Statistical (NSO) rural household estimates. MoAFS national farm family estimates are just over 60% higher than NSO rural household estimates. This difference is lower in the southern region (44%) and highest in the Central region (82%) and as a result MoAFS figures show more farm families in the Centre than the South.

Beneficiary targeting criteria also shifted to put more emphasis on poor and vulnerable groups, although they remain broad, as shown in Table 2. Difficulties in applying these criteria arise, however, for a number of reasons (School of Oriental and African Studies et al., 2008, Dorward et al., 2010, Dorward and Chirwa, 2011a):

1. ambiguities, tensions and contradictions among different targeting criteria, related to
2. difficulties in clearly establishing measures for applying these criteria, both of these being related to
3. large numbers of households apparently deserving of coupons relative to the number of coupons available.
4. village leaders and agricultural extension staff involved in beneficiary targeting may not consistently apply the set criteria.

Coupon allocation, distribution and redistribution processes are therefore critical in determining how far targeting criteria are effectively applied.

### 3.2 Coupon allocation, distribution and redistribution processes

Coupons are distributed to districts and areas within districts according to their allocations (described above), although from 2006/7 to 2008/9 supplementary coupons were issued following the initial main coupon issue, and the criteria and processes for their allocation and distribution appeared to be very opaque (School of Oriental and African Studies et al., 2008, Dorward et al., 2010). In this section we therefore focus on processes of coupon allocation, distribution and redistribution to beneficiaries within areas. In the early years of the programme coupon allocation and distribution were conducted simultaneously. From 2008/9 a three-step process was supposed to be followed, first the construction of a farm register of all farm families, then

the allocation of coupons to beneficiary farm families in an open meeting, and this was followed later by separate distribution of coupons to beneficiaries, again in open meetings. The introduction of 'open meetings' during the allocation and distribution process had two objectives:

- a) To ensure that rural households are adequately informed about the operation of the AISP and have realistic expectations; and
- b) To include households in the targeting process, removing targeting power from TAs, village headmen and agricultural staff to give it to the community itself.

Dorward et al., 2010 and Dorward and Chirwa, 2011a report on the extent to which open meetings were used in coupon allocation, distribution and redistribution in 2008/9 and 2010/11. There is mixed anecdotal evidence regarding the extent to which registration and coupon allocation were separate, and this may be linked to different understandings of these processes. In both years open meetings were reported for coupon allocation and distribution by about 80% and 96% of respondents across all regions, respectively. However a dramatic increase in redistribution in open meetings was reported by respondents, rising from 43% to 70%. This was largely the result of increased reporting of open meetings for redistribution in the south (70% of respondents reported this in 2010/11 as compared with 32% in 2008/9)<sup>4</sup>.

On the whole the response to the use of open meetings to inform people about the project was positive (Dorward et al., 2010, Dorward and Chirwa, 2011a). However, open meetings do not necessarily mean that village members actively take part in targeting, it may mean that the list of beneficiaries was announced at an open meeting following prior decision by a committee. FGD information in 2008/9 suggested that a key factor determining open meetings' success was whether coverage had increased or decreased compared to the previous year, but separation of registration from distribution was helpful because it allowed time for people to find out where they stood (Dorward et al., 2010).

Comparison of information in Dorward et al., 2010 and Dorward and Chirwa, 2011a shows a marked increase in the perceived importance of Traditional Authorities and VDCs in coupon allocation, distribution and redistribution in 2010/11 as compared with 2008/9. In both years they were the most important stakeholders in influencing coupon allocation and redistribution. Agricultural extension staff were perceived to play a relatively minor role in coupon allocation and redistribution in both years, but were perceived to be the most important stakeholders in influencing coupon distribution in 2008/9. In 2010/11, however, Traditional Authorities and VDCs, agricultural extension staff and police were all perceived to have roles of roughly equal importance in coupon distribution (with the perceived importance of the police increasing from 2008/9 to 2010/11).

Considerable differences are reported between coupon allocation and receipt, as a result of (a) changes in

allocation before distribution and (b) redistribution of coupons after initial distribution.

- A number of key informants and Focus Group Discussions (FGDs) reported changes in coupon allocations between initial allocations and distribution, and these were usually associated with accusations of coupon diversion by key stakeholders (agricultural extension staff and VDC members). However, some of these accusations appear to be associated with a (mis) understanding that all households were supposed to receive coupons (Dorward and Chirwa, 2011a).
- As noted earlier, the proportion of households reporting receipt of one fertiliser coupon (as a result of redistribution) has increased over the life of the programme due to a high (though relatively constant) rate of coupon redistribution in the south and an increasing proportion of coupons being allocated to the south.

This description of targeting processes shows that there have been a number of changes intended to improve targeting criteria and processes. These positive developments do not, however, appear to overcome the fundamental difficulties of lack of clarity in targeting criteria, of large numbers of households apparently satisfying criteria, and of inconsistent application of criteria by local leaders and government staff. The substantial redistribution of coupons by local leaders is partly a response to these difficulties, and we therefore now turn to consider how targeting outcomes have changed over the life of the programme.

## 4. Targeting Outcomes

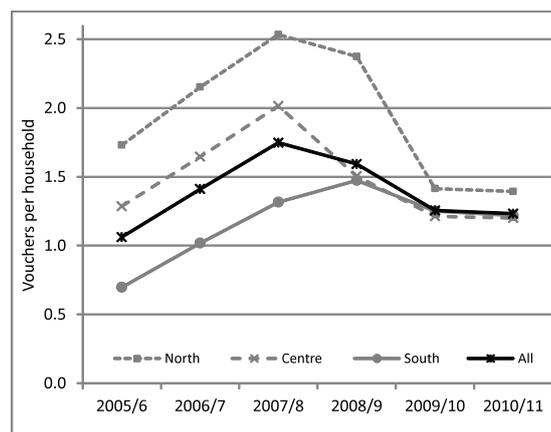
Targeting outcomes can be considered in terms of area and beneficiary targeting. Information on area targeting outcomes (by region and district) is available for each year of the programme from records of coupon distribution and fertiliser and seed sales. Information on beneficiary targeting outcomes is only available from household surveys conducted in 2006/7.

### 4.1 Area targeting outcomes

As noted in section 3.1, area allocations shifted from an emphasis on allocating coupons in proportion to crop areas in the first two years of the programme to making them more proportionate to the number of farm households in each area. At the same time total allocations increased from 2005/6 to 2007/8, and then declined in subsequent years. Figure 4 shows the changing pattern of maize fertiliser redemptions per household by region from 2005/6 to 2010/11.

The following observations are of interest from Figure 4:

- There have been substantial differences in fertiliser supply over the life of the programme, with it rising from 2005/6 to 2007/8, and then



Source: Calculations from Logistics Unit (2011), NSO(2008), MVAC livelihood zone data.

**Figure 4 Estimates of fertiliser voucher redemption per household by region by year using NSO rural household estimates**

falling back to 2009/10, with the same supply in 2010/11.

- There are also substantial differences between regions in subsidised fertiliser availability per household, but these regional differences have declined over time as area allocations were increasingly tied to areas' farm populations. Availability per household has been highest in the north in all years, but increasing regional equity has meant that supply to the north declined sharply from 2007/8 to 2009/10. Supply per farm family in the central region also shows a very sharp decline, to match supply in the southern region.

Given that there is both higher poverty incidence and a greater number of poor people in the southern region than in the centre and north, reference back to table 2.1 suggests that this switch of coupon allocations to the south should have led to increased subsidy access by poor people. This in turn should lead to

- reduced displacement of unsubsidised purchases by subsidised purchases,
- increased incremental production, and
- increased maize and labour market effects benefiting poor non-beneficiaries as well as poor beneficiaries (School of Oriental and African Studies et al., 2008, Dorward, 2010).

With regard to achievement of various possible programme objectives examined earlier in Table 2, these effects should (other things being equal) improve programme effectiveness and efficiency in promoting national and household food production, self-sufficiency, food security, social protection and poverty reduction (for both beneficiaries and non-beneficiaries). These effects may, however, be undermined if incremental production per unit incremental inputs is lower for new beneficiaries in the south as compared with previous beneficiaries in the centre and north, if targeting of the poor is less effective in the south than in the north and centre, and by variability in subsidy distribution per

household between districts within regions. These changes would not appear to have any links to strategies for area graduation (as there is no change in the actual areas being subsidised, only in the intensity of subsidy in each area). There is also no evidence that they will have any positive or negative impact on environmental protection.

## 4.2 Beneficiary targeting outcomes

Descriptive statistics on receipt of subsidy coupons by households with different characteristics are reported for 2006/7 by School of Oriental and African Studies et al., 2008, for 2008/9 by Dorward et al., 2010 and for 2010/11 by Dorward and Chirwa, 2011a. In addition School of Oriental and African Studies et al. (2008) and Chirwa et al., 2010b provide regression analyses of household characteristics associated with subsidy receipt. We do not attempt to provide a detailed description of the findings of these studies, but note the following general observations:

- There is a general tendency for characteristics associated with less poor households to be associated with greater likelihood of receiving subsidy coupons and (among those receiving coupons) of receiving more coupons (characteristics such as larger land holdings, male rather than femaleheaded households, higher value of assets owned, and better subjective assessment of welfare).
- There is however evidence from 2008/9 data that households with salary income are less likely to receive subsidised inputs
- There is also evidence from 2008/9 data that distribution of coupons in open meetings increases the probability of poorer households receiving subsidised inputs
- There is little other evidence that the proportion of relatively poorer households receiving the subsidy has increased from 2006/7 to 2010/11 – as a result of either changes in area allocations or changes in beneficiary targeting criteria or

processes (as discussed earlier). However, this issue could benefit from further investigation and analysis.

- Dorward et al., 2010 and Dorward and Chirwa, 2011a also report (for 2008/9 and 2010/11 respectively) rural people's perceptions of what types of households are more or less likely to receive coupons. These do not suggest any strong targeting to benefit poorer or more vulnerable households, nor any increases in such targeting.
- There is also evidence that the proportion of households who lose or gain coupons as a result of redistribution (those household with only one coupon) has increased steadily from 2006/7 to 2010/11 (from 27% to 36% to 41% across 2006/7, 2008/9 and 2010/11) and that this is most common and has increased most in the south. However, apart from a lower occurrence of redistribution in the North, the changes appear to be largely the result of increases in the numbers of coupons and proportions of households receiving coupons in the south – if we examine the households receiving 1 coupon as a percentage of households receiving any coupons (i.e. excluding households not receiving any coupons), then this remains relatively constant across the three survey seasons (around 30% in the North, between 52 and 63% in the centre, and around 57% in the south, as shown in Table 3). However, analysis of the characteristics of households receiving one coupon shows a persistent pattern of poverty across all three years - land and other asset holdings and subjective welfare indicators suggest that across different survey years these households are consistently nearly as poor as, or sometimes poorer than, households not receiving any coupons. This suggests that when redistribution occurs it is poorer households who share one of their coupons (less poor households with two coupons tend to hold onto both), and poorer households who receive the redistributed coupons.

**Table 3 Percentage of all households and of recipient households by coupons received by year**

Coupons/hh	zero			1 coupon/hh			2 coupons/hh			>2 coupons/hh		
	06/7	08/9	10/11	06/7	08/9	10/11	06/7	08/9	10/11	06/7	08/9	10/11
<i>% all households by number of coupons /hh</i>												
North	38%	28%	24%	18%	14%	23%	37%	50%	47%	7%	8%	5%
Centre	45%	35%	31%	28%	39%	38%	21%	20%	24%	5%	3%	1%
South	49%	33%	11%	28%	37%	47%	19%	24%	35%	4%	3%	2%
National	46%	33%	21%	27%	36%	41%	22%	25%	31%	5%	3%	2%
<i>% recipient households by number of coupons /hh</i>												
North	na	na	na	29%	19%	31%	60%	69%	63%	11%	11%	7%
Centre	na	na	na	52%	63%	60%	39%	32%	38%	9%	5%	2%
South	na	na	na	55%	58%	56%	37%	38%	42%	8%	5%	2%
National	na	na	na	50%	56%	55%	41%	39%	42%	9%	5%	3%

Despite the changes in targeting criteria and processes reported above, and changes in area targeting outcomes, examination of beneficiary and non-beneficiary characteristics suggests that beneficiary targeting outcomes have not changed much from 2006/7 to 2010/11, and that targeting continues to tend to favour the non-poor. This involves both exclusion errors (with exclusion of poor and vulnerable households who ought to be included according to the targeting criteria) and inclusion errors (with inclusion of less poor households who ought to be excluded according to the targeting criteria). However, the lack of clarity in targeting criteria and the large numbers of relatively less poor people (who can nevertheless be considered to meet the targeting criteria) make it difficult to identify exclusion and inclusion errors with any precision or confidence.

## 5. Targeting Options

In considering targeting options we consider first different outcomes that targeting systems might aim for, taking account of practical difficulties likely to be encountered in aiming for these different outcomes. We will then consider potential targeting systems for achieving desired targeting outcomes. In this discussion area targeting and beneficiary targeting within areas will be considered separately, although overall beneficiary targeting outcomes depend upon interactions between area targeting and beneficiary targeting within areas.

### 5.1 Targeting outcomes

Area targeting outcomes would ideally be analysed by examining coverage and ratios of subsidy sales to rural households by MVAC livelihood zone. Unfortunately this is difficult as zones are not co-terminous with districts, and not all zones were sampled in the 2010/11 household survey. Table 4 presents results from an analysis using a rough categorisation of districts by higher, middle and low altitude (which approximates to higher, medium and lower maize production importance and potential). This suggests that higher potential areas were generally allocated proportionally more coupons than low potential areas in 2010/11, but the analysis is complicated by regional differences (for example northern districts generally having higher proportional allocations) and agro-ecological variations within districts. Differentiation between allocations to higher

and lower altitude districts appears to have diminished between 2006/7 and 2010/11.

In districts with lower allocations relative to population, this normally involved reduced allocations across the board, rather than the complete exclusion of significant areas. Political considerations make it difficult to exclude significant areas unless other alternative transfers are made to compensate for the lack of subsidised maize production inputs. There is no evidence that there is greater proportionate allocation to districts with more poor households (the correlation coefficient between the estimated number of poor rural households and total bag sales is smaller than the correlation coefficient between the total number of rural households and total bag sales). However, the correlation between subsidy sales and poor rural households per district increased substantially from 2006/7 to 2010/11 (the correlation coefficient increased from 0.59 to 0.73) while there was only a very small increase in the correlation between subsidy sales and total rural households per district (from 0.83 to 0.87). This is the result largely of the shift in district coupon allocations noted earlier, from districts with lower numbers of poor people in the north and centre to districts with larger numbers of poor people in the south.

Table 5 shows beneficiary targeting outcomes achieved in 2010/11 in terms of the proportions of households in different wellbeing / poverty classifications receiving different amounts of subsidised fertiliser (using households own perceptions of their wellbeing / poverty). As discussed earlier in section 4.2, this does not suggest that beneficiary targeting is particularly targeted at the poor.

We therefore now consider four possible alternative patterns of beneficiary targeting objectives, set out in Table 6. We consider first a *universal* but smaller per household subsidy that may provide for 50kg of fertiliser to all rural households (we term this the 'universal programme'), second 'tighter pro-poor targeting' where the same total volume of subsidised fertiliser is targeted with a 100kg ration to the poorest households, and third 'pro-poor mixed targeting' where the same proportion of households get 100kg and the same proportion of households get 50kg fertiliser as in 2010/11 as set out in table 5.2, but the poorest households get 100kg, less poor households get 50kg, and the least poor get none. The fourth pattern of beneficiary targeting, 'regressive

Table 4 Distribution of subsidy coupons by district altitude categories

District altitude category	No of districts	Rural households	Subsidy fertiliser sales 2010/11 (bags)		Standardised subsidy sales/hh (relative to mean)	
			Total	Per rural hh	2010/11	2006/7
		2010/11				
Higher (Plateau)	18	4,465,105	5,677,948	1.35	1.10	1.26
Medium (Lakeshore)	7	484,957	478,863	1.03	0.84	0.62
Low (Lower Shire)	2	146,395	53,218	0.36	0.30	0.10
Total	27	5,096,457	6,210,029	1.22	1.00	1.00

Source: Calculated from 2010/11 household survey

**Table 5 Beneficiary targeting outcomes, 2010/11: % hh by subsidy receipt and poverty / well being group**

Poverty/ wellbeing group	Subsidy receipt (bags fertiliser /hh)			All hh
	No subsidy	1 bag or less	More than 1 bag	
Poorest <i>(Ovutikitsitsa)</i>	6%	10%	5%	21%
Poor <i>(Ovutika)</i>	8%	19%	13%	39%
A bit poor <i>(Ovutikilako)</i>	5%	12%	8%	25%
A bit better off <i>(Wapakatikati &amp; better)</i>	3%	4%	8%	15%
All households	21%	45%	34%	100%

Note: Poverty/wellbeing groups are based on a ladder of six steps ranging from poorest (locally known as Ovutikitsitsa) to rich (Opeza bwino kwambiri/Olemera)

Source: Calculated from 2010/11 household survey

mixed targeting' provides the same proportion of households with 100kg, 50kg and no subsidised fertiliser as the 'pro-poor mixed' pattern, but prioritises allocations to the less poor rather than to the poor. The targeting patterns these four approaches would aim to achieve are set out in Table 7.

We may now consider the relative advantages and disadvantages of each of these targeting patterns, against their likely achievement of the programme objectives set out above.

Universal provision of 50kg fertiliser is effectively legitimising and extending the widespread practice of

**Table 6 Alternative beneficiary targeting patterns**

Poverty/ wellbeing group	Subsidy receipt (bags fertiliser /hh)			All hh
	No subsidy	1 bag or less	More than 1 bag	
<b>a. Universal, 50 kg fertiliser to all households</b>				
Poorest <i>(Ovutikitsitsa)</i>	0%	21%	0%	21%
Poor <i>(Ovutika)</i>	0%	39%	0%	39%
A bit poor <i>(Ovutikilako)</i>	0%	25%	0%	25%
A bit better off <i>(Wapakatikati &amp; better)</i>	0%	15%	0%	15%
All households	0%	100%	0%	100%
<b>b. Tighter pro-poor targeting 100 kg fertiliser to the poor</b>				
Poorest <i>(Ovutikitsitsa)</i>	0%	0%	21%	21%
Poor <i>(Ovutika)</i>	4%	0%	36%	39%
A bit poor <i>(Ovutikilako)</i>	25%	0%	0%	25%
A bit better off <i>(Wapakatikati &amp; better)</i>	15%	0%	0%	15%
All households	44%	0%	56%	100%
<b>c. Mixed targeting to the poor</b>				
Poorest <i>(Ovutikitsitsa)</i>	0%	0%	21%	21%
Poor <i>(Ovutika)</i>	0%	26%	13%	39%
A bit poor <i>(Ovutikilako)</i>	7%	19%	0%	25%
A bit better off <i>(Wapakatikati &amp; better)</i>	15%	0%	0%	15%
All households	21%	45%	34%	100%
<b>d. Mixed targeting to the less poor</b>				
Poorest <i>(Ovutikitsitsa)</i>	21%	0%	0%	21%
Poor <i>(Ovutika)</i>	1%	39%	0%	39%
A bit poor <i>(Ovutikilako)</i>	0%	6%	19%	25%
A bit better off <i>(Wapakatikati &amp; better)</i>	0%	0%	15%	15%
All households	21%	45%	34%	100%

Note: Poverty/wellbeing groups are based on a ladder of six steps ranging from poorest (locally known as Ovutikitsitsa) to rich (Opeza bwino kwambiri/Olemera)

Source: Authors' estimates

**Table 7 Relative advantages and disadvantages of different targeting patterns, against likely achievement of the programme objectives**

		Targeting outcomes & effects				Programme objectives / impacts				
		Area poverty targeting	Beneficiary poverty targeting within areas	Displacement	Productivity	Incremental production, national food self-sufficiency & security	Beneficiary food self-sufficiency & security	Wider food security & pro-poor growth	Area graduation	Beneficiary graduation
Universal provision of 50kg fertiliser	Potentially low cost & effective implementation but political difficulties	??	Theory & practice aligned, similar to 2010/11	Similar to 2010/11	OK	OK	OK	??	??	Difficult to reach thresholds?
Tight pro-poor targeting of 100kg fertiliser	High cost & difficult implementation	??	Good in theory, practice difficult	May be good in theory but poor in practice	??	??	good but only if actually implemented	??	??	May be good but only if actually implemented
Mixed pro-poor targeting of 50 & 100kg fertiliser	High cost & difficult implementation	??	Good in theory, practice difficult	May be good in theory but poor in practice	??	??	good but only if actually implemented	??	??	May be good but only if actually implemented
Mixed regressive targeting of 50 & 100kg fertiliser	Potentially low cost & effective implementation but political difficulties?	??	Regressive targeting	Likely to be high	??	High displacement so limited productivity gains	Limited change due to limited incremental production			

redistribution discussed earlier. It has a number of advantages (School of Oriental and African Studies et al., 2008):

- It eliminates the costs and difficulties of targeting
- It dramatically increases transparency and accountability, as all rural households know that they are entitled to a set of subsidised inputs
- As a result, there should be a high correspondence between planned targeting outcomes and those actually achieved
- It would increase the effectiveness of the programme in targeting the poor as compared with 2010/11 targeting outcomes by eliminating exclusion errors. Although there would be some increase in inclusion errors measured in terms of less poor households receiving fertilisers, because they would only receive one bag the total quantity of fertiliser going to less poor households would be about the same. It may then be argued that this is a better outcome than the 2010/11 outcome given the large numbers of poor households in most rural areas in Malawi – especially if the key test of inclusion errors is the extent to which they increase displacement and depress incremental production.
- Where inclusion errors do occur, some of this may be seen as a transfer to a small numbers of less poor farmers to compensate them for lower prices for surplus maize production.

There are, however, also a number of difficulties with this approach.

- It may appear to be a reversion to the former 'starter pack' approach implemented by a previous government in 1999/2000 and 2000/2001 (Levy, 2005) although there are substantial differences with the larger scale of the subsidised 'pack' and in its objectives. Nevertheless, this is a significant political issue.
- There are concerns that incremental production from a smaller (100kg fertiliser plus seed) ration of subsidised inputs for each household may not provide poor households with enough of a productivity boost to 'lift' them over the productivity and asset threshold that keeps them in a low productivity trap. This is a concern raised by a number of rural people in focus group discussions (Chirwa et al. (2011)). The importance of this is very difficult to determine as the effectiveness of subsidy in raising household productivity and assets above the threshold and the nature and importance of the threshold receipt depends not only on the size of the subsidy pack but also on its delivery (for example timing), on overall incremental production from the programme, and on complementary investments and policies concerning, for example, agricultural extension, support for integrated soil fertility management,

maize prices, input market development, and wider development of the non-farm economy (see Dorward and Chirwa, 2011b). There is substantial scope for improving effectiveness in many of these areas, and in particular the introduction of this system might itself promote greater incremental productivity (through more effective targeting, reduced targeting work burdens on extension staff, and greater farmer confidence in subsidy receipt) and this concern might then not be important.

- Another concern arises regarding processes for implementing and achieving graduation. Graduation with a thoroughly universal programme can only be achieved if the whole programme is withdrawn from all beneficiaries and areas at the same time. Some form of staggered progressions would mean that either area or beneficiary targeting is no longer universal. Progressive beneficiary graduation and targeting would undermine the core benefits of universal targeting outlined above. This might not be the case with progressive area graduation and targeting, but there would be very substantial political and practical challenges with implementing this – but perhaps not much different from challenges with progressive area graduation and targeting in other contexts.
- Although the universal right to a fixed subsidy would offer opportunities for significant practical benefits in improving transparency and accountability and lowering targeting costs, as discussed above, it does not address (and may even exacerbate) a major practical challenge, the determination of the number of eligible farm families in each area and in the country as a whole. Difficulties in determining the number of farm families were alluded to earlier (in sections 3.1 and 4.1), with MoAFS farm family registrations growing annually by 9.1% and 2.2% in the Central and Southern regions respectively from 2005/6 to 2009/10, and erratic variations between years being mutually inconsistent and inconsistent with NSO estimates of 1% inter-censal growth in rural households and with farm family numbers apparently inconsistent with 2008 census returns. The pressures and processes that encourage the creation of 'ghost households' and the splitting of households for subsidy registration may be intensified with a universal subsidy. On the other hand the accurate determination and registration of farm families is a challenge that is faced whatever targeting approach is adopted.

*Tight pro-poor targeting of 100kg fertiliser is broadly the approach that is currently supposed to be used. If implemented effectively then this would provide the lowest displacement and has the highest pro-poor growth potential. As discussed in sections 3 and 4, however, there are serious difficulties in applying this*

method and as a result targeting outcomes do not match aspirations. Proposals to improve the implementation of this approach need to address current difficulties in both setting measurable targeting criteria and in applying these criteria in targeting. Since these apply to all systems except the universal system, we discuss these separately below.

Attention also needs to be paid to the processes of coupon redemption, as these can be highly exclusionary to poorer and more vulnerable people (Mvula et al., 2011). Options here include distribution centre committees, more private sector involvement in subsidised input sales (to promote competition), more and more effective market monitoring and auditing, and better integration with cash transfers for the productive poor who cannot afford redemption payments.

*Mixed pro-poor targeting of 50 and 100kg fertiliser* is perhaps closer to the approach that is currently actually used, where there is redistribution and sharing of subsidy coupons. However, whereas in the current system most redistribution seems to involve sharing by poor recipients with poor non-recipients, a more pro-poor approach would prioritise poorer recipients keeping their 100kg fertiliser allocation, while less poor recipients would get 50kg each, and the least poor would get nothing. This may be seen as something of a halfway house between the universal and tight pro-poor targeting approaches outlined earlier. While it lacks the strong transparency and accountability of the universal approach, it may provide better targeting, and may be more acceptable and have wider community support than the tight pro-poor approach, and consequently may be more easily implemented – but it will still run up against the interests groups of powerful people who may be excluded from subsidy benefits, and will still face challenges in setting and applying targeting criteria to identify target households. The options for addressing this discussed above for tight pro-poor targeting will also be relevant here. This approach might also allow a natural beneficiary graduation system as when households became better off then they could be shifted from a 100kg fertiliser allocation to a 50kg allocation and eventually the subsidy could be withdrawn.

*Mixed regressive targeting of 50 & 100kg fertiliser* would give more regressive outcomes than the current system (see tables 5.2 and 5.3d) and is included here to provide a comparison. Table 5.4 suggests that it has little to commend it as high displacement means it offers limited impact on the main programme objectives, and would be inferior to the current system.

## 6. Options for Identifying Beneficiaries

The development of methods for better identification of targeted beneficiaries is a key requirement for improving targeting, unless it is accepted that difficulties with this (together with power, politics and problems of

lack of accountability and transparency) make the universal approach the best practical approach.

Three broad approaches may be considered: proxy wealth and income measures, community targeting, and identification by traditional leaders.

With regard to proxy wealth and income measures, Houssou and Zeller, 2011 propose an indicator based system for setting targeting criteria and argue that this approach would be more target and cost effective than the 2006/7 system in improving welfare transfers to the poor<sup>6</sup>. There is certainly potential merit in the use of objective indicators, however, there are potential major costs and challenges in gathering accurate and reliable data on household indicators and in ensuring that these indicators are used properly in the processes of subsidy allocations to households. This approach also

1. presupposes that the integrated household survey data and its estimation of income poverty (with its various challenges<sup>7</sup>) provide more valid poverty measures than more subjective local definitions which may take account of wider definitions of poverty<sup>8</sup>,
2. presupposes that poverty targeting is the most effective way of meeting the range of programme objectives as discussed above,
3. does not recognise the complex interactions between area and beneficiary targeting that are important in the practicalities of targeting, and
4. does not pay sufficient attention to difficulties associated with the large number of households clustered around the poverty cut-off point, and hence local concerns about 'fairness'<sup>9</sup>.

Nevertheless, the suggestion that a relatively small set of fixed indicators provide explicit and objective criteria for subsidy access is valuable, and it would be useful to consider and develop alternative ways of implementing this. Thus, for example, criteria might be developed by a process of participatory consultations with rural people, and a small number of low cost indicators (say three of four) be combined into a points system which is used to rank households in terms of their priority for subsidy allocation within villages (that is for beneficiary targeting rather than area targeting). Any such system would run counter to the interests of entrenched less poor interest groups, but it might be possible to overcome these with strong commitment to enforcing of more transparent and accountable allocation and distribution processes. This might be achieved with, for example, completely open processes (though the costs of participation and social conventions may mean that poorer people are often excluded even from processes that are nominally or appear to be completely open) and/or published lists of recipients and of the criteria used in allocation (although there are also important sensitivities and issues of confidentiality here).

It might also be possible to differentiate between the productive and non-productive poor (with the latter

being provided with cash transfers rather than production subsidies). There may be useful lessons here from consideration of experience with cash transfer programmes and the potential for combining subsidy and cash transfer programmes (Ellis and Maliro, 2011). In a separate study of public works programmes, Chirwa et al., 2012b, found that 13.6 percent of beneficiaries of public works spent their wages on purchase of subsidized fertilizers. However, most of the public works programmes studied were implemented in November and December which was some time after redemption of fertilizer coupons had started – indeed, some beneficiaries borrowed money to redeem coupons and used the wage to repay the loan. They note that better timing of public works could have improved their complementarity with the subsidy programme.

Community targeting is the approach that is supposed to be used for identifying beneficiaries in the FISP, with the involvement of open meetings. Household survey data and FGDs have persistently shown very large variability between targeting processes and outcomes across the country. In general targeting is less contentious in the northern region, and is dominated more by traditional leaders in the Centre. There is widespread concern that traditional leaders, government officials and other members of the local elite are appropriating coupons and/or directing them to themselves and /or their friends and relatives. While failures to target the poor are evident (as discussed earlier) the extent of diversion is very difficult to establish. However, the perception of diversion is promoted by lack of transparency in allocation, misunderstanding of coupon allocations and targeting processes, and widespread belief that there should be more coupons – and sometimes that there should be enough for everyone and any shortfall is due to misappropriation. These problems are not new, and similar problems and patterns of problems were detailed by Chinsinga et al., 2002 when studying targeting in the 2001-2 TIP programme. They concluded that it was difficult for targeting to be perceived to be fair if less than around 80% of households were targeted (more in the south and less in the north) and community targeting needed fairly intensive and costly training and facilitation with checks and balances to stop inputs being captured by local elites.

The third approach is the use of traditional leaders in the identification of beneficiaries. This is currently happening in targeting FISP beneficiaries and public works programmes in which surveys have shown that most beneficiaries are identified by traditional leaders. This system in part has evolved from the failure by the community to implement community based targeting. The assumption is that traditional leaders know the difficulties their subjects experience and have better information on who is poor and needs assistance in the community. Although this system is cost effective due to use of local capacity, there are widespread complaints about fairness and inclusion of households that are in cahoots with the traditional leadership and bring their own criteria for targeting. Such a system also lacks transparency, as culturally it is not typical that subjects

openly question the decision of the traditional leaders (Chirwa et al., 2012b).

## 7. Conclusions

This paper has examined targeting issues that emerge from the 2010/11 and earlier FISP evaluations, and puts forward various options for improving targeting.

Targeting objectives depend upon programme objectives. There is a key distinction between area and beneficiary targeting. Targeting affects achievement of programme objectives through its impacts on displacement, productivity of input use, the direct benefits to beneficiaries, and wider economic, social and environmental benefits. Achievement of these benefits is generally supported by pro-poor targeting, through lower displacement and stronger growth linkages, but the effects of pro-poor targeting on input productivity are not known. Relations of targeting with area and beneficiary graduation and with environmental benefits are complex.

Area and beneficiary targeting outcomes (actual patterns of subsidy receipt) depend on targeting criteria and processes as well as on coupon distribution, redistribution and redemption processes. Shifts in relative area allocations, from the Northern and Central Regions to the Southern Region, have brought allocations more in line with rural population distribution, and there have also been reductions in the use of less transparent and more informal supplementary allocations. Recent beneficiary targeting criteria also place more emphasis on poor and vulnerable farmers. This is associated with more formal processes of farmer registration and of coupon allocation and distribution, the latter in open meetings (though it is not clear how far these meetings opened up the process of allocation or merely made the announcement of allocations more transparent). Less formal redistribution of coupons by local traditional leaders (after formal distribution by government staff) has been an enduring feature of the process, especially in the Central and Southern regions.

Increased correlation between coupon allocations to districts and numbers of poor rural households per district appears to have been a result of shifts of coupons to the South. However there is no clear evidence of increased likelihood of the poor benefiting from changes in beneficiary targeting, in 2008/9, except that in 2008/9 open meetings were associated with greater likelihood of the poor receiving coupons. Redistribution tends to affect poorer households, both as donors and recipients of shared coupons.

As regards options for improving patterns of coupon distribution among poorer and less poor households, regressive patterns appear to be undesirable due to associated high displacement (leading to low incremental production even if there is higher input productivity) and low linkage effects. 'Tight pro-poor targeting' is the current desired outcome, but difficulties in setting criteria

and with distribution and redistribution processes lead to outcomes that are very different from those that are desired. To address these difficulties we suggest

- Mechanisms for improving targeting criteria (e.g. use of indicators and points systems) and processes (e.g. published lists and more genuinely participative open meetings);
- Consideration of 'looser' targeting objectives, to allow 100kg of subsidised fertiliser for some households and 50kg for other households (as currently observed as a result of redistribution), but with greater emphasis on 100 kg for poor households and 50 kg of fertiliser for less poor households. Targeting criteria and processes would need to be improved, as discussed above.
- Consideration of a more universal approach, with 50 kg of subsidised fertiliser for all households. Although this represents a lower aspiration for pro-poor targeting, greater transparency and accountability may lead to all poorer households actually receiving coupons, without any increase in coupons going to less poor households. Practical, political and graduation challenges, however, would need to be addressed before such a system could be implemented.

Investigation of differential input productivity on poor and less poor farms is an important (but difficult) field of further research. Research is also needed on relations between targeting on the one hand, and area and beneficiary graduation and environmental benefits on the other.

## Notes

- <sup>i</sup> Ricker-Gilbert et al., 2010 report that participation in unsubsidised fertiliser purchase is depressed with increasing distance to a paved road, whereas subsidised purchases increase with distance to a paved road. Chirwa et al., 2011 do not find any significant effect of distance to paved road on participation in unsubsidised fertiliser purchases.
- <sup>ii</sup> School of Oriental and African Studies et al., 2008 and Chirwa et al., 2010a discuss the processes of and influences on wider growth processes from the FISP.
- <sup>iii</sup> Dufló et al., 2009 find in Kenya that early and discounted availability of fertilisers may promote purchases of fertiliser with only very small subsidies.
- <sup>iv</sup> The proportion of households reporting receipt of one fertiliser coupon rose from 27% in 2006/7 to 36% in 2008/9 to 41% in 2010/11, with the highest incidence and rates of increase reported in the south (where it rose from 28% in 2006/7 to 37% in 2008/9 to 47% in 2010/11). This increase appears to be largely the result of increased coupon allocations to the centre and south, particularly the latter, where redistribution is most common (the proportion of coupons being redistributed remained relatively constant across

years within each region, but was persistently higher in the south and centre and lower in the north).

- <sup>v</sup> Central region supply per farm household recorded by MoAFS is below that of the Southern region in later years, due to the very high increases in farm families registered by the MoAFS in later years.
- <sup>vi</sup> Ten indicators are proposed (household size, radio ownership, cement floor of house, bicycle ownership, use of electricity for lighting, panga ownership, educational qualification in household, use of bed net, rubbish disposal facility, and household head literacy) and also area based factors based on Agricultural Development Divisions.
- <sup>vii</sup> See for example Chirwa et al., 2012a on poverty estimation difficulties as a result of seasonality
- <sup>viii</sup> See for example World Bank, 2000 for discussion of issues such as vulnerability, power, voice, assets, wealth and well being as poverty concepts alongside income or expenditure measures.
- <sup>ix</sup> Houssou and Zeller do consider different patterns of distribution, including a 'fair targeting' approach that does not lift anyone above the poverty line – but this involves reducing subsidy receipts for households just below the poverty line to ensure that it does not lift them over it – a very challenging process, both politically and administratively.
- <sup>x</sup> Maliro (2011) reports that targeting has been quite successful in Malawian pilot cash transfer programmes, but much less successful in rolling out of larger scale programmes.

## References

- Chinsinga, B., C. Dzimadzi, M. Magalasi and L.Mpekansambo (2002). 2001-02 Targeted inputs programme (TIP) Evaluation Module 2: TIP messages, Beneficiary selection and community targeting, agricultural extension and health (TB and HIV/AIDS). Lilongwe, Malawi, EDUC CONSULT (Education and Development Consultants).
- Chirwa, E., A. Dorward and M. Matita (2010a). Conceptualising Graduation from Agricultural Input Subsidies in Malawi. Brighton, Sussex, Future Agricultures Consortium.
- Chirwa, E., A. Dorward and M. Vigneri (2012a). Seasonality and Poverty: The 2004/05 Malawi Integrated Household Survey. . Seasonality, Rural Livelihoods and Development. R. Sabates-Wheeler and S. Devereux, Earthscan.
- Chirwa, E., M. Matita and A. Dorward (2010b). Targeting Agricultural Input Subsidy Coupons in Malawi. Paper prepared for Malawi Government / DFID Evaluation of Malawi Farm Input Subsidy Programme, School of Oriental and African Studies, University of London
- Chirwa, E., M. Matita, P. Mvula and A. Dorward (2011). Impacts of the Farm Input Subsidy Programme in Malawi. . Paper prepared for Malawi Government / DFID Evaluation of Malawi Farm Input Subsidy Programme, School of Oriental and African Studies, University of London

- Chirwa, E.W., P.M. Mvula and H. Kumwenda (2012b). Tracking Study on Public Works Cash Transfer in Malawi. Final report submitted to the Local Development Fund Technical Support Team, Lilongwe.
- Dorward, A. and E. Chirwa (2010). A review of methods for estimating yield and production impacts. . Paper prepared for Malawi Government / DFID Evaluation of Malawi Farm Input Subsidy Programme, School of Oriental and African Studies, University of London
- Dorward, A. and E. Chirwa (2011a). Evaluation of the 2010/11 agricultural input subsidy programme, Malawi: Report on Programme Implementation. London, School of Oriental and African Studies.
- Dorward, A. and E. Chirwa (2011b). "The Malawi Agricultural Input Subsidy Programme: 2005-6 to 2008-9" *International Journal of Agricultural Sustainability* 9(1): 232-247.
- Dorward, A., E. Chirwa and R. Slater (2010). Evaluation of the 2008/9 agricultural input subsidy programme, Malawi: Report on Programme Implementation. London, School of Oriental and African Studies.
- Dorward, A. and E.W. Chirwa (2011c). Improving benefit cost analysis for Malawi's farm input subsidy programme, 2006/7 to 2010/11 Paper prepared for Malawi Government / DFID Evaluation of Malawi Farm Input Subsidy Programme, School of Oriental and African Studies, University of London
- Dorward, A.R. (2010). Informal Rural Economy Modelling of Subsidy Impacts, . Work in progress. London, School of Oriental and African Studies.
- Dorward, A.R. and E.W. Chirwa (2012). Informal Rural Economy Modelling of Programme Impacts, 2005/6 to 2010/11: Discussion Paper. Evaluation of the 2010/11 Farm Input Subsidy Programme, Malawi. London, School of Oriental and African Studies.
- Duflo, E., M. Kremer and J. Robinson (2009). Nudging Farmers to Use Fertilizer: Theory and Experimental Evidence from Kenya. Working Paper 15131. Cambridge, MA, National Bureau of Economic Research.
- Ellis, F. and D Maliro (2011). Fertilizer Subsidies and Social Cash Transfers as Complementary or Competing Instruments for Reducing Vulnerability to Hunger: Malawi Case-Study. (mimeo). Norwich, School of International Development.
- Houssou, N. and M. Zeller (2011). "To target or not to target? The costs, benefits, and impacts of indicator-based targeting." *Food Policy* 36: 626-636.
- Levy, S., Ed. (2005). *Starter Packs: A Strategy to Fight Hunger in Developing and Transition Countries? Lessons from the Malawi experience, 1998-2003*. Wallingford, CABI.
- Mvula, P.M. , E.W. Chirwa, M. M. Matita and A. Dorward (2011). Challenges of Access to Farm Input Subsidy by Vulnerable Groups in Malawi. Paper prepared for Malawi Government / DFID Evaluation of Malawi Farm Input Subsidy Programme, School of Oriental and African Studies, University of London
- Ricker-Gilbert, J and T S Jayne (2011). What are the enduring effects of fertilizer subsidy programs on recipient farm households? Evidence from Malawi. Staff Paper - Department of Agricultural, Food and Resource Economics, Michigan State University. East Lansing: 49-pp.
- Ricker-Gilbert, J. and T.S. Jayne (2010). The impact of fertilizer subsidies on displacement and total fertilizer use. Powerpoint Presentation. Lilongwe.
- Ricker-Gilbert, J., T.S. Jayne and E.W. Chirwa (2010). "Subsidies and crowding out: a double hurdle model of fertilizer demand in Malawi." *American Journal of Agricultural Economics* 93(1): 26-42.
- School of Oriental and African Studies, Wadonda Consult, Overseas Development Institute and Michigan State University (2008). Evaluation of the 2006/7 Agricultural Input Supply Programme, Malawi: Final Report. London, School of Oriental and African Studies; March 2008.
- World Bank (2000). *World Development Report, 2000*. Washington D.C., World Bank.

This Working Paper was written by **Andrew Dorward** and **Ephraim Chirwa** for the **Future Agricultures Consortium**. The FAC Working Paper series publishes work in progress by FAC members. All papers are technical research papers which have been peer reviewed, and are available in open access format. The series editor is **Beatrice Ouma**. Further information about this series of Working Papers at: [www.future-agricultures.org](http://www.future-agricultures.org)

The Future Agricultures Consortium aims to encourage critical debate and policy dialogue on the future of agriculture in Africa. The Consortium is a partnership between research-based organisations across Africa and in the UK. Future Agricultures Consortium Secretariat at the University of Sussex, Brighton BN1 9RE UK **T** +44 (0) 1273 915670 **E** [info@future-agricultures.org](mailto:info@future-agricultures.org)

*Readers are encouraged to quote or reproduce material from Future Agricultures Briefings in their own publications. In return, the Future Agricultures Consortium requests due acknowledgement and a copy of the publication.*