Future Agricultures

Policy Brief

Fertiliser Use on Women's Plots: An Intra-Household View of the Malawi Farm Input Subsidy Programme

The Government of Malawi has, since the 2005/06 agricultural season, been implementing a Farm Input Subsidy Programme (FISP) targeting resource-poor smallholder farmers. The input subsidy is targeted at households and implicitly assumes that a household is a unitary decision-making unit and subsidised inputs will be used equitably on plots controlled by various members of the household. This research demonstrates that in a socio-cultural environment in which men tend to dominate intra-household decision-making processes over allocation of income and resources, these issues are important in understanding the effectiveness of input subsidies and how they can create more equal opportunities for female and male members of the household. This research investigated gender differences in the application of fertilisers in general and subsidised fertilisers in particular, on plots controlled by male and female household members.

Gender, intra-household decisions and subsidies

The FISP is designed as a targeted input subsidy programme, targeting smallholder farmers who have land but cannot afford to purchase inputs at market prices. The main objective of the programme is to raise the income and food security of smallholder farmers through improvements in agricultural productivity. Each targeted household is expected to receive two coupons for subsidised fertilisers and one coupon for subsidised improved maize and/or legume seeds. However, in practice it has been found that some households receive less or more than the expected number (Dorward et al. 2010). In recent years the targeting guidelines have also encouraged communities to accord special consideration to vulnerable groups such as child-headed, female-headed or orphan-headed households and those households affected by HIV and AIDS (GOM 2008).

Targeting at the household level assumes that the household is a unitary decision-making unit when it comes to the use of fertilisers. However, in many rural communities in Malawi, households tend to have multiple plots that are used for cultivation of different crops and controlled by different members of the household, and allocation of inputs to these plots may depend on the relative bargaining strength of household members.

Previous studies that have looked at access to subsidised fertilisers in Malawi have found that female-headed households are less likely to receive coupons than male-headed households (Chirwa et al. 2011) and where female-headed households receive subsidy coupons they tend to receive less compared to their male counterparts (SOAS et al. 2008; Dorward et al. 2010). There are, however, no significant differences with respect to communities' perceptions of who is likely to receive coupons, between male-headed and female-headed households across regions (Dorward et al. 2010). In addition, in the 2008/09 season 81 percent of male-headed households and 66 percent of female-headed households reported utilising savings to obtain cash for coupon redemption, but a higher percentage of female-headed households relied on gifts (11 percent) compared with male-headed households (2 percent).

These findings mask issues of who actually uses the fertilisers available to the household. Would such biases also be evident within the household with respect to allocation and use of fertilisers among plots controlled by different members of the household? Most of the coupons within the household were received by the household head. Only 2.7 percent of households that received coupons in 2008/09 had more than 1 member receiving coupons, and 4.1 percent of households that received coupons had one person receiving more than two coupons. Given that most of the coupons were received by one member of the household and the possibility of pooling in households receiving more than one coupon, intra-household issues become important in determining the extent to which subsidised fertilisers reach and benefit female household members.

This study utilises quantitative and qualitative data collected in the 2009 Agricultural Input Subsidy Survey (AISS) covering the 2008/09 agricultural season. A sample of 1,982 rural households was drawn from 14 districts. Plot-level data with 4,727 observations was used to investigate intra-household use of subsidised fertilisers and each plot was identified with a household member who was mostly responsible for crop and input decision on the plot. Focus group discussions (FGDs) were conducted in 8 of the 14 districts covered by the household survey, and in each district these discussions were held with two groups, male and female. Intra-household allocations were discussed in the groups within the context of overall resource allocation rather than relating to the use of subsidised fertiliser in particular.

Sample household characteristics

Out of 4,727 plots, 71 percent are male-controlled and 29 percent are female-controlled within the household. Table 1 presents differences in individual and household characteristics by gender of the member making input decisions on the plot, regardless of the source of fertilisers. Almost all male members (99%) who control plots come from male-headed households, while only 28 percent of female members who control plots come from male-headed households. This suggests that females in male-headed households tend to have little control over farming decisions. In

male-headed households only 10.4 percent of the plots are female-controlled (mainly by spouses), while in female-headed households only 5 percent of the plots are male-controlled (3.1 percent by spouses).

cash cropping activities within the household. There is, however, slightly more access to social safety nets among female members controlling plots (16 percent) than among male members controlling plots (13 percent).

Table 1: Mean member and household characteristics by gender of members controlling plots

Variable	All	Males controlling plots	Females controlling plots	Mean difference
Age of household member	45.98	44.74	49.04	-4.305[a]
Male-headed households (0/1)	0.782	0.985	0.281	0.703[a]
Household size (adult equivalent)	4.956	5.122	4.545	0.577[a]
Household land size (hectares)	1.224	1.314	1.001	0.313[a]
Household grew tobacco 08/09 (0/1)	0.239	0.275	0.150	0.125[a]
Household sold maize 08/09 (0/1)	0.103	0.102	0.106	-0.004
Household access social safety net 07/08 (0/1)	0.146	0.139	0.163	-0.024[b]

Note: (0/1) indicates dummy variable. Superscripts a, b and c indicate statistically significant differences at 1%, 5% and 10% levels.

Significant differences exist in terms of households' participation in the cultivation of tobacco, with about 28 percent of male members controlling plots coming from households that grew tobacco compared to only 15 percent of female members. However, there are no significant differences between households with male and female members controlling plots as regards households' sale of maize in the 2008/09 season. Tobacco is the main cash crop grown by smallholder farmers in Malawi while maize is the main staple crop. The difference in the gender of control of crops within the households suggests that tobacco is mainly a men's crop while maize is gender neutral. As a cash crop, tobacco is subject to gender biases in the control of incomes in Malawian society, wherein men tend to control

Farming characteristics and gender

Generally, plots controlled by men tend to be larger than those controlled by women, while there are no gender differences with regards to the frequency or intensity of overall fertiliser application (Table 2). The proportion of household members from households with access to subsidised fertilisers increased from 65 percent in 2007/08 to 75 percent in 2008/09. There is a notable lack of dominance by male members in the use of subsidised fertilisers, which was confirmed by focus group discussions in several districts. Most focus group discussions with females revealed that decisions on the use of coupons and acquired fertilisers are made collectively by the family.

However, in some focus group discussions it was reported that the use of coupons was mainly decided by men. In one district, the female group discussion argued that in a matrilineal system women should be in control of coupons. Women also argued in all the districts that if coupons were given to female members of the households, they were unlikely to sell the coupons. In most focus group discussions with men, it was noted that the families were involved in the decisions about use of coupons, although in a few districts men revealed that they were making most decisions about the use of coupons.

Intra-household resource allocation decisions

Table 3 presents a summary of the views from male and female groups in various districts on how incomes generated from different sources were controlled within the household. There are a lot of variations; however, the dominant view is that men, particularly husbands, tend to be the main decision-makers within the household, with a few instances in which decisions about resources are jointly made by the husband and wife. The FGD participants further observed that it is usually in poor households that household resource allocation is dominated by men: in 'not poor' households, discussions normally precede joint decisions about resource use.

There was a dominant view from discussions with women that individual members tend to control their own resources from remittances and *ganyu* (casual off-farm) labour, but this was less prevalent in discussions with men. In many women's groups it was stated that the persons who receive remittances are the ones that control the income and decide on its allocation, sometimes in consultation with family members. It was also observed that in many cases, it is women that receive remittances in the household, and they tend to control such income. Men's focus group discussions revealed that for *ganyu* and remittance incomes, although men were in control, in many cases

Table 2: Mean differences in farming characteristics by gender of members controlling plots

Variable	All	Males controlling plots	Females controlling plots	Mean difference
Plot size (hectare)	0.382	0.399	0.340	0.059[a]
Application of fertilisers (0/1)	0.653	0.649	0.662	-0.014
Fertiliser intensity (Kg/hectare)	107.0	107.5	105.8	1.677
Households subsidised 08/09 (0/1)	0.750	0.757	0.732	0.025[c]
Households subsidised 07/08 (0/1)	0.652	0.653	0.651	0.002
Household with commercial fertiliser 08/09 (0/1)	0.473	0.502	0.401	0.101[a]
Household with commercial fertiliser 07/08 (0/1)	0.342	0.376	0.258	0.118[a]

Note: (0/1) indicates dummy variable. Superscripts a, b and c indicate statistically significant differences at 1%, 5% and 10% levels.

decisions on their use are made by the family. Some discussions with women's groups further explained that income from business enterprises was typically controlled by owners of the business.

There was a general perception among women's groups that when men control resources, they tend to use it for selfish purposes such as beer, at the expense of the welfare of the household. This view was reinforced by comments from some of the focus group discussions with men. For instance:

> 'Husband and wife sit down to discuss income allocation. Husband takes some to spend on what he wants personally while the wife spends all of it on household needs.' (FGD with Men in Mzimba District)

The research shows that intra-household issues are complex and the extent to which males dominate over control and allocation of resources varies from one transaction to another and from one district to another. There are also cases in which sources of income are personalised and household members earning such incomes tend to have control over their individual resources, as well as increasing evidence of collective decisions within households for particular types of income such as produce sales and income from safety nets.

Table 3: Reported intra-household resource allocation decisions from FGDs

Source of income	Decision makers	Number of male FGDs	Number of female FGDs
Business income	*Men*	4	5
	Joint	2	1
	Individual	0	2
Incomes from produce sales	*Men*	4	6
	Joint	2	2
Incomes from public works programmes	*Men*	3	4
	Joint	2	2
	Individual	1	1
Income from *ganyu*	*Men*	4	5
	Joint	2	3
Remittances	*Men*	3	3
	Women	0	1
	Joint	2	0
	Individual	1	4

Note: Two focus group discussions (1 male and 1 female) were conducted in each of the 8 survey districts.

Whose plots get fertiliser within the household?

The hypothesis that the intra-household use of fertilisers was gender neutral was tested using multiple regression analysis in which the probability of applying fertiliser on individual household members' plots was associated with gender while controlling for other factors. The gender of the member who controls input and farming decisions on the plot was the key variable describing decision-making on fertiliser use. The study, therefore, examined the combined effects on plot fertiliser use of gender of the member, plot size, age of household head, headship of household, cultivation of tobacco, sale of maize, access to safely nets and access and previous access to subsidised fertilisers, along with district dummies. The findings confirmed gender differences in the incidence of application of fertilisers, to the disadvantage of female-controlled plots when households have access to fertilisers, regardless of source of fertilisers (commercial or subsidised). Several results emerge from the analysis of gender issues in intra-household allocation of fertilisers.

First, female-controlled plots are less likely to have fertiliser applications than male-controlled plots. The probability of applying fertiliser falls by 28 percent for female-controlled plots. However, this is only in the case where subsidised and unsubsidised households are pooled together. Access to subsidised fertilisers improves the odds for female-controlled plots, with the probability of fertiliser application increasing by 35 percent compared to female-controlled plots in male-headed and non-coupon recipient households.

Second, female-controlled plots in male-headed households are less likely to be fertilised than male-controlled plots. However, this is only the case when commercial fertilisers are also available to the household, but it is not the case when households have access to subsidised fertilisers only. Hence, the bias against female-controlled plots in male-headed households is reduced as compared with the case when commercial fertiliser is also available at the household level.

Third, there is no difference in the application of fertilisers by gender of farmer who controls the plot, if only the sub-sample of purely subsidised households is considered, implying efficient allocation of subsidised fertilisers in such households.

Fourth, access to commercial fertilisers in the 2008/09 season favours women-controlled plots and raises the probability of application of fertilisers on the plot by 21 percent compared to male-controlled plots as well as female-controlled plots in households without commercial fertilisers.

Fifth, the size of the plot controlled by a member also matters. Larger plots are more likely to be fertilised than smaller plots. However, plots that belong to households with larger landholding tend to be less fertilised, probably due to the fact that most rural households are cash-constrained and tend to be very selective about where they apply fertilisers.

Sixth, commercialisation of agricultural activities is positively related to the probability of applying fertilisers on the plot. Tobacco cultivation improves the probability of fertiliser application on the plot by 8–14 percent, while sale of maize improves the probability of fertiliser application by 9–13 percent. The results suggest that commercialisation enables households to invest in fertilisers across their plots.

Finally, self-reported poverty in the 2007/08 season may be one of the constraints to the application of fertilisers by households that year, with plots that belong to poor households less likely to be fertilised regardless of availability of commercial or subsidised fertilisers. However, in households with only subsidised fertilisers, being poor does not matter.

Conclusion

This research provides evidence that significant gender differentials exist in the allocation of fertilisers to plots within households. Although female-headed households are less likely to receive coupons, potentially joint decision-making prevails when it comes to the use of subsidised fertilisers within the household, reducing bias against female-controlled plots. Probably because most of the subsidised fertiliser is meant for the cultivation of maize for subsistence needs, women may have stronger countervailing power as providers of basic food needs at the household level. The study implies that social transfers that focus on provision of basic services, such as input subsidy for household food security, are likely to be efficiently used even if they are targeted at the household level instead of being targeted at individual household members. The research further demonstrates the importance of analysing gender issues in the subsidy programme beyond the examination of differential access of subsidised fertilisers among male-headed and female-headed households, by including examination of intra-household use of subsidised fertilisers.

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