

# Preliminary analysis of coupon receipt and use reported in the IHS3

Andrew Dorward and Ephraim Chirwa  
*SOAS, University of London, and Wadonda Consult*

*February 2013*

## Summary

This paper provides a preliminary analysis of coupon receipt in the 2008/9 and 2009/10 seasons as reported by households interviewed in the 2010/11 Malawi Integrated Household Survey (IHS3). Information on the 2008/9 season was obtained from a smaller number of households than for the 2009/10 season, with a longer recall period that may have affected the accuracy of some data. The sampling population included urban and rural households and broadly but not exactly comparable with sample populations for the household surveys conducted in the FISP evaluations in 2006/7, 2008/9 and 2010/11. Estimates of total fertiliser coupon distribution are similar to but lower than estimates from the FISP evaluation surveys but there is consistency in apparent increased reduction in diversion after the 2008/9 season. General patterns of targeting of fertiliser coupons and of 'sharing' are similar across the different surveys. Across the surveys there is no evidence of pro-poor targeting and some evidence of bias against poorer households, but not against female headed households. IHS3 respondents reported very few of irregularities in coupon distribution and redemption. Estimates of seed coupon receipts are, however, very low.

## 1. Introduction

This paper reports on a preliminary analysis of coupon receipt in the 2008/9 and 2009/10 seasons as reported by households interviewed in the 2010/11 Integrated Household Survey (IHS3). The next section provides a brief overview of the data. The following sections then describe estimates of coupon receipt and use, comparing IHS3 findings with those of the Farm (or Agricultural) Input Subsidy Surveys of 2008/9 and 2010/11 (AISS2 and FISS3) as reported in Dorward et al., 2010 and Dorward and Chirwa, 2011 and on occasion with findings from 2006/7 (School of Oriental and African Studies et al., 2008).

## 2. Data

Sampling methods, the sample and survey organisation are described in National Statistical Office, 2012. Data and survey questionnaires were downloaded from <http://go.worldbank.org/6A7GUDQ1Q0>.

We note here that the overall sample provides balanced estimates by district, with sampled households in each district sampled equally across months from March 2010 to March 2011 (except for panel households, see National Statistical Office, 2012 pages 9 and 10). All panel households and a proportion of other households were supposed to report on coupons received in the 2009/10 season, with the remaining households reporting on coupons received in the 2008/9 season. This was largely the case, with 15% of households reporting on 2008/9 receipts and 85% reporting on 2009/10 receipts. A small number of households

appeared to report on the wrong season. This has been ignored in the analysis as the number of households involved is very small (just under 3% of households reporting receipt of NPK coupons received these in a month inconsistent with the season reported), attempting to correct for this would lead to biased estimates, and it is reasonable to assume that receipts across seasons are broadly similar.

Inspection of the data suggested that there were few inconsistencies (a small number of inconsistencies in reported quantities of inputs redeemed were corrected).

Differences between the IHS3 sample and questionnaires and those used for the household surveys conducted for the FISP evaluations in 2006/7, 2008/9a and 2010/11 (referred to as AISS/FISS) limits comparability across the two sources to some extent as shown in table 2.1 below, although coordination in the design of the IHS3 questionnaire ensured comparability on core issues.

**Table 2.1 Comparison of IHS3 and AISS/FISS sample and questionnaire designs**

Topic		IHS3		AISS/FISS		
<i>Rural / urban coverage</i>		Both rural and urban sampled		Only rural sampled, excluding peri-urban & protected areas		
<i>Sample</i>		2008/9	2009/10	2006/7	2008/9	2010/11
	<i>rural</i>	1,473	8,004	3,298	1,982	760
	<i>urban</i>	66	858	0	0	0
	<i>Total</i>	1,539	8,862	3,298	1,982	760
<i>Population estimates</i>		Constant across both years, based on 2008 census		Growing across years, 1999 census updated by 2008 inter-censal growth estimates		
<i>Mean months from coupon receipt to interview</i>		19	11	7	7	5
<i>Estimated coupon receipt per hh</i>		Over urban & rural populations (including peri-urban hh)		Over rural population (excluding peri-urban hh), limited only major livelihood zones in 2010/11		
<i>Estimated total coupon receipts</i>		Includes urban & peri-urban receipts		Excludes urban & peri-urban receipts		
<i>Issuing agent</i>		Recorded, but limited use		Not recorded		
<i>Distinctions between maize seed types</i>		Not recorded		Recorded		
<i>Distribution processes</i>		Not recorded		Recorded		

Differences to note between the samples are that the IHS3 included urban households in its sample, with some of these receiving coupons, while urban households were excluded from

the AISS/FISS samples and hence coupon receipts by urban households were excluded from estimates. The use of livelihood zones for sampling in the AISS/FISS also meant that peri-urban households were excluded from the sample, whereas these were included as rural households in the IHS3 sample. AISS/FISS households were interviewed around 7 (AISS1 and AISS2) or 5 (FISS3) months after they had received coupons, whereas the IHS3 households were interviewed a mean of 19 and 11 months after they had received coupons, with much greater range around these means. Analysis of AISS2 data on 2007/8 coupon receipts suggested that recall decreased significantly with a recall period of 19 rather than 7 months. Analysis of changes in reported receipts by recall period in the IHS3 data (using a quadratic regression of receipts on months recall for the 2009/10 data) finds a significant effect and reported receipts estimated to peak at around 10 months recall, with a 4% reduction in reported receipts with 19 month recall (rising to 7% after 21 month recall).

### 3. Total fertiliser coupon distribution

Table 3.1 presents total fertiliser coupons redeemed as estimated by the AISS/FISS and IHS3 surveys, and compares these with total redemptions/ sales reported by the Logistics Unit.

**Table 3.1 Survey estimates of total fertilizer coupon redemptions and MoAFS sales**  
(based on NSO rural household / farm family estimates)

Survey	Year	Population	Estimated household receipts	Total redemptions (Logistics Unit)	Household receipts as % redemptions
AISS/FISS	2006/7	Rural	2,304	3,060	75%
	2008/9		2,540	3,568	71%
	2010/11		2,733	3,183	86%
IHS3	2008/9	Rural	2,017	3,568	57%
		Urban	129		
		Total	2,146	3,568	60%
	2009/10	Rural	2,060	3,192	65%
		Urban	78		
		Total	2,138	3,192	67%

Source: IHS3 data and AISS/FISS surveys and reports

Discrepancies arise between the population coverage of the AISS/FISS and the IHS3 surveys as set out in table 2.1 and due to their coverage of different years. However it appears that estimates of household receipts as a percentage of redemptions are generally higher in the AISS/FISS than in the IHS3, but both surveys suggest improvements in this from 2008/9 onwards.

### 4. Patterns of fertiliser coupon receipt and targeting

Table 4.1 shows estimates from the different surveys of the proportion of households receiving no, one, two or more maize fertiliser coupons, together with the mean number of coupons received per recipient household. The proportion of households receiving no coupons is seen to be falling over time in the AISS/FISS surveys, and in later years to be lower than in the IHS3 results. The AISS/FISS surveys also, however, have an increasing and

higher proportion of households receiving only 1 coupon, and a falling number of coupons received per recipient household. The IHS3 estimates estimate a lower (but still substantial) proportion of households receiving one coupon, and hence a higher number of coupons received per recipient household (which counterbalances to some extent the higher number households not receiving any coupons). There is, however, a mismatch in the calculations of sharing of coupons across the AISS/FISS and IHS3 in table 4.1 in that for the AISS/FISS this is based on households reporting shared *fertiliser* allocations between households, whereas the IHS3 estimates are based on the households reporting shared *coupon* allocations. Table 4.2 therefore shows estimates of the proportion of fertiliser that is shared. Here the IHS3 estimates are higher (this might be due to double counting if some households reported shared coupons and shared fertiliser), but the pattern of much lower sharing in the north is found in all survey estimates.

Differences in the proportions of male and female headed households receiving coupons are relatively small and vary between the different survey estimates. There is however a consistent pattern of slightly higher mean coupon receipts per recipient among male headed households.

**Table 4.1 Subsidy ‘maize’ fertiliser coupon/ bag receipts per household by region& gender**

Survey	Year	Coupons/hh	North	Centre	South	Total	Male	Female
AISS/FISS	2006/7	0	38%	45%	49%	46%	43%	54%
		1	18%	28%	28%	27%	27%	26%
		2	37%	21%	19%	22%	24%	17%
		Mean	1.9	1.7	1.7	1.7	1.8	1.6
	2008/9	0	28%	37%	34%	34%	35%	34%
		1	14%	41%	38%	37%	35%	43%
		2	50%	20%	24%	25%	26%	22%
		Mean	2.03	1.42	1.49	1.52	1.55	1.45
	2010/11	0	25%	34%	13%	23%	22%	27%
		1	24%	41%	50%	44%	43%	45%
		2	48%	24%	36%	32%	33%	28%
		mean	1.81	1.34	1.46	1.44	1.45	1.41
IHS3 (only rural hh)	2008/9	0	48%	49%	46%	47%	48%	47%
		1	5%	31%	20%	23%	23%	25%
		2	46%	20%	34%	29%	29%	27%
		mean	1.93	1.44	1.64	1.58	1.59	1.54
	2009/10	0	46%	47%	46%	46%	47%	45%
		1	11%	31%	20%	23%	23%	25%
		2	42%	22%	33%	30%	30%	30%
		mean	1.80	1.43	1.64	1.58	1.59	1.55

Source: IHS3 data and AISS/FISS surveys and reports

Note: IHS3 reports coupons receipts per household, AISS/FISS report subsidised bags received per household. Only urea and NPK are reported.

Cross tabulations of coupon receipts against a range of variables associated with wealth and poverty across the AISS/FISS and IHS3 results suggest that the probability of coupon receipt rises and then falls with increasing wealth.

**Table 4.2 Estimated proportion of subsidised fertiliser shared between households**

		North	Centre	South	Total	Male	Female
AISS/FISS	2006/7	9%	16%	16%	16%	15%	16%
	2008/9	7%	29%	26%	24%	23%	29%
	2010/11	13%	31%	34%	30%	29%	32%
IHS3	2008/9	9%	35%	30%	30%	na	na
	2009/10	22%	43%	46%	42%	na	na

Source: IHS3 data and AISS/FISS surveys and reports

IHS3 data show that mean coupon receipt per household is significantly lower for ultra-poor households than other households, but for poor households the difference is significant only for 2008/9 receipt. Mean coupon receipt also rises with reported quality of housing and clothing, and across all quintiles for household cultivated area. However it appears to rise and then fall with household head education (with highest mean receipt for those with primary education, but higher mean receipt for those with no education than those with secondary education), expenditure quintile, and bedding. Further analysis is needed to separate out possible associated effects of regional and other variables. These findings are broadly in line with those from AISS/FISS surveys. Across the surveys there is no evidence of pro-poor targeting and some evidence of bias against poorer households, but not against female headed households. Overall neither the very poor nor the least poor (or most well off) households are very likely to receive coupons. Further analysis is needed to separate out possible associated effects of regional and other variables. These findings are broadly in line with those from AISS/FISS surveys.

## 5. Fertiliser coupon purchases and sales

Due to its sensitivity, information on purchases of coupons is unlikely to be reliable. Recipients reported a very low proportion of coupons that were paid for rather than distributed free (2% in 2008/9 and 1% in 2009/10). These estimates are a little lower than those reported found in the AISS/FISS surveys (5% in 2006/7 and 8/9 and 2% in 2010/11). The mean prices reported were approximately MK1,500 and MK1,750 in 2008/9 and 2009/10 respectively (with medians of MK1500 in both years). This compares with a median price of MK2,000 reported in the 2008/9 AISS and a mean and median around MK1,000 in the 2010/11 FISS).

Reported sales of coupons were very low for both seasons (0% and 1% for 2008/9 and 2009/10 respectively). The mean reported price was just under MK2,000 with a median of MK1,800.

## 6. Access to coupons and timing

The vast majority of coupons were reported are received from Village Headmen (70% and 68% respectively in 2008/9 and 2009/10), with around 15% reported as coming from a 'government agency' (presumably this is mainly the Ministry of Agriculture) and the balance from a variety of sources. The majority were reported to be received in or near the village

(around 70% and 20% respectively in both seasons). Reported timing of coupon receipt is shown in table 6.1. Receipt is earlier in the south and latest in the north, as expected, and was similar across the two seasons, with the majority of farmers receiving their coupons after the beginning of November

**Table 6.1 Timing of coupon receipt**

	2008/9				2009/10			
	North	Centre	South	Total	North	Centre	South	Total
Sept	0%	3%	6%	5%	1%	3%	3%	3%
Oct	10%	14%	41%	30%	4%	15%	49%	29%
Nov	60%	59%	47%	52%	57%	60%	43%	52%
Dec	25%	23%	6%	13%	36%	20%	5%	15%
Jan	3%	0%	0%	0%	3%	2%	0%	2%
Feb	1%	0%	0%	0%	0%	0%	0%	0%

Source: IHS3 data

No information was gathered in the IHS3 on coupon distribution processes.

## 7. Coupon use and redemption

Table 7.1 shows reported patterns of coupon use and reasons for a small number of coupons not being used.

**Table 7.1 Reported patterns of fertiliser coupon use**

	2008/9	2009/10
Coupons redeemed, as % total receipts	98%	97%
Coupons sold, as % total receipts	0%	1%
Coupons given, as % total receipts	2%	1%
Coupons lost/ stolen, as % total receipts	0%	0%
Not used	0%	1%
Reasons for non-use, as % not used		
Did not have enough money to buy inputs	29%	19%
Input supplier was too far / inaccessible	6%	1%
Accessible input supplier did not have the input	33%	37%
Coupon was obtained too late	0%	5%
Preferred cash / other items	0%	8%
Other (Specify)	32%	19%

Source: IHS3 data

The vast majority of fertiliser coupons were reported to be used for purchasing fertiliser inputs, and of these almost all were exchanged urea and NPK. In 2009/10 there was more redemption of urea in the Central Regions (53%) and a little less in the Southern Region (48%), with less NPK in redeemed in the Centre (44%), some CAN in both the Centre and South (2%) and some D.Compound in the Centre (1%). These patterns are compatible with administrative records of fertiliser redemption. Almost all coupons were exchanged for 50kg bags of fertiliser. Lack of available inputs to buy and lack of cash were cited as the main

reasons for not using a coupon – although these might have also been reasons for giving away or selling a coupon. However the overall numbers of coupons not redeemed might suggest that these are relatively rare constraints. Care must be taken in drawing such conclusions, however, as sales may be under reported, and where these constraints are important farmers may nevertheless overcome at considerable cost of time or money, and obtain the inputs later than they would otherwise. No information is available on late delivery of inputs or of timing of coupon redemption.

Redemption was reported from parastatals for 82% and 85% of coupons respectively in 2008/9 and 2009/10. Across the two seasons roughly 7% of redemptions were reported from private companies or business persons and 3% from a government agency, with the balance mainly spread across different markets (around 3%), and clubs and cooperatives (around 2%).

The practice of payment of top ups or ‘tips’ from redemption above the official amount have been widely reported in the press. In 2008/9 the official redemption price for a 50kg bag of fertiliser was MK800 and this was reduced to MK500 in 2009/10. In 2008/9 20% of farmers reported a coupon redemption price of MK500, just over 30% a coupon redemption price of MK800, just over 10% a coupon price of MK850, and just over 30% a coupon price greater than MK850. This is very different from the findings of the 2008/9 AISS, where only 14% of coupons were reported to have been redeemed for more than MK800, and it also differs markedly from the 2% of coupons reported to be redeemed for more than the official price in 2009/10. The 2008/9 pattern reported in the IHS3 is strange and may be due to recall error as a result of the long recall period for farmers reporting on their experience in the 2008/9 season.

In 2009/10 the mean redemption price reported for all coupons was MK510, while the mean payment above the official MK500 was a little under MK400 for those coupons where such a top up was paid. This compares with extra payments reported for 14% of coupons in the 2008/9 AISS (as noted above), ranging from MK50 to over MK1,000, with the most common (5% of all coupons) being MK200 (a total cost of MK1,000 for redemption and ‘tip’). In the 2010/11 FISS Mean redemption payment was MK536 per coupon with 9% of fertiliser coupons reported to require payment of ‘tips’ and reported extra payments ranging from MK50 to over MK1,000, with the most common (4% of all coupons) being between MK250 and MK500 per coupon (a total cost of MK750 to MK1,000 for redemption and ‘tip’). FUM (2011) report that 5% of their sample of registered beneficiaries reported being asked to pay bribes for input redemption although 42% considered it common or very common to be asked for such a bribe and 50% considered it common or very common to be asked for a bribe to avoid queuing for input purchase<sup>1</sup>. However only 20% of those asked for a ‘tip’ reported that they had paid it (some because they could not afford it and others out of principle).

Places where redemption occurred are shown in table 7.2.

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<sup>1</sup>This divergence between perceived frequency and reported experience is interesting and may inform interpretation of FGD information – perhaps suggesting that the incidence of these problems is overstated in FGDs.

**Table 7.2 Location of redemption of fertiliser coupons**

	2008/9				2009/10			
	North	Centre	South	Total	North	Centre	South	Total
Within the village	25%	12%	9%	11%	14%	10%	9%	10%
Near the village	55%	54%	57%	56%	65%	67%	68%	67%
In/near the town	11%	31%	28%	28%	17%	20%	19%	19%
In/near the district/town center	8%	3%	5%	5%	3%	3%	4%	3%
Outside the district	0%	0%	2%	1%	0%	0%	0%	0%

Source: IHS3 data

Fertiliser sources are therefore not as local as the sources of coupons, and little can be gleaned from this information about differences in travelling distances between regions, as villages may be more spread out and further apart in less densely populated areas (such as in the north).

Reported transport costs average just over MK70 per coupon in 2008/9 and just over MK60 per coupon in 2009/10, though it is unclear how farmers with two different coupons redeemed at the same time would report their costs across the two coupons. In both years costs were highest in the north and lowest in the south (in 2009/10 for example the reported costs were MK75, MK67 and MK50 per coupon in the North, Centre and South respectively). These figures compare with total reported mean costs per farmer of MK350 in the north and centre and MK250 in the south in 2008/9 (with median costs of MK200 and MK150 respectively). In 2010/11 the mean cost was MK270 with a median of MK200.

## 8. Seed coupon receipts

IHS3 estimated seed coupon receipts for 2008/9 and 2010/11 are shown in table 8.1. These are considerably below (around a third of) estimates from the 2008/9 AISS and 2010/11 FISS, which were themselves some 15% below MoAFS redemption figures. Possible reasons for these discrepancies are not clear.

**Table 8.1 Estimated maize seed coupon receipts**

	Total receipts		Receipts / hh	
	2008/9	2009/10	2008/9	2009/10
North	133,305	83,447	0.39	0.25
Centre	114,963	138,017	0.10	0.13
South	223,421	259,899	0.19	0.22
All	471,689	481,363	0.18	0.18

Source: IHS3 data

Unfortunately there is no information in the IHS3 distinguishing between hybrid and OPV seed. There were also very few reported receipts of flexi-seed coupons and consequently all analysis is for maize seed coupons.

Across all maize seed coupon recipients, 95% of seed coupons were reported to have been redeemed for maize seed, with almost none sold, 1 or 2% given away and 3% unused. As with fertiliser coupons, the main (but not exclusive) reasons given for not using the coupons were lack of money for redemption and unavailability of accessible inputs to purchase.

Table 8.2 shows the percentage of maize seed coupons redeemed from different suppliers

**Table 8.2 % of maize seed coupons redeemed from different suppliers**

	2008/9				2009/10			
	North	Centre	South	Total	North	Centre	South	Total
Friend/neighbour	0%	3%	1%	1%	0%	0%	0%	0%
Relative	0%	0%	0%	0%	0%	1%	1%	1%
Village headman	12%	0%	2%	3%	1%	0%	0%	1%
Local market	2%	0%	0%	0%	1%	1%	0%	1%
Main market	0%	0%	0%	0%	1%	1%	1%	1%
Private trader in main market	0%	0%	0%	0%	1%	0%	0%	0%
Private trader in local market	0%	2%	0%	1%	0%	0%	0%	0%
Local merchant/grocery	2%	0%	0%	0%	0%	0%	0%	0%
Main market	6%	2%	0%	1%	0%	0%	0%	0%
Private company/business	11%	15%	6%	9%	14%	9%	6%	8%
Government agency	0%	4%	0%	1%	3%	4%	0%	2%
Parastatal organization	64%	69%	90%	82%	73%	83%	89%	84%
Agric cooperative	0%	0%	0%	0%	1%	1%	1%	1%
Farmer club/association	2%	4%	0%	1%	4%	0%	1%	1%
Others	2%	3%	2%	2%	1%	1%	2%	1%

Source: IHS3 data

Dominant suppliers are, as expected, the parastatal and private companies, but the reported share of private companies is unexpectedly low.

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