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of the United Nations

Productive Impacts of the Malawi Social Cash Transfer Programme

Baseline Evaluation Report

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List of Acronyms

FISP	Fertilizer Input Subsidy Programme
GoM	Government of Malawi
HH	Household
IHS	Integrated Household Survey
MGCSW	Ministry of Gender, Children & Social Welfare
MFEDP	Ministry of Finance, Economic Development and Planning
MWK	Malawian Kwacha
NSSP	National Social Support Programme
SCT	Social Cash Transfer
SLM	Sustainable Land Management
TA	Technical Authority
UNICEF	United Nations Children's Fund
VC	Village Cluster

1. Introduction

Cash transfer programmes have become an important tool for social protection and poverty reduction strategies in low- and middle-income countries. An increasing number of African governments have launched such programmes in the past ten years, especially to provide assistance to households caring for orphans and vulnerable children or to labour-constrained households. Cash transfer programmes in African countries have tended to be unconditional (i.e. regular and predictable transfers of money are given directly to beneficiary households without conditions or labour requirements) rather than conditional (i.e. recipients are required to meet certain conditions such as using basic health services or sending their children to school), which is more common in Latin America. Most of these programmes seek to reduce poverty and vulnerability by improving food consumption, school attendance, and nutritional and health status.

The Malawi Social Cash Transfer (SCT) programme was initiated in 2006 in the pilot district of Mchinji, providing cash grants to ultra-poor households without any able-bodied adult household members ('labour-constrained' households). The objectives of the programme include reducing poverty and hunger in vulnerable households and increasing school enrolment. A rigorous impact evaluation of the pilot in Mchinji district was designed and implemented during the pilot phase in 2007/08. Results from this initial evaluation indicated strong positive impacts of the pilot on household food security, children's schooling, health, and household possession of productive assets (Miller et al., 2010). The Government of Malawi (GoM) has gradually expanded the SCT to six additional districts across the country (Chitipa, Likoma, Machinga, Mangochi, Phalombe, and Salima), although it only operates at full scale in Likoma and Mchinji. The SCT is currently operational in seven districts and reaches over 30,000 ultra-poor and labour-constrained households and approximately 103,000 individuals. The current expansion of the SCT presents an important opportunity to evaluate the adjusted programme with a larger sample size across several districts.

The programme is fully executed by the GoM through Social Welfare Officers of the District Councils. At the national level, management of SCT falls under the Ministry of Gender, Children & Social Welfare (MGCSW), with policy and design oversight under the Ministry of Finance, Economic Development and Planning (MFEDP). The United Nations Children's Fund (UNICEF) country office in Malawi, jointly with other development partners, is supporting the GoM in implementing the SCT in coordination with the regional and district offices. The programme fits under the broader prioritization of social protection in national development strategies, including the second theme of the Malawi Growth and Development Strategy (2006-2010) and in the third theme of the draft Malawi Growth and Development Strategy II (2011-2016). The GoM is also in the process of drafting a National Social Support Programme (NSSP) with the support of development partners. The NSSP includes the SCT as one component of the broader poverty reduction programme.

Until recently, most evaluations of such programmes have focused primarily on poverty alleviation impacts, access to social services and human capital development (e.g. Fiszbein and Schady, 2009; Davis et al., 2012). Recent evidence shows that social cash transfer programmes can have impacts on household decision-making, including labour supply, accumulation of productive assets and productive activities (e.g. Todd et al., 2010; Gertler et al., 2012; Soares et al., 2010; Martinez, 2004; Maluccio, 2010; Davis et al., 2010; Asfaw et al., 2014; Covarrubias et al., 2012; Gilligan et al., 2009). Most beneficiaries of cash transfer programmes in Sub Saharan Africa live in rural areas, depend on subsistence agriculture and live in places where markets for financial services (such as credit and insurance), labour, goods and inputs are lacking or do not function well. Cash transfers often represent a

significant share of household income, and when provided in a regular and predictable fashion may help households in overcoming the obstacles that block their access to credit or cash.

This report is a complement study to the Malawi Social Cash Transfer Programme Baseline Evaluation Report, released by the Carolina Population Centre at the University of North Carolina at Chapel Hill (Handa et al., 2014). Along with information on the conceptual framework and the design of the impact evaluation, the report has documented various indicators in the baseline, notably across treatment and control groups. These indicators span dimensions of household welfare, including anthropometrics, food security and health status. The report found randomization of households into treatment and control groups to be successful on the basis of high similarity between the two groups across the documented indicators. The targeting performance is well within the range found internationally, although there is certainly room for improvement. It was also concluded that the data were of good quality, with almost perfect response rates and key indicators matching up well with those from other data collection exercises.

In this report we focus on documenting the baseline characteristics of households benefiting from the programme in relation to the control and ineligible households. In doing so, we will try to address two broader questions, among others: firstly, did the design of the evaluation generate a credible counterfactual group for analysing the productive impact of the programme? And secondly, was the targeting of the households performed effectively? This report also serves as a baseline for the productive impact of the Malawi SCT, which we will analyse once follow-up data are available. This will include use of fertilizer and other inputs, overall crop production levels and composition, sales from crop production, access to and use of extension services, ownership of small tools and other assets including livestock, and changes in the labour supply of household members.

The rest of the report is organized as follows: Section 2 provides programme evaluation design and data collection methods; Section 3 focuses on documenting characteristics of sample households and descriptive statistics; and Section 4 provides a short conclusion.

2. Programme evaluation design and data

2.1 Programme design and targeting procedure

As mentioned earlier, the GoM is planning to expand the SCT gradually over the next five years in the five districts (Chitipa, Machinga, Mangochi, Phalombe and Salima) that are not yet at scale. The evaluation team led by the University of North Carolina took advantage of this expansion to build an experimental “delayed-entry” control group implemented in two stages, referred to as random selection and random assignment. Several studies have shown that this approach, when done longitudinally, is the most rigorous design available in the evaluation literature (Shadish et al., 2002; Handa et al., 2013). The SCT was programmed to begin expansion in Salima and Mangochi districts in 2013 and so these two districts are used for the study.

In the first stage, all Traditional Authorities (TAs) in these two districts were listed and consequently two TAs per district were selected by lottery. The selected TAs were Ndidi and Maganga in Salima District and Mbwana Nyambi and Jalasi in Mangochi District. Subsequently, the MGCSW prioritized these four TAs for targeting in order to identify the eligible list of households and their corresponding Village Cluster (VCs). Overall there were about 100 beneficiaries per VC, and for a sample size of about 3500 households the evaluation team considered about 35-40 VCs to be included in the study. Where more than 35-40 VCs exist in these TAs, VCs were randomly ordered to participate in the study. Once the baseline survey was completed, in the second stage half of the VCs in the study sample were randomly assigned to treatment status (T) and entered the programme immediately, while the other half entered or will enter the programme at a later date (either in 12 or 24 months, depending on the length of the study). This is the random assignment to treatment. The ethical rationale for the design was that the programme could not expand to all eligible locations at the same time, so locations which would enter the programme later in the expansion cycle were used as control sites to measure the impact (see Handa et al., 2014 for details). Targeting of households was carried out in the intervention locations according to standard programme operation guidelines.

The original design called for a follow-up survey 12 months after baseline (July/August 2014) when beneficiary households would have received ten or perhaps eight months of transfers, depending on how quickly households can be enrolled and paid after the baseline survey. However due to the delay in start of the payment (May 2014), the follow-up survey was postponed until November 2014, at which time they would have received five payments (10 months’ worth). The experience to date suggests that some indicators do move very quickly, even after only a few payments, such as diet diversity, and food and total consumption. On the other hand, indicators such as schooling may require at least one schooling cycle to be completed before impacts can be detected, and child nutritional status (particularly height-for-age) will require a longer period to show any effects, as would other indicators such as investment activity or input use. The University of North Carolina at Chapel Hill, Centre for Social Research and UNICEF have secured funding through the International Initiative for Impact Evaluation to conduct a 24-month follow-up survey on approximately 2300 households. This would provide an excellent opportunity to observe the medium-term impacts of the SCT in areas such as child nutritional status, asset accumulation and economic activity.

2.2 Evaluation sample and survey instruments

The Malawi baseline survey data contain observations on 4352 households corresponding to 20,177 individuals. The longitudinal impact evaluation includes 3531 eligible households and 821 ineligible households. The sample is divided between two districts, Salima (S) and Mangochi (M), which count, respectively, 2192 and 2160 households. Of these households 1775 and 1756, respectively, meet the eligibility criteria. Around half belong to treated communities and the other half to control communities. A summary of the household distribution across each district is provided in Table 1.

Table 1 Sample distribution across districts

	<i>Salima district</i>		<i>Mangochi district</i>		<i>Full Sample</i>	
	Households	Individuals	Households	Individuals	Households	Individuals
<i>Total Eligible</i>	1775	8579	1756	7499	3531	16078
<i>Total Not eligible</i>	417	2069	404	2030	821	4099
<i>Total (Elig+Not elig)</i>	2192	10648	2160	9529	4352	20177
	<i>Salima district</i>		<i>Mangochi district</i>		<i>Full Sample</i>	
	Households	Individuals	Households	Individuals	Households	Individuals
<i>Treated (Eligible=1)</i>	800	3821	878	3766	1678	7587
<i>Control (Eligible=1)</i>	975	4758	878	3733	1853	8491
<i>Total (Eligible)</i>	1775	8579	1756	7499	3531	16078

The quantitative study entails four survey instruments. The main survey instrument is the household survey, a multi-topic questionnaire administered to the main caregiver or household head. The survey instrument is essentially a ‘mini’ Integrated Household Survey (IHS3) and covered demography and household composition, food and total expenditures, work, education, health, housing characteristics, possession of assets and durable goods, recent mortality, chronic illness and other shocks, and savings and use of social services. Only some components of the income-generation and economic activity modules of the IHS3 (due to their length) were incorporated to capture economic activity, including on- and off-farm activity, input use and sales. However, the entire consumption module of the IHS3 was incorporated in order to be able to generate a measure of total household consumption which is identical to that reported in the IHS3 and used for computation of national poverty rates. This will allow a clean comparison of poverty rates between SCT households and the nation to be made.

3. Characteristics of sample households and descriptive statistics

A number of variables are employed in this analysis in order to set the background characteristics of the sample. We perform t-tests of statistically significant differences between treatment and control groups in order to check whether the randomization was successful in generating a good counterfactual. We expect to find statistically insignificant differences between the two groups. Moreover, for each variable we test whether the treated group is statistically different from the ineligible group to assess the targeting effectiveness of the programme. For this report, we have focused on variables related to agricultural production and labour supply, as the official baseline report has already investigated the differences between the treated group and the ineligible in other domains.

3.1 Household characteristics

Household demographic characteristics divided by the control and treatment assignment given in the survey are summarized in Table 2.

Table 2 Demographic characteristics

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<i>Household size</i>	4.46	4.51	4.49	5.03***	4.96
<i>Household size (adult equivalents)</i>	3.59	3.62	3.61	4.06***	4.01
<i>Head is male, proportion</i>	0.17	0.16	0.17	0.36***	0.34
<i>Head is female, proportion</i>	0.83	0.84	0.83	0.64***	0.66
<i>Head is married, proportion</i>	0.30	0.29	0.29	0.69***	0.64
<i>Head is single, proportion</i>	0.02	0.02	0.02	0.01**	0.02
<i>Head is separated/divorced, proportion</i>	0.23	0.26*	0.25	0.14***	0.15
<i>Head is widow, proportion</i>	0.45	0.42	0.44	0.16***	0.19
<i>Head is elderly, proportion</i>	0.49	0.43**	0.46	0.22***	0.25
<i>Age of the head (years)</i>	59.23	57.26*	58.23	48.38***	49.57
<i>Sex ratio in HH (males/females)</i>	0.88	0.90	0.89	1.08***	1.06
<i>Dependency ratio</i>	2.68	2.71	2.70	1.84***	1.92
<i>Observations</i>	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. For this and all tables, the stars after the control column refer to statistical difference between treatment and control groups in the eligible sample, and stars after the ineligible column refer to statistical difference between the eligible and ineligible samples. “T” for the above and further tables will refer to treatment households, and “C” for the above and further tables will refer to control households. The dependency ratio is also defined as the sum of children under 18 and adults 65 and older, divided by the working-age population (18 to 64 years).

In terms of demographic characteristics and the age profile, as was already documented in Handa et al. (2014), t-tests indicate that the control group is a good counterfactual of the treatment group. On the other hand, ineligible households are statistically different at 1 percent significance level from the group of eligible households for most variables. On average there are three children aged 14 or under per household (see Table 3).

Table 3 Age profile by gender

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
Age 0-14 #	2.35	2.45	2.40	2.60	2.58
Age 15-19 #					
Individuals	0.49	0.48	0.49	0.44*	0.44
Males	0.27	0.25	0.26	0.24	0.24
Females	0.22	0.23	0.23	0.20	0.20
Age 20-34 #					
Individuals	0.36	0.36	0.36	0.72***	0.68
Males	0.14	0.13	0.13	0.29***	0.27
Females	0.22	0.23	0.23	0.44***	0.41
Age 35-59 #					
Individuals	0.47	0.51	0.49	0.79***	0.75
Males	0.13	0.14	0.14	0.39***	0.36
Females	0.34	0.37	0.35	0.40**	0.40
Age >=60 #					
Individuals	0.79	0.72**	0.75	0.48***	0.51
Males	0.20	0.19	0.20	0.20	0.20
Females	0.59	0.53***	0.56	0.28***	0.31
Observations	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

The sample eligible for the SCT is characterized by a large proportion having female heads of households (84 percent), and by 29 percent having married heads of households. In contrast, the share of female heads in ineligible households lowers to 64 percent, while the proportion of married heads of households increases to 69 percent. Households belonging to the ineligible group are less labour-constrained; they have a greater number of individuals between the ages of 20 and 34 and 35-59 with respect to control and treated households. However, eligible and ineligible groups are similar with respect to the number of household members between the ages of 15 and 19, irrespective of gender. Adults aged 60 and above are almost double in the targeted groups with respect to ineligibles.

Although households in the baseline sample have a relatively high number of illiterate individuals, ineligible households have more educated males and females than eligible households, along with more educated adults and a greater proportion of educated household heads (see Table 4).

Table 4 Education level by gender

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>No Education #</u>					
Adults (>17)	1.07	1.05	1.06	0.96***	0.97
Males	0.61	0.67	0.64	0.73**	0.72
Females	1.28	1.28	1.28	1.12***	1.14
Head, proportion	0.71	0.72	0.72	0.49***	0.52
<u>Primary Education #</u>					
Adults (>17)	0.64	0.61	0.63	0.97***	0.93
Males	1.10	1.08	1.09	1.33***	1.30
Females	1.10	1.12	1.11	1.22	1.21
Head, proportion	0.27	0.27	0.27	0.45***	0.43
<u>Secondary Education #</u>					
Adults (>17)	0.06	0.06	0.06	0.19***	0.17
Males	0.05	0.04	0.04	0.12***	0.11
Females	0.03	0.03	0.03	0.09	0.08
Head, proportion	0.01	0.01	0.01	0.05***	0.05
Observations	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

About 72 percent of household heads in the eligible sample have no education at all, compared to 49 percent of ineligible household heads. This pattern of differences in household head's education continues in primary education, where 27 percent of eligible household heads have achieved primary education, compared to 45 percent of ineligible heads. Although percentages are low for secondary education achievement, 5 percent of ineligible household heads achieved secondary education, compared to 1 percent of eligible household heads.

3.2 Labour supply – domestic chores, on-farm, off-farm and hired labour

3.2.1 Domestic chores

Gender differences are notable in terms of the division of domestic tasks such as water and firewood collection, child care, cooking and cleaning. This predominance of domestic chores in the female role is evident in Table 5, where we report the percentage of individuals engaged in domestic chores across gender and age lines.

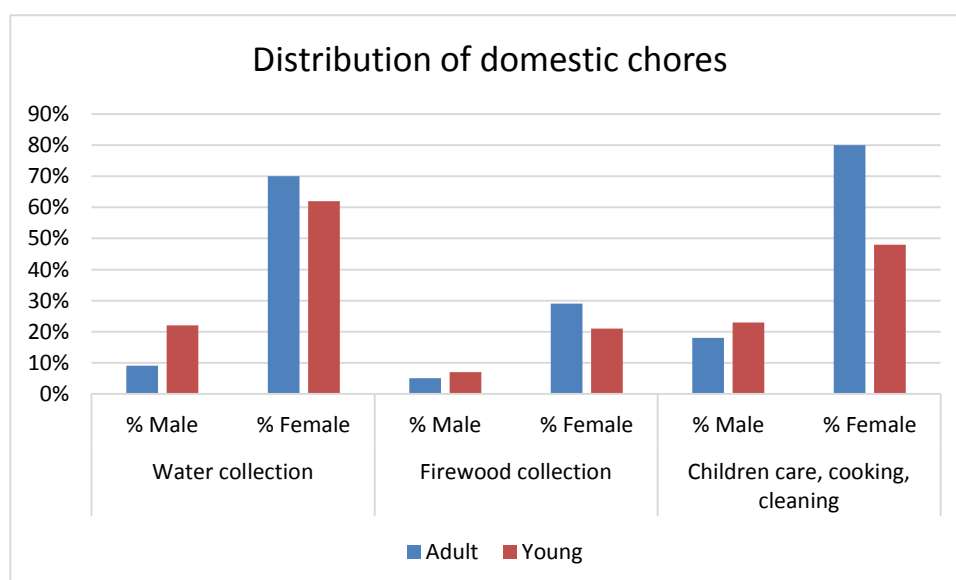
Table 5 Proportion engaged in domestic chores by gender – individual-level Analysis

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Water collection</u>					
Boys (6-17)	0.25	0.24	0.24	0.21***	0.22
Girls (6-17)	0.60	0.61	0.60	0.62**	0.62
Males (>17)	0.11	0.13	0.12	0.08***	0.09
Females (>17)	0.54	0.60***	0.57	0.72***	0.70
<u>Firewood collection</u>					
Boys (6-17)	0.10	0.07	0.08	0.06*	0.06
Girls (6-17)	0.26	0.24	0.25	0.21***	0.21
Males (>17)	0.07	0.07	0.07	0.05***	0.05
Females (>17)	0.29	0.27	0.28	0.29***	0.29
<u>Childcare, cooking, cleaning</u>					
Boys (6-17)	0.23	0.24	0.23	0.23	0.23
Girls (6-17)	0.51	0.52	0.51	0.48	0.48
Males (>17)	0.20	0.21	0.20	0.18	0.18
Females (>17)	0.69	0.73*	0.71	0.81***	0.80
Observations	6460	7212	13672	3344	17016

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

Overall the differences between eligible and ineligible in domestic chores are more mixed in direction; adult males collect water and firewood in greater proportions in eligible households than in ineligible households, while the opposite pattern is observed for adult females in water and firewood collection. Only adult women are engaged in child care, cooking and cleaning at a significantly higher rate in ineligible households than in eligible households. As highlighted in Figure 1, fetching water is predominantly the concern of women and girls.

Figure 1 Distribution of domestic chores by gender and age



In fact, more than half the individuals collecting water or firewood or exploiting other kind of domestic activities are adult women aged 18 or older (46%) or girls aged 17 or younger (37%). The fact that 37 percent of individuals engaged in domestic chores were girls aged 17 or younger also points towards the prevalence of domestic chores among youth.

3.2.2 Labour supply – on-farm and off-farm

The average number of days spent on farming activities in the cropping season prior to the survey is higher for adult women than for adult men (see Table 6).

Table 6 Average number of days spent on farming and hours on other Activities

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Days, past season</u>					
<u>land preparation</u>					
Boys (6-17)	6.72	6.66	6.69	5.66	5.79
Girls (6-17)	6.00	6.67	6.34	5.47	5.57
Adult males (>17)	10.16	9.53	9.84	21.63***	20.20
Adult females (>17)	23.75	24.69	24.23	28.15***	27.67
<u>Harvest act</u>					
Boys (6-17)	1.40	1.27	1.34	1.77	1.71
Girls (6-17)	1.40	1.32	1.36	1.65**	1.61
Adult males (>17)	1.32	1.22	1.27	3.58***	3.30
Adult females (>17)	3.10	3.06	3.08	4.58***	4.40
<u>Non-harvest act</u>					
Boys (6-17)	4.86	5.16	5.01	4.30	4.39
Girls (6-17)	4.64	5.26	4.95	4.16	4.26
Adult males (>17)	6.74	7.08	6.91	15.03***	14.05
Adult females (>17)	16.55	18.10	17.33	19.33***	19.09
<u>Hours, last 7 days</u>					
<u>other activities</u>					
Boys (6-17)	0.61	0.63	0.62	0.99*	0.94
Girls (6-17)	0.49	0.53	0.51	0.39	0.41
Adult males (>17)	1.18	0.83**	1.00	4.71***	4.26
Adult females (>17)	2.36	1.75	2.05	2.82	2.73
Observations	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Results are averaged out to include those who report no time on specific activity.

There are no significant differences between treatment and control households in terms of labour supply on farming activities. Adults from ineligible households work more days than adults from eligible households, with a similar pattern existing for boys and girls in harvest activities. Further, respondents were asked about the number of hours spent in other unpaid family business in the week prior to the survey, such as non-agricultural enterprises, preparing fodder, herding livestock or collecting fruits from trees. Within these activities, adult men spent on average four hours, while women spent on average three hours. Ineligible adult males and boys spent more hours than did their eligible counterparts in these other activities.

3.2.3 Wage labour – formal and ganyu supply

At baseline the largest parts of the employed individuals are involved in ganyu labour (6483) compared to formal labour (387). Ganyu labour is a form of casual employment widely practiced in Malawi. It is usually represented in literature as the main source of livelihood for rural households and as a social insurance mechanism (Dimova et al., 2010).

The share of people employed in formal and ganyu labour differs slightly across gender and districts. Eligible boys and adult females participate in ganyu labour at higher rates than their ineligible counterparts (see Table 7).

Table 7 Participation in ganyu labour – individual-level analysis

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Participation proportion</u>					
Boys (10-17)	0.43	0.39	0.41	0.23**	0.25
Girls (10-17)	0.40	0.38	0.39	0.26	0.28
Adult males (>17)	0.57	0.54	0.55	0.54	0.54
Adult females (>17)	0.52	0.56	0.54	0.47*	0.48
<u>Days/year</u>					
Boys (10-17)	15.89	14.52	15.19	7.65***	8.64
Girls (10-17)	14.18	13.08	13.61	9.23	9.81
Adult males (>17)	36.66	36.63	36.65	36.80	36.79
Adult females (>17)	30.14	34.69	32.43	24.26***	25.26
<u>Daily wage (MWK)</u>					
Boys (10-17)	105.76	94.80	100.20	56.25***	62.00
Girls (10-17)	88.63	85.90	87.23	67.53	70.13
Adult males (>17)	250.34	216.27	233.49	260.32**	258.36
Adult females (>17)	193.45	197.10	195.29	183.60	185.04
Observations	5199	5696	10895	2701	13596

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Results are averaged out to include those who report no participation, time or wage in specific category.

The number of ganyu labour days per year is higher among eligible adult females and boys than among ineligible adult females and boys. Eligible boys make more Malawian Kwacha (MWK) per day than do ineligible boys, while the opposite is true for adult males. Adult males are engaged in ganyu labour for more days per year than are adult females. All groups of individuals are found to be similar across treatment and control lines with regard to participation in ganyu labour.

Considering the 12 months preceding the interview, adult men worked formally on average more than four times what adult women worked – about 13 days more (see Table 8). This wide gender gap is partly attributed to the demand on women's time, which tends to be limited due to household commitments. As expected, adult men's wages on average across all adult men comes to around 41 MWK/day in formal work and 260 MWK/day in ganyu labour, which in both cases is higher than that of adult women. It is important to note that some of the disparity between formal wages and ganyu pay comes from the limited number of people participating in the formal labour market.

Table 8 Wage labour supply – individual-level analysis

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Agricultural sector, in proportion</u>					
Boys (10-17)	0.01	0.01	0.01	0.02	0.02
Girls (10-17)	0.00	0.00	0.00	0.00	0.00
Adult males (>17)	0.02	0.04*	0.03	0.03	0.03
Adult females (>17)	0.01	0.02	0.02	0.02	0.02
<u>Non-agricultural sector, in proportion</u>					
Boys (10-17)	0.00	0.01	0.01	0.01	0.01
Girls (10-17)	0.00	0.00	0.00	0.01	0.01
Adult males (>17)	0.01	0.04***	0.02	0.06***	0.05
Adult females (>17)	0.02	0.01	0.02	0.02	0.02
<u>Days/year</u>					
Boys (10-17)	0.98	1.77	1.38	1.45	1.44
Girls (10-17)	0.78	0.39***	0.58	0.47	0.48
Adult males (>17)	4.97	12.96***	8.92	16.53***	15.98
Adult females (>17)	2.93	2.70	2.81	3.47	3.39
<u>Daily wage (MWK)</u>					
Boys (10-17)	0.83	2.80	1.82	4.77	4.39
Girls (10-17)	1.36	0.60	0.97	1.14	1.12
Adult males (>17)	7.85	23.33***	15.5	40.68**	38.84
Adult females (>17)	7.82	6.55	7.18	16.57**	15.42
Observations	5199	5696	10895	2701	13596

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Results are averaged out to include those who report no participation, time or wage in specific category.

Treated girls work more days in a year than control girls, while the opposite is true for adult males. Control adult males also have a higher daily wage compared to treated adult males. Both participation and days worked in a year in the non-agricultural sector are lower among eligible adult males than ineligible adult males. Eligible adult males and females also make less MWK/day compared to ineligible adult males and females. However, the differences described above occur in the context of overall similarities between eligible and ineligible individuals in terms of wage labour supply.

3.2.4 Hired labour

Table 9 displays the percentage of households that hired labour for a variety of activities, as well as the number of people and total days hired by activity. The recall periods for activities differ from one another, ranging from the last month to the last 12 months.

Table 9 Hired labour for agricultural and non-agricultural activities

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
Did HH hire?					
HH, proportion	0.04	0.04	0.04	0.14**	0.13
<u>Number and total days hired by HH</u>					
Overall					
Total Days - Men	0.35	0.67	0.51	2.68**	2.42
Total Days - Women	0.27	0.20	0.23	1.72***	1.54
Total Days - Children	0.16	0.06	0.11	1.27	1.13
Land preparation and planting					
# Men hired	0.04	0.04	0.04	0.21***	0.19
Total days - Men	0.18	0.28	0.24	1.17***	1.05
# Women hired	0.04	0.04	0.04	0.12***	0.11
Total days - Women	0.07	0.06	0.07	0.70***	0.62
# Children hired	0.01	0.01	0.01	0.01	0.01
Total days - Children	0.08	0.03	0.05	0.10	0.09
Non-harvest activity					
# Men hired	0.03	0.03	0.03	0.24***	0.21
Total days - Men	0.13	0.12	0.12	0.80***	0.72
# Women hired	0.04	0.07**	0.05	0.23***	0.21
Total days - Women	0.10	0.13	0.12	0.70***	0.63
# Children hired	0.03	0.01	0.02	0.06*	0.09
Total days - Children	0.07	0.02	0.05	0.12	0.11
Harvesting					
# Men hired	0.02	0.01	0.01	0.06	0.06
Total days - Men	0.04	0.06	0.05	0.17	0.15
# Women hired	0.02	0.01	0.01	0.09**	0.08
Total days - Women	0.10	0.01	0.05	0.32**	0.29
# Children hired	0.00	0.00	0.00	0.02	0.02
Total days - Children	0.00	0.00	0.00	0.07	0.06
Livestock					
# Men hired	0.00	0.00**	0.00	0.00	0.00
Total days - Men	0.00	0.07	0.03	0.02	0.02
# Women hired	0.00	0.00	0.00	0.00	0.00
Total days - Women	0.00	0.00	0.00	0.00	0.00
# Children hired	0.00	0.00	0.00	0.00**	0.00
Total days - Children	0.00	0.00	0.00	0.84*	0.74
Fishing activities					
# Men hired	0.00	0.00	0.00	0.01	0.01
Total days - Men	0.00	0.00	0.00	0.03	0.02
# Women hired	0.00	0.00	0.00	0.00	0.00
Total days - Women	0.00	0.00	0.00	0.00	0.00
# Children hired	0.00	0.00	0.00	0.00	0.00
Total days - Children	0.00	0.00	0.00	0.00	0.00
Non-agricultural HH enterprises					
# Men hired	0.00	0.00	0.00	0.01	0.01
Total days - Men	0.00	0.14	0.07	0.49	0.44
# Women hired	0.01	0.00	0.01	0.00	0.00
Total days - Women	0.00	0.00	0.00	0.00	0.00
# Children hired	0.00	0.00	0.00	0.00	0.00
Total days - Children	0.01	0.00	0.00	0.14	0.12
Observations	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Within this module, children are considered <18 years of age. Results are averaged out to include those who do not report hiring in specific activity. Recall periods for activities differ.

The percentage of households that hired labour was low across all households. The vast majority of indicators did not show statistically significant differences between the treatment

and the control groups. Ineligible households hired more people than eligible households, particularly for land preparation and planting and on harvest activities, independently of the indicator used (total days hired or number of people hired) or the sex of the individual hired.

3.3 Non-farm business enterprise

Another income-generating source is the non-farm sector. About 23 percent of eligible households operate some small enterprise, compared to 41 percent of ineligible households (see Table 10).

Table 10 Participation in business enterprises

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>HH enterprises, proportion</u>					
Any enterprise	0.24	0.22	0.23	0.41***	0.38
Petty trader	0.10	0.11	0.10	0.21***	0.19
Charcoal/Firewood	0.07	0.07	0.07	0.05	0.06
Crafts(basket/reedmat making)	0.04	0.03	0.03	0.03*	0.03
Observations	1678	1853	3531	821	4352
<u>Average months in operation of enterprises</u>					
All enterprises	6.14	5.80	5.95	6.84**	6.78
Petty trader	4.98	4.95	4.96	6.03**	5.96
Charcoal/Firewood	7.03	6.08*	6.56	5.67	5.81
Crafts(basket/reedmat making)	6.74	6.00	6.44	7.72	7.53
Observations (for all enterprises)	435	434	869	336	1205
<u>Survival months for enterprises</u>					
All enterprises	64.25	64.08	64.16	72.81	72.19
Petty trader	46.13	48.60	47.52	55.98**	55.45
Charcoal/Firewood	46.38	51.56	49.01	44.82	45.49
Crafts(basket/reedmat making)	122.89	119.72	121.61	92.94**	97.17
Observations (for all enterprises)	404	420	824	323	1147
<u>Expenditure in last month (MWK) from all households</u>					
Inputs/goods	407.09	571.95	490.83	6734.71***	5978.46
Sales	1134.49	1083.78	1108.73	9785.38***	8734.48
Observations	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

As a whole, 19 percent of households are engaged in petty trade (e.g. small goods, livestock trading). In the 12 months prior to the baseline survey, self-employment activities were conducted on average for about seven months and were mostly carried out near home. We did not observe significant differences between the treatment and the control groups for a majority of indicators, including the proportion of households involved in non-farm businesses, number of months in operation, months of survival and amount of expenses. Instead some statistical differences exist between eligible and ineligible households. The latter

group is more likely to run these kinds of enterprises, to have the business in operation for more months during the year and to spend more on inputs and goods, as compared to the group of eligible households.

3.4 Agricultural production – crops and livestock

3.4.1 Land use

The total number of plots registered in both districts is about 5881 – 2967 belonging to Salima and 2914 to Mangochi district. The vast majority of households (around 93%) are agricultural producers. With an average dimension of one acre, operated land sizes do not differ much between eligible and ineligible plots (see Table 11).

Table 11 Land tenure, arrangement and features at plot level

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<i>Acres of land operated</i>	1.09	1.14	1.12	1.15	1.15
<i>Proportion of irrigated plots</i>	0.04	0.04	0.04	0.04	0.04
<u>Tenure, proportion of plots</u>					
<i>owned</i>	0.93	0.93	0.93	0.92*	0.92
<i>rented-in</i>	0.04	0.05	0.05	0.06***	0.06
<i>borrowed/free leased-in</i>	0.02	0.02	0.02	0.02**	0.02
<i>communal</i>	0.00	0.00	0.00	0.00	0.00
<i>other type of tenure</i>	0.00	0.00	0.00	0.00***	0.00
<u>Arrangement, proportion of plots</u>					
<i>used</i>	0.94	0.94	0.94	0.98***	0.97
<i>rented out</i>	0.02	0.02	0.02	0.01	0.01
<i>sharecropped out</i>	0.00	0.00	0.00	0.00*	0.00
<i>lent or free leased out</i>	0.01	0.00	0.00	0.00	0.00
<i>not in use</i>	0.03	0.03	0.03	0.01***	0.01
<i>Other arrangement</i>	0.00	0.00	0.00	0.00	0.00
<u>Land use, proportion of plots</u>					
<i>Crop/Vegetables</i>	0.92	0.93	0.93	0.97***	0.97
<i>Grazing/Pasture</i>	0.00	0.00	0.00	0.00**	0.00
<i>Forestry</i>	0.00	0.00	0.00	0.00	0.00
<i>Kitchen</i>	0.01	0.00	0.01	0.00	0.00
<i>Orchard</i>	0.00	0.00	0.00	0.00	0.00
<i>Fallow</i>	0.04	0.05	0.04	0.02***	0.02
<i>Other arrangement</i>	0.00	0.00	0.00	0.00*	0.00
<u>Land preparation, proportion of plots</u>					
<i>Traditional ridging</i>	0.84	0.80	0.82	0.85	0.85
<i>Tied or box ridging</i>	0.02	0.03	0.02	0.05	0.04
<i>Planting pits</i>	0.02	0.03	0.02	0.02	0.02
<i>Zero tillage</i>	0.02	0.02	0.02	0.02	0.02
<i>Ripping</i>	0.00	0.01*	0.00	0.00	0.00
<i>Minimum tillage</i>	0.02	0.04	0.03	0.02***	0.02
<i>Ploughing</i>	0.01	0.01	0.01	0.02	0.02
<i>Observations</i>	2201	2444	4645	1236	5881

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

Almost all crops are grown without irrigation during the single rainy season from October to April (the percentage of irrigated plots is around 4%).

Ineligible plots are more likely to grow crops and vegetables compared to eligible plots, but eligible plots are more likely to be left fallow. Farmers in eligible households prepare land through minimum tillage more often than farmers in ineligible households. About 93 percent of plots cultivate crops within the eligible group compared to 92 percent in ineligible plots. This is followed by two other forms of land tenure on all plots: rented-in plots (6%); and borrowed free/leased-in plots (2%). Ineligible plots were more likely to be rented-in than eligible plots.

Plot features (slope, soil type, soil quality, erosion) do not differ among treated and control households (see Table 12).

Table 12 Plot characteristics, proportion of plots

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Slope</u>					
Flat sloped	0.68	0.70	0.69	0.71**	0.71
Slight sloped	0.27	0.26	0.26	0.24*	0.25
Moderate sloped	0.05	0.05	0.05	0.05	0.05
<u>Soil type</u>					
Sandy	0.17	0.22	0.20	0.19	0.19
Between sandy and clay	0.55	0.54	0.55	0.56	0.56
Clay	0.23	0.19	0.21	0.19	0.19
Other	0.04	0.05	0.05	0.06***	0.06
<u>Soil quality</u>					
Good	0.35	0.38	0.37	0.37	0.37
Fair	0.44	0.39	0.41	0.41	0.41
Poor	0.21	0.23	0.22	0.22	0.22
<u>Erosion</u>					
No	0.51	0.51	0.51	0.57***	0.56
Low	0.32	0.33	0.33	0.31	0.31
Moderate	0.11	0.11	0.11	0.08**	0.09
High	0.05	0.04	0.05	0.04	0.04
Observations	2201	2444	4645	1236	5881

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

Ineligible plots are less likely to face erosion compared to eligible plots, and are more likely to be flat sloped and less likely to be slight sloped compared to eligible plots.

Table 13 displays whether households received information on or participated in activities related to sustainable land management (SLM). Receipt of information across all categories is generally higher than participation in the projects promoting SLM. As a whole, ineligible households had greater participation in, and information on, SLM compared to eligible households. Treatment and control households are similar across all indicators.

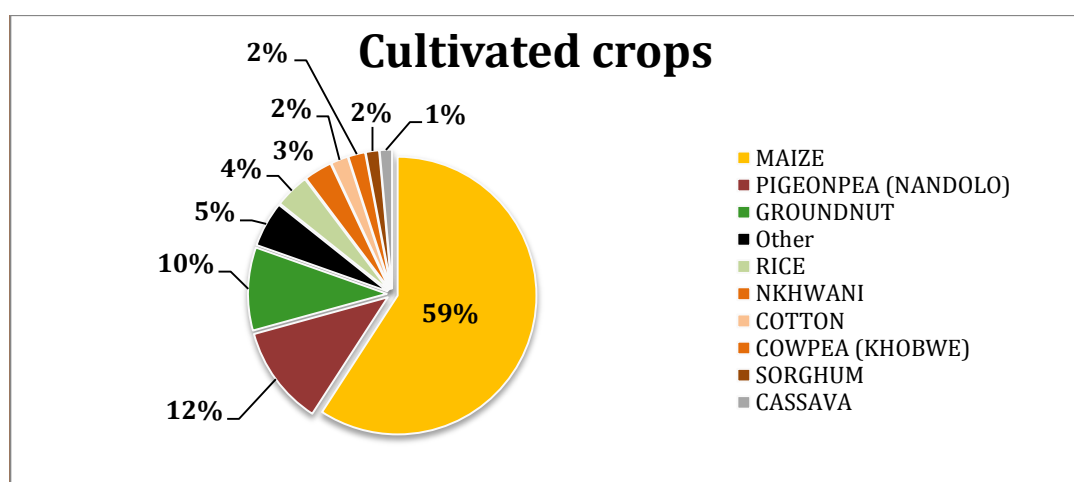
Table 13 Access to information on sustainable land management, proportion

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Received info on</u>					
... agro-forestry?	0.18	0.13	0.16	0.23***	0.22
... minimum tillage ?	0.17	0.11	0.14	0.19***	0.18
... crops or mulches?	0.13	0.09	0.11	0.16***	0.15
... soil/water conservation?	0.21	0.15	0.18	0.25***	0.24
<u>Participated in any projects</u>					
... promoting agro-forestry?	0.06	0.03	0.04	0.08***	0.07
... promoting soil and water conservation?	0.08	0.05	0.06	0.09*	0.08
... promoting grazing land management?	0.02	0.00	0.01	0.03*	0.03
Observations	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

3.4.2 Crop production and utilization

As reported in Figure 2, maize is the most commonly grown crop in Malawi: 59 percent out of the 7961 plots registered in the baseline survey are cultivated with maize, followed by pigeonpea (12%) and groundnut (10%).

Figure 2 Cultivated crop - whole sample

In Table 14, we report the percentage of households cultivating a specific crop and the relative quantity harvested, averaged out.

Table 14 Percentage of households producing a crop and quantity harvested (kg)

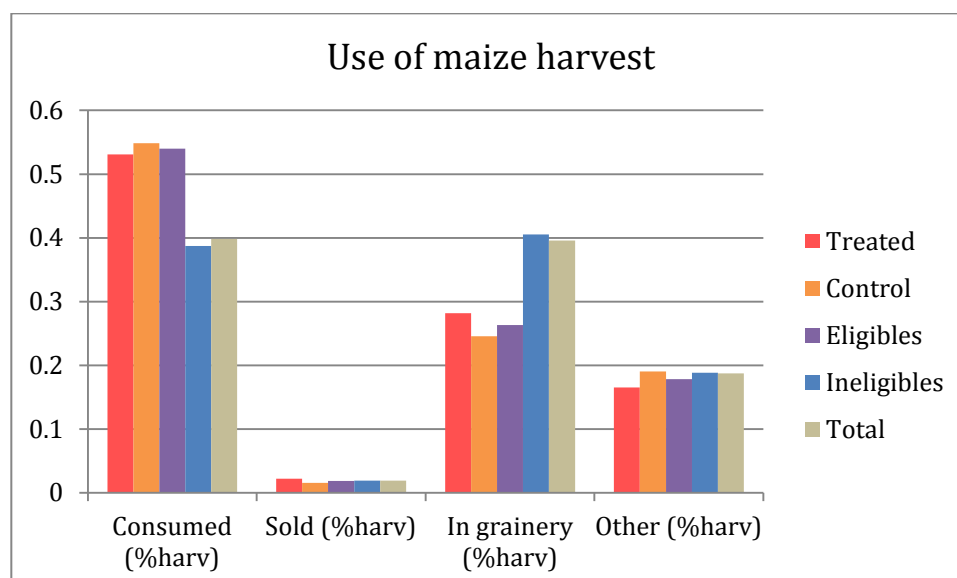
	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Proportion of HH harvesting</u>					
<i>Maize</i>	0.92	0.93	0.92	0.96***	0.96
<i>Groundnut</i>	0.19	0.17	0.18	0.31***	0.29
<i>Pigeonpea (nandolo)</i>	0.19	0.22	0.20	0.28	0.27
<i>Nkhwani</i>	0.07	0.04	0.06	0.05	0.05
<i>Rice</i>	0.04	0.06	0.05	0.05	0.05
<i>Cotton</i>	0.03	0.02	0.02	0.03	0.03
<i>Sorghum</i>	0.04	0.02	0.03	0.02**	0.02
<u>Quantity harvested per HH</u>					
<i>Maize</i>	219.59	224.38	222.02	402.50***	380.64
<i>Groundnut</i>	14.05	14.79	14.42	60.53***	54.95
<i>Pigeonpea (nandolo)</i>	7.78	12.48	10.17	22.10	20.66
<i>Nkhwani</i>	2.26	0.42	1.33	0.41	0.52
<i>Rice</i>	1.82	1.91	1.87	2.01	1.99
<i>Cotton</i>	2.10	1.58	1.84	5.97	5.47
<i>Sorghum</i>	3.29	1.06	2.16	2.90***	2.81
<i>Observations</i>	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Results are averaged out to include those who report no quantity harvested.

As expected, 96 percent of the households included in the baseline survey have at least one plot devoted to the production of maize. In terms of balance, treatment households are similar to control households in the kinds and quantity of crops harvested. Ineligible households harvest maize and groundnut at noticeably higher rates than do eligible households, and the quantity harvested in these two crops is higher, along with sorghum. The proportions engaged in harvesting pigeonpea, nkhwani, and rice are similar between eligible and ineligible households, and more eligible households harvest sorghum than do ineligible households. Despite both eligible and ineligible households being very engaged in maize production, ineligible households harvest almost twice as much maize as do eligible households.

Sample households devote most of the harvested maize to home consumption. As evidenced by Figure 3, eligible households consume 54 percent of their harvest while ineligible households consume 39 percent. Eligible households hold 26 percent of their harvest in granaries, compared to 41 percent of ineligible households. Only a very small part of the maize harvested is sold in the market as a cash income source.

Figure 3 Use of harvested maize



3.4.3 Input use for crop production

Table 15 displays the average quantity of seeds planted per household growing crops.

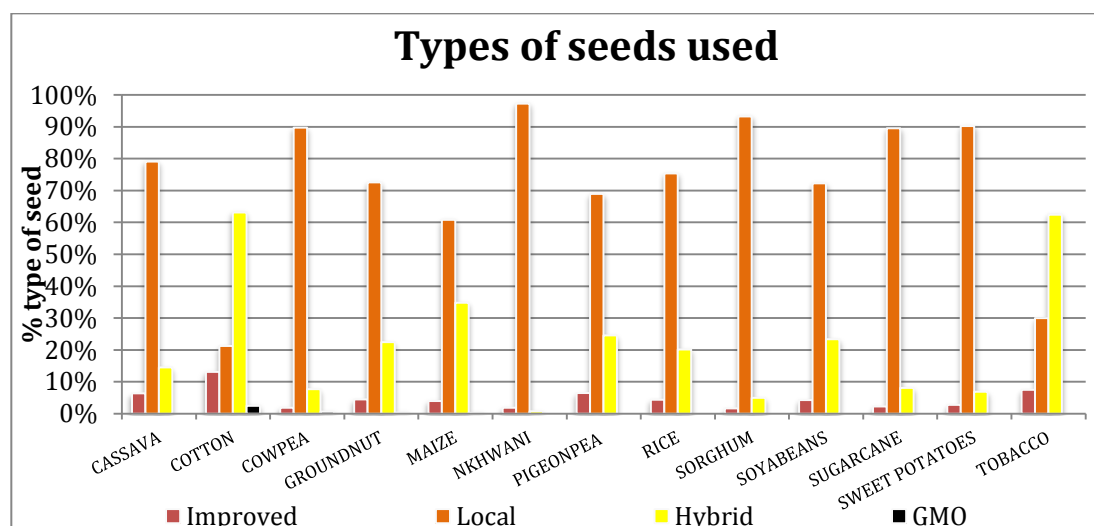
Table 15 Average quantity of seeds (kg) planted per household

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<i>Maize</i>	7.72	8.26***	7.99	10.65***	10.32
<i>Groundnut</i>	1.07	0.96	1.01	2.66***	2.46
<i>Pigeonpea (nandolo)</i>	1.52	1.13	1.32	0.97	1.01
<i>Nkhwani</i>	0.57	0.04	0.30	0.23	0.24
<i>Rice</i>	0.36	0.70	0.53	0.76	0.74
<i>Cotton</i>	0.16	0.07	0.12	0.19	0.19
<i>Sorghum</i>	0.08	0.04***	0.06	0.09	0.08
<i>Observations</i>	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Results are averaged out to include those who report no quantity planted.

Of the crop seeds accounted for in the table, ineligible households only plant more maize and groundnut seeds than eligible households. Control households plant more maize seeds and less sorghum seeds than treatment households. In Figure 4 we report the distribution of seeds by crop for the entire sample. In almost all cases, local seeds are the predominant choice, ranging from 60.9 percent for maize to 97.3 percent for nkhwani. More than 60 percent of the seeds used for tobacco and cotton production are hybrid. Cotton production represents the highest number of improved (13.13%) and genetically modified (2.5%) seeds.

Figure 4 Types of seeds used (improved, local, hybrid, GMO), by crop



Good farming practices together with good quality seeds may lead to a reduction in the quantity of chemical fertilizers needed. The average amount of chemical fertilizers expressed in kilograms and the value of organic fertilizers in MWK used per plot are recorded, as well as whether smallholder farmers apply fertilizers and pesticides (see Table 16).

Table 16 Fertilizers and pesticides use (quantity/value) at plot level

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Chemical fertilizers</u>					
Proportion of plots	0.57	0.54	0.56	0.64***	0.63
Amount (kg)	29.90	21.41*	25.53	41.05***	39.42
<u>Organic fertilizers</u>					
Proportion of plots	0.21	0.22	0.21	0.22***	0.22
Value (MWK)	244.01	324.76*	285.61	451.99	434.48
<u>Pesticides</u>					
Proportion of plots	0.02	0.01	0.02	0.03	0.03
Observations	2201	2444	4645	1236	5881

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Results are averaged out to include those who report no use of fertilizers.

Households engaged in crop production still rely to a large extent on chemical fertilizers and less on organic fertilizers, but their use differs depending on the group. The share of eligible and ineligible households using chemical fertilizer on their plots is 56 and 64 percent, respectively, and ineligible households employ a larger quantity of chemical fertilizer on their plots than eligible households. Further, ineligible households employ organic fertilizer within plots more often than eligible households. While treatment and control group plots employ chemical and organic fertilizer in similar proportions, the amount of chemical fertilizer used is higher on treatment plots, while the value of organic fertilizer used is higher on control plots. From the descriptive statistics it is unclear whether organic fertilizers are used as a complement to chemicals or whether they are involved in a crowding-out process.

3.4.4 Ownership of agricultural assets – farm implements and livestock

Malawi agriculture is still underdeveloped, as evidenced by the typology and share of agricultural implements owned. Ownership of simple hand-held agricultural implements such as hand hoes (96%), panga knives (47%), sickles (35%) and axes (30%) accounted for the largest portion of the items reported overall (see Table 17).

Table 17 Proportion of households owning agricultural asset

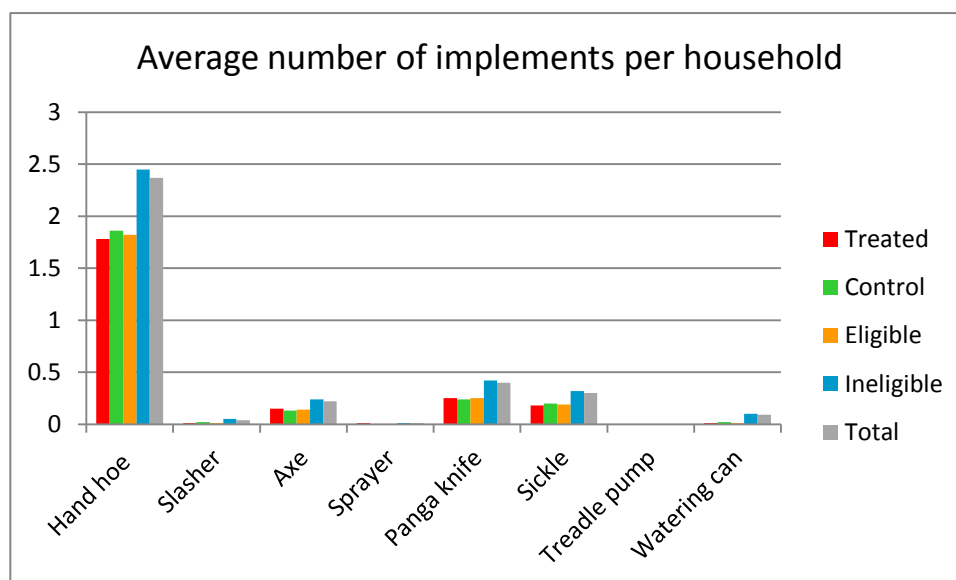
	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Implement</u>					
Hand Hoe	0.92	0.94	0.93	0.96***	0.96
Slasher	0.01	0.02	0.02	0.05***	0.04
Axe	0.22	0.26	0.24	0.31**	0.30
Sprayer	0.02	0.01	0.01	0.03***	0.02
Panga Knife	0.33	0.40	0.37	0.48***	0.47
Sickle	0.27	0.35*	0.31	0.35***	0.35
Treadle pump	0.00	0.00	0.00	0.00	0.00
Watering can	0.01	0.01**	0.01	0.07***	0.07
<u>Livestock inputs</u>					
Fodder	0.00	0.00	0.00	0.00	0.00
Manufactured feeds, salt	0.00	0.00	0.00	0.00	0.00
Vet services/drugs/medicines	0.00	0.00	0.00	0.00	0.00
<u>Machinery</u>					
Ox cart	0.02	0.01	0.02	0.02	0.02
Ox plough	0.00	0.00	0.00	0.00	0.00
Generator, motorised pump	0.00	0.00	0.00	0.00	0.00
<u>Structures/Buildings</u>					
Chicken house	0.02	0.02***	0.02	0.09***	0.08
Livestock kraal	0.05	0.04	0.05	0.17***	0.15
Poultry kraal	0.01	0.02	0.01	0.05**	0.05
Storage house	0.00	0.00	0.00	0.01***	0.01
Granary	0.14	0.11***	0.13	0.23**	0.22
Barn	0.00	0.00	0.00	0.02***	0.01
Pig sty	0.00	0.00	0.00	0.00	0.00
Observations	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

Ineligible households own all sorts of agricultural implements and structures/buildings compared to eligible households. Meanwhile both eligible and ineligible households own very little livestock inputs or machinery. Control households are more likely to own sickles and granaries and are less likely to own granaries when compared to treatment households, but are otherwise similar in agricultural asset ownership.

Moreover the total number of implements owned by the smallholders is very limited. As reported in Figure 5, households own fewer than one implement, with the exception of hand hoes, which is about two per household. Among the implements observed, ineligible households hold more of each implement compared to eligible households.

Figure 5 Average number of implements per household



Livestock production is crucial for ensuring food and nutrition security, yet livestock ownership in Malawi is very limited and in some cases non-existent. Only a small share of households overall (32%) own chickens, 25% own goats/sheep and nearly none own animals like pigs or cattle (see Table 18).

Table 18 Livestock ownership

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<i>Proportion HH</i>					
Chickens	0.20	0.18	0.19	0.34***	0.32
Goats/Sheep	0.11	0.10	0.11	0.27***	0.25
Cows/Bulls/Oxen	0.00	0.00	0.01	0.01	0.01
Birds (Pigeons/Doves/Ducks)	0.03	0.03	0.03	0.07**	0.06
Pigs	0.01	0.00	0.00	0.01	0.01
<i># Animals</i>					
Chickens	0.64	0.56	0.60	1.90***	1.74
Goats/Sheep	0.27	0.28	0.28	0.92***	0.84
Cows/Bulls/Oxen	0.00	0.00	0.00	0.04	0.04
Birds (Pigeons/Doves/Ducks)	0.25	0.22	0.23	0.76	0.69
Pigs	0.01	0.01	0.01	0.01	0.01
<i>Value Livestock (MWK)</i>					
Purchases	180.50	144.71	162.32	846.99	764.06
Sales	686.36	509.52	596.53	2318.62***	2110.04
Observations	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Results for value of livestock and number of animals are averaged out to include those who report no livestock use.

The average herd size is less than one animal per household in terms of goats/sheep and

cows/bulls/oxen. Ineligible households are more likely than eligible households to own chickens, goats/sheep, and birds. In terms of quantity of animals, ineligible households also own more chickens and goats/sheep than do eligible households. Ineligible households also sell more livestock than do eligible households, according to value of livestock.

3.5 Access to social safety-nets and other transfers

Information was also collected on the receipt of various safety net programmes of interest, and the amount (cash and in-kind) given to households on average within those groups, across eligibility status (Table 19).

Table 19 Receipt of social assistance at household level

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>FISP</u>					
Proportion HH	0.53	0.54	0.53	0.52	0.52
Amount (MWK)	6479.06	6663.29	6572.64	6978.90	6929.70
<u>Free maize</u>					
Proportion HH	0.16	0.16	0.16	0.10**	0.11
Amount (MWK)	0	0	0	0	0
<u>Free food</u>					
Proportion HH	0.15	0.13	0.14	0.12	0.12
Amount (MWK)	1092.87	1988.96	1548.05	940.37***	1013.97
<u>Food/Cash-for-Work Programme</u>					
Proportion HH	0.06	0.09*	0.07	0.09	0.09
Amount (MWK)	307.48	333.22	320.56	409.06	398.34
<u>Inputs-for-Work Programme</u>					
Proportion HH	0.01	0.01	0.01	0.00*	0.01
Amount (MWK)	65.22	144.27	105.38	34.84***	43.39
<u>School Feeding</u>					
Proportion HH	0.16	0.13	0.15	0.10*	0.10
Amount (MWK)	1132.42	1030.34	1080.57	746.24**	786.73
<u>Targeted Nutrition Programme</u>					
Proportion HH	0.00	0.01	0.01	0.00	0.000
Amount (MWK)	28.51	23.25	25.84	4.56***	7.14
<u>Supplementary Feeding</u>					
Proportion HH	0.01	0.00*	0.00	0.00**	0.00
Amount, MWK	58.37	14.64*	36.16	1.27	5.50
<u>Malawi SCT Programme</u>					
Proportion HH	0.00	0.00*	0.00	0.00*	0.00
Amount (MWK)	7.17	0	3.53	0	0.43
<u>Direct CT from others</u>					
Proportion HH	0.00	0.00**	0.00	0.00	0.00
Amount (MWK)	0	20.09	10.21	50.89	45.96
<u>Other</u>					
Proportion HH	0.00	0.00**	0.00	0.00	0.00
Amount (MWK)	5.27	125.46*	66.32	10.59	17.34
Observations	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Results of Amount MWK are averaged out to include those who report no participation in specific social assistance programme.

The most common safety net programmes of those examined include vouchers or coupons to buy fertilizers or seeds (Fertilizer Input Subsidy Programme - FISP), Free Maize, Free Food, and School Feeding. FISP, Free Food and School Feeding are among the most generous programmes in terms of amount of MWK given in the last 12 months. Eligible households are more likely to receive free maize, inputs-for-work, and school feeding, and also receive more in amount of MWK from free food, inputs-for-work, school feeding, and targeted nutrition than are ineligible households. Treatment households are more likely to receive free food and supplementary feeding compared to control households. While treatment households receive more in amount of MWK from supplementary feeding compared to control households, the reverse is true for free food, direct CT from others, and other social assistance transfers.

Table 20 takes a deeper look at the FISP program in Malawi, and its receipt across eligibility lines for the social cash transfer. Demographic and agriculture dimensions of the households were investigated. In terms of demographics, non-FISP households are more likely to be female-headed, to feature a younger head, and to feature a head with education. In both eligible and ineligible households, non-FISP households own and use fewer inputs, and are less likely to own land or structures compared to FISP households, but are otherwise similar in the dimensions observed.

Table 20 Participation in Fertilizer Input Subsidy Programme (FISP) across Eligibility

	<i>Eligible</i>		<i>Ineligible</i>		<i>Overall</i>	
	FISP	Non-FISP	FISP	Non-FISP	FISP	Non-FISP
<i>Proportion of all HHs</i>	0.06	0.06	0.46	0.42	0.52	0.48
Demographic variables						
<i>Head age</i>	60.18	55.99***	51.26	45.27***	52.36	46.53***
<i>HH size</i>	4.50	4.47	5.16	4.89	5.08	4.84
<i>Head is male</i>	0.18	0.15***	0.40	0.32	0.37	0.30**
<i>Dependency ratio</i>	2.61	2.79**	1.84	1.84	1.92	1.92
<i>Proportion head no education</i>	0.73	0.70***	0.53	0.46	0.56	0.48**
Agriculture variables (in proportions)						
<i>Proportion HH owning land</i>	0.99	0.91***	1	0.96***	1	0.96***
<i>Acres of land operated</i>	1.19	0.95**	1.29	1.04**	1.27	1.03***
<i>Proportion irrigated plot</i>	0.03	0.03	0.04	0.05	0.04	0.04
<i>Proportion using chemical fertilizer</i>	0.95	0.32***	0.97	0.58***	0.97	0.55***
<i>Amount of c.f.</i>	49.98	14.18***	77.40	47.02***	74.00	43.15***
<i>Proportion using organic fertilizer</i>	0.23	0.26**	0.28	0.28	0.28	0.28
<i>Amount of o.f.</i>	282.10	429.85***	664.17	558.70	616.70	543.53
<i>Proportion HH using pesticides</i>	0.02	0.02	0.05	0.03	0.04	0.03
<i>Proportion HH using improved seed</i>	0.07	0.05***	0.10	0.09	0.09	0.09
<i>Proportion HH owning fodder</i>	0.00	0.00	0.00	0.00	0.00	0.00
<i>Proportion HH owning ox cart</i>	0.02	0.01	0.02	0.02	0.02	0.02
<i>Proportion HH owning chicken house</i>	0.03	0.01***	0.09	0.09	0.08	0.08
<i>Proportion HH owning livestock kraal</i>	0.06	0.03*	0.19	0.14	0.18	0.12**
<i>Proportion HH owning own granary</i>	0.18	0.07***	0.29	0.16**	0.28	0.15***
<i>Observations</i>	1829	1702	407	414	2236	2116

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. For this table, significance looks between FISP and Non-FISP in their respective categories (Eligible, Ineligible, Overall). Results are averaged out to include those who report no use of fertilizers.

Table 21 investigates transfers made from and to individuals who do not live in the household (family, friends, and neighbours) in the last 12 months. The transfers include cash transfers, food or other consumables, labour or time, and agricultural implements or inputs.

Table 21 Transfers received and given, proportion, by household

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Transfers received</u>					
<i>Did HH receive...</i>					
Any	0.80	0.85	0.82	0.74***	0.75
Cash transfers	0.41	0.46	0.43	0.35	0.36
Food, other cons	0.71	0.79	0.75	0.64***	0.65
Labour or time	0.33	0.37**	0.35	0.25***	0.26
Ag tools or inputs	0.20	0.22	0.21	0.19	0.19
<i>Amount received</i>					
All	10804.06	13242.03	12042.44	11699.68	11741.18
Cash transfers	2678.78	2749.26	2714.57	3839.58*	3703.35
Food, other cons	6036.05	8217.79*	7144.06	6158.37	6277.74
Labour or time	2086.07	2274.98	2182.03	1701.72***	1759.88
<i>If HH received, will HH give something back, for receipt of...</i>					
Any	0.06	0.07*	0.07	0.07	0.07
Cash transfers	0.02	0.02	0.02	0.02	0.02
Food, other cons	0.02	0.02	0.02	0.03	0.03
Labour or time	0.04	0.05	0.05	0.08**	0.07
Ag tools or inputs	0.12	0.12	0.12	0.07	0.07
<i>If did not receive specific transfer, could HH ask someone to provide...</i>					
Any	0.54	0.62	0.58	0.51***	0.52
Cash transfers	0.09	0.11	0.10	0.14	0.14
Food, other cons	0.13	0.16	0.14	0.18	0.18
Labour or time	0.15	0.17	0.16	0.16	0.16
Ag tools or inputs	0.14	0.15	0.14	0.14	0.14
<u>Transfers given</u>					
<i>Did HH give...</i>					
Any	0.28	0.33	0.31	0.49***	0.47
Cash transfers	0.05	0.05	0.05	0.18***	0.16
Food, other cons	0.21	0.25	0.23	0.39***	0.37
Labour or time	0.12	0.13	0.12	0.15	0.15
Ag tools or inputs	0.03	0.02	0.03	0.06***	0.06
<i>Amount given</i>					
All	995.00	947.73	970.99	4498.81***	4071.53
Cash transfers	140.94	110.39	125.42	1713.08	1520.78
Food, other cons	402.95	451.53	427.63	2032.63***	1838.23
Labour or time	451.11	385.82	417.95	753.11***	712.51
<i>If HH gave, will recipient give something, for giving of...</i>					
Any	0.15	0.13	0.14	0.10**	0.10
Cash transfers	0.14	0.05***	0.09	0.05	0.05
Food, other cons	0.07	0.06	0.06	0.05	0.05
Labour or time	0.19	0.19	0.19	0.12**	0.13
Ag tools or inputs	0.16	0.22	0.19	0.12**	0.12
Observations	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Results for value of transfer are averaged out to include those who report no transfer receipt or giving.

Across many types of transfers, eligible households received transfers at a higher rate compared to ineligible households and were also less likely to give transfers, both phenomena likely attributable to the ultra-poor status of eligible households. The cash value of food and labour/time transfers made by ineligible households surpassed those made by eligible households. As for receipt in terms of cash value, eligible households received more in labour or time, while ineligible households received more in cash transfers. Ineligible households are more likely to give back to loaning households when receiving labour or time. Eligible households are more likely than ineligible households to receive back from households that have taken labour/time or agricultural implements from them. About 48 percent of households could ask someone to provide any transfer if one did not receive it, yet eligible households are more able to ask for provision compared to ineligible households. Control households are similar to treatment households in terms of likelihood of gift and receipt except for receipt of labour or time, which is higher than for control households.

3.6 Access to credit

Table 22 documents the patterns of borrowing and purchases on credit among households, as well as actions taken by households that did not pursue borrowing or purchases on credit. Eligible households are more likely to still owe money for a loan contracted before June 2012. Compared to eligible households, ineligible households are more likely to apply for a loan if it was certain of approval. Ineligible households borrow more even though they do not borrow more often than eligible households. Ineligible households desired larger loans at the same interest rate more often than did eligible households.

More ineligible households purchased food or other goods on credit than did eligible households, and a higher amount was purchased among ineligible households. Ineligible households also show more flexibility, being able to purchase even more on credit (if they purchase on credit) and being able to purchase on credit if asked (if they did not purchase on credit).

Table 22 Access to credit

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<u>Borrowing</u>					
<i>Proportion HH still owing money for loan contracted before June 2012</i>	0.06	0.06	0.06	0.05***	0.06
<i>Amount owed (MWK)</i>	245.84	257.25	251.64	369.05	354.83
<i>Proportion HH borrowing</i>	0.24	0.28*	0.26	0.28	0.28
<i>Amt borrowed (MWK)</i>	927.44	921.15	924.24	2329.02**	2158.93
<i>Proportion owing interest on a loan</i>	0.06	0.06	0.06	0.08	0.08
<i>Amt still owed (MWK)</i>	747.61	683.73	715.17	1695.71	1576.99
<i>Proportion HH desiring larger loan at same interest rate</i>	0.12	0.12	0.12	0.16**	0.16
<u>Of HHs that did not borrow, (proportion) ...</u>					
<i>Has HH applied for loan?</i>	0.06	0.05	0.06	0.08*	0.07
<i>Would someone lend to HH?</i>	0.27	0.25	0.26	0.36***	0.35
<i>Would apply for loan if certain it could obtain loan</i>	0.28	0.24	0.26	0.36***	0.35
<u>Purchases on credit</u>					
<i>Proportion HHs purchasing food or other goods on credit</i>	0.30	0.28	0.29	0.36***	0.35
<i>Amt purchased on credit (MWK)</i>	619.49	535.85	577.01	1155.51***	1085.44
<i>Amt paid back (MWK)</i>	382.18	333.69	357.55	902.39***	836.40
<i>Proportion HHs able to purchase more on credit</i>	0.17	0.14	0.15	0.23***	0.22
<u>Of HHs that did not purchase on credit (proportion) ...</u>					
<i>HH asked to purchase on credit but denied</i>	0.13	0.12	0.12	0.10	0.10
<i>HH that could purchase on credit if asked</i>	0.27	0.26	0.26	0.37***	0.36
<i>HH that would ask to purchase on credit if certain of approval</i>	0.24	0.21	0.22	0.26	0.26
<i>Observations</i>	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Results for amounts are averaged out to include those who reported not participating in specific activity.

3.7 Food security

Sample households face great food insecurity (see Table 23).

Table 23 Food security

	<i>T</i>	<i>C</i>	<i>Eligibles</i>	<i>Ineligibles</i>	<i>Total</i>
<i>Proportion HHs not having enough food</i>	0.84	0.82	0.83	0.63***	0.66
<i># meals taken per day in HH</i>	1.91	1.95	1.93	2.25***	2.21
<i># months maize lasted from last year's harvest</i>	3.91	3.89	3.90	5.63***	5.42
<i># months current maize granary will last</i>	1.19	1.20	1.19	2.47***	2.32
<i>Observations</i>	1678	1853	3531	821	4352

Note: * significant at 10%; ** significant at 5%; *** significant at 1%

Sixty-six percent report not having enough food in the seven days prior to the survey, with eligible households being worse off than ineligible households (83% vs. 63%, respectively). Ineligible households also report eating more meals per day and maize lasting for a longer period in stock compared to eligible households. Finally, treatment and control households' characteristics are balanced in terms of food security indicators.

4. Conclusions

In this report we analysed baseline household level data collected in 2013 and focused on sections related to economic activities, including use of farm inputs (e.g. fertilizer, seeds), overall crop production levels and composition, sales from crop production, land use types, ownership of small tools and other assets including livestock, participation in off-farm enterprises and changes in the labour supply of household members.

Households in the sample are mostly female-headed and on average comprise five members. The head of household has no education or – at best – is enrolled in primary school. Household sources of income include mainly employment in ganyu labour or, to a less extent, other income-generating activities such as petty trading or running handicrafts works. Women and young girls are mainly involved in domestic tasks such as fetching water, firewood collection or child care, leaving less time for education. Policies are needed to help households save time by addressing their domestic water and energy needs (e.g. fuel for cooking, water provision), enabling future generations to attend school.

The majority of the sampled households cultivated their land in the past rainy season, the average size of cropped area is about one acre per household, and the vast majority of the cropped areas are not irrigated. Most of the plots are “owned” by the sample households and mainly used for crop/vegetable cultivation, which is still performed with rudimentary farm assets (mainly hand hoes) and practices (traditional ridging). The most important crop produced is maize, followed by other intercropping cultivars, in particular pigeonpea and groundnut (often applied to improve soil fertility). Local and hybrid types of seeds are commonly employed by farmers, and cotton producers rely to a minor extent on genetically modified seeds. A very high share of maize is consumed directly by the household

The overall baseline report produced by the University of North Carolina concluded that the randomization of households into control and treatment groups was successful, given that both groups were similar across indicators ranging from food security to health and adolescent behaviour. Focusing on the key indicators related to the productive impact of the social cash transfer, our report also largely echoes the conclusion found by the University of North Carolina, noting a more similar picture of the differences between the control and treated households. Among the key indicators related to the productive impact of the social cash transfer, we observed a few differences between treatment and control groups, particularly on variables related to seeds, wage labour supply, and agricultural implements and inputs. This presents a good opportunity for future analytical work concerning productive impacts given the fact that the treatment group is similar to the control group in a majority of cases.

In terms of targeting performance, there are similarities between this report and the one produced by the University of North Carolina. Although differences exist between eligible and ineligible households somewhat regularly, there are many instances in which both groups are similar in indicators related to productive impact. Such a lack of differences is particularly manifest in wage labour supply, business enterprises, social assistance and transfers. While differences tend to be consistent in direction and are indeed evident, there does seem to be room for improvement in programme targeting.

5. References

- Asfaw S., Davis, B., Josh Dewbre, J., Handa, S. and Winters, P. (2014) Cash transfer programme, productive activities and labour supply: Evidence from randomized experiment in Kenya. *Journal of Development Studies* 50(8): 1172-1196.
- Covarrubias. K., Davis. B. and Winters, P. (2012) From Protection to Production: Productive Impacts of the Malawi Social Cash Transfer Scheme. *Journal of Development Effectiveness*, 4(1), pp. 50-77.
- Davis, B., Gaarder, M., Handa S. and Yablonski, J. (2012) Evaluating the impact of cash transfer programs in Sub Saharan Africa: an introduction to the special issue. *Journal of Development Effectiveness*, 4(1), pp. 1-8.
- Dimova, R., Mechaelow, K. and Weber, A., (2010) Ganyu Labour in Malawi: Understanding Rural Households' Labour Supply Strategies. Prepared for the Fifth IZA/World Bank Conference on Employment and Development, 3-4 May, Cape Town. Available from : http://www.iza.org/conference_files/worldb2010/dimova_r1718.pdf.
- Fiszbein, A. and Schady, N. (2009) Conditional Cash Transfers for Attacking Present and Future Poverty, with Ferreira, F.H.G., Grosh, M., Kelleher, N., Olinto, P., and Skoufias, E., The World Bank Policy Research Report, 2009, Chapters 2, 5.
- Gertler, P., Martinez, S. and Rubio-Codina, M. (2012) Investing Cash Transfers to Raise Long Term Living Standards. *American Economic Journal: Applied Economics*, 4(1), pp. 164-92.
- Gilligan, D., Hoddinott J. and Taffesse, A. (2009) The Impact of Ethiopia's Productive Safety Net Program and Its Linkages. *Journal of Development Studies* 45(10), pp. 1684- 1706.
- Handa, S., Kilburn, K., Barrington, C., Angeles, G., Mvula, P. and Tsoka, M. (2013) Impact Evaluation of the Malawi SCT. Inception report, University of North Carolina, Chapel Hill, USA.
- Handa, H., Angeles, G., Abdoulayi, S., Mvula, P., Tsoka, M. et al. (2014) Malawi Social Cash Transfer Programme; Baseline Evaluation Report. Baseline report, University of North Carolina, Chapel Hill, USA.
- Maluccio, J. (2010) The Impact of Conditional Cash Transfers in Nicaragua on Consumption, Productive Investments and Labor Allocation. *Journal of Development Studies*, 46 (1), pp. 14-38.
- Martinez, S. (2004) Pensions, Poverty and Household Investments in Bolivia. Doctoral dissertation, University of California, USA.
- Miller, C., Tsoka, M., and Reichert, K. (2010). Impacts on children of cash transfers in Malawi. In S. Handa, S. Devereux and Webb, D., *Social protection for Africa's children*. London: Routledge Press.
- Soares, F. V., Ribas, R. P. and Hirata, G. I. (2010) The impact evaluation of a rural CCT programme on outcomes beyond health and education. *Journal of Development Effectiveness*, 2(1), pp. 138-157.
- Todd, J., Winters, P. and Hertz, T. (2010) Conditional Cash Transfers and Agricultural Production: Lessons from the Oportunidades Experience in Mexico. *Journal of Development Studies*, 46(1), pp. 39-67.