

Cash Transfers and Children's Education and Labour among Malawi's Poor

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This article examines the impact on children's education and labour of monthly cash grants targeted on ultra-poor households and designed to reduce poverty and enable families to invest in human development. It conducts a randomised community trial, with baseline and endline surveys of intervention and control households; verifies school enrolment; and completes key-informant interviews and focus-group discussions. Compared with non-beneficiaries, intervention children experienced a 5 percentage point difference in enrolment, higher educational expenditures, fewer absences, and a 10 percentage point decrease in labour outside the home. Qualitative data confirm the quantitative findings. Transfers to poor households had a positive impact. However, the Malawian educational system needs to be improved for short-term impacts to lead to long-term development in human capital.

Key words: Cash transfer, social protection, education, child labour, Africa, Malawi

We could only see darkness because of hunger, but now we go to school with full stomachs (Ten-year-old boy)

1 Introduction: cash transfers and crisis response

Education 'is transformative and empowering, and a means for accessing broad economic, social, political and cultural benefits' (United Nations, 2010). Throughout Africa, new cash-transfer programmes, targeted on the poor, are emerging as a strategy to decrease barriers to education by reducing household poverty and providing the inputs needed for poor families to invest in the development of human capacity (Barrientos, 2010).

Cash-transfer schemes have been launched in countries such as Ghana, Liberia, Malawi, Namibia, Tanzania, Uganda and Zambia (Miller, 2010). These African programmes were adapted from *conditional* cash-transfer (CCT) programmes following South-South exchange of information and learning opportunities. CCTs emerged during the past decade and quickly became a cornerstone of poverty-reduction efforts in more than 30 countries, particularly throughout Latin America (Fiszbein et al., 2009; Rawlings, 2004). The Latin American CCTs are known for their well-documented

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positive impacts, which include increased school enrolment ranging from 0.5 to nearly 13 percentage points, and, in some places, decreased child labour that once interfered with schooling (Fiszbein et al., 2009).

While cash schemes differ by country with regard to conditions, targeting criteria, implementation capacity, and management, the poverty-reduction goals are shared. In theory, transfers allow families to gain food security and accumulate assets, access and use health services, and keep or enrol children in school (Barrientos and DeJong, 2004; Social Protection Advisory Service, 2003). Over the long term, these investments in child health and education should be transformative, resulting in human-capital development.

The objective of the present study was to examine the short-term impacts of the Malawi Social Cash-Transfer Scheme (SCTS) on child education and labour. Specifically, it assessed whether households receiving a monthly cash transfer invest in their children's human-capacity development by prioritising child education and reducing child labour outside the home. Data come from a randomised community control trial using a mixture of quantitative and qualitative methods, conducted in the district of Mchinji, where the cash-transfer scheme was launched in 2006. The natural evolution of the SCTS provided the opportunity to conduct an independent evaluation to measure the scheme's impact. The evaluation consisted of a quantitative baseline and endline survey from a panel of intervention and control households, school verification data, and qualitative key-informant interviews and focus-group discussions with recipient children and community members.

This analysis provides empirical evidence on the short-term impacts of regular cash transfers on the most destitute households in Malawi, informing the policy and analytical debates on whether cash transfers can achieve the complementary goals of decreasing income poverty, improving school enrolment and attendance, and decreasing child labour.

2 The impact of cash on child education and labour

2.1 Education

The first-generation CCT programmes from Latin America were evaluated using scientifically rigorous study designs. However, the evidence from first-generation CCTs may not be fully transferable to Africa, where there are important contextual differences, such as the depth and prevalence of poverty. Nevertheless, to date, there are few studies of African programmes, so it is worthwhile to examine the CCT literature since it yields important lessons to guide the assessment of African schemes.

Most importantly, evaluations of CCT programmes demonstrate that they yield differential impacts due to a range of contextual factors, characteristics of children and families and components of programmes (Fiszbein et al., 2009). For instance, programmes in countries with lower baseline enrolment have delivered larger impacts. In Nicaragua where the baseline enrolment was low at 72%, transfers produced a near 13 percentage point difference in enrolment among 7-13-year-olds. In Colombia, where baseline enrolment was high at 92%, transfers yielded only a 2.1 percentage point

difference in enrolment among 8-13-year-olds (Maluccio and Flores, 2005; Attanasio et al., 2005).

Impacts also vary by the socio-economic status of families. In Nicaragua, the greatest impacts were in the poorest households where 7-13-year-olds who were categorised as 'extremely poor' had better enrolment results than 'poor' and 'non-poor' children, with gains of approximately 25 percentage points, 14 percentage points, and 6 percentage points respectively (Maluccio and Flores, 2005). This finding suggests that cash may not reduce all barriers to education but can reduce poverty-related barriers. Cash-transfer impacts may also vary by the age and gender of children (Fiszbein et al., 2009). For example, in South Africa where unconditional cash payments had a positive impact on enrolment, the greatest improvements were among girls (Duflo, 2003). Other factors, such as the gender of the parent or caregiver receiving the transfer, are important, as in South Africa, where enrolment rates are higher in female-headed households (*ibid.*).

In CCTs, 'conditions' may also influence the size of programme impacts. Conditions, or behavioural requirements, are levied to ensure that families that have under-invested in human capital use a portion of cash to invest in education. Families may under-invest because of poverty or because of poor-quality schools or teaching. Children may also be out of school due to low aptitude or the opportunity costs of schooling. Economists argue that these reasons may not be socially desirable, but they may be rational and efficient (Fiszbein et al., 2009). Thus, the combination of cash and conditions works to overcome all of these reasons for not educating children. In practice, conditions include mandatory school enrolment, performance and/or grade-progression requirements, which are monitored monthly or quarterly. However, the evidence is not clear as to whether the educational impacts of CCT programmes are due to cash, conditions or some combination of the two. Nevertheless, in contrast to Latin American CCTs, African cash-transfer programmes are not conditional, partly because of the limited capacity to monitor them.

The size of the cash transfer is also an important factor influencing the size of programme impacts. The greatest impacts on school enrolment and attendance occur in countries where transfers are a larger portion of pre-transfer expenditures (Galasso, 2006; Maluccio and Flores, 2005). In Latin American countries, the transfer ranges from approximately \$13 to \$50 per month, depending on the country and the age and number of children (Lagarde et al., 2007). On average, transfers amount to approximately 7% of pre-transfer expenditures in Chile, 20% in Mexico, and 27% in Nicaragua (Fiszbein et al., 2009).¹

Many of the Latin American CCTs have incorporated 'supply-side interventions' to increase the capacity of the educational system, given the increased demand for schooling that is generated by cash transfers. In Mexico, schools and classrooms were constructed or rehabilitated; payments were made to parent-teacher associations in Honduras; and books, teaching and library resources were provided in Jamaica (Fiszbein et al., 2009). However, to date, the African programmes have not had accompanying supply-side or complementary interventions owing to resource

1. These estimates are not directly comparable owing to differences in the ways that expenditures and consumption are calculated between countries.

limitations (Schubert and Slater, 2006). We would intuitively expect that these supply-side investments are important; however, it is unclear how they interact with cash transfers to impact on enrolment, attendance and the medium-term outcome of student achievement.

Moving from short-term outcomes such as school enrolment and attendance to medium-term outcomes such as improved educational performance and achievement, there are fewer studies, and the evidence is less clear and encouraging. In Ecuador, Ponce and Bedi (2009) found that, despite positive impacts of the cash-transfer scheme on enrolment and attendance, the *Bono de Desarrollo Humano* programme yielded no impact on test scores. It may be that, without improvements, poor-quality educational systems, with ineffective teaching and overcrowded and/or dilapidated schools, will undermine efforts to improve student achievement even when children attend regularly. This is a relevant threat to all efforts and interventions that aim to increase enrolment and attendance in the expectation that improved achievement will also result.

2.2 Child labour

Reducing child labour is a goal of cash-transfer programmes because work may be physically or mentally harmful, may interfere with schooling, and can undermine educational attainment and future earnings (Fiszbein et al., 2009). In Malawi, the major reasons reported for children leaving primary school were for employment and to meet family responsibilities (Government of Malawi, 2007). Cash transfers may reduce child labour by providing the regular income that families need to survive, which, in turn, releases children from their economic responsibilities.

In Mexico, where the transfer is conditional upon children attending school, the greatest reductions in work, such as engaging in income-generating activities, were among boys aged 12 to 17 and ranged from 15 to 25 percentage points (Skoufias and Parker, 2001). In addition, domestic work decreased among children in cash-transfer households (ibid.). Likewise, in Nicaragua, where conditions were heavily monitored, Maluccio and Flores (2005) found a 3 to 5 percentage point reduction in work among children aged 7 to 13 and a 9 percentage point difference among 10-13-year-olds (Maluccio, 2003).

In contrast, in Brazil, although student enrolment increased, there were no differences in child labour (Cardoso and Souza, 2004); nor were reductions in child work found in Colombia or Honduras (Attanasio et al., 2006; Glewwe and Olinto, 2004). These null findings might occur because the size of the transfer was too small to offset the income earned by children who were able to combine work and school (Cardosa and Souza, 2004). Households may continue to receive the income generated by children, while a portion of the monthly transfer is used for educational costs.

In Ecuador and Cambodia, researchers identified transition periods, such as the transition from primary to secondary school, as the most sensitive times for dropping out in order to work (Edmonds and Schady, 2008; Filmer and Schady, 2009). In Cambodia, transfers to children for staying in school during times of transition led to an 11 percentage point reduction in work (Filmer and Schady, 2009).

3 The Malawi Social Cash-Transfer Scheme

Launched in June 2006, the Malawi Social Cash-Transfer Scheme (SCTS) is currently operational in 7 out of 28 districts and reaches more than 24,300 households and 98,000 beneficiaries throughout Malawi. In Mchinji, by April 2010, more than 11,000 households had received transfers on a monthly basis. Current plans are to reach 300,000 households throughout the country by 2015 at a cost of US\$68 million per year (Government of Malawi, 2010).

The SCTS is implemented by the Government of Malawi at the level of the District Assembly, is financed mostly by donor partners, and utilises a community-based targeting strategy, which is described in detail in Miller et al. (2010a). There are no conditions or supply-side accompaniments to the cash transfer. As the beneficiaries receive payments, they are told that children should attend school, but there is no monitoring or penalties.

The cash transfer is targeted on ultra-poor households that are also labour-constrained (Schubert and Kambewa, 2006). Ultra-poor households are in the lowest expenditure quintile or below the food poverty line. Labour-constrained households either have no able-bodied adults aged 19-64 or have a dependency ratio worse than three so that one adult has to care for more than three children, elderly, or chronically ill household members (*ibid.*).

The value of the transfer depends on the size of the household and the number of school-aged children. On average, beneficiary households receive approximately US\$14 (MK2,000) per month. The base range is from US\$4.30 (MK600) for a single-person household to US\$12.85 (MK1800) for households with four or more members. A US\$1.42 (MK200) top-up is paid for each primary-school-aged child and US\$2.86 (MK400) for each secondary-school-aged youth. Transfers account for 60% of pre-transfer expenditures on average, with a range from 4% to 100%. In Malawi – where poverty is extensive – the poorest households live almost separate from the cash economy. This means that, prior to the cash transfer, some of the poorest households had no income, owned no assets, had made no purchases in the past month, and did not even own a change of clothing. They survived by begging and foraging for food.

4 Methods of the study

The Boston University Institutional Review Board and the Malawian Health Research Council at the Ministry of Health approved the study protocols submitted for the evaluation.

4.1 Sample selection

SCTS targeting. In Malawi, the District Assembly divides the villages into groups consisting of approximately 1,000 households for the implementation of the SCTS. In February 2007, Mchinji District Assembly identified the next eight village groups eligible for the SCTS. The scheme's multi-stage, community participatory targeting process was implemented in order to select 10% of the poorest households that are also labour-constrained (approximately 100 eligible households per village group).

Evaluation study. We synchronised the evaluation with the District's SCTS implementation activities. In March 2007, immediately after the District selected the next eight village groups to include in the scheme, we collected baseline data from all households selected to receive the cash transfer. With the District's approval, we randomly assigned four village groups to the intervention and the remaining four to the comparison group. The intervention group began receiving transfers in April 2007. Qualitative data collection occurred in October and November 2007 and March 2008. We collected the endline survey in April 2008. The control group received transfer payments in May 2008. The sample selection is described in detail in Miller et al. (2010b).

4.2 Data sources for the impact evaluation

Quantitative questionnaires and structured qualitative interview and focus-group guides were developed in English, translated into Chichewa, and translated back into English (Miller et al., 2010b). Research assistants (RAs) were trained to use all the data-collection instruments, which were then pilot tested and revised. The questionnaire and qualitative instruments captured a range of demographic and economic information. The impact of cash on child education was measured using indicators of school enrolment, daily attendance, and per child expenditures on education. Child labour was measured using indicators of whether children performed household chores (i.e., shopping, collecting firewood or water, doing laundry, etc.), other family work (i.e. working in the fields, in businesses or selling things), and income-generating activities outside the household for money.

We visited respondents at their homes and interviewed the cash-transfer recipient, who was generally the head of the household. One challenge that occurred during data collection was that some intervention and comparison respondents reported 'ghost' members, in an effort to increase their monthly transfer (Miller et al., 2010c). We identified and removed ghosts from the panel, given that ghost-members were fictitious (these are not counted in the sample size). Based on extensive fieldwork and RA training, we are reasonably confident that we removed the majority of the 'ghosts' from the sample.

4.3 School verification

We created a roster of all intervention children and young people whose household head reported that they were enrolled in school. Next, we met school officials, including headmasters and teachers, to confirm the enrolment and attendance of all students on the roster.

4.4 Quantitative statistical analysis

During data collection, surveys were checked daily and entered into the Census and Survey Processing System (CSPRO). Concurrent data entry allowed for a second review by the data entry team so that questionable survey responses could be returned to the field team to confirm. The CSPRO database was exported to Statistical Analysis

Software (SAS 9.1) for cleaning and analysis. We calculated univariate and bivariate statistics to examine the differences in education and labour among children, depending on their age, gender, household variables, and intervention status.

Next, we computed difference-in-differences (double-difference) estimates to determine the programme impacts. This is a common approach used in randomised community control trials (Ravallion, 2003; Angrist and Pischke, 2009). We calculated the mean difference between outcome values in the intervention and comparison groups at baseline in March 2007, prior to the transfer distribution, and in April 2008, when intervention households had received the transfer for one year. We used regression models to obtain the double-difference estimate of the programme's impact because it yields the difference between the two mean differences for the given outcome, and an associated p-value. The double-difference estimates are reported in percentage points. The estimating equation follows:

$$B = \alpha_i + \alpha_i I_i + \alpha_i A_i + \delta I_i A_i + \mu_i$$

where B is the outcome variable of interest for individual I , $I = (1)$ if Intervention group, $A = (1)$ if Year is 2008 (endline), $\mu =$ all observable and unobservable factors.

The parameter δ is the double-difference estimator of the average programme effect. For each of the outcomes, we present impact estimates for all children combined and also stratified by age to show the precise effects for different age groups. The models are also adjusted for household size and a wealth/poverty measure (i.e. monthly household food expenditures), because there were several between-group differences in these variables at baseline. Adding these covariates improved the precision, but had little effect on the impact estimates. In addition, we used the `proc surveyreg` function in SAS 9.2 to account for village-level clustering. While the eight village groups used for SCTS targeting are largely administrative units, they contain 23 different villages. These villages are homogenous, however; and simple OLS regression and regression models that account for clustering at the village level yield nearly identical effect sizes, standard errors, and t-statistics (Imbens and Wooldridge, 2008; Miller et al. 2010b).

4.5 Qualitative data collection and analysis

We conducted a set of qualitative activities within intervention villages in order to gain insights into the processes that occur within intervention villages and households once the cash transfer has been implemented, to help interpret quantitative findings, and to establish the validity of the quantitative findings. We conducted key-informant interviews with teachers (n=13), health (n=8) and agricultural extension workers (n=4), community development assistants (n=6) and traditional leaders (n=22) in the intervention villages. We also conducted focus-group discussions with community members from intervention villages (20 focus groups with 205 community members) and children from intervention households (16 focus groups and 169 children). Interviews and focus groups were held in village locations conducive to confidential discussions. We interviewed all teachers and health and extension workers who were available, and the traditional leaders from each village group where the scheme was operational. We asked village chiefs to invite community members to participate in the

focus groups, but excluded cash-transfer participants, civil servants and community members who were involved in the SCTS targeting process. Finally, all children from SCTS households aged 8-17 within a 15-minute walking distance from where the focus-group discussion took place were invited to participate.

Research assistants (RAs) were trained in qualitative methods before piloting the instruments and collecting data. RAs transcribed notes and recordings from Chichewa into English and then transcripts were typed. Field supervisors observed RAs and reviewed all Chichewa and English reports to ensure accuracy and consistency between transcripts, as well as verifying translations, obtaining clarifications as needed, and identifying emerging themes. We read and reread transcripts, developed codes for categorising data, and coded transcripts using NVIVO 8 software. We examined coded text for common themes and the frequency with which they appeared, and then selected typical quotes to illustrate the phenomena.

5 Results

5.1 Quantitative results

Background characteristics. The larger impact evaluation study yielded a 94% response rate (811 households at baseline and 766 households interviewed at endline). However, among the households interviewed at baseline and endline, only 67% contained children aged 6–18 (Table 1). The final analysis includes 1,242 children and young people in 513 households (Table 2).

Overall, in both intervention and comparison households, the majority of the household heads were female and had little or no education. The average age of caregivers was 56 years in both groups, and nearly half the household heads were more than 65 years old (Table 3). Intervention households were slightly larger than comparison households, and at baseline both were extremely poor, as measured by the average monthly and per capita food expenditures. Intervention households had slightly higher monthly food expenditures, probably because of their larger size, a difference which disappeared with the per capita measure. All households demonstrated a high level of economic and demographic vulnerability in March 2007. At baseline, 84% of children aged 6 to 18 were enrolled in school.

5.2 Outcomes

Household economic situation. The average monthly transfer to intervention households was US\$16.58, ranging from US\$4.29 to US\$28.58 (MK600 to MK4,000). Intervention households had increased monthly food expenditures over the course of the study with an average double-difference estimate of \$7.52 per week (Miller et al., 2010b). Intervention households also accumulated household items between March 2007 and April 2008, including blankets, utensils, clothing and building materials, as well as productive assets, such as farming tools and fertilisers and livestock, including chickens, goats and pigs. At the same time, comparison households showed little or no change in the household economic situation (Miller, 2009).

Table 1: Intervention and comparison households

	Total	Comparison	Intervention
Total no. of households in full intervention study	766	392	374
No. of households with children aged 6–18	513	239	274
% of all households with children		61	74
No. of children at baseline aged 6–18	1442	609	943
No. of children followed from baseline to endline ^a	1242	520	722
Response rate for children (%)		86	78

Note: a) 190 children were not followed from baseline to endline: 142 children migrated outside the household (most commonly due to the death of caregiver), 48 children had missing data.

Table 2: All children at baseline (n=1,242)

Basic demographics at baseline	Comparison (n=520) (%)	Intervention (n=722) (%)
Gender (boys)	46	52
Aged (March 2007):		
6-8	16	20
9-11	30	27
12-15	40	40
16-18	14	14

Table 3: Characteristics of households with children included in the analysis

	Comparison (n=239)	Intervention (n=274)
<i>Household head</i>		
Education – none, or less than two years primary	96%	93%
Age:		
19-44	28%	27%
45-64	23%	29%
65+	49%	44%
Female-headed	69%	66%
<i>Household characteristics</i>		
Size	4.6	5.5 *
Weekly food expenditures		
Baseline	\$0.71	\$0.91 **
Endline	\$0.90	\$7.32
Weekly per capita food expenditures		
Baseline	\$0.16	\$0.16
Endline	\$0.20	\$1.45 *
Mean cash transfer		
Household		\$16.58
Per capita		\$3.23

Notes: * p-value <0.10, ** p-value<0.05, *** p-value<0.01.

Aggregate measures of school enrolment, absences and expenditures. At the child level, intervention children and young people experienced a 5 percentage point difference in enrolment, a US\$3.53 (MK495) difference in annual per child educational expenditures, and a one-day reduction in the number of days absent per month, compared with non-cash-recipient children (Table 4). In models adjusted for household size and pre-transfer food expenditures, on average, school enrolment for children aged 6–18 was 91% in intervention households versus 83% in comparison households. Intervention children dropped from an average of three absences per month down to one absence. For each of the models, the impact estimates remain statistically significant and the estimates do not change when the child’s age and gender and additional household-level variables are modelled. Neither the household’s economic status at baseline nor the size of the transfer was a significant predictor of school enrolment or attendance at endline.

Of note, the mean annual educational expenditures increased in comparison households during the study period and the number of days of absence among children decreased. While these changes were statistically significant, the differences between the groups were also statistically significant, indicating an even larger change among intervention children for these measures.

Table 4: Educational indicators for children aged 6-18

	Round	Comparison	Intervention	Double difference	
% enrolled in school n=1242	<i>Baseline</i>	83	86		
	<i>Endline</i>	83	91	5 percentage points	*
Median annual school expenditure per child n=1242	<i>Baseline</i>	\$0.89	\$1.22		
	<i>Endline</i>	\$1.76	\$5.63	\$3.53	***
Mean no. of days absent per month n=1093	<i>Baseline</i>	3.2	2.9	1 day per week	***
	<i>Endline</i>	2.3	1.1		

Notes: * p-value <0.10, ** p-value<0.05, *** p-value<0.01; models are adjusted for household size and a proxy variable for household economic status at baseline (total monthly food expenditures). Impact estimates are the same and remain significant in models controlling for age and gender of child.

Disaggregated measures of school enrolment, absences and expenditures. We present a more detailed inspection of the impacts disaggregated by age and gender, even though we do not have the sample size needed for ample power to find statistically significant results in each age group. Nevertheless, this analysis provides insight into which children experienced the greatest gains in schooling and household priorities for school investments (Table 5). Combined with qualitative and school verification data, the analysis yields important evidence.

Table 5: School enrolment by gender and age

Age group	Boys					Girls			
	Sample size	Round	C	I	Double Difference (Percentage points enrolment)	Sample size	C	I	Double Difference (Percentage points enrolment)
6-8	n=105	<i>Baseline</i>	65	75		n=116	81	88	
		<i>Endline</i>	73	88	5		92	94	-5
9-11	n=166	<i>Baseline</i>	91	91		n=174	92	92	
		<i>Endline</i>	94	97	4		95	99	4
12-15	n=244	<i>Baseline</i>	90	94		n=242	83	86	
		<i>Endline</i>	91	95	0		78	89	7 ~
16-18	n=80	<i>Baseline</i>	69	60		n=87	68	84	
		<i>Endline</i>	49	64	25 **		60	84	8

Notes: ~p-value<0.15, * p-value <0.10, ** p-value<0.05, *** p-value<0.01

Power (approximate): boys 6-8=18%; 9-11=32%; 16-18= 75%; girls, 9-11=27%; 12-15=50%; 16-18=24%.

Models are adjusted for the household size and a proxy variable for the household economic status at baseline (total monthly food expenditures).

At baseline, enrolment levels were lowest for 6-8 and 16-18-year-olds. There is no consistent pattern of enrolment by gender. Intervention children had somewhat higher enrolment rates than comparison children. By endline, the enrolment rate increased for all 6-15-year-olds in each study group. However, intervention children had greater gains in several groups (boys aged 6-8, girls aged 9-11 and 12-15, and boys and girls aged 16-18). The double-difference impact estimates were greatest for young people aged 16-18 among both boys and girls (Figure 1). There was a 25 percentage point difference among older boys aged 16-18 and an 8 percentage point difference among older girls. While a large percentage of older young people appeared to drop out of school in the comparison group, boys in the intervention group remained in school.

At baseline, the number of days of school absences per month ranged from 2.3 to 4.7 depending on age, gender and intervention status (Table 6). Out of all the intervention children, 12-15-year-old girls had the most days of absence. By endline, the double-difference impact was greatest among intervention girls aged 16-18 (Figure 2). In all but the 12-15 age group, intervention girls had greater reductions in the number of absences than boys. Again, in nearly all age groups both intervention and comparison children and young people had reduced absenteeism.

Figure 1: Double-difference estimates for intervention vs control children by age and gender for enrolment

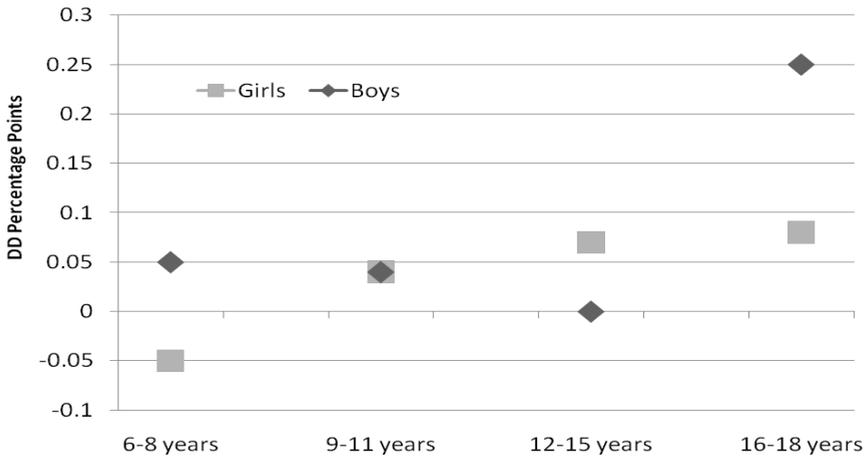


Figure 2: Double-difference estimates for intervention vs control children by age and gender for no. of days absent per month

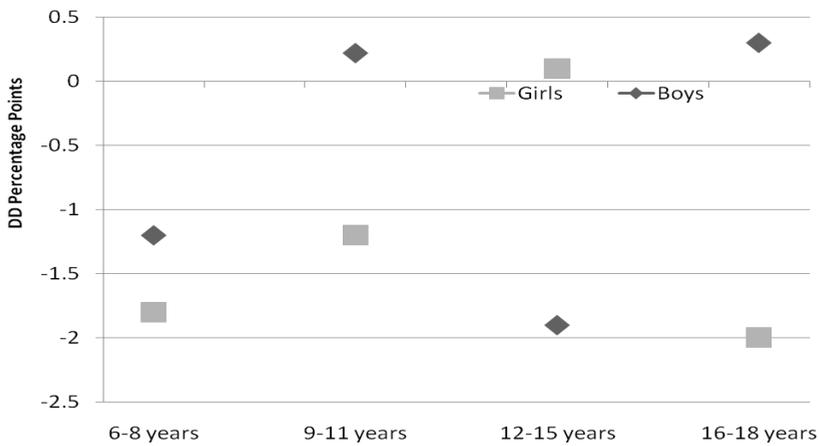
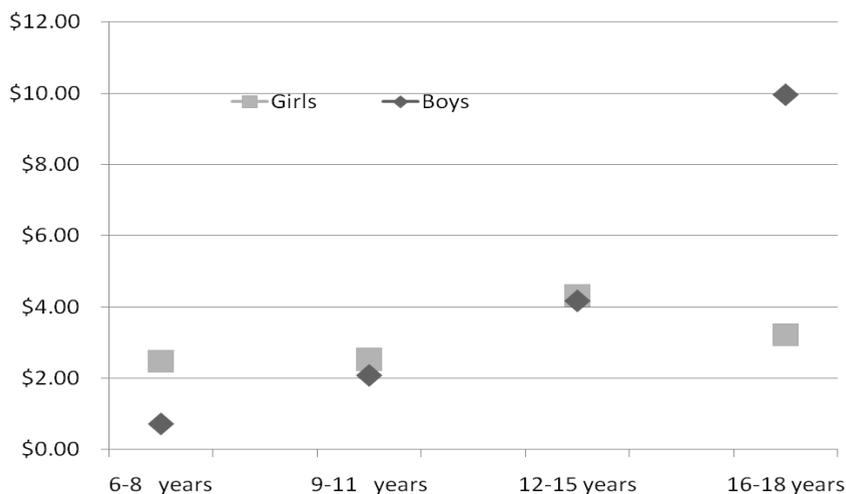


Table 6: Absenteeism: no. of days of school missed per month by gender and age

Age group	Boys					Girls			
	Sample size	Round	C	I	Double difference; Days absent per month	Sample size	C	I	Double difference; Days absent per month
6-8		<i>Baseline</i>	3.5	3.8			3.3	3.8	
	n=87	<i>Endline</i>	3.4	2.6	-1.2	n=108	2.6	1.4	-1.8 **
9-11		<i>Baseline</i>	2.4	1.6			2.3	2.6	
	n=155	<i>Endline</i>	1.2	0.1	0.2	n=165	1.6	0.7	-1.2 *
12-15		<i>Baseline</i>	2.5	2.6			4.5	3.5	
	n=229	<i>Endline</i>	2.6	0.8	-1.9 **	n=217	2.5	1.4	0.1
16-18		<i>Baseline</i>	4.7	2.6			2.6	2.6	
	n=68	<i>Endline</i>	3.0	1.3	0.3	n=68	2.2	0.4	-2.0 *

Note: *p-value<0.10, ** p-value<0.05, *** p-value<0.01 C=Comparison group; I=Intervention group.

Similar to the previous outcomes, there were few discernible patterns in the differences between per child school expenditures at baseline. However, expenditures did increase by age group for children at baseline – except for boys in intervention households, where the pattern was less clear. Expenditures for 9-11 and 12-15-year-olds were less than those for 6-8-year-olds.

Figure 3: Double-difference estimates for intervention vs control children by age and gender for educational expenditures per student per year

By endline, there were statistically significant increases in annual school expenditure for all age groups and both genders. Moreover, the double-difference estimate between intervention and comparison children was significant in most age groups, indicating greater expenditures in the intervention children and young people. The largest gain was among boys in the 16-18 age group, which was more than twice that of girls in the same age group (Figure 3). The 12-15-year-old intervention girls and boys had the second largest differences in expenditures. At endline, the pattern of increasing educational expenditures by age holds among both boys and girls in each age category.

Table 7: Annual educational expenditures per child enrolled (Malawi Kwacha)

Age group	Boys					Girls			
	Sample size	Round	C (MK per child)	I (MK per child)	Double difference (MK per child)	Sample Size	C (MK per child)	I (MK per child)	Double difference (MK per child)
6-8		<i>Baseline</i>	0.44	1.04			0.50	0.52	
	100	<i>Endline</i>	2.09	3.43	0.73	114	0.97	3.46	2.47 ***
9-11		<i>Baseline</i>	0.53	0.78			0.83	0.91	
	162	<i>Endline</i>	1.14	3.83	2.09 ***	171	1.35	3.96	2.53 ***
12-15		<i>Baseline</i>	0.84	0.66			1.32	1.31	
	242	<i>Endline</i>	1.40	5.40	4.18 ***	236	1.77	6.09	4.32 ***
16-18		<i>Baseline</i>	1.19	3.35			1.02	2.44	
	82	<i>Endline</i>	2.47	14.29	9.66 ***	84	4.57	9.22	3.22 ***

Note: As for Table 6.

Validation of school enrolment. In the enrolment verification, 96% of children reported by household heads to be in school were actually enrolled and attending school as confirmed by teachers and headmasters. Among the 4% not in school, about 20% (or 0.8% of all children) were completely unknown and were probably 'ghost' children.

5.2 Quantitative results: labour/work

Household chores. Between baseline and endline, there was an 8-11 percentage point difference in the proportion of boys and girls doing household chores in intervention versus comparison households (Table 8). However, there was no difference in the average number of hours spent on chores between intervention and comparison children from baseline to endline. Household heads reported that boys spent, on average, about 1-2 hours per week on chores and girls spent 2-3 hours. Children in school had higher rates of doing chores than out-of-school young people (75% vs. 62%, $p < 0.0001$); however, on average, out-of-school young people spent more time doing chores (2.3 hours per week vs. 1.9 hours, $p < 0.0001$) than those in school.

Family work. The percentage of children that engaged in family work (for example, work on a farm, caring for animals, etc.) increased among boys, resulting in a 9 percentage point difference between intervention and comparison children ($p=0.10$). Family work did not appear to influence school enrolment, however, given that there were no differences in enrolment rates between children that reportedly did and those that did not do family work.

Income-generating activities. Intervention and comparison children showed a statistically significant difference in the percentage of boys and girls working on income-generating activities (IGAs) (for example, domestic work in someone else's house, day labour, selling items, making things for sale, doing repairs, guarding valuables) from baseline to endline. Boys had a 12 percentage point reduction in the percent that participate in IGAs and girls had a 10 percentage point reduction. Furthermore, the percentage doing IGAs was 19% for out-of-school young people and 10% for those in school. The enrolment rate for children engaged in IGAs was 85% compared with 92% for children not doing IGAs ($p<0.004$).

Table 8: Child work/labour

	Round	Boys			Girls		
		C % working	I % working	Double difference (percentage points work)	C % working	I % working	Double difference (percentage points work)
Chores ^	Baseline	71	72		94	89	
	Endline	63	71	8 *	91	93	11 ***
Family work^^	Baseline	29	31		26	26	
	Endline	34	46	9 ~	30	28	1
Income- generating Activities (IGAs)	Baseline	16	16		16	16	
	Endline	21	10	-12 ***	14	5	-10 ***

Notes: ~ p -value <0.15 , * p -value <0.10 , ** p -value <0.05 , *** p -value <0.01 ; C=Comparison group; I=Intervention group; ^Chores includes shopping, collecting firewood or water, laundry, etc.; ^^Family work includes working on family farm or business, selling things.

5.3 Qualitative results

Community member focus groups. In the focus groups with community members ($n=20$ groups and 205 respondents), participants uniformly discussed the cash-transfer impacts that they witnessed and described how the transfer had led to improved enrolment and attendance for intervention children, greater investments in education, and reductions in child labour. Participants from each of the focus groups were in agreement that they had witnessed these impacts in multiple intervention households.

Yes, those that I have seen are using their money properly. They are helping their children. They have bought uniforms and school materials. Nowadays

these children do not miss classes as it was before and they are doing well at school. (Male community member)

School enrolment has also improved. Children are now going to school because they have uniforms and a lot of them have stopped herding cattle and are in school. (Male community member)

The condition of the orphans has improved greatly. Before this scheme they were not able to get things like soap and clothes, and they were forced to do small jobs due to the fact that people were not helping them. They had stopped going to school, and they generally felt very bad. But now things have turned around for them. They have been enrolled in school. There has been a big difference... (Female community member)

[Households] had standard eight children who would have dropped out of school for lack of fees when they were selected for secondary school, but they are able to pay fees. (Male community member)

Some had no single child in school but now they have managed to send at least one. For example, one beneficiary had 6 children who were not in school but now 5 of these children are schooling and they have uniforms, books and writing materials like pens and pencils. (Male community member)

In the past a lot of children were missing classes during the rainy season. They feared to go there when they were hungry. This has now changed because children do not have to think of going for *ganyu* [piece work] after school. When they go to school they do have the confidence that they are going to find food at home. This is making them concentrate on their studies. (Male community member)

Child focus groups. Within the 16 focus groups with 169 children aged 8-17, children and young people frequently discussed how, since their household became a cash-transfer recipient, they were attending school and missing fewer days because they had adequate food, school supplies, and soap, and were no longer expected to work in the fields. They described the ways in which their caregivers were investing in education. While they reported variations in the level of poverty reduction and asset accumulation within their households, all children reported some impacts of the transfer on schooling or child work. Typical quotes that help explain improvements in indicators of education are the following:

Concentration was difficult then because we went to school while hungry and could only see darkness on the chalk board because of hunger, but now we go to school with full stomachs. (10-year-old male)

Also when one is hungry he/she cannot learn properly because the heart trembles. (13-year-old female)

Like in my case I used to run away from school before knocking off time just because of hunger but now I don't miss any class for this reason. (11-year-old male)

Because we come here with full stomachs there is no reason to miss classes. (12-year-old female)

We are only two in this household, I and my 15-year-old sister. She is now able to have breakfast before going to school. She is also going to school regularly. She no longer wastes school time by doing *ganyu* as she is assured of money every month. (17-year-old male head household)

Before the transfer, we had no money for school fees, pens and exercise books so we would be absent from school. We also had no shoes and we could not go to school because we were ashamed of ourselves, but now we have shoes and proudly go to school. (14-year-old female)

We have more chances because we have everything in life. Our parents receive money from the cash transfer. We have food, school uniforms, exercise books, pens, and clothes. While our friends don't have that, sometimes the teacher sends them back home from school because they don't have school uniforms, pens, and exercise books. (15-year-old male)

Before the transfer we would be absent from school to guard the growing maize from monkeys, but now parents hire people to do this while we go to school. (9-year-old male)

Community key-informant interviews. Similarly, key informants (n=53) including school teachers, health workers, agricultural extension workers, traditional leaders and others reported that children were benefiting from cash transfers in multiple ways. Households were investing in food, clothing, school fees and other items and not requiring children to do day work outside the home. As a result, children and young people could attend school regularly, re-enroll if necessary, or continue on to secondary school. Key informants explained how these changes occurred:

In the past these children were not coming to school ... The children are now coming to school without many absences. Enrolment has also increased because of the transfers. In the past, there used to be a low number of children especially in the third term. Out of over 1,000 in the first term, the number was 600 plus by the third term. This year in the first term we had 1060 pupils and now the number is at 997. This is a great improvement in the number of children attending school. (School teacher)

Before this scheme the number of absentees was high so these pupils were lagging behind in lessons, and this time around, it is as if they are catching up. (School teacher)

I have observed that most of these children are now performing much better than before. And they also do not miss school as much as before the transfer, since now they no longer have to go and work for money. (School teacher)

In the past children in these recipient households were being humiliated due to the fact that they were lacking uniforms and they were unable to attend school. Now they are able to come to school because they have uniforms. In the past their parents could only afford to give them food and not a school uniform. (School teacher)

Most children that were being sent to do day labour in order to get food have stopped doing so. They are now concentrating on school. This is great improvement indeed. Children and orphans are abused if a household does not have resources. With cash, a household is able to meet their needs. I have interviewed some orphans about how they are staying ... and they all tell me that they are staying well ... (Agricultural extension worker)

There is a very big improvement in cases of child labour: Children are no longer employed to herd cattle; instead, they are back at school. They are no longer working in tobacco estates especially those from recipient households. (Agricultural extension worker)

Children who stopped schooling, are now back to school because they have enough food, better clothes, uniforms, and writing materials. [Recipients] have managed to send their children to school. [Those] who dropped out due to lack of clothes, school materials, uniforms and school fees especially those in secondary schools are back in school. (Community development assistant)

In most beneficiary households, there are orphans, and elderly and sick people. With this cash transfer, orphans who were not going to school are back to school because they have uniforms, good clothes and enough food to eat before going to school. (Health worker)

6 Discussion

This study provides empirical evidence of the impacts of the Malawi cash transfer on child education and labour. Children in intervention households experienced increased enrolment, decreased absences, and greater educational investment as well as decreased work outside the home, albeit with differential impacts based on their age and gender.

Overall, intervention boys aged 16-18 showed the biggest enrolment gains. This pattern is similar to the situation in Ecuador and Cambodia, where transitional periods proved to be important, and cash helped facilitate students into secondary school. While many of the comparison young people in this study demonstrated the typical pattern of dropping out of school during the transition from primary to secondary school, which generally occurs around age 15 or 16, this did not happen in intervention households. Young people remained in school. Key informants confirmed this finding qualitatively. They described how intervention young people entered secondary school, because of regular cash transfers which provided the income needed to overcome the higher costs of secondary school.

We found greater annual school expenditures in every age group and among both genders. The double-difference estimates were statistically significant in all groups but the 6-to-8-year-old boys. These significant differences indicate important increases in educational expenditures for intervention children from baseline to endline. Again, the largest gain was among boys in the 16-18 age group, which is probably due to the higher costs of secondary school.

By endline, intervention girls had the greatest decrease in absenteeism, but it is not clear why. Further qualitative research may be needed to understand the mechanisms driving these results.

While the estimates of double-difference impact were significant in most analyses, it is important to note that there were also reductions in absenteeism and increases in expenditures among children in comparison households, despite the lack of cash benefits. These changes may be due to a 'Hawthorne Effect' prompted by the transfer targeting process whereby comparison households learned that they would become cash recipients. Households were told they would not receive transfers until endline and income did not change in these households; however, the comparison group may have begun to behave in a more socially desirable way, prioritising child education in order to meet programme expectations ahead of time. In a previous analysis, we found that a proportion of comparison households increased their borrowing, taking on larger loans between baseline and endline (Miller et al., 2010b). It is possible that a portion of these loans was used for child education; however, we have no data to confirm this hypothesis.

Boys and girls in intervention households showed similar differences in work during the study. They were both more likely to engage in household chores and less likely to work outside the home from baseline to endline, compared with non-recipient children. The increase in the percentage of intervention children engaged in household chores is in contrast to findings from Mexico and Honduras where domestic work decreased. The larger percentage of intervention young people doing chores is probably due to the increase in the number of household activities in intervention households, such as shopping, food preparation and tending gardens. However, chores and family work did not appear to interfere with school enrolment, given that enrolment rates did not fluctuate based on whether children did chores. Moreover, transfers may have enabled children to switch from work outside the household (for cash) to household chores that did not interfere with schooling. The significant decrease in income-generating activities in Malawi (12-10 percentage point difference for girls and boys

respectively) was bigger than the 5 percentage point reduction in work in Nicaragua but less than the 15-25 percentage point difference from Mexico.

6.1 Study limitations

There are several limitations to this study. First, there is an incentive for SCT recipients to describe socially responsible behaviour, such as sending children to school and reducing child labour, which could potentially bias the study findings. However, the validation exercise confirmed that 96% of children and young people who were reportedly enrolled were actually attending school. In addition, quantitative findings were supplemented with extensive qualitative interviews and focus groups in order to gain insights into the processes that occur when households become cash-transfer recipients. The qualitative data helped us to interpret quantitative findings and to establish their validity, confirming the above themes. Children reported that they worked less, were more likely to be in school, missed fewer classes, and were more prepared to learn with full stomachs. Community members, health workers, school teachers, community development officers and agricultural extension officers all described how intervention children were generally well fed, dressed appropriately, and had the materials needed to attend school. Improved food security and diversity in transfer households were confirmed in a separate analysis of these households (Miller et al., 2010b). Gains in food security and health among intervention children might have also reduced the number of days that children were absent from school (Miller et al., 2010d).

Second, we did not have the sample size and the associated power necessary to detect statistically significant differences in the sub-group analysis of key outcomes. Given small sample sizes in some age groups, power ranged from 18% to 78%. Nevertheless, this analysis is still important, because the data do provide insight into age- and gender-based disparities in enrolment, absenteeism and school expenditures. Again, when paired with qualitative and enrolment verification data, there is ample evidence to suggest that estimates of double-difference impact above 4 percentage points are meaningful, albeit not statistically significant at conventional levels. Further studies are needed to confirm or refute these findings as the scheme scales-up throughout the country. Nevertheless, these results give policy-makers the evidence to consider whether additional programme supports or incentives are needed to engender further impacts by age or sex. For example, in Mexico, households with secondary school-aged girls receive a bonus payment in order to increase female enrolment and attendance. This may be critical in Africa where HIV rates are still high, but research shows the link between girls staying in school and reduced HIV and early pregnancies (De Walque, 2004). Cash transfers may prove to be a tool useful for poverty reduction, human development and HIV prevention.

Third, we encountered loss of children to follow up the information. While 94% of households were retained in the study, following up children was a challenge owing to child migration and fraud (i.e. making up fictitious children in order to increase benefits). In cases where there were missing data on children, it is possible that these were not real children. Although we do not believe the loss of follow-up was a serious

threat to the study's validity or severely biased the results, it is nonetheless a limitation, perhaps reducing our ability to produce true impact estimates.

Finally, data collection occurred over the course of one year, which allowed the measurement of change in key outcomes over time. Data collection was not frequent enough to yield definitive evidence on weekly or monthly attendance and work habits throughout the year. In addition, neither student performance nor achievement was assessed quantitatively, given that primary schools rank children rather than assigning non-subjective test scores that can be examined at multiple time points. The high dropout rates throughout the year make a comparison of rankings less useful. Thus, the degree to which improved enrolment, increased expenditures, and reduced absences and child work make an impact on student achievement, and will lead to greater human development and capital among children in Malawi, remains unclear and under-researched.

While there were differences between study groups at baseline, this is not a study limitation because the double-difference analysis accounts for the differences that may influence estimates of cash-transfer impact. Furthermore, we calculated and presented models adjusted for differences in the households at baseline. Thus the estimates of double-difference impact are average impacts, controlling for household size and baseline expenditures. We believe these findings can be generalised throughout Mchinji and other rural districts in Malawi that have a similar study population, consisting of vulnerable, destitute households.

6.2 Threats to human-capacity development despite cash transfers

In Malawi, there are no supply-side interventions to accompany the cash transfer that would bolster the educational infrastructure, despite limited and low-quality capacity and increased demand. The grave challenges within the educational system include the national pupil-to-qualified-teacher ratio of 88:1; the pupil-to-classroom ratio of 130:1 in Mchinji; and the fact that nearly 20% of teachers are absent every day so that classes are 'doubled up' (Government of Malawi, 2007). Grade repetition is so common that, on average, students take approximately 2.4 years to complete one full grade (Government of Malawi, 2008). In 2007, only 74% of students throughout Malawi passed the primary school certificate (Government of Malawi, 2007).

Infrastructure is also problematic. Out of 1,148 primary-school classrooms in Mchinji, 23% were 'temporary', constructed from makeshift materials (ibid.). Many primary-school children are learning beneath a tree, which is nearly impossible during the rainy season. The majority of schools have no electricity (96%) and most have no sanitary facilities.

It is therefore not surprising that, with these deficits, some children are out of school. While we do not have evidence of student achievement, it is likely that, similar to the findings from Ecuador, many children may not have improved test scores or educational outcomes. Thus, adequate funding, partnerships, and the implementation of plans to build classrooms, train teachers, and improve the curriculum are critical to improving the enrolment and educational outcomes of students in Malawi.

6.3 *Moving forward in Malawi*

Despite the above challenges to the school system, globally studies find important benefits from more years of education. First, the standard Mincerian ‘average rate of return’ to education in Malawi was 13.6% for each year of schooling (World Bank and Government of Malawi, 2008). Second, there is the ‘Diploma Effect’ whereby students may have improved potential even if they attend poor schools but acquire skills and traits such as discipline, motivation and responsibility that prepare them for the workplace (Fiszbein et al., 2009). Third, the benefits of educating women include higher future earnings, lower fertility, reduced infant mortality, higher child immunisation rates, greater crop yields, and lower rates of HIV (Herz and Sperling, 2004).

The evidence from this evaluation confirms that the cash transfer is achieving its goal of helping families overcome income poverty in order to get children into school and out of work. Students are showing up to school – regularly – with uniforms, full bellies, and pens and notebooks in hand. However, to build the human capital that will effectively interrupt the intergenerational cycle of poverty, supply-side improvements in the educational system are an essential accompaniment to cash transfers so that students acquire the skills and knowledge necessary to pull their families out of poverty. In addition, while the evidence presented in this study illustrates how families have prioritised education, it is not clear whether these gains will hold. Thus, longer-term follow-up of cash recipients is warranted to determine whether programme impacts are sustainable.

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