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## **Cash Grants for Schools and Pupils can Increase Enrolment & Attendance Despite Ongoing Conflict: Findings from South Sudan**

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November 2016

30% of the world's 124 million out-of-school children live in conflict-affected countries, and there is a dearth of rigorous evidence on what works to get children into school in such contexts. This paper makes use of a unique real-time national dataset on school enrolment and attendance in South Sudan to provide estimates of the effect of school capitation grants and cash transfers for girls. A natural experiment provides a control group of schools that were approved but did not receive grants. For cash transfers we look at the within school change in share of (eligible) girls and (ineligible) boys. The results suggest that capitation grants and cash transfers make schools more likely to remain open, increase their enrolment numbers, and increase attendance rates, despite the prevalence of substantial ongoing levels of violence and conflict.

**JEL Codes:** H52, I25, O15, O55

**Keywords:** Education, School Grants, Cash Transfers, Gender, South Sudan

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Contact: [lee.crawford@gmail.com](mailto:lee.crawford@gmail.com). The data used in this paper come from the South Sudan Schools Attendance Management System (SSSAMS, [www.sssams.org](http://www.sssams.org)), a joint project of the Government of the Republic of South Sudan Ministry of General Education and Instruction and the UK Aid Girls' Education South Sudan (GESS) programme, who are gratefully acknowledged. The GESS programme is implemented by Mott MacDonald, BBC Media Action, Charlie Goldsmith Associates, and Winrock International. Thanks to Charlie Goldsmith, Hamish Colquhoun, and Akuja Degarang for helpful comments, and Howard Tytherleigh for help understanding the data.

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## 1. Introduction

An estimated 30% of the world's 124 million out of school children live in conflict-affected countries (Unesco, 2011). Children in fragile and conflict-affected states are more likely to drop out once they are in school.

Conflict may affect school enrolment through a range of both school 'supply' factors, for example the direct targeting of schools, teachers, or pupils by combatants, or the occupation of schools by combatants or displaced people, and/or through household/pupil 'demand' factors, such as the diversion of pupils to child labour, child soldiering, changes in the perceived benefits to schooling, fear of the potential targeting of schools by combatants, or perhaps most relevant to the case of South Sudan, forced migration and displacement (Justino, 2011). Further, many countries that have been fragile for a long time have chronic low supply and demand for education, with a lack of schools, and lack of household income to afford the opportunity and financial costs of sending children to school.

Several studies have documented the size of the effect of conflict and violence on children's educational achievement using household surveys, locating children at the time and place of violent incidents and comparing their outcomes with children at different times and locations (Chamarbagwala and Morán, 2011, Akresh and De Walque 2008, Khan and Seltzer 2016, Dabalén and Paul 2012, Shemyakina, 2011). One study looks at school aggregate outcomes, finding a particular effect of conflict on the share of female enrolment in the Indian state of Assam (Roy and Singh, 2016), and two studies look across countries, at the relationship between conflict onset and schooling (Omoeva et al., 2016) and on schooling and literacy (Bell and Huebler, 2010).

The evidence on what works to improve education during conflict is very thin. A recent review found just three experimental or quasi-experimental studies that consider the effect of interventions on access to education in fragile and conflict-affected contexts (Burde et al., 2015). These three studies are a randomized control trial of a school-building programme in Afghanistan (Burde and Linden, 2013), a cash transfer programme in Lebanon (Lehmann and Masterson, 2014), and a study

on the introduction of free primary schools in Sierra Leone (Mocan and Cannonier, 2012).

Further, there is a counter-narrative. Though there is clear causal evidence that conflict reduces enrolment relative to a counterfactual without conflict, in many conflict-affected countries enrolment has risen throughout periods of violence and instability. Net primary enrolment rates increased in Nepal from 69 to 92 percent between 2003 and 2008 despite the country being in active conflict. This included benefits for girls, with the rate out of school dropping from 42 percent to 11 percent over the same period. This increase has been linked to a major decentralization programme, with the introduction of salary grants for schools to hire teachers rather than appointing teachers centrally (World Bank, 2009).

In this paper I present estimates of the effect of a large-scale national school grants and cash transfers programme on enrolment and attendance. To identify the effect of grants, I rely on a natural experiment by which a sub-section of schools successfully completed the process to qualify for grants but did not receive their funds due to arbitrary administrative hold-ups. For cash transfers, I use a difference-in-difference analysis, comparing growth in enrolment for girls in the relevant grade with growth for girls in ineligible grades, and boys in the same grades.

### **Cash Transfers and Education in Non-Conflict Low-Income Settings**

Although there is limited rigorous evidence of the effects of cash transfers specifically on education in conflict-affected areas, in general they are one of the most rigorously studied policies in international development, with substantial high quality evidence for their effectiveness. Cash transfers can alleviate credit constraints that prevent households from investing as much as they would like to in their children's education.

A recent review looked at 47 'high-quality estimates' (i.e. from a randomized controlled trial or other quasi-experimental approach) from 22 studies of the effect of cash transfers on time in school (either enrolment or attendance), from Mexico, Malawi, China, Colombia, Nicaragua, Brazil, Pakistan, Honduras, Cambodia, and

Morocco (Glewwe and Muralidharan, 2015). 43 of these estimates were positive and significant, and just four were positive but insignificant. The evidence of the effects of cash transfers on actual learning is much more limited and mixed – the same review found that of 10 estimates from 9 studies, only 3 were positive and significant, with the others being statistically insignificant. Similar conclusions are drawn by a review using a broader inclusion criteria for the selection of studies (Bastagli et al., 2016).

Few studies have looked specifically at whether cash transfers for students and grants for schools can help mitigate the effect of conflict on access to school. Experimental and quasi-experimental evidence looking at cash transfers in conflict-affected conflicts has demonstrated that conflict can affect the ability of transfer programmes to reach recipients (Ghorpade, 2016), but that programmes can reduce the incidence of violent conflict (Crost et al., 2015), as well as crime (Chioda et al., 2015) and domestic violence (Bobonis et al. 2013, Hidrobo et al. 2016).

### **School Grants and School Performance**

There is considerable evidence that direct grants to schools can increase enrolment and attendance through improving the quality of service on offer, with more mixed evidence on the effects on learning and quality. A recent study with private schools in Pakistan suggests a possible explanation for this finding. Where only a minority of schools in a market receive a grant then they invest in expanding access rather than quality, but when all schools in a market receive grants, schools are more likely to compete on quality (Andrabi et al., 2016).

An experimental study in Haiti found that providing grants to private schools increased enrolment, reduced class sizes, and reduced grade repetition (Holland and Adelman, 2015). Many interventions combine grants with additional interventions such as training or new powers and autonomy, making it difficult to isolate the effect of receiving grants alone. A study in Gambia was powered to measure the effects of grants alone and grants with training (Blimpo et al., 2015). Grants alone had no effect on either time in school or test scores, and the combined intervention with management only worked in areas that had high existing literacy rates.

One study finds that grants for schools increase test scores temporarily, but in the medium term parents and communities reduce their own spending in response to government grants, reducing any benefits for learning (Das et al., 2013). Another finds that grants increased community participation in school decision-making and reduced grade repetition, but only for boys in non-poor areas.

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## **2. Education in South Sudan**

There has been a substantial increase in measured enrolment over the period from 2014 to 2016, that coincides with the main interventions of the UK Aid Girls' Education South Sudan (GESS) programme (due to run until 2018), but also with conflict, widespread displacement (over 2 million people since 2013), and the presence of other development programmes, making it difficult to attribute changes solely to the intervention. In 2016, around a quarter of primary students and a third of secondary students reported missing at least one day of school due to insecurity (Charlie Goldsmith Associates and Forcier Consulting 2016).

This analysis estimates the effects of GESS components on school enrolment by comparing individual schools and the timing at which they received or did not receive assistance, with the following changes in enrolment and attendance at the school level.

### **The DFID Girls' Education South Sudan (GESS) Programme**

The DFID Girls' Education South Sudan programme includes a range of intervention designed to increase enrolment and attendance at school and the quality of schooling in South Sudan, particularly for girls.

The main planks of the programme are capitation grants for schools (jointly government and donor financed), and cash transfers for girls (entirely donor financed), designed to improve the quality of service provision, and reduce demand-side barriers to access to school. Both are national programmes open to all government and non-state schools, subject to a series of hurdles. Schools must submit paper admissions registers and regular attendance reports via mobile phone SMS, which are all compiled into a publicly accessible online database ([www.sssams.org](http://www.sssams.org)). Schools must also have a school governance body in place, a school development plan and associated budget laying out how they plan to spend the grant, and a school bank account for receipt of funds. If a school has previously received any grants, they must also account for the spending of these funds before receiving any further grants.

Primary schools received approximately \$800 per school plus an additional \$6 per pupil, with secondary schools receiving twice as much per school and per pupil.<sup>1</sup> Results from the project's midline survey (of 93 schools) suggest that the most common use of grants is to pay community 'volunteer' teachers who are not on the central government payroll (Charlie Goldsmith Associates and Forcier Consulting, 2016).

All pupils in the final four grades of primary (P5 – P8) and in all grades of secondary school (S1 - S4) are eligible for cash transfers. Schools must first submit enrolment forms for each pupil, linked to enrolment and attendance records, after which payment was made to school bank accounts (2014) or local bank payment agents (2015), who then distributed cash payments to students at schools. The value of the annual transfer in 2014 was £28 GBP (a discrepancy between the official and market exchange rates in 2015 meant that the effective value of transfer received by girls was markedly lower, and in 2016 the transfer was reduced to £20).

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<sup>1</sup> Note for both capitation grants and cash transfers, the amounts are fixed in terms of South

### 3. Data

Data on school enrolment and attendance is taken from the South Sudan Schools Attendance Monitoring System (SSSAMS, [www.sssams.org](http://www.sssams.org)), an innovative online platform providing real-time national reports on school enrolment and attendance using a combination of mobile phone SMS and paper reports from schools. I download aggregate annual data on school enrolment and attendance by grade for each individual school. SSSAMS also includes records for which schools received capitation grants, cash transfers for girls, and other interventions, as well as other background variables which we use as control variables; school GPS locations, ownership / control type, and level (primary/secondary).

[Table 1]

To understand the effects of conflict, data on the extent of conflict is used from the Armed Conflict Location & Event Data Project (ACLED), which records statistics from every conflict event reported in the media (Raleigh and Hegre, 2005). According to this data, there was a substantial upsurge in fatalities from conflict in 2013, and this level remained high through 2014 and 2015. The 2013 fatalities were highest in Central Equatoria. In 2014 and 2015 the focus shifted to Jonglei, Unity State, and Upper Nile. To calculate the degree to which a school is affected by conflict, we count the number of conflict fatalities within 1km from the school GPS coordinates.

[Table 2]

As the SSSAMS database does not yet include exam results, we turn to the alternative national Education Management Information System (EMIS). The South Sudan EMIS does not currently provide the same link to detailed student-level microdata as SSSAMS (though this is in process) so we use it only for variables that we cannot get at all from SSSAMS. This includes student exam results, dropouts, repeaters, and some data about teachers. The EMIS data is also only published for 2015 and 2013, meaning that we can only compare with a single year of intervention data (the effect of 2014 interventions on 2015 outcomes). There are also limits to the

number of schools that we can match between the two datasets, reducing our sample size.

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## 4. Methodology

The simplest step to look at the impact of specific programme components is comparing the change in enrolment or attendance over time in schools that received and did not receive the intervention. This "difference-in-difference" approach implies linking data on trends in enrolment at individual schools with data on whether they benefited from components of GESS, and seeing whether enrolment has increased more quickly at schools that have received grants / cash transfers than those that have not. By looking at changes over time rather than the absolute level of enrolment, we deal with a lot of the issues around how schools were selected.

A key concern with estimating the effect of grants and cash transfers on enrolment growth is that despite controlling for the prior year's enrolment level, schools that qualified may still be systematically different to schools that did not qualify, thus potentially confounding the relationship between grants and enrolment growth. It may be that even after taking into account their past enrolment level, schools that benefited from GESS are the schools most likely to have made progress even without the benefit of GESS. To address this question we make use of a natural experiment – in 2015 around a quarter of schools that qualified to receive grants did not actually receive them due to administrative hold-ups in State Governments, providing a natural control group of schools. GRSS provided financing for capitation grants to primary schools, which was sent from the federal Ministry to state governments, some of which sent on grants to schools inconsistently. This natural control group should have similar characteristics to schools that did receive grants, with the only difference being that they did not receive the grant.

Here we present estimates for the impact of capitation grants and cash transfers based on the difference between enrolment growth for schools that did and did not receive them. The data we had at the time of writing in mid-2016 for the receipt of capitation grants and cash transfers are both for 2014 and 2015, so we look at the effect of receiving inputs in each year on enrolment and attendance in the following year (2015 and 2016, respectively), conditional on the initial level of enrolment or attendance.

We model outcomes (such as enrolment or attendance) ( $y_{st}$ ) at school ( $s$ ) at time ( $t$ ) as a function of lagged attendance for the same school ( $y_{st-1}$ ), an indicator variable for the receipt of capitation grants and cash transfers, and set of school control variables (primary or secondary, government or non-state, exposure to conflict, whether the school is designated “hard to reach”, and state fixed effects.

$$y_{st} = y_{st-1} + \beta^{capgrant} capgrant_{t-1} + \beta^{ct} ct_{t-1} + \beta^X X_{st} + u_{st}$$

In order to look at the effects of cash transfers, we look both at the school aggregate enrolment and attendance levels, but also at the change in the within-school ratio of girls to boys.

Clearly as our main outcome data is self-reported and linked to payments, there is potentially an incentive to over-report enrolment and attendance. There are several checks provided to ensure that this is not the case. First, the enrolment and attendance information system requires a demanding level of detail on individual pupils, making over-reporting difficult and risky to do. For the approximately 13% of all enrolled pupils that receive cash transfers, these individuals are verified by providing a signed form and ID.

Second, pupil admission registers are counter-signed by the chair of School Management Committee and the local (Payam) education supervisor, providing an independent check. These registers are then entered by separate local officials.

Third, automatic checks on enrolment numbers are performed, searching for duplicate student names and unusual patterns across years or grades, as well as checking for unusual attendance patterns. Some manual checking is provided on top of this.

Fourth, in-person checks are made by NGOs as part of their routine support to schools, and evaluators from the central GESS project team carry out an in-person survey (targeted at 230 schools, but in 2016 reached 93 schools – around 3% of all schools open – because of disruption from conflict).

Finally, a general feature of the education system is that head teachers are frequently transferred between schools, meaning that a head teacher risks not benefiting from any mis-reporting, and also being caught by the successor.

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## 5. Results

### A. Which Schools Remain Open?

We start by looking at the probability that a school remains open at all. We define 'open' as having reported enrolment greater than zero for that year. There is fairly substantial churn between years in schools that report any enrolment through SSSAMS. Between 11% and 18% of schools open in one year are not open the following year. Here we look at the factors that correlate with remaining open. Openness is estimated as a binary variable in a linear probability model<sup>2</sup>, as a function of whether the school was open in the previous year, whether it received grants and cash transfers, whether the school was affected by conflict (within 1km), and various other school characteristics. As capitation grants and cash transfers had been distributed in 2014 and 2015 only (almost all 2016 payments were delayed by circumstances until June onwards), we are therefore looking at the probability of being open in the two following years; 2015 and 2016. Looking at all schools, there is a modest but positive and statistically significant effect of both capitation grants and cash transfers on the probability of a school remaining open in the following year, of around 3% each. Restricting the sample to only 'treatment' grant schools or 'control' grant schools (those that qualified for but did not receive grants), and therefore excluding schools that did not qualify at all for receiving grants, the coefficient on receiving grants loses statistical significance, but the coefficient on cash transfers remains significant and of similar magnitude, suggesting caution around the interpretation of any positive causal impact here.

[Table 3]

### B. Effects on Enrolment

In order to identify the treatment and control schools to look at capitation grants, we first present the proportion of approved schools that received grants by state. Three states had 99% or higher disbursement rates, so these states are excluded. The

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<sup>2</sup> Similar results are found with a probit or logit specification.

other seven states had a range of disbursement rates (in 2015 from 6% in Northern Bahr el Ghazal to 93% in Jonglei), and the treatment and control groups for the quasi-experimental analysis are drawn only from these states.

[Table 4]

State	2014	2015
CES	1	0.99
EES	1	0.99
JGL	1	0.93
LKS	0.98	0.56
NBG	0.82	0.06
UNS	0	0.5
UTY	0.98	0.08
WBG	0.91	0.8
WES	1	0.59
WRP	1	1

Table 5 presents a balance test to check whether the ‘treatment’ grants group of schools and ‘natural control’ group have similar observable characteristics. First, average enrolment in 2013 and 2014 was not statistically significantly different between treatment and control, and in 2015 was lower in treatment schools. There is no difference between baseline (2014) levels of conflict, between the amounts requested by schools, and only a very slight difference in the speed with which applications were submitted. The groups are slightly different in the other observable characteristics we have - treatment schools were more likely to have received cash transfers than control schools, more likely to be non-state schools than control schools, and slightly less likely to be classed as “hard-to-reach.” It is reassuring that there were parallel in trends in enrolment prior to the receipt of capitation grants. The slight differences on some characteristics raises some concern that the groups may no be truly balanced, but we do control for these variables in the analysis.

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WES	1	0.59
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Table 5]

Looking at the effect of capitation grants on log enrolment, both grants and cash transfers are strongly statistically significantly associated with greater enrolment the following year, after controlling for prior enrolment, conflict, location, ownership, and level. The coefficients are stable across specifications progressively adding controls, and similar across the full sample and the restricted quasi-experimental sample. Schools receiving grants seem to grow by at least 12% more than schools that do not, and schools that receive cash transfers by at least 6% more than schools that do not.

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Table 6]

As well as looking at binary indicators and comparing schools with and without grants and cash transfers, we can also look at how enrolment growth varies with the size of grants and number of transfers per school amongst only those schools that did receive them. Focusing on only those schools that did receive grants, an increase in the size of the grant is associated with greater enrolment (a 1 standard deviation increase in the size of a grant is associated with a 3% increase in enrolment). Looking only at schools that received cash transfers, the coefficient on the number of transfers is positive but insignificant.

[Table 7]

An additional test of the effect of girls' cash transfers can be made by going beyond aggregate school enrolment, and instead looking at the share of female enrolment. Schools that received cash transfers increased their female enrolment share by around 2% (with no effect of receiving capitation grants after controlling for other school characteristics).

[Table 8]

### **Heterogeneity: Do effects vary by school type?**

Programmes are often designed with the hope that components are complementary, and may add up to more than the sum of their parts. Here we look at whether schools that received both grants and cash transfers perform better than the sum of the effects of these two interventions in separate schools. The coefficient on the interaction term between grants and cash transfers is statistically insignificant, suggesting no additional impact beyond the sum of the effects of the two parts. We also test whether effects vary by a range of other school characteristics. For capitation grants we find that none of these interaction terms are statistically significant – suggesting that effects don't substantially vary whether by school size, whether it is affected by conflict, whether publicly or privately managed, primary or secondary, or hard to reach.

[Table 9]

For cash transfers just one of the interaction terms is statistically significant – whether a school is primary or secondary. Secondary schools grow much more than primary schools in response to the receipt of cash transfers. This is exactly what we would expect given the grade distribution of transfers, which cover four grades of secondary school and only the upper four grades of primary school.

[Table 10]

### **Spillovers**

One concern with looking at the effect of capitation grants at the school level is that an increase in enrolment may be driven in part by attracting students from other nearby schools rather than enrolling previously out of school children. We provide three tests of this hypothesis. First, we test whether the presence of grants or cash transfers at the closest neighbouring school reduces school enrolment. Here there seems to be a positive effect of a neighbouring school receiving a grant (and no effect of receiving cash transfers).

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Table 11]

Second, we look at the overall percentage of schools within a Payam that have received grants (excluding the school in question), and whether this affects a school's enrolment growth. Here again we find a significant *positive* effect of other nearby schools receiving grants, over and above the independent effect of the school itself receiving a grant, the exact opposite of what we would expect to see if there were negative spillovers through the poaching of students.

[Table 12]

Finally, we take the average of enrolment levels, grant, and cash transfer coverage at the Payam level, and look at the correlation between average school enrolment and the proportion of schools receiving interventions, across the 366 Payams in the sample. By looking at the correlation at Payam level, we can plausibly capture any localized spillovers between schools that happen within a Payam, but not any spillovers that happen across Payam borders. It seems reasonable to assume that any possible spillovers would be contained at the relatively local level, as most children do not travel far, particularly for primary school. Here the correlation between cash transfers and enrolment remains large and statistically significant, but the correlation with capitation grants becomes statistically insignificant. Overall these three tests would suggest that there is unlikely to be any negative spillover between schools, and if anything a positive spillover. Possible explanations could be due to the local sharing of resources, a change to local norms, or an interaction with local government support, though we don't have the data to test these hypotheses.

### **C. Effects on School Attendance**

Turning to average school attendance rather than just enrolment, we find positive statistically significant effects of similar magnitude. Here the effect of cash transfers seems to be larger (17%) than capitation grants (10%), suggesting that there may be a complementarity between grants for schools helping to get children to enroll in school at all, and cash transfers helping more to keep them attending on a regular basis.

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Table 13]

I also find similar large effects of the magnitude of capitation grants and number of cash transfers on enrolment growth only amongst those schools that received any.

[Table 14]

#### **D: Other Interventions**

Capitation grants and girls' cash transfers are the parts of the GESS programme that have reached the largest number of schools, but several other projects also operate in South Sudan.

These are generally less well amenable to the kind of analysis carried out here – either as they are primarily national in scope (e.g. radio programmes), are operating in communities not schools (community mobilization), or are primarily focused on improving quality rather than enrolment and attendance. Nevertheless for the schools in which we do have data we can test if there appears to be any correlation between programmes and access. A range of other projects are also implemented by other providers, including AET, R2L, Plan, GPE, and UNICEF. We have data on which schools all of these projects operate in, except for UNICEF. The number of schools reached by each programme are listed below, pooled by implementing organization.

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Table 15]

On average, receiving one of the other GESS programmes is associated with slightly quicker enrolment growth (5%). None of the other bundles of programmes are statistically significantly correlated with enrolment growth.

**[Table 16]**

Looking at attendance, we do find a positive effect of the bundle of Plan interventions.

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## 6. Conclusion

Although there is substantial evidence on the effectiveness of providing decentralized financing to schools and students at increasing time in school, evidence from increasingly important fragile and conflict-affected states is rare. This paper uses an innovative national level dataset of schools in South Sudan and presents findings that school capitation grants and cash transfers for girls appear to boost both enrolment and attendance, despite the widespread prevalence of ongoing conflict. Neither are these interventions any more or less effective for schools that have been directly affected by the presence of conflict within their immediate vicinity.

As this is an observational study, there will always be some uncertainty that we have accounted for unobserved differences between schools that did and did not receive interventions that might be confounding this relationship. We cannot totally rule out alternative explanations, though by conditioning on prior enrolment and attendance, exploiting a natural experiment, and looking at the differences between genders within schools we can account for at least some unobserved differences.

This paper does not address the relative cost of these interventions versus alternative possible interventions, which should be a critical factor in making future policy decisions. Wider research on cash transfers suggests that they tend to have relatively low overhead cost.

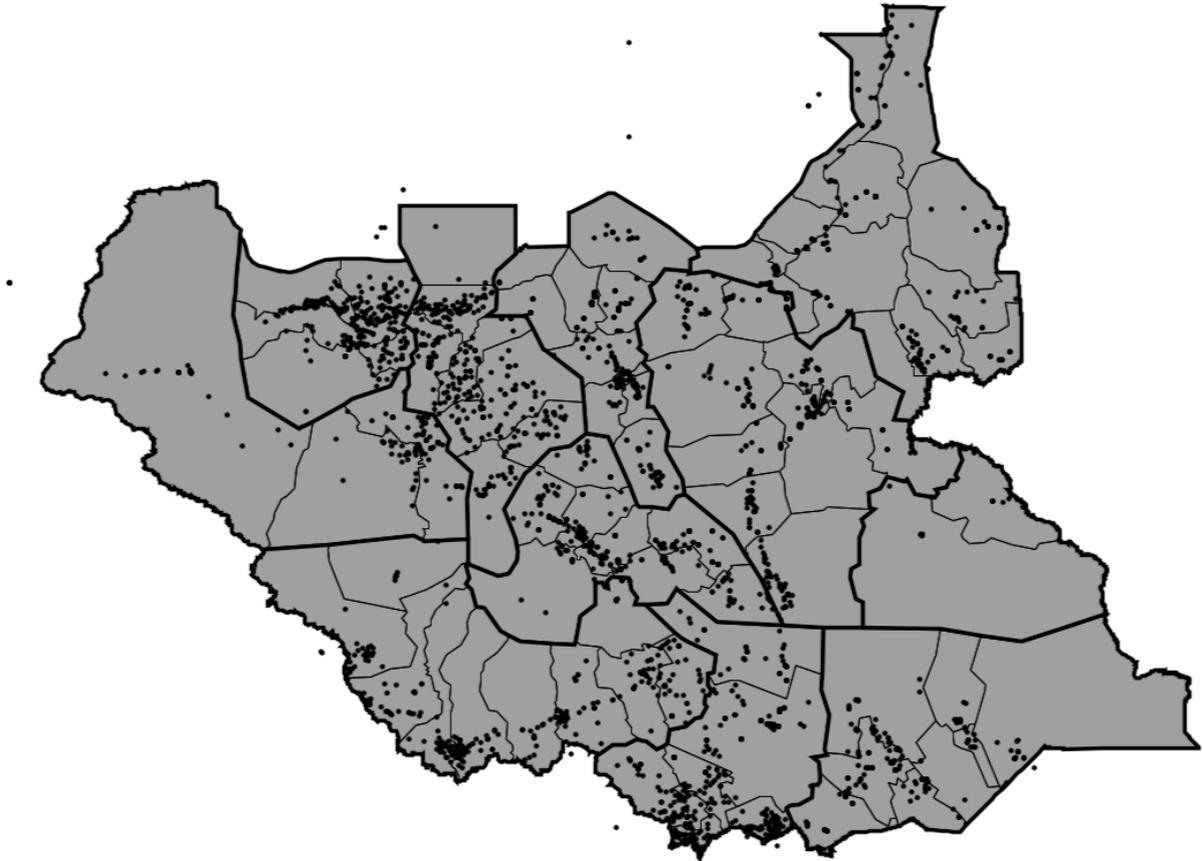
Further research could usefully focus on the effects of similar interventions on learning outcomes, and on the causal pathways through which these interventions increase enrolment and attendance. At present some official examinations data, and information on teachers is provided in the national Education Management Information System, but this is not fully complete, up to date, or linkable with SSSAMS data in a way that allows to reliably explore these issues.

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**Figure 1: Map of Schools in the SSSAMS Database**



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**Table 1: Descriptive Statistics**

	2014	2015	2016
Number of Schools With Enrolment>0	3,038	3,306	3,421
(of which open in previous year)	0.41	0.82	0.83
(of which not open in following year)	0.11	0.14	
Total Enrolment	928,871	1,143,082	1,272,306
Enrolment (Mean)	306	346	372
Attendance (Mean)	245	324	366
% Receiving Grants	0.85	0.58	
% in Grant Control Group	0.05	0.21	
% Receiving Cash Transfers	0.35	0.54	
% Primary	0.93	0.93	0.93
% Secondary	0.07	0.07	0.07
Government	0.78	0.78	0.78
Private	0.02	0.02	0.02
Church	0.08	0.08	0.08
Community	0.12	0.12	0.12
“Hard to Reach”	0.79	0.79	0.79
Affected by Conflict (<1km)	0.17	0.13	0.15
Female Students	0.38	0.39	0.42

Notes: All data comes from the South Sudan Schools Attendance Management System (SSSAMS.org), with the exception of numbers on conflict that are from the Armed Conflict Location & Event Data Project (ACLED).

Data for 2016 is as of October 2016 – some schools still may not have reported enrolment to the system so the total enrolment figure could still rise.

**Table 2: Fatalities from Conflict, by State 2011-2015**

	2011	2012	2013	2014	2015	2016	Total
States							
Central Equatoria	2	4	2,099	120	175	634	3,034
Eastern Equatoria		1	29	94	75	179	378
Jonglei	606	270	869	1,360	494	82	3,681
Lakes		35	136	737	469	58	1,435
Northern Bahr el Ghazal	91	43	63	35	40	30	302
Unity	97	306	447	2,073	1,165	112	4,200
Upper Nile	265	64	152	1,286	487	118	2,372
Warrap		152	211	374	227	96	1,060
Western Bahr el Ghazal	40	49	84	249	121	179	722
Western Equatoria	0		3	38	206	136	383
Total	1,101	924	4,093	6,366	3,459	1,624	17,567

Notes: Data accessed from the Armed Conflict Location & Event Data Project (ACLED), which records statistics from every conflict event reported in the media.

**Table 3: Probability that a School Remains Open**

	1	2	3
L.Capitation Grant	0.38*** (0.01)	0.03*** (0.01)	0.01 (0.01)
L.Cash Transfer	0.11*** (0.01)	0.03*** (0.00)	0.02*** (0.01)
L.conflict	0.02 (0.01)	0.00 (0.01)	-0.01 (0.01)
School Controls		Yes	Yes
Lagged Dep Var		Yes	Yes
State FE		Yes	Yes
N	10,826	6,700	5,329
Schools	5,413	3,350	3,267
R-Squared	0.309	0.038	0.035

Notes: Dependent variable is a binary indicator variable for whether the school is open that year or not. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and "hard to reach" status.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01

**Table 4: Proportion of schools approved to receive capitation grant who actually received the grant, by State**

State	2014	2015
CES	1	0.99
EES	1	0.99
JGL	1	0.93
LKS	0.98	0.56
NBG	0.82	0.06
UNS	0	0.5
UTY	0.98	0.08
WBG	0.91	0.8
WES	1	0.59
WRP	1	1

**Table 5: Balance of natural control and grant schools**

	No Grant	Control	Treatment	P-value (Treatment- Control)
Enrolment (2015)	318	364	320	0.00
Enrolment (2014)	282	304	308	0.78
Enrolment (2013)	219	277	265	0.59
Received Cash Transfers (2014)	0.08	0.25	0.32	0.00
Government School	0.84	0.88	0.80	0.00
"Hard To Reach"	0.89	0.79	0.73	0.01
Female Share (2014)	0.38	0.39	0.41	0.27
Conflict Deaths <1km (2014)	6.8	4.9	7.1	0.07
Average Grant Request SSP (2015)		19,182	19,551	0.63
Month of Grant Request (2015) (Jan=1 Dec=12)		6.2	6.4	0.04

Notes: The 'Control' Group comprises schools that were approved to receive capitation grants, but who never actually received their payment due to administrative hold-ups. By contrast the 'No Grant' group either never applied or were not approved to receive grants. Schools are assigned to the "No grant" / Control / Treatment groups based on their 2015 status (some schools were in a different group in 2014). This table only includes schools from the 7 states who did not have 99% or higher fulfilment rates for both 2014 and 2015 for approved grants. This includes Jonglei, Lakes, Northern Bahr El Ghazal, Upper Nile, Unity, Western Bahr el Ghazal, and Western Equatoria, and excludes Central Equatoria, Eastern Equatoria, and Warrap.

**Table 6: Effects on Log Enrolment**

	1	2	3	4
L.Capitation Grant	0.09*** (0.02)	0.12*** (0.02)	0.12*** (0.02)	0.10*** (0.03)
L.Cash Transfer	0.06*** (0.01)	0.07*** (0.01)	0.07*** (0.01)	0.06** (0.02)
L.conflict		-0.02 (0.02)	-0.02 (0.02)	-0.07** (0.03)
L.Grant Control			0.01 (0.03)	
Controls		Yes	Yes	Yes
N	3,562	3,474	3,474	1,467
Schools	2,491	2,426	2,426	1,030
R-Squared	0.739	0.758	0.758	0.711

Notes: Dependent variable is the log of total school enrolment. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and “hard to reach” status. Column 3 includes the dummy variables for both the grant treatment group and the grant control group, comparing them to the omitted category of ‘never approved for a grant’. Column 4 excludes the unapproved group and just compares treatment with control.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01

**Table 7: Effects of Grant Amount on Log Enrolment**

	1	2	3	4
L.Grant Amount (Z-Score)	0.00 (0.01)	0.03*** (0.01)	0.01 (0.01)	0.02** (0.01)
L.CT Number (Z-Score)	-0.00 (0.01)	0.01* (0.01)	-0.00 (0.01)	0.01 (0.01)
Controls		Yes		Yes
N	1,817	1,817	1,509	1,499
Schools	1,298	1,298	1,132	1,122
R-Squared	0.779	0.798	0.774	0.794

Notes: Dependent variable is the log of total school enrolment. Columns 1 and 2 focus on the sample of schools that received grants, and columns 3 and 4 focus on schools that received cash transfers. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and “hard to reach” status.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01

**Table 8: Effect on female enrolment share**

	1	2	3
L.Cash Transfer	0.02*** (0.00)	0.01*** (0.00)	0.02*** (0.00)
L.Capitation Grant		-0.01** (0.00)	-0.00 (0.00)
L.conflict		0.00 (0.00)	0.00 (0.00)
Controls			Yes
Lagged Dep Var		Yes	Yes
N	5,999	1,859	1,805
Schools	3,764	1,859	1,805
R-Squared	0.005	0.566	0.602

Notes: Dependent variable is the school share of female enrolment. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and “hard to reach” status.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01

**Table 9: Interaction Effects of Grants on Enrolment**

	1	2	3	4	5	6
L.Capitation Grant	0.11*** (0.03)	0.11*** (0.02)	0.12*** (0.02)	0.14*** (0.04)	0.16*** (0.03)	0.21* (0.11)
L.Cash Transfer	0.06** (0.03)	0.07*** (0.01)	0.07*** (0.01)	0.07*** (0.01)	0.07*** (0.01)	0.07*** (0.01)
L.conflict	-0.03 (0.02)	-0.03 (0.02)	-0.02 (0.04)	-0.02 (0.02)	-0.03 (0.02)	-0.03 (0.02)
Grant X Cash	0.01 (0.03)					
Grant X Lag Enrolment		0.03 (0.02)				
Grant X Lag Conflict			0.00 (0.04)			
Grant X Government				-0.03 (0.04)		
Grant X “Hard to reach”					-0.05 (0.04)	
Grant X Primary						-0.10 (0.11)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	3,474	3,474	3,474	3,474	3,474	3,474
Schools	2,426	2,426	2,426	2,426	2,426	2,426
R-Squared	0.758	0.758	0.758	0.758	0.758	0.758

Notes: Dependent variable is the log of total school enrolment. Interaction terms are the product of the binary grant variable and the relevant control variable. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and “hard to reach” status.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.0

**Table 10: Interaction Effects of Cash Transfers on Enrolment**

	1	2	3	4	5	6
L.Capitation Grant	0.11*** (0.03)	0.12*** (0.02)	0.12*** (0.02)	0.12*** (0.02)	0.12*** (0.02)	0.12*** (0.02)
L.Cash Transfer	0.06** (0.03)	0.07*** (0.01)	0.06*** (0.02)	0.10*** (0.03)	0.09*** (0.03)	0.22*** (0.07)
L.conflict	-0.03 (0.02)	-0.03 (0.02)	-0.04 (0.03)	-0.02 (0.02)	-0.03 (0.02)	-0.02 (0.02)
Cash X Grant	0.01 (0.03)					
Cash X Lag Enrolment		0.03 (0.02)				
Cash X Lag Conflict			0.03 (0.04)			
Cash X Government				-0.03 (0.03)		
Cash X "Hard to reach"					-0.03 (0.03)	
Cash X Primary						-0.16** (0.07)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	3,474	3,474	3,474	3,474	3,474	3,474
Schools	2,426	2,426	2,426	2,426	2,426	2,426
R-Squared	0.758	0.758	0.758	0.758	0.758	0.759

Notes: Dependent variable is the log of total school enrolment. Interaction terms are the product of the binary cash transfer variable and the relevant control variable. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and "hard to reach" status.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.0

**Table 11: Effect of interventions at closest neighbouring school**

	1	2	3	4
L.Capitation Grant	0.13*** (0.02)	0.12*** (0.02)	0.14*** (0.02)	0.11*** (0.02)
L.Cash Transfer	0.07*** (0.01)	0.07*** (0.01)	0.06*** (0.01)	0.07*** (0.01)
L.conflict	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.03 (0.02)
L. Neighbour Grant		0.05*** (0.02)		
L. Neighbour CT			0.01 (0.01)	
L. Payam Grant Coverage				0.08** (0.03)
Controls	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
N	3,474	3,474	3,474	3,474
Schools	2,426	2,426	2,426	2,426
R-Squared	0.758	0.758	0.758	0.758

Notes: Dependent variable is the log of total school enrolment. Neighbour Grant and Neighbour CT are binary indicators for whether the neighbouring school received grants or cash transfers in the previous period. Payam Grant Coverage is the percentage of schools within the local area that received grants. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and "hard to reach" status.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.0

**Table 12: Correlation between interventions and enrolment at Payam Level**

	1	2	3	m4
L.(mean) grant	0.07 (0.09)		0.02 (0.08)	0.01 (0.08)
L.(mean) ct		0.22*** (0.07)	0.21*** (0.06)	0.21*** (0.06)
L.(mean) conflict				0.03 (0.04)
N	603	603	603	603
Payams	366	366	366	366
R-Squared	0.441	0.450	0.450	0.450

Notes: Dependent variable is the log of average school enrolment at the payam level. Grants, cash transfers, and conflict variables are all the proportion of schools within the payam. Other control variables are omitted due to the relatively small sample size of Payams.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.0

**Table 13: Effects on Log Attendance**

	1	2	3	4
L.Capitation Grant	0.05	0.06	0.05	0.10*
	(0.04)	(0.04)	(0.05)	(0.05)
L.Cash Transfer	0.17***	0.17***	0.17***	0.18***
	(0.03)	(0.03)	(0.03)	(0.04)
L.conflict		-0.05	-0.05	-0.05
		(0.04)	(0.04)	(0.04)
L.Grant Control			-0.03	
			(0.06)	
Controls		Yes	Yes	Yes
N	2,105	2,080	2,080	1,868
Schools	1,485	1,466	1,466	1,306
R-Squared	0.464	0.494	0.494	0.506

Notes: Dependent variable is the log of average school attendance over the year. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and "hard to reach" status. Column 3 includes the binary indicator for grant control schools. Column 4 excludes non treatment or control schools.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.0

**Table 14: Effects on Grant Amount & Number of Cash Transfers on Log Attendance**

	1	2	3	4
L.Grant Amount (Z-Score)	0.08***	0.12***	0.07***	0.12***
	(0.02)	(0.03)	(0.02)	(0.03)
L.CT Number (Z-Score)	0.06***	0.07***	0.07***	0.08***
	(0.02)	(0.02)	(0.02)	(0.02)
Controls		Yes		Yes
N	1,262	1,262	1,132	1,129
Schools	916	916	839	836
R-Squared	0.477	0.518	0.456	0.496

Notes: Dependent variable is the log of average school attendance over the year. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and "hard to reach" status. Columns 1 and 2 include only schools that received grants, columns 3 and 4 include only schools that received cash transfers.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.0

**Table 15: Number of schools reached by different programmes**

	2014	2015	2016
Other GESS Programme	0	1189	482
AET	0	103	103
R2L	0	359	359
Plan	0	61	61
GPE	0	24	24

Notes: Other GESS programmes include School Management Committee training, mentoring, head teacher training, teacher professional development, materials, and community mobilisation. R2L provide Parent Teacher Association training and libraries. Plan provide girl incentives, girl clubs, and materials.

**Table 16: Effect of other interventions on Enrolment Growth**

	1	2	3	4	5	6
L.Capitation Grant	0.08*** (0.02)	0.09*** (0.02)	0.09*** (0.02)	0.08*** (0.02)	0.09*** (0.02)	0.08*** (0.02)
L.Cash Transfer	0.08*** (0.02)	0.08*** (0.02)	0.08*** (0.02)	0.08*** (0.02)	0.08*** (0.02)	0.08*** (0.02)
L.anygess	0.05*** (0.02)					0.05*** (0.02)
L.conflict	-0.03 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.03 (0.02)
L.AET		-0.05 (0.05)				-0.05 (0.05)
L.r2l			-0.00 (0.02)			-0.01 (0.02)
L.plan				0.04 (0.03)		0.06 (0.03)
L.GPE					-0.02 (0.06)	-0.02 (0.06)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	2,343	2,343	2,343	2,343	2,343	2,343
Schools	2,343	2,343	2,343	2,343	2,343	2,343
R-Squared	0.765	0.764	0.764	0.764	0.764	0.765

Notes: Dependent variable is the log of total school enrolment. Programme variables are binary indicators for whether the school benefitted from that programme. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and "hard to reach" status.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.0

**Table 17: Effect of other interventions on Attendance**

	1	2	3	4	5	6
L2.logenrol	0.23*** (0.04)	0.23*** (0.04)	0.23*** (0.04)	0.23*** (0.04)	0.23*** (0.04)	0.23*** (0.04)
L.Capitation Grant	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)
L.Cash Transfer	0.07 (0.04)	0.08* (0.04)	0.08* (0.04)	0.08* (0.04)	0.08* (0.04)	0.08* (0.04)
L.anygess	0.07* (0.04)					0.07* (0.04)
L.AET		-0.09 (0.11)				-0.09 (0.11)
L.r2l			-0.02 (0.05)			-0.05 (0.05)
L.Plan				0.16** (0.08)		0.19** (0.08)
L.GPE					0.13 (0.12)	0.12 (0.12)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	1,187	1,187	1,187	1,187	1,187	1,187
Schools	1,187	1,187	1,187	1,187	1,187	1,187
R-Squared	0.553	0.552	0.552	0.552	0.552	0.555

Notes: Dependent variable is the log of average school attendance over the year. Programme variables are binary indicators for whether the school benefitted from that programme. Conflict is a binary indicator for whether there were any conflict-related deaths within 1km of the school. Other school controls are school type (government or private), level (primary or secondary), and “hard to reach” status.

\* p<0.1, \*\* p<0.05, \*\*\* p<0.0