The Impact of Distributing School Uniforms on Children's Education in Kenya

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November 2009

Abstract: In the context of widespread efforts to reduce school fees, an increasing share of the costs of schooling come in the form of school materials and opportunity costs. We evaluate the impact of an educational intervention in which a Kenyan non-governmental organization distributes school uniforms to children in poor communities. The NGO used a lottery to determine who would receive uniforms. We use winning the lottery as an instrumental variable to identify the impact of receiving a uniform. We find that giving a school uniform reduces school absenteeism by 44% for the average student, and 62% for students who did not previously own a uniform. The program also raised test scores for recipients by 0.25 standard deviations in the year after inception.

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Acknowledgments: Special thanks to David Blackburn, Mariana Colacelli, Pascaline Dupas, Caroline Hoxby, Lawrence Katz, Edward Miguel, Owen Ozier, and Bryce Ward for helpful comments. Thanks also to Pauline Ambani, Charles Kesa, Franklin Makokha, Hellen Masambu, Hellen Mukanda, Caroline Nekesa, Evelyne Ruto, Maureen Wechuli, and Joseph Wasikhongo for data gathering and insight into program administration.

1. Introduction

Advocates consistently lobby for making schooling more accessible in the developing world through the reduction of school fees and the elimination of other costs. The World Bank (2004) has argued that user fees are a major obstacle to universal education in developing countries. Several countries in sub-Saharan Africa have eliminated school fees, but other significant costs remain, including the cost of providing a school uniform for a child. Government and non-government organizations may intervene in any number of ways to encourage children to attend school, including by providing free uniforms (as documented in this paper), free meals (Vermeersch and Kremer 2004), free medications (Miguel and Kremer 2004), providing a combination package of benefits such as uniforms, textbooks and classroom construction (Kremer et al. 2002b), or extending the promise of a chance to win a scholarship (Kremer et al. 2004). This paper contributes to the discussion of the most effective ways to enable African children to attend school. While some interventions, such as providing meals or medications, increase the benefits of schooling, uniform provision and elimination of school fees reduce the cash outlay required.

We worked with ICS-Africa, a non-governmental organization that sponsored certain schoolchildren to receive free school uniforms. ICS used a lottery to determine which children would receive uniforms; this provides a unique opportunity to estimate the impact of uniform distribution without the biases inherent to observational data. Even though not all winners of the lottery received uniforms, winning the lottery is highly correlated with receipt of a uniform and thus serves as an effective instrumental variable (IV). We find strong positive impacts of receiving a school uniform on student school participation. Giving a uniform reduces school absenteeism by 6.4 percentage points (43%) from a base of 15% school absenteeism. The effect is 4.3 percentage points larger for students who had a uniform at the baseline. The program also had a positive impact on test-scores right after

inception raising average test-scores of recipients by 0.252 standard deviations. Other studies have examined the effect of reducing the cost of schooling by providing uniforms: Kremer et al. 2002b examines the impact of uniforms among a bundle of goods provided to schools, and Duflo et al. 2006 examines the impact of providing uniforms to older primary school students on dropout rates, teen marriage and childbearing. This is the first study to our knowledge that randomizes uniform provision alone among primary school students and the first that includes impact on student learning as measured by test scores.

2. Context

Education in Kenya

The Kenyan system of education is divided into primary, secondary, and tertiary levels. Primary school includes standards (grades) 1 through 8. Many schools also have an Early Childhood Development (ECD) program for students too young for standard 1 but these programs are typically informal with teachers supported by contributions of families rather than receiving a regular salary from the government. The school year matches the calendar year and is divided into three terms: Term 1 runs from January to March, Term 2 from May to July, and Term 3 from September to November. Primary school pupils typically range in age from six to seventeen years. One reason for this wide age range is the frequency with which pupils repeat standards. Pupils who struggle to complete the standardized national curriculum are held back to repeat the year. Rural pupils from poorer households and with little educational background at home often have difficulty grasping the curriculum and so are held back regularly. It is not uncommon for a pupil to repeat a standard two or more times.

Costs of schooling

In many countries, parents face many costs of education such as school fees and provision of uniforms. In Kenya, students were required to pay school fees to attend primary school through 2002. In January 2003, a new government policy provided not only fees but also basic textbooks and notebooks. This led to dramatic increases in school participation. However, schools still required students to wear uniforms. Historically, students who did not pay their school fees or those who did not wear uniforms could be sent away from school. Whether they were sent away and for how long varied greatly at the discretion of the school's headmaster. Students would often not pay full fees at the beginning of the year and would fulfill these obligations as the year progressed. In recent years, several prominent officials in the Kenyan government have voiced that head schoolteachers should not dismiss children who fail to wear a school uniform. However, it is difficult to find a clear expression of the official policy. Anecdotal evidence suggests that students are less likely to be sent away from school for failure to wear a uniform after 2002 than previously, but that students still feel stigmatized by the failure to wear a uniform and may be reprimanded by teachers. Existing evidence suggests that reducing the cost of schooling by providing uniforms among other inputs increases school participation. Kremer et al. (2002b) evaluate a program in which ICS provided uniforms, textbooks and classroom construction to seven schools selected randomly from a pool of 14 poorly performing schools in Western Kenya. In the treatment schools, dropout rates fell dramatically and after five years pupils had completed 15% more schooling. They argue that provision of textbooks alone can explain the effect and that the dropout rates fell prior to the construction of new classrooms.

The school uniforms provided in the project currently being studied cost between 325 and 550 Kenyan shillings (US$4.33 to $7.33) for girls and between 405 and 550 (US$5.40 to $7.33) for boys.

The variation in prices is because uniforms for each school require different materials and also because tailors local to each school were contracted to sew that school's uniforms.

The Project

ICS-Africa has been operating in Western Kenya since 1996. One principal program has been the Child Sponsorship Program (CSP), in which children are sponsored by donors in the Netherlands and elsewhere and as a result receive school fees and school uniforms. ICS-Africa phased its sponsorship program into several new schools in 2002 and evaluated those aspects of the program directed at individual children (as opposed to those that benefit the whole school).

In fall 2001, ICS-Africa selected twelve primary schools in Western Kenya to participate in the CSP. The twelve primary schools are all in Busia district, the westernmost district of Kenya's Western province. Busia district borders Uganda and is located just north of Lake Victoria. The households of children in CSP schools do not appear to be systematically different other rural households in Kenya. For example, 86% of children in CSP schools had a toilet at home, as compared with 79% of households in rural areas according the DHS 2003.

In January 2002, ICS organized a census of children in standards one through four of the twelve selected schools. Based on that census, ICS selected all children who had experienced one or both parent deaths (orphans) to automatically receive sponsorships.[2] It then used a lottery to randomly select the remaining beneficiaries. Next, a field representative from ICS went to the twelve schools to enroll those children selected for sponsorship into the program. For enrollment in the program, a child had to be present for a photograph to be taken and a small information card to be filled in, which would then be sent to the sponsor (with some basic information about the child, such as her preferred

[2] In Africa and in the literature dealing with parent death, children are referred to as "orphans" if they have either experienced one parent death or both parent deaths.

pastimes). ICS made efforts to ensure that sponsored children were in attendance on the day of enrollment: Letters were sent to the schools to encourage that these children be present. Schools and parents varied in their compliance. If a child intended for treatment was not present, then a replacement was selected from a list. If that replacement was not present, another was chosen. Because of that, some children initially assigned to the treatment group were ultimately assigned to the comparison group and vice-versa. As a result, we use treatment assignment as an instrumental variable to estimate the effect of Treatment on the Treated (TOT). The TOT parameter measures the average effect of treatment on those in the treatment group who actually receive the treatment, i.e., those students who were randomized into the program and went on to receive a uniform in 2002.

Schools as a whole immediately received some basic benefits from being sponsored. A pair of ICS nurses visited each school several times a year and provided basic first aid to any child (sponsored or not) or local adult who requested it. An agricultural representative organized student clubs to grow crops on the school grounds. In fall 2002, each school received a sizeable grant for classroom construction, for desks, and for books.

The standard individual benefit that sponsored children received was a school uniform; in June 2002, uniforms were distributed to all sponsored children who were still in school. Students would sometimes also receive idiosyncratic gifts or letters from their sponsor. These were infrequent and of little monetary value. From the program's inception in 2002 to mid 2004, only 5% of sponsored children had received anything from their sponsors, and 85% of those children received something only once (usually just a letter).[3] The relative infrequency of these gifts suggests that the bulk of the impact of this program stems from the uniform provision and not from these idiosyncratic gifts,

[3] The most common items sent were cards or letters (45% of children who received anything received only a letter, card, photograph, or drawing), and only a handful of children received anything larger than a pencil set or some exercise books (e.g., six children received a mattress, seven children received a lantern). Letters, when received, commonly inquire about the child's school progress and other pleasantries.

although we cannot rule out the possible psychological impact of simply being identified by a donor organization.

In June 2002, when field officers returned to the schools to measure the children for uniforms, they fitted all those sponsored children who had not dropped out of school for uniforms, and later returned with uniforms for them. For children who were absent on the day of measurement, other sponsored children of similar build were measured in their place. Sponsored children received a new uniform each year in June or July.[4]

If a sponsored child dropped out of school, the non-government organization selected a child to replace her, usually a child who had experienced the death of one or both parents but had not been sponsored previously (either because they transferred to the school after the initiation of the program, or because they lost a parent subsequent to the school census).

3. Data and Empirical strategy

The dataset we use is a composite of five different datasets with information about pupil attendance, students who won the sponsorship lottery, students who were present in school on the date of enrollment, students who received uniforms in 2002 and a pupil questionnaire administered in 2002. Figure 1 demonstrates the relationship between the Attendance dataset and the other datasets. We have attendance information at each of the twelve schools from 2002 through the end of 2005. Attendance was gathered as field officers made unannounced visits to each school multiple times each year and recorded whether each child was present. From these multiple visits, an annual per-child attendance average is collected. The 2002 Pupil Questionnaire was carried out in mid-January 2002 before

[4] Data on exactly which students received uniforms in subsequent years were inadvertently destroyed (literally, through the burning of office files thought to be superfluous).

uniforms were distributed, and socioeconomic data was gathered on all children who were present at school that day.

The Attendance dataset has uniquely defined pupil identification numbers, and the 2002 Pupil Questionnaire uses those same numbers. However, the datasets with information about the students who won the lottery, those who were present on the day of the lottery and those who received uniforms do not include those pupil identification numbers. Therefore, names were matched manually and with the aid of a computer program.[5] Some pupils in the various other datasets did not match with any pupil in the Attendance dataset. This may stem from the fact that sometimes children have several names and may only give a subset of those in one data gathering exercise and an non-overlapping subset in another exercise.

ICS had about 950 sponsorships to allocate, and 339 were assigned to orphans after the initial census. The result was 612 non-orphans chosen for sponsorship and 693 non-orphans not chosen for sponsorship. Since sponsorships were not randomly allocated to the orphans, the effects of those sponsorships are not included in this analysis. Thus, the 612 non-orphans chosen were the group intended for treatment; and the 693 not chosen were intended as a comparison group.

Upon returning to the schools in late January 2002, ICS registered 868 children into the program. Then, in June 2002, 932 uniforms were distributed; this number exceeds the 868 registered because some children were added to the program, at the NGO's discretion. Sponsored children went on to receive a uniform in June/July of 2003 and 2004 as well. In this analysis, we examine the impact of initial uniform receipt.

Our principal regression sample consists of 1,211 children who are identified in the initial Randomization dataset, the Recipient 2002 dataset, and the Attendance dataset. Table 1 Panel A

[5] Thanks to Rachel Podolsky who wrote this computer program in Perl.

compares children who won the lottery to children who did not win the lottery for the 768 children in school on the day of the 2002 Pupil Questionnaire. We observe few significant differences and certainly no patterns of difference (winners were slightly more likely to have breathing trouble but less likely to cook regularly at home). Table 1 Panel B compares children who received uniforms in June 2002 to those who did not, again for the 768 children in school on the day of the questionnaire. We see no significant differences. 88% of children registered in the program received uniforms; 74% of children who received uniforms had initially won the lottery.

In our main identification strategy we use randomized assignment into the treatment group as an instrument for treatment (or receiving a sponsorship). Given some crossover from the comparison to the treatment group, this may be more appropriate than an intent-to-treat strategy, in which groups are analyzed purely based on their assignment to treatment or comparison, regardless of their ultimate receipt of treatment or not. The initial randomization serves as an ideal instrument since it was randomly determined, thereby giving no reason to expect it would impact the outcome except through affecting the likelihood of treatment. Also, since the majority of children who were chosen for treatment actually received uniforms, the ITT and the actual treatment are highly correlated.

Although we sometimes refer to the impact of sponsorship as the impact of receiving a uniform, sponsorship could work through another mechanism. Sponsored children had their picture taken and were singled out, and that kind of attention could conceivably have self-esteem impacts that could affect school attendance. This could work together with the aforementioned moral support offered by sponsors to a few students. Our current estimates cannot differentiate between these effects. However, those effects might be expected to be largest immediately after sponsorship, and we do estimate separately the impacts of sponsorship in the six months between registration and initial

uniform receipt and subsequent impacts. Significant effects only appear after uniform receipt, suggesting that sponsorship alone is not driving these effects.

5. Results

First, we examine the first-stage regressions: What is the probability that a child, having been randomized into the project, actually was registered or went on to receive a uniform? Table 2 indicates that 74% of children who won the lottery were actually randomized into the project. 77% of children who won the lottery received uniforms in June of that year. In both regressions, about 20% of children who did not win the lottery went on to join the program. This is because, if a lottery-winner were absent on the day of program enrollment, another child was selected to take her place. Being randomized into the program thus acts as an appropriate instrumental variable for actual enrollment and later uniform receipt.

Table 3 gives some of these instrumental variables estimates. In Regression 1, we examine whether initial registration into the program had any effect on children's school attendance in the six months previous to distribution of uniforms. We see an insignificant positive impact on attendance. (Part of the low precision of this estimate is because it is based on few observations of school attendance.) In Regression 2, we provide the intent-to-treat regression, measuring the simple impact of being randomized into the project on attendance after uniform distribution, and see an effect of 3.5 percentage points. Next we provide IV estimates of the impact of registration into the program (Regression 3) and of actual receiving a uniform in 2002 (Regression 4) on attendance after uniform distribution. These impacts are much more precisely estimated: the measured impact of program enrollment is a 6.2 percentage point increase in attendance (standard error 0.019), and that of receiving

a uniform is 6.4 percentage points (standard error 0.021). This is a major reduction in absenteeism from a baseline school attendance level of 85%.

In Regression 5, we provide an OLS estimate of receiving a uniform on school attendance. This impact is slightly larger (5.5 percentage point increase, standard error 0.012), potentially implying that selection positively biases the OLS estimates, as children present in school on the day of initial enrollment were more likely to receive uniforms.

A potential concern is that these results would be positively biased if unsponsored students who transfer from CSP schools to non-program schools are listed in the attendance data as having dropped out. This kind of misclassification does not seem to be a significant problem given that students in CSP schools come from nearby villages, so the pupils seem very certain of their classmates' (and neighbors') whereabouts. The enumerators, upon encountering a child who was absent on the date of the attendance check, would ask her classmates where the child was and whether or not she had dropped out. Further, given the school-wide benefits of the CSP, students have little incentive to transfer schools.

The impact of receiving a uniform may differ across genders and ages. Regression 1 of Table 4 shows an impact of 5.2 percentage points for boys and an apparently larger (but not significantly different) effect of 7.9 percentage points for girls. Table 4, Regression 2 examines the effects for younger children (aged 5-9) versus older children (aged 10-14). We observe an effect of 8.4 percentage points for younger children who received a uniform in 2002 and a smaller (but again, not significantly different) effect of 4.0 percentage points for older children.

We would expect receiving a uniform to be most important to children who do not already have one. We include an interaction for students who both receive a uniform and didn't have a uniform at baseline (Table 4 Regression 3), and we find that the attendance of students who receive a uniform and

did not already have a uniform is estimated at 3.4 percentage points higher than those who already had a uniform, but that this effect is not statistically significant.

Because the uniform distribution took place at the student level, it is possible that the observed effects relate to inequality rather than the reduction of schooling costs. In a school where fewer students have uniforms, a uniform could carry more status and create a further incentive to come to school. (Alternatively, in that case it might also matter less.) The intervention affects the distribution of students with uniforms in addition to simply reducing costs. To test whether the effect is an inequality effect as opposed to a cost-reduction effect, we interact students who receive a uniform with the proportion of students who have a uniform at baseline. The effect is not remotely statistically significant, suggesting that in our sample, the inequality effects are not driving the results.

We also examine what effect a student's inclusion in the sponsorship program has on the attendance of her siblings: Student who receive a new uniform each year may pass their old uniform on to their siblings. We matched sibling information from the baseline questionnaire with their attendance information. We ran regressions including whether or not the student had a sibling who received a uniform or whether the sibling had a sibling of the same gender who received a uniform. We found no significant effects of uniform provision on the attendance of the student's siblings. We also examine the effect of the program on grade progression and find no significant effect (results not reported).

Finally, we examine the effect of receiving a uniform on test scores. The test score data were collected after the conclusion of the program and are not complete for all years and for all schools. There is also significant attrition in the test score data, largely due to imperfect matching between the school administrative records and our student data. Table 5 shows that there are no significant differences in socioeconomic indicators between the students missing test score data and those for

whom test scores are available, with the key exception of inclusion in the uniforms program. Uniform provision is associated with a significantly lower likelihood of having missing test score data, implying in and of itself that the program increases the likelihood that children stay in school to participate in exams.

Table 6 gives IV estimates of program enrollment on average annual test scores in Mathematics, English and Kiswahili for 2002 (the year the program began), 2003 and 2004. We show average effects as well as effects separated by students who had uniforms before the program and those who did not. The program appears to have had a positive impact on test scores in 2003, raising average test-scores of recipients by one quarter of a standard deviation. While the average test-scores of uniform recipients are still observed to be higher two years after the program started by one-fifth of a standard deviation, the effect is less precisely estimated. To address non-random sample attrition, we also construct non-parametric bounds on test-scores following Lee (2002) in Table 7[6]. The bounds of the effect in 2003 are reasonably tight (-0.01 – 0.29) standard deviations, and suggestive of positive test-score effects of the program. The bounds for the effect in 2004 (-0.04 – 0.19) are also reasonably narrow, and while they do contain zero are suggestive of a positive treatment effect.

6. Discussion

The Rationale for School Uniforms

Given that school directors have historically had considerable discretion with respect to the enforcement of school uniform norms, an important question is why Kenyan schools (and African schools more generally) require school uniforms at all. Several possible rationales have been suggested for maintaining uniform norms, but these are not relevant in our study area. For example,

[6] Thanks to David S. Lee who provided us with the Stata program to construct these bounds.

uniforms make students easy to identify and therefore less likely to engage in bad behavior or be co-opted into helping a village resident with farm work. In some areas school uniforms qualify children for privileges such as reduced fees on public transport. However while this effect may be relevant at higher income levels, there may be the opposite effect in this situation. Uniforms also may enhance a sense of visual equality and decrease distractions from schoolwork when at school (BBC 2003). Another hypothesis is that, although head teachers face few incentives in general, they may be transferred to undesirable locations if the average exam scores in their school are low. By enforcing school uniform norms, they may exclude the poorest (and probably the lowest performing) children and thus raise average exam scores (Kremer et al. 2002a).

Two of these reasons (special privileges within the village and visual equality) could be achieved by considerably cheaper alternatives to current school uniform policy. Standard clothing color schemes and an identity badge, for example, would probably achieve the same goals. The other reasons, however, are more challenging, either because the head teacher specifically wishes to exclude poor families and therefore is unlikely to replace uniforms with a cheap alternative, or because clear identification to exclude truancy or bad behavior outside of school means that children should not simply be able to obscure their identity badge. Which of these reasons plays a more important role informs the appropriate policy intervention regarding uniforms, whether our positive results imply that governments may wish to provide uniforms or whether they should be eliminated in favor of a cheaper alternative. These initial regressions indicate that uniform distribution has a positive impact on children's school attendance. Giving a school uniform (along with other aspects of program participation) reduces school absenteeism by more than a third.

Cost Effectiveness

The average effect of the program is an increase in school participation of 0.064 years per treated child (standard error 0.021 – Table 3 Col 4). The average cost of a school uniform is 436.86 Kenyan shillings (US$5.82). Thus, the cost of increasing school by one year is $5.82 / 0.064, or US$90.94[7]. This is still considerably more than the cost of an additional year of schooling through providing deworming medication (US$3.50), an intervention also carried out in the same geographic area (Miguel and Kremer 2004). However, since uniform provision constitutes a transfer to the household a more appropriate comparison of the cost effectiveness of uniform provision might be to other cash transfer programs. The per pupil cost of inducing an additional year of schooling with the conditional cash transfer program PROGRESA in Mexico was $614.18, significantly higher than the cost of an additional year of schooling through uniforms (Evans, 2008). Uniform provision is a challenge that children across the African continent face, and so thus this intervention may be more generalizeable.

Conclusion

This paper highlights the impact of reducing a major cost of schooling: In Kenya, the cost of a uniform is the highest monetary outlay for primary school with the abolition of general school fees. We find that distributing uniforms results in a 44% reduction in student absenteeism. For children who did not already own a uniform, distributing a uniform reduces absenteeism by 62%. In the first study to further observe the impact on test scores, we find significant positive impacts of the intervention on student performance. While not as cost-effective as some other interventions, this need may be more general across the region.

[7] The marginal cost of labor associated with providing an additional uniform is very small. Field officers for the non-government organization in Kenya make approximately US$350 per month, but the fraction of that time required for distributing uniforms (one day per school for measuring, one day per school for distributing) is very low if one imagines a program that distributes uniforms annually.

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Figure 1: Relationship of various datasets to the attendance data

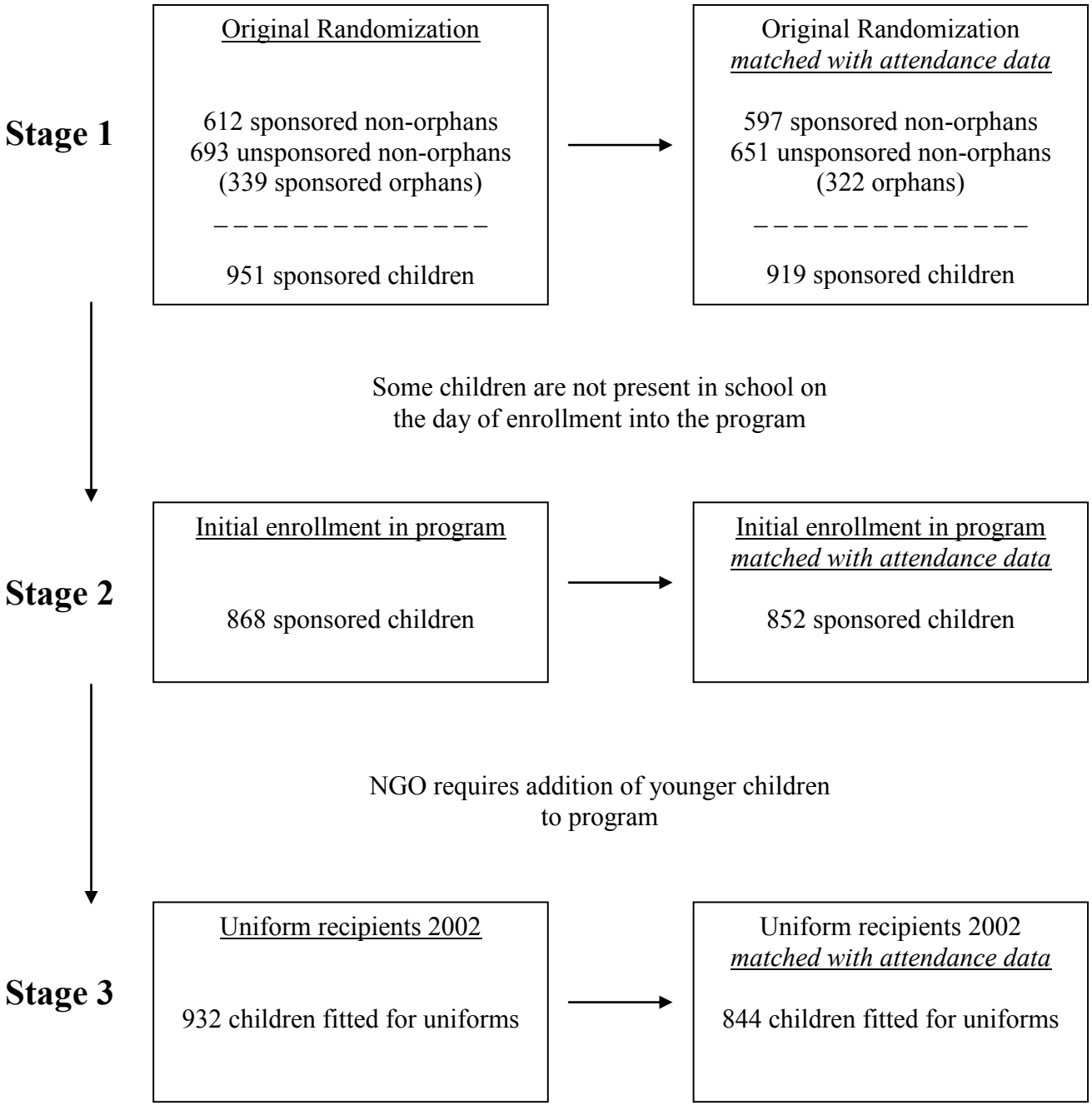

Table 1: Pre-treatment comparison of groups

(all characteristics measured in Jan 2002, before initiation of program)

	Lottery winners versus losers				Uniform recipients versus non-recipients			
	Winners	Losers	Difference (W-L)	Std Error for Diff	Received	Didn't	Difference (R-D)	Std Error for Diff
Female	0.48	0.47	0.01	0.03	0.45	0.5	-0.05	0.04
Age	9.59	9.74	-0.15	0.09	9.63	9.71	-0.09	0.13
School attendance (Jan - June '02)	0.87	0.85	0.02	0.02	0.87	0.85	0.02	0.01
Iron roof	0.39	0.41	-0.02	0.04	0.38	0.42	-0.04	0.05
Toilet	0.85	0.86	-0.01	0.03	0.87	0.83	0.04	0.03
Books	0.22	0.23	-0.01	0.04	0.2	0.25	-0.05	0.09
Uniform shirts	0.77	0.79	-0.03	0.07	0.77	0.79	-0.02	0.06
Uniform dresses	0.8	0.73	0.07	0.08	0.77	0.76	0.01	0.07
Headache in last week	0.3	0.27	0.02	0.04	0.28	0.29	-0.01	0.04
Breathing trouble in last week	0.06	0.03	0.03	0.01	0.04	0.04	0	0.02
Diarrhea in last week	0.07	0.05	0.01	0.01	0.06	0.06	0	0.01
Usually cook at home	0.56	0.63	-0.07	0.02	0.58	0.61	-0.02	0.03
Usually fetch water at home	0.94	0.95	0	0.01	0.94	0.95	-0.02	0.02
Usually wash clothes at home	0.74	0.78	-0.04	0.03	0.75	0.77	-0.03	0.03
Currently wearing shoes	0.04	0.04	0.01	0.02	0.04	0.04	0.01	0.01
Currently wearing uniform	0.66	0.67	-0.01	0.04	0.68	0.65	0.03	0.04
Received uniform from ICS in 2002	0.8	0.22	0.58	0.08				

Note: 768 children are included in these summary statistics, all who were present on the day of the survey out of the general sample of 1,211 children.

Table 2: First stage regressions

	Dependent variable:	
	Initially registered in program	Received uniform 2002
	(1)	(2)
Randomized into program	0.549***	0.573***
	(0.080)	(0.073)
Constant	0.189***	0.198***
	(0.036)	(0.043)
Observations	1211	1211
R-squared	0.3	0.33

Notes: All regressions are clustered by school. * significant with 90% confidence, ** 95%, *** 99%.

Table 3: IV regressions (using randomization into the program as an IV for initial enrollment or uniform receipt)

	Attendance Jan '02 – June '02	Dependent variable: Attendance - June '02 – Nov '05			
	IV	OLS	IV	IV	OLS
	(1)	(2)	(3)	(4)	(5)
Initially registered in program	0.047		0.062***		
	(0.027)		(0.019)		
Randomized into program		0.035**			
		(0.012)			
Received uniform 2002				0.064**	0.055***
				(0.021)	(0.012)
Didn't have uniform at baseline	-0.063**	-0.050**	-0.046**	-0.043**	-0.044**
	(0.020)	(0.017)	(0.018)	(0.018)	(0.016)
Std 1 * Female	-0.008	0.02	0.02	0.023	0.022
	(0.021)	(0.022)	(0.022)	(0.021)	(0.022)
Std 2 * Male	-0.014	0.016	0.015	0.016	0.016
	(0.037)	(0.027)	(0.026)	(0.026)	(0.026)
Std 2 * Female	-0.031	0.018	0.019	0.02	0.02
	(0.041)	(0.017)	(0.016)	(0.017)	(0.017)
Std 3 * Male	0.01	0.032	0.032	0.034	0.034
	(0.041)	(0.024)	(0.024)	(0.025)	(0.025)
Std 3 * Female	-0.002	0.025	0.028	0.03	0.029
	(0.028)	(0.032)	(0.032)	(0.032)	(0.032)
Std 4 * Male	-0.008	0.029	0.036	0.032	0.031
	(0.045)	(0.023)	(0.021)	(0.022)	(0.022)
Std 4 * Female	0.024	0.052	0.054	0.052	0.052
	(0.030)	(0.034)	(0.033)	(0.034)	(0.034)
Constant	0.895***	0.874***	0.860***	0.854***	0.860***
	(0.021)	(0.023)	(0.027)	(0.029)	(0.022)
Observations	1211	1211	1211	1211	1211
R-squared	0.14	0.06	0.07	0.07	0.07

Notes: All regressions include a full set of gender-standard interactions, controls for whether or not the child had a uniform previous to uniform distribution and are clustered by school. * significant with 90% confidence, ** 95%, *** 99%.

Table 4: IV regressions by gender and age (using randomization into the program as an IV for initial enrollment or uniform receipt)

	Dependent Variable Attendance June '02 - Nov '05			
	(1)	(2)	(3)	(4)
Received Uniform in 2002	0.052*	0.040*	0.05	-0.138
	(0.026)	(0.021)	(0.036)	(0.153)
Female and Received Uniform in 2002	0.029			
	(0.048)			
Didn't have Uniform at Baseline	-0.043**	-0.026	-0.059	-0.045**
	(0.018)	(0.019)	(0.034)	(0.018)
Young and Received Uniform in 2002		0.073		
		(0.058)		
Young		0.011		
Received Uniform 2002 * Didn't have uniform at baseline			0.034	
			(0.048)	
Received Uniform in 2002 * Proportion of school who had Uniform				0.286
				(0.215)
Std 1 * Female	0.011	0.032	0.024	0.023
	(0.029)	(0.035)	(0.021)	(0.021)
Std 2 * Male	0.016	0.054*	0.016	0.013
	(0.026)	(0.030)	(0.026)	(0.025)
Std 2 * Female	0.007	0.063*	0.02	0.019
	(0.025)	(0.030)	(0.017)	(0.017)
Std 3 * Male	0.034	0.081*	0.035	0.033
	(0.025)	(0.040)	(0.025)	(0.024)
Std 3 * Female	0.017	0.074*	0.03	0.029
	(0.039)	(0.039)	(0.032)	(0.032)
Std 4 * Male	0.031	0.084**	0.031	0.029
	(0.023)	(0.032)	(0.023)	(0.021)
Std 4 * Female	0.039	0.112**	0.052	0.053
	(0.039)	(0.044)	(0.034)	(0.034)
Constant	0.860***	0.825***	0.864***	0.877***
	(0.030)	(0.037)	(0.038)	(0.030)
Observations	1211	1027	1211	1211
R-squared	0.06	0.07	0.07	0.06

Notes: All regressions include a full set of gender-standard interactions and are clustered by school. * significant with 90% confidence, ** 95%, *** 99%.* significant with 90% confidence, ** 95%, *** 99%. A student is "young" if she is age 5-9 and older if she is 10-14.

Table 5: Differences between Students Who Attrited and Those Who Didn't in the Test Score Data

	Attrited	Didn't Attrit	Difference (std error)
Female	0.47	0.46	0.01 (0.04)
Age	9.70	9.64	0.06 (0.22)
School attendance Jan – June '02	0.86	0.85	0.01 (0.04)
Iron roof	0.39	0.43	-0.04 (0.07)
Toilet	0.85	0.86	-0.01 (0.03)
Books	0.27	0.17	0.09 (0.10)
Diarrhea	0.07	0.05	0.02 (0.02)
Fetch water	0.93	0.96	-0.02 (0.03)
Had uniform at baseline	0.66	0.67	-0.01 (0.09)
Uniform Recipient	0.46	0.56	-0.10 (0.04)**

Table 6: IV Regressions of Std Deviations of Test Scores (using randomization into the program as an IV uniform receipt)

Dependent Var: Test Scores	Averages		
	2002	2003	2004
Average Treatment Effect	0.065	0.252**	0.181
	(0.19)	(0.17)	(0.10)
No uniform at baseline	-0.124	0.371	0.21
	(0.36)	(0.21)	(0.31)
Had uniform at baseline	0.181*	0.15	0.16
	(0.10)	(0.14)	(0.11)
Observations	511	582	360

Table 7: Treatment Effect Estimates and Bounds

	Fraction Non-missing			**Effect**		
	Control	**Treatment**	**Trimming Proportion**	**Untrimmed**	**Lower Bound**	**Upper Bound**
2002	0.4247	0.4190	0.0136	0.0093	-0.0134	0.0457
			(0.0664)	(0.0922)	(0.1486)	(0.1719)
2003	0.4643	0.4983	0.0681	0.1705	-0.0070	0.2891
			(0.0556)	(0.0833)	(0.1343)	(0.1257)
2004	0.2900	0.3052	0.0497	0.0917	-0.0414	0.1874
			(0.0840)	(0.1058)	(0.2012)	(0.1776)