Universal Primary Education in Tanzania: The Role of School Expenses and Opportunity Costs

By Caroline Dennis & Katie Stahley

ABTRACT

In 2001, Tanzania implemented the Primary Education Development Program (PEDP) and eliminated public school fees in order to increase access to primary education. Schooling is now mandatory for children ages 7-15, and although enrollment has dramatically increased, Tanzania has not yet achieved universal primary education (UPE). According to different figures, 15-20% of children still do not attend school in Tanzania.[1]

Using data from the World Bank's 2008 Tanzania Living Standards Measurement Survey (LSMS), we examined several factors that may decrease the probability of a child complying with compulsory education. Our particular focus was on the remaining household education expenditures, such as book fees, uniform fees, meal costs, and transportation costs. We controlled for other household, demographic, and regional factors.

We found that LSMS respondents reported higher school attendance rates (95%) than other estimates. Multivariate analysis of children ages 5-15 showed that additional school-related expenditures have little to no effect on the probability of attendance. However, whether the child works, either at home or outside of the home, appears to significantly reduce the probability that he or she attends school. This suggests that the opportunity costs of school are an important constraint for some families.

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[1] UNICEF estimates that while nearly all eligible Tanzanian children are registered for primary school, 71% of boys and 75% of girls actually attend. Tanzanian government statistics report gross intake rates at 106.4% and net intake rates at 95.4% but there is no data on attendance rates.

I. BACKGROUND, CONTEXT, AND RESEARCH QUESTION

Since gaining independence in 1961, Tanzania has made public education a national priority, prompting waves of related policy changes and investment strategies. Soon after independence, the nation focused on strengthening secondary education to prepare workers to join the new, domestic public sector. Another clear priority, however, was providing widespread basic education to a socialist Tanzania. For the rest of the twentieth century, policymakers and leaders launched various programs and strategies to achieve universal primary education (UPE). In 1978, the government passed an Education Act making education compulsory for children between the ages of 7 and 13. Actual enrollment levels have fluctuated since that time—from about 70% to 95%—due to a number of factors, including concerns over education quality in the context of a struggling national economy (Al-Samarrai & Peasgood, 1998).

Today, challenges to establishing an effective and stable education system persist. UPE remains a goal of the Tanzanian government and a United Nations Millennium Development Goal. With support from international donors, in 2001 Tanzania began the Primary Education Development Program (PEDP). The PEDP's goals are to improve quality and equity throughout the education system, improve retention in the seven years of primary education, and build school capacity at all levels (World Bank 2011). In addition to making enrollment in primary education mandatory until age 15, the PEDP eliminated school fees in an effort to encourage attendance. However, according to different figures, 15-20% of children under age 15 still do not attend school.[2] This could be due to other costs associated with education—either direct household expenditures on books or uniforms, or opportunity costs of being in school—or contextual factors such as school quality or labor market demand. Our goal is to determine what factors increase the probability that a child does not attend school, both until the compulsory age of 15 and beyond, with a particular focus on the role of schooling-related household expenditures.

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II. RELEVANT METHODOLOGIES AND LITERATURE

The elimination of school tuition fees is a strategy supported by the World Bank and UNICEF to increase school enrollment and achieve UPE. A World Bank survey indicated that in some developing countries, families allocate up to 47% of their household expenditures to education.[3] Under policies that eliminate primary school user fees, countries like Malawi, Uganda, Cameroon, Kenya, and Tanzania have seen dramatic increases in enrollment rates.[4]

Still, empirical studies show that other factors may explain why a child ultimately does or does not attend school. Prior to analyzing data, Holmes (2003) reminds us to consider bias that may be caused by not distinguishing between children who have finished their studies (censoring bias) and children who have left the household in order to receive education (sample selection bias). We will overcome the censoring bias by including children ages 5-15, after which an "on-track" child would finish his primary education but is no longer obligated to do so. We cannot account for sample selection bias, and this may slightly affect other variables.

With a particular focus on school fee elimination, Kadzamira (2003) observed that UPE strategies in Malawi did not account for the opportunity costs a family bears when a previously or potentially working child attends school. Further, increased enrollment without improved school infrastructure likely decreases the quality of education. Similarly, Deinenger's (2003) econometric analysis found that school fee elimination in Uganda increased enrollment rates and decreased education disparities for girls, rural, and poor children, but that the quality of education also declined. Per child expenses, a child's gender, and the mother and father's levels of education were significant indicators for predicting the likelihood of attendance in Deinenger's model.

Other studies that used regression analysis to determine the likelihood of school attendance guided our selection of explanatory variables. In a study that took place before the 2001 implementation of PEDP, Al-Samarrai (1998) determined that several household factors influence school attendance in Tanzania, particularly the parents' levels of education, the child's gender, and the husband and wife's relative decision making power. Controlling for school costs,

[3] School costs as a proportion of household expenditures were found to be the highest (47%) in Thailand. *Source: School Fees: A Roadblock to Education for All.*
[4] School Fees: A Roadblock to Education for All.

Lincove (2006) found that income is positively related to school attendance because of opportunity costs, particularly for girls. Even after the elimination of school fees in Lesotho, Urwick (2011) used focus groups along with regression analysis to show that success was highly regional, with the highlands faring much worse than the lowlands at increasing attendance. Our research will contribute to this analysis of determinants of school attendance under free primary education schemes, taking into account regional differences and household characteristics.

III. ANALYTICAL APPROACH

To address the research question, we compare primary school-age children (ages 5-15) who attend school with those who do not, focusing on the different schooling costs that households face. The binary outcome variable is school attendance in the past year (a child either attended or did not attend school). The primary explanatory variables that predict school attendance are other expenditures associated with education, such as book fees, uniform fees, meal costs, and transportation costs. The survey data we are using asked respondents to estimate each of these household expenditures on a per-child basis. Other key explanatory variables are household socioeconomic status (measured in consumption terms), child's gender, child's age, and whether the child works or not. Because Tanzania ranges from urban to agro pastoral, we introduce regional dummy variables to distinguish differences across geographic and cultural areas. We also examine enrollment and attendance outcomes for children ages 16-19 to determine how our results may differ for children past compulsory education age.

IV. DATA SOURCE AND DESCRIPTIVE ANALYSIS

This study uses cross-sectional household survey data from the World Bank's Living Standards Measurement Survey Tanzania 2008. It is a random clustered sample of all Tanzania. Because it is a multi-topic survey, it includes detailed information on our variables of interest as well as related issues, such as the household's composition, employment characteristics, and a wide

range of expenditure categories. Since the survey was given after the 2001 implementation of PEDP, the data will reflect attendance patterns that have persisted since then.

In order to initially explore these dynamics, we examined descriptive statistics for the key variables in the dataset. We included children ages 5-15, because although schooling is only mandatory from ages 7-15, children must begin school at age 5 to complete the entire primary education sequence. We excluded students who attended private, foreign-run, or charity schools from our sample as we are primarily interested in children who attend national, regional, or locally-run public schools affected by the government's education policies. Moreover, there are fewer than 20 observations of children that attend non-public schools and *don't* pay school fees, indicating that a child who attends private school has inherently different constraints than a child who chooses whether or not to attend public school.

Our remaining sample size consisted of 3,663 children. Due to missing responses on some variables, subsequent analyses may deviate from this base sample. In addition missing data issues, household survey data of this type poses a few interpretive challenges for this set of research questions. Several possible sources of error, including recall error, could compromise the precision of a household's reported consumption levels (Beegle, 2010). In addition, many children did not answer the survey for themselves, and parents may have an incentive to lie about children's attendance given that enrollment is mandatory.

Key Outcome Variable: Current School Attendance

When asked "Is [NAME] currently in school?" approximately 93% of primary school age children responded that they attend school. However, when we accounted for children who did not attend school but reportedly completed compulsory education before the age of 15, attendance rates were nearly 97%.[5] This proportion is nearly identical for boys and girls. About 85% of children ages 5-19 reported that they attend school.

We are aware that the compulsory nature of primary education may encourage over-reporting of this key outcome. As a result, we will examine the sensitivity of our results based on whether the parent is answering for the child or the child is answering for him or herself. The

[5] The LSMS asked *What is the highest grade [NAME] completed?* for children who did not attend school during the past two years. It asked *What grade was [NAME] attending last year?* for children who only currently did not attend school. Our first model excludes non-attendees who reported *completing* primary education while subsequent models for ages 5-15 exclude non-attendees who reported *attending* the highest primary school grade last year, though we cannot be certain that they successfully completed the grade.

table below shows the proportions of reported attendance, based on who was answering the question. The difference is significant at the 99% level.[6]

Table 1. Current School Attendance

	Current School Attendance		
	Attended	Did not attend	*n =3,663*
Answering for self	88%	12%	*1,695*
Not answering for self	97%	3%	*1,968*

This difference may also be attributable to the fact that older children are less likely to be in school, and also more likely to answer for themselves. The LSMS questionnaire notes that respondents "12+ should answer for themselves;" however, the range of ages in both categories suggests that this guideline was not strictly followed. We find that the average age of non-attendees who answer for themselves was 12.2 years, whereas the non-attendees who do not answer for themselves were 9.6 years on average.

Key Explanatory Variable: Per-Child Education Expenditures

Total education expenditures ranged from $0 to $1,178 USD, measured as household per-child expenditures in the past 12 months. We also calculated the mean and median school costs. As one would hope to find under Tanzania's free primary education policy, the median child did not spend any money on school fees or tuition. School uniforms constituted the highest expense by mean and median expenditure, despite high maximum values in other categories.

Table 2. Annual Educational Education Expenditures

Annual Education Expenditures, $USD				
	Mean	Std. Dev.	Median	Maximum[7]
Total Costs	27.54	1.02	15.46	1178.38
School Fees	1.54	.24	0	864.86
Books/Materials	5.52	.20	3.24	194.59
Uniforms	10.14	.29	8.11	129.73
Transportation	1.01	.20	0	389.19
Extra Tuition	3.83	.32	0	259.46
Other Contributions	3.55	.21	1.08	162.16
Meal Costs	1.95	.28	0	432.43

[6] Using an adjusted Wald test, the F score = 60.49.
[7] The minimum expenditure in all categories was $0, for attendees and non-attendees alike.

Interpreting these school expenditures is challenging because they are partially a function of whether and how frequently the child went to school. The survey data does not include detailed patterns of attendance so our analysis seeks to isolate the annual "price" of schooling faced by households. Of the 258 children in the primary age sample who did not attend school, school expenditures varied, and 126 had missing data. This is due to the survey's skip pattern, which does not ask about schooling expenditures for children who did not attend school in the previous two years. In order to determine the potential expenditures (or the likely price that each child would face) for these children, we imputed potential schooling expenditures for all respondents, basing predicted costs on child, household, and regional characteristics. We used these imputed costs as the key explanatory variable in our models of attendance decisions, although we are unable to adjust the standard errors to account for the use of predicted values. The regression model for these cost imputations is included in the *Appendix*.

Opportunity Costs

Another factor that families must consider when deciding whether to send a child to school is opportunity cost. The survey asked, "Did NAME do any work for pay, profit, barter or home use during the last 7 days?"

Table 3. School Attendance During Past Year

	School Attendance During Past Year		
	Attended	Did not attend	*n = 3,663*
Did not work	95%	5%	*3,315*
Worked	74%	26%	*348*

The difference in attendance for children who do and do not work is significant at the 99% level, indicating that opportunity costs of attending school for children who work are an important predictor of school attendance.[8] Our regression analysis shows that this varies with age.

[8] Using an adjusted Wald test, the F score = 38.74.

Household Factors

The LSMS did not include an aggregated household income variable. The World Bank's experience with living standards surveys led them to prefer consumption as an indicator of living standards (Deaton 2000). The LSMS asked respondents to estimate monthly expenditures for a list of common durable items, which we aggregated into total monthly expenditures. [9] The mean monthly consumption in this category was $154 USD, but consumption was skewed in the higher percentiles; monthly consumption at the 50th percentile is only $46 USD, but $147 at the 75th, and $669 USD at the 95th.

Other factors of interest are the parents' levels of education and the number of school-age children in the family. The mean number of school-age children in the family was 2.7, and as the number of children increased, the average per-child school expenditure decreased slightly. The correlation between a child's attendance and a mother's or father's education was low, but we include this variable at various points in our multivariate analysis. However, data on parents' education is relatively sparse, so including these variables restricts the sample, making it more appropriate for use in sensitivity analyses.

Regional Factors

Consistent with theoretical expectations, attendance patterns seemed to vary by region. Mean education expenditures did, as well—ranging from less than $12 USD per year in parts of Zanzibar to over $48 USD in Kilimanjaro, Arusha, and Kagera. In the large urban area of Dar es Salaam, mean expenditures were as high as $93 USD. We include regional fixed effects in our regression analysis in order to account for other region-specific characteristics that are not specified by the explanatory variables.

[9] Non-food expenditures include utilities, cleaning products, personal products, phones, rent or mortgages, and household and vehicle repair or maintenance costs.

V. MULTIVARIATE MODELS

We constructed a series of statistical models to investigate how the above factors influence school attendance. By using different samples and introducing sets of variables in groups, we tested the sensitivity of our analyses and accounted for the challenges of missing data.

Model 1: Simple logistic regression, children ages 5-15

In this model, we examined the key explanatory factors of school costs, sex, age, work status, number of children, household consumption, rural (versus urban) locality, and whether or not the child answered for him/herself. We examined the sensitivity of results by running slightly different samples: in (A) omitting 15-year-old non-attendees who reported having completed primary school; in (B) omitting 15-year-old non-attendees who reported having attended the highest primary school grade in the previous year; and in (C) adding the factor of parents' education. Marginal effects show the change in the predicted probability of attendance based on a one-unit change in the explanatory variable.

Model 1: C*hildren ages 5-15*

School Attendance	(A)	*Marginal Effects*	(B)	*marginal effects*	(C)	*marginal effects*
Predicted costs	0.00790**	.0001	0.00760*	.0001	-0.00532	-.00004
	(3.10)		(2.53)		(-1.10)	
Child's sex (male)	0.157	.0027	-0.0701	-.0012	-0.109	-.0009
	(0.87)		(-0.33)		(-0.26)	
Age	-0.690***	-.0130	-0.572***	-.0099	-0.388**	-.0031
	(-8.72)		(-7.27)		(-3.20)	
Child answering for self	0.194	.0033	0.180	.0029	-0.243	-.0022
	(1.02)		(0.84)		(-0.57)	
Child works	-1.379***	-.0528	-1.136***	-.0354	-2.062***	-.0519
	(-6.02)		(-4.10)		(-3.57)	
Number of children in household	0.0794	.0015	0.0950	.0016	0.121	.0010
	(1.32)		(1.46)		(1.28)	
Household consumption	-0.000389	-7.32e-06	-0.000359	-6.23e-06	-0.000895**	-7.15e-06
	(-1.51)		(-1.17)		(-2.72)	
Rural	0.710*	.0190	0.688*	.0169	0.267	.0024
	(2.53)		(2.05)		(0.54)	
Mother didn't finish primary school					0.798	.0044
					(0.93)	
Mother finished primary but not secondary					1.758*	.0369
					(2.34)	
Mother finished secondary or above					1.207	.0056
					(1.17)	
Father didn't finish primary school					-0.0790	-.0007
					(-0.10)	
Father finished primary but not secondary					-0.273	-.0019
					(-0.49)	
Father finished secondary					-0.242	.0022
					(-0.32)	
Constant	10.47***		9.228***		7.115***	
	(10.18)		(9.28)		(4.37)	
N	3619		3552		721	
F-statistic	15.37***		10.60***		4.55***	

t statistics in parentheses. Marginal effects calculated at the medians of the independent variables. The reference categories "mother's education unknown" and "father's education unknown" were omitted.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Because of the non-independent nature of clustered and stratified data, statisticians disagree about which goodness of fit test should be used. We ran F-statistic and goodness of fit tests, which resulted in nearly identical p-values. Pseudo R^2 tests were around 0.38 but are not recommended for these models. Hereafter, we will report only the F-statistic (see *Model 1*).[10]

Model 2: Simple logistic regression, children ages 5-19

To examine how the schooling decision changes after a child passes the compulsory age threshold, we introduced older children (through age 19) into Model 1—with and without parent's education. In a variation on this model we introduced child's grade as an explanatory factor. We tested both variations with and without regional fixed effects, which did not produce significantly different results.[11]

Model 3: Multinomial logistic regression with work/school decision, children ages 5-15

To further explore the decision process regarding schooling and work, we modeled these choices as outcomes using a multinomial logistic regression. Due to sample constraints, this model is relatively simple. We did not factor in regional effects, but we did include the explanatory factor of whether the child resided in an urban or rural area. Our base model is for the outcome that a child only attends school. Although this regression is a simplification of a complex decision process, it can indicate areas for further investigation.

VI. DISCUSSION OF FINDINGS

Direct Schooling Costs

These multivariate analyses suggest that additional school-related expenditures have little to no effect on the likelihood that a child attends school. The coefficients on this variable, while sometimes significant, were very small and even changed signs with some sensitivity analyses.

[10] In a similar model we introduced regional fixed effects to account for systematic geographic variations. We omitted likely primary school graduates, and due to collinearity problems, and parents' education. We found that regional fixed effects give a significantly different prediction of school attendance ($p<0.000$ using a paired t-test). In a variation on this model we introduced the child's grade as an explanatory variable. The regional significance holds for this variation.

[11] $p<0.786$ using a paired t-test.

Household consumption showed similarly weak effects. We ran the basic models using school expenditures as a proportion of household consumption, and results were similar.

Other Key Factors: Age, Grade, and Sex

As we found in our descriptive analysis, child's age was a significant factor in predicting attendance. Across models, older children were less likely than younger children to attend school—even within the age range for which schooling is compulsory. Models that included school grade showed that the likelihood of attending school increases until grade five and then decreases beginning with grade six. As expected, children beyond the highest primary grade are the least likely to attend school. While sex was generally not significant in predicting attendance, it became significant in the models that included older children, suggesting that a gender effect may emerge when schooling is voluntary rather than compulsory.

Model 2: Logistic regression, children ages 5-19

School Attendance	(A)	*marginal effects*	(B)	*marginal effects*
Predicted costs	0.00307*	0.0001	-0.00191	-0.0002
	(2.41)		(-0.65)	
Child's sex (Male)	0.358**	0.0134	0.461*	0.0308
	(3.23)		(2.09)	
Age	-0.538***	-0.0236	-0.478***	-0.0385
	(-14.77)		(-7.25)	
Child answering for self	-0.182	-0.0073	-0.361	-0.0251
	(-1.39)		(-1.30)	
Child works	-1.671***	-0.1578	-2.280***	-0.3983
	(-9.93)		(-7.40)	
Number of children in household	0.0710*	0.0031	0.160**	0.0129
	(2.08)		(2.94)	
Household consumption	-0.000262	0.0000	-0.0008***	-0.0001
	(-1.52)		(-3.46)	
Rural	0.316	0.0160	-0.00202	-0.0002
	(1.69)		(-0.01)	
Mother didn't finish primary school			0.408	0.0278
			(0.75)	
Mother finished primary but not secondary			0.980	0.1170
			(1.96)	
Mother finished secondary or above			1.439*	0.0660
			(2.18)	
Father didn't finish primary school			0.0753	0.0059
			(0.16)	
Father finished primary but not secondary			-0.587	-0.0373
			(-1.68)	
Father finished secondary or above			-0.140	-0.0120
			(-0.23)	
Constant	9.090***		8.138***	
	(17.20)		(8.28)	
N	4920		1161	
F-statistic	54.23***		16.16***	

t statistics in parentheses. Marginal effects calculated at the medians of the independent variables. The reference categories "mother's education unknown" and "father's education unknown" were omitted.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Model 3*: Multinomial logistic regression, children ages 5-15*

Multinomial Logistic	Relative Risk Ratios	Coefficients
Child goes to school and works		
Sex (male)	1.1245	0.117
		(0.94)
Child's age	1.0560	0.0545**
		(2.78)
Child answering for self	2.7146	0.999***
		(6.72)
Household consumption	0.9997	-0.000334
		(-1.49)
Rural	4.2828	1.455***
		(5.97)
Constant	0.0105	-4.554***
		(-13.37)
Child works, does not go to school		
Sex (male)	1.0252	0.0249
		(0.18)
Child's age	1.7695	0.571***
		(19.30)
Child answering for self	2.4558	0.898***
		(4.96)
Household consumption	1.0003	0.000336*
		(2.51)
Rural	2.4433	0.893***
		(4.99)
Constant	0.0000	-11.84***
		(-22.28)
Child does not work or go to school		
Sex (male)	0.6636	-0.410**
		(-3.15)
Child's age	1.5785	0.456***
		(18.72)
Child answering for self	1.4645	0.382*
		(2.57)
Household consumption	1.0000	-0.00000432
		(-0.03)
Rural	0.9019	-0.103
		(-0.74)
Constant	0.0002	-8.521***
		(-20.62)
N		4920
Pseudo R2		0.1999

t statistics in parentheses. Base outcome is "child goes to school only."
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Opportunity Costs of Working

Although direct costs do not appear to be as important as we hypothesized, the coefficient on the work variable was consistently negative and strong, suggesting that opportunity costs matter. We further examined this relationship using the LSMS question that asked, "Did [NAME] miss school in the past two weeks, and what was the reason?"

Twenty-three percent of respondents reported that they had missed school at least once during the past two weeks. When asked their reasons, regular school closure was the primary reason. Not surprisingly, illness was the second most frequent cause of absenteeism; further understanding a family's healthcare costs could illuminate potential effects on school costs. Still, when we look only at children who missed school for reasons other than planned school closures or public holidays, "child had to work" is a notable reason (n=245).

Table 4. Reasons for Missing School in the Past Two Weeks

Reasons for Missing School in the Past Two Weeks		
School Closed (in break)	70.2%	**Children who missed school for reasons other than Public Holiday or School Break**
Public Holiday	0.2%	
Illness—Child	12.1%	40%
Child had to work	**5.6%**	**19%**
Other	4.1%	13.8%
Child refused	2.9%	9.8%
Illness—HH Member	1.4%	4.7%
Cannot meet costs	**1.0%**	**3.5%**
School Closed (not in break)	1.0%	3.6%
Funeral	0.7%	2.4%
Absent Teacher	0.5%	1.6%
Disciplinary Action	0.3%	1.1%

Whether or not a child answered for himself was only significant in the multinomial model, and we cannot strongly conclude whether this affects the probability of school attendance. However, it may be the case that adults who over report a child's school attendance also under report the amount of work that a child does, but more detailed attendance patterns are necessary to determine this.

Location Effects: Region, Rural/Urban Characteristics

As previously discussed, models with and without regional fixed effects for children ages 5-15 predicted significantly different attendance. This was not true for models for children ages 5-19.

The multinomial model shows that children in rural areas are significantly more likely to attend school and work, or only work—relative to attending school only—compared to their urban counterparts. Unmeasured characteristics at the district level were also significant predictors of schooling costs.

VII. POLICY IMPLICATIONS AND CONCLUSION

Our results highlight several points that are relevant to the Tanzanian government's policy goals. First, and very basically, the LSMS results suggest that a very low percentage of school age children—much lower than other estimates—do not attend primary school. However, there is reason to believe this estimate is artificially inflated, especially given the challenges we have discussed with ensuring candor regarding nonattendance when school is compulsory. More detailed data on attendance patterns could better illuminate actual school attendance.

Second, the low effects of potential schooling expenditures, paired with the high effects of work status, suggest that the opportunity costs of schooling may be more significant than the direct costs. To continue to break down barriers to Universal Primary Education, policymakers should consider whether and how to introduce incentives to increase the value of staying in school relative to working, such as free meal plans or childcare services for children tending to younger siblings.

In addition to these specific implications for the Government of Tanzania, our findings are also relevant for international aid organizations that are committed to achieving the goal of UPE. Tanzania has a relatively rare set of policy and contextual factors, but our findings also contribute to discussions regarding the tractability of the broader goal of achieving UPE in largely agrarian developing countries.

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Appendix: *Linear regression to impute per child school costs*

Predicted Schooling Costs	Coefficients
Sex (male)	2.110
	(0.96)
Child's age	0.716
	(1.26)
Number of children	0.250
	(0.37)
Household consumption	0.0199***
	(5.10)
Rural	-16.88***
	(-5.32)
Grade level effects	*Not shown*
District effects	*Not shown*
Constant	33.66***
	(3.63)
R^2	0.3649
N	4335

t statistics in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Additional dummy variables were included, but not shown, in the interests of legibility. District variables were included for 126 districts, and most coefficients were statistically significant.

Variables for grade level were also included and all but three were significant at the p <5% level. Consistent with expectations, costs increase substantially into secondary schooling levels, as policies to eliminate schooling fees were limited to primary levels.

Grade levels for non-attendees were imputed based on the most likely grade, observed among attendees of the same age.