

Increasing Access by Waiving Tuition

Evidence from Haiti

Melissa A. Adelman

Peter A. Holland



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Abstract

Despite impressive gains in increasing access to school over the last twenty years, an estimated 57 million children worldwide do not go to school. Abolishing school fees has increased enrollment rates in several countries where enrollments were low and school fees were high. However, such policies may be less effective, or even have negative consequences, when supply-side responses are weak. This paper evaluates the school-level impacts of a tuition waiver program in Haiti, which provided public financing to non-public schools conditional on these schools not charging

tuition. The paper concludes that a school's participation in the program results in having more students enrolled, more staff, and slightly higher student-teacher ratios. The program also reduces grade repetition and the share of students who are over-age. While the increase in students at participating schools does not directly equate to a reduction in the number of children out of school, it does demonstrate strong demand from families for the program, and a correspondingly strong supply response from the non-public sector.

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INCREASING ACCESS BY WAIVING TUITION: EVIDENCE FROM HAITI*

Melissa A. Adelman
World Bank

Peter A. Holland
World Bank

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1. INTRODUCTION

Despite impressive gains over the last twenty years, the Millennium Development Goal (MDG) for 2015 of Universal Primary Education will be missed by a wide margin. It is estimated that in 2011, 57 million primary school age children were still not enrolled. While more than half of these children (nearly 30 million) live in Sub-Saharan Africa, there are nearly 3 million out of school children in the Latin America and Caribbean region (UNESCO 2013). Around 7% of these children live in Haiti, where tuition fees charged by a predominantly non-public sector have historically presented a large barrier to families wishing to send children to school.

Around the world, both the direct costs of going to school – tuition and other fees, uniforms, transport, books, etc.—as well as the opportunity costs, particularly in the form of lost labor for the household, remain barriers to achieving universal primary enrollment and completion. A range of interventions aimed at reducing these costs have been rolled out across regions, falling into roughly four categories: cash transfers to households; vouchers to households to facilitate school choice; providing goods or services that are required for school for free (e.g. uniforms or books); and abolishing enrollment, tuition, and other fees. While these approaches to stimulating demand for schooling may be effective, they may not result in increased enrollment, attendance, and ultimately learning if the supply-side response is inadequate. An outright absence of schools could make demand-side interventions ineffective for the most poorly served communities, while overcrowded classrooms, excessively high student-teacher ratios, and lack of materials could deteriorate the learning environment for all students and deter new students from entering. The literature on the impacts of each type of intervention continues to grow, but broadly speaking, the results are positive: enrollment and grade completion increase, but impacts on learning are often zero; see, for example, Fiszbein et al (2009) on conditional cash transfers (Krishnaratne, White, and Carpenter 2013).

A small but growing literature shows that several countries, particularly in Africa, have had success in increasing enrollment by abolishing school fees over the last two decades (World Bank and UNICEF 2009). Gross enrollment rates are estimated to have increased by 73 percent in Uganda, 100 percent in Malawi, and 12 percent in Mozambique shortly after each of these countries declared primary school to be free (Bategeka and Okurut 2005; Fiszbein et al 2009; Petrosino et al 2012). In Kenya, Lucas and Mbiti (2012) exploit pre-policy geographic variation in dropout rates to estimate the impacts of the 2003 abolition of primary school fees, concluding that the program increased access and completion rates, particularly among poorer

students (Lucas and Mbiti 2012). South Africa's experience was less successful, however, likely due to a context characterized by high enrollment rates and relatively low school fees (Borkum 2009).

In Haiti, over 90% of primary schools were non-public in the early 2000s, and the vast majority of these schools charged tuition. Coupled with the cost of mandatory uniforms, books, and other inputs, the direct costs of schooling were prohibitively high for many families. Estimates showed that average tuition in non-public schools was about \$80 per child per year in 2004, with the total average costs (direct and indirect, including uniforms, transportation, and feeding) of sending a child to school at about \$131/child per year (Merisier 2004; UNICEF 2006, as quoted in World Bank 2007). At a time when GNI per capita was estimated to be about \$400, non-public education was essentially unaffordable. In addition, financial constraints were also believed to be a leading cause of the problem of overage students in school, as parents may have had to cycle children in and out of school, depending on their cash flow. The average age of students in grade 6, for instance, was 16 years old according to the 2003 school census, when the corresponding age for that grade should be 11 or 12 years old.

Given the importance of schooling costs as a barrier to access and the large role of the non-public sector, a demand-side response in the form of a program to abolish school tuition fees was initiated in 2007. This paper estimates the impact of this program on school enrollments, student-teacher ratios, grade advancement, and other indicators at the school level. We believe that the results of this evaluation are of interest beyond Haiti, as key features of the Haitian system – low state capacity and weak public delivery of education services – are common to many low-income countries, while the rapid growth of non-public schools in many of these countries makes the Haitian case, with a large and vibrant non-public sector, increasingly relevant. Section 2 of this paper describes the Haitian context and the program itself; Section 3 describes the program randomization, data and estimation method, and results; and Section 4 concludes.

2. AN APPROACH TO INCREASING ACCESS: TUITION WAIVERS

In 2005, the primary net enrollment rate in Haiti was estimated to be about 50%, driven by large numbers of children out of school or over-age for their grade (e.g., in preschool rather than primary) (Cayemittes et al 2007). The contextual landscape in Haiti was unique: of all primary schools in the country, the 2002-2003 school census showed that more than 90 percent of them were non-public, accounting for more than 80 percent of enrolled students. If the country was to make progress toward the goal of universal primary education, it necessarily needed to work with these schools.

Non-public schools are a highly heterogeneous group. They include religious schools, community schools, schools started by non-government organizations (NGOs), and for-profit schools. The impetus for their creation varies. For some, the motivation was necessity: given the state's limited ability to provide services, especially in rural areas, community leaders often organized to respond to the latent demand within the community for schooling for their children. Others were driven by a sense of duty and a desire to serve the less fortunate. Others still were driven by motives of profit, and took a more entrepreneurial approach to school creation. Regardless of their motivation, nearly all types of non-public schools were unified in their need to cover costs such as paying teachers, which they did through collecting tuition fees.

In 2007, with financial and technical support from the World Bank and the Caribbean Development Bank (CDB),¹ the Government of Haiti launched a new program aimed to make education free for poor Haitian children. The program, called the *Programme de Subvention* (known as the “tuition waiver program”, or TWP, in English), provides an annual per-student payment to participating non-public schools that agree to not charge any form of tuition fees to students. The TWP was first rolled out in the Nippes and Artibonite departments in 2007.^{2,3} The primary objective of the TWP is to reduce families' financial barriers to sending children to school, and thereby increase the number of children coming to and staying in school. The theory of change behind the program is that if the costs of education are substantially reduced in non-public schools, this releases a binding demand-side constraint, enabling more parents to consistently send their children to school. The approach of focusing on non-public schools

¹ The program would later be financed by other donors as well, including the Canadian International Development Agency (CIDA), the Global Partnership for Education (GPE), and the Inter-American Development Bank (IDB).

² Departments are the first-level administrative division in Haiti. The country is divided into 10 departments.

³ The TWP is part of the *Stratégie Nationale D'Action/Education Pour Tous* (SNA-EPT)

was taken due to the public sector's limited size, and in order to exploit what was perceived to be existing excess capacity in non-public schools, where student-teacher ratios were believed to be relatively low because parents could not afford to consistently send children to school. In addition, in areas where schools were already full, it was expected that the tuition waiver incentive would trigger a supply response by private actors, encouraging them to build or expand non-public schools.

Participation in the TWP is subject to several conditions, aimed at improving the learning environment and grade-for-age accordancy. First, in order to qualify, schools need to have a permit to operate from the Ministry of Education. Second, only children entering grade 1 for the first time, between the ages of 6-8, are eligible for the subsidy.⁴ Each entering grade 1 cohort is then supported for the subsequent years through grade 6, subject to compliance with the program rules. Third, in addition to not charging parents any fees, schools are required to provide students with at least three school textbooks. Finally, there is a limit of 45 children per class, and a maximum of two classes per grade that can benefit from the program per school. Compliance with these conditions has been verified annually by independent organizations hired by the Ministry to do so. While the majority of schools have largely complied, the verification reports find that most fail to fully comply with at least one of the conditions. However, the Ministry has taken little to no action to enforce compliance (either by encouraging it or by sanctioning non-compliance).

The amount of the subsidy was set at \$90 per student in 2007, above the estimated average school tuition to account for the extra costs associated with providing textbooks and limiting class size. The subsidy amount has not changed since. Funds are managed by School Management Committees (SMCs), constituted by the school director, the president of the parents' committee, and representatives of teachers. Funds are transferred to dedicated bank accounts opened in the name of the SMCs, with signing authority given to both the school director and the president of the SMC. The money can be used for any of ten purposes outlined in the operational manual, including paying teacher salaries, small rehabilitation projects, and school feeding programs.

⁴ This is a potentially binding constraint in many cases, as the average age of a new 1st grader is nearly 8 years old (based on data from the 2012 DHS).

In order to target poor communities, the program relies on self-selection into participation by schools serving poor families. The level of the subsidy at \$90 per student is well below the level of tuition charged by those schools serving children in upper income quintiles, and as such those schools self-select out of the program. On the other hand, many schools serving poor children stood to benefit from participation, by potentially earning more per child through the program than through continuing to charge low levels of tuition.

3. MEASURING RESULTS

Initial Randomization, Identifying Schools Across Years, and School Survival

In the school year 2008-2009, due to a limited amount of program financing, the Ministry of Education and the World Bank agreed that only approximately 100 schools from each of the 5 newly participating departments in the country would be selected, among the 1,034 qualifying schools that applied.⁵ A total of 547 schools were selected to participate: 110 in Centre, 115 in Grand-Anse, 112 in Nord-Est, 111 in Nord-Ouest, and 99 in Nord. The randomization was conducted so that at least one school from each commune of each of the departments was represented in the sample, in order to favor rural areas and maximize the geographical distribution of the program.⁶ Education indicators have historically been worse in rural areas; for example, as of 2012, children living in rural areas are two percentage points less likely to be in school and 19 percentage points more likely to be over-age for their grade compared to children living in urban areas (World Bank 2014).

We identify the causal impacts of program participation on school-level characteristics through the national school census. The available census waves (2002-3 and 2011-12) provide information on school staffing and infrastructure, as well as the size of the student population.⁷ Because the schools were randomly selected when the program was expanded in the 2008-9 school year, causal estimates of the program's impacts on these measures can be made. A direct measure of the program's results in terms of its primary objective – increasing the number of

⁵ Centre, Grand-Anse, Nord-Est, Nord-Ouest, and Nord.

⁶ The geographic divisions of Haiti are department, arrondissement, commune, and section communale. There are 140 communes in the country.

⁷ The 2011-12 census was conducted less than two years after the January 20, 2010 earthquake. While the five departments studied here were not directly affected, population movement following the earthquake may have impacted the schools in the study. This is particularly true in Centre, the closest of the five departments to Ouest.

children in primary school – is not possible. Such a measure would require baseline and follow-up data on school enrollment in local communities where qualifying schools are located, and these data were not collected. In addition, the approach of selecting at least one school per commune to provide access to the program across a wider geographic area also ensures that program schools are not closely clustered, making it more difficult to measure effects on area enrollment rates.

In order to assess the success of randomization, and to estimate the causal impacts of the program on schools, the 1,034 qualifying schools that applied were identified first in the 2011-12 school census, and then matched back to their entries in the 2002-3 school census. Given the time lapse between the census waves and program rollout, the rapid turnover of non-public schools in Haiti, and the lack of census identifiers in the data collected from qualifying schools, only 64% of the schools were identified in the 2011-12 census.⁸ In the next step, 55% of these schools were then matched back to the 2002-3 census. In other words, 35% of the 1,034 qualifying schools are observed across the two census waves (Table 1).

Randomization was successful, as treatment and control schools were equally likely to be identified in the 2002-3 school census and had similar characteristics. Since baseline data were not collected in 2008, we use the 2002-3 school census data as a proxy for baseline, or pre-treatment, data. Following randomization in 2008, an initial test for balance was conducted, in which 64% of treatment and 68% of control schools were successfully identified in the 2002-3 school census. These results, presented in the Appendix, also found that treatment and control groups were observationally equivalent, suggesting that randomization was successful.

Treatment schools appear more likely than control schools to have remained open through the 2011-12 school year. As shown in Table 1, schools participating in the TWP were much more likely than control schools to be identified in the 2011-12 census. 408 of the 539 (76%) participating schools were identified, compared to 244 of the 485 (50%) control schools. However, we cannot say with certainty that the schools not identified in the census had closed down. In Haiti, non-public schools can often change names or move locations. Without unique identifiers, tracking schools over time becomes very difficult, and even small changes in name

⁸ Identification is done manually using commune, school name, and school address. Spelling variations and slight differences in information recorded in the TWP application data and across census years required that each school be manually identified in the 2011-12 census and then matched back to the 2002-3 census.

and street address can cause them to fall out of the sample. There are two factors that may account for the different degrees of success in identifying treatment and control schools in the 2011-12 census. First, having received consistent financing for several years, and knowing that they could count on continued transfers through the TWP for the next few years, participating schools may have been more likely to remain open, in the same location and with the same “branding”, than control schools. Second, because treatment schools had more contact with the Ministry of Education through the TWP, they may have been more readily locatable when it came time to conduct the census. However, because the TWP and census are run by separate departments within the Ministry and one has no implications for the other (for example, no data from the census is used for the TWP), this seems unlikely to be an important factor.

Table 1: School sample and identification rates

	Number of qualifying applicant schools in 2008		% identified in 2011-12 school census		% matched to 2002-3 school census	
	<u>Treatment</u>	<u>Control</u>	<u>Treatment</u>	<u>Control</u>	<u>Treatment</u>	<u>Control</u>
Nord	99	114	84%	66%	55%	56%
Nord Est	107	139	76%	28%	56%	33%
Centre	110	59	65%	53%	44%	74%
Grand Anse	113	58	80%	55%	49%	44%
Nord Ouest	110	115	75%	58%	63%	69%
Total	539	485	76%	50%	53%	57%

The low rates of school identification in both census waves are likely driven by both random and non-random attrition. The lack of consistent school identifiers and the poor quality of the school census data contribute to the limited number of schools matched, and these issues are believed to impact treatment and control schools equally. As discussed above, treatment also impacts attrition – there is a 26 percentage point difference in the identification rate between the treatment and control schools with the 2011-12 census. This differential survival may have implications for the measures of the program’s impact on school characteristics – as in all randomized experiments, attrition that is correlated with the treatment can bias impact estimates. In this context, survival depends in large part on a school’s ability to attract students and operate in a financially sustainable manner. If attriting schools are those that would have had the fewest students, then the impact estimates may be understated.

Using the 2002-3 school census, a test for balance between the treatment and control schools that are identified in both census waves also suggests that even after selection (only non-attritors are observed) the groups appear observationally equivalent prior to the program.

Schools are compared across five key types of characteristics: scope (levels taught and number of shifts); infrastructure (building materials, water, latrines, etc.); physical materials (desks, chairs, blackboards, etc.); staffing; and students (number, gender, and repetition rates). As shown in Table 2, treatment schools were founded earlier than control schools on average, and have slightly more students in grades 5-6 (the final two grades of primary school). Along all other dimensions, treatment and control schools observed in both waves of the school census (and therefore having survived from 2002-3 through 2011-12) were observationally equivalent in 2002-3.

Table 2: Comparison of treatment and control groups

	Mean values observed in 2003		
	Treatment 1981	Control 1986	P-value
School founding year			0.004**
<u>Scope</u>			
Number of school levels taught	2.1	2.1	0.698
Number of shifts	1.0	1.1	0.177
<u>Infrastructure</u> index	-0.04	-0.09	0.147
<u>Materials</u> index	-0.03	-0.06	0.445
<u>Staffing</u>			
Number of staff	6.35	5.93	0.215
Share of male teachers	0.69	0.73	0.154
Student-teacher ratio	35	37	0.422
<u>Students</u>			
Total number of students	198	186	0.382
Grades 1-4: total number of students	152	148	0.713
Grades 1-4: number of female students	71	73	0.711
Grades 1-4: number of male students	81	75	0.351
Grades 5-6: total number of students	47	38	0.083*
Grades 5-6: number of female students	22	19	0.156
Grades 5-6: number of male students	24	19	0.059*
Percent repeaters grades 1-6	0.15	0.14	0.761
<i>Number of observations</i>	354		

Notes: Following Kling, Leibman, and Katz 2007, the infrastructure and materials indices are the equally weighted average z-scores of each component, where more beneficial outcomes have higher scores. The infrastructure index includes measures of a sports field, library, director's office, recreation area, kitchen, latrines, water, electricity, roof, wall, and floor materials. The materials index includes measures of desks, chairs, and blackboards.

Source: World Bank staff estimates using Haiti national school census 2002-2003

Results: Changes in School Characteristics

To estimate the effects of the program on participating schools, we compare characteristics of treatment and control schools using the 2011-12 school census. Under the assumption that randomization was successful, the causal impact of the program on school characteristics can be estimated from a simple OLS regression of the following form:

$$Y_s = \alpha + \beta T + X_s + \epsilon_s$$

Where Y_s is the outcome of school s as measured in the 2011-12 census, T indicates assignment to the treatment group, and X_s indicates the commune in which school s is located, in order to account for the fact that the probability of selection into the program differed across communes (Duflo, Glennerster, and Kremer 2006). Results are presented in Table 3.⁹

The TWP permits a fairly wide range of potential uses of the subsidies, so directors of treatment schools could have invested in improving existing infrastructure, expansion, staffing, furnishings, learning materials, and so forth. Our results are limited, however, to the data available in the school census on the five areas of school characteristics measured in the census: scope (levels taught and number of shifts); infrastructure (building materials, water, latrines, etc.); physical materials (desks, chairs, blackboards, etc.); staffing; and students (number, gender, and repetition rates).

Table 3: Estimated impacts of treatment

Impacts of TWP observed in 2011-12 school year

⁹ Results run on the 652 schools matched only to the 2011-12 school census (rather than to both 2002-3 and 2011-12) are very similar to those presented in Table 3.

	Beta hat	Standard error
<u>Scope</u>		
Number of school levels taught	-0.01	0.04
Number of shifts	-0.01	0.01
<u>Infrastructure</u> index	0.05	0.05
<u>Materials</u> index	0.09*	0.05
<u>Staffing</u>		
Number of staff	0.93**	0.38
Share of male teachers	-0.42	2.28
<u>Students</u>		
Student-teacher ratio	8.3***	1.68
Total number of students	84***	14.53
Grades 1-4: total number of students	88***	11.66
Grades 1-4: number of female students	41***	6.14
Grades 1-4: number of male students	47***	5.92
Grades 5-6: total number of students	1	4.71
Grades 5-6: number of female students	0	2.74
Grades 5-6: number of male students	1	2.30
Percent repeaters grades 1-6	-0.10***	0.02
Percent overage grades 1-4	-0.09***	0.03
Percent girls overage grades 1-4	-0.10***	0.03
Percent boys overage grades 1-4	-0.09***	0.03
Percent overage grades 5-6	-0.06*	0.03
Percent girls overage grades 5-6	-0.07**	0.03
Percent boys overage grades 5-6	-0.06*	0.03
<i>Number of observations</i>	354	

Notes: Following Kling, Leibman, and Katz 2007, the infrastructure and materials indices are the equally weighted average z-scores of each component, where more beneficial outcomes have higher scores. The infrastructure index includes measures of a sports field, library, director's office, recreation area, kitchen, latrines, water, electricity, roof, wall, and floor materials. The materials index includes measures of desks, chairs, and blackboards.

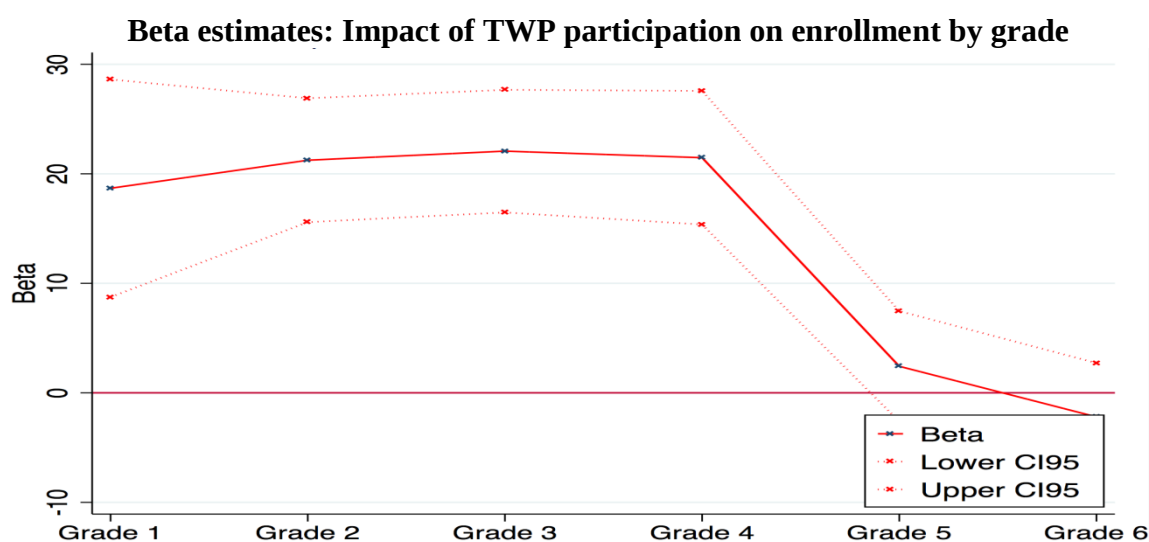
Source: World Bank staff estimates using Haiti national school census 20011-12

Across departments, treatment schools did not change the number of shifts offered, nor did they change the levels of school taught. The majority of treatment and control schools teach one shift per day, and offer preschool and primary. In terms of infrastructure and physical materials, treatment does not appear to have substantial effects: both coefficients are positive, but only the materials index is marginally significant. The number of staff did increase by nearly 1 person on average in treatment schools.

The number of students, male and female, in 2011-12 is substantially higher in treatment compared to control schools. Notably, this increase is limited to grades one to four, which correspond to the four cohorts funded by the TWP from 2008 through 2011, and no increase is observed in higher grades which were not yet funded by the program, which had only been running for four years (Figure 1). Across departments, treatment schools have on average 88 more students in grades one to four compared to control schools. This large and significant increase indicates the strong demand from families for education at lower cost. However, we do not know what share of the additional students came from other schools (including control schools) and what share had not been in school previously. In other words, a simple

comparison of the student population between treatment and control schools as an estimate of the program's impact on the number of children in school could be misleading, as the Stable Unit Treatment Value (SUTVA) assumption is violated: the participation of some schools in the TWP almost certainly affects the student population at control schools (Angrist, Imbens, and Rubin 1996).

Figure 1



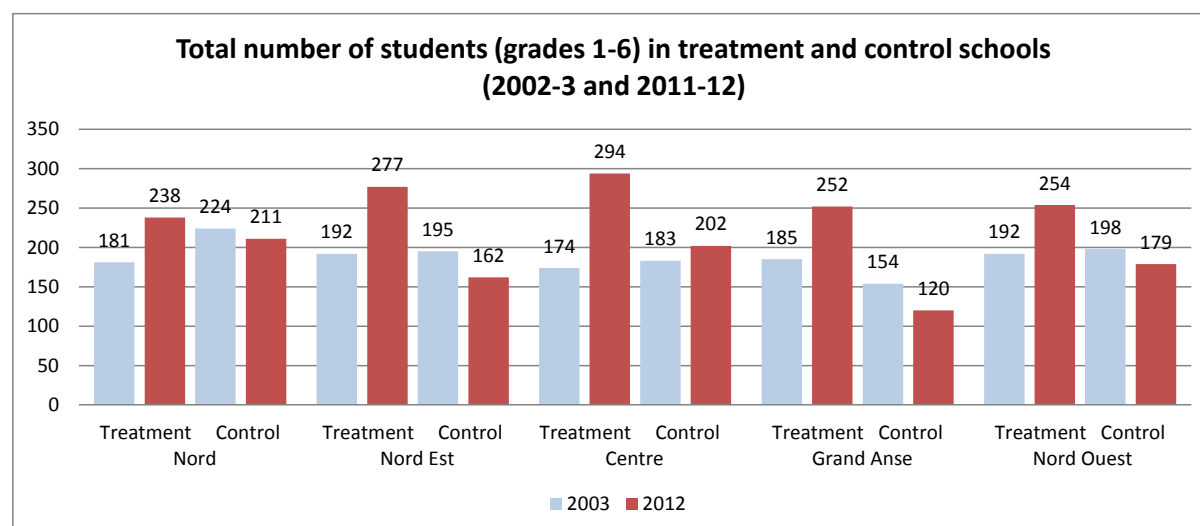
Source: World Bank staff estimates based on 2002-3 and 2011-12 Haiti school census.

Figure 2 shows that between 2002-3 and 2011-12, the average number of students grew substantially in treatment schools while declining slightly in control schools across departments. Overall, the growth in treatment school student populations is larger than in control schools. Treatment schools gained an average of 78 students, while control schools lost 16 students. However, a share of the control schools not identified in the 2011-12 census may have closed down due to competition from treatment schools. Because treatment schools were geographically dispersed by design (with one per commune), 95% of control schools were located in the same commune as at least one treatment school. Communes (the second-largest administrative level) are fairly large, and even the least populated communes have over 12 primary schools. Therefore it is not possible to conclude whether or not the program impacted overall enrollment.¹⁰ It is worth noting, however, that at the national level, the net enrollment rate at the primary level increased from 50-60% in the early 2000s before the program to 70-

¹⁰ In order to assess the impact of treatment schools on control schools' survival, more geographically disaggregated data at the time of program randomization would be needed.

80% in 2012 (based on data from the ECVH (*Enquete sur les Conditions de Vie en Haiti*) 2001; DHS 2005; DHS 2012; ECVMAS 2012).¹¹

Figure 2



Source: World Bank staff estimates based on 2002-3 and 2011-12 Haiti school census.

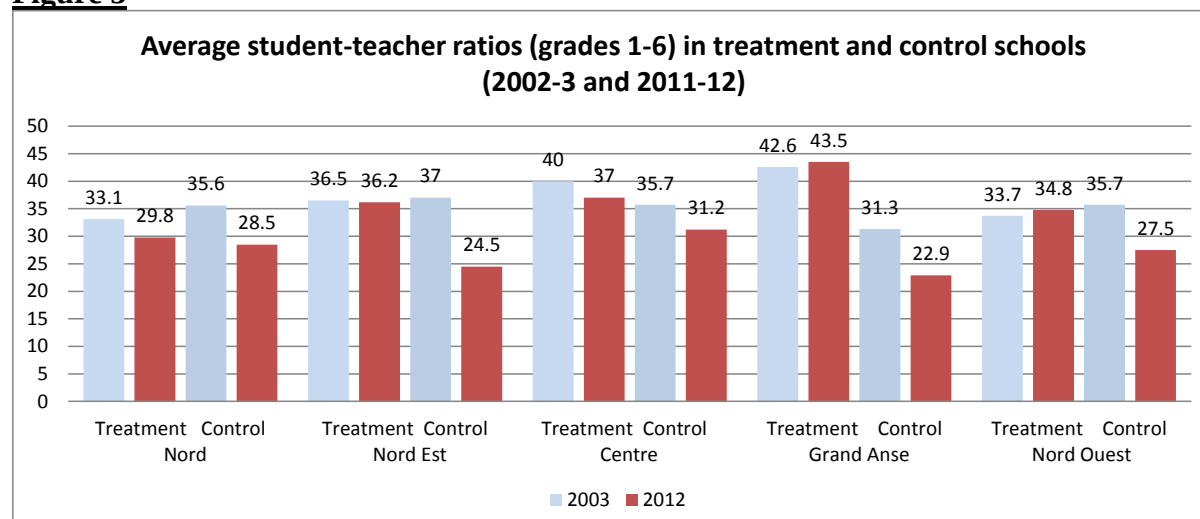
Encouragingly, the percentage of primary students 2 or more years over age for their grade fell by 10 percentage points in the treatment group. This seems to be driven in part by lower repetition rates across grades, and these effects are similar for boys and girls. These impacts may be directly caused by the fact that the program only funds students within 2 years of the prescribed age for grade. However, given that effects are also seen in grades 5 and 6, not yet funded by the program, it is possible that participation affects repetition rates through other channels. For example, families may be better able to finance the education of older siblings when younger siblings are covered by the program, allowing them to stay in school more consistently and not have to repeat grades.

Finally, given the large increases in student numbers, the student-teacher ratio increased by 8 on average; the average ratios remain under 40 in treatment schools across four of the five departments, well below the limit of 45 students per class mandated by the program (Figure 3). This increase in ratios may be a cause for concern, as the results of well-identified research, using natural experiments or randomization, suggest that class size differences of this

¹¹ The 2001 ECVH measured net primary enrollment at 60%; the 2005 DHS at 50%; the 2012 DHS at 77%; and the 2012 ECVMAS at 72% (IHSI 2003; Cayemittes et al 2007; Cayemittes et al 2012; World Bank 2014). Differences in these measures are due to both the fact that they are sample surveys and that each was conducted in different months and years.

magnitude can affect student learning and long-term outcomes (Angrist and Lavy 1999; Krueger 1999; Hoxby 2000; and Chingos 2010). However, most of this research comes from middle and high-income countries, and less is known about the relative importance of class size for learning outcomes in low-income country settings.

Figure 3



Source: World Bank staff estimates based on 2002-3 and 2011-12 Haiti school census.

4. CONCLUSIONS

This paper has sought to evaluate an important program for increasing primary school access in the context of low state capacity, both to inform future policy development in Haiti and to share lessons with those countries that still have large numbers of children outside the education system. We conclude that a school's participation in the TWP results in having more students enrolled, more staff, and higher student-teacher ratios (still under 40 students per teacher). The program also reduces grade repetition and the share of students who are over-age. While the increase in students at treatment schools does not directly equate to a reduction in the number of children out of school, it does demonstrate strong demand from families for the program. This demand has also been evidenced by the results of focus groups conducted by program verification firms with parents of students attending treatment schools. These parents report that the TWP has significantly reduced the financial burden of educating their children and their concerns about how to keep their children in school (FPN (*Fondation de Parrainage National*) 2013 and FONHEP (*Fondation Haitienne de l'Enseignement Prive*) 2013).

The program therefore seems to be achieving its objective of reducing the financial barriers to primary education faced by families in Haiti and may be supporting higher enrollment rates. Despite the program's estimated effectiveness, many operational aspects of the program have

faced challenges, and, if improved, could further increase the effectiveness of the program.¹² At the same time, abolishing fees cannot address the full set of financial barriers that keep children out of school in Haiti. The costs of uniforms, books, and transport are substantial, as are the opportunity costs for many households, who rely on children for domestic work or other labor. Addressing these issues requires more comprehensive social programs, such as the cash transfer schemes that exist in many Latin American countries (UNDG 2010). Moving beyond access to learning outcomes will require greater investment, both in terms of the waiver value, program conditionalities, and enforcement.

The cost effectiveness and financial sustainability of the TWP are additional important aspects to consider. If the net increase in student enrollment observed between treatment and control schools is assumed to be students who otherwise would not have been in school (an admittedly best-case scenario), and all other students are assumed to stay in school regardless of the program, \$100 in waiver value results in an additional 0.25 years of student participation, in line with several other interventions such as merit scholarships in Kenya (Dhaliwal et al 2012; Evans and Popova 2014).¹³ However, this rough back-of-the-envelope calculation does not account for the program's administrative costs on one hand, nor the impact of the program on temporary and permanent dropout on the other. At a broader level, there is strong economic motivation for public financing of primary education as a public good, and this approach (public financing of private providers) may be more cost-effective and quicker than expanding public supply in Haiti. Reliable data on the costs of educating primary students in the public sector are not available, but building new public schools, a priority after the earthquake, has moved slowly and at high cost, and many costly inefficiencies exist in the public system (Haiti Ministry of Finance 2012).

There are also implications for policy to increase access further afield. Many countries with high numbers of out-of-school children have conditions similar to Haiti: the state's ability to provide services is low (either because of weak capacity or because of a lack of authority over parts of their territory), and they face instability, due to politics, climate change, or both. For

¹² See, for example, a recent evaluation funded by the Inter-American Development Bank (Forstmann and Cuenin 2014)

¹³ Treatment schools gained an average of 78 primary students while control schools lost an average of 16, for a net gain of 62 (assuming no schools closed because of competition from the program). The estimate provided in the text assumes that all primary students in a treatment school (an average of 270 during treatment) must be provided a waiver in order to observe the net gain.

example, UNESCO estimates that half of those out of school are living in conflict-affected countries. In these situations, non-public actors are often crucial to service delivery, and the government's role may be limited to financing the service, and establishing and enforcing the governing mechanisms. The success of the Haitian program despite many implementation challenges supports the idea that public financing of non-public provision of services is a viable and promising approach for reaching those children still outside of the system. This bodes well for getting more kids in school, on time, and through to completion. This is certainly not enough for transforming education in countries like Haiti, but it is a necessary start.

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APPENDIX

Analysis of tuition waiver program assignment randomization

7/22/11

The World Bank tuition waiver program expanded to five new départements in the 2008-2009 school year: Centre, Grand-Anse, Nord-Est, Nord-Ouest, and Nord. Lists were created in each département including schools that were interested in participation and met the criteria of being non-public and having some level of Ministry of Education recognition. Tuition waiver recipient schools were then randomly selected from each province's list.

In order to confirm that randomization had resulted in groups of schools that were equal in expectation at baseline, we compared selected and non-selected schools in the 2002 national school census, which was the most recent year available. Given the time lapse between 2002 and the initial list development in 2008, the rapid turnover of private schools in Haiti, and the fact that the 2008 school lists did not include census identifiers, not all 2008 schools were present or identifiable in the 2002 census. Percentages of applicant schools identified in the 2002 census are as follows: 61% in Centre, 64% in Grand-Anse, 59% in Nord-Est, 78% in Nord-Ouest, and 64% in Nord. Overall, 64% of selected schools were identified, and 68% of non-selected schools were identified.

Next we compared the identified selected and non-selected schools within départements on 19 variables in the 2002 school census, using chi-square tests and t-tests as appropriate. Across the 95 individual statistical tests, just five within-department comparisons showed statistically significant differences (see boxed comparisons in the tables below). The five differences were all on different variables. The total number of statistically significant differences represent approximately 5% of all tests conducted, which would be expected. Therefore, the within-département randomization appears to have been correctly done, producing groups of schools that were equivalent in 2002.

Future evaluation work comparing selected and non-selected schools will focus on school size, and it is therefore important to note that there were no statistically significant differences between selected and non-selected schools in the number of children enrolled in first grade, overall or by gender.

Tables: Comparing selected schools to non-selected applicant schools in the 2002 census

CENTRE

Variable	Non-selected Schools (mean or percentage)	Selected Schools (mean or percentage)	p-value (chi ² or t-test)
Electricity	85%	84%	0.887
Toilet	90%	83%	0.362
Courtyard	14%	21%	0.411
Desks	2.00	2.29	0.615
Desks-good cond.	1.18	2.21	0.057
Chairs	4.53	4.25	0.660
Chairs-good cond.	3.24	3.60	0.580
Kitchen	70%	75%	0.659
Library	90%	95%	0.369

License	7%	3%	0.396
Year founded	1982	1986	0.265
Management cmtee	49%	63%	0.142
Parent cmtee	72%	85%	0.109
Any committee	74%	88%	0.067
Urban	23%	18%	0.541
Private	84%	87%	0.676
1 st grade enrollment	48.49	44.10	0.592
1 st grade boys	23.65	22.00	0.692
1 st grade girls	24.84	22.10	0.515

GRAND-ANSE

Variable	Non-selected Schools (mean or percentage)	Selected Schools (mean or percentage)	p-value (chi ² or t-test)
Electricity	92%	89%	0.637
Toilet	97%	96%	0.791
Courtyard	33%	52%	0.065
Desks	2.81	2.21	0.288
Desks-good cond.	2.35	1.39	0.112
Chairs	5.42	4.53	0.228
Chairs-good cond.	3.77	3.61	0.806
Kitchen	90%	88%	0.817
Library	94%	90%	0.449
License	6%	4%	0.734
Year founded	1982	1988	0.022
Management cmtee	64%	49%	0.151
Parent cmtee	75%	70%	0.576
Any committee	81%	78%	0.766
Urban	31%	30%	0.964
Private	97%	99%	0.606
1 st grade enrollment	52.61	45.07	0.381
1 st grade boys	27.69	24.12	0.398
1 st grade girls	24.92	20.95	0.380

NORD-EST

Variable	Non-selected Schools (mean or percentage)	Selected Schools (mean or percentage)	p-value (chi ² or t-test)
Electricity	83%	82%	0.946
Toilet	74%	88%	0.031
Courtyard	14%	14%	0.921
Desks	3.90	3.04	0.207
Desks-good cond.	2.82	2.56	0.692
Chairs	5.58	5.43	0.793
Chairs-good cond.	4.50	4.79	0.656
Kitchen	51	57%	0.493
Library	83%	89%	0.271

License	5.48	4.00	0.672
Year founded	1986	1988	0.241
Management cmtee	78%	85%	0.253
Parent cmtee	92%	93%	0.719
Any committee	92%	95%	0.484
Urban	53%	59%	0.521
Private	99%	100%	0.309
1 st grade enrollment	47.77	45.16	0.606
1 st grade boys	24.49	23.12	0.618
1 st grade girls	23.27	22.04	0.621

NORD-OUEST

Variable	Non-selected Schools (mean or percentage)	Selected Schools (mean or percentage)	p-value (chi ² or t-test)
Electricity	84%	88%	0.420
Toilet	87%	91%	0.450
Courtyard	10%	14%	0.371
Desks	3.05	3.19	0.787
Desks-good cond.	2.07	2.39	0.467
Chairs	6.07	5.45	0.191
Chairs-good cond.	5.00	4.28	0.145
Kitchen	59%	62%	0.724
Library	79%	90%	0.048
License	5%	10%	0.273
Year founded	1982	1983	0.407
Management cmtee	87%	89%	0.691
Parent cmtee	83%	88%	0.349
Any committee	93%	99%	0.046
Urban	22%	30%	0.242
Private	100%	100%	n/a
1 st grade enrollment	50.41	48.08	0.613
1 st grade boys	25.69	25.11	0.809
1 st grade girls	24.72	22.98	0.450

NORD

Variable	Non-selected Schools (mean or percentage)	Selected Schools (mean or percentage)	p-value (chi ² or t-test)
Electricity	67%	69%	0.767
Toilet	68%	77%	0.247
Courtyard	19	38%	0.013
Desks	4.40	3.61	0.230
Desks-good cond.	3.34	2.90	0.498
Chairs	6.19	5.89	0.636
Chairs-good cond.	5.40	4.86	0.438
Kitchen	51%	49%	0.855
Library	85%	87%	0.709

License	10%	4%	0.163
Year founded	1982	1983	0.726
Management cmtee	70%	75%	0.552
Parent cmtee	69%	77%	0.326
Any committee	81%	88%	0.346
Urban	46%	45%	0.905
Private	99%	100%	0.404
1 st grade enrollment	45.73	51.05	0.478
1 st grade boys	24.62	25.96	0.753
1 st grade girls	21.11	25.09	0.276
