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Eliminating School Fees in Low Income Countries: A Systematic Review

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Background: Low educational attainment in the developing world can be attributed in part to the private costs associated with sending children to public school. School fee abolition policies are supported by many development organizations and aid agencies and have been spurred worldwide by initiatives such as Education for All, the Millennium Development Goals, and the School Fee Abolition Initiative.

Purpose: We conducted a systematic review to identify and synthesize the available evidence to respond to the question, *What is the evidence of the impact of the elimination of school fees in low-income developing countries?*

Setting: Studies included in the review evaluated interventions implemented in low-income countries.

Intervention: Eligible studies had to meet the following criteria: the evaluation took place in a low-income developing nation as defined by the World Bank at the time of the intervention; the evaluation assessed the impact of eliminating primary or secondary public or private school fees. With the intent to conduct meta-analysis, we focused on identifying randomized controlled trials (RCT) or quasi-experimental (QED) evaluations with some evidence that the groups being compared are equivalent.

Research Design: Systematic review; narrative synthesis

Data Collection and Analysis: We identified eligible experimental and quasi-experimental studies through extensive searching, including hand searches, examining grey literature, and contacting experts in the field. Outcomes coded included impacts on primary and secondary school enrollment, gender parity in enrollment, dropout, achievement, and educational quality indicators. Although we intended to quantitatively synthesize the results from the impact evaluations in a meta-analysis, given the small number of studies that met our inclusion criteria and the variation among the studies, we elected to provide the results in a narrative fashion.

Findings: The findings of this systematic review highlight the need for more rigorous and longitudinal empirical research regarding the effects of various types of school fee elimination policies in low-income developing nations—particularly on the effectiveness of targeting policies to the most vulnerable groups, effects on education quality, and the extent to which fee abolition policies can be sustainable.

Keywords: *school fees; universal primary education; fee abolition; low-income country*

Low educational attainment in the developing world can be attributed in part to the private costs associated with sending children to public school (e.g., Bentaouet-Kattan & Burnett, 2004; Filmer & Pritchett, 1998). These household costs include lost work opportunities for children who attend school as well as direct costs in the form of school fees. The literature firmly establishes that school user fees inhibit school enrollment and persistence in low-income countries (Bentaouet-Kattan, 2006). Such fees are common in the developing world and represent a percentage of all primary education costs ranging from 8 percent in Indonesia to 80 percent in Cambodia (Bentaouet-Kattan & Burnett, 2004). However, precise information on the types and extent of user fees, which are often unofficially assessed and sporadically reported, is difficult to obtain. Eighty-three percent of World Bank client countries surveyed in 2005 assessed user fees (Bentaouet-Kattan, 2006). These costs, which include fees for books and uniforms, community and PTA (parent-teacher association) contributions, exam fees and tuition represent a large percentage of total household spending and are particularly burdensome for those families that face tough choices about which children to send to school and for how long (World Bank, 2009a). In addition, the World Bank survey found school fees to be a significant barrier to the transition of students from primary to secondary school, as secondary school fees are more prevalent and substantial than those assessed at the primary levels. However, the survey also identified a growing trend toward the elimination of school fees. For example, between 1994 and 1999, only three countries had implemented this policy, while between 2001 and 2005, 13 countries abolished school fees (at least in official policy).

School fees abolition policies are supported by many development organizations and aid agencies and have been spurred worldwide by initiatives such as Education for All, the Millennium Development Goals, and the School Fee Abolition Initiative. Promises to abolish school fees are often politically motivated and featured in election campaigns, and/or may be part of a wider policy reform, often including educational decentralization (e.g., Kremer, Moulin, & Namunyu, 2003; Maikish, 2010). School fees may be abolished through a "big bang" approach, officially eliminating tuition fees (although other user fees often continue to be assessed at the school/community level), through a phasing-in approach by region or grade/age level, or through targeted exemptions aimed at vulnerable groups.

Several countries have experienced large increases in enrollment after abolishing school tuition fees. For example, in Kenya, primary school enrollments increased from 5.9 million in 2002 to 7.12 million in 2004; Timor Leste saw a 9.5 percent increase between 1999 and 2001 (Bentaouet-Kattan, 2006). In the year following "big-bang" fees abolition, Malawi and Uganda experienced enrollment increases of 51 and 68 percent respectively (World Bank, 2009b). Tanzania saw a 33 percent increase using a phased-in approach (Bentaouet-Kattan, 2006). Access to education by the poor and by other vulnerable groups, such as girls and orphans, has increased in some school fees elimination cases (e.g., Grogan, 2009; Nicola, 2010). However, rapid surges in enrollment can result in decreased educational quality. The extent to which this is the case may depend upon the extent of planning prior to fee elimination and the strategies put in place to cope with the surge in enrollment. For example, Ghana used a combination of measures, including training additional teachers and ensuring the provision of additional textbooks, and saw marked improvement in test scores (World Bank, 2009b). In Malawi, on the other hand, massive growth in enrollment outstripped resources and led to a serious decline in school quality (World Bank, 2009b).

Although surges in enrollment following the abolition of school fees in many developing countries have been demonstrated, as described above, relying on gross or net enrollment data provides a very limited picture of the impact of this policy. We conducted a systematic review to identify and synthesize the available evidence on the impact of interventions in low-income developing countries that eliminated school user fees paid by households. Outcomes coded include impacts on primary and secondary school enrollment, gender parity in enrollment, dropout, achievement and educational quality indicators.

Conceptual Framework

Costs, benefits, social norms, and household characteristics all affect enrollment decisions. Households' schooling choices depend in large part on the costs and the perceived value of education. Besides the direct costs associated with schooling (e.g., tuition, books, uniforms), households may value present contributions through child labor and other household contributions (e.g. preparing food; tending animals/family members) more highly than the child's future earnings. And future earning

potential may not be perceived to be significantly increased by education attainment, perhaps due to lack of information, limited social mobility, or unavailable job markets.

The review's conceptual framework is informed by demand-side economics of education financing, which establishes the negative price elasticity of demand for children's education (i.e., a change in price has a large impact on demand) in poor households in low-income countries (e.g., Birdsall & Orivel 1996; Gertler & Glewwe, 1990). Although school fees can remove supply-side limitations, they exclude those households most unwilling or unable to pay the fees, due to demand-side constraints mentioned above such as opportunity costs of lost child labor, household contributions of children, low expectations by parents of returns to investing in education for their children, unavailable credit markets for financing education, and social norms that discourage school participation (Hillman & Jenker, 2002). Simply put, the review identifies and codes studies that test the hypothesis that reducing/eliminating user fees through free universal education policies, targeted tuition elimination, or providing free uniforms will increase demand for education, as demonstrated by increased enrollment and persistence, as well as decreased dropout.

Moderators affecting the impact of a fee elimination scheme may include targeting of interventions, educational quality, school availability, cultural norms, gender, poverty level, and perceived returns to education/opportunity costs. Longitudinal studies can shed light on whether initial impacts are sustained over time.

Methods

Through extensive searching, including electronic keyword searches of a number of bibliographic databases, hand searches of relevant journals, examinations of online holdings of international development organizations and research firms, citation chasing, examining grey literature, and contacting experts in the field, we identified studies that responded to the following question: *What is the evidence of the impact of the elimination of school fees in low-income developing countries?* Eligible studies had to meet the following criteria: the evaluation took place in a low-income developing nation as defined by the World Bank at the time of the intervention; the evaluation assessed the impact of eliminating primary or secondary public or private school fees. We focused on identifying randomized controlled trials (RCT) or quasi-experimental (QED) evaluations with some evidence that the groups being compared are equivalent.

Each RCT or QED located in the search that appeared to be a possibility for inclusion was carefully reviewed by two authors and a structured abstract was prepared for each study, detailing the context, methodology, and findings. For each study deemed eligible for inclusion following this screening process, a coding instrument was completed. The instrument contains items that describe the characteristics of the researcher (e.g., field or discipline), the publication (i.e., type of document and year published), the setting or context (country and classification of economy), the evaluation design (whether RCT or QED), methodological quality (i.e., how the study handled selection bias, the degree of attrition, and any program implementation compromises), the treatment condition, the control or comparison group, the participants (e.g., grade), and the outcomes (i.e., on enrollment and learning outcomes).

In addition, we identified for contextual information, but not for inclusion in effect size estimates, non-experimental and quasi-experiments without pre-test group equivalency, descriptive quantitative studies, and qualitative studies that shed light on implementation and context issues. To be considered eligible for further review, these descriptive studies had to be primary studies of school fees elimination that provide sufficient methodological detail as to be replicable. Narrative synthesis (Popay et al., 2006) was then applied to the descriptive studies to organize findings by intervention types and descriptive themes identified in the conceptual framework.

Results and Discussion

Included Studies

Searching 28 databases as well as websites and journal hand searches yielded 8,401 potentially relevant citations and abstracts (including duplicates). Most of these were eliminated after careful screening of the abstracts and/or full text. Reasons for elimination included not being evaluative studies of school fees elimination interventions and not being conducted in a low-income country. The process identified five rigorous experimental and quasi-experimental studies and 12 quasi-experimental designs without equating of groups. In addition, 19 descriptive

quantitative and qualitative studies that did not meet our criteria for inclusion in effect size estimates were examined to map the extent, types and quality of the evidence base in the topic area and to shed light on possible theory, implementation and context issues. Given the small number of studies that met our inclusion criteria and the variation among the studies, we elected to provide a narrative synthesis of results, rather than meta-analysis. For the five included studies, these results are organized below by broad intervention type identified in the conceptual framework (See Appendix A.)

As mentioned previously, in many cases primary school fees have been eliminated by governments at a universal level through a "big bang" approach, the impact of which is very difficult to establish empirically through experimental or quasi-experimental means; this is because it is difficult to identify a valid control group, since everyone in the nation is receiving the "treatment." Only one included study (Grogan, 2009) evaluated free universal primary education (UPE). Baird et al. (2009) evaluated the elimination of tuition fees, but through an NGO intervention targeted to secondary school girls in a particularly poor district in Malawi. The remaining three studies evaluated NGO interventions that eliminate the school uniform fee by providing free uniforms to targeted children. Such interventions, because they provide only partial coverage and usually have more demand than supply, lend themselves to evaluation through experimental means.

Each of the interventions took place in sub-Saharan Africa — a low-income developing region that since independence has focused on expanding access to education. Three of the included evaluations took place in Kenya, which abolished primary school tuition fees at the universal level in 2003, leaving households responsible for providing uniforms, which represent a substantial sum relative to per capita GDP (Kremer et al., 2003). The three Kenya studies evaluated programs that provided free uniforms to schoolchildren. As mentioned above, Grogan (2009) evaluated the impact of free universal primary education implemented in Uganda in 1997. Prior to the new law, parents in Uganda provided up to 90 percent of school expenditures. In Malawi, where primary education has been free since 1994 but fees are still assessed for secondary school, Baird et al. (2009) evaluated a fees elimination program. This was the only included study that evaluated a school fees elimination intervention for secondary rather than primary school-age children.

Each of the included evaluations employed an RCT design, with the exception of the Grogan (2009) regression discontinuity study, and each study was determined to be of high methodological quality after assessing equating procedures, attrition and implementation fidelity. That is, we reviewed the study and concluded that the impact of any reported problems in these three methodological areas on the results was either "little" or "none".

Intervention: Free Universal Primary Education. Of the five included evaluations, only Grogan (2009) attempted to evaluate the impact of the implementation of free universal primary education. She employed a regression discontinuity design (coupled with difference-in-difference techniques) to estimate the impact of eliminating primary school fees in Uganda on the age at which children enter schooling—an important factor in subsequent attainment. Grogan estimated that school entry at ages above eight is very strongly associated with early school dropout in Uganda, and that free universal primary education had a positive effect of approximately 3 percent on the probability of entering school before age 9. For girls, the probability of entering school before age nine is 5 percent higher. In addition, the effects appear to be concentrated in rural areas—perhaps because school enrollment in urban areas was much higher than in rural areas prior to free universal primary education. While demonstrating the positive effects of school tuition fees elimination on the timely enrollment of children in rural areas in Uganda, Grogan also points out that the sudden increase in enrollment in Uganda led to overcrowding and shortages of teachers and textbooks, highlighting the need for studies of the quality of learning outcomes under free universal primary education and on the impact on resources available at the school level.

Intervention: Targeted Tuition Fees Elimination. Although evaluations of conditional cash transfer programs — payments made to households conditional on a child's school attendance — do not fall within the scope of this review (as the payments do not explicitly and directly eliminate school fees), an evaluation of a cash transfer program to boost secondary schooling among girls in Malawi (Baird et al., 2009) fits our inclusion criteria. The program experimented with different cash transfer amounts, recipients and delivery models, including a treatment group that received full payment of school fees directly to the schools, in addition to a small household cash transfer and

transfer directly to the girl, conditional upon school attendance. The two-year intervention was targeted to secondary school girls in a particularly poor district in Malawi, and sought to examine the effect of conditionality, as well as the size and recipient of the transfer, on school enrollment. After one year, Baird et al. found strong enrollment impacts for the entire sample, and that the results were unresponsive to the size or conditionality of the transfer. The only variation was that impacts on enrollment were stronger when the transfer was made directly to the girl, but this was only significant when the transfer was conditional upon school attendance. Thus, Baird and colleagues conclude that the marginal increase in schooling rates achieved by doubling the total transfer to the household is not cost-effective.

Intervention: Free Uniforms. Three included evaluations looked at free uniforms interventions carried out by NGOs in poor primary schools in Kenya. Although primary school fees were abolished at the national level in Kenya in 2003, local school committees still assess some school fees and set other attendance requirements that cost parents money, such as uniforms. According to Duflo, Dupas, Kremer, & Sinei (2006) a uniform costs about US$6 in Kenya, a substantial expense for parents in a country where the GDP per capita is US$360. The authors of these studies find that the interventions increased school attendance and persistence. Other outcomes reported included decreased teen pregnancy and improved test scores. These studies are discussed in more detail below.

Kremer et al. (2003) **c**onducted a randomized evaluation in 14 particularly poor primary schools in Kenya's Busia and Teso districts of an NGO program that covered the major schooling costs of Kenyan households — textbooks and classroom construction (typically paid for through local fundraising), and uniforms required for school attendance. The evaluation considers the intervention through the lens of education decentralization — a popular policy alternative in the developing world that dovetails with Kenya's long-established *harambee* system of local fundraising to finance community needs. Kremer et al. argue, however, that this system of partially decentralized education financing creates perverse incentives to construct too many schools, and for excessive spending on teachers, relative to non-teacher inputs, and setting of school fees at a level that deters participation. In other words, there is little incentive to attract additional students to a school because it would provide additional work for teachers and administrators without attracting additional resources because the school populations are typically much smaller than the threshold for additional government resources.

The intervention, which provided uniforms, textbooks and classroom construction to seven treatment schools, resulted in students in the treatment group remaining in school an average of 0.5 years longer after five years and advancing 0.3 grades further than students in control schools (probably mainly, Kremer and colleagues postulate, as a result of the free uniforms). In addition, the classes in treatment schools grew by nearly nine students—a result that Kremer *et al.* estimate was more than offset by the benefits of the inputs. They also estimate that the Kenyan government could have financed the additional resources provided by the NGO without external funds through the savings that could be generated from an increase in class size much smaller than that generated by the program. Kremer and his colleagues also confirm the assertion of much of the school fees literature that lowering the price of schooling can significantly increase participation.

Duflo et al. (2006) evaluated a similar program by the same NGO in 328 schools in two rural districts of Western Kenya. However, in this program, the uniform provision intervention was compared with three HIV/AIDS interventions, and marriage and childbearing outcomes were reported in addition to schooling outcomes. Duflo and her colleagues argue that since school tuition fees were abolished in Kenya in 2003, school uniforms represent the main financial barrier to primary school participation. Measured after two years, the provision of uniforms resulted in a 15 percent decrease in dropout and a 10 percent decrease in teen childbearing. There were also reductions in the likelihood of being married of 12 percent for girls and 40 percent for boys. (Results of the other three interventions showed no impact on teen childbearing or retention of teacher training regarding HIV/AIDS, while informing girls about variations in HIV rates by age and sex led girls to avoid cross-generational partners and reduced childbearing rates. It was too soon to measure the impact of an essay and debate contest on condoms.) Duflo et al. conclude that reducing the cost of education represents an incentive for teenagers to stay in school and delay marriage and childbearing, and estimate that the uniform intervention cost at least US$300 per pregnancy averted.

The third uniform intervention in Kenya included in our eligible studies was conducted by Evans, Kremer, & Ngatia (2009) as the first randomized study of uniform provision that includes impact on student learning as measured

by test scores. The intervention (implemented by the same NGO as the previous interventions described) involved 12 primary schools in Busia district and used a lottery to determine which children would receive a uniform each year. Evans and colleagues find that giving a uniform reduced absenteeism by 44 percent (62 percent for students who did not previously own a uniform), increased school participation by 0.064 years, and raised test scores by one quarter of a standard deviation. Evans et al. also estimated that the cost of increasing school attendance by one year is almost US$91 — more expensive than some other school-based interventions such as de-worming, but less costly than conditional cash transfers.

Descriptive Studies

The following section summarizes the 31 primary studies we identified that evaluated school fee elimination interventions through descriptive quantitative (including quasi-experiments without equating of groups) and qualitative approaches (see Appendix B). To be included in our review, these studies had to evaluate a school fees elimination intervention in low-incoming developing countries and to include sufficient methodological detail as to be replicable. Because these non-causal studies do not fit the criteria for inclusion in effect size estimates, we did not systematically code them as we did the five eligible evaluations. Rather, we applied thematic synthesis to summarize the findings according to common themes identified in the conceptual framework—targeting of interventions, educational quality, and role of the private sector. While these themes are widely debated in the development literature, we confine our discussion to the results highlighted in the descriptive studies identified in this review.

As with the five eligible evaluations, the majority (27) of the interventions took place in sub-Saharan Africa; the remaining four interventions were implemented in Bangladesh. The reports were written between 1996 and 2010, with the majority written after 2002. Most of the studies (24) examined free UPE interventions; the remaining studies evaluated scholarships or fee waivers for girls (6), and a temporary waiving of schools fees following an economic blockade (1). Methodologies employed included descriptive quantitative studies and qualitative approaches. Given the limitations in drawing causal inferences from these types of studies, care must be taken in interpreting the results. However, the results from the majority of these studies coincide with the findings from the five rigorous studies: school fee elimination interventions increased educational access, equity, and student persistence. However, declines in educational quality were also reported in some of the studies.

Targeting of Interventions. The thematic synthesis highlighted important implementation issues identified in the conceptual framework. One common theme concerns effective targeting of the different types of interventions and whether they meet the needs of poor and other marginalized groups. Maikish (2010), comparing outcomes for deprived and non-deprived districts under free UPE in Ghana, reports divergent results, with poorer districts showing lower returns. She suggests that policy analysis should occur at the district level, rather than just the national level, to highlight and address such differences. Based on his research, Nicola (2010) calls for targeted school enrollment policies for AIDS orphans. Similarly, Sifuna (2005) claims that free UPE has not reached pastoralist groups in Kenya and that targeted and culturally appropriate outreach is needed to improve education outcomes for this group. Muyanga, Olwande, Mueni, & Wambugu (2010) argue that while free UPE in Kenya increased overall school enrollment, this was especially true for children from higher income categories, indicating that the policy was insufficient to reach the poorest and most marginalized groups. Identifying and addressing the factors that still prevent these groups from completing primary school is a key to continuing progress toward countries' school enrollment goals.

The four studies of fee waiver interventions for girls (Amin & Sedgh 1998; Arends-Kuenning & Amin, 2004; Khandker, Pitt, & Fuwa, 2003; USAID, 1999) seem to suggest that households do respond to targeted incentives, even if they do not entirely cover all opportunity costs. However, even these incentives were not sufficient for all groups of girls across the studies, indicating the need to determine and address remaining barriers to education for these girls (Arends-Kuenning & Amin, 2004).

Educational Quality. Declining education quality under free UPE policies is highlighted in several of the descriptive studies. For example, Schmidt (2006) argues that large increases in enrollment in Kenya may have been largely due to the publicity and large-scale outreach campaign that accompanied the announcement of free UPE. However, this enrollment gain has eroded over time, due to public perception of reduced education quality. She postulates that while free

UPE may reduce the wealth bias in primary school attendance (poorer children, on average, are enrolling more), it may have increased the wealth bias in the attainment of a quality education, as wealthier households are taking their children out of the public sector schools and enrolling them in private schools. Other studies noted this change in the demographic makeup of public schools following free UPE implementation (e.g. Bold, Kimenyi, Mwabu, & Sandefur, 2009; Oketch, Mutisya, Ngware, & Ezeh, 2010; Tooley, Dixon, & Stanfield, 2008). Several other studies (e.g. Chimombo, 2005; Deininger 2003; Nishimura et al., 2008) highlight specific quality issues under free UPE, such as overcrowding, inappropriate or insufficient allocation of funds and teacher and supply shortages, and argue that sustained enrollment gains must necessitate concurrent improvements in education quality.

Role of the Private Sector. Declines in educational quality accompanying free UPE policies may lead to shifts in the share of enrollments between the public and private sectors. A phenomenon that has been noted in several sub-Saharan African countries that have officially abolished school fees is the "mushrooming" of private schools, including low-fee/low-quality "private schools for the poor." Tooley et al. (2008), conducting exploratory qualitative research in an informal settlement in Nairobi, suggested that net enrollment may have actually declined under free UPE, as the official figures did not consider decreased enrollment in unregistered private schools serving the poor in slum areas. Interviews with school managers and parents suggested possible reasons for this decline. For example, losing even a small number of children to government schools after the implementation of free UPE forced many of these schools to close. Parents suggested that only the relatively more wealthy parents could afford to send their children to government schools under free UPE because of "hidden costs", such as mandatory uniforms and PTA dues. In addition, parents viewed the educational quality of the slum private schools to be higher than that of the government schools under free UPE.

Oketch et al. (2010) build on this study by using an excess demand and differentiated demand framework to develop a logistic regression model to examine how slum and non-slum households react to free UPE policy. They found that 44% of students in their sample in two slums attend low-quality, low-fee private schools, despite free UPE. Oketch and colleagues argue that low government investment in slum areas leads to insufficient supply of public school spaces in such areas, driving poorer households to utilize low-fee private schools while wealthier slum households utilize the public system. On the other hand, under the differentiated demand model, wealthier households in non-slum areas prefer high-quality private schools, due to perceptions of low quality in the state system.

These exploratory studies highlight the need for more research to better understand the role of the private sector under free UPE policies, particularly that of unofficial private schools for the poor. At the very least, such schools should be identified and the rosters of students included in official counts of school enrollment. In addition, it is critical to understand the factors driving the behavior of households of different socioeconomic groups under school fees elimination policies and also to gain a better understanding of how much different groups are actually willing to pay for education to most effectively allocate resources. For example, the studies just discussed suggest that even some of the poorest slum households place a high value on education and are willing to pay to send their children to private schools if these are the only schools available to them or if they are perceived to be of higher quality than the government schools.

Sustainability. Central to this issue of education quality is the question of how to best finance school fees elimination policies, particularly so that they are sustainable. Many of the interventions examined, including national free UPE policies, were supported wholly or in part by external donors. Schmidt (2006) raises the question of whether the benefit of a small increase in enrollment is worth the cost of increased aid dependency, particularly if the increased enrollment is achieved at the cost of education quality. Many of the national free UPE policies have been implemented concurrently — and as an element of — education decentralization, in which school funding decision making is devolved to the local level, with varying results in terms of efficiency and effectiveness of allocation (Maikish, 2010). In most contexts, centralized free UPE policies do not appropriately and/or adequately allocate funds for all school-level expenses, necessitating local fundraising and the continued collection of fees from families (e.g. Al-Samarrai, 2003; Kenya, 2008; OWN & Associates, 2004). Thus, curtailing the informal assessment of fees may not be feasible, and determining how much a community can afford to contribute to schools and/or charging fees to households on a sliding scale based on ability to pay, have been raised as possible alternatives (Schmidt, 2004).

Summary and Concluding Discussion

The five methodologically rigorous evaluations discussed previously show that the interventions studied — universally abolishing tuition fees, eliminating tuition fees for targeted groups, and providing free uniforms — did strongly increase school enrollment and positively impact other education and non-education outcomes, including age at school entry, persistence/grade advancement, attendance, reenrollment, and delayed marriage/childbearing. Follow-up periods were between 1-5 years; longitudinal studies are needed to assess whether gains are sustained long term.

Most of the studies also include some preliminary cost-benefit analysis. For example, Kremer et al. (2003) suggest that government could offset the costs of uniform provision by marginally increasing class size. Baird et al. (2009) find that strong enrollment impacts associated with eliminating tuition fees for secondary school girls are not responsive to increasing the amount of an additional cash transfer made to the girls. Looking at the impact of delaying marriage/childbearing on school persistence, Duflo et al. (2006) estimate that the cost of the uniform provision intervention was at least $300 per pregnancy averted. Evans et al. (2009) estimate the cost of increasing persistence by one year through uniform provision to be around US$91 per student.

The majority of the descriptive studies examine free UPE policies, which are very difficult to evaluate empirically. All of the studies find that these policies increased enrollment and, in many cases, increased equity by extending access to marginalized groups. However, for the most part, these studies evaluated the short-term effects of the policies, so we do not know to what extent enrollment and persistence remain high after the initial enthusiasm surrounding the new policy. They also raise serious questions about the quality of education under free UPE, the adequacy of budgetary allocations, and the long-term sustainability of the programs. Some of the studies also suggest that fee abolition policies do not do enough to extend access to vulnerable groups, whether because school fees continue to be assessed locally, because public school spaces are unavailable in some areas, or for other reasons that need to be elucidated by further research to target interventions more effectively.

Due to the small yield of eligible impact evaluation studies, and the substantial diversity in samples, interventions, countries and other characteristics, we did not employ any analyses to generate an overall effect size, nor could we conduct analyses to examine the role of mediating (underlying causal chain) or moderating (subgroup) effects. Such analyses may have to wait for another generation of studies, so that more fine-grained results can be gleaned.

As impact and other empirical studies on this topic populate the literature, an updated version of this review should also incorporate more details on the political climate, educational structure and other factors that would assist readers in understanding the context in which these policies or programs were undertaken and the evaluations done.

It is very true that these policy and program initiatives took place in very different environments, and all at a different pace. In several instances, small scale fee abolition initiatives were supported in local contexts by NGOs; in others, universal fee elimination was provided by a national policy on universal primary education. Generally speaking, these locally implemented and NGO supported schemes lend themselves more readily to experimental design because not all children can be served. One question is whether any gains produced in the local implementation and NGO-run scheme will last once the initial enthusiasm and attention wane. The evaluations of universal national policies, because all persons are subject to the new initiative, are not amenable to such randomized experimentation, but because they study the full roll-out of actual policy by government actors, may be viewed by some as being more policy relevant. Understanding the evidence generated by both types of interventions is necessary.

Future Research

The findings of this systematic review highlight the need for more rigorous empirical research regarding the effects of various types of school fee elimination policies in low-income developing countries. As mentioned, research in this area is complicated by the fact that many countries have already implemented universal free school tuition policies for all primary children, so an appropriate control group is difficult to identify. One possible solution to this challenge may involve utilizing an interrupted time series design involving a single group, provided that a long series of regularly collected data are available before and after the free UPE intervention was implemented (see Bloom, 2003). In addition, because families often

continue to pay some fees under free UPE policies, further impact evaluations of NGO or government-supported programs targeting full fees elimination for specific groups can shed more light on the true costs of education for households and the degree to which eliminating these costs can improve schooling and other outcomes for the most vulnerable groups. Policy effectiveness can be evaluated at the local level by comparing the success of different districts in implementing programs (Maikish, 2010).

To effectively target interventions and allocate resources, it is critical to understand the full household costs of education (including fees still assessed under free UPE policies and opportunity costs for boys and girls) for different socio-economic groups, as well as to determine how much of the full cost of education households from various policy target groups are willing and able to bear, given an acceptable level of education quality. For example, Gertler & Glewwe (1990) using a rigorous model of demand for schooling to calculate willingness to pay for secondary schools in rural Peru found that even the poorest households were willing to pay fees high enough to cover operating costs of village schools. Several studies examined in this review show that parents do respond to incentives and that it is not necessary to eliminate all poverty to induce them to enroll their children (e.g. Arends-Kuenning & Amin, 2004). The finding from studies discussed above that some poor slum households are utilizing low-fee private schools highlights the importance of fully understanding the choices different groups make in terms of which schools to utilize and the motivations behind their choices, as well as policy opportunities for partnering with the private sector to improve school access and quality for the poor. Voucher programs may be one way to leverage existing private sector resources to extend educational access and improve quality (e.g. Morgan, Petrosino, & Fronius, 2013). Such programs lend themselves to empirical evaluation.

On the other hand, even under incentive programs, not all children attend school. To ensure that policies reach the most marginalized groups research must be conducted to find out why incentives are not sufficient for some households and groups. The descriptive studies examined in this review highlight the importance, in addition to rigorous impact evaluations, of gathering qualitative data to contribute to a contextual understanding of behavioral responses to fees elimination policies and of different groups' perceptions of education quality in different sectors. Experimentation with different innovations, such as user fees on a sliding-scale based on household ability to pay would be informative and could be researched empirically.

In addition, longitudinal studies are needed to elucidate the longer-term impacts of fees elimination, including whether initial surges in enrollment are sustained over time, to what extent they are actually responses to reduced costs vs. public outreach, and what the policies mean for future educational attainment, employment, and other outcomes. The success of any educational system could also be reflected on how students fare in secondary education, higher education and in obtaining gainful employment. Longer-term studies will be necessary to see if free UPE strategies have resulted in anything more than short-term gains for its recipients.

The available empirical evidence is not yet robust enough to clearly identify associated tradeoffs in educational quality, including impacts on resources available at the school level, or other unintended consequences of fee elimination. While quality tradeoffs have been observed in countries that have implemented free UPE, they have not been established empirically in very many studies. A related area of interest for governments is the extent to which fee abolition policies can be sustained over time and the degree of donor dependency that these policies require.

Thus, some specific questions for future research might include:

- Does the removal of school fees encourage enrollment and persistence in the longer term? What are the longer-term impacts of school fee elimination policies?
- What are the unintended consequences of eliminating school fees? How might future policy mitigate these?
- Of the five types of school fees, which would be most cost-effective to reduce/eliminate?
- What groups are fee elimination policies not reaching? Why? How can policies effectively target these groups?
- How much are households with various background characteristics willing to pay for education and how does educational quality impact this? How do households perceive and measure educational quality and how does this impact their decisions? In the presence of school choice, how do households utilize the public and private sectors?

Rigorous impact studies on these topics can provide valuable information to countries that are considering abolishing school fees and can inform strategies for advance planning and targeting of

reforms, including planning for efficient allocation of resources at the local level. For example, while sweeping universal reforms may be useful for political campaigns and result in initial surges in enrollment, other more targeted or phased-in models of fee elimination may be more effective and sustainable longer term. Pilot studies of such smaller-scale interventions could be evaluated through experimental studies and provide important data for scaling-up of reforms. This type of information would also be very useful to the donor community that supports such interventions. In particular, government and non-governmental actors working in this area would benefit from specific impact data regarding the differential effects of various types of fee elimination policies on different groups (e.g. urban/rural, different socio-economic groups, girls/boys, AIDS orphans, baseline dropouts, etc.), and on why these policies may not be sufficient to reach the most vulnerable children.

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Appendices

Appendix A
Included Studies

Study	Intervention	Group targeted	Sample size	Study design	Methodological threats to evaluation design	Follow-up period	Outcomes: School enrollment	Outcomes: Achievement	Outcomes: Other
Kremer et al. (2003) Kenya	Free uniforms + text book funds and classroom construction	Particularly poor primary schools	14 schools (7 treatment; 7 control)	RCT	Low	5 years	Students in treatment schools remained enrolled 13% longer than comparison[1]	Students in treatment schools had a 16% increase in grade advancement; no significant effect on test scores	Increased average treatment class size by 9 students; no significant effect on likelihood of being married
Duflo et al. (2006) Kenya	Free uniforms	Grade 6 students in two rural districts	334 schools (163 treatment 171; control)	RCT	Low	3 years	15% decrease in likelihood of drop-out in treatment schools ES[2]: -0.01 (-0.05, 0.03)	N/A	For girls, 10% decrease in teen childbearing and 12% less likely to be married; for boys, 40% less likely to be married
Baird et al. (2009) Malawi	Full payment of school fees + cash transfer to household and to girl conditional on attendance	Secondary schoolgirls aged 13–22 in a particularly poor district	3,805 girls (1,225 treatment; 2,580 control)	RCT	Low	1 year	Re-enrollment rate increased by 2.5 times for treatment girls and drop-out rate decreased from 11% to 6% ES: 0.82 (0.56, 1.07)	Self-reported English literacy improved for treatment girls ES: 0.11 (-0.02, 0.24)	N/A

[1] Did not provide the data necessary for computation of effect sizes (see Petrosino, et al., 2012).

[2] Standardized mean differences (Cohen's *d)* were used as the effect size metric for all the main and supplemental outcomes of interest, which are appropriate for measuring group differences in mean levels of continuously measured outcomes (Lipsey & Wilson, 2001). All effect sizes were coded so that positive effect sizes represented better outcomes (e.g., higher enrollment, lower dropout). Standardized mean difference effect sizes were calculated as d = XTX-XCTs pooled where the numerator is the difference in group means for the intervention and control groups, and the denominator is the pooled standard deviation for those groups. The variance of the standardized mean difference effect size was calculated as: Vd = nTX+nCTnTX*nCT+d22(nTX+nCT).

Study	Intervention	Group targeted	Sample size	Study design	Methodological threats to evaluation design	Follow-up period	Outcomes: School enrollment	Outcomes: Achievement	Outcomes: Other
Grogan (2009) Uganda	Universal primary education (Government pays tuition fees)	All primary school-age children	8,206 children	QED (RDD)	Low	3–4 years	3% effect on probability of entering school before age 9 (results stronger for girls concentrated in rural areas) ES: 0.07 (0.036, 0.039)	N/A	No discontinuity in the probability of attending private school
Kim *et al*. (1999) Pakistan		Low-income primary school girls in Quetta, Balochistan Province	Treatment: 1,310 children (781 girls, 529 boys). Control: 1,358 children (697 girls, 661 boys)	RCT	Low	2 years	ES: 0.33 (0.27, 0.40) 33% increased enrollment for boys and girls; effect mostly larger for girls	Pilot achievement test 3rd grade shows no significant differences between subsidy and govt. schools, but results not definitive due to small sample size.	N/A

Appendix B
Descriptive Quantitative and Qualitative Studies

Study	Country	Intervention	Methodology	Outcomes
Alloush (2010)	Ethiopia, Malawi, Tanzania, Ghana	Free UPE	QED without equating of groups	People exposed to the policy were more likely to enrol in school and to complete primary school.
Maikish (2010)	Ghana	Free UPE	QED without equating of groups	Per-pupil funding scheme was successful overall, but widely differing returns by deprived and non-deprived districts.
Nicola (2010)	Tanzania	Free UPE	QED without equating of groups	Children enrolled at rate 16.2 percentage points higher but widened enrollment gap between non-orphans and orphans.
Muyanga et al. (2010)	Kenya	Free UPE	QED without adequate controls	Primary school enrollment increased significantly across all income groups but more so for higher-income groups. Grade progression slightly declined and transition rates for poorer children worsened.
Bold et al. (2009)	Kenya	Free UPE	QED without equating of groups	Decline in inequality of access but accelerated decline in SES and performance in public schools as richer students flee to private schools.
Nishimura et al. (2008)	Uganda	Free UPE	QED without equating of groups	UPE decreased delayed enrollment and increased grade completion and gains have been greatest amongst girls in poor households.
Schmidt (2006)	Kenya	Free UPE	QED without equating of groups	Most of the students who enrolled in school as a result of UPE were young students who otherwise would not have entered and some students may have remained in school longer than they would have had there been fees. Declining enrollment amongst children above primary school age suggests that the main effect of UPE was that families no longer postponed putting their children into school.

Study	Country	Intervention	Methodology	Outcomes
Deininger (2003)	Uganda	Free UPE	QED without equating of groups	UPE greatly reduced the wealth bias and increased girls' access to primary education and reduced the incidence of cost-related drop-outs from primary school.
Fafchamps and Minten (2003)	Madagascar	School fees waived temporarily in a region following an economic blockade	QED without equating of groups	Between 6.5% and 9% increase in school enrollment.
Oketch et al. (2010)	Kenya	Free UPE	Descriptive (multilevel modelling)	In the slums, excess demand for school places leads to mushrooming of low-fees private schools.
Oumer (2009)	Ethiopia	Free UPE	Descriptive (school case studies)	Access to education has improved but budget allocation is far behind and the influx of students has led to deterioration in quality and efficiency.
Inoue and Oketch (2008)	Malawi, Ghana	Free UPE	Descriptive (Lorenz curves and Gini coefficients to measure equity)	Malawi reduced income-based, but not gender-based, disparities in both enrollment and attainment. There was no positive impact on equity in Ghana.
Al-Samarrai and Zaman (2007)	Malawi	Free UPE	Descriptive (benefit incidence methodology)	Enrollment increased dramatically and gains were greatest for poor socio-economic groups.
Castro-Leal (1996)	Malawi	Free UPE	Descriptive (benefit incidence analysis)	Increased the equity of public spending in education by increasing the total allocation of public resources to primary education whilst easing the constraints on the demand for education faced by poor households.
Nishimura et al. (2009)	Ghana, Kenya, Malawi, Uganda	Free UPE	Qualitative	Effective policy implementation would require considerable consultation with key stakeholders and a baseline survey that will enable systematic implementation and consideration of equity.
	Tanzania	Free UPE	Qualitative	Policy has poorly-defined features and limited impact on overall financial burden for households.

Study	Country	Intervention	Methodology	Outcomes
Kenya (2008)	Kenya	Free UPE	Qualitative	Initial surges in enrollment followed by retention issues and funding/quality concerns.
Tooley et al.(2008)	Kenya	Free UPE	Qualitative	Enrollment increased in Government schools, but much larger increase in private schools for the poor.
Chimombo (2005)	Malawi	Free UPE	Qualitative	Increased access to schooling has been achieved at the expense of the quality of education.
Sifuna (2005)	Kenya	Free UPE	Qualitative	Little impact on access and participation of pastoralist communities.
Avenstrup (2004)	Kenya, Lesotho, Malawi, Uganda	Free UPE	Qualitative	Increased access to and resources for education, accompanied by 'access shock' and questions about quality and sustainability.
OWN and Associates (2004)	Kenya	Free UPE	Qualitative	Capitation grant inadequate to cover education costs. Quality of education and retention of students is an issue.
Al-Samarrai (2003)	Botswana, Malawi, Uganda	Free UPE	Qualitative	Improved access to education for the poor but lack of a relationship across countries between public spending and education outcomes.
Sumra (2003)	Tanzania	Free UPE	Qualitative	Infrastructure and other resources have not kept up with enrollment. Confusion about what fees are still required and how schools can use funds.
Makori (n.d.)	Kenya	Free UPE	Qualitative	UPE increased access by disadvantaged children and reduced repetition but was accompanied by quality issues.
Khandker et al.(2003)	Bangladesh	Targeted scholarships for girls	QED without equating of groups	Programme increased girls' secondary education substantially but had no discernable impact on schooling of boys.
Fuwa (2001)	Bangladesh	Targeted scholarships for girls	QED without equating of groups	Increased female enrollment by 2% above prevailing trend rate of increase and negative impact on male enrollment.

Study	Country	Intervention	Methodology	Outcomes
Arends-Kuenning and Amin (2004)	Bangladesh	Targeted scholarships for girls	QED without equating of groups	Increases in enrollment, increases in the amount of time students spent on schooling activities, and changes in the grade distribution all played a role in explaining the increase in the time that children spent in school. Older girls, especially, experienced increased enrollments and changes in the grade distribution from lower to higher grades.
Chapman and Mushlin (2008)	Sierra Leone, Djibouti	Targeted scholarships for girls	Qualitative	Scholarships often created significant tensions between award recipients and non-recipients and amongst their families that frequently isolated recipient girls and led to their harassment by non-recipients.
Amin and Sedgh (1998)	Bangladesh	Targeted scholarships for girls	Qualitative	Increased school enrollment and delayed marriage.
USAID (1999)	Malawi	Fees waivers for girls	Qualitative	Increased girls' primary enrollments and persistence but quality improvements lag and sustainability of programme in doubt.