

Demand-side financing in education

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Harry Anthony Patrinos

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A graphic for the 'Education policy series' featuring a blue background with a chalkboard showing the letters 'Ya Bb Cc Dd' and a colorful playground structure with children. The text 'Education policy series' is written in a white, curved font across the middle.

Education policy series



International Academy of Education

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Preface

Education Policy Series

The International Academy of Education and the International Institute for Educational Planning are jointly publishing the Education Policy Series. The purpose of the series is to summarize what is known, based on research, about selected policy issues in the field of education.

The series was designed for rapid consultation “on the run” by busy senior decision makers in Ministries of Education. These people rarely have time to read lengthy research reports, to attend conferences and seminars, or to become engaged in extended scholarly debates with educational policy research specialists.

The booklets have been (a) focused on policy topics that the Academy considers to be of high priority across many Ministries of Education – in both developed and developing countries, (b) structured for clarity – containing an introductory overview, a research-based discussion of around ten key issues considered to be critical to the topic of the booklet, and references that provide supporting evidence and further reading related to the discussion of issues, (c) restricted in length – requiring around 30-45 minutes of reading time; and (d) sized to fit easily into a jacket pocket – providing opportunities for readily accessible consultation inside or outside the office.

The authors of the series were selected by the International Academy of Education because of their expertise concerning the booklet topics, and also because of their recognised ability to communicate complex research findings in a manner that can be readily understood and used for policy purposes.

The booklets will appear first in English, and shortly afterwards in French and Spanish. Plans are being made for translations into other languages.

Four booklets will be published each year and made freely available for download from the websites of the International Institute for Educational Planning and the International Academy of Education. A limited printed edition will also be prepared shortly after electronic publication.

This booklet

Demand-side financing is a way in which the government can finance private consumption of certain goods and services. In contrast to supply-side financing, where public funds go directly to suppliers, under demand-side financing consumers (or in the case of education, parents or students) receive a certain amount of money for specific expenditures.

There has been considerable attention devoted to demand-side financing in the literature and the popular press. Approaches that allocate financial incentives to families in order for their children to attend school and programs that channel public funds for education through the beneficiary and their family are reputed to be more efficient uses of resources and more effective at improving outcomes than most supply-side only interventions.

Demand-side financing initiatives in education have been implemented in a number of countries. A number of these have been put in place to address the needs of families with children at risk of not attending school. Most involve cash payments to low-income families with children who regularly attend school. The transfers are contingent on the condition of regular attendance. The benefit levels are intended to offset some or most of the opportunity costs of sending children to school. In the best examples, the subsidies vary by grade and gender of the child to address higher opportunity costs as the child gets older and in some countries the higher tendency of girls to drop out.

In most cases, demand-side programs are associated with increased school attendance rates and lower school drop-out rates. They can also be used in some cases to improve learning outcomes and to pursue other important goals such as gender equity and longer-term poverty reduction.

One of the main constraints to better programs is the lack of rigorous impact evaluation. While the number of evaluations is growing rapidly over time, it is important to consider this key factor early on in the planning stages. More information about how the program operates, the problems it faces, and the impacts it produces can be used to improve its delivery, modify and expand it as necessary, and disseminate results. All this should be done throughout the life of the program, including the all-important pilot phase.

This booklet is the seventh in the Education Policy Series developed by the International Academy of Education and the International Institute for Educational Planning. Each booklet seeks to bring research evidence to bear on important topics in educational policy.

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Introduction

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- ***What is demand-side financing in education?***
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Demand-side financing, the principle of channeling education resources through students and their parents or basing school funding on enrolments or attendance, has been proposed for a number of reasons in different countries. Supply-side financing usually refers to funding inputs such as human and material resources based on formal sector planning by technical planners and managers. However, ensuring the supply side is, in many cases, not enough. Thus, there may be good equity and access reasons to consider demand-side financing.

Since the demand for schooling is often influenced by economic, political, social and cultural factors, in many cases it is not sufficient merely for a school to exist in order for parents to enrol children. Even free education may not entice poor families. Second, there are reasons to think that demand-side financing may be more efficient, for example, by empowering parents. Demand-side financing includes a range of interventions. The focus is on putting the resources in the hands of those who demand education and not those who supply it. The goal is to bring down the barriers that prevent children from continuing their education.

Some of the benefits of demand-side financing are said to include schooling gains, in terms of higher enrolments, attendance, completion and achievement. Demand-side financing should also make it easier to institute school choice plans. Relating resources to the ultimate beneficiaries – students and their families – and close monitoring of those resources could lead to considerable efficiency gains to the system, thus increasing the cost-effectiveness of education programs.

Governments around the world spend significant resources on education. While such outlays have led to a tremendous expansion of schooling, they have not reduced the level of disadvantage for many groups, especially those in rural areas, including the poorest of the poor, women, ethnic or religious minorities and indigenous peoples. Even in countries where the overall enrolment rate is high, there are still areas with little access to education. Often this is the poorest segment of the population. In some countries there is a sizeable portion of the least wealthy where access to schooling is slight, if not at the primary school level, then certainly at the secondary school level. In all cases, even at the primary school age level, the gap in enrolment rates between the poorest and the richest is high. At the secondary school level, the poorest 20 percent are especially disadvantaged.

In an attempt to improve the delivery of basic services and the equity with which public funds are disbursed, some governments are experimenting with new ways of channeling public funds. One such mechanism is demand-side financing, whereby public funds are channeled directly to individuals or to institutions based on the characteristics of users such as income. In the last few years, some very important demand-side financing initiatives in education have been implemented in a number of countries, including *Progres*a (now known as *Oportunidades*) in Mexico, which has resulted in a number of evaluation reports. This program has generated a lot of attention and international press coverage. Such programs can be very large as well. Mexico's *Oportunidades* has a budget of about \$2.7 billion a year. Brazil's *Bolsa Escola* (now a national program and called *Bolsa Familia*) had a budget of \$680 million in 2001.

Some demand-side financing interventions are focused on extending school choice to the entire population in an effort to raise the efficiency of the system. Universal school choice schemes such as those in the Netherlands and Chile, for example, will not be reviewed here (but see Gauri and Vawda, 2002) while targeted voucher schemes will. Similarly, efforts to improve the relevance of schooling by contracting out school services are also not reviewed here.

Typology of demand-side financing mechanisms

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- ***Different financing mechanisms are available to solve different problems.***
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A variety of demand-side financing mechanisms exist. Stipends may be thought of as cash payments, including scholarships and conditional cash transfers, made to families to offset schooling-related costs for a child. Scholarships have been around for a long time. Conditional cash transfers are relatively newer and have a twist: they are also designed to alleviate short-term poverty and the payment is conditional upon the child attending school and achieving certain performance targets, such as a minimum number of days of attendance each month.

Targeted vouchers, or cash payments given directly to families or schools based on enrolments, allow for attendance in private (or public) schools for a select number of students based on some sort of income or poverty measures. Student loans are used to help defray costs to the state and help a greater number of students to access education; these are not reviewed here since they are usually for higher education.

In many developing countries demand-side financing incentives, as well as in-kind transfers – such as Bangladesh’s Food for Education incentive or school breakfasts in many countries – are designed to entice families to send their children to school (Patrinos and Ariasingam, 1997). In certain cases, they are used to make schooling more relevant. For example, sometimes the scholarships are limited to girls, as in Bangladesh at the secondary school level or Guatemala’s *Eduque a la Niña*, or the cash transfer is higher for girls as in the case of Mexico’s *Oportunidades*. In other cases, demand-side

financing programs are used to improve the efficiency and effectiveness of the overall system of education. In developed countries, especially in the OECD, the trend in recent years has been to increase public funding of private school attendance. In many European countries, historical compromises allow parents today to choose from a number of alternative or religious schools that are financed by the state, and increasingly through direct funding formulas, or demand-side financing.

In Bangladesh, the program requires that girl recipients of the scholarships open a bank account and go in person to collect the money. This is meant to show the community that women can do things for themselves and to empower girls.

Demand-side financing and educational access

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- ***Educational access is increased by demand-side financing incentives.***
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Demand-side interventions aim to change behavior. The specific objective may be to increase school attendance, reduce repetition or drop-out, or increase achievement. The idea is to support families through a financial incentive tied to a schooling outcome. The interventions address the main schooling problem and focus on the demand side. One of the main barriers to school attendance, especially regular attendance, is family income and the opportunity costs of schooling (foregone earnings while enrolled in school). The demand-side subsidy is designed to substitute for the child's work that the family might otherwise rely upon.

Mexico's main demand-side financing program, *Oportunidades*, a conditional cash transfer program, has been extensively evaluated by researchers. The existing impact evaluations on enrolment and performance use panel data at the student level from a randomized rural sample. Evaluations consistently find significant increases in enrolments, especially for girls at the secondary school level. Behrman *et al.* (2005) apply a schooling transition model and find that the program effectively reduces drop-out rates and facilitates progression through grades, particularly during the transition from primary to secondary school. *Oportunidades* has had a significant impact on education, whereby primary school attendance increased by 2.2 percent – given a high enrolment rate of 92 percent.

In general, conditional cash transfer programs improve educational indicators and outcomes. *Bolsa Escola* (Brazil's conditional cash transfer program) led to higher

school attendance rates and lower school drop-out rates. Bourguignon *et al.* (2003) conducted an *ex ante* simulation of this programme and highlighted the importance of the targeted nature of subsidies, arguing that a conditional transfer will increase enrolment rates by nine percent, but an unconditional one would have no effect. Bangladesh's Food for Education program was launched on a pilot basis in 1994. By 1996, two million children participated (13 percent of total enrolment). It entitles children of poor families to 15 kilograms of wheat each month if they enrol in primary school and maintain 85 percent attendance. The program is a strong incentive for attendance (Ravallion and Wodon, 2000). A transfer with a value considerably less than the mean child wage was enough to ensure nearly full school attendance among participants.

Demand-side programs appear more effective at the secondary school level. In Mexico's *Oportunidades* secondary school attendance increased by 8.4 percent from a base of 65 percent. The direct costs of secondary education (tuition, school supplies, uniforms, and transportation) act to reduce enrolment, especially for girls. In Bangladesh, one year of tuition alone is equivalent to half an average family's income. In addition to direct costs, the opportunity costs associated with schooling are significant. These increase over time as children become more productive and have a greater negative impact at the secondary than at the primary school level. Bangladesh's female secondary school scholarship program led to considerable schooling gains at the secondary level because they directly addressed the costs associated with school attendance.

While getting children to enrol is very important, keeping them in school longer is even more important. Demand-side financing programs have been shown to have an impact on school completion rates. *Oportunidades* increased transitions to secondary school by nearly 20 percent. Educational attainment is estimated to increase by two thirds of a year thanks to *Oportunidades*. Larger effects would probably arise if benefits were extended beyond the ninth grade. Colombia's targeted secondary school voucher program increased completed years of schooling through

reduced repetition. Voucher recipients (winning vouchers through the lottery was used to make the awards because the program was over-subscribed) completed more years of schooling than non-recipients and were less likely to repeat grades (by 6 percentage points). Female voucher recipients completed more years of schooling than boys did. Voucher recipients were 15 percentage points more likely to finish the 8th grade than non-recipients, primarily due to reduced grade repetition. This translates into a 25 percent increase in secondary school completion.

4 School quality

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- ***Most demand-side programs are used to increase access – however, they could also be used to improve quality.***
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Most demand-side financing programs focus on income constraints associated with school attendance, thus providing cash incentives for enrolment or attending a minimum number of days each month. Most of the time school quality – or learning outcomes – is not a central condition, except in some cases indirectly. Yet, demand-side programs can be effective in raising scores – as in the case of Colombia; but there is a danger of lowering average scores if the program brings in more marginal students and does not include special measures to reach those students – such as compensatory education. Therefore, setting conditions on cash transfer programs that require achievement score gains requires caution. Achievement targets may be unrealistic if the program is very successful in increasing enrolments of weaker students without adding special compensatory measures, since many factors outside the control of the school are responsible for determining academic achievement (Hanushek and Luque, 2003).

Mexico's *Oportunidades* also gives resources to schools aimed at improving the quality of the schools in the communities. These schools, however, do not seem to perform any better on student achievement tests. This suggests that the impact of the program comes mainly through the demand-side incentive rather than supply-side improvements in the schools. In Bangladesh, of those female scholarship recipients that took the secondary school certificate exam, only 54 percent received a passing

grade, similar to the national pass rate. While not the explicit aim of the program, there is little evidence that *Bolsa Escola* led to an increase in school quality.

Conditional cash transfers in health are usually conditioned on improvements in health outcomes. For example, in Nicaragua, improvements in health outcomes are a condition for receiving further cash benefits. The health grants are conditioned on weight gain of the children aged 0-4 years, accompanied by intensive growth monitoring and hygiene, as well as nutrition training for mothers. If one child does not gain weight as would be healthy during two payment cycles, the health grant is suspended unless the family presents a health certificate issued by a local health facility. There are no similar quality (or learning outcomes) conditions in education conditional cash transfer programs. Education grants are usually only conditioned on regular school attendance.

In Colombia, however, voucher recipients performed at least as well as students in public schools in both mathematics and language tests. Thus, for about two thirds of the per-pupil cost of public school, the program offered many poor students secondary education that was comparable in quality to public schools. That is, voucher recipients in Colombia, even though they come from relatively poorer families (since the voucher is targeted), were able to perform as well or better than the average public school student. The voucher may have influenced recipients to try harder in school than they otherwise would have.

5 Labour market outcomes

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- ***Increased schooling, because of***
- ***demand-side financing programs,***
- ***boosts individual earnings.***
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Another outcome of education is labour market success. If the demand-side programs are successful in significantly increasing the quantity of schooling, then individuals' earnings rise as a result. In Mexico and Colombia, estimates are made of the earnings gains associated with the program. Typically, rates of return to education are higher in lower income countries (Psacharopoulos and Patrinos, 2004). Thus, increasing schooling attainment should increase labour market earnings in the future. Returns to another year of schooling are typically above 10 percent a year in most countries and higher for lower levels of schooling (over 26 percent at the primary level). In cases where evaluations have projected future earnings, the gains are highly significant. For example, the rate of return to added education in Guatemala is high. Women with less than one year of education can expect earnings of only \$220 a year. Per year of average increased attainment, scholarship participants could expect to earn an additional \$35 over what they would have earned in the labour market without the scholarship incentives.

The rate of return year to an additional year of schooling is significant in many developing countries, especially low-income countries. It can thus be argued that an additional year of schooling gained through *Bolsa Escola* for example, will increase earnings by an annual rate of 14.7 percent – given estimates from household surveys. In Guatemala, the scholarship program could potentially increase earnings

by 14.9 percent a year, according to household surveys. In Indonesia, an additional year of schooling could raise earnings by at least 7.0 percent a year. There are, of course, other benefits besides wages; but they are more difficult to measure. Other benefits could include externalities, but also intergenerational benefits that are very important for future educational progress. That is, parental education is a key determinant of their children's educational attainment. Demand-side financing programs can help break the vicious cycle by accelerating educational attainment in the current generation, thus ensuring even higher attainment levels for their children. In addition, education contributes to social benefits, such as consumers that are more informed, technological progress, better health outcomes, and so on. Education is also important to economic growth and poverty reduction.

The implication is clearly that increasing the accumulation of education by the poor will increase their incomes and well-being. Therefore, the social benefits of demand-side financing programs should consider future earnings gains and other benefits.

6 School choice

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- ***Demand-side financing programs can also be designed to increase choice and increase diversity in the school system.***
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Voucher programs are meant to increase choices for the population. Programs can be used to increase the supply of education by enticing non-traditional providers to cater to the poor. In Colombia's targeted voucher program, 50 percent of private schools in the treatment areas participated in the program. Both the highest quality private schools and low-quality schools focused largely on profit decided not to participate in the program. Participating schools were predominantly of average quality, charging low fees. Voucher recipients at these schools typically came from amongst the poorest.

Demand-side financing programs such as Colombia's targeted vouchers can be a cost-effective way to increase educational attainment and achievement in countries with a weak public school system and a well-developed private education sector. The program affected outcomes by enabling voucher recipients to attend private schools that may be better than comparable public schools, and giving stronger incentive for voucher recipients to devote more efforts to school, because failing a grade would disqualify them from keeping the voucher. The program shows how vouchers can allow, in principle, a central funding body to complement local resources and private education providers to address public sector constraints. Adoption of the program was most likely in municipalities where pre-existing private schools could expand capacity, where a large proportion of

students were already enrolled in private schools, and where there were a limited number of under-served students. Municipalities with very large numbers of under-served students or with relatively little preexisting private school capacity chose not to participate, presumably because the total cost to them of the voucher system would exceed the cost of building additional public schools.

In Pakistan, community grants led to the creation of viable private schools in urban areas serving the poor. In fact, six of 11 original schools were self-sufficient by 1999. The remaining five schools required only a small subsidy – just 15 percent of the cost per student at government schools. The new schools addressed an unmet demand and the resulting increase in enrolment exceeded initial expectations. On the supply side, community grants can be an effective way to create new private schools in underserved areas. Income levels higher than those found in remote rural villages will allow fees to be set at a self-sustaining level. This pilot design does not appear to be appropriate for small rural villages.

Not all demand-side programs, of course, lead to private sector provision. In some cases, they offer opportunities for parents to send their children to a local school, which is often a public school. In Guatemala's *Eduque a la Niña* girls' scholarship program, the grants are intended to allow parents to send their daughters to the local public school.

In the Netherlands, per-student financing and parental freedom to choose schools – combined with compensatory student financing, has led to a diverse supply of schools. There are public (municipal) and private (secular, Catholic, Protestant, etc.) schools, with private schools making up more than two thirds of the total. In addition, the system produces high levels of achievement – as seen in international achievement tests such as PISA and TIMSS – as well as high levels of equity in terms of the distribution of student test scores. That is, the gap between the worst and best students is smaller in the Netherlands than in nearly all other countries (Patrinos, 2004).

Efficiency

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- ***Demand-side financing increases costs, but the benefits are high.***
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Demand-side financing programs not only help increase schooling; they are also cost-effective. Although demand-side financing is not a panacea, it appears to increase education more effectively than popular alternatives. This is especially the case at the secondary level.

Depending on the design, targeted programs can increase educational costs. Administration and monitoring costs can significantly increase the total cost of the program. Colombia's targeted voucher program increased the total cost. Nonetheless, a cost-benefit analysis of Colombia's targeted voucher program shows that it was a cost-effective means of obtaining additional time in school and higher quality education for participants (Angrist *et al.*, 2002). Simply looking at additional program costs without considering countervailing benefits can lead to incomplete and incorrect conclusions.

There is usually high demand for demand-side financing programs. Few eligible families fail to take up their entitlement. In the case of *Oportunidades*, almost all eligible families choose to participate (97 percent).

Colombia's targeted voucher program design included caps on the level of vouchers well below the cost of more expensive private schools and utilized an effective and well-implemented income targeting scheme. The programme avoided subsidizing attendance for higher income groups at relatively more elite schools.

There could also be side benefits. The receipt of cash transfers at the school level can lead to improved financial management. In addition, such programs can frequently

increase non-salary funding to primary schools through increased parental involvement and improved school management.

An open question is whether there is a minimum cash transfer necessary for providing sufficient incentives for getting children in school (Skoufias and Parker, 2001). In Guatemala's *Eduque*, the monthly stipend is one quarter the average monthly income for women with less than a year of schooling. A household survey conducted in the intended beneficiary communities helped determine the stipend rate. The scholarships were first set at \$2/month. After three years they increased to \$3/month and finally to \$4/month. The rationale for the stipend amount was that it would not be greater than the family's income, but less than the capability of the girl to generate income through her own work. In addition, it would be able to cover minimum needs to compensate a girl's family for her lost labour income and the cost of school supplies without establishing a dependency on the stipend. In Guatemala, the four-dollar stipend increased girls' attendance by at least 23 percent and reduced the drop-out rate by half. Demand-side financing programs need not compensate fully for schooling and schooling-related costs to have an impact. Bangladesh's stipend program covers up to 54 percent of the direct cost of secondary education for girls.

In Mexico, it was possible to compare the cost-effectiveness of education subsidies (demand-side) with that of extensive expansion (supply-side) in terms of enrolling children in school (Coady and Parker, 2004). The authors used *Oportunidades* before and after data to compare both treatment and control households. They combined these estimates with cost information and showed that the demand-side subsidies were substantially more cost-effective than supply-side expansions.

In Bangladesh, Ravallion and Wodon (2000) found that the program was cost-effective compared to others. Nevertheless, outcomes could be improved if the overall efficiency of the primary education system was improved so that it takes fewer years to complete, and by improving targeting to reach the poor and very poor, or both.

Importance of experimentation and evaluation

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- ***The best demand-side financing mechanism may not be known in advance in all cases, thus making it important that policymakers include experimentation and rigorous impact evaluation.***
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There are many theoretical arguments as well as some empirical evidence to show that demand-side financing programs in education can work. They can help reduce repetition and drop-out and increase schooling attainment. If targeted correctly, they can even improve learning outcomes. However, few of the programs have been subject to rigorous impact evaluation. The paucity of rigorous evaluations outside *Oportunidades* in Mexico can limit the positive conclusions that can be drawn from the existing studies.

Evaluations not only help justify continuing a program or scaling it up; they can also provide valuable lessons that can be used in other contexts. For example, a good evaluation can help guide how much such programs should cost. Therefore, if the aim is to increase enrolment, then one would know how much it would cost per student, compared with, say, supply-side interventions.

Given that local problems require local solutions, then small pilots – preferably with a randomized roll-out, properly identified treatment and control groups, baseline and follow-up surveys – can be used to inform policymakers about what works and how. For example, if the quality of schooling is very poor, simple cash transfers could

simply make everyone worse off. In such cases, it would be better to combine demand-side programs with a quality intervention, or to design a very different demand-side program (such as food for education if there is evidence that lack of nutrition is contributing to poor schooling outcomes). An alternative would be a targeted voucher to allow parents to choose better performing non-public schools; or school-based management initiatives that channel more resources to schools and generate parental participation and heightened levels of accountability.

Therefore, it is important that programs experiment with different approaches and combinations. That is, implement different demand-side financing programs, such as scholarships, targeted vouchers, conditional cash transfers, and so on, depending on the educational problem being addressed. In some cases, it might be useful to combine with quality interventions such as compensatory education, teacher training, or female empowerment, among other interventions.

In addition, to the extent possible, demand-side programs should be rolled out over time in a randomized manner. For example, if 1,000 villages are set to be beneficiaries in the next three years, then it would make sense to randomly select 500 as the treatment group and the rest become the control group for the next two years, at which time they too become beneficiaries (if the program is sustained). The pilot should have proper treatment and control groups, with baseline and follow up surveys, rigorous evaluation and dissemination of results. All this should be done before deciding when to scale up. Before the program begins, it is important to undertake prior research on the main schooling problems to be addressed. The research should include evidence on income constraints of families, the costs of schooling, and so on, along with consideration of fiscal constraints. Therefore, the recommendation is to start small and scale up over time based on the evaluation results.

Conclusion

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- ***Students learn best within cohesive and caring learning communities.***
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Demand-side programs produce benefits beyond immediate schooling goals, such as the ability to tie together short-run assistance and long-run human capital formation to fight poverty. They address gender issues by giving incentives to girls and/or by making mothers the recipients of the transfer. Demand-side programs help improve educational outcomes. In most cases, they lead to higher school attendance rates and lower school drop-out rates.

The most comprehensive programs contribute to the reduction of child labour, increased educational attainment, and improved health and nutrition for the poor. The phased implementation of such programs makes it easier to evaluate their impact, and the dissemination of results helps justify their continued growth. However, few programs are rolled out this way and, therefore, very few are subject to this level of evaluation. Since fiscal affordability will remain an issue, then it is doubly important that they be properly evaluated.

In addition to rigorous evaluation, demand-side programs should be reviewed for needed modifications and expansion. Since most poor children already get primary education in middle-income countries, as well as some lower income countries, then the cost per child of bringing new children into the system among the difficult-to-reach is high. In such cases, it might make sense to expand to lower secondary and even the upper secondary school level. Demand-side programs require complements such as good physical access and quality of services to ensure schooling. Therefore, conditional cash transfer programs

in education may be best suited to settings where poverty is chronic and human capital outcomes continue to be low despite efforts to provide extensive and good quality services on the supply side.

If the outcomes associated with the few programs that have been rigorously evaluated continue, then demand-side financing might be the key to achieving an important part of the Millennium Development Goals. That is, demand-side financing could be used to provide an important strategy for achieving universal primary education in the near future.

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