

A Review of Demand-Side Financing Initiatives in Education

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In the last few years, some very important demand-side financing initiatives in education have been implemented in a number of countries, including Progreso in Mexico and Bolsa Escola in Brazil, resulting in a number of evaluation reports. 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 families to attend school and programs that channel public funds for education through the beneficiary and their family are seen by many as more efficient uses of resources and far more effective at improving education outcomes than most supply-side interventions. The available evidence on the impact of – and/or experience implementing – demand-side financing interventions is reviewed. It is tentatively concluded that demand-side financing programs have improved educational indicators and outcomes. In most cases, they led to higher school attendance rates and lower school dropout rates. Evaluation results indicate that these program have led to significant reduction in both school dropout and repetition rates.

• Preliminary and incomplete.

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Purpose of Paper and Summary

Demand-side financing, the principle of channeling resources to education through students and their parents or basing school funding on enrollments, has been proposed for a number of reasons in different countries. 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. Even *free* education may not entice poor families. 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 aim is to counter the constraints that prevent children from either attending school or from continuing their education.

This paper reviews the available evidence on the impact of – and/or experience implementing – demand-side financing interventions. This review will collate available evidence specifically looking at some of the proposed benefits of demand-side financing, namely:

- Schooling gains in terms of higher enrollments, attendance, completion and achievement
- Choice of school
- Efficiency gains to the system
- Cost-effectiveness

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 – while targeted voucher schemes will. Similarly, efforts to improve the relevance of schooling by contracting out school services are also not reviewed here.

Demand-side financing programs have improved educational indicators and outcomes. In most cases, they led to higher school attendance rates and lower school dropout rates. Evaluation results indicate that these programs have led to significant reduction in both school dropout and repetition rates. The most comprehensive programs, such as Mexico's *Progresa*, has contributed to the reduction of child labor, increased educational attainment, and improved health and nutrition for the poor. *Progresa* increased transitions to secondary school by nearly 20 percent. Educational attainment is estimated to eventually increase by two-thirds of a year because of *Progresa*. Larger effects would probably arise if benefits were extended beyond the ninth grade. The phased implementation of *Progresa* made it easier to evaluate its impact. The rigorous evaluation that followed makes the evaluation results so persuasive, providing powerful arguments for advocates of the program to press for its adoption in other countries.

The main determinant of whether children work or attend school is family income. Most families in poor countries would prefer to send children to school instead of work, but they cannot afford to forgo the income their children bring home. Demand-side financing programs raise family income and reduce the cost of attending school. Demand-side financing programs are also very cost-effective. For example, *Progresa's* grants to families are a much more cost-effective instrument for increasing school enrollments in Mexico than are alternative supply-side interventions such as building more schools. Such programs benefit most the poorest, with

uneducated parents, and those living further away from a school. Incentive schemes are proving to be very effective in increasing access to secondary education. This is true in high enrollment countries such as Mexico as well as countries where enrollment rates, particularly for girls, have historically been very low, as is the case in Bangladesh.

Demand-side financing is a very useful tool for promoting access to underserved populations when private schools are allowed to take in the excess demand, as was the case in Colombia's targeted secondary school voucher program. If these outcomes continue, then demand-side financing schemes could be a very powerful way of achieving an important part of the Millennium Development Goals, especially the achievement of universal primary education.

Introduction

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 enrollment rate is high, there are still areas with little access to education. Often this is the poorest segment of the population. Table 1 shows that in some countries there is a sizable 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 enrollment rates between the poorest and the richest is high. At the secondary school level, the poorest 20 percent is especially disadvantaged.

Table 1: Net Enrollment Rates (percent)

Country	Age group	Income quintiles					Overall
		1	2	3	4	5	
Brazil	7-12 years	86	93	96	98	99	93
	13-16 years	71	76	81	88	95	81
Colombia	7-12 years	88	91	94	97	99	93
	13-16 years	66	75	78	83	92	78
Mexico	7-12 years	92	97	97	99	99	96
	13-16 years	49	68	72	82	92	70
Nicaragua	7-12 years	66	82	85	89	95	82
	13-16 years	47	60	72	77	84	67

Source: IDB

In an attempt to improve the quality of public education 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 some expression of demand by users, be it income, education curriculum or attainment of special skills.

In the last few years, some very important demand-side financing initiatives in education have been implemented in a number of countries, including *Progreso* in Mexico, which has resulted in a number of evaluation reports. There has been considerable international press

coverage of demand-side financing – Gary Becker (1999) in *Business Week*, Alan Krueger (2002) in the *New York Times*, and a prominent mention in *The Economist* (2002).

Demand-Side Financing Mechanisms

A variety of demand-side financing mechanisms are reviewed here, including:

- stipends—cash payments, including scholarships and conditional transfers, made to families to offset schooling-related costs for a child
- targeted vouchers—cash payments given directly to families or schools based on enrollments, allowing for enrollment in public or private schools
- targeted bursaries—cash payments earmarked for specific purposes that may go directly to schools, municipalities or provinces
- student loans—used to help defray costs to the state and help a greater number of students access education—these are not reviewed here since usually for higher education
- community grants/community financing—funds given to a community and linked to attendance at a community institution; monetary or non-monetary (land, labor, materials and social marketing of benefits of education) support is included

A stipend is a cash payment that a public agency makes to a family to offset schooling-related costs for a child. By granting a poor student a tuition-earmarked stipend, for example, the local education authority reduces parents' (direct) cost of sending this child to school. For any level of perceived benefits of schooling, it is more likely that, with the tuition stipend now reducing the direct costs of schooling, the benefits of schooling will outweigh costs and the child's family will elect to send the child to school. The point of entry for tuition stipends is the demand-side and tuition stipends are financial mechanisms that affect education markets through the demand-side. Stipends are an increase in demand which raise both the quantity of education consumed and the equilibrium price of education. Stipends act to increase demand for schooling by lowering the direct and/or indirect costs of education and making it more likely that the utility-maximizing option for a family will be to send a child to school. Stipends can be earmarked for core expenses such as books, tuition and transport, and incidental expenses such as materials, game fees and clothes. These can also be known as scholarships or conditional cash transfers. Conditional cash transfers are anti-poverty programs specifically focused toward increasing investment in human capital. They represent a departure from previous programs for they are based on the premise that one of the fundamental causes of poverty and its intergenerational transmission is the lack of investment in human capital. The distinguishing characteristic is the provision of cash transfers on the condition that poor families take their children out of work and send them to school. If – rather than being earmarked for specific expenses – a stipend is a non-earmarked cash transfer, it can compensate families for the loss of the child's labor. In such a case a stipend can offset partially or in full the opportunity costs of education. In this case, they might be termed an unconditional cash transfer. Because they are directed at individuals, stipends can be useful mechanisms for achieving specifically targeted outcomes. Stipends can be provided to girls, children of the poor, members of disadvantaged national, ethnic or linguistic minorities, or other groups where access to education is insufficient. When the objective of stipends is to promote access for the poor, the difficulty most frequently encountered is means-testing – procedures for determining which potential recipients are, in fact, poor.

A targeted voucher is a cash payment given directly to students/families, typically by a public entity, to be used at a school that the student selects. The primary reason voucher programs are typically considered in developed countries is to increase the range of choices available to students, thereby benefiting both students and school systems. By making more schooling options available to students, it is possible that families will be able to choose an alternative that better meets their needs. By granting families this ability to sort and choose schools – by establishing much more direct lines of accountability – education systems should become more responsive to the needs of their clients. Vouchers can be used to extend choice to other public schools, but usually extend choice to private schools as well. Vouchers can boost demand for education and promote access.

Targeted bursaries are cash payments that may go directly to schools, municipalities or provinces and are earmarked for specific purposes, such as improving the curriculum or increasing school access for minority, indigenous or poor children. They are not given to students or their families but are made available to financial officers or the bursars at schools or relevant administrative offices. When targeted bursaries are used to reduce or eliminate school fees, their effect is essentially the same as a stipend. They reduce the direct costs of education and, therefore, increase the quantity of education demanded. Unlike vouchers, bursaries are not portable, but rather are institution-specific. Targeted bursaries can also be used to finance a variety of school improvements: curricula, better trained teachers, development of materials that better match the needs of local education system clients, and improved school facilities, for example. Related to targeted bursaries are school improvement funds, usually provided on a competitive basis to initiatives locally designed to promote increased school participation and autonomy. These goals are accomplished by allowing schools to decide on whom, where and when to spend additional resources.

Community grants are given to a community of students in a lump sum but are tied to attending a community-created institution. The term voucher-like is sometimes used because the amount of money is related to the number of students, and the approach has an element of choice. Parents choose to send their children to the community school, thereby making the community school eligible for cash payments. Payments may cover some expenses or the full cost of schooling. The grants are used to address gender equity issues by giving the scholarships in lump sums to the schools that girls attend. Community financing can occur through monetary contributions or through nonmonetary support in the form of land, labor, materials, food and social marketing of the benefits of education. Community financing can be used to expand the range of education places or options available, to improve the quality of schooling offered, or to increase demand for education.

Some demand-side financing initiatives in developing countries are listed in Table 2. These non-World Bank-financed programs include monetary incentives, as well as in-kind transfers, designed to entice families to send their children to school or in some cases to make schooling more relevant or to improve the efficiency and effectiveness of the overall system of education.

Table 2: Demand-Side Financing of Education in Developing Countries
Non-World Bank-Financed

Country	Mechanism
Argentina	<i>Bono Escolar</i> —stipend for school attendance
Bangladesh	Food for Education—stipend for school attendance
Brazil	Stipends to keep poor students in school (<i>Bolsa Escola</i> ; PETI)
Botswana	Matching-grant schemes
Chile	Education stipends (<i>Subsidio Único Familiar</i>) to poor families with children between the ages of 15 and 18
Costa Rica	?
Ecuador	<i>Becas Escolares</i> —stipends for school attendance
Gambia	Targeted stipends; capitation grants for all students
Ghana	Matching-grant schemes
Haiti	<i>Fonds de Parrainage National</i> —stipends for poor in private schools
Honduras	Family Allowance Program (PRAF)—stipends
India	Matching-grant schemes and numerous incentives
Mauritius	Matching-grant schemes
Mexico	Stipends for school attendance targeted at poor (<i>Progresa</i>)
Myanmar	Community-sponsored schools
Senegal	Scholarships for students to attend private and public schools in Dakar
Sri Lanka	Janasaviya Program (JSP), stipends to entrepreneurs for skill training
Thailand	Bicycles for poor students in rural areas
Venezuela	<i>Subsidio Familiar</i> --stipends for poor students
Zimbabwe	Per capita grants

Sources: Patrinos and Ariasingam 1997; <http://www.progresa.gob.mx/>; Leach 1998; <http://www.adb.org/Poverty/Forum/pdf/Kelegama.pdf>

In OECD countries, 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. Most of the examples in Table 3 resemble voucher-like schemes.

Table 3: Examples of Demand-Side Financing in Education in OECD Countries

Country	Mechanism	Private enrollments (%)
Australia	Assistance to private schools	
Austria		
Belgium	Students choose among public and private schools	
Canada	Capitation grants and assistance to private schools	
Czech Republic	Students choose among public and private schools	
Denmark	Public subsidies to private schools	
England	Assistance to private schools	
France	Private schools receive subsidies from Government	
Hungary	Students choose among public and private schools	
Japan	Assistance to private schools	
Netherlands	Students choose among public and private schools	
New Zealand	Targeted funding, targeted vouchers	
Poland	Students choose among public and private schools	
Scotland	Students choose among public schools	
Spain	Pre-school voucher experiment	
Sweden	Capitation grants	
United States	Public and private vouchers; charter schools	

Sources: Patrinos 2000; Filer and Munich 2000

In World Bank-financed projects in recent years there has been considerable experimentation with demand-side financing in education (Table 4). Of the 32 projects listed, 20 have stipend components. Further, the stipends for education do not all originate in the education sector. Some are found in social protection projects, where conditional cash transfers are used to distribute resources to the poor.

Table 4: Demand-Side Financing in World Bank Education Projects

Country (year) and Project	Mechanism	Cost \$m*
Bangladesh (1993) Female Secondary School Assistance	Stipends for girls	42
Bangladesh (2002) Female Secondary School Assistance II	Stipends for girls	76
Benin (2000) Labor Force Development	Support private sector training	3
Bulgaria (2000) Education Modernization	Student loan	1
Chad (1993) Basic Education	Community financing	1
China (1994) Basic Education in Poor and Minority Areas	Targeted bursary	30
Colombia (1993) Second Education	Targeted vouchers	8
Colombia (2001) Human Capital Protection	Stipends for poor	49
Dominican Republic (1995) Second Basic Education	Support private schools	4
El Salvador (1997) Secondary Education	Stipends for low-income	3
Guatemala (1997) Basic Education Reform	Stipends for girls	1
Guatemala (2001) Universalization of Basic Education	Stipends for girls	5
Indonesia (1996) Sumatra Junior Secondary Education	Stipends for poor	13
Indonesia (1996) Central Junior Secondary Education	Stipends for poor	16
Indonesia (1999) Sumatera Basic Education	Stipends for poor	17
Indonesia (1999) Sulawesi & Eastern Islands Basic	Stipends for poor	15
Jamaica (1996) Student Loan	Student loans (higher education)	29
Jamaica (2001) Social Safety Net	Stipends for poor	40**
Kenya (1994) Micro & Small Enterprise Training	Training voucher	6
Kenya (1997) Early Childhood Development	Community grants	4
Mexico (1998) Higher Education Financing	Private student loan	180
Mexico (1994) Second Primary Education	Bursary for poor	412
Morocco (1991) Rural Basic Education	Stipends for girls	9
Mozambique (1999) Education Sector Strategic Program	Stipends for girls	9
Nepal (1999) Basic and Primary Education	Stipends for girls	1
Nicaragua (1999) Second Basic Education	Stipends for poor	1
Nicaragua (year?) Social Investment Fund	Stipends for poor	?
Pakistan (1993) Balochistan Primary Education	Stipends for poor	1
Panama (2000) Second Basic Education	Stipends	9
Tanzania (1997) Human Resource Development Pilot	Stipends for girls	6
Turkey (2002) Social Risk Mitigation	Stipends for poor	260**
Zambia (1999) Basic Education Subsector Investment	Bursary for poor	1

* Total financing of demand-side component; **Includes health and other components

Innovative demand-side financing programs were described at length in a World Bank publication (Patrinos and Ariasingam 1997). These projects have now closed or are in their last phases. Some had large demand-side financing components. While some changed focus over time, the experience with implementation/evaluation will be discussed below – except for those projects where the demand-side financing component was never implemented or the project focused on higher education or contracting out services.

Evaluations and Issues

Unfortunately, very few of the demand-side financing programs have been subject to rigorous evaluation. That is, except for *Progresa* and a few others, most programs do not have an adequate baseline, proper control groups and random assignment of benefits. Of course, some programs' nature does not allow for this. There is more information of any sort on some programs, while for others one possesses little documentation. It is also very early in the history of most programs to draw too many conclusions. The design and coverage of most programs is often very different, making comparison across programs difficult. Nevertheless, there is a lot that can be said about the programs that have a relatively long implementation period and for which some level of evaluation or assessment has taken place. There are a number of large demand-side financing programs, some of which are listed in Table 5.

There are few reviews of the evaluation/implementation results of the major programs in the literature. For the Latin America region, evidence on the effectiveness of conditional cash transfer programs was recently undertaken (Sedlacek *et al.* 2001). It was concluded that the programs improved educational indicators and outcomes. *Bolsa Escola* (Brazil's stipend program) led to higher school attendance rates and lower school dropout rates. Mexico's *Progresa* (now called *Oportunidades* and about to be extended to urban areas) has a significant impact on education, whereby primary school attendance increased by 2.2 percent – given a high enrollment rate of 92 percent – but secondary school attendance increased by 8.4 percent from a base of 65 percent. The level of cash transfers remains an open question (Sedlacek *et al.* 2001); that is, it is unclear if the grant is meant to compensate families for lost wages or pull them up to the poverty line. In *Bolsa Escola*, the grants do not vary by characteristics of the recipient; that is, they do not offer higher grants to older children, for whom the opportunity cost is greater. *Progresa* does offer higher grants by age. *Bolsa Escola* provides a grant for each family, rather than for each child. Still, demand-side programs require attention to the supply-side. There are, after all, supply constraints such as lack of schools and school quality that limit enrollment by the poor. Fiscal affordability will remain an issue in such programs.

In on-going work, Morley and Coady (2002a, 2002b) are analyzing the effects of conditional cash transfers on poverty, schooling and inequality. So far, they have amassed information on the effectiveness of such programs as *Progresa* in Mexico, *Bono Escolar* in Argentina, *Bolsa Escola* in Brazil, *Subsidio Unitario Familiar* in Chile, PRAF in Honduras, a subsidy to female students in China, and Food for Education in Bangladesh.

A model for understanding the benefits of demand-side programs is developed by Wodon *et al.* (2002) in which it is predicted that programs that make assistance conditional on attendance or that are associated with already being enrolled in school will not reach the very

poorest. The model is confirmed using survey data from programs in Colombia (in kind assistance and school breakfast programs), Honduras (PRAF) and Mexico (school breakfast and cash stipends for primary school). The authors argue that the design of such programs needs to consider the needs of the poorest and to adjust assistance accordingly.

Table 5: Selected Demand-Side Financing Programs

		Payment/child/month (\$)	Program in \$m
Bangladesh			
	Food for education	1999	3
	Female scholarships		1.25
Brazil - Bolsa Escola		2001	6
	PETI	1999	13
		Unit cost: 240 per teacher/year	
Chad		1993	34
Chile – SUF		1998	6
China		1994	79/year
Colombia			\$143/year
Ecuador - <i>Becas Escolares</i>		2001	\$72 per year
			35,000 students
Guatemala – Girls’ scholarships		2000	Q25
			Q14.5
Honduras - PRAF II		2002	3.2
Indonesia - Scholarships		1999	
			350
Mexico – PROGRESA		1998	
	third year		3.8
	secondary school		10.8
Nicaragua – FISE		2002	\$27/family ^a
Pakistan		1993	4

Sources: Morley and Coady 2002; <http://www.pps.gov.ec/paginas/becaescolar/quienesomos.htm>; Lavinias et al. 2001

a. Health and education

Schooling Gains

Enrollments and Attendance. Research on the effectiveness of demand-side programs finds that one of the principle reasons for low enrollment among the poor is family income, which acts as a binding constraint. Beyond primary schooling the direct costs of secondary education – including tuition, school supplies, uniforms and transportation – act to reduce enrollment considerably, especially for girls. In Bangladesh, one year of tuition alone is equivalent to half of an average family’s disposable income. Of course, in addition to direct costs there are significant opportunity costs associated with schooling. Opportunity costs increase as girls become older and more productive and, therefore, have a greater negative impact at the secondary than at the primary school level. Bangladesh’s Female Secondary School Assistance Project (FSSAP) – which targets girls’ secondary school enrollment and completion by providing girls with a stipend – led to considerable schooling gains at the secondary level because they directly addressed the costs associated with school attendance.

Bangladesh's Food-for-Education program, was launched on a pilot basis in 1994. In 1995-96, 2.2 million children participated (13 percent of total enrollment). It entitles children of poor families to 15 kg of wheat each month if they enroll in primary school and maintain 85 percent attendance (Amin and Sedgh 1998). The program is a strong incentive for school attendance (Ravallion and Wodon 2000). A stipend with a value considerably less than the mean child wage was enough to ensure nearly full school attendance among participants. The enrollment subsidy also reduced the incidence of child labor, an effect that accounted for only a small proportion of the increase in school enrollment. The reduction in the incidence of child labor among boys (girls) represents about one-quarter (one-eighth) of the increase in their school enrollment rate. Work may well displace time for doing homework or attending after-school tutorials, for example. Ravallion and Wodon (2000) were unable to identify such effects from the data available. Other benefits included: average time spent in school increased – but average time spent in school low relative to those who attend regularly; short school day makes program attractive; children able to attend school while contributing to household labor; adolescent boys less likely to stay in school; and a big delay in marriage for girls (Arends-Kuenning and Amin 2000). Ravallion and Wodon (1998) found that the programs increased attendance by 24 percent of the maximum feasible days of schooling. Wodon (1998) estimated that it increases school enrollment by 21.1 percent by household per 100 kg of rice. While judged cost-effective compared to other programs, 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.

Indonesia's social safety net scholarship program was put in place at the start of the 1998/99 school year to prevent large numbers of children from dropping out of school as a result of the Asian financial crisis. A five year program, it aims to provide scholarships to more than 6.5 million students and grants to 132,000 schools each year. The scholarships were found to have been effective in reducing dropouts at the lower secondary school level by about 3 percentage points but had no discernible impact at the primary and upper secondary school levels (Cameron 2000). Fewer children are now working, although the older children who are working and are not attending school seem to be working longer hours (Cameron forthcoming). The scholarships reduced the probability of dropout at the lower secondary level but did not affect dropout rates at the primary and upper secondary levels. This is consistent with the position that lower secondary students are most likely to drop out. Scholarships helped reduce lower secondary school dropout by 2.4 percentage points, or 24 percent (Cameron 2002).

Pilot scholarships for poor students in grades 4 to 6 – *Fondo APRENDE* – in Nicaragua's Second Basic Education Project has so far benefited more than 1400 students in 158 schools in 2000 and 2001 (Castro 2002). Another program that after ten years of providing solely supply-side investments, Nicaragua's Social Investment Fund, added a scholarship program operates as a conditional cash transfer. One of the aims of the program is to increase the rate of school enrollment and attendance for poor children in grades 1 to 4. During the two-year pilot phase, the program benefited more than 60,000 people in 10,000 households. About 95 percent of beneficiaries comply regularly with all conditions. School enrollment rates for children in grades 1-4 are 94 percent for scholarship recipients compared to 75 percent in the control group (Vermehren 2002).

However, scholarship programs do not always work out as intended. Girls scholarships in Morocco's Rural Basic Education Development Project failed to substantially increase enrollment rates. The problem was the lack of awards given out. The number of boarding scholarships awarded to students from rural areas did not meet expectations. Instead of the 9,500 boarding scholarships expected, only 6,090 were actually awarded. Of these, only 17 percent went to girls, far below the 40 percent expected. Of the 634 canteen scholarships awarded, only 19 percent went to girls (World Bank 1999).

In Balochistan, Pakistan's community grants approach, in the Urban and Rural Fellowship Program, small amounts of public funds were used to leverage private funding for the establishment of private girls' schools in poor urban and rural areas. Schools in urban areas received a monthly subsidy of about \$3 per girl up to a maximum sufficient for 100 girls. In urban areas, the schools have been successful. By the second year after the schools opened, enrollment in these neighborhoods rose 20 percent for boys and 26 percent for girls. The increase in boys' enrollment was a positive externality of subsidizing girls' education at no additional cost. All schools exceeded the enrollment targets set by the project designers and, in all but one school, enrollment continued to increase even after the subsidy had ended. By 1999, overall enrollment in the fellowship schools had increased 74 percent from the schools' initial enrollment level in 1995. In rural areas the program was not as successful. Girls' enrollment increased by 10 percent; at the same time, boys' enrollment fell by 7 percent (Kim, Alderman and Orazem 1999). Of the 27 original rural schools, it appears that only one remains a viable private school (Orazem 2000). The impact evaluation of Tanzania's Human Resource Development Project found that absolute enrollments have risen overall in the community-supported districts but it is difficult to conclude that this is attributable to the project intervention. In 1997, the number of students enrolled rose by 6.2 percent, in 1998 it fell by 0.05 percent, and in 1999 it rose again by 5.2 percent (Markov and Nelleman 2001). The community approach did not work as well in Chad, where community schools' parent associations were supported.

Completion. *Progresa* increased transitions to secondary school by nearly 20 percent. Educational attainment is estimated to eventually increase by two-thirds of a year because of *Progresa*. 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 used to make the awards) completed more years of schooling than the lottery losers and were less likely to repeat grades (by 5-6 percentage points). Female lottery winners completed more years of schooling (0.14) than boys (0.12). The winners were 13-15 percentage points more likely to finish the 8th grade than losers, primarily due to reduced repetition. This translates into a 25 percent increase in secondary school completion rates.

Achievement. *Progresa* also gives resources to schools aimed at improving the quality of the schools in the communities. However, better equipped schools do not seem to attract a greater number of ineligible children. In other words, there are no spillover effects. 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 FSSAP participants 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. Unlike conditional cash transfers in health – in Nicaragua improvements in health outcomes were a condition for receiving further cash benefits; while the education grant is conditioned only on regular school attendance, the health grants are conditioned on weight gain of the children aged 0-4, accompanied by intensive growth monitoring and hygiene and nutrition training for the 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 (Vermehren 2002) – no quality conditions are usually set in education programs. An evaluation of the *Bolsa Escola* program examined whether or not the school grant had an impact on school performance, measured through a third grade math test. Receiving grants was not a significant determinant of test score after controlling for other factors. The school grant does not affect school performance (Lavinás *et al.* 2001). 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 (King *et al.* 1997). Therefore, in conditional cash transfer programs, there must be careful consideration of the quality of the education system if one wants the short-run stipend intervention to have a long-run impact on educational outcomes.

Another outcome of education is labor market success. Since the stipend programs are successful in significantly increasing the quantity of schooling, then individuals' earnings are sure to 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. Thus, increasing schooling attainment should increase labor market earnings in the long run (see Table 6). Returns to another year of schooling are typically above 10 percent a year in most countries, higher for lower levels of schooling. In the cases where evaluations have projected future earnings, the gains are highly significant. The rate of return to education in Guatemala is high. For women with less than one year of education, their earnings are only \$220 (World Bank 1995). Thus, per year of average increased attainment, scholarship participants could expect to earn an additional \$35 over what they would have earned in the labor market without the scholarship incentives. Few cases, however, have estimated learning gains, although in the case of Colombia's PACES the gains were significant and positive. 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.

Table 6: Outcomes of Stipend and Voucher Programs as a Result of Increased Schooling Attainment

Country (program)	Rate of return to additional year of schooling (%)	School achievement as result of program	Earnings gain as result of program
Brazil (<i>Bolsa Escola</i>)	14.7	ns	nr
Colombia (<i>PACES</i>)	14.0	+	10%
Guatemala (<i>Eduque a la Niña</i>)	14.9	na	\$35
Indonesia (JPS)	7.0	na	nr
Mexico (<i>Progres</i> a)	7.6	ns	8%*

Sources: Psacharopoulos and Patrinos 2002; Wu 2001b; Lavinias; Liang; Schultz

* Overall rate of return to program; ns=not significant; na=not applicable; nr=not reported

Choice of School. Clearly, voucher programs are meant to increase choices for the population. Demand-side financing programs can also be designed to increase choice and increase diversity in the school system. 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 selected out of the program. The participant schools were predominantly of average quality, charging low fees. Voucher recipients at these schools typically came from 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 lottery winners to attend private schools which may be better than comparable public schools, and giving stronger incentive for voucher recipients to devote more efforts to schools because failing a grade would disqualify them from keeping the voucher. This incentive has led to reduced work outside school, lower repetition, higher attainment and higher achievement. The program shows how vouchers can, in principle, allow a central funding body to complement local resources and private education providers to address public sector constraints. In terms of municipal participation, adoption was most likely in municipalities where preexisting private schools could expand capacity, where a large proportion of students were already enrolled in private schools, and where there was a limited number of under-served students. Municipalities with very large numbers of under-served students or with relatively little preexisting private school capacity opted not to participate, presumably because the total cost to them of the voucher system would exceed the cost of building additional public schools (King, Orazem and Wohlgemuth 1999).

In Pakistan, community grants led to the creation of viable private schools in urban areas serving the poor. In fact, 6 of the 11 original schools were self-sufficient by 1999. The remaining 5 schools required only a small subsidy – only 15 percent of the cost per student at government schools. The new schools addressed an unmet demand and the resulting increase in enrollment 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 other cases, such as Guatemala's *Eduque* scholarship program, the grants are intended to allow parents to send their children to the local public school.

Efficiency

Targeted programs are not always cheap. Administration, monitoring and anticorruption costs can significantly increase the total cost of the program. Colombia's targeted voucher program increased the total cost. A cost-benefit analysis, however, shows that it was a cost-effective means of obtaining additional time in school and higher-quality education for participants (Angrist *et al.* 2001). Simply looking at additional program costs without considering countervailing benefits can lead to incomplete and incorrect conclusions. Program participants tended to stay in school longer and to achieve higher scores on standardized tests. Using data on participant and non-participant wages, Angrist *et al.* (2001) conclude that participation in the voucher program should raise participants wages by \$36 to \$300 per year. These benefits outweigh program costs.

Demand-side programs are usually well subscribed. Few eligible families fail to take up their entitlement. In the case of *Progresa*, almost all eligible families choose to participate (97 percent).

Demand-side programs contribute to poverty alleviation, especially in the case of targeted stipends since they often target at the household level. This is more effective than uniform coverage in terms of reducing the poverty gap and severity of poverty, even after taking into consideration the costs of targeting. There is, however, less impact on the overall poverty count. Moreover, it is argued that selection errors will occur as *Progresa* expands into less marginal areas where it becomes difficult to distinguish between the moderately poor and the non-poor (Skoufias *et al.* 2001).

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 program avoided subsidizing attendance for higher income groups at relatively more elite schools.

Demand-side financing programs, such as *Progresa*, benefit mostly the poor, especially children with uneducated parents and, interestingly, those living further away from a school. *Progresa* increases the probability of enrollment in secondary school by 8 percent for beneficiaries, which would increase the enrollment rate to 78 percent from a base of 72 percent for beneficiaries. Overall the enrollment rate is increased to 79 percent. This eliminates the difference between the poor and non-poor. Without *Progresa*, the predicted enrollment rate in secondary if there is a school in the village is 83 percent; if the school is further than 3.5 kms, then the predicted enrollment rate is 60 percent. With *Progresa*, the enrollment rate if there is a

school in the village is 89 percent, while if the school is further than 3.5 kms, then the enrollment rate rises to 68 percent; the gain, therefore, is higher in villages without a school: 9 percent versus 6 percent (Sadoulet *et al.* 2001).

The impact evaluation of Tanzania's Human Resource Development Project found improved financing and financial management: non-salary funding to primary schools has increased and increased parental involvement and improved school management.

Another open question is whether or not there is a minimum cash transfer that could achieve the same program impact (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 (Núñez *et al.* 1991). The rate was determined in the predecessor to the program, in which household surveys were conducted in the intended beneficiary communities. 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: (a) it would not be greater than the family's income; (b) it would be less than the capability of the girl to generate income through her own work; and (c) it would cover minimum needs to compensate a girl's family for her lost labor income and the cost of school supplies without establishing a dependency on the stipend. In Guatemala, \$4 has increased girl's attendance by at least 23 percent and reduced the dropout rate at least by half in the pilot project. But it will not attract families whose cost to send girls to school is higher than \$4. This is something that needs to be taken into account before any large-scale implementation (Liang and Marble 1996). 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.

Training provision is an obvious target for voucher programs. In fact, vouchers in the training field have been used in a number of countries, including Austria (REFs) and are promoted as a way of financing lifelong learning in both industrial and developing and transition economies (REFs). Kenya's Micro and Small Enterprise Training and Technology Project includes the Jua Kali Voucher Program. Between 1997-2001, the program issued 37,606 training vouchers. The impact has been very positive for those receiving the training (Johanson 2002a, 2002b). There were significant increases in employment, assets and income for enterprises. Among voucher recipients, 80 percent were able to grow their business (as compared to 13 among the control group); 61 percent added business assets (versus 21 percent among control group); and 59 percent of women seeking to enter had started a business. Also, there was a resulting increased willingness to pay cash directly to providers for subsequent training. Interestingly, skilled craftworkers (themselves self-employed), emerged as leading training providers (Adams 2001; Steel 2002).

Targeted Bursaries

Another form of demand-side financing, but not as narrowly focused as vouchers and cash transfers, targeted bursaries have been attempted in a number of countries, especially where minority populations are large. From 1994 to 2000, the China Basic Education in Poor and Minority Areas Project was implemented in six provinces and autonomous regions. The project was successful in expanding access for minorities by financing the upgrading of facilities and

equipment, piloting of schools, human resource development and book procurement. All quantitative project targets were achieved. Over 170,000 teachers were trained, over 98 percent of schools in target areas achieved relevant building standards, over 17,000 schools were provided with MOE-specified equipment, net enrollment for girls increased substantially, repetition in grade one was decreased, completion rates increased, system efficiency improved, student-teacher ratio targets were met, the number and percentage of qualified teachers were increased, and nearly twice as many students as originally projected received free textbooks. The project was also successful in the development of bilingual textbooks and the training of bilingual teachers. Targets for development of bilingual textbooks and for teacher bilingual education were surpassed. Over 5,000 teachers received bilingual training. A Minority Education Training Center focusing on policy research and management training for minority education was established. The project also financed studies on effective teaching, learning technologies, and multigrade teaching geared to minorities, particularly girls. During the course of the project, numerous studies on pressing issues related to minority and girls' education were carried out.

Mexico's bursary for poor students covered ten states and supported the government's strategy of poverty alleviation by increasing investments in primary education. It focuses on the most disadvantaged states and most disadvantaged areas within these states. One component of the project channeled \$194 million toward the education of indigenous children by providing for teacher training and incentives, textbooks, didactic materials, reading corners, as well as school construction, rehabilitation, and maintenance. The project helped 13,800 project primary schools establish school councils and parents' associations. At internal evaluation of the project documented that completion rates in project schools increased from 67 percent in 1994/95 to 80 percent in 2000/01; dropout rates declined from 6 to 2 percent; and repetition rates fell from 10 to 8 percent (World Bank 2002b).

Cost-Effectiveness

Increasing schooling levels through cash transfers not only helps reduce child labor, increase schooling levels and reduce poverty; they are also cost-effective. Although demand-side financing is not a panacea, it appears to more effectively increase education and reduce child labor than popular alternatives. This is especially the case at the secondary school level.

In Mexico, it was estimated that for a representative cohort of 1,000 boys and 1,000 girls, the demand-side impact estimates imply 254 and 532 extra years of schooling for boys and girls. This is compared to the impact of expanding the supply of education: girls would receive 27 and boys 25 extra years of education as a result of the decrease in distance to school. Comparing the cost-effectiveness of education subsidies with that of extensive expansion, it is clear that education subsidies are a substantially more cost-effective method of increasing the number of children enrolled in school. The lowest cost-effectiveness ratio for extensive expansion is for a 40-year period of impact on girls' enrollment with zero discounting at just below \$103,600 per extra year of schooling. The largest cost-effectiveness ratio in the case of secondary education subsidies was just over \$12,600 for boys (Coady and Parker 2001). Therefore, the demand-side program is a cost-effective way of getting more children into secondary school.

International and Global Extensions

Former Governor of the state of Brasilia, Cristovam Buarque, who established one of the first scholarship programs, has proposed a new initiative: an international *Bolsa Escola* fund. The plan is to establish a fund which would be used to benefit disadvantaged children in poor countries. Such a fund would be financed by bilateral and multilateral funding agencies (through grants and loans), and would count on counterpart funding from the local governments involved. Attempts have been made to push for a *Bolsa Escola* plan for other countries. Buarque (2001) estimates that if the world's 250 million working children's families (83 million) were provided a grant of \$40 per month, it would require a global effort of \$40 billion, estimated to be only 0.13 percent of all countries' gross income (<http://www.ceu.hu/cps/eve/globconf/papers/buarque.rtf>). For Africa, he assumes a monthly grant of \$20 per child. Getting the 90 million out of school children in Africa in school is estimated to cost just over \$7 billion a year.

Others have joined the chorus with *Bolsa Escola* and *Progresia* being touted as potentially contributing to the international development goals of providing education for all and for helping make development spending more effective (Krueger 2002). The ILO/UNCTAD Advisory Group (2001) reviewed the experience with *Bolsa Escola* and *Progresia* and recommended a similar approach, which they call the Minimum Income for School Attendance (MISA) initiative, for achieving the international education goals in Africa's poorest countries. Depending on how ambitious the program selected, they estimate full implementation would cost between \$50 to \$100 billion.

Graduation Incentives – A Special Case of Demand-Side Financing

Graduation incentives were tried in the first version of the *Bolsa Escola* in Brazil's Federal District, and proposed for Ecuador's *Todos los Ninos y las Ninas a la Escuela* (Lavinás ____). They are popular in the United States where they are used to keep youth in school and are often cited as an excellent strategy against youth crime. In fact, the only major evaluation of a graduation incentive program was assessed against other crime-reducing efforts in the United States.

In the United States, four different approaches to intervening early in the lives of children at some risk of eventual trouble with the law were undertaken (RAND 1996). Children assumed to be at-risk included those of young, single, poor mothers. The four approaches examined were: home visits by child-care professionals beginning before birth and extending through the first two years of childhood, followed by four years of day care; training for parents and therapy for families with young children who have shown aggressive behavior in school; four years of cash and other incentives to induce disadvantaged high school students to graduate; and monitoring and supervising high-school-age youths who have already exhibited delinquent behavior. Each of these approaches has been attempted and the evaluation assessed the efficacies of these pilot programs in terms of reductions in arrest or rearrest rates. Three of the four early-intervention approaches compare favorably in cost-effectiveness with incarceration. The evaluation indicated that crime could be reduced further through parent training, graduation incentives and supervision of delinquents. Graduation incentives had the highest crime prevention rates. When costs were added, graduation incentives had the highest crime prevention ratio per dollar spent.

Brasilia's school savings program, or *Poupança Escola*, accompanied *Bolsa Escola* in an effort to encourage school attendance and completion. The savings program provided a deposit of approximately \$90 into the account of each child whose family is a beneficiary of the scholarship program, if the child is successful in completing the year and is promoted to the next grade. Half of the amount deposited can be withdrawn when and if the child reaches the fifth grade. Withdrawals can be made again upon successful completion of the eighth grade, and then upon successful completion of secondary school. If all recipients complete each year of schooling successfully, then the cost of the program was estimated at \$4.3 million per year. This year, 18,900 pupils will receive their accumulated savings. The program was not continued after Governor Buarque left office and it was not emulated when *Bolsa Escola* was adopted as a national program. At one time, more than 90,000 students were participating in the savings program (*Correio Braziliense*, Brasília, 9 de abril de 2002).

Conclusions

Demand-side financing programs have improved educational indicators and outcomes. In most cases, they led to higher school attendance rates and lower school dropout rates. Evaluation results indicate that these programs have led to significant reduction in both school dropout and repetition rates. The most comprehensive programs, such as Mexico's *Progresá*, has contributed to the reduction of child labor, increased educational attainment, and improved health and nutrition for the poor. The phased implementation of *Progresá* made it easier to evaluate its impact. Too often demand-side financing programs do not have adequate project monitoring and evaluation mechanisms built in to track the impacts of project activities. Some programs are evaluated without baseline data. This severely limits the possibility of arguing that the results are actually evidence of program impacts. The rigorous evaluation that followed *Progresá* makes the evaluation results so persuasive, providing powerful arguments for advocates of the program to press for its adoption in other countries. Demand-side financing programs are effective because they address a root cause of low school attendance: low family income. The main determinant of whether children work or attend school – both across countries and across families – is family income (see, for example, Grootaert and Patrinos 1999). Most families in poor countries would prefer to send their children to school instead of work, but they cannot afford to forgo the income their children bring home. Demand-side financing programs raise family income and reduce the cost of attending school.

School incentive programs have worked extremely well. A number of new initiatives have been put in place to address the needs of working children and families with children at risk of not attending school. The most influential are programs which involve cash payments to low-income families of children who regularly attend school. The transfers are contingent on the children regularly attending school. The benefit levels are intended to offset some or most of the opportunity costs of not sending children to school. In the best examples, the subsidies vary by grade and gender of the child to address higher opportunity cost as the child gets older and in some countries the higher tendency of girls to drop out.

Conditional cash transfer programs have several benefits, as shown above, such as the ability to tie together short run assistance and long run human capital formation to fight poverty.

They ensure that families are proactive in seeking to improve their own welfare. Such transfers add a demand-side tool to help obtain desired social objectives. They also address gender issues by giving greater incentives to girls and/or by making mothers the recipients of the cash transfer. There are, however, some disadvantages. Since most poor children already get primary education, then the cost per child of bringing new children into the system is high. This adds to the findings presented above about extending benefits at the secondary school level in Mexico and perhaps reconsidering incentives at the primary school level. Also, such programs usually exclude poor families without children in the, right age range. Moreover, they require 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 are low despite efforts to provide extensive and good quality services. Typically such programs require significant administrative capacity to target, verify, get transfers to individuals, and coordinate among several agencies and many local agents (Grosh 2002). Such programs may not be as effective for reaching the very poor without additional interventions. But since these programs are efficient at reaching most of the poor, then in any given country one is talking about perhaps the last 5 percent. One intervention that could be tried would be stipend amounts over and above that given to the rest.

An important question remains. Could unconditional cash transfers with no strings attached have the same impact on the human capital investment of poor families? Empirical studies based on data from other countries find that an unconditional income change has a surprisingly small marginal effect on both school enrollment and child labor. Conditional cash transfers will increase education, but not necessarily child work. Not all kinds of work are substitutes for schooling. Increased school attendance may reduce children's leisure time rather than their work time (Ravallion and Wodon 2000).

For the typical family, as children's schooling increases, then future income is likely to increase significantly. However, conditional cash transfers, for example, compensate for lost labor, allowing parents to send children to school. Or, do parents send children to school in order to collect the cash? In other words, if the cash transfer was unconditional, would parents still send children to school? In poor, isolated communities, where such programs might be implemented, the mother may have little say over the allocation of family resources. Moreover, such payments represent only a small fraction of total household income so that the overall extent to which bargaining power can be increased is probably limited. Therefore, it may be better to make payments conditional in such cases. In bequest-constrained families, conditioning transfers leads to an increase in welfare of the child (Martinelli and Parker 2003). However, there are no experiments with unconditional transfers, so one might assume that conditional transfers work in the way theory says: they are freeing up children's time by compensating families for lost labor and allowing them to invest in their children's human capital as they intended.

Of all the programs considered here, stipends (conditional cash transfers and scholarships) and (targeted) vouchers seem to have the greatest effectiveness. Such programs are also the most rigorously evaluated. Nevertheless, other types of demand-side programs, such as targeted bursaries, for example, are given to schools, municipalities or provinces. Therefore, they are less useful than individually-focused instruments at achieving narrowly-targeted

outcomes. But rigorous evaluation cannot be overlooked. One could be a lot more confident about the results presented here if all demand-side programs, at least when originally implemented, were subject to more rigorous evaluation. The problems arising from a biased selection of the beneficiary sample and from not having baseline data are evident. If post-intervention measures show that targeted groups are doing better than the comparison group, this could be evidence of positive impact. Without baseline data it is not possible to establish this as an impact.

If these outcomes continue, demand-side financing programs, especially targeted vouchers and conditional cash transfer initiatives, might be the key to achieving an important part of the Millennium Development Goals. That is, demand-side financing could be used to achieve universal primary education in the near future.

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