1

Introduction

Despite decades of growth the world is facing an increasingly serious poverty problem. The World Bank recently estimated that almost half of the world's population of 2.8 billion are living on less than $2 a day, and one-fourth are living on less than $1 a day (World Bank, *World Development Report 2000/2001: Attacking Poverty*).[1] These averages hide important regional variations in levels of and trends in poverty, and both are particularly depressing for South Asia and sub-Saharan Africa. Over the last decade the numbers of poor in South Asia have increased by about 10 percent, and the prevalence of malnutrition has remained substantially higher than in other developing countries (Gillespie and Haddad 2001). Over the same period the poverty rate has actually increased slightly in sub-Saharan Africa, to about 48 percent, and the prevalence of malnutrition also has increased.

The Millennium Development Goals (MDGs), articulated by the United Nations in 2000, set a target of halving poverty and malnutrition from their 1990 levels over a 25-year period—that is, by 2015. Although it is widely accepted that renewed economic growth is a necessary condition for meeting these goals, it also is widely accepted that growth alone is insufficient.[2] Indeed, economic growth in most areas is not resolving the problem. Since 1990, the GDP in low- and middle-income developing countries has been growing by about 3 percent a year (World Bank 2001). Yet, except in China, the number of people living in poverty has been rising at the same time. In

1. All dollar amounts in this book are current US dollars unless indicated otherwise.

2. See, for example, Haddad et al. (2002) and Sahn and Stifel (2002) for more detailed, cross-country discussion.

effect, then, the world has become increasingly divided into a small group of successful countries that are growing rapidly and reducing poverty and a much larger group in which income growth has slowed, inequality is constant or rising, and the number living in poverty is rising (World Bank, *World Development Report 2000/2001: Attacking Poverty*). Even if the MDGs are achieved, the job remains only half done. Persistent poverty and malnutrition result in irreversible costs in both human and economic development. Clearly, more direct action is required and on a large scale.

The Role of Social Safety Nets

There is a fairly widespread consensus that social safety nets, which alleviate current poverty, play a very important role in the longer-term poverty alleviation process. In fact, for many of the world's poor, public safety net programs are their only hope of a life free from chronic poverty, malnutrition, and disease.

As practiced, however, these transfer programs often have shortcomings that undermine their effectiveness.[3] First, the transfers often fail to reach the most vulnerable groups. For example, a recent review by Coady, Grosh, and Hoddinott (2002a) of transfer programs in developing countries found that as many as one-quarter of the programs reviewed actually had regressive benefit incidence—that is, the proportion of benefits going to the poor was less than the share of the poor in the population.

Second, transfer programs are often not very cost effective because so much of the poverty alleviation budget is eaten up by unnecessarily large administrative costs. In addition, many programs are rife with corruption and operational inefficiencies, resulting in theft or other losses that reduce the resources available for distribution to vulnerable households.

Third, social safety net programs are often made up of a myriad of uncoordinated components, which, to be more effective, need to be better integrated in pursuit of a common set of objectives. For example, in Malawi 15 different public works, feeding, and transfer programs are being funded by various donors (Smith and Subbarao 2002).

Fourth, social safety nets usually have a short-term focus on alleviating only current poverty and thus generally fail to generate a sustained decrease in poverty independent of the transfers themselves. In fact, their design often introduces perverse incentives in order to meet eligibility criteria, with the result that, for example, labor supply and earned income fall, public transfers replace private transfers, or savings and asset accumulation are reduced. The right balance between incentives and public support is a difficult but important issue.

3. See Coady (2002a) for a more detailed discussion of these issues in the context of different components of social safety nets.

A New Approach to Social Safety Nets: CTE

In large part because of the types of concerns just described, developing countries and donors have recently experimented with and promoted the implementation of a relatively new approach to social safety nets: the conditioned transfer for education (CTE). It combines their traditional preventive roles with a developmental role. The preventive role addresses the problem of current poverty, whereas the development role attempts to promote a sustained decrease in poverty by improving the educational status within households.[4] In particular, investing in the educational status of children appears to play a key role in breaking the intergenerational transmission of poverty and destitution. This finding reflects the fact that households in extreme poverty tend to be poor not only in terms of income or consumption, but also in terms of their ownership of human capital. In this sense, programs that invest in the educational status of children are particularly focused on the "structurally poor" (as opposed to the vulnerable) whose poverty persists over time, reflecting their low asset base. By placing conditions on transfers to poor households related to human capital accumulation, these programs combine social assistance with social development.

Today, some investment programs seek to eliminate poverty by making people more productive and less poor in the long run. Some safety net programs give people money or goods to increase their income in the short run. CTE programs do both things at once. The cash transfer raises the income of the poor family just as any other safety net program would. But at the same time, the future earnings potential of the children of poor families is increased by the additional years of education they receive. Thus the programs, if successful, are a win-win combination. They are, in a sense, poverty-reducing transfer programs with a side educational benefit, or education programs with a side poverty-reducing benefit. Either way, they are a new and interesting tool in the fight to reduce poverty.

Two design features of CTE programs are especially important in achieving these objectives. First, the programs use a range of targeting methods (e.g., geographic, household proxy means, and community targeting) to ensure that program benefits reach the poorest households. Second, continued eligibility to receive benefits is conditioned on households keeping their children in school. Failure to meet these conditions leads to loss of benefits, usually at first temporarily but eventually permanently.

The design of these programs thus recognizes not only the fundamental right of individuals to a basic education but also the responsibilities of individuals and households in achieving this end. Although many of the

4. Many of the programs discussed later in this book also have nutrition and health components. For a detailed discussion of the design and performance of these components, see Rawlings and Rubio (2002) and Coady (2002b).

programs are very centralized—that is, they are designed and implemented by the federal (or central) government—this feature is not necessary. For example, even the centralized programs, which essentially bypass state-level governments, are designed so that community-level organizations play a crucial role. For example, in Mexico's Programa de Educación, Salud y Alimentación (Progresa) the "community promoter" is a beneficiary, who is elected by other beneficiaries. She (the transfers are always given directly to mothers) plays the role of liaison officer between the program officials and beneficiary communities, arranging regular community meetings with beneficiaries, informing beneficiaries of their rights and responsibilities under the program, and communicating beneficiary concerns to program officials. It has become increasingly obvious that community-level organizations can play a crucial role not only in ensuring that beneficiaries receive the transfers due to them, but also in monitoring the effectiveness of the education services available. Undoubtedly, there is even greater scope for exploiting this resource to improve program effectiveness.

Although CTE programs exist in various forms in many countries, they recently have become increasingly popular in Latin America.[5] For example, there is Bono Escolar in Argentina, Bolsa Escola (BE) in Brazil, Subsidio Unitario Familiar (SUF) in Chile, Beca Escolar in Ecuador, Progresa in Mexico, Programa de Asignación Familiar (PRAF) in Honduras, and Red de Protección Social (RPS) in Nicaragua. Other programs exist or are in the planning stages in Bangladesh, Colombia, Jamaica, and Turkey. The growing interest in such programs reflects, in part, the fact that the Mexican government's unusually rigorous evaluation of its Progresa program has shown it to be very effective.[6] The Inter-American Development Bank (IDB) also has played a key role in evaluating and promoting these programs. Undoubtedly, development institutions in other regions of the developing world and the donor community can play a similar role.

Many of the CTE programs are large scale in both budgets and beneficiary numbers. The biggest of these cash-for-school-attendance programs are Progresa in Mexico, Bolsa Escola in Brazil, and the Food for Education (FFE) program in Bangladesh. By 1999 Progresa was spending about $780 million annually, or about 0.2 percent of GDP, and reaching 2.6 million

5. See the appendix to this volume for descriptions of the programs in Mexico, Bangladesh, Nicaragua, Honduras, Brazil, and Chile.

6. This evaluation, and many of the others discussed later, were coordinated by the International Food Policy Research Institute; various reports can be downloaded from its Web site, www.ifpri.org. Also see the article by Alan Krueger ("Putting Development Dollars to Use: South of the Border," *The New York Times,* May 2, 2002) for a call for greater emphasis on such evaluations as a way of identifying more effective poverty alleviation and development policies.

households in 41,000 localities, or more than 10 percent of all families in Mexico. In Brazil, as of 2001 Bolsa Escola was spending almost $700 million a year and reaching 8.6 million schoolchildren, or one-third of all the primary schoolchildren in that country. In Bangladesh, by 2000 the FFE budget was $77 million, and 2.2 million schoolchildren (13 percent of total school enrollment) were beneficiaries. Thus these programs represent a fairly major commitment of scarce resources in the countries that have adopted them. They account for between 0.1 percent and 0.2 percent of gross national income and from a bit less than 1 percent of the total government current expenditure in Chile and Brazil to over 5 percent in Bangladesh. More specifically, they account for from 2.5 to 5 percent of the total amount governments are spending on education. If the primary school share of total government spending on education is about a third, these countries are devoting to these programs up to 15 percent of what they are spending altogether on primary education. By any of the three measures, the sums devoted to these programs seem quite large. However, the net budgetary impact of these programs may be smaller than the numbers just reported, because in some cases the programs may be transformations of existing programs, or the receipt of program benefits may require relinquishing eligibility for other transfer programs.

Benefits of CTE Programs

An important attraction of CTE programs is their focus on improving the human capital outcomes for the poorest households in developing countries. Children in such households are commonly observed to have low school enrollment rates, high dropout rates, and slow progression rates (i.e., the percentage of students progressing to the next grade on schedule is low). Although the precise pattern varies somewhat across developing countries, the end result is the same: children from the poorest households are further disadvantaged by low educational attainment and future low productivity and incomes. This vicious cycle ensures the transmission and persistence of poverty both within and across generations. It is now widely recognized that an effective development strategy requires investments in human capital, especially in the basic education of the poorest households, and that governments have a crucial role to play in this area (World Bank, *World Development Report 1997: The State in a Changing World)*. Investments in the education of children from poor households can generate not only sustained economic growth, but also the right kind of broad-based growth.

A key resource available to all countries is the human capital potential of its citizens. Yet in many poor countries too much of this potential is presently being lost because so many students drop out of school so early. And this holds true even in many of the middle-income developing coun-

tries. In Brazil, for example, in the mid-1990s no more than 56 percent of urban 14- and 15-year-olds and 24 percent of rural 14- and 15-year-olds finished primary school (Economic Commission for Latin America and the Caribbean [CEPAL], *Panorama Social de América Latina 1998*).[7] Judging by net enrollment rates, the situation is even worse in other Latin American and South Asian countries. The dropout rates are much higher for students from poor families, and numerous surveys have shown that the main reasons for such high rates are costs, both the direct costs of school and the opportunity costs of earnings forgone. Therefore, education subsidies appear to have much potential in addressing this constraint on development.

Education subsidy programs have several other potential benefits as well. First, unlike pure transfer programs, the gains produced by the increased education of the children of the poor are permanent. Once poor children are educated, they are less likely to slip back into poverty. In a sense, they have been given the tools to earn their way out of poverty, thus breaking the intergenerational transmission of poverty.

Second, there is a good deal of evidence that enrollment rates in families are a positive function of the education of the mother. The implication, then, is that if girls from poor families stay in school longer, they are likely to keep their own children in school longer, even in the absence of subsidies for school attendance. In addition, female education appears to have substantial beneficial effects on the nutritional and health status of children.

Third, evidence suggests that societies are more willing to give assistance to the poor if it is tied to something like education that is particularly valued by the society. Some economists argue that one should not constrain the choices of the poor by placing conditions on assistance, but in fact this is a fairly typical characteristic of welfare programs. Tying assistance to school attendance would appear to make it politically possible to transfer far larger amounts of resources from the rest of society to the poor than would be the case without such a condition. Efficiency concerns can also motivate the placing of conditions on transfers. Education, especially basic education, is thought to have both social and economic externalities. Moreover, if parents exhibit less than perfect altruism toward their children, or credit markets work imperfectly or are missing altogether, a cash transfer with conditions attached is likely to lead households to make more efficient educational decisions.

CTE programs have several other potentially important benefits as well. Programs that allow children to earn a monetary or food subsidy by staying in school may reduce the incidence of child labor. The evidence on

7. These low percentages do not seem consistent with the high gross enrollment rates in Brazil, but that inconsistency stems from the very high grade repetition and dropout rates in Brazil. The situation improved dramatically in the 1990s, but the data show that Brazil still has a long way to go.

this benefit is inconclusive, however, partly because young children can both attend school and do outside work. Ravallion and Wodon (2000) found that in Bangladesh the food-for-education stipend had a small but significant negative effect on the labor force participation of children and a strong positive effect on the probability of being in school. In Nicaragua education subsidies led to a substantial increase in school attendance, but mainly from children who did not previously work or attend school.[8] But apart from the welfare implications for the children involved, anything that reduces the supply of unskilled labor is likely to have a positive impact on the wages of the unskilled and on the distribution of income.

Recently, a good deal of criticism has been leveled at the meager results of foreign aid (Easterly 2001, 2002; Pritchett and Woolcock 2002). Critics point to the high cost of aid programs, their excessive bureaucratization, and the lack of observed progress despite quite large expenditures of money. Too much has been spent on projects that were either inappropriate for local conditions or whose benefits were siphoned off to the politically powerful rather than the beneficiaries for whom the projects were intended. In this book we argue that CTE programs represent a quite promising alternative way of applying development assistance to both poverty reduction and other purposes. These programs get more money directly to the poor than many other poverty programs and involve less bureaucracy than the typical top-down poverty reduction program. Most important, program expenditures are tied directly to the desired outcomes, which are poverty reduction and increased school attendance. A CTE project sets up a fund to be managed by the beneficiary country, often by a dedicated and autonomous program team. Money is transferred from that fund to beneficiaries only when they keep their children in school. No elaborate international financial institution (IFI) bureaucracy is needed to oversee the project, because it disburses funds only when the desired results are achieved. This aid model also may be applicable to attempts to design better aid instruments to solve other development problems.

Although the popularity of these programs is increasing rapidly, the programs and knowledge of their design and overall performance are still at an early stage. However, they are now being widely discussed as an attractive solution to many of the existing shortcomings of aid-financed programs.[9] It is therefore an opportune moment to take a close look in

8. For Brazil, Bourguignon, Ferreira, and Leite (2002) did a simulation of the impact of Bolsa Escola on childhood labor and estimated that the program would reduce the proportion of 10- to 15-year-old children outside school from 5.8 percent to 3.9 percent, three-fourths of whom would drop out of the labor market.

9. For a flavor of the coverage in the international press, see Gary Becker, "'Bribe' Third World Parents to Keep Their Kids in School," *Business Week,* November 22, 1999; Alan Krueger, "Putting Development Dollars to Use South of the Border," *The New York Times,* May 2, 2002; and "Education in Latin America: Cramming them in," *The Economist,* May 9, 2002.

this book at how the current CTE programs are working. Because the programs have both educational and poverty reduction objectives, the important questions addressed can be usefully divided between those related to the education objective and those related to poverty reduction. This volume will not attempt to address the broader questions of overall strategies for poverty reduction or educational reform.

Organization of This Book

The design of CTE programs should reflect appropriately both the nature and causes of poverty and poor educational outcomes, as well as the relationships between the two. Therefore, chapter 2 presents short education and poverty profile for each of the countries that have adopted education subsidy programs.

Chapter 3 then describes the program characteristics and design in most of the countries with these programs—an essential element in developing a sense of the potential and problems of such programs in various socioeconomic settings. The chapter looks in detail at the programs in Bangladesh, Brazil, Chile, Honduras, Mexico, and Nicaragua.[10]

Chapters 4 and 5 analyze the impacts of the programs on education and poverty. We argue that, properly designed, such programs have great potential to address these twin concerns as well as the shortcomings in the more traditional safety net components. We show that the programs under review have gone a long way toward reducing poverty and have led to substantial improvements in the educational outcomes for children. Moreover, these programs are relatively well targeted, ensuring that these gains are accruing to those in the lowest income groups. Indeed, the targeting performance of most of these programs ranks them among the best-targeted programs of all the safety net programs in the recent reviews noted earlier.

Chapter 6 compares the programs as a poverty reduction device with several alternatives such as workfare or other safety nets. Chapter 7 discusses these programs as possibly more efficient instruments for assisting developing countries in the light of recent complaints about aid effectiveness. And Chapter 8 draws up a balance sheet of what has been learned so far from program experience in various countries and considers the conditions under which it would make sense to extend such programs to countries that do not have them.

10. These programs, described in detail in the appendix, were chosen mainly because of the availability of data on performance over a sufficient number of years to reach some qualitative conclusions about impact and efficiency.

2

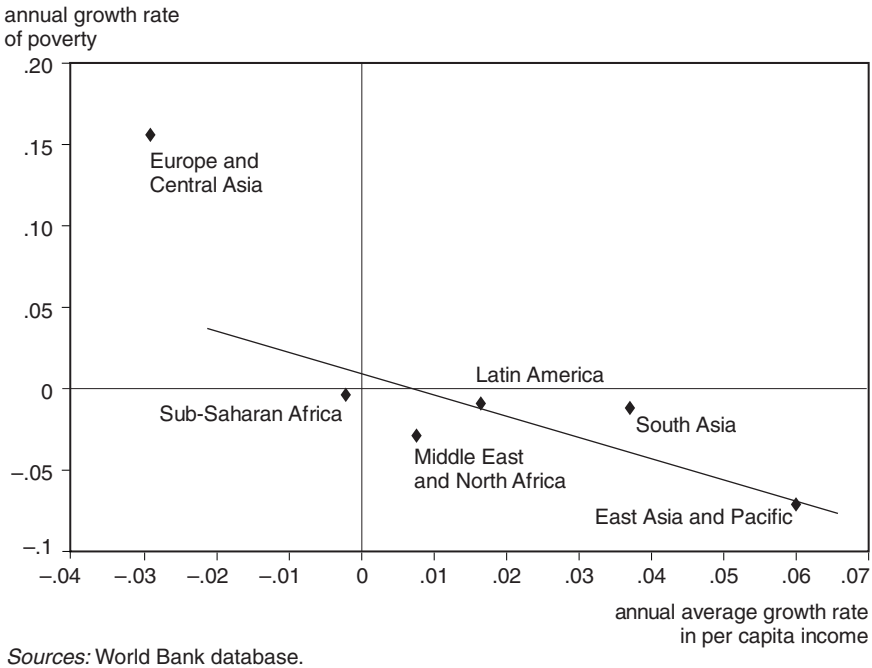
Poverty and Education in Developing Countries

The design features and impacts of various conditioned transfer for education programs in different countries are described in the chapters that follow. This chapter provides some background on poverty and education trends both in developing countries in general and in the six countries with CTE programs in particular. We make specific reference to the relatively low educational outcomes among extremely poor households. Both discussions are placed in the context of the Millennium Development Goals articulated by the United Nations.

Poverty in Developing Countries

Poverty is an increasingly serious problem in large parts of the developing world. Overall, about 1.2 billion people or one-fourth of the world's population are living on less than $1 a day (World Bank, *World Development Report 2000/2001: Attacking Poverty)*. But the aggregate figures hide very significant regional disparities. Over the decade of the 1990s, Asia achieved reductions in both the absolute number and the proportions of those in poverty (see figure 2.1). Meanwhile, in both Latin America and sub-Saharan Africa the percentage of the population below the $1 poverty line scarcely changed over the decade in spite of some economic growth. Because the population is still growing fairly rapidly in both regions, the number of poor people rose by about 50 million over the decade. The recent crises in Latin America have clearly made its situation worse. The net result is that while the poverty problem appears to be on the way to a solution in most of Asia, it is increasingly significant in the rest of the de-

Figure 2.1 Poverty and growth worldwide, 1990–98



Sources: World Bank database.

veloping world (as well as in the countries of Eastern Europe and the former Soviet Union).

Reflecting rising concern about the poverty problem, the international community has set as one of its Millennium Development Goals the halving of poverty between 1990 and 2015. Achieving that goal would require an annual reduction in poverty of just under 3 percent a year. The most direct and the most consistent way to reduce poverty is through economic growth. But growth so far has not been sufficient in most countries. According to figure 2.1, only East Asia and the Middle East–North Africa have reached that poverty reduction target, and only East Asia has done it with rapid rate of growth of per capita income. No other areas of the world have come anywhere close to that ambitious goal, either because they are not growing fast enough or because what growth they are experiencing is not being translated into poverty reduction at a rapid enough rate. To make matters worse, because of relatively slow growth in the past decade, most countries will have to reduce poverty by over 3 percent a year to reach the poverty reduction goal in 2015. If the relationship between poverty and growth is as weak as it has been in the past decade, most countries will fall far short of the ambitious goal they have set for themselves. Most economies in the developing world are not growing fast enough, and there is no reason to expect that they will in the future.

It seems clear, then, that to reach the Millennium poverty reduction target, some countries will require specific policy interventions to make growth more beneficial to the poor. One popular idea is to change the distribution of income, but we prefer a search for policies that help the poor and generate growth at the same time. Conditioned cash transfers to the poor are one such policy.

The rest of this section reveals a bit more about the size and characteristics of poverty in the six countries whose CTE programs are the focus of this study. Table 2.1 presents a brief overview of the trends in poverty and its distribution in those countries in the 1990s. Most of the evidence is taken from Latin American case studies because most of the current programs are in Latin America. Two separate estimates are shown for Bangladesh, one using a national poverty line and the other using a $2 a day line to make the estimate consistent with the Latin American observations, all of which use the $2 a day line.

The nature of the poverty problem is fundamentally different in Bangladesh, Honduras, and Nicaragua than in the other countries. On a comparable basis, three-fourths of the population in these three countries is below the poverty line, mainly because these are the three poorest countries in the sample. But in Honduras, which has twice the per capita income of Bangladesh, and in Nicaragua widespread poverty also reflects the highly unequal distribution of income. The main point is that in these three countries most people are poor, and there is little chance that a poverty program, no matter how well targeted, could significantly reduce the poverty population. In Mexico, Chile, and to a lesser extent Brazil, poverty is a more isolated problem. It consists of pockets of people in otherwise fairly prosperous countries who have not shared in the benefits of growth and development. In these countries it is financially feasible to reduce poverty significantly by redistributing income from those above the poverty line to those below. This observation is not intended to underestimate the political difficulties in doing so, but simply to make the point that there is enough income and wealth in these countries to make that possible.

The trends in poverty during the 1990s in the six CTE countries examined here were widely divergent. The poverty level fell sharply in Chile and to a lesser extent in Bangladesh. It also fell in Brazil, but only during the successful attempt to control inflation between 1993 and 1995. There has been no further progress since 1996, the period in which the regional version of Bolsa Escola was implemented in various states and cities. In Honduras and Nicaragua little or no progress was made in eliminating poverty during the 1990s, and in Mexico poverty is more widespread now than in 1989, in part because of the peso crisis in the middle of the decade.

It also is important to know where the poor live—that is, is poverty predominantly rural or urban? This information is particularly relevant to CTE programs, because school dropout rates are so much higher among rural households. Even among poor urban households, most children go

Table 2.1 Poverty and inequality in six CTE countries, 1990s (percent)

Country and index	1989	1990[a]	1992	1993	1994	1995	1996	1997	1998	1999
Bangladesh										
Gini index							0.336			
Headcount (national poverty line)			0.427				0.356			
Headcount at $2 per day poverty line							0.778			
Poverty gap at $2 per day poverty line							0.318			
Brazil										
Gini index			0.573	0.595		0.591	0.591	0.592	0.590	0.585
Headcount			0.483	0.497		0.447	0.415	0.413	0.419	0.413
Poverty gap			0.238	0.245		0.211	0.197	0.195	0.191	0.187
Chile										
Gini index		0.547	0.522		0.556		0.564		0.559	
Headcount		0.324	0.198		0.227		0.183		0.161	
Poverty gap		0.120	0.060		0.076		0.060		0.053	
Honduras										
Gini index	0.570		0.549				0.528	0.591	0.585	0.584
Headcount	0.772		0.759				0.763	0.747	0.749	0.752
Poverty gap	0.462		0.450				0.442	0.473	0.467	0.474
Mexico										
Gini index	0.531		0.534		0.536		0.528		0.538	
Headcount	0.197		0.162		0.153		0.212		0.217	
Poverty gap	0.067		0.050		0.046		0.073		0.080	
Nicaragua										
Gini index			0.582						0.584	
Headcount			0.681						0.651	
Poverty gap			0.419						0.394	

a. There are no available data for 1991.

Notes: The headcount ratio is the fraction of the population with family income per capita less than the poverty line. The poverty gap measure shown here is the amount by which the total income of the poor falls short of the poverty line (the gap) divided by the poverty line times the total population. For a further discussion of the poverty gap measure, see chapter 5. International comparisons of poverty and distribution measures should be viewed cautiously because of differences in surveys and definitions of poverty. This table simply identifies broad trends within each country during the 1990s.

Sources: Latin America: Székely (2001). Note that the poverty lines for Latin America are $2 per day per capita converted to national currencies using purchasing power parity (PPP) exchange rates. Bangladesh: World Development Indicators database, World Bank.

Table 2.2 Rural and urban poverty in six CTE countries, various years (percent)

		Poverty rate			Rural population share	Rural poverty share
	Year	Rural	Urban	National		
Bangladesh	1996	39.8	14.3	35.6	83.5	93.4
Brazil	1999	45.2	26.4	29.9	18.6	28.1
Chile	1998	22.7	17.0	17.8	14.0	17.9
Honduras	1999	82.3	65.6	74.3	52.1	57.7
Mexico	1998	49.3	31.0	38.0	38.3	49.6
Nicaragua	1998	72.7	59.3	65.1	43.3	48.3

Sources: Latin America: Economic Commission for Latin America and the Caribbean (CEPAL), *Panorama Social*. Bangladesh: World Bank database. All estimates use national poverty lines.

to primary school. A significant increase in primary school enrollments stemming from an urban CTE program is therefore unlikely in a country in which most poverty is urban. Conversely, a rural program will have a limited effect on national poverty rates, no matter how well targeted, if most of the poor live in cities and towns.

Table 2.2 shows the share of national poverty found in the rural and urban sectors of each of the CTE countries. In each country rural poverty is quite a bit higher than urban poverty. Yet the poverty problem may not be mainly rural in these countries. In Bangladesh, where most of the population is rural, that may be the case. But that is not case where the population is highly urban such as in Brazil and Chile. Honduras, Nicaragua, and Mexico are intermediate cases in which about half of the poor are still rural. These differences in the location profile of poverty help to explain why Progresa in Mexico is a rural program, whereas in Brazil the first programs were established in urban areas. They also help to understand why Chile, with its poor spread widely over both the rural and urban sectors, used an individual means test rather than geographic targeting to reach its poor, both urban and rural.

Education in Developing Countries

It has long been recognized that the private and social returns for investments in education are high.[1] Reflecting this view, governments in developing countries have attached increasing importance to improving schooling outcomes as part of their development strategies. Over time, therefore, there has been a substantial increase in educational enroll-

1. For a more detailed discussion and references for the material presented in this section, see Coady (2002a).

ments. For example, between 1970 and 1998 net primary enrollment rates increased in developing countries from 67 percent to 78 percent; the corresponding figure for secondary schooling increased from 20 percent to 47 percent.[2]

Although such improvements are impressive, the average figures hide some important variations in educational outcomes across both regions and income groups (table 2.3). Primary enrollments range from as low as 60 percent in sub-Saharan Africa to as high as 100 percent in South and Southeast Asia. Educational outcomes are particularly dismal in sub-Saharan Africa because the primary net enrollment rate falls to 54 percent in low-income countries in that region, and the rate in high-income countries in that region, 93 percent, is below those in the low- and middle-income countries in Eastern and Central Europe and South and Southeast Asia. There also is evidence of a gender bias against females, especially in low-income countries in the Middle East and North Africa and, to a lesser extent, sub-Saharan Africa. In addition, progression rates are particularly low in low-income countries, especially in both the East Asia and Pacific region and the Latin America and Caribbean region where they stand at just over 50 percent. The relatively dismal performance of sub-Saharan Africa also carries over to secondary enrollment rates, which at 23 percent are substantially lower than those in other regions. Again, the situation is particularly dismal in low income sub-Saharan Africa countries where the rate falls as low as 13 percent.

Education and the Millennium Development Goals

The situation just depicted provides a pessimistic backdrop for the Millennium Development Goals of ensuring that all children are enrolled in primary school and that the gender gap is eliminated in both primary and secondary education by 2015. In the context of sub-Saharan Africa, Sahn and Stifel (2002) show that, based on recent performances, very few countries can be expected to reach this target. This pessimistic scenario reflects in part poor economic performance in this and other regions over the last decade. However, even if growth is revived, based on past income-enrollment relationships it is highly unlikely that this growth will translate into a significant increase in primary enrollments. For example, based on an estimated income elasticity of enrollment of 0.3, a growth rate of 2.5 percent in per capita incomes in sub-Saharan Africa will result in an increase in primary enrollment rates from 60 percent to 67 percent over a 15-year period—that is, an increase of 7 percentage points

2. The figures presented in this section are all based on those in World Bank's *World Development Indicators 2000.*

Table 2.3 Enrollment and progression rates by region and income group (percent)

	Net primary school enrollment rate				Persistence to grade 5				Net secondary school enrollment rate			
	Bottom	Middle	Top	All	Bottom	Middle	Top	All	Bottom	Middle	Top	All
Sub-Saharan Africa	54	66	93	60	69	81	93	78	13	35	51	23
Middle East/North Africa	61	85	82	82	n.a.	88	92	90	35	57	56	54
South/Southeast Asia	104	102	n.a.	103	n.a.	83	n.a.	83	39	n.a.	n.a.	39
East Asia/Pacific	72	97	92	86	52	90	n.a.	77	31	49	75	48
Latin America/Caribbean	77	87	93	90	51	70	87	80	33	32	58	52
Eastern/Central Europe	96	95	91	93	n.a.	n.a.	95	95	78	78	80	79
All regions	61	85	91	78	65	82	90	80	24	51	63	47

n.a. = not available

Notes: Net enrollment ratio is the ratio of the number of children of official school age (as defined by the national education system) who are enrolled in school to the population of the corresponding official school age. Persistence to grade 5 (percent of cohort reaching grade 5) is the share of children enrolled in primary school who eventually reach grade 5. The estimate is based on the reconstructed cohort method.

Source: World Bank, *World Development Indicators 2002.*

compared with the 40 percentage points required to attain universal primary enrollment.[3]

Roughly speaking, then, it would take 85 years for the target of universal primary enrollments to be reached. Although these estimates are based on very crude analysis, they clearly bring out the fact that a "business as usual" approach is totally inadequate for achieving targets and that more direct educational interventions are urgently required. In addition, ensuring enrollment increases alone is not sufficient to generate the expected development gains. Once enrolled, children must receive a quality education, and the appropriate macroeconomic policies must be in place to generate sufficient demand for a more educated workforce. Although there is undoubtedly much potential for using existing public education expenditures more efficiently, it also is clear that extra resources are required and that increased domestic financing must be supplemented with foreign aid, particularly in low-income countries.

The most effective way of allocating the education budget will depend on the existing education profile and public expenditure pattern in each country. Alternative investment strategies can be classified as: (1) improving the quality of existing schools, (2) building more schools, and (3) subsidizing investments in education. What is the role of these policy instruments in improving educational outcomes among the extremely poor? Where access to schools is very low (i.e., children have to travel long distances to the nearest school), building more schools is more likely to be effective. Even then, however, the basic school resources must be available and then used productively. In this area, the underlying incentive and monitoring system is extremely important in order to ensure that resources reach schools and are used for the educational purposes intended. A role for communities in serving these monitoring functions is viewed increasingly as a crucial component of this system.

In this book these issues are taken as given: we thus recognize that before CTE programs can even be considered as an appropriate policy response to poor education outcomes, it must be a given that households have access to a basic quality of education services. Our starting point is that, even with widespread access to a basic quality of education, the poorest households often cannot afford to incur the costs of education (e.g., travel costs, fees, and the opportunity cost of child labor). Thus conditioning transfers on school attendance (i.e., targeted education subsidies) appears to be a promising policy instrument from the perspective of getting children from the poorest households into school and improving progression rates. For that reason, although we recognize throughout that supply-side issues are of paramount importance, we largely focus here on enrollment and progression outcomes.

3. This elasticity was estimated by regressing primary enrollment rates on per capita income levels (both in log form and using country-fixed effects) using data from the World Bank's *World Development Indicators 2000.*

Educational Outcomes

Even though little has been known about the role of targeted education subsidies in improving educational outcomes in developing countries, recently such programs have taken root rapidly, especially in Latin America. As noted earlier, this book reviews the evidence now emerging on the performance of these programs. Based on the adequately documented information on program design and operation now available, it features the food-for-education program in Bangladesh and the cash-for-education programs in Brazil (Bolsa Escola), Chile (SUF), Honduras (PRAF), Mexico (Progresa), and Nicaragua (RPS). Although this subset of programs is relatively small, it does provide some variation in patterns of educational outcomes and in income levels that facilitates the wider discussion of the design, performance, and potential of CTE programs that appears in the chapters that follow.

Bangladesh is one of the world's poorest developing countries, with a per capita income (in 1995 US dollars) of just $373 in 2000. Its illiteracy rates for adults ages 15–24 years are very high at 60 percent for females and nearly 40 percent for males. Although Bangladesh has seen substantial improvements in its educational outcomes over the last 30 years and primary school enrollment is now almost universal, overall in 1997 only 76 percent of children ages 15–19 years had completed grade 1, 42 percent primary school, and 20 percent grade 9. Educational outcomes were substantially worse for the poorest households, with only 60 percent completing grade 1, 20 percent completing primary school, and 5 percent completing grade 9—compared with 90 percent, 75 percent, and 55 percent, respectively, for the wealthiest households.

Nicaragua is one of the poorest countries in Latin America, with a per capita income of $466 in 2000. However, its illiteracy rates are substantially lower than those for Bangladesh, with just below 30 percent of both males and females between 15 and 24 years classified as illiterate in 2000. Although enrollment in primary school is near universal among children ages 15–19 years, dropout rates are high; in 1998 90 percent had completed grade 1, 60 percent primary school, and 25 percent grade 9. Educational outcomes are worst among the poorest households, with 80 percent completing grade 1, 35 percent completing primary school, and 10 percent completing grade 9. The corresponding figures for the wealthiest group were 100 percent, 95 percent, and 60 percent.

Although Honduras has a much higher per capita income than Nicaragua ($711 in 2000), its educational outcomes are not much better. In 2000 its illiteracy rates were 15 percent for females and 18 percent for males. In 1993 the net primary school enrollment rate was 90 percent, but only about 60 percent of children completed primary school. In 1997 the net secondary school enrollment rate was only about 36 percent.

In 2000 Mexico had a per capita income of $3,819 and very low illiteracy rates—3 percent for both females and males. Although primary school en-

rollment is nearly universal, in 1998 only 86 percent of enrollees completed primary school, and the net secondary school enrollment rate was 66 percent.

Brazil, with a per capita income of $4,626 in 2000, has similar educational outcomes, with near universal primary school enrollment and illiteracy rates of 6 percent for females and 9 percent for males. But only 60 percent of children ages 15 to 19 years complete primary school, and only 20 percent complete grade 9. Educational outcomes also are substantially worse for the poor; only 40 percent completed primary school in 1996 and only 10 percent completed grade 9. The corresponding figures for the wealthiest group were 90 percent and 40 percent.

Chile is an outlier among this sample of countries with CTE programs because of both its income level and its education profile. Its per capita income measured in dollars of constant purchasing power is 30 percent higher than Brazil's and 10 percent higher than Mexico's. In Chile virtually all of each age cohort finish at least grade 5, and the net high school enrollment rate is 85 percent, compared with 66 percent for Mexico and Brazil and 22 percent for Bangladesh.

In short, clearly a strong positive correlation exists across countries between per capita income and educational attainment. Poor countries have badly educated populations. In addition, poor households give their children less education than the average. For example, Psacharopoulos et al. (1997) calculated for almost all countries in Latin America an "education deficit" by income quintile using household surveys for the late 1980s and early 1990. The deficit is the amount by which the actual number of years spent by each child in school falls short of the maximum total years the child could have, assuming that he or she started school at age six and continued straight through to his or her current age.[4] In all 14 countries for which the surveys were available, there was an obvious negative correlation between the education deficit and level of income—that is, the poorest families have the worst educational outcomes. For example, in Mexico the deficit was 45 percent in the first (poorest) quintile, 34 percent in the second, and 27 percent in the third. In Brazil it was 61 percent in the first quintile, 48 percent in the second, and 37 percent in the third. In Honduras, a much poorer country, it was 67 percent in the poorest quintile and 62 percent in the second quintile, compared with 31 percent in the wealthiest decile. These results are compelling evidence of the need for direct educational interventions in developing countries and for policy to focus specific attention on the poorest households where the potential and need for improving educational outcomes is greatest.

4. Formally, the schooling deficit is defined as (Age minus 6 minus *S*)/(Age minus 6) for the population between ages 7 and 17, where (Age minus 6) is the maximum attainable years of school and *S* is the actual years of schooling attained. See Psacharopoulos et al. (1997, 233) for more details.

3

Program Design

It is now widely accepted that a comprehensive strategy for alleviating poverty must have two key components: (1) short-term transfers to the poor to raise their low consumption levels and protect them from income shocks; and (2) medium- to long-run policies that simultaneously help the poor to build up their asset base, thereby promoting a sustained decrease in poverty. It is commonly argued, however, that existing transfers systems fall short on both of these fronts because very often they do not reach the poor, and even when they do they are not specifically designed to facilitate building up an asset base.

Based on this background, it would seem that programs that link eligibility for transfers both to some poverty-based criteria and to requirements that beneficiaries invest in some asset that provides higher future incomes would be useful. Because one of the most important assets held by the poor is their own labor, linking transfers to investments in human capital is an obvious option. Such a linkage would in turn provide a strong motivation for countries to adopt the programs under review here, in which eligibility is conditioned on households keeping their children in school. To the extent that these transfers are well targeted at the poor, they also address a long-standing concern about the regressivity of public education expenditures resulting from the relatively low access of the poor to education and the outcomes.

In chapter 2 we characterized cash-for-education programs as an attempt by governments to increase the impact of transfer programs on current poverty levels (by employing various administrative targeting methods) and to generate a sustained decrease in poverty through encouraging households to invest more in the education of their children,

thereby increasing their future incomes and ability to escape poverty. This chapter describes how these programs have been designed to achieve these objectives. Specifically, it looks at their size; the targeting methods used to ensure that these transfers reach the poor and how they are implemented; and the structure of transfers and how they are linked to the educational decisions of households. Later chapters discuss how these programs perform in terms of their contribution to the poverty reduction and education objectives.

Program Size

For anyone thinking about the potential impacts of conditioned-transfer-for-education programs, it is useful to be aware of the commitment of resources they represent. This study is concentrating on the educational component of the six CTE programs under review, but it is worth noting that four of them are integrated education-health interventions (Progresa, PRAF, RPS, and SUF); only two (FFE and BE) are stand-alone education programs. The key characteristic of all of them is that the transfer to the poor family is conditioned on some sort of actions that will increase the human capital of the family's children. If one focuses just on the educational component, the size question can be answered by looking at either the resources committed in the form of total education spending or the size of the poverty problem.

By either criterion the CTE programs represent a fairly major commitment of scarce resources in the countries that have adopted them. Table 3.1 shows the size of each of the CTE programs examined relative to gross national income (GNI), total government consumption expenditure (GTE), and government expenditures on education (GEE). All data are annual for the most recent year for which data are available.

These programs all represent a commitment of between 0.1 percent and 0.2 percent of gross national income. They vary between a bit less than 1 percent of the total government consumption expenditure in Chile and Brazil to over 4 percent in Bangladesh. Of particular interest is how big the programs are relative to what government spends on education. In Latin America, governments are committing to these programs about 2.5 to 5 percent of what they spend altogether on education. The Bangladesh percentage is higher, but that stems in part from the fact that a bigger share of that country's education system is private. If the primary school share of total government spending on education is about a third in these countries, then they are devoting to their CTE programs up to 15 percent of what they are spending altogether on primary education. By any of the three measures used in table 3.1 the sums devoted to programs seem quite large.

Table 3.1 Comparison of CTE program sizes

	Coverage	Total annual budget (millions of dollars)	Percent GNI	Percent GTE	Percent GEE
Progresa (Mexico, introduced August 1997)	2.6 million households (1999)	998 (2000)	0.2	1.6	4.1
PRAF (Honduras, introduced late 2000)	47,800 households	12.5 (2001)	0.2	2.0	5.0
RPS (Nicaragua, pilot introduced October 2000)	10,000 households (2001)	10 (2001–02)	0.2	2.2	10.2
FFE (Bangladesh, introduced 1993)	2.1 million students (2000)	77 (1999)	0.2	4.2	7.9
FEP (Bangladesh, introduced 1994)	898,000 students (1998)	15 (1998)	0.04	0.7	1.4
SUF (Chile, introduced 1998)	954,000 students (1998)	70 (1998)	0.1	0.9	3.5
BE (Brazil, introduced 2001)	5 million families (2001)	680 (2001)	0.15	0.7	2.5

GNI = gross national income
GTE = total government consumption expenditure
GEE = government expenditures on education

Note: All data are annual for the most recent year for which data are available.

Sources: Coverage and budget: See appendix. GNI, GTE, and GEE: World Bank database.

Targeting

Growing pressures on government budgets in general, and poverty alleviation budgets in particular, have led governments to look for ways to increase the cost effectiveness of social safety net expenditures.[1] A growing emphasis in policy debates has been on the need to better target social expenditures. A common criticism of social safety nets is that they often fail to reach the poorest households that need them most. For example, in a recent review of targeted programs in developing countries, Coady, Grosh, and Hoddinott (2002a) found that more than a quarter of the programs had regressive benefit incidence—for example, the bottom 40 per-

1. For more detailed discussion on the issues presented in this section see, for example, Besley and Kanbur (1993); Grosh (1994); and Coady, Grosh, and Hoddinott (2002a).

cent of the income distribution was receiving less than 40 percent of the poverty budget. Such ineffective "targeting" of poor households means that the overall impact on poverty is much lower than could otherwise be achieved. Coady and his coauthors also uncovered some programs that were very well targeted. For example, the median outcome for the 10 best-targeted programs had over 80 percent of the budget going to the poorest 40 percent in the income distribution.

Targeting Methods

In practice, a range of targeting methods can be employed. These are typically classified as *individual/household assessment*, *categorical targeting*, and *self-selection*.

Individual/household assessment involves collecting the socioeconomic information on which the eligibility decision on potential beneficiaries is based. The rigor of this procedure can vary greatly, from a verified means test based on extensive income information with third-party verification to simple means tests with no independent verification of income. Decisions may be based simply on information provided by applicants at program offices, or social workers may make a trip to the homes of potential beneficiaries to verify qualitatively the information provided. An increasingly popular approach is the use of proxy means testing, which generates a score for applicant households based on fairly easy to observe household characteristics such as the location and quality of the dwelling, ownership of durable goods, demographic structure of the household, and education and occupations of adult members. The indicators used in calculating this score and their weights are derived from statistical analysis of household survey data.

Categorical targeting also involves defining eligibility in terms of individual or household characteristics that are fairly easy to observe, are hard to manipulate falsely, and are correlated with poverty (e.g., age, gender, ethnicity, land ownership, demographic composition, or geographic location). But, unlike with proxy means testing, no score is calculated. One of the most common forms of categorical targeting is geographic targeting, whereby budgets are allocated based on regional indicators of poverty and deprivation. Whichever form of categorical targeting is used, it is important that its potential effectiveness be verified through statistical analysis of existing datasets.

An alternative to these administrative approaches is to rely on the *self-selection* of poor beneficiaries for a program. Under this approach eligibility is in principle universal, but the design involves dimensions that are thought to encourage the poorest to use the program and the nonpoor not to do so based on differences in the private participation costs incurred by the poor and nonpoor households. Examples include the use of low

wages on public works schemes, the restriction that transfers must take place at certain times with a requirement to queue, the transfer of in-kind benefits with inferior characteristics such as low-quality wheat or rice, or the location of points of service delivery, such as ration stores or participating clinics and schools, in areas where the poor are highly concentrated so that the nonpoor have higher (private and social) costs of travel.

Of growing interest is the delegation of beneficiary selection to local communities, or so-called *community-based targeting*. Under this approach a community leader or group of community members decides who in the community should benefit and who should not. The underlying assumption is that local knowledge of people's living conditions will be much more accurate than the product of a means test conducted by a government social worker or a proxy means test. However, the objectives of such community-based organizations may not reflect those of the program designers, and the benefits of the program may be "captured" by community elites.

Costs of Targeting

It is important to recognize that targeting has costs, and they must be kept in mind by program designers when deciding which targeting methods to employ and how finely to target. These costs can be classified as administrative costs, private costs, incentive costs, social costs, and political costs. Administrative costs include the costs of collecting the information used to identify poor households—for example, conducting means testing of households or conducting a survey on which to base a poverty map for geographic targeting.

The net monetary transfer to the poor from any program is the total budget of the program less the leakages to the nonpoor and the administrative and targeting costs. At the margin, the targeting system chosen should be one in which money is spent on targeting up to the point where the percentage increase in the cost of the system is just equal to the percentage reduction in leakage rates that results from better targeting.

One of the key decisions made by any CTE program designer is how much to spend on the system to be used to identify or target the poor.

Is this a matter of deciding how much to spend on making the questionnaire more reliable? In the real world the key decision facing the designer is likely to be whether to use questionnaires at all. Three factors bear on this decision: (1) how high the poverty rate is, (2) how big the benefit payments are, and (3) how much the questionnaires cost.

At best, a questionnaire applied to an entire population, which was done in the Progresa communities in Mexico, can reduce leakages to the nonpoor by an amount equal to the population that is not poor times the average benefits for eligible families. But that savings must be compared

with the cost of the questionnaire. If, for example, the benefit received by a family in the program is $100 per year, which is roughly the benefit extended in Mexico and Brazil, and if 50 percent of the population is poor, then (perfect) targeting can save at most 50 percent of the budget while having the same impact on poverty. In the countries studied here, the cost of the questionnaires was $3.50 in Chile (Raczynski 1996), $4 in Nicaragua (IFPRI 2002), and between $6.50 and $18 in Mexico (Skoufias, Davis, and de la Vega 2001).[2] Using a questionnaire cost of $10 per family, maximum budget savings decreases to 40 percent of the total budget. At these costs, benefit levels, and poverty rates, the use of questionnaires will increase the net amount available for transfers to the poor. But if the poverty rate is 80 percent instead of 50 percent, as it is in the rural areas of Honduras, Nicaragua, and Bangladesh, and if the transfer is only $50 instead of $100, and if the questionnaire still costs $10 per family, then the cost of targeting just offsets any potential savings from better targeting. At that point, it may be deemed no longer desirable to use questionnaires to target, which is in fact the decision that was made in Bangladesh, Honduras, and Brazil.[3]

Beneficiaries often incur private costs in taking up transfers. For example, in workfare programs households incur an opportunity cost in terms of forgone income opportunities; queuing involves similar opportunity costs. Households also may have to incur financial and time costs associated with obtaining certifications required for the program such as a national identity card and proof of residency or of disability and with traveling to and from program offices. Private costs may be quite important as well, especially when self-selection methods are used or when the program is conditioned on certain actions by household members. It is important not to overlook these when designing or evaluating transfer programs.

Incentive costs (often referred to as indirect costs) are another factor, because the presence of eligibility criteria may induce households to change their behavior in an attempt to become beneficiaries. For example, a program open only to those below a minimum income may cause some households to reduce their labor supply and thus their earned incomes. For this reason and others, transfers that guarantee a minimum income irrespective of earnings are not considered desirable. Other examples of such "negative incentive effects" are higher consumption of subsidized commodities, crowding out of private transfers, relocation/migration, or devoting re-

2. These costs undoubtedly understate the full cost of implementing a system of household surveys. In Nicaragua, for example, setting up the initial register of all the families in each of the communities made the total cost per survey $14 instead of $4. According to Skoufias, Davis, and de la Vega (2001), in Mexico the cost per survey varies between 60 pesos and 170 pesos, or between $6.50 and $18, depending on how one treats fixed costs.

3. At the first stage of the program, geographic targeting is used to select the poorest communities with poverty rates high enough so that it does not pay to use questionnaires to identify the poor at the second stage.

sources to misreporting. Yet the indirect effects also may be positive—for example, when transfers are conditioned on household behaviors that include the enrollment of children in school or attendance at health clinics.

In addition to these "economic" costs there may be social and political costs. Social costs may arise when the targeting of poor households involves publicly identifying households as poor, which may carry with it a social stigma that in turn may even affect the decision of poor households whether or not to participate in the project. Political costs also may be important. For example, it is often argued that excluding the middle classes may remove broad-based support for such programs and make them unsustainable. However, this can work in both directions, and effective targeting of the "needy"—that is, excluding those who can help themselves—may itself provide the basis of political support.

The relative importance of all these costs will obviously differ across targeting methods but also across different sociopolitical environments. For example, administrative costs are likely more important when individual or household assessment is used. Incentive costs are likely to be less important when categorical targeting is used. Private costs are likely to be more important when self-selection methods are used. The nature and importance of social costs may differ widely with the form of self-selection inherent in the program design. But all these costs need to be considered when evaluating the targeting effectiveness of programs.

Selecting a Targeting Method

A defining feature of the six CTE programs discussed here is their emphasis on the need to target program beneficiaries in an attempt to ensure that these programs adequately reach the poor. Like other targeted programs, typically these programs use some combination of targeting methods, including geographic, demographic, means or proxy means tests, and community targeting.

Mexico's targeting system is quite typical of the combination of geographic targeting and a proxy means test applied universally at the local level. At the first stage (choosing the poorest communities), information from the national census on the demography, housing, infrastructure, occupation, and education characteristics of communities was used to construct a "marginality index" (community score) for each community in the country. The index was in turn used to identify the most marginal communities to be included in the program. Once these were identified, a locality census was conducted, and the socioeconomic data on households from the census were used to calculate a proxy means score for each household and then to classify households as "poor" (eligible for the program) and "nonpoor" (not eligible). In all, 20 percent of households were deemed noneligible, and these were concentrated in the least marginal communities.

In the Honduras PRAF program, targeting took the form of selecting poor municipalities and excluding households without children. The municipality selection was based solely on data available from school census information on height-for-age scores for children in grade 1. All households with children under 12 years of age in the eligible communities were deemed eligible to participate.[4]

In Nicaragua's RPS program, although municipality poverty indices were calculated, the pilot nature of the program necessitated the selection of municipalities based on additional criteria related to access to social infrastructure, accessibility, and organizational capacity. Therefore, two departments (or states) were chosen on the basis of need, implementation capacity, and supporting infrastructure. Within these two departments, 6 (out of 20) municipalities were chosen on the basis of poverty levels, access to education and health facilities, easy communication and access for operational purposes, and high capacity for local organization and participation. Within these six municipalities a marginality index was calculated for all of the 59 rural localities (*comarcas*). The index was based on the following variables from the 1995 National Population and Housing Census: family size, access to potable water, access to latrines, and illiteracy rates. All households in the 42 poorest localities were eligible,[5] but only the poorest 80 percent (based on predicted consumption) in the 17 remaining localities were deemed eligible.

At the first stage of Bangladesh's food-for-education program, two or three "unions" were selected in each of 460 rural provinces (*thanas*) on the basis of low income and literacy. Within those localities, households with primary schoolchildren are eligible if they meet one of four criteria: the family is landless or near landless; the household head is a day laborer; the family head is a woman; or the family head is in a low-income profession. Based on these targeting criteria, a local school managing committee and a compulsory primary education ward committee jointly prepare a list of FFE beneficiary households in every union at the beginning of the year. That list is recorded in a registration book, which is maintained by the headmaster of the school.

The decentralized nature of Brazil's Bolsa Escola program meant initially that the geographic distribution of these programs was essentially demand driven at the municipality level. In 2001, however, the federal government nationalized the program and introduced a law to make its design consistent across municipalities. During the first stage of the targeting process, the national government determines the provisional number and location of eligible families, using the 1991 demographic census,

4. It is unclear, however, whether in practice "poor" households without children (e.g., older married couples) are allowed to participate.

5. Except for the 2 percent who were eliminated because they owned a vehicle and had large landholdings.

the recent household survey, and the school census. All households with children ages 6 to 15 years and with a per capita income of less than half the minimum wage, or below 90 reais in 2001 ($30 at the August 2002 exchange rate), are deemed eligible. Using that information, the central government determines the amount of money to be transferred to each local government. The actual selection of eligible families is left in the hands of a local committee, as is the monitoring of school attendance.

Chile's program began in 1979 when the military government, in an attempt to decentralize government social spending, created Comités de Asistencia Social (CAS) at the local level.[6] Finding that not very much social spending actually reached the poor, the government created a questionnaire, CAS-1, to help identify the poor and improve the targeting of social spending. The targeting mechanism is different from any of the others reviewed in this book in that there is a strong component of self-selection by households at the application stage. Any family that wants to receive the subsidy is required to apply to the local government and prove its eligibility by filling out a proxy means test questionnaire (CAS survey), not unlike the procedure used for the Social Security program in the United States. Although this procedure economizes on the cost of applying questionnaires to people who are not poor—which at about $2.50 a questionnaire is not trivial—it also shifts much of this cost onto households.

The CAS-1 questionnaire gathered information on housing, education, age, and occupation from which a weighting scheme and a point score were derived for each household. However, the consensus was that the collection of variables used and the scoring system were not necessarily effective at screening for poor households. To address this concern, the Ministry of Planning developed in 1985 a national household survey (CASEN) designed to seek information on the same variables as those included in CAS-1 plus many others, including income. This new survey permitted an evaluation of the CAS-1 method for identifying the poor and a refinement of the questions and the weighting system used in the CAS survey.[7]

Currently in Chile, the CAS-2 form filled out by each applicant contains information on housing, consumer durables, education, number of family members, dependency ratio, health status, employment status, occupation, and income, including all transfers. These variables are combined into a single poverty score, using a set of variable weights derived from a principal-components analysis applied to the CAS survey. After a home visit by the local authorities to verify questionnaire answers, families with a score less than some cutoff level are issued an identification card and are eligible for certain cash transfers or other subsidies.

6. For a short history of the program, see Raczynski (1996).

7. Versions of the CASEN survey have been adapted for use in SISBEN (Sistema de Selección de Beneficiarios de los Programas Sociales) in Colombia and Costa Rica and in SELBEN (Selección de Beneficiarios) in Ecuador.

An interesting feature of the targeting systems used by these programs is that, for the most part, they have been designed and administered by a central government with little involvement by lower tiers of government. For example, Progresa (Mexico), RPS (Nicaragua), and PRAF (Honduras) all bypass lower tiers of government and deal directly with beneficiary households. For Bolsa Escola (Brazil) the central government determines the allocation of the budget and the number of students to be assisted across municipalities, and the municipalities are charged with selecting eligible households. For FFE (Bangladesh), however, community groups seem to use the eligibility criteria as guidelines and effectively make the final decision on eligibility. This is consistent with the presence of a ceiling on school participation, with a maximum of 40 percent of students in any school allowed to participate. In the event of excess demand based on the centrally determined criteria, additional rationing criteria have to be applied, and, in practice, these are applied under the discretion of the community groups.

Benefit Structure

The design of a targeting system determines the success of a CTE program in reaching the poor; the structure of benefits determines how successful the program is at generating educational impacts.[8] To have the expected impact on educational outcomes, the structure of benefits should be consistent with the existing pattern of educational outcomes. From this perspective, the structure of benefits in Progresa is the most complex (table 3.2).

In 1999 monthly benefits in Progresa started at 80 pesos ($8.37) in grade 3 of primary school and increased with grade. This approach reflected the fact that enrollment levels decrease with age, especially after primary education, motivated in part by the rising opportunity costs associated with forgone income and travel costs. In junior secondary school (grades 7–9), benefits are higher for females, with monthly benefits reaching 265 pesos for boys and 305 pesos for girls by grade 9. The higher benefit level for females is aimed at reducing the gender gap in educational outcomes, which disadvantages girls, especially in secondary education.

To stimulate educational achievement (and not just enrollment), transfers also are conditioned on an 85 percent attendance record, and children are not allowed to repeat a grade more than twice. At the primary school level, because enrollment rates are already quite high at about 93 percent, educational impacts are likely to be found mainly in fewer late starting dates and faster progression rates. On the supply side, extra resources are planned to help maintain or improve the quality of education services—

8. The benefit structure also can have important implications for the ability of the program to get a relatively large share of total transfers into the hands of the poorest households.

Table 3.2 Benefit structure of Progresa, July–December 1999
(pesos/month)

	Boys	Both	Girls
Education scholarships			
Primary			
Grade 3		80	
Grade 4		95	
Grade 5		125	
Grade 6		165	
Materials (annual)		155	
Secondary			
Grade 7	240		250
Grade 8	250		285
Grade 9	265		305
Materials (annual)	205		205
Food transfer (per family)		125	
Benefit cap (per family)		750	

Note: The cap on the total benefits a household can receive is applied only to the sum of the education scholarships and food transfer (i.e., it excludes transfers for materials).

Source: Skoufias (2001, table B.1, 90).

for example, by maintaining current student-teacher ratios and building new schools in the face of the expected increase in demand.

The transfer levels in the other programs are much simpler than those in Progresa, because they have a fixed benefit level that does not vary by grade or gender. But the other programs focus on primary education alone. In PRAF the value of the education grant is $5.80 per child per month over the school year. In RPS the transfer level is fixed at the household level at $9.20 per month, with an additional $23 per year for school expenses and a condition that all eligible children must attend grades 1–4. In Brazil the transfer is fixed at $6 per child per month, and it covers children from 6 to 15 years of age.

An interesting feature of the original Bolsa Escola program in Brazil, which began in 1995, was that the transfer was deposited in a bank account in the name of the beneficiary and could be withdrawn only when the child completed grade 8. This feature obviously provided a strong incentive for beneficiaries to increase educational attainment, but it is not a part of the new national program.

In the FFE program in Bangladesh, incentives for emphasizing educational performance are provided at the school level. To continue their participation, schools must achieve a minimum overall performance level—that is, at least 10 percent of grade 5 students must qualify for an annual scholarship examination, and the school must hold the prescribed annual examination, with students in grades 3–5 obtaining at least 40 percent of the total points in the previous year's examination. A school is temporarily suspended if random inspection reveals less than 60 percent atten-

dance. Such design features can potentially play an important role in ensuring that schools adequately and diligently implement attendance conditions as well as provide quality education.

All of the programs put a ceiling on the total monthly transfers a household can receive. In doing so, they are seeking to avoid eroding the incentive for self-help or enhancing the incentives for higher fertility. Under Progresa, a household can receive a maximum of 750 pesos ($75) a month in education transfers. PRAF allows a maximum of three education transfers per family, or $17.40; RPS allows a single education transfer; and FFE allows a maximum of 1.33 transfers. However, under PRAF, RPS, and FFE the maximum is conditional on all children in the relevant age group attending school, so the average transfer per child decreases substantially with the number of participating children. This design feature not only reduces the incentive for households with large families to participate in the program by sending their children to school, but also is potentially regressive both because the ceiling is binding for large families, who tend to be poorer, and because of the potential for low take-up of the program among this group.

The interaction of these programs with supply-side government expenditures on schools also differs. For Progresa these expenditures are solely under the control of the Ministry of Education. However, Progresa works closely with this ministry to ensure that extra schools, teachers, and materials are made available to areas experiencing increased enrollments. As a result, increased enrollment has not led to higher student-teacher ratios, and, indeed, because new schools have been built in program areas, the distance to secondary schools has decreased by about 10 percent. Under RPS each beneficiary student receives approximately $4.25 annually, which is handed over to the school at enrollment registration. This amount is supposed to be split evenly between teachers' salaries and school resources. For PRAF, a separate supply-side component is built into the program design so that schools receive transfers linked to student and teacher numbers, ranging from $1,600 to $23,000 annually, with an average of $4,000. These funds also are to be channeled through school coordinating bodies, such as nongovernmental organizations (NGOs), and parents, who are intended to have discretion over how these monies are spent. In practice, however, it appears that for legal reasons schools have not received the funds directly. Rather, they have had to place orders for materials through the conventional school channels.

Costing CTE Programs

One of the common criticisms of social safety nets is that administratively they are very costly. Much of the poverty alleviation budget is absorbed in just getting the resources to poor households. As a result, the cost per

unit of income transferred can be very large. One of the concerns about CTE programs is that they appear to be administratively complex, requiring resources to be allocated to undertake targeting of transfers as well as monitor household education decisions. The conditioning of the transfers on household actions also means that beneficiaries incur private costs in participating in the program (e.g., the time and money associated with traveling to and from health posts and schools and with collecting transfers). It is therefore important not to overlook these potentially high costs when designing and evaluating these programs.

A thorough analysis of program costs requires not only identifying total costs but also disaggregating them across the different program activities. As Coady, Grosh, and Hoddinott (2002a) have pointed out, however, adequate cost data are rarely available on total costs, much less at a more disaggregated level. The only program for which such detail is available appears to be Mexico's Progresa. A limited amount of information is available for the RPS program in Nicaragua and for the FFE program in Bangladesh.

Coady, Perez, and Vera-Llamas (2000) have identified separately both the program and private costs associated with the different program activities in Progresa. Program activities were classified as: (1) selection of localities, (2) identification of beneficiary households, (3) incorporation of beneficiary households, (4) certification of actions, (5) delivery of cash transfers, and (6) follow-up operations. The first of these captures the administrative costs associated with geographic targeting, and the second captures the costs associated with household proxy means targeting. The third and fourth activities arise from the conditioning of transfers on household actions. The final two relate to ongoing program monitoring and operation.

Some of these costs are fixed ones, incurred only once at the outset of the program. For example, if the program were to be expanded into less marginal localities, then no additional resources would be required to identify these localities because a marginality index already exists for all localities. Similarly, for the program to continue in its present form in existing beneficiary localities, no extra costs would be associated with household targeting or with reincorporating households into the program. As the program continues into the future, these costs would be spread over more years and their ratio to total transfers would diminish rapidly. Other costs are recurrent—for example, the costs associated with certifying, monitoring, and running the program.

Coady, Perez, and Vera-Llamas (2000) calculated the program and private costs per peso amount transferred by Progresa and linked them to separate program activities. They found that the total cost per 100 pesos transferred—less than 9 pesos—is quite low by any standards. This cost of the actual targeted and conditioned program is especially low compared with the figures available for other Mexican programs such as

Liconsa (14 pesos), a subsidized milk program, and Tortivales (40 pesos), a subsidized tortilla program (see Grosh 1994 for details on these other programs). When they compared the Progresa cost with that of an untargeted version of the program (i.e., without households incurring costs associated with household-level proxy means targeting), they found that this cost fell to 6.2 pesos per 100 pesos transferred to beneficiaries, so that household targeting accounts for 30 percent (i.e., 0.027/0.89) of total program costs. They also found that ignoring the program costs associated with geographic targeting reduces program costs to 8.5 pesos per 100 pesos transferred. Therefore, geographic targeting costs account for only 4.5 percent of total program costs or 0.4 pesos per 100 pesos transferred. The costs associated with the conditioning of transfers accounted for 26 percent of total program costs, and recurring operational costs accounted for the remaining 40 percent of program costs.

Coady, Perez, and Vera-Llamas (2000) also found that the private household costs associated with the conditioning of transfers were sizable relative to program costs; at 27 percent, the private household costs were equivalent to the corresponding program costs. Because the costs associated with the targeting and conditioning of transfers are sizable relative to total program costs, it is important that they produce a return—that is, for the targeting costs, more transfers into the hands of the poorest households, and for the conditioning costs, improved human capital outcomes.

The administrative costs of the Nicaraguan program appear to be a good deal higher than they are for Progresa. As part of its evaluation of the RPS program, the International Food Policy Research Institute (IFPRI) estimated the total nontransfer costs of the program to be a bit over $2 million for the period 1994–2001.[9] That includes the cost of program design, follow-up evaluation, and administration. Some of those expenditures should be capitalized over the total number of years of the program, but if one simply compares that number with the size of the total program cost, which was $10 million for the period 2001–02, it appears that administrative costs will altogether amount to at least 25 percent of the total budget.[10] One reason this figure is higher than the administrative costs of Progresa is scale economies. A large fraction of total administrative costs (including design, follow-up, and evaluation) are more or less independent of the size of the program. RPS is a small program, which means that the administrative costs per dollar transferred are high. Because leakages into overhead are negatively related to the size of a program, any country seeking to have a CFE program must take this factor into account in deciding on the optimal size of the program.

9. IFPRI kindly made its worksheets available to the authors.

10. It is assumed that the total administrative costs will go up by at least $500,000 over the remainder of the life of the program.

The only other program for which an estimate of administrative costs is available is the Food for Education program in Bangladesh. It distributes grain to participating schools. Obviously, the transport of a physical commodity drives up the cost of the transfer. According to a recent estimate, the cost of delivering an additional $1.00 in grain to recipients is $1.59. This figure implies that total administrative costs are 37 percent (0.59/1.59) of the total cost of the program, the highest of the three cases for which data are available. It raises, then, important questions about the use of food as a transfer medium.

An interesting system for lowering the cost of making transfer payments to both the donor and the recipient has been implemented in the Bolsa Escola program in Brazil. In that program, the mother of each beneficiary family is given an electronic cash card and an account at Caixa Economica Federal (a large federal bank). Monthly payments are directly credited to this account from the national treasury, and the mother can make electronic withdrawals at any of the local outlets of the bank or in thousands of other authorized commercial outlets. This significantly lowers the transportation and time cost to recipients of the transfer. This approach, however, requires a certain level of access to the financial banking system by beneficiaries. A similar approach has been introduced in Mexico for Progresa.

4

Impact of CTE Programs on Educational Outcomes

One of the two defining features of conditioned-transfer-for-education (CTE) programs is that transfers are linked to investments by households in the education of their children.[1] Because conditioning of transfers in this way increases both the program administrative costs and the private household costs, it is important that there be returns to these costs in terms of improved educational outcomes.

This chapter discusses the impacts on educational outcomes of the three programs for which rigorous evidence is available: Progresa (Mexico), RPS (Nicaragua), and FFE (Bangladesh). But, in addition to these important impacts, policymakers also need to know how cost-effective these programs are compared with alternative policy instruments for increasing enrollments. Therefore, this chapter concludes by examining the only evidence we have on program cost-effectiveness, that from the evaluation of Progresa in Mexico. In doing so, we highlight the urgent need for more evidence on cost-effectiveness analysis in this area.

We are focusing here on just one of many policy instruments that could be chosen to improve the output of the education system. A very active debate is under way on where educational policy should focus.[2] Most often the policy debate is couched in terms of the competing goals of quality versus access—that is, improving the quality of existing schools versus increasing access by building more schools. Hanushek (1995), who surveyed the empirical literature on education, identified quality as the

1. The other defining feature is that transfers are targeted. This issue is addressed in the next section.

2. See Coady (2002a) for a more detailed discussion of the issues and empirical evidence.

important constraint in relation to increasing educational levels. Based on his review, he argues that that there is no systematic relationship between inputs and outcomes, and that an inability to explain much of the variation in outcomes reflects a poor understanding of a complex educational process. For this reason, he argues for a shift toward decentralization of "process" and "resource" decisions to schools, backed up by a system of carrots and sticks linked to performance. By contrast, Kremer (1995), based on the same literature, argues that when one weights empirical studies according to the quality of their analysis, the evidence suggests that expenditures on basic input such as radio/TV education and textbooks will improve school quality. Although Kremer agrees that reducing class size is a lower priority, he argues that once a minimum level of quality is achieved, higher priority should be given to either extensive expansion or subsidization of schooling.

In the ongoing debate about the issues of quality and access as well as resources versus process, most participants agree that the provision of basic inputs such as a decent building, a teacher, textbooks, and a blackboard is a prerequisite to providing a good-quality education. Our starting point in this book is that without access to a basic quality of education, conditional transfer programs can be neither rationalized nor efficient. But even when such basic quality is available, lower utilization by children from extremely poor families is still observed. This finding reflects both their poverty as well as relatively high access costs, because poverty is often synonymous with remoteness. In poor households, children often are an important source of household income, and the financial and time costs associated with acquiring an education can be prohibitive. We are therefore primarily concerned here with the objective of getting children from households in extreme poverty into school, reducing their dropout rates, and increasing progression rates. Such issues have been the main motivating factors behind the recent popularity of conditional cash transfer programs.

Where the delivery of quality education is an issue, the design of CTE programs can and should reflect this fact. For example, such programs can easily be designed to enhance the role of communities in monitoring program performance, or in influencing school management more generally. Or transfers can contain a "voucher component" that is transferred to the school via school fees. However, because the existing programs and their evaluations have not involved such design features to any great extent, and thus neither have their evaluations, we focus mainly on their main educational objective: increasing enrollments. And, as noted, we also focus on a small set of programs for which we have access to the results of relatively rigorous evaluations.[3]

3. For a more detailed survey of the myriad of demand-side education interventions, see Patrinos (2002).

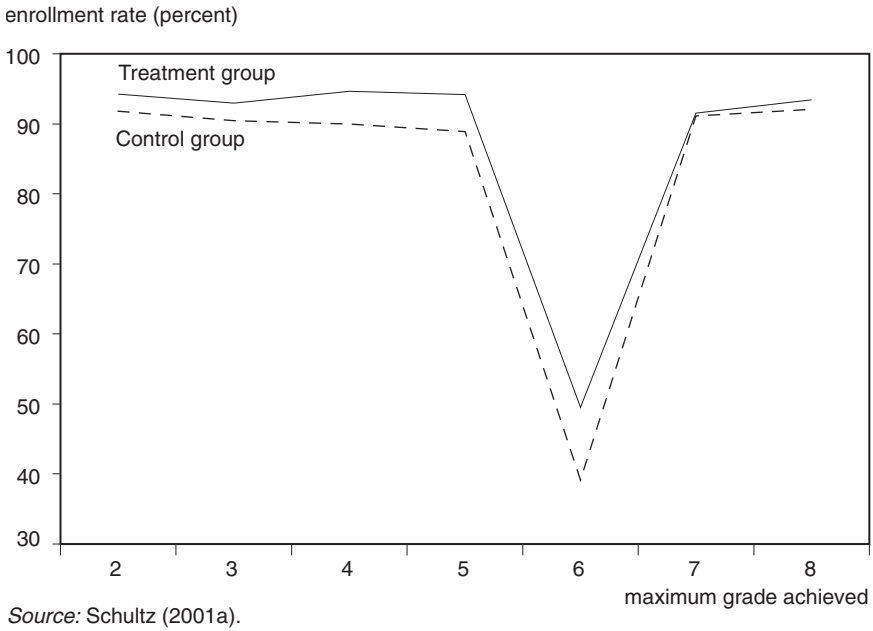
In addition to getting more children into schools, officials face the equally important educational question of how to increase the quality of education. We will not address this question here except to note that at some point the payoff from investing in expanded coverage will be smaller than the payoff from investing in smaller class sizes, better teachers, and better equipment. It is not that educational quality is unimportant or that it does not affect the demand for education. On the contrary, it is crucial to the ultimate success of these programs. For example, the role of communities in monitoring and implementing the programs, and their involvement in school management issues more generally, could be enhanced. Or the transfers could include a component that is handed over to schools to finance the quality of education (i.e., a voucher-type scheme). But because the programs whose evaluations are discussed here do not have these design features, we could not evaluate their roles, and therefore we do not attempt to discuss these issues here.

Educational Impacts of Progresa in Mexico

One of the pioneering aspects of Progresa is its effective evaluation strategy, incorporated in the program from the outset, to identify the impacts of the program along several dimensions, including education. This strategy involved randomly dividing a subset of eligible communities into those that would be included in the first phase of the program in 1997 (the "treatment" group made up of 320 communities) and those that would be included two years later when the budget could be increased (the "control" group made up of 186 communities). These households were surveyed before the program was implemented and at regular intervals after implementation of the program in the treatment communities. The impact of the program on educational outcomes was calculated as the change in enrollments in the treatment communities over time minus the change in the control communities. This so-called double-difference (or difference-in-difference) estimation approach enables one to control for "confounding factors" that would have influenced educational outcomes even in the absence of the program. As it turned out, being able to control for such factors was very important for identifying educational impacts stemming from the program alone.

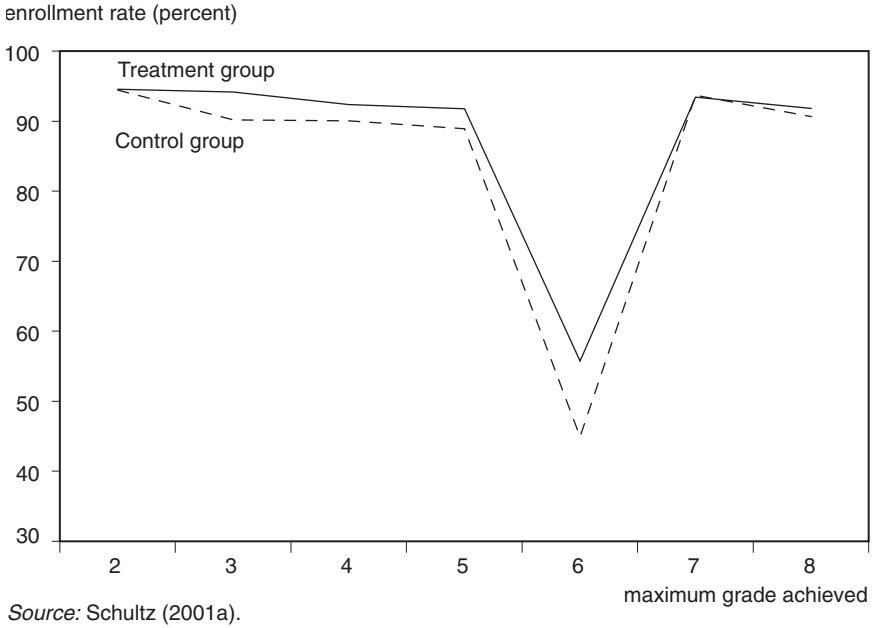
In any discussion of educational outcomes it is useful to distinguish between unconditional and conditional enrollment rates. Unconditional enrollment rates are the percentage of children in a relevant age group who are enrolled in school. Conditional enrollment rates are the percentage of children in a particular age group who have successfully completed the previous grade and who are enrolled in the next grade. Figures 4.1a and 4.1b present conditional enrollment rates in treatment and control com-

Figure 4.1a Conditional enrollment rates, treatment versus control groups by grade, girls, 1998



Source: Schultz (2001a).

Figure 4.1b Conditional enrollment rates, treatment versus control groups by grade, boys, 1998



Source: Schultz (2001a).

Table 4.1 Cumulative expected enrollment rates of poor children who enroll in and complete grade 1, Progresa (percent)

Grade completed	Preprogram		Postprogram		Difference in differences[a]
	Progresa	Non-Progresa	Progresa	Non-Progresa	
1	97.7	97.5	97.5	95.3	2.0
2	93.6	93.8	93.9	89.9	4.2
3	89.6	88.4	90.4	83.7	4.1
4	85.6	83.8	86.6	76.8	8.0
5	81.6	78.6	82.5	69.5	1.0
6	46.4	42.8	51.1	35.2	12.1
7	43.6	40.7	48.4	33.0	12.5
8	41.4	39.9	45.0	30.6	12.9
Average years enrolled	6.8	6.66	6.95	6.14	0.66

a. This is the change in enrollments in the Progresa communities minus the change in enrollments in the non-Progresa communities.

Note: Grade completed column means the student has completed this grade and gone on to the next grade. Thus, 93.6 percent of poor children complete grade 2 and go on to grade 3 or 46.4 percent complete grade 6 and go on to grade 7.

Source: Schultz (2001b, table 7).

munities for girls and boys, respectively—that is, the percentage of children who have completed a given grade (x-axis) and who are enrolled in the next grade (Schultz 2001a). The figures reveal that in all but the transition year between primary and middle school (i.e., after grade 6), the conditional enrollment rates for both boys and girls in both communities are above 90 percent. In other words, the vast majority of children who enroll at the beginning of the primary or secondary cycle actually complete the cycle. The figures also reveal that the big drop-off in enrollment is at the transition year, when enrollment rates among those who have completed primary school (grade 6) are as low as 40 percent for girls in the control communities. Therefore, it is at this point that the program could be expected to have its biggest impact, especially because scholarship levels also increase substantially in secondary schools.

The impact of Progresa is revealed by comparing the outcomes for the treatment group with those for the control group, because the latter represents what the treatment group would have looked like in the absence of the program. As expected, the biggest impact is at the transition year between primary and secondary school; the difference in conditional enrollment rates is about 9 percentage points. Table 4.1 translates these points into years of extra schooling for a cohort of children who enroll in and complete grade 1. These numbers are essentially equivalent to unconditional enrollment rates. As expected, given the randomization of communities among the groups, the numbers in the first two columns indicate that enrollment rates are very similar in both sets of communities before the program. The difference-in-difference estimate in column five

Table 4.2 Average impact of RPS on enrollment levels of 7- to 13-year-olds who have not completed grade 4, Nicaragua (percent)

	Treatment	Control	Difference
Follow-up (2001)	94.5 [880]	76.4 [852]	**18.1*** (3.1)
Baseline (2000)	69.2 [967]	73.0 [886]	–3.8 (5.2)
Difference	**25.4*** (3.4)	3.4 (1.9)	**22.0*** (3.9)

* = significant at 1 percent level.

Notes: First two columns give percent enrollment rates and the final presents the difference between the treatment municipalities (i.e, those receiving the program) and the control municipalities (i.e., those not receiving the program). Standard error correcting for heteroskedasticity is shown in parentheses. Number of observations is shown in brackets.

Source: Maluccio (forthcoming).

is calculated as the difference between the rates in the treatment and control communities after the program (i.e., column three minus column four) minus the same difference before the program (i.e., column one minus column two). Summing down column five reveals a child will receive on average 0.66 extra years of education as a result of the program—that is, from an average level of 6.8 years of education in treatment communities before the program to 7.46 years after the program.

Another important characteristic of the pattern of education outcomes in table 4.1 is the large reduction in enrollments in the control communities. This reduction probably stems from the substantial increase in poverty caused by adverse weather conditions in this area of Mexico over the period in which the data were collected. For example, according to Handa et al. (2001), the poverty head count increased by nearly 9 percentage points in the control communities but by only about 5 percentage points in treatment communities. Thus it appears that the program acts as an important safety net for beneficiary households and also protects children in terms of maintaining household investments in their human capital.

Educational Impacts of RPS in Nicaragua

Partly motivated by the Progresa approach, program designers built a rigorous evaluation strategy into the RPS program in Nicaragua. The evaluation strategy is very similar to that of Progresa, with communities randomly assigned to control and treatment groups. As already noted, the RPS program covers only the first four grades of primary school and is restricted to 7- to

Table 4.3 Impact of RPS on average educational level, Nicaragua

	Transition rates (percent)					Average educational level
	1	1 to 2	2 to 3	3 to 4	4 to 5	
RPS	68	96	95.6	95	91.7	3.09
Control	68	87.8	88.3	88.8	79.6	2.64
Number of students in school per 1,000 in cohort						
RPS	680	652.8	624.1	592.9	543.7	
Control	680	597.1	527.2	468.1	372.6	

Source: Maluccio (forthcoming).

13-year-olds. In spite of the lower transfer level, the enrollment impacts of the program are substantially higher than those of Progresa, in part because the potential for increase is greater given the lower initial enrollment rates.

Table 4.2 presents the estimates of program impacts on enrollment rates (Maluccio forthcoming). Before the program, enrollment rates in treatment communities were about 69 percent; after implementation of the program they were 94.5 percent, constituting in a program impact of 22 percent plus a 3.4 percentage point increase because of factors common to both the RPS and the control communities. According to the evidence, the educational impact was highest for the poorest households. Their enrollment rates increased by 30 percentage points from an enrollment rate of 66 percent before the program.

Enrollment rates, however, tell only part of the story, because ultimately the concern is with completed years of education and not just "being in school." The impact of the program on progression rates also looks substantial (table 4.3). On average, the program increased progression rates by 8.5 percentage points, from a base of about 85 percent, but again there is evidence that this increase was highest, at 9.3 percentage points, for the poorest households. It also is clear that, as with Progresa, this impact is largest for the higher grades in primary school; the progression rate from grade 4 to grade 5 increased from about 80 percent to 92 percent, an increase of 12 percentage points. This increase is particularly interesting because enrolled students beyond the fourth grade are not eligible for cash benefits. It may be that this large difference reflects changes in attitude toward education. Alternatively, it could reflect confusion among beneficiaries about program requirements. Yet it also could reflect the fact that once parents send children to grade 4 they believe the investment only really pays off if the child completes primary education. In any case, the cumulative impact on average education levels that is implied by these grade transitions is quite large.

Based on these progression rates, one can estimate the average educational level of the cohort at the end of grade 5. Before the program (i.e., in the control communities), the average level of education was 2.64 years at the end of grade 5. The program increases this level to 3.09 years, an increase of 17 percent or 0.45 years on average for each child. For comparison with Progresa, it is useful to estimate this effect up to grade 9. To do so, however, one must assume that progression rates after grade 5 remain the same before and after the program. Note that the progression rate from grade 4 to grade 5 increased substantially in RPS schools, even though this level of education is outside the focus of the program. A projection of retention rates to grade 9 could, then, be an underestimate. On the other hand, the progression rate from primary to secondary school may decrease if the extra students completing primary school are less likely than those already completing primary school to enroll in secondary school.

Under the assumption that postprimary progression rates are unchanged, by grade 9 the program would result in an increase to 4.0 in the average number of years of education for each child, compared with 3.2 years before the program, an increase of nearly 25 percent or 0.8 years for each child on average. This increase is substantial relative to that found for Progresa. It is all the more impressive given the relatively low transfer levels of RPS. This comparison between the programs in Mexico and Nicaragua suggests that in low-income countries such as Nicaragua with their tighter budget constraints and greater need for educational resources to address inferior educational outcomes, lower transfers can achieve large impacts on human capital accumulation, especially among the poor.

Educational Impacts of FFE in Bangladesh

Unlike for Mexico and Nicaragua, information on enrollments and dropouts by age is not available for Bangladesh, but observed changes in average enrollments in FFE and non-FFE schools over time are available, as well as some regression results, both of which show that the FFE program has a significant positive impact on enrollments.

Ahmed and del Ninno (2002, 15–17) found that attendance in FFE schools increased by 35 percent per school over the two-year period in which the FFE program was first introduced. Enrollment of girls jumped by 44 percent. Non-FFE schools also experienced an increase, but it was only 2.5 percent. Thus the double-difference estimate of the impact of the program based on school data is an increase in average enrollments over the first two years of 32.5 percent, which is a substantial impact. However, this may be an overestimate if children previously enrolled in non-FFE schools switch to FFE schools in order to qualify for education

transfers. Also, these impressive results declined somewhat in later years, in part because of lack of capacity in participating schools.[4] Ahmed and del Ninno (2002) also found significantly higher attendance rates and significantly lower dropout rates in the FFE schools.

The other evidence supporting the positive impact of the FFE program on enrollments was produced by a two-stage regression analysis conducted by Ahmed and del Ninno (2002) of the entire population of school-age children in FFE and non-FFE schools for the year 2000. To control for selective program participation, Ahmed and del Ninno first estimated, based on community and household characteristics, the probability of a household living in a community with an FFE program. Then they calculated the impact on school enrollment of various factors, including the presence of an FFE school. They found that at the sample mean the availability of an FFE school increases the probability that a child goes to school by nearly 9 percentage points. This is a smaller estimate of impact than the 17 percentage point increase found by Ravallion and Wodon (2000) for 1995–96 (possibly because of the choice of years), but it is still a substantial impact.

The FFE program in Bangladesh clearly, then, induced more children to go to school. But what was the effect on educational quality? In a survey of schools in eligible and noneligible districts in 1990, Ahmed and Arends-Kuenning (2002) found that the FFE schools, both public and private, were far larger than the non-FFE schools. They also found that the number of teachers was about the same, which meant that increased enrollments simply increased crowding.[5] Based on these findings, Ahmed and Arends-Kuenning then addressed educational quality. Were these new students learning in the FFE schools? Was crowding pulling down the performance of the nonbeneficiary students in the schools prior to establishment of the FFE program? What they found is encouraging. If one simply compares test scores in FFE and non-FFE schools, the former are significantly lower. But that is because the FFE students come from families that both are poorer than non-FFE families and include adults with a lower education. These factors have an effect on student performance. When they controlled for these two variables in a Tobit model with fixed effects, Ahmed and Arends-Kuenning found that non-FFE beneficiaries did significantly better in FFE schools than they did in non-FFE schools despite the larger class size.

Thus the FFE program had two positive effects on education: it increased enrollments, and at the same time it increased the performance of

4. Other studies also found an increase in primary school enrollment stemming from the FFE program. See Ahmed and Arends-Kuenning (2002), BIDS (1997), and Ravallion and Wodon (2000).

5. The number of students to teachers was 76 in FFE schools compared with 61 in non-FFE schools (Ahmed and Arends-Kuenning 2002, 16).

all the students in the FFE schools. Ahmed and Arends-Kuenning (2002, 41) hypothesize that the reason for these positive results is that the government enforced certain quality requirements in the FFE schools, which benefited all the students. If there is a lesson to be learned here in the design of CTE programs, it is the importance of complementary quality requirements backed by government inspection in participating schools.

Educational Impacts of Bolsa Escola in Brazil

The Bolsa Escola program, which began in some Brazilian cities in 1995, was only transformed into a national program in 2001. Although it is too early for studies of the educational impacts of the national program, some information is available from the earlier local programs and from an ex ante study of the national program.

As for studies of the local programs, a study of the program in Brasilia compared dropout rates and progression rates between beneficiaries and nonbeneficiaries in 1995 and 1996 (World Bank 2001). For both measures the impact on education appeared to be substantial. For the two years the dropout rates for beneficiaries averaged 0.3 percent compared with 6.1 percent for nonbeneficiaries. Promotion rates for beneficiaries jumped from 67 percent in 1995 to 80 percent in 1996, but remained virtually unchanged for nonbeneficiaries, rising from 71 percent to only 72 percent (World Bank 2001).[6] In addition, the study showed that a larger proportion of children in beneficiary families entered the school system at the right age.

Bourguignon, Ferreira, and Leite (2002) have made a very interesting attempt to estimate the likely effect of the national program on enrollments and poverty. Because observed data are not yet available, they simulate the effect of the BE program on those two variables using a behavioral model of work-school choice for 10- to 15-year-olds. The parameters of this model are estimated using the entire Brazilian household survey and are then plugged in to the work-school choice model in which all poor families are eligible for the conditional cash transfer.[7] Bourguignon, Ferreira, and Leite found that the program as presently constituted has a big impact on enrollments but a much smaller effect on poverty levels. About one-third of all the 10- to 15-year-olds not currently enrolled in school would enroll in response to the program (Bourguignon, Ferreira, and Leite 2002, 22). Among the poor households this proportion rises to 50 percent. The program is estimated to increase the enrollment rate of the poor by 4.4 per-

6. The promotion rates are for grades 3–8 because promotion is automatic in grades 1 and 2.

7. The model has three alternative states for 10- to 15-year-olds: attend school and do not work, work and do not attend school, or attend school and work.

centage points. But while the proportion of children working and going to school rises, the total amount of child labor declines. This reduction in child labor has a significant effect on the total income of poor families. According to Bourguignon and his colleagues, the BE program has a relatively small effect on poverty because families lose the income of the children who drop out of the labor force to attend school.

The ex ante approach permits some useful simulations. The first is the effect of an increase in the size of the subsidy, which in 1990 was set at 15 reais ($6) per month. Doubling the transfer amount decreased the school dropout rate by 1 percentage point or 25 percent, resulting in a significantly larger program impact on poverty. Bourguignon, Ferreira, and Leite also undertook a simulation to determine whether the enrollment effect stemmed from the higher income or the enrollment condition. In the simulation, all children in poor families received the subsidy whether or not they enrolled. According to the model, just raising the income of the poor had little effect on enrollments. It is the conditionality plus the subsidy that puts more children in school.

Are CTEs Cost Effective?

CTE programs, appropriately designed, can then have a significant impact on enrollments. But for policy purposes, it is important to know how cost-effective they are compared with alternative ways of reaching the same goal. Given the primary goal of increasing the enrollment and progression rates of children from extremely poor households, arguably the most relevant alternative to conditional transfers is more schools. Decreasing the distance children have to travel to school lowers both the financial and time costs of access, and these can be relatively substantial expenses for the poorest households living in more remote rural areas. Where access is already widespread (e.g., most communities have their own primary school), then improving the quality of education also may be a credible policy alternative for increasing enrollments from low levels. This is more likely to be the case where existing quality is extremely low—for example, teachers are regularly absent, or teaching resources and other school infrastructure are below some basic levels. But such issues need to be addressed before conditional transfer programs can be considered a sensible option, or at least simultaneously with the introduction of such programs through the incorporation of related design features (e.g., extra resources for schools, better monitoring, or an increased role for communities). Partly for this reason, but also because such issues have not been prominent in the programs discussed here or their evaluations, we focus only on the alternative of school building.

In fact, the only evidence on the cost-effectiveness of the programs discussed here was produced in a study by Coady and Parker (2002) that

examined the relative cost effectiveness of the *secondary education* grants of Progresa compared with the extensive expansion that took place in program areas. Coady and Parker compared the cost-effectiveness of cash-for-education grants with the school building program that took place at the same time. To do so, they regressed enrollment outcomes on participation in the program, distance to the nearest secondary school, school supply-side characteristics (e.g., student-teacher ratio or facility characteristics), and other household-level determinants of enrollment. The coefficient on the dummy variable for program participation was used to estimate the extra years of schooling generated by the demand side of the program, and this estimate was assigned a cost using the grants schedule identified earlier. It was estimated that, for a cohort of 1,000 children completing primary school, the grants increase the years of education they receive by 393 at a cost of 3.43 million pesos in grants, resulting in a cost-effectiveness ratio of 9,730 pesos per extra year of education generated.

Coady and Parker (2002) then compared this finding to the cost effectiveness of program expansion. The authors calculated the decrease in distance to school brought about by the school building program and applied the coefficient on distance to generate the impact on extra years of schooling. They then divided the cost of building and running the schools (over different time horizons) by the educational impact to arrive at the cost per extra year of schooling generated by this expansion. Coady and Parker found that the cost per extra year of education generated by the school building program was 113,500 pesos (over a 40-year time horizon). Therefore, demand-side subsidies, when compared with this extensive expansion strategy, are about 11 times more cost-effective in expanding enrollments.

All of the results just described relate to the impacts generated by very centralized programs. However, the results from the ongoing evaluation of PRAF in Honduras should provide some useful insights into the potential impact of decentralizing some spending decisions to the school level and the role of school quality in influencing enrollment and student performance. The results from the Bangladesh study suggest that educational impacts can be generated within a more decentralized framework, although improvements in targeting are required. Nevertheless, generally more evaluations are needed of the roles of quality and the process of resource allocation in determining educational outcomes and of the potential for bringing about large improvements in educational outcomes, especially among the poor, in a decentralized setting.

It also is important to recognize that increasing enrollments, while important, is by itself not enough to generate improved educational outcomes among the poor. Just as important is the need to ensure that these students receive a quality education once enrolled and to understand that the supply side (i.e., the level and organization of inputs) is crucial. Similarly, the full benefits of education programs can be realized only if

macroeconomic policy is conducive to economic growth and a growing demand for a more educated labor force.

Another important issue that needs to be addressed in these programs and their evaluations is that of monitoring enrollments to ensure that beneficiaries are indeed meeting the conditions of the program and that the estimated impacts do not simply reflect reporting biases. For example, the estimated impacts are based on enrollment outcomes reported by beneficiaries who clearly have an incentive to offer false reports of enrollment to interviewers. For this reason, it is important that enrollment outcomes reported by beneficiaries be compared with those reported by teachers. However, even here there may be reasons to believe that enrollment outcomes are biased upward. Teachers may be reluctant to report absences for poor beneficiaries when such reports could lead to a withdrawal of benefits. Or, if schools are already overcrowded, then enforcing enrollment will only exacerbate the problem.

Yet it also should be recognized that teachers do value educational outcomes, and that students who do in fact enroll tend to act as monitoring agents, ensuring that the conditions are applied equally to all—which seems to have been the case in Progresa (Adato, Coady, and Ruel 2000). Such mechanisms tend to counteract any upward bias on reported enrollments. Nevertheless, the issue of monitoring should be squarely addressed in future programs. One possibility is to redesign the payment system to reflect this "information constraint" by linking some of the transfers to progression (successful grade completion) as opposed to just enrollment, reflecting the fact that human capital accumulation, not enrollment, is the ultimate objective. Although such an approach pushes the focus of monitoring to progression rather than enrollments, the presence of such a monitoring mechanism (e.g., through public exams) is probably desirable even in the absence of the program.

5

The Impact of CTE Programs on Poverty

Conditioned-transfer-for-education (CTE) programs act as both incentives to invest in education and income transfers to the poor. This chapter presents evidence on the impact of CTE programs on poverty. Clearly, if CTE programs are to have a measurable effect on poverty, their payments must be effectively targeted and large enough to make a difference in the total income of poor families and to cover a significant number of the poor.

Transfer Levels

Table 5.1 shows several indicators of CTE program size in both absolute and relative terms. The first column gives the monthly benefit per beneficiary in US dollars per month. The next three columns give a sense of how big those monthly payments are compared with the national poverty line, the average income of the poor, and the minimum wage. In Mexico the payment per beneficiary is related to grade level, so calculations are presented here for 1998 for a grade 3 and a high school male recipient. In Nicaragua the payment is per family, so the appropriate adjustment was made, assuming a family of four with one beneficiary.

The table reveals that the CTE monthly payments to beneficiary families represent a significant supplement to income, particularly in Bangladesh, Brazil, Mexico, and Nicaragua. The payment per child is between 4 and 30 percent of the national poverty line, and more important, adds between 5 and 50 percent to the income of the beneficiary families, assuming that those families have the same average income as the entire

Table 5.1 Conditioned-transfer-for-education (CTE) program payments in absolute and relative terms, six CTE countries

	Payment per child per month (US dollars)	Payment relative to poverty line (percent)	Payment relative to average income of poor (percent)	Payment relative to minimum wage (percent)	Poverty line (US dollars)
Bangladesh					
Poverty line					30 and 60
Food for Education (1999)	3.00	10.0	12.5	n.a.	30
Female Education Program	1.25	4.2	5.2	n.a.	30
Brazil					
Bolsa Escola (2001)	6.00	11.9	21.8	8	50
Chile					
SUF (1998)	6.00	7.3	11.2	4.8	82
Honduras					
PRAF II (1999–2002)	3.20	3.7	9.1	3.7	79
Mexico					
Progresa (1998)					73
Grade 3	7.60	10.4	17.1	12	
High school	21.60	29.6	48.7	68	
Nicaragua					
RPS (1998)	11.00	5.2	13.1	23.9	53

n.a. = not available
PRAF = Programa de Asignación Familiar
RPS = Red de Protección Social
SUF = Subsidio Unitario Familiar

Notes: In Nicaragua the transfer is per household, not per student. Payment relative to urban poverty line and average income of poor is assuming a family of four, with one beneficiary child. In Mexico all poverty calculations use rural poverty lines and rural average wages because the program is rural. The poverty lines are taken from CEPAL (Economic Commission for Latin America and the Caribbean, *Panorama Social 2000–2001*). Average income of the poor was calculated by the authors from poverty and poverty gap statistics. The payment shown here for Mexico is for 1998, and differs from the payment schedule shown in table 3.2.

Source: For data for each program, see appendix A.

poverty population of the country. Because many poor families have more than one child in the program, it is quite possible that CTE payments double the per capita income of many poor families.[1]

1. Typically, no more than three children from the same family can be beneficiaries of the program at any time.

Program Size Relative to the Poverty Gap

The fact that beneficiary payments are large does not mean that a CTE program has a big impact on poverty. To determine that impact, one needs to know how big the program itself is relative to the size of the poverty problem, or, equivalently, how many beneficiaries are helped relative to the number of poor. Moreover, how big is the leakage to beneficiaries who are not poor—that is, how well targeted are CTE programs?

One measure of the size of the poverty problem in a country is the fraction of its population that is poor. The trouble with this measure, however, is that it does not account for how poor the poor are or for how much money would be needed to eliminate poverty. Clearly, a very big difference exists between the poverty problems in two countries that have the same percentage of people below the poverty line if in one of those countries the poor have an average income that is far below the poverty line, while in the other the average income of the poor is close to the line. In the first country the poverty problem is far more severe than in the second and will require far more money to eliminate.

A handy and simple measure of poverty that will facilitate comparisons with the amount of money spent on poverty reduction in CTE programs is the "poverty gap"—that is, the amount of money that would be needed to eliminate poverty altogether. By definition, the poverty gap is equal to the absolute difference between the average income of the poor and the poverty line, multiplied by the number of poor.

The poverty gap is the *minimum* amount needed to eliminate poverty, because it assumes perfect targeting and ignores any economic disincentives (e.g., a reduction in private transfers or a reduction in labor supply by beneficiaries brought about by the transfers). Each poor person receives exactly the amount needed to bring him or her up to the poverty line and not a dollar more, and there is no leakage to the nonpoor. For example, if the poverty line is $100, a person with an income of $25 receives $75 and a person earning $75 receives $25. Because in practice such an ideal could not be achieved, the gap is a minimum estimate of what would have to be spent to eliminate poverty altogether. This estimate also does not account for the costs of targeting or the administrative costs of managing a poverty reduction transfer program.

Economists have devised a general measure of poverty called the Foster-Greer-Thorbecke (FGT) index from which the poverty gap can be easily derived. The general FGT index is defined as

$$FGT^{\alpha} = \frac{1}{n}\sum_{q}\left(\frac{Z - Y_i}{Z}\right)^{\alpha} \tag{5.1}$$

where Z is the poverty line, Y_i is the income of the ith poor person, q is the number of poor people, n is the total population, and α is a parameter that varies according to the degree of poverty aversion. If $\alpha = 0$, one cares

only about the number of poor people, but not how poor they are. Solving equation (5.1) for $\alpha = 0$ gives the fraction of people who are poor, or what economists often call the headcount ratio:

$$FGT^0 = P^0 = q/n. \tag{5.2}$$

If $\alpha = 1$ in equation (5.1), the result is P^1, often called the poverty gap. It is not equal to the gap as defined above, but is related to it as shown in

$$\frac{GAP}{GNI} = P^1 * \frac{Z}{\overline{Y}} \tag{5.3}$$

where *GNI* is gross national income and $\overline{Y}$ is GNI per capita.

According to equation (5.3), the share of GNI needed to eliminate poverty altogether is the reported value of P^1 multiplied by the ratio of the poverty line to average per capita income. Details of the calculations for each of the countries with information are shown in table 5.2. Note that the poverty gap is specific to the poverty line and that both it and the poverty index (P^0) are consistent with the poverty line shown in the table.

Here Mexico will serve as an example of how the poverty gap is calculated. In Mexico the urban poverty line is $116 per month or $1,392 per year. The per capita income in 1998 was $4,000. P^1 was 18.4 percent. Thus the poverty gap as a fraction of GNI for Mexico for that poverty line was 6.4 percent ($18.4 \times 1{,}392/4{,}000$). Given that the gross national income of Mexico in 1998 was $402.8 billion, the gap in dollars was $25.8 billion—see the second column of table 5.2. The gap in billions of dollars for each of the other countries was calculated in the same way. The fourth column compares the absolute amount spent in each of the programs with the poverty gap. In 1998 Mexico spent $770 million on Progresa, or just under 3 percent of the $25.8 billion poverty gap—that is, just under 3 percent of what it would take to bring every Mexican up to the poverty line shown in the table.

None of the programs shown in table 5.2 are national except those in Chile and Brazil. For example, Progresa is limited to the rural sector of Mexico, and PRAF is limited to the poorest third of the two poorest departments in Honduras. Obviously, the poverty gap for the rural sector alone in Mexico is much smaller than the national gap shown in table 5.2 because the rural poverty line is lower. Therefore, Progresa must represent a large fraction of the rural poverty problem. The point of table 5.2 is not to estimate the effect of the programs on poverty, but simply to demonstrate how big an effort the programs represent compared with the size of the national poverty problem.

The CTE programs in Mexico, Brazil, and Bangladesh each account for about 3 percent of their country's poverty gap (see the fourth column of table 5.2). Chile's program accounts for a bigger fraction, and Honduras's for a good deal less. However, all of these ratios depend on where the

Table 5.2 CCash-for-education (CFE) **programs relative to poverty gap**

	Program cost (millions of US dollars)	**Poverty gap** (billions of US dollars)	**GNI per capita** (US dollars)	**Program cost relative to poverty gap** (percent)	**Poverty line** (US dollars per month)	**P** (percent)	**P[1]** (percent)
Bangladesh							
$30 poverty line		2.6	340				5.9
$60 poverty line		28.2	340				31.8
Food for Education (1999)	77	2.6		2.9	30	29.1	
Female Education Program	15	2.6		.6	60	77.8	
Brazil—Bolsa Escola (2001)	680	17.4	4,534	3.9	50	37.5	17.0
Chile—SUF (1998)	70	1.1	5,000	6.4	82	21.7	7.5
Honduras—PRAF II (1999–2002)	13	2.8	760	.4	79	79.7	47.4
Mexico—Progresa (1998)	770	25.8	4,000	3.0	116	46.9	18.4
grade 3							
High school							
Nicaragua (1998)	10	1.3	413	.8	53	65.1	39.4

P = headcount ration (percent in poverty)
P^1 = poverty gap measure

Source:

poverty line is set relative to national per capita income and on the coverage of the program. Honduras has a national poverty line of $79 per capita per month, almost as high as that of Chile even though its per capita income is less than one-sixth that of Chile. For that poverty line, the gap in Honduras is 59 percent of its national income, whereas Chile's is only 1.5 percent of its GNI. The poverty line for Honduras seems unreasonably high—actually it is higher than the country's average per capita income, with the result that 80 percent of the population is labeled poor. That high line raises the cost of eliminating poverty, so defined, and makes it appear that the country is spending less relative to the poverty problem than other countries. Brazil has the opposite situation. It has a relatively low line relative to its per capita income and therefore a low gap relative to its GDP. It does spend quite a lot on its program, but the size is magnified by its conservative definition of poverty.

The typical program, then, makes an appreciable difference in the incomes of those families that are eligible and receive the benefits. But none of the programs are very large when compared with the total income shortfall of the poor for two reasons. First, many of the poor are ineligible for benefits because they either have no children or have children of the wrong ages. Second, many of the poor live in places that are not covered by the programs. For example, through 2001 Progresa was restricted to families living in rural areas of Mexico, which excluded at least half the poor at the outset. In Bangladesh the Food for Education program is limited to the two poorest districts in each state, again excluding a great many poor families who might otherwise be eligible. By means of such limitations governments have made the cost of these programs acceptable, but in so doing they have limited as well the usefulness and impact of these programs on national measures of poverty or the poverty gap.

Targeting Performance

The targeting performance of the CTE programs can be evaluated by estimating the proportion of the transfers (or program beneficiaries) that reach some target "poor" group, typically specified as being those households in the lower portion (such as the bottom 20 or 40 percent) of the national consumption distribution. Table 5.3 presents quantitative estimates of the cumulative share of transfers for five of the six CTE programs in this study. All five programs distribute far more than a proportional share to the bottom quintiles. On average, the share of benefits of the CTE programs going to the bottom 40 percent of the population is 72 percent. This is very impressive targeting compared with other safety net programs analyzed in Coady, Grosh, and Hoddinott (2002a). They report that the median program, among the 77 for which they had data, distributed about 65 percent of its benefits to the bottom 40 percent. Their study

Table 5.3 Distribution of eligible households, cumulative shares

Decile	PRAF (Honduras)	RPS (Nicaragua)	Progresa (Mexico)	SUF (Chile)	FFE (Bangladesh)
1	22.1	32.6	22.0	—	—
2	42.5	55.0	39.5	67.0	—
3	66.9	70.2	51.9	—	—
4	79.5	80.9	62.4	88.8	48.0
5	88.6	89.6	70.9	—	—
6	93.5	94.3	80.5	97.2	—
7	97.0	97.1	87.8	—	—
8	97.3	99.1	93.0	99.8	—
9	97.7	99.8	98.0	—	—
10	100.0	100.0	100.0	100.0	100.0

— = not available

Sources: Chile: MIDEPLAN (1998) Bangladesh: Coady, Grosh, and Hoddinott (2002a); Honduras, Nicaragua, and Mexico: Morris et al. (2001, table 4).

included four (Bangladesh, Chile, Honduras, and Mexico) of the six CTE programs described in this book. All four fell in the top 60 percent of those in the study, and three of them—Mexico, Chile, and Honduras—were in the top 30 percent (Coady, Grosh, and Hoddinott 2002a, table 3.4). These estimates also are likely to be underestimates of targeting performance; the investigators assumed transfers were uniform across households, when in fact households with more children receive larger transfers. In the case of FFE, the overall targeting performance was less successful, but the poor still received 20 percent more than they would have without targeting.

Because these programs tend to use a combination of targeting methods, it is important to know the relative contributions of the different methods—geographic, proxy means, and demographic. Progresa, PRAF, RPS, and FFE all use geographic targeting in addition to other methods for identifying eligible beneficiaries within communities. However, the information required to determine the relative contributions of the various targeting methods is available only for Progresa (see table 5.4, which shows for Progresa the share of program benefits accruing to each consumption decile using the different targeting methods). In the absence of any targeting (i.e., neutral benefit incidence), each decile would receive 10 percent of the benefits. Targeting increases the share going to the lowest deciles. For example, geographic targeting alone increases the share going to the bottom quintile from 20 percent to 33.3 percent. Adding a proxy means test increases this share to 39.5 percent. Linking benefits to household demographic structure increases the share even further, to 58 percent.

Therefore, in Progresa geographic targeting substantially improves targeting performance, contributing 36 percent of the overall gains from targeting. However, in FFE community targeting accounts for 92 percent of the overall gains from targeting. This relatively low contribution of geo-

Table 5.4 Comparing geographic, proxy means, and demographic targeting, Progresa (percent)

National consumption decile	Mean consumption (pesos per adult equivalent)	Decile share of total transfers: Geographic with uniform transfer	Geographic and proxy means with uniform transfer	Geographic with proxy means and demographic transfer
1	68.3	18.3	22.0	36.4
2	94.3	15.0	17.5	21.6
3	113.0	11.5	12.4	12.4
4	131.6	10.3	10.5	9.0
5	151.1	8.9	8.5	5.9
6	173.4	10.3	9.6	5.6
7	198.5	8.0	7.3	3.8
8	228.0	6.9	5.2	2.4
9	275.6	7.0	5.0	2.1
10	383.6	3.8	2.0	0.8

Note: Under neutral targeting each decile would receive 10 percent of the program budget.
Source: Coady (2001).

graphic targeting in Bangladesh reflects in part the fact that the program was "shared" across regions for political purposes. Better geographic targeting could substantially improve overall targeting performance. Indeed, issues of design and implementation are important. For example, the design of geographic targeting should be based on a rigorous analysis of the spatial distribution of poverty. For the benefits of geographic targeting to materialize, the implementation of the targeting mechanism should reflect this reality. In the context of Bangladesh, it appears that the potential gains from targeting were compromised by the political decision to share the program and possibly by the decision to target at higher administrative levels. Nor is it obvious that the targeting was based on any rigorous evaluation of the spatial distribution of poverty. One way of possibly dealing with the political pressures to share programs is to apply the program to most areas but concentrate more of the budget (or beneficiaries) in the poorer regions.

Also noteworthy is the very large impact in Progresa produced by linking transfer levels to family demographic structure—that is, families with more children get larger transfers. We estimate that the demographic structure of transfers accounts for 48 percent of improved targeting performance. This outcome reflects the high negative correlation between consumption per capita and family size, with the poorest households having relatively more children. By contrast, the use of household targeting—that is, classifying households as "poor" and "nonpoor" based on a proxy means test—accounts for only 16 percent of overall targeting performance. This relatively low contribution stems mainly from the high poverty rate within participating communities, with 80 percent of house-

holds being classified as poor. Household targeting becomes more important as a program expands into communities with lower rates of poverty. This factor was part of the motivation in RPS for not targeting the poorest communities; proxy means targeting was used only in moderately poor areas. In the case of PRAF in Honduras, all households with children in the relevant age groups were eligible for the program.

In their review of targeting, Coady, Grosh, and Hoddinott (2002a) were unable to draw firm conclusions about which targeting method was most efficient and effective. The substantial amount of variation in targeting performance within regions, programs, and targeting methods can be interpreted as implying, from the perspective of targeting performance alone, that how one implements targeting methods and programs is as important as which methods and programs are chosen. All of these CTE programs do well, and there is enough evidence generally to conclude that geographic targeting can play a crucial role in ensuring that benefits reach the poor. However, the experience of Bangladesh confirms that even this method can be compromised if not implemented sensibly. Once very poor areas have been identified, further targeting is less effective. However, as a program expands into less poor communities, the potential gains from further household targeting increase. But even without further targeting, linking transfers to family size often can substantially improve targeting outcomes.

Chile's system differs from that of any of the other programs reviewed here in several important respects: (1) it is not targeted geographically; (2) it is demand driven; and (3) its program is part of a more general and universal safety net, for which eligibility is determined by the possession of a CAS (Comité de Asistencia Social) card. As mentioned in chapter 3, the government does not attempt to identify the poor. Rather, it is up to potential beneficiaries to prove their eligibility. Judging by the results shown in table 5.3, the system works very well. In 1998 Chile spent almost $700 million or about 1 percent of GDP on all the programs targeted with the CAS card. A bit less than half of that amount went to the bottom 20 percent, and it increased the average income of that group by 84 percent (Midplan 1998, 42–43).[2] The SUF component of the safety net has an even better targeting profile. Almost 90 percent of the SUF benefits go to the bottom 40 percent of families (see table 5.3).

What is important here is that the Chilean program uses no geographic targeting, and it is demand driven. Potential beneficiaries come to the government to prove they should be eligible for benefits—and not just for the CTE program but for many other safety net programs as well. Chile does use a questionnaire, but because the program is demand driven, it

2. The successful targeting of this large quantity of resources to the bottom quintiles must be at least partially responsible for Chile's success in cutting the poverty rate almost in half since 1990.

does not require a census or a complete registry of all families, a requirement that is responsible for over one-half of the targeting costs in Progresa. Chile's approach appears to be one of the reasons its costs per survey are the lowest of all the programs for which we have information. And yet this system has the ninth-best targeting performance of all the safety net programs reviewed by Coady, Grosh, and Hoddinott (2002a). If other countries, particularly middle-income ones, implement a national CTE program, we suspect they will want to consider carefully the Chilean model and adopt a demand-driven identification system. Such a system will leave out some poor people (although this problem can be reduced by putting in place the appropriate information campaigns), but it will reduce targeting costs and place more of the responsibility of identification on the poor themselves.

One of the advantages of introducing some element of self-selection into the targeting decision is that it can facilitate entry into and exit from the program. For example, Mexico's Progresa has returned to participating rural communities to update its information base on household socioeconomic characteristics—that is, the base on which the initial beneficiary selection mechanism depended. Although this resurvey of each household is costly, the decision about whom to include and exclude based on a statistical approach, with all its statistical error, is very sensitive politically, especially because it may result in a very different distribution of the budget across states. The advantage of introducing some component of self-selection into this choice is that households and not program officials make the initial decision about whether to apply. However, it is important to monitor this outcome to ensure that the poorest households are not "self-selecting out" because of lack of knowledge of the process or other such impediments. Also, even with self-selection the program still needs to subsequently undertake administrative selection, which should be based on reliable, up-to-date data.

Effects of CTE Programs on Poverty

Now that it is clearer how much the CTE programs are spending and how that compares with the poverty gap, it is time to ask: How much difference has all this spending made? What has been the impact of these CTE programs on poverty? It might seem that a comparison of poverty measurements before and after implementation of these programs would provide a reasonable estimate of their impact, but that is not true. One reason is that many other factors affecting poverty may have changed while a CTE program was being implemented, so that it is impossible to untangle the impact of the CTE program from these other factors. To adjust for this problem, social scientists use control groups whenever possible. First, they select communities or groups as similar as possible to those receiv-

ing the CTE benefits. They then measure and compare the differences in poverty in both the treatment and the control groups. The estimated effect of the CTE program is the difference in the changes in poverty in the two groups. Thus if poverty falls by 5 percent in the experiment group but rises by 2 percent in the control group, the impact of the CTE program would be estimated at 7 percent—the best estimate of what would have happened to poverty had there not been any other exogenous changes in the conditions affecting poverty.

Because few countries have taken the trouble to select control groups and measure their poverty level, some other procedure will have to be used here. One possibility is to compare the spending on the CTE program with the poverty gap. For a national program such as SUF in Chile or Bolsa Escola in Brazil, that would be the fourth column of table 5.2. For a program that is not national, one would have to make an adjustment along the lines of equation (5.4), which appears later in this chapter. For a national program, the spending-to-gap ratio is the maximum direct impact of the program on poverty, holding all exogenous factors constant and assuming that there are no leakages to the nonpoor and no administrative costs. This very simple estimate of poverty impact establishes a hypothetical ceiling on the effect of a CTE program because it assumes there are no leakages. But for that very reason it sets a standard against which one can measure actual performance. For example, for 1998 the $70 million family subsidy program in Chile, if optimally targeted, could reduce both the gap and the national level of P^1 by a bit over 6 percent (note this is 6 percent of the observed level of P^1, not 6 percentage points).[3]

As before, this figure is an estimate of the maximum direct effect of a national CTE program. Actual observed results could be less than the maximum for several reasons other than leakages and administrative costs. First, changes in exogenous conditions raise the observed poverty level. Second, if children go to school and drop out of the labor force, the change in net family income will fall short of what families receive in CTE payments. And third, eligibility for other programs may be affected by participation in the CTE program. This factor also will reduce the net full impact on incomes of poor families. The measure just described also could understate the impact of the program on the poverty gap. Suppose, for example, that there are multiplier effects in poor communities—that is, poor families spend their CTE payments on things produced in the same or other poor communities. In such situations the income of the poor could rise by more than the CTE payments.

Throughout this discussion, national gaps, national levels of per capita income, and national poverty lines have been used to calculate impact. The result is a program's hypothetical maximum impact on the *national*

3. Because no program is big enough to have an appreciable effect on GNI per capita, the percentage change in the poverty gap and in P^1 are equal.

poverty gap. In practice, however, many of the programs are not national. Mexico's Progresa is a rural program, and the Bangladesh program is limited to the poorest districts in each state. Where the CTE program is limited in this way, the formula must be recalculated so that it includes just the population actually eligible for the program. That is easy to do, provided information on the size of the population in question, the poverty line, and an estimate for P^1 are available. For a rural program like Progresa, equation (5.3) would have to be converted[4] so that

$$P^1_{rural} = \frac{GAP_{rural}}{n_{rural} Z_{rural}} \tag{5.4}$$

For example, the program cost–to–national poverty gap ratio for Progresa is about 3 percent (table 5.2). But Progresa is a rural program. CEPAL (Economic Commission for Latin America and the Caribbean, *Panorama Social 2000–2001*) has estimated that P^1 for the rural area in 1998 was 0.256. Also in 1998 the rural poverty line was $71.30 per month, and the rural population was about 25 million. Based on these numbers, the rural poverty gap was $5.5 billion, which implies that the $770 million Progresa program was 14 percent of the rural poverty gap. That is an estimate of the maximum reduction in the rural poverty gap that could be expected from Progresa under the ideal conditions of perfect targeting and no administrative costs. This estimate does not include second-round multiplier effects.

Country Results

This section summarizes for the six CTE countries the available estimates of program impact. Unfortunately, Progresa in Mexico and RPS in Nicaragua are the only two programs for which a formal effort has been made to estimate, using observed data and control groups, the impacts of these programs on poverty.

Progresa in Mexico

Two alternative approaches were used, one based on a simulation and the other on a comparison of observed changes in poverty in Progresa and control communities over time (Skoufias, Davis, and de la Vega 2001, and Skoufias 2001). All of these analyses were based on a sample of 24,000 rural families in 506 communities who were periodically interviewed between 1997 and 1999. Of these 506 communities, 320 were assigned to the group that would receive Progresa benefits; the remaining 186 were a

4. Note that solving equation (5.3) for P^1 gives $P^1 = GAP/nZ$.

control group. All households in both groups were first surveyed in late 1997, and 78 percent were classified as eligible for benefits. Payments under the program were initiated in July 1998, and there were two subsequent rounds of the surveys. Eligible beneficiaries in the control group communities began to receive payments in 1999.

In the simulation approach all of the eligible beneficiaries were assumed to receive the full benefits to which they were entitled. These benefits were added to total consumption, and the changes in poverty and the poverty gap were calculated for a poverty line set at the 52nd percentile of per capita income. Skoufias, Davis, and de la Vega (2001) found that under Progresa targeting, poverty in the participating communities falls from 52 percent to 41 percent, a decline of 21 percent, and the gap falls from 16 percent to 9 percent, both substantial changes (table 5.5).

At the bottom of the second column of table 5.5 is the percentage change in the poverty gap in the Progresa communities under optimal targeting and payments. In other words, this is the maximum amount by which the gap would fall if each family below the poverty line were to receive exactly the difference between its income and the poverty line. We call this optimal targeting and payment, because there is both no leakage to nonpoor beneficiaries and no overpayment to those who are poor. By definition, under optimal targeting and payment the reduction in the poverty gap is just equal to the amount spent on the program compared with the gap. Thus the table reveals that under what we are calling optimal targeting and payments Progresa could have reduced the gap in the Progresa communities by 78 percent.

The simulation with Progresa targeting reduces the poverty gap by 44 percent, a large amount, but that reduction is still far less than the one under optimal targeting. The reason is that while all beneficiaries are poor before receiving payments, those payments are not a function of the level of income once the family is shown to have a preprogram income under the poverty line. This means that the payments to eligible beneficiaries in families close to the poverty line must have exceeded the minimum amount necessary to raise the income of those families to the poverty line. In administrative terms, it is not possible to fit each beneficiary payment to each poor family's income level, but altogether the overpayment to families close to the poverty line must have amounted to about one-third of the total cost of the program (77.87 percent minus 43.63 percent).[5]

The estimates noted so far are based on simulations in which program benefits are added to observed preprogram income levels for eligible families, holding constant all other sources of income. But in fact the existence of the program undoubtedly affected behavior. Some children went to

5. This is the difference between the percentage reduction of the poverty gap with optimal targeting and with Progresa targeting.

Table 5.5 Effect of Progresa on poverty: a simulation

	Poverty	Poverty gap
No transfer	.52	.16
With Progresa targeting	.41	8.09
Percentage change	–20.97	–43.63
Optimal targeting and payments		
Percentage change	n.a.	–77.87

n.a. =

Source: Skoufias, Davis, and de la Vega (2001).

school instead of working. Some adult family members also may have stopped working or worked less. Moreover, families receiving Progresa benefits became ineligible for some other safety net income supplements. All these outcomes would make the observed changes in income for eligible families less than the direct Progresa payment to the family. In addition, there possibly were positive second-round multiplier effects. Progresa payments raised family incomes, and part of the extra income was undoubtedly spent on goods and services produced by poor people in the Progresa communities. That spending would make the observed changes in the income of the poor in those communities greater than the Progresa payments. Whether these two kinds of effects cancel each other out is an empirical question that can be addressed only by looking directly at the income and poverty levels before and after program payments were received.

This is what Skoufias (2001) attempted to do in his investigation of Progresa. As mentioned above, each of the 506 communities in the study was surveyed in October 1997 before the program was started and then twice in late 1998 and twice in 1999 after payments were received in the Progresa communities.[6] From these surveys, various poverty statistics were calculated for both the Progresa and control communities. (See table 5.6 for the calculations from 1997 and 1999.)

Table 5.6 shows the levels and the changes in both poverty and the poverty gap for the two groups of communities for a poverty line defined as the 50th percentile of the value of consumption in November 1998. Some of the changes in the observed levels of poverty in the two communities were the result of exogenous forces entirely independent of Progresa. They are assumed to have affected both the experiment and the control communities equally. The other observed changes in poverty result from Progresa itself, and by definition affect only the communities in the program, not the control communities. The net impact of Progresa on poverty is the difference between the observed change in the poverty statistic in the Progresa communities and in the control communities. In the

6. For a complete description of the methodology and results of this difference-in-difference estimate of impact, see Skoufias (2001), especially appendix E.

Table 5.6 Impact of Progresa on poverty (percent)

	Poverty level			Poverty gap		
	Progresa	Control	Progresa effect	Progresa	Control	Progresa effect
October 1997	67.4	65.2		35.7	31.9	
November 1999	59.9	69.4		24.8	33.9	
Change 1997–99	7.5	4.2	11.7	10.9	2.0	12.9
In percent	11.1	6.4	17.4	30.5	6.3	36.1

Source: Skoufias (2001, appendix E).

table that "difference in difference" is the column labeled "Progresa effect." Note that this measure incorporates all of the labor market and multiplier effects of Progresa on the incomes of poor families.

Of the results displayed in table 5.6, first and most important is the powerful effect that Progresa had on poverty. It fell by 11 percent, and the poverty gap fell by an even greater 30 percent in the Progresa communities. But the impact of the program is even greater than these observed changes, because both poverty and the poverty gap rose considerably in the control communities. Because the control communities were chosen to be similar to those in the program, we are justified in assuming that there would have been an equivalent increase in poverty in the Progresa communities in the absence of the program. Thus the estimated effect of Progresa is the sum of the observed reduction in poverty in the Progresa communities and the rise in poverty in the control group, or a decline of 17.4 percent in the level of poverty and a 36.1 percent reduction in the poverty gap.

Second, because the reduction in the poverty gap is so much greater than the reduction in the headcount ratio, the results confirm that in actual practice the program reaches people well below the poverty line.[7]

Finally, if one compares the impact estimates from the simulation in table 5.5 with those based on actual observations in table 5.6, it appears that the negative effects of lower labor force participation in the Progresa communities slightly outweigh positive second-round multiplier effects. In the simulation, poverty falls by 21 percent and the poverty gap falls by 44 percent. But in fact Skoufias (2001) found that poverty fell by only 17 percent and the poverty gap fell by only 36 percent.[8]

7. An alternative difference-in-difference estimate of the impact of Progresa was made by Handa et al. (2001) using an econometric analysis of the same survey data used in the Skoufias (2001) study. The results confirm the strong positive impact of Progresa on poverty found by Skoufias (2001).

8. Note that because the poverty line used in the simulation is lower than the one used in table 5.6, the observed difference understates the difference between the simulated and the actual results.

To summarize, of the three estimates of the impact of Progresa presented in this section, two are hypothetical and the third is based on actual observations. The first estimate, based on optimal targeting, is a 78 percent reduction in the poverty gap, the maximum. The second estimate is of the reduction in the poverty gap to be expected from perfect targeting, but with actual rather than means-tested payments to beneficiaries. Overpayments to families close to the poverty line reduce the impact on the poverty gap from 78 percent to 44 percent (see table 5.5). The third estimate is based on the observed changes stemming from the Progresa program as it was actually implemented (see table 5.6). Here indirect effects such as a reduction in child labor and possible errors in targeting reduce the estimate of the impact of the program from the simulated poverty gap reduction of 44 percent to 36 percent. The latter figure is a little less than half of the maximum amount one could have expected from the ideal program with optimal targeting and means-tested payment schedules and no indirect effects. If that ratio of actual to hypothetical impact is valid, then we would estimate that, for the entire rural population, Progresa reduced the rural poverty gap by about 7 percent and raised the income of the rural poor by between 10 and 15 percent.[9]

Bolsa Escola in Brazil

Prior to 2000 Bolsa Escola was a municipal program in Brasilia whose rules and financing were decided locally. For the national program, implemented in 2001, we have simulation rather than ex post evidence.

The comparative evidence available for the earlier Brasilia program shows the potential of this kind of program to reduce poverty. The program in Brasilia was more generous than the later national program, whose characteristics are summarized in the appendix to this book. In Brasilia the 25,000 families that were beneficiaries of the program received per month on average the value of the minimum wage (130 reais or $108 in November 1998 US dollars). The payment was not by child but by beneficiary family. Because the 25,000 families had 43,000 eligible students, in effect the program paid $55 per month per student, which is almost 10 times the $6 paid by the national program (see table 5.1). That transfer raised monthly per capita income in those families from 44.35

9. Suppose the entire $770 million went to the poor—that is, no administrative costs and perfect targeting. Multiplying the rural poverty line of $855.60 per year by the rural poor population of 12.3 million yields an estimate of qZ of $10.5 billion. Because the gap is $5.5 billion, the total income of the poor must have been $5 billion. The percentage increase in the income of the poor is then 770/5,000 = 0.154. This would be the maximum increase in income of those who were below the poverty line prior to the program under optimal targeting.

reais to 72 reais, an increase of 62 percent. For a poverty line set at one-half of the minimum wage, the program reduced the poverty gap of those families by 90 percent (P^1 falls from 0.41 to 0.04).

To reduce the cost of the program and to prevent an inflow of migrants wishing to take advantage of the generous benefits, the Brasilia program required a family seeking eligibility to be not only poor and have school-age children, but also to have lived in Brasilia for five years. As a result, the undercoverage was extensive. According to estimates, about 60,000 families in Brasilia had incomes that were less than half of the minimum wage poverty line. Thus the program covered, at most, 42 percent of the poor.

As noted in chapter 4, Bourguignon, Ferreira, and Leite (2002) used a behavioral model of schooling and work choice for children to estimate the effect of the national BE program in Brazil on both school enrollments and poverty. For the actual monthly level of benefits, they found that because of the loss of earnings of children who left the labor force or worked fewer hours in order to attend school, the poverty index fell only 1 percentage point, from 30.5 percent to 29.5 percent, under this program (Bourguignon, Ferreira, and Leite 2002, table 7). The impact on the poverty gap was slightly larger (a reduction of 8 percent). These findings differ substantially from those of the World Bank study of the Brasilia program. The main reason appears to be the level of the transfers. The benefit in the Brasilia program was almost 10 times bigger than the $6 per month of the national program. When Bourguignon and his colleagues doubled the benefit in an alternative simulation, poverty fell by 8 percent and the poverty gap fell by 17 percent (Bourguignon, Ferreira, and Leite 2002, table 7).

What these simulations make clear is that if one is primarily interested in educational impact rather than poverty, then one sets a fairly low benefit level to maximize the increase in enrollments per dollar spent. But if one does that, there will be a significant reduction in the impact of the program on current poverty.

Food for Education in Bangladesh

In 1997–98, 2.18 million households benefited from the FFE program in Bangladesh, but the amount spent per beneficiary family was small. The average income transfer was about $41 per year per family, or $0.59 per month per household member, based on an average household size of 5.83 persons. Given that the average per capita expenditure per month in FFE families before the program was $4.93, the FFE program increased the expenditure by about 12 percent. In terms of food insecurity, the program increased calorie consumption by about 9 percent, which was econometrically significant and which reduced the energy deficit in poor families (IFPRI 2000, 33–34).

Aside from the relatively small size of the per-beneficiary payment, the government is worried that the program fails to reach enough of the poor. An estimated 12 million poor families live in rural areas (Ravallion and Sen 1994), implying that FFE covers only 18 percent of the rural poor. If the income profile of beneficiaries is assumed to be similar to that of those who are not covered, then a crude estimate of the impact of the FFE program on the rural poverty gap in Bangladesh would be a 2 percent reduction (0.18×0.12).

RPS in Nicaragua

No evaluation was undertaken of poverty reduction using simulations in the communities that received payments in the first stage of the RPS program, mainly because all residents with children between 7 and 13 years of age in the communities selected to receive benefits were eligible. We do know that the great majority of the families in those communities were poor and that the entire RPS program was a substantial addition to the average family income.[10] According to an IFPRI (2002) study, the average consumption of a family in the RPS community in 2000 prior to the first distribution was 21,555 cordobas. The program on average distributed 4,355 cordobas per family per year, assuming one child in the school program. That payment consisted of 2,880 cordobas in a food subsidy conditioned on taking children to health posts for checkups and immunizations, 1,200 cordobas for the educational voucher (*bono escolar*), and 275 cordobas for school expenses. In other words the program implied a potential increase of 20 percent in annual consumption.

The IFPRI study compared consumption levels before and after the program in both the RPS communities and selected control communities. IFPRI found that in 2001 actual consumption increased by 819 cordobas in the RPS communities and fell by 2,938 cordobas in the control communities. Thus the net impact of the RPS program was an increase of 3,757 cordobas or 17.4 percent in consumption relative to what it would have been without the program. Unless payments were seriously skewed toward the nonpoor in the RPS communities, the reduction in both the numbers in poverty and the poverty gap must have been at least the same percentage. The program is small and narrowly targeted, but there is little doubt that within those few communities that were eligible to participate, the transfer made possible a significant increase in consumption and a reduction in poverty.

10. IFPRI (2002) estimated that 79.5 percent of the residents were poor and that 42.2 percent were extremely poor.

6

Comparative Performance

Conditional transfer for education (CTE) programs are hybrids that reduce poverty by transferring income to the poor and increasing the human capital of their children. Thus they have a poverty reduction component and an investment component. It is therefore useful to ask: How do CTE programs compare with workfare or some other safety net transfer program as a way of helping the poor? And how do they compare with alternative investments?

As for how CTE programs compare with other poverty reduction programs, does the fact that the CTE program is tied to school enrollment make it relatively ineffective as a device for alleviating poverty? This might be the case if, for example, a large proportion of the poor did not have children eligible for the program or if poor families were so dependent on the income of their working children that they would not send them to school for any feasible level of transfers.

Because they affect human capital accumulation in poor families, CTE programs can be thought of and evaluated as pure investment programs. The government invests in a cohort of poor children in the hope that an education will increase their human capital and their future earnings. What is the return on this investment? How does it compare with either the social discount rate or the rate of return on alternative investments?

Calculating Net Direct Benefits to the Poor from CTE Programs

The total benefit to the poor of a CTE program is the sum of the direct transfers poor families actually receive plus the present value of the increase in earnings potential that results from keeping their children in

school longer, less any loss of earnings of children who leave the labor force to attend school. In expressing the benefits in this way, we are assuming that the parents of poor children receive either psychic or financial benefits from the future earnings of their children. All programs have administrative costs that reduce the payment actually received by the poor. In addition, there may be leakages in benefit payments to the nonpoor. All of these costs and leakages will reduce the net benefit to the poor of the program.

All of these factors can be written in the form of an equation

$$\frac{B}{G}=(1-a)*(1-l)*(1-c)*(1+f) \tag{6.1}$$

where B is the total benefit to the poor; G is the total program cost; a is the administrative cost, including targeting as a fraction of total cost; l is leakages to nonpoor as a fraction of total program cost; c is the income lost when children attend school instead of working or the cost of attending school or the private costs of participating; and f is the discounted future benefits from the added earnings potential of children as a fraction of direct transfers to the poor (Ravallion 1999). This equation, which expresses the net benefits to the poor as a fraction of the total amount spent by the program, is a useful organizing device for comparing a CTE program with alternative poverty reduction programs.

The first term on the right-hand side of equation (6.1) reduces the net benefits by the administrative costs of the program, the second by the impact of leakages to the nonpoor, and the third by the loss of income of child labor, or the cost of attending school, or both.

Term f is the ratio of discounted future earnings of the children of the poor compared with the direct receipt of the program payments by beneficiary families. It is therefore a measure of the relative importance of the investment and the transfer components of the program. If one is simply interested in raising the current income of the poor, the discounted future earnings of their children may not be given much importance or weight. But if one thinks that the best way to reduce poverty in the long run is to increase the human capital of the children of the poor, this term is of paramount importance. That is particularly true if, for fiscal reasons, a government is unable to sustain a transfer program. In that case, the only benefit that remains will be the increase in human capital, which results in a permanent increase in the income of the children of the poor. The benefit to the poor of the transfers continues only as long as they do, but the benefit of additional education is permanent.

Estimating Administrative Cost (*a*)

This section applies equation (6.1) to Progresa in Mexico and RPS in Nicaragua, the only two programs for which enough information

has been collected and analyzed to make such an application possible. For Progresa, Coady (2000, 27) carefully estimated the cost of selecting eligible municipalities and making and analyzing the special census within each eligible municipality. Altogether, he estimated that the cost to the government was 8.9 pesos per 100 pesos transferred, which means that for Progresa *a* is 8.9 percent. For Nicaragua the administrative costs of RPS are much higher than those incurred by Mexico for Progresa, in part because the fixed cost of setting up the Nicaraguan system has to be distributed over a small number of families. According to the estimates described in chapter 3, administrative costs absorb 25 percent of the total budget.

Estimating Leakages to the Nonpoor (*l*)

Skoufias, Davis, and de la Vega (2001) have estimated the leakage of payments to the nonpoor in Progresa. First, they constructed the expected consumption per capita in the special Progresa surveys, using the 1996 national household surveys. Next, they defined a poverty line in terms of per capita consumption, which yielded the observed poverty rate of 52 percent in the sample. Finally, that poverty line was used to determine whether a beneficiary household was poor. Using this methodology, they found that the leakage rate—that is, payments to households above the poverty line—was 16.27 percent, which is the leakage rate we will use as our estimate of *l* for Progresa.

The program in Nicaragua used only simple geographic targeting in its first stage, which covered 6,000 households. The leakage to the nonpoor in the selected communities was estimated by IFPRI to be 15 percent (Maluccio 2002). At the second stage the program was expanded to an additional 4,000 households, and the targeting was done in two stages: first, the poorest communities were selected, and, second, poor households within the poor communities selected during the first stage were identified. This targeting dramatically lowered the leakage to the nonpoor to no more than 6 percent (Maluccio 2002). The weighted average of these two rates gives a total leakage of 11.4 percent, which is lower than that of Progresa, in part because the poverty rate in the selected communities is much higher in Nicaragua.

Estimating the Net Benefit (1–*c*)

Governments incur administrative costs when they manage transfer programs for the poor. But the poor also incur costs. For Progresa one such cost is the cost of getting to school. Another is the cost of getting to the point where the transfer will be received. Coady, Perez, and Vera-Llamas

(2000) estimate that households in Progresa communities incur on average 14.6 pesos in travel costs for each 100 pesos of education grants. But because most of these beneficiary family students would have enrolled in school anyway, 90 percent of these costs would have been incurred even in the absence of the program. The other private cost to the poor of enrolling a student in school and becoming a beneficiary of the program is the cost of students' earnings forgone. This cost is assumed to be zero for Progresa, which makes *c* equal to 1.4 percent of the total program cost for Progresa.

Although an equivalent estimate of travel costs for Nicaragua is not provided here, we can estimate the reduction in income of poor families because some of their children go to school instead of work. Although the additional education is positive in the long run, the income loss to poor families is an offset to the transfers they receive from the RPS program. But it is not a big offset. According to a recent poverty assessment for Nicaragua, child labor contributes about 7 percent to the income of the average poor family (World Bank, *World Development Report 2000/2001: Attacking Poverty)*. Maluccio (forthcoming) found in his study of changes in child labor in the RPS program that there was a reduction of 8.8 percent in child labor in the RPS communities. Thus the loss from this source amounts to only 0.6 percent of the average income of poor families. Because RPS program payments amounted to 13.5 percent of average income, for RPS of Nicaragua *c* was about 4 percent.

Summary

By multiplying these three ratios together we estimate that for every 100 pesos in the Progresa program, 75 pesos go to the poor and 25 pesos are eaten up by administrative costs, payments to nonpoor beneficiaries, and the additional travel costs incurred by beneficiary families. For RPS in Nicaragua, the income of the poor goes up by 63 cordobas for every 100 cordobas spent by the program. (See table 6.1.)

Current and Future Earnings Benefits Combined

This section calculates the increase in future earnings resulting from the additional education obtained by the children of the poor under the programs in Mexico and Nicaragua. This human capital investment part of the program sets it apart from other pure transfer and safety net programs. To estimate the increase in future earnings, we use the estimates of the increase in school enrollment rates in the Progresa and RPS communities in chapter 4 (table 4.1) and Mincerian earnings equations.

Table 6.1 Parameter estimates, Progresa and RPS (percent)

Parameter	Progresa	RPS
Administrative cost (*a*)	8.9	25.0
Leakage to nonpoor (*l*)	16.3	11.4
Income loss (*c*)	1.4	4.4

Source: See text.

Progresa in Mexico

Assuming that the educational profile before and after Progresa is permanent, one can use the observed enrollment and dropout rates in table 4.1 to calculate the average educational level of the cohort leaving grade 9 before and after the Progresa program in the Progresa and control communities. Prior to the program, the average educational level of the 16-year-old cohort was 6.8 years (out of a maximum of 9 years) in the Progresa communities and 6.7 in the control communities. After the program, the average rose to 6.95 in the Progresa communities and fell to 6.14 in the control communities. Thus the difference-in-difference estimate of the effect of Progresa on the average educational level was an additional 0.66 years of education for the entire cohort.

But what change in future earnings is made possible by the increase in average years of education? According to the earnings equation estimated by Schultz (2001a), earnings should increase by 12 percent per year of additional education beyond primary school. Because the cohort at age 18 in the Progresa communities benefits from an increase in education of 0.66 years, Schultz estimated that the average earnings of those in the cohort who work increase by 8 percent per year over a working lifetime (ages 18–65). Note that this estimate is based on the rather strong assumption that an increased supply of more educated labor will not affect the return to education.

We applied this increase to the annual urban wage for workers with no schooling (15,600 pesos), reduced by 20 percent to reflect the disadvantage of graduates of rural schools in the urban labor market.[1] Altogether, the extra education then gives the cohort as it enters the labor force an increase of 998 pesos ($998 = 0.08 \times 0.8 \times 15{,}600$) or $100 per year, which it enjoys for its entire 43-year working life (ages 18–65).

The next question is how much does it cost to get this extra earning power. Knowing the observed enrollment rates in the Progresa schools and the per-beneficiary payments for each year, one can calculate the per-person costs of the Progresa payments. Progresa invests each year in different age cohorts. If the population structure is assumed to be constant,

1. Here we are following Schultz (2001a), who also assumed a 20 percent discount for rural workers in the urban labor market.

Table 6.2 Hypothetical Progresa payments per year (pesos)

Grade	Per beneficiary	Average per person
3	840	787.08
4	960	898.56
5	1,260	1,154.16
6	1,620	947.70
7	2,460	1,380.06
8	2,664	1,446.55
9	2,880	1,563.84
Total		8,177.95
Additional income		998.40

Source: Authors' calculations based on enrollment data from Schultz (2001b).

one can calculate the amount that would be invested over the entire seven years (grades 3–9) in a single cohort by observing what Progresa actually spent in a given year on the seven different cohorts in school at that time. This procedure is used here. In effect, we estimate what must be spent per year to increase the average educational level of a cohort just entering the labor force by two-thirds of a year. The result is that on average Progresa would have to spend about 8,200 pesos per person over seven years to raise the cohort average earning power by about 1,000 pesos per year (see table 6.2). Note that the average payments per person in the table are calculated as the average payment per beneficiary times the percentage of the cohort actually enrolled.

This estimate sounds like an enormous payoff; the program spends 8,200 pesos to achieve an increase in total lifetime earnings of the poor (or their children) of almost 43,000 pesos. But these numbers are not really comparable, because the costs are incurred first and the extra earnings come later. From the point of view of a poor family with a child just entering grade 3, the additional earnings start in seven years, and the transfer payments also are spread out over the next seven years, assuming that the child stays in school. The way to deal with this is to convert both the transfer stream and the additions to earnings into present values by discounting with an appropriate social discount rate. In that way, the present value of future earnings can be compared with the present value of the transfers from Progresa, thereby yielding an estimate of the *f* ratio to complete the components of equation (6.1)

Before the data in table 6.1 are used, however, two important corrections must be made. First, according to Schultz (2001a) only 73 percent of eligible beneficiaries received Progresa payments, possibly because they were unaware of the program and also because the program limited payments to three beneficiaries per family. Second, not all members of a cohort enter the labor force. The observed participation rate for Mexico for ages 18–65 in 1996 was 68 percent. (Weller 2000.) Those two adjustments yield the present value of the transfers and the additional earnings shown in the first line of table 6.3.

Table 6.3 Benefits and costs to poor of alternative Progresa payment schemes (pesos)

	Cost per beneficiary	Income per beneficiary	Estimate of *f*	IRR (percent)
Current system	4,916	7,461	1.52	8.86
Flat rate payment	5,183	7,461	1.44	8.32
Only payments to high schools	2,973	4,421	1.49	9.01

IRR = internal rate of return

Note: Discount rate is 6 percent. Assume that earnings start seven years in the future. In column one it is assumed that cost per beneficiary is reduced by observed 73 percent rate of payment and in column two that income per beneficiary is reduced by the participation rate. The term *f* is the ratio of the present value of future earnings to the present value of the transfers.

Source: Schultz (2001b).

Recall that the column labeled *f* is the ratio of the present value of future earnings of the beneficiary to the present value of the payments received by the family while the student is in school. Assuming one child in school for the average family, the present value of the transfers was 4,916 pesos or about $500. As large as that total transfer is, it is far less than the present value of the additional earnings that the average child of the poor family will earn over his or her lifetime, even taking account of the fact that not every graduate of a cohort will enter the labor force. At the 6 percent discount rate used to find the present value of benefits and costs, those additional earnings are worth 7,461 pesos, which is 52 percent more than the direct transfers received by the poor from the program. Thus if the family of the poor is thought of as a single unit existing over time with an intergenerational perspective, that family receives substantially more from the increased earnings of its children than it receives from the transfer payments.

Progresa differs from the other CTE programs in that transfer payments vary by the age and sex of the beneficiary. Payment levels are a negative function of the pre-Progresa enrollment rates and higher at the high school level and higher for girls (see table 3.2). The purpose of this particular design was to increase the proportion of program payments that would go to beneficiaries who otherwise would not be in school. Because most primary school–age children are already in school, payments at that level are mainly a pure transfer with little of the human capital formation component that was so significant in our calculation of benefits to the poor. Payments to high school students and to girls have a far greater investment component because the potential change in the enrollment rates for these groups is greater.

The bottom rows of table 6.3 show the simulated effect of two alternative program designs on the ratio of future earnings to program payments. One design is a system of equal payments for all beneficiaries in which the payment is equal to the average per-student payment in the current program. For the second scheme, payments are made only to high school students, at the level used in the current Progresa program.

These two simulations depend critically on the following assumptions made about changes in the enrollment rates. For the flat rate payment alternative, it is assumed that the change in payment structure has no effect on the change in enrollment rates. As an investment program, this system is clearly inferior to the current system because it costs more to achieve the same benefit, which lowers the internal rate of return (IRR) of the program. Indeed, it tips the program toward safety net poverty reduction because more has to be paid out to today's poor families to get the same future human capital formation.

Note as well that all of our runs assume that the increases in educated labor are not large or significant enough to affect the rate of return to additional years of education. That is a reasonable assumption for relatively small regional programs. But it is probably not defensible for large national programs such as Bolsa Escola in Brazil.

For the high school alternative shown in the third row of the table 6.3, the assumption is that primary enrollments are at the level of the control communities except in the transition year. Overall, limiting the program to high school students reduces the increase in average years of education from 0.66 in the current program to 0.39, which is a reduction of 40 percent. Thus at least 40 percent of the educational benefits from the current Progresa program flow from improvements in the enrollment rates at the primary school level. That finding may seem surprising given that the jump in the enrollment rate occurs after grade 6. But at the primary school level the level of almost the entire cohort rises, whereas at the high school level the rate rises quite a lot but for no more than three-fifths of the cohort.

At the outset of this chapter it was noted that there are two ways to think about CTE programs—as transfers to the poor and as incentives for investment in human capital accumulation. Thus CTE programs can be approached purely from an investment perspective. For example, for the first seven years Progresa invests in the students in a cohort in order to raise earnings when that cohort later enters the labor force. Thus an investment stream is created in which there are costs for the first seven years and then additional income. But what is the internal rate of return—that is, the payoff on the investment? The internal rate of return of Progresa under various alternative payment schemes, including the current one, is shown in the right-hand column of table 6.3. The internal rate of return of the current program is 8.9 percent. That is the rate of discount at which the present value of the costs of the program are just equal to the

discounted value of the future additional earnings of the cohort. Assuming that the social discount rate in Mexico is less than 8.9 percent, this program is "profitable" when considered simply as an investment in human capital formation and not even taking into account the social return from the poverty reduction resulting from the transfers themselves. Considered strictly as an investment, the high school alternative reduces and delays costs by the same amount that it reduces the additional earnings benefits. Altogether, this factor slightly raises the internal rate of return on the operation to just over 9 percent, which makes this alternative slightly preferable to the current program. But note that the ratio of benefits and costs to the poor falls a bit as well. The flat rate scheme has a slightly lower internal rate of return than the current system.

RPS in Nicaragua

In considering the change in future earnings for Nicaragua's RPS program, we follow roughly the same procedure just used for Progresa. First, using the differential transition rates shown in table 4.3, we calculate the educational level of all the members of a cohort in an RPS community and a control community when they enter the labor force. Because we do not have an estimate of differential retention rates after grade 6, we assume that they are the same in the two communities. We then use reported wages by educational level to calculate the expected average wage differential of the cohorts from the RPS and control communities as they enter the labor force. In chapter 4 we showed that the RPS program increased the average educational level of the cohort by about 0.9 years. Using the observed wages for various levels of education, we estimate that this improvement in education should increase the average wage of the cohort by about 9 percent. Workers with no education earned about $911 per year in Nicaragua, according to a recent World Bank poverty assessment (Ilahi 2001).[2] Thus the increase in earnings for those in the cohort who enter the labor force is about $85 per year. Adjusting this figure by the low participation rate in Nicaragua (50 percent) yields a stream of additional future earnings attributable to the RPS program of $42 per year.

What is the cost of the additional income stream? Using the same method we used for Progresa, we calculate that the present value of the RPS payments to participants is about $307 and the present value of the additional $42 in yearly earnings from the educational improvement is $348. As a result, *f*, the ratio of discounted future earnings to discounted benefits, is equal to 1.13 (348/307). This ratio is smaller than for Progresa,

2. This report found that the average hourly wage for those with no education was 4.7 cordobas. Converting that to dollars and to yearly income by assuming an 8-hour day and a 21-day month yields $911 per year (using the 1998 exchange rate of US$1 = 10.4 cordobas).

mainly because the payment per family is so large in Nicaragua. But the ratio is still bigger than 1.00, just as it was for Progresa. Thus in both programs the indirect future earnings benefit to poor families exceeds the value of the transfer itself.

In terms of equation (6.1), we found for Progresa that for every 100 pesos spent in the program, 25 are diverted to cover administrative costs and leakages to the nonpoor. Table 6.3 reveals that for every 75 pesos received by the poor as a transfer, the earnings of their children will increase by 114 pesos (75×1.52). Therefore, the total increase in current and future income for the poor is 189 pesos per 100 pesos spent in the program. In Nicaragua today's poor receive 63 cordobas out of every 100 spent in RPS, and the present value of the future earnings of their children rises by 71 cordobas (1.13×63). Thus for each 100 cordobas spent in RPS the total benefit to the poor is the sum of the two, or 134 cordobas.

In Nicaragua the payoff to RPS, for that part considered strictly an investment, is even higher; the internal rate of return is an estimated 11 percent. The program pays a very high transfer, but limits that transfer to very few grades, which means that the amount invested per student over his or her school years is relatively small. Yet the impact on enrollments and future earnings is high, which increases the payoff of the program. This outcome does not mean that other countries should adopt the Nicaraguan payment profile. Such a step would depend on the profile of enrollment and dropout rates by age. In addition, one should remember that paying a large amount to eligible students in a small number of grades increases the fraction of the poor that does not benefit from the program.

This calculation of costs and benefits counts only the costs of getting the additional children to school, not the costs of educating them. It basically assumes that there is sufficient idle capacity in the school system that no additional operating costs need be incurred for educating these additional children. That may be an unreasonable assumption for large CTE programs such as Progresa in Mexico or FFE in Bangladesh, although the evidence from FFE schools in Bangladesh indicates that student performance in FFE schools improved despite an increase in class size.

CTE Programs and Targeted Employment Programs: A Comparison

We know of no other poverty programs that can match the performance of Progresa and RPS in terms of the ratio of benefits to the poor compared with the costs of the program. These two CTE programs have an investment component that turns out to be larger and more valuable to the poor and their families than the transfer itself.

By way of comparison, consider the targeted employment program Trabajar in Argentina, recently analyzed by Ravallion (1999). Trabajar was established to provide temporary employment for the poor during the economic crisis that has engulfed Argentina since 1995. The program undertakes maintenance and repair projects using a large complement of unskilled labor provided by unemployed members of poor families. To self-target the program to those in real need, the program pays a wage equal to only 80 percent of the minimum wage in Argentina (Ravallion 1999). Even assuming that there are no leakages of the wage payments to the nonpoor, and including the benefits of the projects themselves to the poor, Ravallion calculates that the benefits to the poor were only 40 percent of the cost of the program in a middle-income country like Argentina. That is, for every dollar spent on the program the net benefit to the poor is 0.40. It is not that the program is administered inefficiently or badly targeted. In fact it is the best targeted of all the programs analyzed in the Coady, Grosh, and Hoddinott (2002a) study. Rather, the projects completed in the program require material inputs and administration; wage payments are only one-third of total program costs. In addition, those who work in the program have opportunity costs—the income they would have earned in the absence of the program. One may dispute the details of the assumptions underlying the Ravallion analysis, yet the main point is that the total benefit to the poor of workfare programs is likely to be significantly less than the direct cost of the program. By contrast, if other CTE programs are anything like Progresa in Mexico and RPS in Nicaragua, the total benefits to the poor will be significantly greater than the direct cost of the program because of the additional earnings made possible by the human capital created by the program. An important side benefit of this type of program compared with temporary employment programs is that the additional human capital is permanent. It will continue to provide benefits even if the program that made it possible is cancelled. That is not true in pure safety net–type assistance programs.

The comparison just made between CTEs and temporary employment programs was intended to highlight the relatively high ratio of benefits to costs in the CTE programs, even when compared to well-targeted employment programs such as Trabajar in Argentina. But these high ratios of benefits to costs do not mean that the CTE is preferable to a temporary employment program. In fact the two types of programs are likely to be complementary because they have different objectives. Temporary employment programs are part of the emergency safety net, and they have been quite effective in that role. They help to reduce the risk of temporary income shocks to families close to the poverty line. The CTEs, on the other hand, are part of the attempt to reduce the causes of structural poverty by increasing the human capital of children in poor families. They are certainly not the only policy instruments available for a long-run poverty reduction strategy, and it has not been the purpose of this study

to consider or to compare them to alternative instruments. But the fact that the cash payments help reduce poverty in the short run while increasing human capital in the long run makes the CTE an instrument worth considering as a part of the long-run poverty reduction program.

Eligibility, Benefits, and the Trade-off Between More Education and Less Poverty

The evidence in the previous sections is strong confirmation that CTE programs are in fact a good deal more than straight transfers to the poor. In the two for which we have the necessary data, we showed that the investment component was bigger and of more benefit to a poor family than the transfer itself. In other words, the investment side of the program generated more for the poor and their children than the money they received from the program.

Suppose a country wants to set up a CTE program. What eligibility rules should it adopt? What level of benefits should it offer? How will the choices made affect the educational and poverty reduction components of the program? This section explores these questions.

Trade-offs Between Education and Poverty Reduction

At the outset it is very important to recognize that a trade-off exists between the education and poverty reduction goals in any CTE program. If the beneficiaries are limited to educational levels where enrollment rates are low, the result will be a big educational impact and a higher social return on the payments considered as investments. But the program also reaches a smaller number of poor families, because the many poor families that do not have eligible children are excluded from the program. Conversely, the more universal the program, the greater will be the part that goes to children in age or population groups with high enrollment rates for whom there is little or no educational impact. In addition, because the budget for the prospective program is limited, as coverage expands, benefit levels will fall. That too will have negative effects on enrollments, because the response by the poor to the program is undoubtedly related to the size of the transfer they receive.

Eligibility Requirements by Grade Level

Policymakers designing a program have to keep in mind the trade-off between education and poverty reduction when defining the rules of eligibility. Eligibility can be defined in several ways. For example, it can be

defined only in terms of grade level and poverty status at the national level, like in Brazil and Chile. Alternatively, it can be defined in terms of membership in a particular group within a country, such as those living in the rural sector or in particularly poor areas of a country or those in households headed by females or in indigenous groups. In most countries the grade level definition is used in combination with some sort of geographic conditions such as residence in the rural sector in Mexico or residence in the poorest communities in Nicaragua and Bangladesh. Assuming that they are able to identify eligible groups within the general population, policymakers should choose grade levels for inclusion in the program that maximize the educational benefit for a given amount of short-run poverty reduction.

Should the program be limited to secondary school, primary school, or just some grades in one or the other? The impact on education of whatever grade or grades policymakers choose depends mainly on the potential number of new enrollees who are like to respond to the CTE cash transfer incentive. That number is unlikely to be a continuous function of grade level. Because education is cumulative, those who drop out in the first grade cannot be induced to enroll in a CTE program limited to the final year of primary school or to high school. Thus even though the enrollment rate in grade 6 is only 81 percent in Mexico, one cannot expect to draw a very large fraction of the dropouts back to school with a program targeted to that grade or to high school, because most of those dropouts occur in grades 1 or 2.

As a first approximation, the impact of the program on enrollments should be a function of the number of dropouts in the grade or grades just prior to the grades defined as eligible—that is, the increase in enrollments that one gets by expanding coverage by one grade is a function of the number of students who drop out between the grade in question and the prior grade rather than the total number of dropouts for the particular age group. In Mexico the dropout rate between grades 5 and 6 is only 4 percent, so rather than affecting the entire 19 percent of the cohort who are not in school at that point, a program that starts coverage at grade 6 will be mainly drawing from the 4 percent who reached grade 5 and then dropped out.

In Mexico and elsewhere there are two big dropout points for children: entry into primary school and the transition from primary to secondary school. The education system loses most of its potential students at those two entry points. A CTE program should therefore start at the beginning of either primary or secondary school; it will have a far lower educational impact if it covers only the final year or years of primary or secondary school. In fact, a negative impact may result from expanding coverage. For example, the reduction in the transfer amount because of the expansion of eligibility could reduce enrollment rates of all students by more than the positive effect of expanding eligibility by one grade. It is only at

the transition points that one can be certain that the educational benefit is positive. Because of the cumulative nature of the educational process, if one is going to limit a program to either primary or secondary school, it should cover all the grades of whichever level is chosen, not the final grades only.

The cumulative nature of education introduces yet another factor that must be taken into consideration. Intuitively, one would think that targeting the program to the group with the lowest enrollment rate would maximize educational benefits. That is true if one is comparing different population groups with the same eligibility criterion by grade level, but it is not true for a comparison of programs covering different grades within the same population group.

Take the actual enrollment and dropout rates for Progresa as an example. As we showed in chapter 4, the average enrollment rate in high school in the rural areas was about 40 percent, and the rate in primary school began at 97 percent and fell to 81 percent, averaging about 90 percent for the first six grades (see table 4.1). The actual Progresa program covered both primary and secondary school. If a program is going to cover only either high school or grade school, which school would produce a larger educational impact? In other words, would a higher educational impact be achieved by limiting eligibility to the grades where the enrollment rates are lowest? The answer would seem to be to limit the program to secondary school, because the high school enrollment rate is so much lower than primary school enrollment. But that intuition turns out to be wrong, at least in the case of Progresa.

To illustrate this argument, we compared for Progresa the estimated increase in average years of education one would get with a program limited to secondary school with one limited to primary school. We used the observed Progresa results for primary school, and then the pre-Progresa dropout rates for secondary school, but now applied to the total number of primary school graduates from the hypothetical program. The calculation showed that the increases in average educational levels up to the end of grade 9 are higher for a program limited to primary school grades than they are for a program limited to secondary school grades. The actual Progresa program, which includes both primary and secondary school, increases educational levels by 0.66 years. By our estimate, limiting eligibility to high school would increase the educational level by 0.395 years, and limiting eligibility to primary school would increase the educational level by 0.44 years. In other words, a bigger educational impact is achieved limiting the program to primary school than limiting it to secondary school, even though the enrollment rates in the latter are 40 percentage points less than in the former.

The reason for this result is that each primary school dropout kept in school not only increases the average educational level in primary school, but also increases the level in secondary school, even if there is no pro-

gram there, because some of those students continue on in school. If the additional students that finish primary school because of the CTE program have the same probability of going on to high school as any other primary school graduate, then an effort to prevent dropouts in primary school will improve educational levels for each cohort all the way through secondary school. In the case of Mexico, the primary school part of the current program raises the graduation rate by about 10 percent. About one-half of those go on to secondary school. That outcome raises the estimated secondary school graduation rate by 5.5 percentage points, which is about half the increase that was observed in the actual program, which covered both primary and secondary school. When the improvements in enrollments at the primary level are added to these induced improvements at the secondary level, the total effect on education of the primary-only program is bigger than of the secondary-only program.

Obviously, these results depend on educational profiles in particular countries and how much their enrollments respond to incentives. Although these profiles could be quite different from that found in Mexico, the Mexico example points to the likelihood that in other countries as well the payoff from concentrating on younger cohorts and putting more of them in school is very large. The more students who start school, the more who will continue at least through secondary school.

No matter how good a program targeted at secondary education is, and even if it increases enrollment rates quite dramatically, as was the case in Mexico, it has the big disadvantage of having lost 20 to 30 percent of the cohort right at the start. The key question facing a policymaker is: What is the net impact on average education and poverty of programs targeted at primary school, secondary school, or both? In this area further country-specific research on enrollment rates and enrollment decisions is badly needed.

Eligibility by Group

Another way to improve the trade-off between poverty reduction and educational impact is to define eligibility by membership in groups that are in turn defined by their level of either poverty or education, and then to include only the poorest or the least-educated groups in the program. Such an approach, using geographic targeting, was adopted by every program studied here except Chile and Brazil. Assuming that families in different population groups have the same reaction to transfer payments, there will be a negative relationship between the educational impact in different groups and their average enrollment rates. There will be a large increase in enrollment rates in the groups in which that rate was lowest prior to the program, and a smaller impact in groups with higher enrollments and lower level of poverty. It then follows that the wider the cover-

age of the program, the bigger the amount of short-run poverty reduction but the smaller the marginal impact on education.

Given the trade-off described earlier in this chapter, the policymaker should then expand eligibility for the program until the fall in the value of additional education for the marginal group is just offset by the value of the additional short-run poverty reduction. Here we are loosely using the term *value* to indicate the preferences of policymakers or of society. If policymakers are primarily interested in reducing poverty in the short run, they will expand the number of eligible groups in the program until at the margin there is little or no educational benefit. At the margin the program becomes a pure transfer. At the other end of the spectrum, if policymakers are mainly concerned with the educational component of the program, they should limit eligibility to groups in which the increase in enrollments will be high.

Low-income countries such as Nicaragua and Bangladesh with low enrollment rates and high levels of poverty do not face the trade-off problem as acutely as higher-income countries. They can achieve significant reductions in poverty and increase their human capital at the same time. Indeed, low-income countries are ideal candidates for the CTE program, preferably with some kind of graduated payment schedule patterned after Progresa.

Wealthy countries with high enrollment rates and low levels of poverty probably do not need a cash transfer program conditioned on the education of their children. They need, and can probably afford, a straight safety net payment to the poor, although it may pay to have the transfer conditioned on job training for unemployed or underemployed family members.

It is precisely in the middle-income countries such as Mexico, which has significant poverty and quite high enrollment rates, that the conflict between the two objectives of poverty reduction and human capital formation is felt most keenly. If eligibility is limited in order to maximize the investment impact of the program, many poor people will be left out. Pressure will then be exerted to ease the eligibility requirements or expand coverage.

In Mexico the pressure has come in the form of demands to extend the program to the urban area where half of the poor live. But the problem with the urban areas is that their enrollment rates for primary school students are far higher than those in the rural sector. Including the urban sector in the program will tip the benefit ratio toward the transfer and away from human capital formation, unless the eligibility requirements are tightened at the same time.

Perhaps a more sensible way of combining the human capital and poverty reduction objectives in countries similar to Mexico would be to use geographic targeting or some other method to define eligible groups with high concentrations of poor people. If the poverty levels within these

groups are high enough, identification of the poor can be left to local committees or to a very simple set of criteria. If the government wishes to extend the program beyond these groups, it could use a demand-driven or voluntary system similar to Chile's to identify eligible recipients. Aside from reducing the cost of targeting for the program as a whole, an added advantage of such a system is that those found eligible for the CTE transfers also could be declared eligible for other targeted programs such as supplemental nutrition for infants and lactating mothers, health care, and transportation subsidies.

7

Cash for Education and the Search for More Effective Methods of Aid Delivery

Recently, the long-running debate on the effectiveness of regional programs has escalated (see, among others, United Nations Development Program, *Human Development Report 1997;* Kanbur, Sandler, and Morrison 1999; Easterly 2001, 2002; Pritchett and Woolcock 2002). Critics point to the high cost of aid and the excessive bureaucracy of programs implemented by the international financial institutions (IFIs). They also point to the lack of accountability, the limited use and poor design of evaluations, and the limited role and voice of aid recipients in the design of aid programs. Although some of these criticisms are undoubtedly overstated, often large quantities of aid have not led to improved performance or higher growth rates in income.

Given this apparently weak record, the search is on for more effective forms, channels, and instruments for delivering aid. One question that will be addressed in this chapter is whether the conditioned transfer for education (CTE) programs described in this book are a promising new approach for aid delivery. Considered narrowly, how do CTE programs compare with alternative ways of improving education or reducing poverty? More broadly, CTE is an example of a block grant approach to aid delivery. Is that approach worth expanding?

In earlier chapters we argued that CTE programs are an effective instrument for directing aid toward meeting education and poverty objectives. But how much would it cost to extend the programs to countries that do not presently have them? Are the programs desirable but beyond the reach of most countries? To address that question, we will estimate the cost by country of a regionwide CTE program for Latin America, the only region for which comparable national data are available to make that sort of calculation. We then will estimate roughly the cost of extending a CTE program to the poor in other areas of the world.

Education

One of the main reasons children do not go to school or drop out early is that parents cannot afford to send them or to lose their children's earnings. Under those circumstances, supply-side initiatives, such as improving schools, paying teachers more money, or reforming the ministry of education, are not likely to have much effect. But conditional transfers for education will be effective, because they pay directly for the program objective—higher school enrollments. Similarly, if the problem is school quality, introducing competition by the use of vouchers will create a market for higher-quality schools.

In an alternative planning approach to increasing enrollments, international financial institutions would develop a plan in conjunction with the host country ministry of education. That plan could involve building more schools, improving teaching, buying more school supplies, transporting children to school, or other measures. At best, schools are built, teachers are trained, and more textbooks are provided. However, none of this spending guarantees the desired result, because one cannot be sure that the actions taken in any community will address the conditions or reasons that children do not go to school. It is unlikely that experts in the central government or the IFIs will know what those reasons are and how to address them.

A CTE program is, by contrast, more direct. The central government planner does not have to know what prevents children from attending school. Instead, the government, through the program, creates a demand for school attendance, and families respond to the new incentive. At worst, there is no response. But then no money is spent on the program except for the cost of setting it up. At best, not only is there a response, but also the parents of the additional students will exert pressure for complementary inputs such as better teaching and more schoolbooks. An added advantage is that the success or failure of the program can be measured easily by observing changes in school attendance.

Officials in the government education system could do several complementary things to improve the educational outcomes of a CTE program. First, as in Progresa, they could build new schools or expand existing ones where a large influx of students is expected. Second, to provide an incentive for schools to improve the quality of education, the government could make its payment to schools, both public and private, a function of the number of students enrolled. That simple change would open up competition among schools for students where alternative schools are within the reach of poor families. In low-population rural areas that have only one school, this innovation would, at the very least, induce the school to attract dropouts and keep those already enrolled in the school.

The change suggested here is similar to a voucher system in that it gives schools an incentive to offer better education.[1] By itself, the CTE program does nothing to improve education once the student enters school; it is a pure demand-side stimulus. But the combination of the CTE and some kind of per-student payment to the school, either in the form of a voucher paid by the student or a capitation credit paid by the government, could have quite a powerful effect. It would increase the demand by all poor families for education and at the same time empower those families to demand and to receive better education. An alternative way of delivering this student-related payment to the school would be to make the voucher a component of the benefit paid to the family, which would be redeemable by the school. Each of these alternatives gives the student and the family increased bargaining power to demand and receive better education.

There is the risk, however, that such a joint program could be gamed by both poor families and schools. Schools would have an incentive to warehouse students or offer watered-down education just to get more students. Parents of weak students might have an incentive to send their children to poor rather than good schools just to get the cash transfer. This risk could be minimized by inspecting and licensing schools, which is done in Bangladesh, or by requiring some sort of national exam at different grade levels and by eliminating students from the program if they are not promoted within a maximum number of years.

Poverty

The purpose of this book is not to analyze the CTE as part of a general strategy of poverty reduction. Nonetheless it is interesting to think about these programs as a form or an instrument of assisting poverty reduction.

For at least 30 years, the IFIs have worked diligently to design and implement poverty reduction programs. To decide what activities and programs will be effective in reducing poverty in a certain country, the usual procedure at the World Bank starts with a detailed poverty assessment. To do that the Bank sends a large number of high-priced international experts to analyze the latest household surveys and report on government programs and policies that affect the poor. The assessment will typically contain a number of policy and/or program initiatives. To increase local ownership of the programs, a comprehensive poverty reduction program is often prepared in consultation with local society. This in itself is a time-consuming, expensive, and sometimes conflictive process. Then host country governments and IFI program officers have to find government units capable of carrying out the programs recommended in the poverty reduction strategy.

1. The RPS program in Nicaragua has a small voucher component.

In many cases there are no such units, so the IFI finances their creation, generally paying high salaries to attract qualified people. All this increases the leakage of program funds into administration and away from the poor who are supposed to be the beneficiaries of the program.

Contrast this comprehensive poverty reduction strategy with poverty reduction through the cash-for-education approach. The CTE directly gives money to poor people, thus reducing poverty. There is no need for a big, complex bureaucracy to guide implementation. Very little IFI technical assistance is required to either design or manage the program, as both Mexico and Brazil have very clearly shown. Of course there are administrative costs in any CTE program. One has to identify the poor and make sure that they really do send their children to school. That requires some sort of targeting mechanism and method of monitoring school attendance. In the systems we studied those administrative costs amounted to about 10 percent of the program budget. Those costs appear to be far less than the leakages to international bureaucrats and scarce local talent in the typical poverty reduction plan. In addition, a good system of controls and evaluation needs to be implemented to prevent benefits being siphoned into side payments to corrupt school officials or the local committee that determines eligibility.

The CTE approach has another advantage relative to several alternative poverty reduction approaches. The main one is that the program directly pays for the desired results. The CTE has two objectives: to get more children into school, and to reduce poverty. Since the program does not pay unless the first objective is achieved, there is a direct relationship between what the program spends and the desired results that it is designed to achieve. In the more usual program, the payment is for inputs, not output, and program success is measured by the amount of inputs it provided, not the desired output.

The Block Grant Approach

We are not saying that the CTE is the solution for all poverty problems or that planning for a poverty reduction strategy is unnecessary. But there are many who feel that development assistance has in general become too complex and expensive, and they have been searching for more effective forms for delivering it. Kanbur et al. (1999) suggested that IFIs and other international donors contribute to a block grant for programs in particular sectors without tying their contributions to particular projects. That would sharply reduce the need for the IFI or the host government to prepare detailed plans on how project funds would be spent, what each government agency would do, and what conditions would have to be fulfilled for fund disbursement. Instead the recipient country would state the objectives of the fund, the priority areas in which it would invest, define its priorities,

and a plan for ex post evaluation. Donors would contribute to those countries whose priorities and objectives they approved or whose past record gave confidence for future program effectiveness.

In the poverty case, the IFIs could create and finance a poverty reduction fund or foundation. The donors would not specify what particular actions their money would finance. Rather the poverty fund itself would receive, evaluate, and finance proposals from national and local governments. But there is no reason that the projects be limited to government entities. NGOs and poor communities could also initiate programs or activities to alleviate poverty. The fund would not judge in advance what form those programs should take and would permit the poor or poor communities themselves to compete for funds. Indeed one important function of such a fund would be to help poor communities to prepare their own projects along the lines now used by many social investment funds. Rather than spending resources on the preparation of elaborate poverty reduction programs, the IFIs, donors, and host countries would concentrate on making meaningful evaluations of approved projects. Those winning the competition for funds would have to show that their programs really did reduce poverty or increase the well-being of the poor. The poverty fund would create a demand for innovative projects and, by not limiting applicants to national governments, it would encourage as wide a supply response as possible.

At present there are no such funds, although the Social Investment Funds are similar in some respects. However the CTE programs are a close alternative. The CTE project sets up a fund that is managed in the beneficiary country. This fund finances thousands or even millions of subprojects in which applicants are beneficiary families whose projects consist of school attendance by the applicants' children. The IFI and the local authorities agree on the general rules for eligibility, payment levels, and so forth, but the IFI does not directly decide on the selection of beneficiaries (subprojects). Because the fund pays the beneficiary only when the enrollment result is observed, the incentives for reaching the objective of the fund are positive. In this case, the use of the funds is limited to school attendance, which is less general than the poverty fund sketched above. But it is similar to such a fund in reducing the planning process and in getting more money to the poor. It is also similar in that the evaluation of the CTE program, like that of the antipoverty fund, can be based on results—poverty reduction—not inputs.

CTEs and Permanent Safety Nets

From what we have said about the advantages of conditioned cash transfers it might appear that the most efficient antipoverty program would be to give the poor money without any education condition attached. That is,

set up a permanent safety net that eliminates poverty altogether by paying poor people the difference between what they are able to earn and the poverty line. That conclusion, however, does not follow for at least three reasons. First, as we have shown, the CTE program increases present and future income of the eligible poor by more than the direct transfers they receive. For those families, the CTE program is better than a safety net.

Note that we are not discussing here a safety net to help shield the poor from temporary macroeconomic shocks or natural disasters. Countries need a safety net for emergencies. What we are considering here is a permanent safety net system that would attempt to guarantee that no one would ever fall below the poverty line.

Second, there is a serious problem with incentives in any safety net scheme. Making up the difference between what the poor can earn and the poverty line will affect their willingness to work. In effect, such a system amounts to a 100 percent tax on additional earnings up to the poverty line, eliminating much if not all of the incentive to work. The CTE is different. It essentially hires the poor family to send their children to school. It gives a positive incentive to go to school but not a negative incentive to work. In that regard it is preferable to the pure safety net transfer as a poverty reduction device.

To a lesser extent, the same work disincentive could be present in the CTE scheme or in any other means-tested benefit program. However, since the CTE benefit is significantly less than the minimum wage, it is not likely to induce many full-time workers to leave the labor force. Furthermore, the loss of income of children who stop work to attend school would tend to offset this disincentive.

Third, in purely practical terms, the CTE is likely to be more sustainable than the pure safety net. In poor countries such as Bangladesh, Honduras, and Nicaragua, the poverty gap amounts to over half of GDP. Politically there is no way to eliminate a gap of that size with transfers, particularly if the program affected the willingness of the poor to work. Those whose taxes would have to be increased to cover the transfer are more likely to support a program that promises to keep children in school in addition to reducing poverty than one that just gives money to the poor. For all of these reasons, asserting that the CTE program is a good approach to poverty reduction does not logically imply that an unconditional cash transfer or safety net program is also the preferred method for reducing poverty.

The comparison of the CTE and the permanent safety net highlights an important difference of approach to poverty reduction. Using permanent unconditioned cash transfers to reduce poverty seems to be based on the implicit or explicit assumption that poverty is the responsibility of the government and that the poor have no role to play other than to passively receive the transfers. In contrast, the conditioned cash transfer follows from the conviction that poverty reduction is the joint responsibility of

the child, the family, and the society. The government, through the CTE, indicates its willingness to assist the poor, but only if the child and the family do their part. In poor countries the best way to permanently reduce poverty is through human and physical capital formation rather than unconditional cash transfers—in other words, through social development not social assistance.

The Cost of Extending CTE Programs

CTE programs appear to be a quite successful innovation in the countries that have them. Should the programs then be expanded to countries that do not have them? Is such an expansion feasible? If yes, how much would it cost? These questions are addressed in this section.

The cost of any CTE program will depend on how generous the payments are, how big the poverty population with eligible children is, and what groups will be covered by the program. In our calculations, we assumed that the per-child payment would be one-fourth of the cost of subsistence-level nutrition (in Latin America this is called the indigence line). Therefore, in rural areas the hypothetical per-child payment varied from $5 per month in poor countries such as Nicaragua and Bolivia to almost $40 per month in rich countries such as Argentina and Venezuela.[2] We prepared estimates for all the countries in Latin America where we have comparable country estimates of poverty and poverty gaps, and we have a consistent set of national indigence and poverty lines. Our hypothetical CTE program covered both the rural and urban populations and was limited to primary school–age children.

The central problem in such calculations is estimating the number of poor primary school–age children in each Latin American country. Our rough estimate is based on the assumption that the incidence of poverty in children ages 6–12 is the same as that observed for the entire rural or urban sectors as reported by CEPAL (Economic Commission for Latin America and the Caribbean, *Panorama Social 2000–2001*). Thus if rural poverty is 20 percent, we assume that 20 percent of rural primary school–age children are poor. But this understates somewhat the number of poor children, because poor families tend to have more children than average.

In the first of our two calculations, we extended the hypothetical system only to those families with a per capita income below the indigence line (see table 7.1). In the other calculation (not shown), we extended the payment to all families below the urban or rural poverty line. Note that in this second case each eligible child is still paid just one-fourth of the indigence level of income.

2. We used the indigence lines reported by CEPAL (Economic Commission for Latin America and the Caribbean, *Panorama Social 2000–2001*).

Table 7.1 Cost of the CTE program for primary school–age children below indigence line by country, Latin America

		Primary school age (millions)		Poverty estimates (indigent percent)		Indigence line (US dollars)[a]		Transfer (millions of US dollars)		
Country	**Year**	**Urban**	**Rural**	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**	**Total**
Argentina	1999	3.7	0.4	n.a.	4.3	n.a.	71.6	0.0	33.8	33.8
Bolivia	1999	0.8	0.5	59.6	16.4	21.9	28.0	19.2	11.0	30.2
Brazil	1999	15.9	3.8	20.5	7.1	22.7	26.7	53.1	90.4	143.5
Chile	1998	1.5	0.3	4.3	6.9	31.5	40.9	1.0	12.5	13.5
Colombia	1999	4.0	1.5	18.7	31.1	30.8	37.3	25.2	140.5	165.7
Costa Rica	1999	0.2	0.2	9.4	5.4	29.7	37.5	2.1	1.4	3.4
Ecuador	1999	1.1	0.6	n.a.	27.2	n.a.	19.3	0.0	17.2	17.2
El Salvador	1999	0.4	0.5	29.3	11.1	21.6	33.5	9.1	4.6	13.7
Guatemala	1998	0.8	1.2	39.6	12.9	30.8	40.7	43.2	12.1	55.3
Honduras	1999	0.5	0.5	63.2	37.1	27.7	39.3	27.0	24.0	51.0
Mexico	1998	9.7	3.4	23.5	6.9	40.7	56.8	96.9	114.2	211.1
Nicaragua	1998	0.5	0.4	58.3	32.2	20.3	26.3	13.3	12.0	25.2
Panama	1999	0.2	0.2	12.6	6.6	31.5	40.7	1.9	1.6	3.5
Paraguay	1999	0.5	0.4	42.0	13.9	32.2	42.0	15.7	8.4	24.0
Peru	2000	2.5	0.9	30.0	6.7	25.5	31.2	21.6	15.5	37.1
Dominican Rep.	1997	0.7	0.4	15.2	11.0	31.6	42.1	5.9	10.3	16.1
Uruguay	1999	0.3	0.0	n.a.	0.9	n.a.	56.4	0.0	0.5	0.5
Venezuela	1999	2.8	0.4	19.4	19.4	78.8	78.8	20.1	129.9	150.0
Total Latin America		46.1	15.6					355.3	639.9	994.8

n.a. = not available

a. The indigence line is shown in US dollars per month per capita.

Sources: Primary school–age children from World Bank, *World Development Report* with adjustment for primary age subgroup. Poverty estimates and indigence lines from Economic Commission for Latin America and the Caribbean, *Panorama Social,* 2001–2002 Peru from United Nations Development Program—Peru, *Informe sobre Desarrollo Humano—Peru 2002: Aprovechando las potencialidades.*

The first two columns of table 7.1 show our estimate of the number of primary school–age children (ages 6–12) in each Latin American country. The third and fourth columns are the CEPAL poverty estimates (percent in poverty) for the rural and urban sectors for each country for the year indicated. Children eligible for the program were determined by multiplying the poverty percentages in the third and fourth columns by the numbers in the first two columns. Thus in Bolivia, for example, an estimated 293,000 rural children ($0.596 \times 491{,}000$) would receive the transfer. The fifth and sixth columns show the rural and urban indigence lines (in dollars per month per capita) calculated by CEPAL. They determine the amount of the transfer payment and are consistent with the poverty estimates shown in the table. Columns seven through nine give the transfer payments that would be observed if each eligible child did in fact attend school and receive the payment. These are only rough estimates of the total cost because not every eligible child will attend school, nor has any allowance been made for administrative costs. We have undoubtedly underestimated the number of poor children because of family size differences between rural and urban households and between the rich and the poor.[3]

With these caveats in mind, we estimated that for Latin America as a whole about 9.1 million or 15 percent of the 61 million primary school–age children come from indigent families and are eligible for the subsidy. If each of these children is paid one-fourth of the indigence line for that sector in that country, the total cost for the region would be just under $1 billion per year. A comparison of that amount with the poverty gap, country by country, reveals that the payment is 6.3 percent of the amount that would be needed to eliminate extreme poverty altogether. (The gap at the indigence line for the region is $15.7 billion.) In other words, spending $1 billion per year on this program would raise the income of the indigent by a little over 6 percent. Note here that we made no allowances for leakages to the nonpoor—that is, the payments to families above the indigence line—nor did we take into account the administrative costs of the program. Both together would reduce the net impact by perhaps 20 percent, lowering the income gain to those at the bottom to around 5 percent.

If this hypothetical program were extended to the nonindigent poor by paying the same subsidy to all children whose families have per capita incomes under the poverty line (roughly double the indigence lines shown

3. The estimates in the table for Brazil and Mexico are much lower than the actual expenditures of Progresa and Bolsa Escola for two reasons. First, in both countries the actual programs cover all children below the poverty line rather than just the indigent. Our hypothetical estimates (not shown in the text) for a system covering the entire poverty population for Brazil and the rural area in Mexico were $453 million and $514 million, respectively—fairly close to what each of the programs is actually spending. Second, in both countries the transfer amounts are more generous, especially in Mexico, and the poverty lines are higher, putting more children in the program.

in table 7.1), it would cover 25.5 million children. That extension would raise the total cost of the program to $2.4 billion per year, equal to 5.5 percent of the poverty gap, measured at the national poverty line for each country instead of the indigence lines.

Most of the CTE programs now in operation are in Latin America. Extending the CTE programs to the countries of Latin America that do not have them, using their own poverty and indigence lines, would cost about $1 billion per year. That amount seems feasible compared with the total amount of aid being given to the region by the IFIs or compared with the total regional GDP, which is just under $2 trillion. But Latin America is a relatively prosperous region, and it is therefore not surprising that a regionwide CTE program would not impose too large a burden. But what would be the cost and burden if such a program were to be implemented in other areas of the world with higher levels of poverty?

The regional poverty and population data collected by the World Bank and the United Nations Development Program provide a rough answer to that question. The World Bank reports the fraction of each area's population living on less than $1 per day per capita, which is roughly comparable to the indigence line in rural Latin America. Using that poverty estimate and the population data, we estimated the number of children eligible for a cash subsidy in all areas of the developing world except the Middle East and North Africa where we lack comparable data (see table 7.2). Based on the dollar a day definition of poverty, just under 170 million children around the world would be eligible for the subsidy, three-fourths of whom are in South Asia and sub-Saharan Africa. If the families of those eligible children were to receive $5 per month for each child and if all eligible children enrolled in the program and attended school, the total cost would be $10 billion per year, $3 billion of which would be spent in sub-Saharan Africa and $4.7 in billion South Asia.[4]

We are not saying that implementing a worldwide CTE program would be the wisest use of antipoverty or education resources. Rather, the data in table 7.2 are simply intended to show the rough dimensions of such a program if it were to be established. It is worth noting, however, that both the poverty and the educational impacts of such a program would be bigger in the poorer countries than they are in Latin America. In Latin America we calculated that the country-specific CTE programs would raise the income of the poor by 6.3 percent. The program underlying table 7.2, which would pay all poor children $5 per month regardless of where they live, would raise the income of the poor by about 5 percent in Latin America. In Africa that same program would raise the income of the poor by over 7 percent, simply because the average income of the poor is so much lower there.

4. Note that the estimate for Latin America is a good deal less than what is shown in table 7.1. In that table we based the transfer on urban and rural indigence lines, which implied transfers much higher than $5 per month, particularly in the urban sectors.

Table 7.2 Estimated cost of CTE programs, by region

Region	Population living on less than $1 per day (percent)	Population (millions)	Population under age 15 (percent)	Primary school children in poverty (millions)	Transfer (millions of dollars)
Sub-Saharan Africa	46.3	591.3	44.7	48.95	2,937.0
East Asia (excluding China)	11.3	575.0	26.0	6.8	405.4
China	18.5	1264.8	25.3	23.7	1,420.8
South Asia	40.0	1377.6	35.5	78.2	4,694.9
Latin America	15.6	494.0	32.3	10.0	597.4
Total				167.6	10,055.5

Sources: Poverty figures: World Bank, *World Development Report 2001–2001*. Population figures: United Nations Development Program, *Human Development Report 2001.*

In addition, the positive impact of the program on education is likely to be greater in sub-Saharan Africa and South Asia than it was in Latin America. We do not have country-by-country estimates of school enrollment rates, but we do have regionwide youth literacy estimates, which are a good proxy for the percentages of each age cohort finishing at least the first four years of primary school. In Latin America 93.8 percent of those ages 15–24 were literate in 1999 compared with 55.1 percent in South Asia and 60.5 percent in sub-Saharan Africa. Even with those relatively high rates of literacy in Latin America, the impact of the hypothetical program on the future earnings of poor families because of improved school enrollments exceeds the immediate value of the transfer. That difference in favor of the educational benefit is likely to be even more pronounced in the poorer regions of the world where primary school enrollments are much lower than they are in Latin America.

8

Conclusions and Issues for the Future

In this book we have reviewed the largest of the current conditioned-transfer-for-education (CTE) programs to see what lessons can be learned from their experience and to determine to what extent the benefits promised by the programs have been realized in practice. This chapter summarizes our conclusions about the programs we studied, and then considers some of the advantages these programs have as instruments of poverty reduction. Finally, this chapter raises some important issues and problems that must be addressed if these programs are expanded in the countries that already have them, or are adopted by the countries that do not.

Review of the Evidence on Current Programs

What we found in our review of current programs is encouraging. The programs for which we have empirical evidence are all effective at reducing poverty among today's poor families. At the same time they have significantly increased school enrollments. The most carefully studied of the CTE programs is Progresa in Mexico. Studies comparing poverty before and after the program in Progresa and control communities estimated that the program directly reduced poverty in Progresa communities by about 17 percent and the poverty gap by 36 percent compared with the outcome in the absence of the program. We estimate that Progresa, one of the biggest of the CTE programs, raised the income of the rural poor overall by 10 to 15 percent, which is a big effect for a single program. Although we have less information on the other countries with CTE pro-

grams, the impact of those programs on poverty seems equally positive. In Bangladesh food consumption increased by 11 percent in the FFE communities, and in Nicaragua total consumption grew by an estimated 17 percent in the RPS program communities compared with the outcome without the program.

A good deal of the success of these programs in reducing poverty stems from their systems of targeting. Compared with other safety net programs recently reviewed by Coady, Grosh, and Hoddinott (2002a), these programs are very well targeted. On average, 71 percent of CTE program benefits go to the bottom 40 percent of families, and three of the four CTE programs in the World Bank study fall in the top third of all the safety net programs reviewed.

The CTE programs rely on a pragmatic but apparently effective system for identifying the poor. Four of the six programs we reviewed used a two-stage procedure that relies on geographic targeting to identify the poorest communities that will be eligible for the program. They then use either surveys or local committees to identify the poor within those poor communities. It appears that the initial geographic targeting explains most of the progressivity in countries where the CTE program is not a national one. Where a high rate of poverty exists in the eligible communities, it probably is neither necessary nor cost effective to use obligatory surveys of all residents to identify the poor families who will receive the transfer. Local committees may do just as well.

Each of the two national systems studied, in Brazil and Chile, used a different targeting mechanism. It is too early to judge the effectiveness of Brazil's system of local committees, but Chile's demand-driven system is clearly very effective—the second best of the four for which we have data. A system like Chile's would be even more effective if eligibility for the various different poverty-targeted programs were determined by the same system.

We have less evidence on the impact of these CTE programs on education, and even less on the effect of education on the long-run earnings of the children of the poor. Nevertheless, what evidence we do have is strongly positive. Conditional transfers clearly did increase enrollments in each of the countries for which we have data. In Mexico average educational levels in the Progresa communities increased by an estimated two-thirds of a year. In the RPS communities in Nicaragua enrollment rates increased by 22 percentage points. We estimate that this increase in enrollment rates will in turn increase the average educational level by nearly 25 percent, from 3.2 to 4.0 years by the end of grade 9. In Bangladesh there was a big jump in enrollments when the FFE program was first introduced. Although enrollments later fell a bit, researchers estimate that the presence of an FFE school increased by 9 percent the probability that a child would be in school.

Advantages of CTE-Type Programs

One of the main advantages of CTE programs over alternative instruments for poverty reduction lies in their dual nature, something stressed throughout this book. They reduce poverty in the short run and increase the human capital and earnings potential of the children of the poor in the long run, thereby helping to break the intergenerational transmission of poverty.

We attempted to quantify this advantage by comparing the total benefit to the poor with safety net transfers or a workfare program. To undertake this comparison, we had to estimate the future earnings of the children of the poor, but this simulation was possible only for Progresa and RPS—arguably a somewhat heroic exercise but one necessary to quantify the benefits of the investment component of a CTE program. Under the reasonable assumption that the wage structure of the future labor force will be the same as it was in the year of the most recent survey, we estimated that the extra education would add about 8 percent to the average earnings of the poor in Mexico and about 9 percent in Nicaragua. Because that increase in earnings applies over the entire working life of the cohort, it is worth significantly more to the poor than the money they receive from the program itself, even when the earnings are adjusted through discounting to reflect the fact that they are received in the future. According to our calculations, for every peso or cordoba received by the poor, the present value of future earnings goes up by 1.14 pesos in Mexico and 1.13 cordobas in Nicaragua. In other words, for these two countries the investment component of the program is worth more to the poor than the transfer. Better yet, the improvement in future earnings is permanent and not dependent on continued safety net spending. To put it yet another way, these programs are at least twice as effective as a straight transfer, once one takes into account the benefit to the poor of the future earnings of their children. The advantage of the programs compared with workfare is even more pronounced, in part because of the nonlabor and administrative expenses of workfare programs. However, we recognize that workfare programs have different objectives than CTE programs and both are more likely to be complements than substitutes.

CTE programs also have other advantages over alternative instruments for poverty alleviation. First, they have clear objectives and clear mechanisms for reaching those objectives.

Second, we also believe that the programs are flexible and adaptable to different local conditions, and that they can be designed to expand the role of communities if that is deemed important for program effectiveness and sustainability. For optimal coverage, a CTE program can and should be designed to reflect the amount of poverty in a country and the enrollment rates of different groups. The benefit structure also can be adjusted to local conditions, which has been done in Mexico to increase the incentive of those adolescents prone to drop out of school to stay in school.

A third advantage is the complementary actions that could easily be included in the program to increase the quality of education that beneficiaries receive once they enroll. For example, a voucher component would give a school an incentive to improve its education to attract more students. Or a program could require students to progress at a minimum rate or pass an exam at certain grade levels to avoid losing their benefits. Schools participating in the CTE program could be subject to inspection, which has been done in Bangladesh. All of these actions and conditions are positive incentives to improve the quality of education, and they are natural complements to the CTE program.

Yet another advantage of these programs is less concrete but possibly more important. They represent a statement by a government that poverty reduction is a social objective for which the family, the child, and the society share responsibility. The society, through its government, indicates through such a program its willingness to assist the poor, but only if the family and the child do their part. This willingness represents the conviction that the pathway to any real long-run reduction in structural poverty lies through education and human capital formation, not transfers, and through social development, not social assistance. This combination of recognizing the "rights" of individuals while simultaneously recognizing their "responsibilities" can be a useful mechanism for generating political and budgetary support for poverty alleviation.

Issues for the Future

What evidence we have on performance is quite positive. But the successes encountered do not imply that CTE programs should be established in countries that do not have them, or that they should be expanded in those countries where they are now limited geographically. These programs, successful as they appear to be, are not a cure-all for poverty or for deficiencies in education. Where they are adopted, their design should reflect local conditions such as the pattern of education outcomes, their determinants, and the underlying budgetary environment.

As for education, the CTE approach to increasing enrollments is based on the assumption that low enrollment rates are a demand-side problem. Children do not go to school because their families cannot afford to send them. But there are many cases where the problem may be supply—there are not enough schools, classrooms, or teachers to educate adequately those who want it or who need it. In such cases, putting a lot of money into a CTE program would be a mistake, at least in light of the education objective. When governments are spending 5 percent of their entire education budget on the CTE program, as several of the countries in this study are, one must ask whether this is the best way to raise the educational level of the population.

The same argument can be made from a poverty perspective. These programs are not a panacea for poverty. They are not a substitute for an emergency safety net, and should not be thought of as such. We have argued that a CTE approach has a number of attractive design features compared to a permanent transfer safety net payment in reducing structural poverty, because it increases the human capital of the children of the poor. But there are many causes of poverty, both structural and short run, for which this kind of program is no help at all. Some of the poor are retired or disabled; they need a safety net. Others are the victims of rising unemployment in a recession; they need temporary assistance whether or not they have children. Still others are working adults with so little human or physical capital that they and their families are in poverty despite whatever income they earn. This group needs adult training programs and other efforts to increase the productivity and earnings of the working members of the families. The point here is that even the best of these CTE programs are a partial solution to the twin problems of poor education and poverty.

Several important design features also have to be addressed by any country thinking about adopting a CTE program. They are: what targeting mechanism to use, what benefit level and coverage to choose, and how to monitor and evaluate.

In any CTE program there is a trade-off between the education and the poverty reduction goals. Policymakers have to define eligibility rules keeping this trade-off in mind. The more inclusive the program, the greater will be its impact on poverty and the smaller will be its impact on enrollments, possibly reflecting lower transfer levels and the inclusion of households with higher human capital to start with. Low-income countries with high levels of poverty and high dropout rates can achieve significant reductions in poverty and increase their human capital at the same time. They are ideal candidates for the CTE program, possibly with some sort of graduated payment schedule patterned after Progresa. Poor countries have to grow their way out of poverty by increasing the productivity of their people through investments in human and physical capital. The CTE programs are particularly attractive for poor countries, because they are a way to achieve both goals at the same time. Wealthy countries with high enrollment rates and low levels of poverty probably do not need a national cash transfer program conditioned on education of their children, although a program effectively targeted toward the poorest households with the lowest enrollment rates may be warranted.

It is in the middle-income countries such as Mexico, with their significant poverty and high enrollment rates, that the trade-off between poverty reduction and human capital formation is most obvious. If one limits eligibility in order to maximize the investment impact of the program, many poor people will be left out. There will be pressure to ease the eligibility requirements or expand coverage. In Mexico that pressure

has come in the form of demands to extend the program to the urban areas where half of the poor live. But the problem with urban areas is that the enrollment rates for primary school students are far higher than they are for the rural sector, which means that the short-run poverty reduction will be a bigger component of the program compared with improvements in education, unless some relatively simple and cheap way of identifying the poor is used or unless the structure of transfers is limited to higher grades.

Program designers have to decide how to target beneficiaries. Any system of targeting costs money, and that cost must be balanced against the cost of erroneously including the nonpoor in the program. All but one of the systems examined here actively attempted to find the eligible poor. They did so using a two-stage process of geographic targeting to local areas of high poverty incidence and then a variety of procedures to identify the poor at the local level. This process works quite well if there is a big difference in poverty levels across locations. It may work less well or be quite expensive in national programs, particularly if the country has either very high or relatively low levels of poverty. For very high levels, the cost of identifying the poor is too high compared with the benefit gained from excluding the nonpoor. For relatively low levels, the cost also is too high because of the large numbers of nonpoor who have to be processed.

The Chilean system is the only one in our sample in which it is up to the poor to identify themselves and prove they are eligible for the program. The government sets the requirements and verifies the information provided by applicants, but it does not try to find all of the poor. Although no one has made a careful estimate of the relative costs of different targeting systems, it appears that the Chilean system makes sense in a middle-income country with fairly low levels of poverty. The alternative approach may be preferable in countries with relatively high levels of poverty or with wide divergences in poverty across locations or the personal characteristics of families such as race, demographic structure, or the gender of head of household.[1]

One way of combining the human capital and poverty reduction objectives in middle-income countries is to use geographic targeting or some other method to define eligible groups with high concentrations of poor people. If the poverty levels within these groups are high enough, identification of the poor can be left to local committees using a very simple set of criteria. If the government wishes to extend the program beyond these groups, it could use a demand-driven or voluntary system similar to Chile's to identify eligible recipients. Aside from reducing the cost of targeting for the program as a whole, an added advantage of such a system is that those found eligible for the CTE transfers also could be declared el-

1. In the PRAF program in Honduras, eligibility was originally limited to households headed by females.

igible for other targeted programs such as supplemental nutrition for infants and lactating mothers, health care, and transportation subsidies.

Finally, there is the issue of monitoring at both the school and family level, which must be faced squarely. At the school level, the system needs a mechanism to verify that beneficiaries are actually attending school. It would be even better if the system included a way of verifying that students are progressing though school or are receiving the education that is the main purpose of the program.

A more difficult problem is the removal of families whose beneficiaries have either graduated or dropped out of school or who are no longer poor. The benefit levels in these programs are high enough to give families a perverse incentive to cheat if they are no longer eligible. Because the current programs are so new, it is still not known how well this problem is being handled. But it is crucial that as students drop out or get beyond the eligible grades they be dropped from the program and replaced with younger students, even if the families of those exiting students remain poor.[2] Otherwise, over time the program will begin to lose its most distinctive characteristic and advantage, which is that it offers a way to achieve poverty reduction and social development in the long run by social assistance to the poor in the short run.

An equally difficult problem in those programs where eligibility is conditioned on income is the one of ascertaining that the income of the families receiving benefits remains below the income cutoff. In Chile, where the poor are expected to identify themselves and to prove their eligibility for benefits, each beneficiary must revalidate eligibility every two years. In the other programs that we examined, no explicit procedure is in place. In Progresa, once families are enrolled there is no further verification of income eligibility; they continue to receive benefits as long as their children stay in school. Meanwhile, the authorities have not faced the question of whether they should impose some sort of periodic means test for continued eligibility. If they do, the total targeting and administrative costs of running the program will rise. It is not clear how this problem of continued eligibility is handled in those programs in which identification of the poor at the local level is made by committee. But it is fairly obvious that if the problem is not faced, then as conditions improve in the economy and as some beneficiary families escape from poverty because of rising earnings of their adult members, the leakage of benefits to the nonpoor will rise. If at the same time newly impoverished families are brought into the program, its size and cost will increase. It seems clear that if a program is to be sustainable and well targeted in the long run, it will of necessity have to include some kind of periodic means test as a condition for continued eligibility.

2. Beneficiary families who lose eligibility because their children either graduate or drop out, but who continue to be poor, can be picked up by a regular safety net program.

Appendix
Program Descriptions

Mexico: Programa de Educación, Salud y Alimentación (Progresa; Education, Health and Nutrition Program)

Program history. Implemented under President Ernesto Zedillo as pilot project in 1992 and put in place countrywide in rural areas in 1997. Presently, under President Vicente Fox, program is being expanded to urban areas under new name, Oportunidades. Initial rural phase was financed by government of Mexico. Expansion is being partly financed by large loan from Inter-American Development Bank (IDB).

Implementing agencies. Federally designed and administered program; placed within Sedesol (Ministry for Social Development), with operational arms at state and municipal levels. Central agency is referred to as Conprogresa. Although in some incidences program worked in cooperation with municipality officials, for the most part it bypassed all lower levels of government. Conafe (education suppliers under Ministry for Education) is responsible for delivering supply side. Schools monitor attendance and remit information on designated forms to Conprogresa through state agents who transmit it electronically.

Poverty statistics. Poverty rates in Mexico have increased due to the peso crisis. The poverty headcount rate decreased from 19.7 percent in 1989 to 15.3 percent in 1994, only to increase to 21.1 percent in 1996. The trend over these three years for the severity of poverty index was 0.067 to 0.046 to 0.073.

Education statistics. Before program, primary school enrollment was about 93 percent (although delayed enrollment, dropouts, and slow progression were high), but enrollment of those eligible (i.e., highest grade achieved was grade 6) in rural areas dropped to 55 percent in grade 7 (the first of three years of junior secondary school) and 58 percent in senior secondary school.

Program description. Cash transfers are made to poor households in the most marginal rural areas, conditioned on household members attending school regularly (i.e., 85 percent attendance each month except absence for verified health reasons). Failure to meet conditions leads to loss of benefit, at first temporarily, then permanently. Integrated with a health and nutrition intervention component.

Program design. Cash transfers (inflation indexed every six months) are given to mother conditional on children attending school regularly (grades 3–9). Grants increase with grade and are higher for girls in secondary school (from 80 pesos ($8.40) in grade 3 to 250 and 305 pesos ($26 and $32) in grade 9 for boys and girls, respectively). Total, including uniform transfer as part of health component, that can be received by households is capped—for July–December 1999 cap set at 750 pesos ($79), including 125 pesos from health component. Additional transfers are made to cover education expenses—155 and 205 pesos annually for primary and secondary school, respectively (delivered in-kind directly to schools for all but most marginal localities). Supply side is delivered separately and expected to ensure that quality of schooling does not fall.

Transfer level. In 1999 average monthly transfer was 238 pesos ($25) per beneficiary household, equivalent to 19.5 percent of mean value of consumption prior to program (reflecting both delays and non-take-up). Monthly wage for agricultural labor was 580 pesos.

Program coverage. By end of 1999, program covered 2.6 million families, equivalent to 40 percent of all rural families or one-ninth of all families in Mexico. Program operated in nearly 20,000 localities in 2,000 municipalities and 31 states.

Targeting methods. Participating localities are identified based on a marginality index constructed using national census data (i.e., geographic targeting). Marginality index is based on principal components analysis of the following variables: share of illiterate adults; share of dwellings without water, sewer systems, and electricity; average occupants per room; share of dwellings with dirt floors; and share of population working in primary sector. Most remote areas deemed not to have access to education and health facilities were excluded (but less than 1 percent of population). For selected localities, a census of households is taken, in-

cluding information on a range of socioeconomic characteristics. Information on reported income (minus income from children 8–18 years) is combined with other socioeconomic data using discriminant analysis to identify "poor" households that are eligible to receive benefits (i.e., a proxy means test for eligibility). Initial poverty line was set at cost of a standard food basket—320 pesos per month in 1997.

Targeting mechanism. Targeting method is designed and operated by Conprogresa. Local officials are shown list of eligible households and help to identify possible mistakes; these queries are addressed within the official statistical approach. Initially, 52 percent of households were deemed eligible, but this was revised upward to 78 percent after local consultation. These households are informed of their eligibility and their responsibilities at a local general assembly.

Program budget. In 1999 annual budget was $777 million, equivalent to 0.2 percent of GDP and 20 percent of the federal poverty alleviation budget.

Program costs. In 2000 total program budget was 0.2 percent of GDP, or 1.9 percent of total social expenditures. Administrative costs were about 8.9 percent of total program costs over the period 1997–2000. Resources were probably saved when participating households had to give up participation in other programs, but very few households in these areas participated in these programs, so these savings were likely to be minimal.

Private costs. For households, extra travel costs to secondary school of 1.5 pesos per 100 pesos received. Total incremental private costs (i.e., associated with education, health, and collection costs) increase cost from 8.9 to 11.3 pesos (an increase of 2.4) per 100 pesos transferred.

Targeting costs. Cost of geographic and household targeting components was at 2.7 percent of total program costs (including transfers) over the 1997–2000 period (compared with 2.3 percent for the conditioning of transfers). Targeting costs are 30 percent of administrative costs (compared with 26 percent for conditioning activities).

Targeting performance. Good geographic targeting; mistakes were mainly confined to the least marginal localities. Proxy means targeting reduced poverty gap and severity of poverty by 30 percent and 45 percent, respectively, compared with 28 percent and 36 percent, respectively, for uniform, nontargeted transfer within participating localities. Demographic, geographic, and household targeting account for 48 percent, 36 percent, and 16 percent, respectively, of total gains from targeting. However, gains from household targeting increase as program expands into less marginal localities, so that the contribution of demo-

graphic and household targeting converge to equality with expansion. Undercoverage and leakage rates were both 16 percent.

Impact on poverty. Poverty head count reduced in participating communities by about 10 percent, poverty gap by 30 percent, and severity of poverty by 45 percent. These results are supported by regression estimates in Handa et al. (2001) using consumption and Skoufias (2001) using income.

Impact on education. At the primary level, increased enrollment rate (from initial high levels of about 93 percent) by 0.74–1.07 and 0.96–1.45 percentage points for boys and girls, respectively. At the secondary level, where initial enrollment rates were 67 percent for girls and 73 percent for boys, the enrollment impacts were 7.2–9.3 and 3.5–5.8 percentage points for boys and girls, respectively, representing proportional increases of from 11 to 14 percent and from 5 to 8 percent. Most of educational impact occurs at transition year to junior secondary school (i.e., grade 6 to grade 7), with a 20 percent increase in enrollment for girls (or 14.8 percentage points) and 10 percent for boys (or 6.5 percentage points). Most of effect is on continuation rather than return. The accumulated effect of increased schooling from grades 1 to 9 suggests that the program can be expected to increase educational attainment for the poor by 0.66 years of additional schooling by grade 9 (0.72 years and 0.64 years for girls and boys, respectively), roughly equivalent to a 10 percent increase in schooling for the poor from an average of 6.2 years of completed schooling. If current urban wages approximate future earnings, the internal rate of return (taking into account the cost of grants) for the program is 8 percent per year. Also there is evidence that program is associated with earlier ages of school entry, less grade repetition and better grade progression, lower dropout rates, and higher school reentry rates among dropouts. Some spillover effects are seen in terms of higher enrollments for nonpoor. Evidence was found that subsidies are 10 times more cost-effective than school-building.

Other impacts. Decrease in labor force participation of 15 to 25 percent for boys (also some impact for girls from much lower initial participation rates). This decrease accounts for 65 to 82 percent of the increase in boys' enrollment. But a substantial number of children continue to combine both work and school. Also, no improvement was found on achievement test scores. No evidence of impacts on school attendance, fertility, private transfers, or work incentives (i.e., labor participation of men and women) was found.

References: Coady (2001); Skoufias (2001); Skoufias, Davis, and de la Vega (2001); Schultz (2001b); Coady and Parker (2002).

Source: Adapted from Coady, Grosh, and Hoddinott (2002b).

Bangladesh: Food for Education (FFE)

Program history. Launched in July 1993 as a large-scale pilot project after the elimination in 1992 of a badly targeted and costly subsidized food ration program in rural areas. FFE was designed to be better targeted and to help maintain food security for rural poor after withdrawal of rural ration program.

Implementing agencies. Central Ministry of Education (Primary and Mass Education Division) through local counterparts.

Poverty statistics. About 50 percent of population of 130 million classified as poor.

Education statistics. According to World Bank Web site, based on demographic and health survey data, in 1996–97 about 76 percent of children ages 15–19 had enrolled and completed grade 1, falling to about 20 percent in grade 9. There was roughly a 25 percentage point difference between the high, middle, and poor income groups. Among the poor, 60 percent had completed grade 1 and less than 10 percent grade 9. The numbers for females were about 5 percentage points below those for males.

Program description. Food transfers to poor households conditional on school attendance by primary school–age children.

Program design. Households with at least one child ages 6–10 years receive monthly in-kind transfer (usually wheat, but sometimes rice) conditional on children achieving 85 percent attendance per month in primary school. Program's objectives are to increase enrollment rates, increase attendance rates, and reduce dropout rates in primary schools. Funded by government, US Agency for International Development (USAID), and other donors.

Transfer level. Free of charge, 15 (12) kilograms (kg) of wheat (rice) per child per month, but a maximum of 20 (16) kg of wheat (rice), if all primary school–age children go to school. Vast majority receive wheat. Student also must have at least 85 percent attendance record each month. According to Ahmed and Billah (1994), the value of the transfer in 1994 was nearly 90 takas ($2.40) per month, equivalent to almost 4 percent of the total expenditure of poor households (based on an average transfer of 20 kg per month, a 1994 exchange rate of US$1 = 37 takas, average monthly expenditures for poor households of 390 takas, and a market price for wheat of $120 per metric ton).

Program coverage. Administrative structure of Bangladesh consists of, in decreasing size, divisions (5), districts (64), *thanas* (489, of which 29 are in 4 city corporations), and unions (4,451, all rural). In 1993 the program started in 460 unions, one union in each rural *thana*. By 2000 the program was being implemented in 1,247 unions. All government and registered nongovernment primary schools in a union are eligible to participate. In 1993–94 there were 706,519 beneficiary students out of a total primary student population of 15.2 million (i.e., 4.7 percent coverage). In 2000 there were about 2.1 million beneficiary students from a population of nearly 18 million primary students (i.e., around 12 percent coverage nationally). About 40 percent of these students, representing 13 percent of total primary school students, were receiving transfers. Therefore, out of the 5.2 million students enrolled in FFE schools, 40 percent were covered by the program.

Targeting methods. Two-stage targeting system. First stage involves geographic targeting: two to three unions deemed economically backward and with low literacy rates are selected. All government, registered nongovernment, community (low-cost), and satellite primary schools can participate, along with one *Ebtedayee Madrasa* (religion-based primary school). Second stage involves categorical targeting of households, whereby all households with primary school–age children (i.e., 6–10 years) who meet the following criteria are eligible: (1) landless households and those with less than 0.5 acre; (2) principal occupation of head is day laborer; (3) female-headed household (widowed, separated from husband, divorced, disabled husband); and (4) low-income professions (e.g., fishermen, potters, blacksmiths, weavers, and cobblers). Households must not be covered under any existing targeted intervention such as Vulnerable Group Development Program or Rural Maintenance Program. A maximum of 40 percent of students in a school may receive transfers. As of 1998–99, to continue to participate, schools must achieve a minimum overall performance level: at least 10 percent of grade 5 students must qualify for the annual scholarship examination, and the school must hold the prescribed annual examination, with students in grades 3–5 obtaining at least 40 percent of the total points in the previous year's annual examinations. In addition, a school is temporarily suspended if random inspection reveals less than 60 percent attendance.

Targeting mechanism. First, economically backward areas are chosen to participate in the program by the center (administered by the Primary and Mass Education Division and executed by its Project Implementation Unit, with assistance from the Directorate of Primary Education). At the local level, the *thana nirbahi* (executive) officer and the *thana* education officer are responsible for implementation. Both the School Management Committee (SMC) and the Compulsory Primary Education Ward

Committee (composed of teachers, local representatives, parents, education specialists, and donors to the school) choose beneficiaries (a list is drawn up) based on idiosyncratic local information. The list of beneficiaries is recorded in the registry book held by the headmaster (who is secretary of the SMC). Each enlisted household gets a ration card entitling it to the transfer. In the program's early days, teachers were responsible for food distribution, but in 1999 this task was transferred to commercial food grain dealers. Attendance information, translated into a food requirement, is sent through the *thana* Education Ministry to the *thana* Ministry of Food which informs private dealers and the public food supply depot. The education official and the dealer fix a delivery date to the school. The dealer receives 250 takas per metric ton plus the proceeds from the sale of empty bags to cover costs.

Program budget. Initial program costs (1993–94) of 683 million takas ($17 million), involving distribution of 79,553 metric tons of food grains and representing 4.7 percent of total government spending on primary education, 2.5 percent of total education spending, and 0.4 percent of total public spending. In 1997–98 the program cost was nearly 3.75 billion takas, accounting for nearly 20 percent of total public spending on primary education, 9 percent of total public education spending, and nearly 1.5 percent of total public spending. By 1999–2000 this amount had increased to 3.94 billion takas ($77 million), over 4.5 times the starting level, involving 285,973 metric tons of food grain. With 2.1 million beneficiary students in the program, this figure suggests a transfer of about $36 per student per year.

Program costs. Cost of the program in 2000 translates into 5.2 takas ($0.10, using 2000 exchange rate of US$1 = 52 takas) per student beneficiary per day, or $3 per month. According to Ahmed and Billah (1994), the program had the lowest cost of all food-based targeted programs in Bangladesh: 1.59 takas spent to deliver 1 taka of benefit—that is, the program costs represented 59 percent of total benefits.

Targeting performance. Based on the numbers presented, among households with primary school–age children, 24 percent and 19 percent of beneficiaries fall into the bottom one and two expenditure quintiles (of eligible group distribution), respectively. Therefore, the poorest 40 percent of households account for 43 percent of beneficiaries. This outcome is only slightly progressive, most likely reflecting the lower enrollment rates among the poorest households and associated shortcomings with community targeting through schools, especially when a maximum of 40 percent of students can participate. For example, 21 percent of beneficiaries did not meet even one of the eligibility criteria. Evidence exists that dealers diverted a lot of grain to the black market, with 71 percent of benefici-

aries reporting that they received less than their entitlement. Results in Galasso and Ravallion (2002) imply that 92 percent of the overall targeting performance stems from first-stage geographic targeting. Overall, 60 percent of program benefits (under the assumption of uniform transfers) accrue to the poor (i.e., with 50 percent of rural households classified as poor).

Impact on poverty. With its small size of transfer relative to total expenditure (4 percent) and coverage of only about 2 million out of about 8 million poor households, the program alone cannot be expected to make a significant dent in poverty rates.

Impact on education. In participating schools, enrollment increased by 35 percent (44 percent for girls and 28 percent for boys) compared with 2.5 percent nationally in non-FFE schools (5.4 percent for girls and 0.1 percent for boys) over two years. Attendance of enrolled children was 70 percent in participating schools compared with 58 percent in nonparticipating schools. Only about 6 percent of beneficiary children dropped out, compared with 15 percent of nonbeneficiary students. Evidence also exists that student-teacher ratios were higher in participating schools (62 students per teacher versus 76), and average test scores for fourth graders were found to be higher in non-FFE schools (53.0 percent versus 49.3 percent of total points). But interpreting some of these comparisons as causal is risky, because there is no control for initial preprogram differences or different trends. Using the regression approach, Ahmed and del Ninno (2002) estimated that the program increased enrollment by about 9 percentage points, less than the 17 percentage point increase reported in Ravallion and Wodon (2000).

References: Ahmed and Billah (1994); Ravallion and Wodon (2000); Galasso and Ravallion (2002); Ahmed and del Ninno (2002).

Source: Adapted from Coady, Grosh, and Hoddinott (2002b).

Nicaragua: Red de Protección Social (RPS; Social Safety Net)

Program history. Pilot program initiated in October 1999; implemented in October 2000.

Implementing agencies. Designed and implemented by central government; run by RPS within FISCE (Social Investment Fund).

Poverty statistics. Moderate poverty line is $1.10 per capita per day, and extreme poverty line is $0.58 per capita per day. Based on these levels, nearly 23 percent of urban families are moderately poor, and nearly 7.7 percent (26, 649 families) are extremely poor. Almost 40 percent of rural families are poor, and almost 29 percent (82,766 families) are extremely poor. Of the 48 percent moderately poor nationally, 75 percent reside in rural areas. Among the participating *comarcas* nearly 80 percent are moderately poor and 40 percent are extremely poor.

Education statistics. Educational attainment in Nicaragua is relatively dismal. One-third of adults over age 25 years report not having a formal education, and another third have not completed primary school. Although this situation has improved, in 1998 the net primary enrollment ratio of 78 percent remained one of the lowest in Latin America, in spite of improvements in access. In 1998, 27 percent of boys ages 10–14 years in rural areas were working an average of 30 hours a week. In participating municipalities, the average primary enrollment for 7- to 13-year-olds who had not yet completed grade 4 of primary school was 71 percent—ranging from 82 percent at age 9 to 51 percent at age 13; 66 percent for extremely poor to 91 percent for nonpoor; and roughly equal for boys and girls. Also evidence exists of a large dropout rate (especially among nonpoor), with only 59 percent still enrolled by the end of the year.

Program description. Conditional cash transfer program.

Program design. Education subsidy to households with children ages 7 to 13 years who enroll in grades 1–4 of primary school with 85 percent attendance each month (primary school consists of six years and secondary four years). Also, a health subsidy is conditional on attendance at scheduled health visits and information lectures. While, in principle, grade promotion was a requirement for a child's continued eligibility, in practice this was not applied because of evidence of automatic grade promotion.

Transfer level. Education subsidy of 240 cordobas bimonthly, with one per household (i.e., 1,440 cordobas, or $112, per household annually). An additional 275 cordobas ($21) is given per child per year for materials

(*mochila*). All children in age group in household must attend school, for a total education transfer of 1,715 cordobas ($133) per household per year. Health transfer is 480 cordobas bimonthly (2,880 cordobas, or $224, annually), with one per household. Maximum total transfer is 4,355 cordobas per family per year ($335). Children also receive 60 cordobas ($4.25) annually to be handed over to the school upon enrollment registration. It is meant to be split evenly between teachers' salaries and other inputs. (All figures given here are those set in September 2000 at the program design stage.)

Program coverage. Of the country's 17 states (departments), two of the poorest in the northern part of the central region were chosen for the pilot project. From these, six municipalities were chosen, based on poverty and access criteria. The pilot phase was implemented in two stages. In the first stage, the program benefited some 6,000 households in 21 census *comarcas*, selected just on the basis of geographic targeting methods. In the second stage, some 4,000 additional beneficiary households from different *comarcas* in the same municipalities were selected, using household as well as geographic targeting methods.

Targeting methods. Two departments (states) were chosen on the basis of need, implementation capacity, and supporting infrastructure. Six out of 20 municipalities were chosen from these two states on the basis of poverty, access to education and health facilities, easy communications and access for operational purposes, and high capacity for local organization and participation. Between 36 and 61 percent of the rural population in the chosen municipalities was extremely poor, and between 78 and 90 percent was moderately poor. Once municipalities were selected, a marginality index was constructed from the 1995 National Population and Housing Census for all of the 59 rural *comarcas*. This index was a weighted average of the following set of poverty indices (percent weights): family size (10 percent), access to potable water (50 percent), access to latrines (30 percent), and illiteracy rates (10 percent). Higher scores implied more impoverished. The 59 *comarcas* were ranked in four "priority" groups on the basis of poverty (ranging from 1 for severely poor to 4 for moderately poor). All households in groups 1 and 2 (from the 42 poorest *comarcas*) were eligible (except about 2 percent who owned a vehicle and had large landholdings). In groups 3 and 4 (21 *comarcas*), 20 percent excluded because they were deemed nonpoor based on predicted consumption (in fact, in four *comarcas* all households were eligible because a comparison group was needed across priority groups). For impact analysis, the 42 *comarcas* with the highest scores were selected. These were then ordered by marginality and stratified into seven groups of six each. Three *comarcas* from each group were randomly selected for inclusion in the program, leaving the other three as controls. Thus 21 *comarcas* were in both the treatment and control groups.

Targeting mechanism. Centrally designed and administered.

Program budget. $10 million, 90 percent financed by an IDB loan; the remaining 10 percent was financed domestically. This amount represents about 0.2 percent of GDP and 2.5 percent of recurrent government spending on health and education.

Program cost. Administrative costs were estimated at 33 percent for 2000, 14 percent for 2001, and 9 percent for 2002 (projected).

Targeting costs. According to early estimates, geographic targeting absorbed $10,000 and household targeting, by constructing proxy means, cost $40,496. Survey costs attributable to household targeting were $4 per household for the 10,124 households in first phase, or just over $8 per beneficiary household. If one includes the fixed cost of setting up the census registry of families in each of the selected communities, total cost per survey rises to $14 (see IFPRI 2002).

Targeting performance. Forty-two percent of beneficiaries were estimated to be extremely poor and 80 percent moderately poor, which reflects mainly the geographic targeting.

Impact on poverty. Average per capita consumption among beneficiary households was 4,200 cordobas per year compared with a moderate household poverty line of $\$1.10 \times 365 = \$402$ (5,226 cordobas) per capita per year and an extreme household poverty line of $\$0.58 \times 365 = \$212$ (2,752 cordobas) per capita per year. The maximum transfer a household can receive is 726 cordobas per capita per year (4,355 cordobas ÷ 6), equivalent to 17 percent of average per capita consumption and 26 percent of the extreme poverty line. This transfer is thus large enough to reduce the average (moderate) poverty gap of 1,026 cordobas by 70 percent. On average, the health transfer was 13 percent of the total annual household expenditures of the beneficiary households. A household with one child received an extra 8 percent, yielding a total of 21 percent of total annual household expenditures. Because of inflation, the real value of transfers has declined 7 percent over a two-year period.

Impact on education. Enrollment increased by 22 percentage points, from a base of 69 percent in treatment areas, with the poorest households benefiting most (30 percentage point increase from 66 percent). The average impact on continued enrollment at end of year was 29 percentage points, with an increase of 36 percentage points for the extremely poor, from 54 percent. Grade progression increased by 8.2 percentage points (grade 1 to grade 2), 7.3 percentage points (grade 2 to grade 3), and 6.2 percentage points (grade 3 to grade 4), from a base of about 88 percent.

The progression from grade 4 to grade 5 also increased, but that period was not part of program. Progression outcomes also were higher for the extremely poor: 9.3 percentage points, from a base of 85 percent. RPS supported local communities in their efforts to solicit additional teachers from the Ministry of Education, which was possible because of the existence of an autonomous system with substantial local control. Under this system, schools were able to hold more sessions per day and hire extra teachers. In some cases, parents contributed toward the new teachers' pay. In one municipality schools were less autonomous, and so they saw fewer of these changes and somewhat lower impacts, although enrollment was still high at 90 percent. The incidence of work decreased by 8.8 percentage points, from 27 percent, for 10- to 13-year-olds. Hours worked by working children in the previous week also decreased by 9 hours from about 24 hours (for those working). Finally, exclusive schooling increased substantially, from 59 percent to 84 percent—an increase sustained mainly by those not previously in school or working.

Reference: Maluccio (2002).

Source: Adapted from Coady, Grosh, and Hoddinott (2002b).

Honduras: Programa de Asignación Familiar (PRAF; Family Allowance Program)

Program history. Phase I of the program began in operation in 1990 as a social safety net to compensate the poor for loss of purchasing power from macroeconomic adjustment. It was a collection of many programs: institutional strengthening, education bonus, infant maternity voucher program, and some occupational training money. That phase ended when IDB loan funds ran out. Phase II of the program was initiated in late 1998, implemented in late 2000, and involves restructuring the program to explicitly encourage human capital accumulation by beneficiary households through conditioning transfers on child attendance at school (and health center attendance). Financed with a grant of $45 million from IDB and some $5 million in domestic funding.

Implementing agencies. Programa de Asignación Familiar

Poverty statistics. Honduras has the third lowest per capita GNP in the Western Hemisphere. In the 70 poorest municipalities (using height for age of first graders), 87 percent of households were below an international poverty line of $2 per capita per day, 78 percent below a national poverty line of $1.55 per capita per day, and 70 percent below a national extreme poverty line of $1.24 per capita per day. Less than 2 percent of households have expenditures over $5 per capita per day. The program was implemented in the 60 poorest municipalities.

Education statistics. In 1991, the net primary enrollment rate was 89 percent and the net secondary enrollment rate was only 20 percent.

Program description. Social program, operating within targeted localities, that provides cash to poor households, with payment conditional on school attendance of children in grades 1–4. Integrated with health component, which conditions transfers on pregnant women and mothers of children under three attending clinics for preventive health services. Funds also provided to improve the supply of education (and health) services. Also on the supply side, grants are made to school parent associations through local nongovernmental organizations to improve provision of educational services (the Learning Development Initiative.

Program design. Phase I of PRAF included an education bonus targeting the poorest families. Monthly over the school year, a voucher was given to the mothers of children attending grades 1–3 with a maximum of three children. This effort was aimed at 300,000 beneficiaries over three years.

Phase II of PRAF made up of two sets of household transfers: (1) an education voucher (*bono escolar*) for primary school–age children (ages 6–12 years)

conditional on attendance at school; and (2) a nutrition and health voucher (*bono nutrición y salud*) for pregnant women and children under three conditional on attending clinics regularly for parental checkups, growth monitoring, and vaccinations (maximum of two children per family).

Transfer level. In 2000 the education voucher was worth $58 per child per year. It was inflation indexed to the consumer price index and distributed three times a year to minimize school dropouts. Transfers to schools depend on their size (i.e., number of students and teachers); on average, the transfer is $4,000 per year with a floor of $1,600 and a ceiling of $23,000. The health voucher is worth $46 per household per year and also inflation indexed. Transfers to health centers depend on the size of the center and area served; on average, the transfer is $6,020 with a floor of $3,318 and a ceiling of $15,000.

Program coverage. Operating in 7 states (departments) and in 50 of their 298 municipalities. Twenty municipalities receive the demand-side program only, another 10 the supply-side program only, and another 20 both components simultaneously. Another 20 municipalities are chosen randomly as a control group not receiving the program. Over 70,000 households participate.

Targeting methods. Municipality-level targeting based on height-for-age data on first graders from school census data for 1999. All households in these municipalities with children in relevant age group are eligible.

Targeting mechanism. Centralized design and implementation.

Program budget. It is estimated that education vouchers will cost $3.6 million per year, health vouchers $2.2 million per year, education supplies $2.2 million per year, and health supplies $0.37 million per year—for a total of $8.37 million.

Targeting performance. According to Morris et al. (2001), for the health/nutrition component 22 percent of beneficiaries fall in the bottom per capita consumption decile nationally, 42 percent in the bottom 20 percent, and 80 percent in the bottom 40 percent. However, these figures may be underestimating the degree of progression in the distribution of the budget if poor households have more children.

IReferences: IFPRI (2000); Morris et al. (2001).

Source: Adapted from Coady, Grosh, and Hoddinott (2002b).

Brazil: Bolsa Escola (BE, Scholarship Fund) and Programa de Erradicação do Trabalho Infantil (PETI; Rural Child Labor Eradication Program)

Program history. First BE programs implemented in 1995 by local governments in Campinas, as part of the social assistance network, and Brasilia, as an educational program. Of the 60 programs in operation by end of 1999, two were at the state level (Amazonas, Brasilia), and the rest were at the municipality level. In 2001 all BE programs were consolidated into one federal program, replacing both the local programs and another national safety net program, Fundo de Garantia de Renda Minima (FGRM).

Implementing agencies. Monies are transferred from the secretary of education to the municipalities each month based on school records monitored by the municipalities. Magnetic cards are issued by Caixa Economica Federal (CEF) and given to mothers so they can withdraw funds from CEF branches.

Poverty statistics. Roughly 30 percent of Brazil's population was classified as poor in 1999.

Education statistics. Enrollment rates are high at 96 percent (nearly 100 percent in urban areas), with little difference between boys and girls. But late entry and slow progression are problems. The program has produced a significant reduction in the inverse relationship between education and poverty status. In 1999, 93 percent of children ages 7–14 were in school compared with 99 percent for nonpoor. About 90 percent of household heads have not graduated from high school and 74 percent have not completed grade 4.

Program description. Cash transfers to poor households with school-age children are conditional on 85 percent school attendance. Participants in PETI must attend after-school activities and promise not to work.

Program design. Program covers children from 6 to 15 years of age. Money is transferred from the national treasury to the credit account of the mother. Mother is given an electronic credit card with which she can withdraw the money at any branch of the Caixa Economica Federal or at any one of thousands of additional outlets. The program is managed in the Ministry of Education by the national secretariat of the Bolsa Escola program.

Transfer level. In all cities beneficiaries receive 15 reais ($6) per month per child for up to a maximum of three children—that is, a family could

receive up to 45 reais ($18) per month, which is equivalent to an annual family transfer of 540 reais ($216).

Program coverage. The program covers 5 million families and 8.6 million children. It is now being implemented in 98 percent of the *municipios* in Brazil.

Targeting methods. The federal government used a national census to create poverty indices for each *municipio*. They then used the education census to estimate the total number of children ages 6–15 who should be eligible for the program, and the total number of transfers to which each *municipio* would be entitled. A local committee then identified which children would get the transfers.

Targeting mechanism. Targeting is a combination of geographic targeting to decide on the allocation of money across *municipios* and identification of eligible children by local committee. One restriction is that no eligible family can have a per capita monthly income higher than 90 reais ($36). That was one-half the minimum wage at the time the program was designed.

Program budget. In new federal program 1.7 billion reais ($680 million) were allocated in 2001, financed by the National Fund for Eradication of Poverty, with the objective of reaching 10.7 million children from 5.8 million families. By December 2001, 8.2 million children from 4.8 million families were enrolled. As of 2002 the program was reaching 8.6 million children from 5 million families.

Program budget. The 1.7 billion reais ($680 million) allocated to the new federal program represent about 0.7 percent of total government spending and 2.5 percent of government spending on education.

Targeting performance. No evaluation has been made of the geographic component of targeting or of targeting overall. However, if program managers have been able to limit eligibility to families earning less than half the minimum wage, then the bulk of funds will go to poor families, because the minimum wage is only double the poverty line or only one-half the income per capita for a family of four with one minimum-wage worker.

Impact on poverty. No formal estimates are available for the national program. However, the program coordinator estimates that the payments are raising income in poor families by 20 to 30 percent.

Impact on education. In the earlier municipal program, dropout rates were much lower among beneficiaries (0.4 percent) compared with non-

beneficiaries (5.6 percent); a larger proportion of beneficiaries entered school at the right age; beneficiaries had higher promotion rates (80 percent versus 72 percent for nonbeneficiaries); and beneficiaries had similar learning outcomes. But these are probably overestimates given that beneficiaries were likely to start off in a disadvantaged position in all dimensions. Under PETI, school attendance was 79 percent. There are no formal estimates of the effect of the new national program on enrollments

References: Camargo and Ferreira (2001); World Bank (2001); Ministry of Education, Government of Brazil (2002).

Source: Adapted from Coady, Grosh, and Hoddinott (2002b).

Chile: Subsidio Unitario Familiar (SUF, Unitary Family Subsidy)

Program history. Chile's family assistance program was created in 1979 when the military government, in an attempt to decentralize government social spending, created Comités de Asistencia Social (CAS) at the local level (for a short history of the program, see Raczynski 1996). Finding that not very much social spending actually reached the poor, the government created the first questionnaire, CAS-1, to help identify the poor and improve the targeting of social spending. The original questionnaire was modified in 1985, using a national household survey (CASEN) to improve its ability to select poor families. The CASEN contains information on housing, education, age, and occupation from which a weighting scheme and a point score were derived for each applicant. Households with the lowest point score are eligible for various cash transfer programs, including SUF, a safety net retirement benefit, and various other subsidies such as housing and the consumption of potable water.

Implementing agency. The Ministry of Planning designs the questionnaire (Ficha CAS) and the weighting scheme used in ranking potential recipients. The questionnaires are applied by each municipality. The total sum available to each *municipio* is determined at the national level by a national poverty map.

Poverty statistics. Chile has had the most successful poverty reduction program in Latin America. The headcount ratio has fallen from 0.32 in 1990 to 0.16 in 1998. All of that improvement was the result of economic growth, because the distribution of income has been virtually constant over the last decade.

Education statistics. The net primary school enrollment rate in 1995–97 was 89 percent; the net secondary school enrollment rate was 58 percent. One hundred percent of students finished grade 5. The education deficit index in Psacharopoulos et al. (1997) for Chile was 12 percent in 1989, the lowest for any country in Latin America.

Program description. SUF is not limited to cash for education. It was established in 1981 to serve as a family subsidy for mothers in eligible families who had school-age children attending school, or who were pregnant, or who were caring for invalids. The education subsidy, which is per child, covers children up to age 18. A separate subsidy is in place for the newly born, for pregnant women with CAS cards, and for invalids.

Program design. An important feature of the SUF system is that each recipient must prove continued eligibility every two years.

Program coverage. In 1999, 1.3 million valid CAS cards were outstanding, covering 5.56 million people, or 36.5 percent of the population of Chile (Mideplan 2000, 29).

Transfer level. In the subsidy to poor families (SUF), a pregnant woman from a family with a total income of less than $2,400 per year receives a one-time payment of about $60. In families with CAS cards, mothers of infants receive $6 per month per child for three years. The family also receives about $6 per month for any child over six who attends school and goes regularly to a health clinic. Altogether in 1998, these payments for the children of poor families went to 954,000 children and cost the state about $70 million per year (Mideplan 1998, 39).

Targeting method. A proxy means test based on a questionnaire (Ficha CAS), which itself is based on a set of indicators developed by the Ministry of Planning using the CASEN, the national household survey. The coverage of program is national, but eligibility and participation are voluntary. Potential recipients fill out the questionnaire and receive a score based on a weighting of the responses to it. The weighting scheme is managed by the Ministry of Planning.

Program costs. In 1998 Chile spent almost $700 million on the subsidy programs that were targeted using the Ficha CAS—81 percent more than was spent in 1990 (Mideplan 2000, 105). That sum represents 13.7 percent of all government nonretirement social spending and just under 1 percent of GDP. Of that amount, $70 million was spent on the cash-for-education component of the program.

Targeting costs. The cost per survey has been estimated by Grosh (1994) at $3.43.

Targeting performance. Good. Ministry of Planning estimates that 90 percent of benefits go to the bottom 40 percent of the population (Mideplan 1998). Coady, Grosh, and Hoddinott (2002a) ranked the SUF program ninth best for targeting of the 67 transfer programs they analyzed.

Impact on poverty. Government estimated that these subsidies increased the income of the poorest 20 percent by 83.6 percent and reduced the ratio of the income of the top to the bottom quintile from 15.5 times to only 8.5 times (Mideplan 1998,2).

References: Mideplan (1998, 2000); Raczynski (1996).

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