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THE COST OF POVERTY ALLEVIATION TRANSFER PROGRAMS: A COMPARATIVE ANALYSIS OF THREE PROGRAMS IN LATIN AMERICA

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Abstract

A common criticism of antipoverty programs is that the high share of administrative (nontransfer) costs substantially reduces their effectiveness in alleviating poverty. Yet there is surprisingly little hard empirical evidence on such programs' costs. A recent international review of targeted poverty alleviation programs in less developed countries found cost information—which was rarely comparable between studies—for fewer than one-third of the programs examined. Improved information and a better understanding of the costs of such programs are crucial for effective policymaking. This study proposes and implements a methodology for a comparative analysis of the level and structure of costs of three similar poverty alleviation programs in Latin America, in order to assess their cost-efficiency. The findings underscore that any credible assessment of cost-efficiency requires a detailed analysis of program cost structures that goes well beyond simply providing aggregate cost information.

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1. Introduction

It is widely accepted that social safety nets have a crucial role to play both in alleviating poverty and promoting social and economic development (World Bank 1997). A common criticism of such programs, however, is that a large proportion of their budget is absorbed by administrative costs and never reaches the intended beneficiaries.[1] How these resources are used affects the poverty alleviation benefits of the program and, consequently, its overall cost-effectiveness.

There is very little rigorous empirical evidence on the costs and cost structures of social safety net programs in developing countries, however, that makes proper assessment of the criticism that such programs are "expensive" difficult.[2] For example, in their review of targeted poverty alleviation programs in developing countries, Coady, Grosh, and Hoddinott (2002) find cost information of any sort for only 32 of the 111 programs examined, and most of these were from a single source on Latin America (Grosh 1994). Moreover, the available cost information is rarely comparable between studies, even for similar programs. Some studies refer to administrative costs, while others consider costs only in terms of theft or other losses and leakages. When the focus is on administrative costs, it is often unclear whether the figures refer to the entire life of the program or only a specific period, such as the most recent year. For programs that have high initial fixed costs, undergo extensive learning-by-doing, or are at different stages of maturity, analyses based on different time periods can lead to very different conclusions. Improved information and a better understanding of the costs of such programs are crucial for effective policymaking.

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[1] For example, in her review of poverty alleviation programs in Latin America and the Caribbean, Grosh (1994, 46) finds that "Concern over high administrative costs is perhaps the reason that is most commonly given for not adopting *targeted* programs" [our emphasis].

[2] Newman, Rawlings, and Gertler (1994) argue that "Most published impact evaluations pay little attention to costs—both the costs of carrying out the intervention and those of conducting the evaluation" (183), and "More effort needs to be devoted to collecting and reporting information on the costs of carrying out specific interventions…[and] the costs of conducting evaluation studies" (197).

This study proposes and implements a methodology for a detailed, comparative analysis of the level and structure (the various activities being carried out) of costs for three similar poverty alleviation programs in Latin America. They are the *Programa Nacional de Educación, Salud y Alimentación* (PROGRESA) in Mexico, the *Programa de Asignación Familiar-Fase II* (PRAF) in Honduras, and the pilot *Red de Protección Social* (RPS) in Nicaragua. The primary objective of these programs is to generate a sustained decrease in poverty in some of the most disadvantaged regions in their respective countries. The programs' underlying premise is that a major cause of the intergenerational transmission of poverty is the inability of poor households to invest in the human capital of their children. Supply-side interventions on their own, which increase the availability and quality of education and health services, are often ineffective in resolving this problem, since the resource constraints facing poor households preclude them from incurring the private costs associated with utilizing these services (e.g., travel costs or opportunity cost of women's and children's time). These innovative programs address this problem by targeting transfers to the poorest communities and households and by conditioning the transfers on attendance at school and health clinics. This conditionality effectively transforms cash transfers into human capital subsidies for poor households.

Since the total program budgets are the sum of administrative costs and total (cash and in-kind) transfers, we evaluate the *cost-efficiency* of each program by considering the cost of making a one unit transfer to a beneficiary; this is the "cost-transfer ratio" or CTR (Coady, Perez, and Vera-Llamas 2004).[3] How we use and interpret the CTR depends on how it is calculated and on program characteristics. Features of the program, such as targeting and monitoring, size, type and delivery mechanism of the transfers (e.g., cash or in kind, demand- or supply-side), coverage, duration, and whether the program is expanding influence the CTR. So do whether the fixed costs of setting up the program

[3] In some frameworks, leakage to the nonpoor is also considered as a program cost (Besley and Kanbur 1993); we do not do this. See Section 5 as well as Coady (2001), MNPTSG (2002), and IFPRI (2002) for discussions of targeting in the three programs.

(or just recurring costs) are included and whether the entire life of the program or a specific period is under consideration. We highlight these and other issues in the cost analysis and propose strategies for resolving them. We show how cost information can be used to assess the relative cost-efficiency of the different programs, making clear that understanding the details that go into the calculations and the design differences between programs is essential for making sensible comparisons, even for similar programs such as the three considered in this paper.

While focusing on CTRs would be sufficient to evaluate a program whose sole objective was to disburse transfers, the programs considered in this paper have more ambitious goals and design features aimed at achieving them. First, transfers are targeted to poor areas and to poor households within those areas. Second, transfers are conditioned on households investing in the nutrition, health, and education of their children. The combination of targeting and conditioning makes these programs operationally and administratively complex, which can be expected to affect both the level and structure of program costs, as well as program performance. Hence, there is a potential trade-off: reducing the CTR may not be cost-effective if it comes at the expense of activities devoted to important administrative tasks, such as targeting the poor or monitoring compliance.[4] It would therefore be incorrect to interpret the CTR as a measure of overall cost-effectiveness, and we thus refer to the CTR as a measure of "cost-efficiency." We use the term "cost-effectiveness" only when we incorporate broader program objectives into the analysis.

Section 2 motivates our approach to analyzing cost-efficiency with a simple model of the welfare impact of antipoverty programs. Section 3 describes the three programs. Section 4 presents the comparison of costs between programs, showing how one can move from accounting data to detailed breakdowns of cost structures to measures

[4] The importance of this trade-off is noted by Grosh (1994, 46): "The conclusion that total administrative costs are low must be somewhat tempered, however. In several of the programs, it appears that low administrative budgets have led to deficient program management. Spending more on administration with a given program framework might lead to better service quality, better incidence, or both."

of cost-efficiency. Section 5 briefly discusses the "cost-effectiveness" of these programs, summarizing the evidence on their targeting effectiveness and human capital impacts. Section 6 concludes.

2. A Simple Model

This section presents a simple model to characterize how we think about the welfare impact of these programs. The model underlies our approach to assessing cost-efficiency.[5] Consider a program that transfers resources to households in two forms, pure cash transfers and in-kind transfers in the form of increased expenditures on human capital services (e.g., education and health services). Maximized household (denoted h) utility is given by an indirect utility function, $V^h(m^h, E; \mathbf{q})$, which is a function of the cash transfer received from the program, m^h, the increased expenditures on human capital services, E, and commodity and factor prices, $\mathbf{q}$.[6] For expositional convenience, we assume that initial transfers and expenditures are zero, so that $dm^h = m^h$ and $dE = E$.

Social welfare is measured by a standard Bergson-Samuelson social welfare function:

$$W\{V^1(m^1, E; \mathbf{q}),\ldots..,V^h(m^h, E; \mathbf{q}),\ldots..V^H(m^H, E; \mathbf{q})\},$$

defined over $h = 1\ldots H$ households. The welfare impact of the program is derived by differentiating W with respect to cash transfers and in-kind expenditures on services. Holding factor and commodity prices constant, this yields

$$dW = \sum_h \frac{\partial W}{\partial V^h}\frac{\partial V^h}{\partial m^h} m^h + \sum_h \frac{\partial W}{\partial V^h}\frac{\partial V^h}{\partial E} E \ ,$$

which can be rewritten as

[5] In particular, the model abstracts from some of the issues motivating government intervention—such as market failures—that could justify programs of the type considered in the paper.

[6] Boldface characters represent vectors.

$$dW = \sum_h \beta^h m^h + \sum_h \beta^h WTP^h E\,,$$

where $(\partial V^h/\partial m^h)$ is the private marginal utility of income, β^h is defined as the social value of additional lump-sum income to household h (the so-called welfare weight, which is typically larger for poorer households), m^h is the lump-sum income given to the household by the program, WTP^h is the household's willingness-to-pay for an extra unit of program expenditures on human capital services (i.e., $(\partial V^h/\partial E)$ divided by $(\partial V^h/\partial m^h)$), and E is the total expenditures by the program on these services. The total welfare impact of the program is thus the sum of the social valuation of cash and in-kind transfers. This valuation depends, for example, on how many of these benefits accrue to poor households as well as on the effectiveness of in-kind transfers.

Dividing each term by total cash transfers ($T = \sum_h m^h$) and the sum of households' willingness-to-pay ($WTP = \sum_h WTP^h$) yields

$$dW = \sum_h \beta^h \theta^h T + \sum_h \beta^h \phi^h WTP \times E\,,$$

where θ^h is the share of each household in the total cash transfer budget and ϕ^h is the share of each household in the aggregate willingness-to-pay across households. For expositional convenience, we assume that the share of each household's cash transfers in the total cash transfers (θ^h) is the same as the share of each household in the aggregate willingness-to-pay (ϕ^h). Thus,

$$dW = \alpha\,(T + WTP \times E),$$

where α can be interpreted as capturing the progressiveness of transfers. The total cost to the government of providing benefits (B) is made up of the sum of cash transfers (T), total in-kind expenditures (E), and total program operational costs (C):

$$B = T + E + C.$$

Multiplying and dividing by B, we can rewrite the total welfare impact of the program as

$$dW = \frac{\alpha\,(T + WTP \times E)}{T + E + C} B \ ,$$

which is the welfare impact per unit program expenditure (i.e., the benefit-cost ratio) multiplied by B, the size of the program. A full cost-benefit analysis of the program would require an evaluation of both the targeting effectiveness of the program (as captured by α) as well as the true benefits arising from in-kind expenditures (as captured by *WTP*). This is beyond the scope of this paper.

To focus in on cost-efficiency, we make two further simplifying assumptions. First, we set $\alpha = 1$; this is equivalent to setting welfare weights to $\beta = \{1,0\}$ for {poor, nonpoor} households and assuming that all transfers accrue to poor households, i.e., perfect targeting. Second, we value in-kind expenditures at cost, i.e., the total willingness-to-pay across households for an extra dollar of in-kind expenditures is exactly one dollar, so that the total welfare impact of the program is given by the sum of cash and in-kind transfers (multiplied by the progressiveness parameter, α). This assumption is the same as that typically made in benefit-incidence analyses of public expenditures (Demery 2003). Under these assumptions, the cost-benefit ratio can be written as

$$\frac{B}{dW} = \frac{T + E + C}{T + E} = 1 + \frac{C}{T + E} = 1 + CTR \ ,$$

where *CTR* is the cost-transfer ratio defined earlier, i.e., the ratio of nontransfer program costs to total program transfers. Since this measure of efficiency abstracts from important program effectiveness issues, we refer to it as a "cost-efficiency ratio."

Finally, since some components of program nontransfer costs (C) can affect the overall cost-effectiveness of the program, it is not necessarily desirable to minimize this ratio. For example, program expenditures arising from setting up and implementing

program targeting rules will presumably have a return in terms of improved targeting effectiveness (higher α), but while the costs will be included in the CTR, the benefits will not. Similarly, expenditures associated with setting up and implementing mechanisms for monitoring adherence to program rules will presumably lead to greater effects on human capital, but will also only be reflected as a cost in the CTR. Although we do not attempt to calculate a measure of cost-effectiveness for each program, in Section 5 we discuss the existing evidence on the relative targeting effectiveness and human capital impacts of the programs, facilitating a more complete comparison of program costs.

3. Design and Implementation of the Programs

To analyze the cost structures of these complex programs, it is necessary to understand how they operate and how they have evolved. Table 1 summarizes some basic features of each program.

Table 1—Program characteristics

	***PROGRESA* (Mexico)**	***PRAF* Phase II (Honduras)**	***RPS* Pilot (Nicaragua)**
Years (in study)	1997-2000	1999-2002	2000-2002
Budgeted	$998 million in 2000	$50 million over three years	$11 million over three years
Coverage	2,600,000 rural households end-1999, in all 31 states	47,800 rural households end-2002, in 40 of 297 municipalities	10,000 rural households end-2002, in six of 151 municipalities
Components	Education and health demand-side transfers	Education and health demand- and supply-side transfers	Education and health demand- and supply-side transfers
Targeting methods	Geographic and proxy-means test	Geographic and categorical	Geographic and proxy-means test

Programa Nacional de Educación, Salud y Alimentación (PROGRESA)

PROGRESA (Mexico) started in 1997 and was the prototype for the other two programs.[7] Its cash transfers have two components. Children over age 7 (the starting age for Grade 3) are eligible for education transfers. Transfers increase by grade and are

[7] The analysis for PROGRESA draws from Coady, Perez, and Vera-Llamas (2004).

higher for girls than for boys in middle school (Grades 7–9). In 1999, monthly benefits were 80 pesos for Grade 3.[8] By Grade 9, benefits rise to 265 and 305 pesos for boys and girls, respectively. In addition to enrollment, transfers are conditioned on an 85 percent attendance record, and children are allowed to repeat a grade, at most, twice.

The second component of the transfer, for food security, health, and nutrition, is 125 pesos per month for each household, conditioned on household members making regular trips to health clinics for a range of preventive health checks and attending monthly nutrition and hygiene information sessions. The education and food security transfers are independent: beneficiaries can receive one and not the other, even if they are eligible for both. In addition to the cash transfers, beneficiary households with children under age 3 receive a monthly nutritional supplement intended for the infant that contains essential micronutrients.

There is a ceiling of 750 pesos per month for education and food transfers combined. On average, the transfer to beneficiary households constitutes around 20 percent of preprogram annual household expenditures. The program design of PROGRESA (as well as of PRAF and RPS) calls for the money to be given to mothers—based on evidence that resources in the hands of women often lead to better outcomes for child well-being and household food security (Strauss and Thomas 1995). Transfer amounts are indexed to inflation and adjusted every six months, something not done in the other two programs.

PROGRESA was targeted in two stages. The first stage identified the most marginal rural localities, using a specially constructed "marginality index" constructed from the national census. The selected localities were then visited to ensure they had access to the required supporting infrastructure (schools and health clinics). The second stage targeted households within eligible localities, using specially collected census data to classify households as "poor" or "nonpoor," based on a statistical analysis of income and other household characteristics. After beneficiary households are identified, a

[8] In 1999, the exchange rate was approximately 10 pesos per U.S. dollar.

general assembly is held to explain the objectives of the program, to incorporate households, and to inform them of their responsibilities and rights.

The expansion of the program throughout Mexico took place in several phases. The census data collection for the first and second phases began in October 1996. These data were used to develop the statistical model for classifying households as poor or nonpoor. In August 1997, Phase 1 began with incorporation of 140,544 households in 3,369 localities. The first transfers took place in September–October 1997. Phase 2 began in November 1997, when a further 160,161 households in 2,988 localities were incorporated, with the first transfers taking place in January 1998. For the most part, expansion of the program has been determined by budget allocations, with the greatest expansion occurring in 1998, when nearly 1.63 million households in 43,485 localities were incorporated. By the final phase in early 2000, the program had an annual budget of $1 billion and included nearly 2.6 million rural households in 72,345 localities in all 31 states. This constitutes approximately 40 percent of all rural households, or one-ninth of all households in Mexico.

Programa de Asignación Familiar-Fase II **(PRAF)**

PRAF (Phase II, Honduras) was implemented in the second half of 2000 and includes both demand- and supply-side transfers.[9] On the demand side, the education subsidy is 812 lempiras (L) per child per year, up to a maximum of three education transfers per household.[10] This transfer is conditioned on the enrollment and regular attendance of all children who have not yet completed Grade 4 of primary school. The food security, health, and nutrition transfer provided for pregnant women and children under age 3, is L644 per beneficiary per year, with a maximum of two transfers per household. This transfer is conditional on pregnant women and children making monthly trips to health clinics for preventive checkups and growth monitoring. Transfers are

[9] The analysis for PRAF draws from Caldés and Coady (2003).

[10] Lempiras (L) is the Honduran currency; in 2000, the exchange rate was approximately L15 per US1$.

distributed twice a year and, on average, comprise about 4 percent of preprogram total household annual expenditures (one-fifth of the equivalent percentage of PROGRESA).

Unlike PROGRESA, where the supply side is left to the education and health ministries to manage, PRAF directly invests resources to ensure adequate supply-side services. For education, PRAF makes grants to school parent associations to be spent on local schools. For health and nutrition, PRAF makes grants to local health service committees to improve the quality of health care provided by the government health system, and it implements a community-based child growth and monitoring program that provides mothers with one-on-one counseling.

The program was geographically targeted to poor municipalities, which were chosen by ranking all municipalities according to the average rates of stunting observed in the 1997 National Census of the Height of First-Graders. Seventy municipalities with the highest rates of stunting were considered eligible (MNPTSG 2002). Of these, 50 were randomly selected, leaving the others as a control group for the program evaluation. In 40 of the chosen municipalities, all households with pregnant women, children under age 3, and/or children aged 6–12 who had not yet completed Grade 4 of primary school were eligible for benefits (the remaining 10 municipalities selected received only the supply-side transfers described below). Transfers began in November 2000 and, by the end of 2002, PRAF had 47,800 beneficiaries and was operating in 50 rural municipalities (out of a total of 298) from seven departments. Eighty-seven percent of the households in these departments are classified as poor.

Red de Protección Social **(RPS)**

The third program, RPS (Nicaragua), began as a pilot in 2000 in rural areas in the northern part of the central region of Nicaragua.[11] Each participating household receives a food security, health, and nutrition transfer of 240 córdobas (C$) per month, conditional on taking children under age 5 to health clinics for scheduled appointments and attending

[11] The analysis for RPS draws from Caldés and Maluccio (2004).

health and nutrition information clinics.[12] To receive a monthly education transfer of C$120 per household, households with children ages 7–13 who have not completed Grade 4 of primary school have to ensure their enrollment and over 85 percent attendance at school. In addition, the household receives C$275 annually upon enrollment for each eligible child in school. The money covers school supplies (e.g., uniforms and shoes) and C$60 annually to be handed over to the teacher. Half of that amount is intended to supplement teacher salaries, and the other half to purchase school materials. Similar to PROGRESA (though much larger than PRAF), these two transfers constitute, on average, approximately C$3,800 (or US$300), which comprised 18 percent of total annual household expenditures for beneficiary households before the program.

Like PRAF, RPS has supply-side components, though they differ substantially. For education, there is the incentive paid to the teachers per student beneficiary described above. For health and nutrition, to ensure adequate supply in the poor, rural communities in which it is operating, RPS trains (and pays) private providers to deliver the health-care services required by the program, as well as to assist with monitoring household compliance of program requirements. These services, provided free to beneficiary households, are focused on children under age 5 and include growth and development monitoring, vaccination, and provision of antiparasites, vitamins, and iron supplements. The materials are provided by the Ministry of Health. Children under age 2 are seen monthly, while those ages 2–5 are monitored bimonthly.

The pilot program was implemented in two (out of 17) relatively poor departments in Nicaragua, chosen using a combination of poverty and operational criteria. Around 80 percent of rural households in these departments are classified as poor. The departments have easy physical access and communication, strong institutional capacity and local coordination, and reasonably good coverage of health posts and schools. Six (out of the 20) municipalities from these departments were then chosen on the basis of their participation in an existing supply-side program emphasizing

[12] The exchange rate in 2000 was approximately C$13 per US$1.

local level participation. A marginality index was constructed and an index score calculated for each of the 59 rural *comarcas* (administrative areas comprising one to five villages) in the six municipalities, using data from the 1995 national census. Forty-two *comarcas* were chosen to participate in the first stage of the pilot phase in which there was to be only geographic targeting. Twenty-one were randomly excluded from the program for two years, and these constituted the control group for the program evaluation (Maluccio and Flores 2004). Nearly all of the 6,000 households in these areas were eligible to receive program benefits and received their first transfers in October 2000. In the second stage of the pilot program (begun in early 2001), 80 percent (i.e., 4,000) of households in the remaining 17 *comarcas* that were not part of the evaluation were selected, using household targeting based on a proxy means test (IFPRI 2002).

Program Differences

The above descriptions make clear that while they have many similarities, the three programs also have important differences. These affect how we collect and process cost information, interpret the CTR, and the extent to which we can make sensible comparisons between programs. For example, all three programs are at different stages of maturity. We have cost data for PROGRESA over four years, covering the expansion of the program over the years 1997–2000. The main expansionary period was in 1998, and nearly all households had been incorporated into the program by the end of 1999. In this sense, PROGRESA is a mature program, having incurred the vast majority of fixed setup costs and incorporated all the eligible population into the program.

PRAF was introduced in 1999, and we have cost data for 1999–2002. The first transfers began in the second half of 2000, so 2001 is the first full year of transfer distribution. In late 2001, however, with the new government and change of ruling party, a new program team was installed, apparently without sufficient overlap with the previous team to ensure a smooth transition. The result was a disruption in operations

and, therefore, 2002 is not likely to reflect how the program would look in its mature form, when those operational problems have been resolved.

PROGRESA is a national program, and PRAF covers one-sixth of the Honduran population, but the RPS pilot is much smaller. We have cost data for three years, from 2000, when RPS was introduced through 2002. Since only two (bimonthly) transfers were made in 2000, and the health supply-side services did not begin until mid-2001, only the year 2002 represents a full year of benefits. Cost information for 2002, however, also includes costs associated with preparations for the expansion of the program in 2003. Thus, although the pilot phase was nearing maturity in 2002, we will need to account for the fact that they are "contaminated" by costs that should be attributed to the expansion.

In addition to the differences in program maturity, there are also important program-design differences. While all three programs have a demand-side component, their structures and size differ. PROGRESA is solely a demand-side program, providing transfers of, on average, 20 percent of total household expenditures. RPS delivers similarly sized transfers, while those of PRAF are substantially smaller. PRAF and RPS have significant supply-side interventions. Further, the experiences of PRAF and RPS demonstrate the substantial effort that is required to simultaneously put in place both demand- and supply-side components. To the extent that the supply-side components are relatively cost-intensive, this needs to be taken into account when comparing programs.

Finally, even the supply-side components of PRAF and RPS differ in the services they provide, how those services are provided, and who pays for them. PRAF uses the existing public health-care system, whereas RPS contracts private providers to deliver the services. Consequently, the two programs face very different program costs, even for components of the services that are similar, such as vaccine provision.

We must bear all of these differences in mind when analyzing and comparing the cost structure of the three programs.

4. Analysis of Program Cost Structures

Using Existing Accounting Data

The primary source of information on program costs is typically the program's accounting records. It is usually straightforward to obtain annual data on total program costs and transfers, ingredients for the initial estimates of the cost-transfer ratio.[13] Table 2 presents this information for each of the programs. For PROGRESA, the average CTR for the program to end-2000 (total nontransfer program costs divided by total program transfers for four years) is 0.106. That is, 10.6 pesos were spent on administrative costs for every 100 pesos transferred to households. Equivalently, 9.6 percent of the total budget was absorbed by program costs.[14]

We must be careful, however, in interpreting this ratio. First, it includes costs relating to the external evaluation of the program. This was a once-off evaluation that, while influencing the redesign of these and other related programs, did not substantially affect program design or operations in real time. This type of external evaluation must be distinguished from ongoing internal monitoring and evaluation, which did feed continuously into program decisionmaking, improving current program design and operations. The external evaluation is best treated as a sunk fixed cost that would not recur in a fully developed mature program, whereas the internal monitoring and evaluation is a recurring activity. Second, in addition to the external evaluation, the costs presented include a variety of other costs plausibly treated as fixed set-up costs associated with start-up activities. As the program matures, average fixed costs will converge toward zero and the CTR will converge toward a value that reflects only variable costs. Lastly, for data spanning a number of years, adjustments to account for inflation and depreciation of capital investments can be made.

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[13] The figures presented in Table 2 differ from the budgeted amounts shown in Table 1, reflecting the difference between budgeted and actual expenses.

[14] Calculated as follows: $10.6 \div (100 + 10.6) = 0.096$. The CTR is (obviously) always greater than the percentage of administrative costs for positive transfer levels.

Table 2—Disaggregated program costs in U.S. dollars

	PROGRESA ('000)					*PRAF* Phase II ('000)[a]					*RPS* Pilot ('000)			
Year	**1997**	**1998**	**1999**	**2000**	**Total**	**1999**	**2000**	**2001**	**2002**	**Total**	**2000**	**2001**	**2002**	**Total**
Program costs	20,448	47,703	45,731	41,640	155,522	482	2,483	1,669	1,930	6,564	1,149	1,348	1,492	3,989
Total program transfers	15,237	149,439	525,227	775,688	1,465,591	0	2,589	5,469	5,102	13,160	452	2,702	3,192	6,346
Demand-side transfers	15,237	149,439	525,227	775,688	1,465,591	0	2,486	4,813	4,486	11,785	443	2,315	2,232	4,990
Supply-side transfers	-	-	-	-	-	0	103	656	615	1,374	9	387	960	1,356
CTR	1.342	0.319	0.087	0.054	0.106		0.959	0.305	0.378	0.499	2.543	0.499	0.467	0.629
Cumulative CTR	1.342	0.414	0.165	0.106	-		1.145	0.575	0.499	-	2.543	0.791	0.629	-

Source: PROGRESA, PRAF, and RPS program results are taken from Coady, Perez, and Vera-Llamas (2004), Caldés and Coady (2003), and Caldés and Maluccio (2004), respectively.

Notes: PROGRESA figures are translated into U.S. dollars using a constant (1999) exchange rate of 10 pesos per US$1, and PRAF, using a constant exchange rate of L15 per US$1. RPS accounting records were provided in U.S. dollars.

[a] PRAF accounting costs have been adjusted to include unaccounted for costs such as water, telephone, electricity, and additional staff hired for the delivery of the transfers.

Since most fixed costs tend to be incurred at the start of the program, examining the annual CTR separately for each year sheds light on the relative importance of these types of costs over time and on the expected long-run CTR for a (more) mature program. As the program matures, we expect the annual CTR to decrease, since fixed costs will decline. This is what we find for PROGRESA, where the annual CTR decreases rapidly over the four years, starting at 1.342 in the first year and declining to 0.054 in 2000. Even the annual CTR of 0.054 observed in 2000 might include some fixed costs, however, and therefore still might overestimate the long-run CTR for a fully mature program. We consider this possibility and ways to control for it in the analysis below.

We can use the evolution over time of the estimated CTRs to assess how much we would overestimate this measure of cost-efficiency if we base it on snapshots of the program in its early stages. The final row of Table 2 presents the cumulative average CTR for the program. Because of the sharp decline in estimated annual CTRs, basing the average CTR on only the first two or three years of data substantially overestimates the average calculated at end-2000, when all beneficiary households had been included and the program was nearing maturity. In 1998, the cumulative average is four times as large as the four-year average, and even in 1999 was more than 1.5 times as large. Had we carried out the analysis in early 2000 using only information to end-1999, the results for PROGRESA would have differed substantially. Hence, it is important to ensure that the CTR estimates are as comparable as possible before attempting comparisons between programs, or even within a program between years.

Apart from declining costs (mainly due to decreasing fixed costs), a second reason the annual CTR decreases over time has been that the programs under consideration have expanded, and thus total transfers are increasing. Table 2 shows that transfers in PROGRESA increased fivefold between 1998 and 2000, from $149 to $775 million. Decreases in costs were not as pronounced, dropping from $48 to $42 million over the same period.

We turn now to the other two programs. Since they contain both demand- and supply-side transfers, we use the sum of these to calculate the total transfer in the

denominator of the CTR. As described in Section 2, this implicitly equates the value of a unit of transfer to households, regardless of whether it is given directly to the household in cash or indirectly via health and education (in-kind) services. For the in-kind transfers, then, we are valuing their benefit, i.e., the beneficiaries' total willingness to pay, at the cost of provision. In the case of PRAF, this includes transfers made to school parent associations and local health teams, as well as the cost of the community-based child growth program. For RPS, it includes transfers given to teachers as well as the value of payments made to the private health-care providers.

For PRAF, the average CTR for the program to end-2002, dividing total program costs by total demand- and supply-side transfers, is 0.499, i.e., it has cost L50 for every L100 transferred by the program. Equivalently, 33 percent of the total program budget to end-2000 has been absorbed by administrative costs. While this is high compared to PROGRESA, there are some reasons why we would expect such an unfavorable "raw" comparison between the programs.

While the PRAF annual CTR begins in 2000, at a level below that of PROGRESA in its first year, it does not decline as dramatically or as consistently after that start. Although the annual CTR falls from 0.959 to 0.305 between the first and second years, it increases to 0.378 in 2002. This rise reflects both increased costs and decreased transfers from 2001 to 2002. During the transition to the new program team, effort and resources were diverted from making demand-side transfers and other regular activities toward updating the beneficiary register. As a result, the annual estimates for 2001 or 2002 may give misleading impressions of what the long-run CTR will look like when the program's operational problems have been addressed and all or most of the fixed costs have been incurred.

For the pilot RPS, the program average CTR to date is 0.629, even higher than that for PRAF. For the three years of operation to end-2002, it cost C$0.63 in administrative costs for every C$1 distributed in demand- and supply-side transfers. Equivalently, administrative costs absorbed nearly 40 percent of the total program budget during the period. There was a substantial decline in the annual CTR after the first year,

but only a small decline between the second and third years. The increase in total program transfers in 2002 is largely due to the substantial increase in supply-side transfers in that year—this part of the program was begun in mid-2001, so only about one-half of the expected supply-side transfers for a normal operating year were made in 2001. The increase in total program costs over the latest two years reflects, in part, program activities not related to the implementation of the pilot program itself, but rather to the design and planning of the expansion phase of the program, which began in 2003. Therefore, even the year 2002 is likely to yield an overestimate of the pilot program's CTR.

Identifying Key Program Activities and Associated Costs

The presence of fixed costs associated with setting-up and planning program activities, as well as activities associated with expansion or operational difficulties, makes clear that it would be misleading to use the "unadjusted" CTRs presented above either for within program evaluation or as the basis for comparison of the relative cost-efficiency of the three programs. A proper comparison requires further consideration of the details of their cost structures, in particular, the relationship between program activities and costs.

To do this, we first identify key program activities and then link them to their associated costs. To the extent possible, we delineate program activities in sequential order in the life cycle of the program, according to whether they correspond to fixed or variable costs for the program, and in a manner to facilitate comparison among the programs. This will enable us to better approximate the cost structure and CTR of mature programs. It will also permit simulation of hypothetical alternative programs that do not include all the activities of the actual programs. For example, by identifying the costs associated with household targeting or with the conditioning of the program, we can simulate CTRs with and without these program features.

While any such categorization of activities is necessarily somewhat subjective, there are some fairly obvious, broadly defined activities in the three programs that are common to most social safety net programs (e.g., program design and benefit delivery). Others are common to targeted conditional cash transfer programs (e.g., identification and incorporation of beneficiaries, and conditionality).

The key activities we identified for the three programs are:

1. *Program design and planning*: Designing and planning program implementation, including the selection of program areas (geographic targeting) and coordination with the education and health sectors.
2. *Identification of beneficiaries* (household targeting): Collecting, processing, validating, and analyzing household socioeconomic data to be used in identifying eligible households and for logistical planning.
3. *Incorporation of beneficiaries*: Planning and convening beneficiary meetings in each community to inform participants of their responsibilities and rights under the program; collecting and processing participation forms.
4. *Delivery of demand transfers*: Calculating transfers, informing beneficiaries about scheduled transfers, and ensuring that the transfer process is carried out in a timely and orderly manner.
5. *Delivery of supply transfers*: Organizing and providing the supply-side services (e.g., organizing the health services provision and making payments to providers or to other supply-side agents).
6. *Conditionality*: Distributing, collecting, and processing the registration, attendance, and performance forms to schools and health-care providers.
7. *Monitoring and evaluation*: Overall program monitoring and internal evaluation, the results of which feed into ongoing adjustments made to the program.
8. *External evaluation*: External evaluation of the program, including the evaluation design, collection, and processing of the baseline and follow-up surveys, and analysis, the results of which feed into the future redesign of these or similar programs.

The first three activities (numbers 1–3) must be undertaken at the outset, before any cash transfers are made. Program design, including the selection of localities, is a sunk fixed cost that does not vary with the total size of the program (i.e., the number of beneficiary localities or households). Therefore, this component of average fixed costs per unit of transfer (or per household) will decrease as the program expands to include more households, representing an economy of scale. Identification and incorporation of households, on the other hand, while also fixed (at least over the medium term), involve one-time costs that increase with the number of households included in the program. The next four activities (4–7) recur throughout the life of the program and are expected to increase with the number of beneficiary households. External evaluation, as discussed above, is a fixed cost that would typically end in an ongoing program.

In collaboration with the local teams in each country and using program documents, we identified all the specific activities for each program, grouped them into one of the above key activities, and calculated the fraction of time spent by program personnel on each activity in each year.[15] From this information, we developed a time allocation matrix for each program (Appendix Table 6).[16] While it would be unwise to consider this methodology measurement-error free, it can identify substantive trends and patterns in the activity mix. Reassuringly, much of what we see in the matrices can be corroborated by our knowledge of the program activities and their relative intensities over time.

The next step in the analysis is to associate, where possible, the various accounting costs with program activities. Some accounting line-item costs can be allocated directly to certain activities without ambiguity. For example, the fees paid to

[15] For the most part, this exercise was carried out as a retrospective survey. That approach has the benefit that all activities are known, but it suffers from the typical weaknesses of recall data. For future analyses, we would recommend elaborating the activity list and time matrix from the start of the program.

[16] Further details are provided for PROGRESA, PRAF, and RPS in Coady, Perez, and Vera-Llamas (2004); Caldés and Coady (2003); and Caldés and Maluccio (2004), respectively. The details of the methodology varied slightly between countries. For example, some categories were not relevant to all programs, such as supply-side delivery in PROGRESA.

firms delivering the monetary transfers can be allocated directly to the delivery of demand-side transfers activity or the cost of collecting the baseline evaluation survey to the external evaluation activity. We refer to these as "directly assignable costs." For many other costs, such as salaries of management personnel, direct assignment is not possible because they cut across program activities. These are allocated to program activities using the time-allocation matrix. By multiplying total unassigned costs by the time-allocation matrix percentages, we can distribute these shared costs across program activities. We refer to these as "indirectly assignable costs."

Activity Cost Shares

After assigning all costs to activities, we calculate the activity cost shares, i.e., the fraction of costs devoted to each activity (Table 3). For PROGRESA, over the first four years of the program, the largest cost items are identification of beneficiaries, delivery of transfers, and conditionality, accounting for 34, 22, and 18 percent of total costs (excluding transfers), respectively. The annual profile of these cost shares reflects the sequential nature of these activities. The cost share for identification of beneficiaries decreases from 61 percent in 1997 to 3 percent in 2000. In contrast, the share for conditionality activities increases from 8 percent in 1997 to 24 percent in 2000. Similarly, the cost share for delivery of transfers increases from 8 percent in 1997 to 41 percent in 2000. This shift of costs toward predominantly recurring cost items is consistent with the program nearing maturity. By 2000, recurring activities account for 85 percent of total program costs.

In the case of PRAF, over the first four years of the program, activities associated with the external evaluation and the identification of beneficiaries (which included the incorporation of beneficiaries) were the most important cost items, accounting for 35 and 26 percent of total program costs, respectively. These were followed by delivery of demand- and supply-side transfers, which combined to account for 16 percent of total

Table 3—Activity cost shares

	PROGRESA					*PRAF* Phase II[a]					*RPS* Pilot			
Program activity	**1997**	**1998**	**1999**	**2000**	**Total**	**1999**	**2000**	**2001**	**2002**	**Total**	**2000**	**2001**	**2002**	**Total**
1. Program design and planning	0.06	0.03	0.04	0.04	0.04	0.83	0.03	0.01	0.00	0.08	0.20	0.16	0.18	0.18
2. Identification of beneficiaries	0.61	0.47	0.26	0.03	0.34	0.02	0.35	0.08	0.25	0.23	0.20	0.16	0.01	0.12
3. Incorporation of beneficiaries	0.04	0.07	0.07	0.08	0.07	-	-	-	-	-	0.15	0.09	0.06	0.09
4. Delivery of demand transfers	0.08	0.13	0.25	0.41	0.22	0.03	0.04	0.19	0.12	0.10	0.04	0.09	0.06	0.06
5. Delivery of supply transfers	-	-	-	-	-	0.00	0.08	0.21	0.02	0.06	0.15	0.22	0.21	0.20
6. Conditionality	0.08	0.16	0.21	0.24	0.18	0.00	0.13	0.15	0.02	0.09	0.00	0.02	0.07	0.03
7. Monitoring and evaluation	0.10	0.11	0.13	0.14	0.12	0.12	0.06	0.09	0.02	0.06	0.09	0.07	0.12	0.10
8. External evaluation	0.03	0.03	0.04	0.06	0.04	0.00	0.31	0.26	0.57	0.35	0.17	0.19	0.29	0.22
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

[a] The identification and incorporation of beneficiaries were not separable for PRAF; the figures in the row for identification represent the sum of those two activities.

costs. The high cost share for the external evaluation explains a large portion of the difference in the program average CTRs for PRAF relative to PROGRESA.[17]

In addition to declining fixed costs, the evolution of PRAF cost shares over time also reflects the operational difficulties encountered in the program, particularly in 2002. In 1999, at the very start of the program, program design and planning accounts for 83 percent of program costs. In 2000, activities associated with identifying program beneficiaries dominate, accounting for 35 percent of program costs. In 2001, activities associated with distributing transfers and setting up and implementing the monitoring system become more important, each accounting for 15–21 percent of program costs. Somewhat unexpectedly, the share of program costs associated with the identification of beneficiaries increases substantially in 2002, accounting for 25 percent of program costs. This apparently reflects difficulties with the transition to a new program team and maintaining and updating beneficiary registration lists. Looking at the other shares, it appears that much of the extra time and resources devoted to this activity came at the expense of resources devoted to program monitoring and conditionality. Since these latter activities are important for ensuring that cash transfers are translated into human capital improvements, this raises the possibility that the observed time reallocation is detrimental to the programs overall cost-effectiveness.

For RPS, from the start of the pilot in 2000 to end-2002, the largest share of costs (22 percent) was spent on external evaluation, as in PRAF. This was followed closely by the 20 percent devoted to implementing the supply side of the program. Unlike PROGRESA and PRAF, RPS contracts, trains, and directly pays private providers to deliver the health services, coordinating activities between them and the Ministry of Health. These providers also help monitor the conditionality of the program. Internalizing these health service delivery costs in the program has implications for the program budget. The next largest cost category was for general program design, 18

[17] This finding, in addition to suggesting it is important to separate out external evaluation costs in the cost analysis of programs, raises the issue of whether smaller programs should be underwriting the entire evaluation costs, in particular when they arguably generate a number of intellectual public goods.

percent, and included work related to both the pilot phase and the expansion phase that started in 2003. This is a natural consequence of RPS being a pilot: despite careful advance planning, there are always details to work out as a program puts the plans into action. Lastly, during the pilot, about 10 percent of the nontransfer costs were spent on identification of beneficiaries, incorporation of beneficiaries, and internal monitoring and evaluation.

When we examine the evolution of the cost shares during the three years of the RPS pilot, we find similar patterns related to up-front or fixed investments. Identification of beneficiaries declined in intensity as the program matured. Household survey work, a major component of identification of beneficiaries, was carried out in 2000 and 2001, but having fulfilled the pilot phase objective of reaching 10,000 beneficiaries, very little activity of this sort was necessary in 2002. The share devoted to incorporating beneficiaries also declined, though the need for continuous updating (e.g., for births and other changes in household composition) kept it from altogether disappearing. The fraction spent on program design, however, remained roughly constant. Disaggregating program design and planning activities according to whether they were for the pilot phase or for the expansion phase begun in 2003, shows that the former declined substantially over the three years, whereas the latter increased in roughly equal proportions—the combined effect is that the total share dedicated to design activities was roughly constant over the three years (Caldés and Maluccio 2004).

Delivery of demand- and supply-side transfers accounted for more than one-quarter of costs in 2002, with the latter comprising the majority of those costs. Conditionality, i.e., activities related to monitoring whether households are complying with the program requirements, has grown in intensity over time, as the number of beneficiaries grew. General program monitoring, including monitoring of supply services, also increased substantially over the period. The rise in 2002 was due in part to the implementation of random spot-checks of private providers after some were discovered to have been delivering poor quality services. Presumably, these activities had an effect on the quality of services and the overall human capital impact of the

program. Finally, even though the time devoted to evaluation declined continuously over the three years, the cost shares increased, largely due to the lumpiness in payments made to external evaluators.

Activity Cost-Transfer Ratios

For each activity and program, Table 4 presents annual CTRs and an overall program average for the periods for which information is available. These reflect the costs associated with each activity per one-unit transfer to the beneficiary. The CTR for each program activity is simply the cost share for that activity multiplied by the aggregate CTR (for all activities), so that their relative sizes reflect the activity cost shares presented in Table 3. Focusing on CTRs by activity type facilitates comparison between programs by making clear the composition of the aggregate ratios and also by ensuring that the costs included in the aggregate ratio are consistent between programs.

To further facilitate comparison, the first adjustment is to remove the costs associated with external program evaluations that do little to influence the current programs (though they may substantially influence redesign and other similar programs). Unsurprisingly, given the overall size of PROGRESA, this changes its CTRs little, with the average program CTR decreasing from 0.111 to 0.106, and in the final year from 0.052 to 0.0490.[18] The effect on the other two programs' CTRs, however, is substantial. The program average CTR for PRAF decreases from 0.499 to 0.325, and there is now an annual decline over the period, with the annual CTR for 2002 decreasing from 0.378 to 0.163 when we remove the costs associated with external evaluation. For the RPS pilot, the program average CTR decreases from 0.629 to 0.489, and the decline in the annual CTR is now more pronounced, with the annual CTR for 2002 decreasing from 0.467 with external evaluation to 0.331 without.

[18] The slight difference between the total CTRs from Table 1 reflects adjustments for inflation and capital investments made for PROGRESA. These were not carried out for the other programs, as they made almost no difference in the reported figures.

Table 4—Cost-transfer ratios

	PROGRESA[a]					*PRAF* Phase II[b]				*RPS* Pilot			
Program activity	**1997**	**1998**	**1999**	**2000**	**Total**	**2000**	**2001**	**2002**	**Total**	**2000**	**2001**	**2002**	**Total**
1. Program design and planning	0.074	0.010	0.003	0.002	0.004	0.029	0.002	0.002	0.038	0.501	0.080	0.086	0.113
2. Identification of beneficiaries	0.766	0.137	0.022	0.002	0.037	0.337	0.026	0.093	0.114	0.511	0.080	0.005	0.073
3. Incorporation of beneficiaries	0.052	0.020	0.006	0.004	0.007	-	-	-	-	0.377	0.042	0.028	0.058
4. Delivery of demand transfers	0.106	0.036	0.021	0.021	0.024	0.042	0.059	0.047	0.052	0.102	0.047	0.026	0.040
5. Delivery of supply transfers	-	-	-	-	-	0.076	0.065	0.007	0.045	0.384	0.110	0.098	0.124
6. Conditionality	0.104	0.046	0.017	0.012	0.020	0.122	0.046	0.007	0.046	0.000	0.010	0.032	0.020
7. Monitoring and evaluation	0.120	0.031	0.011	0.007	0.013	0.059	0.028	0.007	0.030	0.232	0.036	0.056	0.061
8. External evaluation	0.037	0.010	0.003	0.003	0.005	0.295	0.079	0.215	0.175	0.436	0.094	0.136	0.140
Total	1.260	0.290	0.085	0.052	0.111	0.959	0.305	0.378	0.499	2.543	0.499	0.467	0.629
Total without external evaluation	1.223	0.280	0.082	0.049	0.106	0.664	0.226	0.163	0.325	2.107	0.405	0.331	0.489
Total without external evaluation and program design and planning	1.149	0.270	0.079	0.047	0.102	0.635	0.224	0.161	0.287	1.606	0.325	0.245	0.376
Total without external evaluation, program design and planning, and identification and incorporation of beneficiaries	0.331	0.113	0.051	0.041	0.057	0.298	0.198	0.068	0.173	0.718	0.203	0.212	0.245

[a] Figures for PROGRESA are inflation-adjusted to 2000 using CPI indices of 1.5, 1.3, and 1.1 for 1997, 1998, and 1999, respectively, and adjusted for capital purchases.
[b] The identification and incorporation of beneficiaries were not separable for PRAF; the figures in the row for identification represent the sum of those two activities.

Even with these adjustments, the above CTRs are likely to overestimate the long-run CTRs, since they still include a variety of fixed or quasi-fixed costs. Earlier, we described how one can treat the last year observed for each program as a better estimate (than the aggregate) for the program in a mature state. After excluding external evaluations, the final year (for which we have data) annual CTRs are 0.049, 0.163, and 0.331 for PROGRESA, PRAF, and RPS, respectively. Based on these numbers, the two supply-side programs still appear to cost substantially more, with the RPS pilot costing twice as much per unit of transfer as PRAF. This methodology implicitly assumes that the programs are all nearing maturity. While plausible for PROGRESA, this is less likely for the other programs. PRAF has had operational difficulties associated with updating the beneficiary lists, implementing the supply side, and monitoring conditionality. For the RPS pilot, 2002 includes fixed design costs associated with preparing for the expansion of the program. Therefore, the final year annual CTRs are still likely to overestimate long-run CTRs.

Therefore, to better approximate the long-run CTR and provide a fairer comparison between programs, we further adjust the CTR by excluding the fixed costs we can identify. The activity categories are roughly sequential in nature, with the first three (numbers 1–3) representing activities that need to be carried out at the outset of the program before any transfers are distributed to households or service providers. We do not expect these activities to be important cost components for the mature program. Therefore, by subtracting these costs, we can derive better estimates of the long-run CTRs.[19] These adjusted estimates are shown in the bottom row of Table 4 and result in final-year annual CTRs of 0.041, 0.068, and 0.212 for PROGRESA, PRAF, and RPS, respectively. Based on these ratios, we get the same ranking across programs according

[19] It is probable that some of these costs are recurring in the medium term, however, such as activities related to the identification of beneficiaries that may include some costs related to periodic updating of registration system. We are implicitly assuming that these are relatively small and are offset by fixed costs that exist in the other activities but we do not subtract out. Alternatively, one can think about the estimates excluding the fixed costs as representing lower bounds.

to program costs, but now PRAF is closer to PROGRESA, while the RPS pilot remains relatively more costly.

Apart from the relative complexity of the RPS supply-side intervention,[20] which comes with consequent monitoring and conditioning costs, another reason that the cost-transfer ratio for RPS is higher than the others is related to its being a pilot. Even within the activities we treat as recurring, part of the activities for RPS during the pilot had to do with one-time costs, as new modalities were considered and the team explored how best to do things. Caldés and Maluccio (2004) disaggregate all the various activities into fixed and variable components, and find that, indeed, this further reduces the annual CTR, particularly in the earlier years.

CTRs may also differ between programs because their average transfer levels differ. If two programs are identical except for the fact that the average household transfer in the first is twice that in the second, then the CTR for the first would be half that for the second, assuming the same level of operational efficiency and negligible costs directly related to the size of the transfer (such as delivery costs). When both supply- and demand-side transfers are included for RPS and PRAF, the average transfer for RPS is similar to that for PROGRESA, whereas that for PRAF is approximately one-third the size. Therefore, increasing the level of transfers in PRAF by a factor of three would decrease our estimate of the long-term CTR for the program to 0.024, even lower than PROGRESA. This is somewhat surprising, since PROGRESA involves only a demand-side intervention (which, based on these programs' experiences, we believe is less costly to implement than a supply-side component), and RPS appears to be an effectively run intervention as documented in its impact evaluation (Maluccio and Flores 2004). We have already noted that the lower costs for PRAF are due, in part, to fewer resources

[20] Table 2 shows that RPS has, by far, the largest relative supply-side transfers, suggesting that only for RPS would a simulation netting out the "supply side" of these programs make a substantial difference in the estimated CTRs. We simulate the CTR for RPS if it had no supply-side services by subtracting out all costs that we can associate with the supply side, and the corresponding transfers. The 2002 annual CTR declines from 0.211 reported in the text to 0.162, indicating that the supply-side transfers are, indeed, more cost-intensive.

being devoted to conditionality and routine program monitoring and evaluation. A concern, however, is that this may have adverse implications for the effectiveness of the program.

5. Relating Program Costs to Program Benefits

To promote their objectives of decreasing current poverty and generating a sustained decrease in poverty over time, the three programs have two key design features. First, in order to ensure that transfers reach the poorest households, the programs use varying combinations of geographic, categorical, and proxy-means targeting methods. Second, the transfers are conditioned on households undertaking certain actions intended to enhance the nutrition, health, and education outcomes of family members, particularly children. Both of these features require resources, thus increasing the share of administrative costs in the program budgets and, consequently, the CTRs.

We assess the relative importance of the costs associated with these key activities by calculating their share in total program costs, after excluding the external evaluation and fixed costs described earlier. We assume that costs associated with the identification of beneficiaries are incurred only when household targeting is used—in the absence of household targeting, there is no operational need for the program to collect and analyze household information. While perhaps not entirely true, since even an untargeted program may require some sort of household registration system, we are implicitly assuming that any such related costs would be minimal. This would be the case, for example, if a reliable and recent census were already available. Similarly, if there were no conditioning, the program would not incur the costs of incorporating households or of certifying that beneficiaries are satisfying their responsibilities.

Table 5 presents the share of targeting and conditioning costs in total program costs for all three programs over the periods considered. Excluding external evaluation (the first column for each program), the proportions make clear that targeting and conditioning costs are substantial. Combined, they account for 60, 49, and 31 percent for

PROGRESA, PRAF, and RPS, respectively. These shares increase modestly when we also exclude costs for program design in the share calculation (second column for each program). The relatively low percentage for the RPS pilot partly reflects the fact that setting up and implementing the supply side, an activity included in the "other" category in the table, has proved to be very resource intensive. The absence of these activities in PROGRESA increases the relative shares of targeting and conditioning costs. Targeting costs in PRAF are higher than they otherwise would have been, due to the difficulties in maintaining the beneficiary identification system. At the same time, the resources allocated to dealing with these problems appear to have come at the expense of monitoring conditionality, suggesting that the latter are smaller than would otherwise have been the case during a normal operating year. On balance, it is possible that the sum of the two activities is about right, though there is no way for us to be certain. Nevertheless, even with these caveats, the message from this simulation is clear: costs devoted to targeting and conditioning form a substantial part of the ongoing operations of these programs. It is essential that these activities generate an adequate return; we turn now to an (admittedly crude) assessment of their cost-effectiveness.

Table 5—CTR-share of activities

	PROGRESA		***PRAF* Phase II**		***RPS* Pilot**	
Program activity	**Total cost-External evaluation**	**Total cost-External evaluation-Program design**	**Total cost-External evaluation**	**Total cost-External evaluation-Program design**	**Total cost-External evaluation**	**Total cost-External evaluation-Program design**
Targeting	0.35	0.37	0.35	0.40	0.15	0.19
Conditioning	0.25	0.27	0.14	0.16	0.16	0.21
Other activities	0.40	0.36	0.51	0.44	0.69	0.60
Total CTR	0.106	0.102	0.325	0.287	0.489	0.376

Targeting will be cost-effective if the incurred costs result in a sufficient increase in the share of transfers reaching the poorest households, thereby improving the programs' current poverty alleviation. The evidence indicates that the payoff from targeting has been high across all three programs. A comparative analysis (MNPTSG

2002) finds that the poorest 40 percent of households received 62, 79, and 80 percent of total transfers in PROGRESA, PRAF, and RPS, respectively. In other words, these relatively "poor" households receive from 1.5 to 2 times their population shares. To put this performance in perspective, for the more than 100 programs reviewed by Coady, Grosh, and Hoddinott (2002), the median targeting performance was consistent with 50 percent of program benefits accruing to the poorest 40 percent of the population (i.e., the poor receiving 1.25 times their population share). The three programs discussed here all ranked in the top third of those reviewed in Coady, Grosh, and Hoddinott (2002).

For two of the programs, PROGRESA and RPS, the human capital impacts have also been substantial (Skoufias 2004; Maluccio and Flores 2004). For education, the main effect of PROGRESA was to increase enrollment rates in secondary school (Schultz 2000; Behrman, Sengupta, and Todd 2001). Among those who successfully completed primary school, the program increased enrollment rates in the first year of middle school by 15 percentage points for girls and 7 percentage points for boys. In the RPS, primary enrollment rates in Grades 1–4 were about 70 percent before the program and increased a massive 18 percentage points with the program (Maluccio and Flores 2004).

The effects on nutrition were also substantial. In PROGRESA, prior to the program, stunting levels for children aged 12–36 months were very high, at 44 percent. The program had a substantial effect on reducing the probability of stunting, increasing the annual mean growth rate by 16 percent (or 1 centimeter per year) for these children (Behrman and Hoddinott 2000; Gertler 2000). There is also evidence of a substantial increase in food consumption and dietary diversity (Hoddinott and Skoufias 2003). RPS has also had an enormous impact on a range of health and nutrition indicators. The percentage of children under age 3 who were weighed in the past six months increased by 30 percentage points, from around 60 percent prior to the program. This was accompanied by a decline of six percentage points in the prevalence of stunting for those under 5 (from 42 percent before the program), an unprecedented decline in such a short period of time. The results on expenditures suggest that not only have the total expenditures on food increased, but so, too, has the food budget share, by nearly four

percentage points. The program has had a beneficial impact on dietary diversity; both the number of different food items consumed and the nutritional quality of the diet improved, with households eating more meat, fats, and fruits (Maluccio and Flores 2004).

Preliminary evidence regarding the human capital impacts of PRAF suggests that these are smaller than for the other two programs (IFPRI 2003). For example, it appears to have had little impact on primary enrollment rates (which were already quite high), although there was an improvement in dropout rates. Visits by children to health clinics for growth monitoring and vaccinations increased in areas with the demand-side program, but the program does not appear to have improved health outcomes. Nor was there any effect on the nutritional status of children as measured by child growth indicators. These small effects are consistent with the evidence of operational difficulties in terms of implementing the supply side and monitoring conditionality. These results reinforce concerns that the low CTR of PRAF comes at the expense of the program's overall effectiveness. Possibly more important, however, we must bear in mind that these relatively small effects reflect not only the operational difficulties encountered in PRAF, but also the lower transfer level per household compared to the other programs—in PRAF, the transfer was calculated as an amount to compensate for the opportunity cost of children attending school, and was therefore much smaller than the other programs.

6. Conclusions

This paper has assessed the cost-efficiency of PROGRESA, PRAF, and RPS by focusing on the cost-transfer ratio, defined as the ratio of nontransfer costs (i.e., administrative costs) to transfers. In doing so, we have demonstrated that for a meaningful assessment of cost-efficiency, it is misleading to make calculations using only the typically available raw accounting data, the approach normally taken (Coady, Grosh, and Hoddinott 2002). Rather, one must delve into the details and activities of the program. Features of the program, and how the CTR is calculated, are important for how it is used and interpreted. This is particularly true for start-up programs, which typically

have a lot of up-front fixed costs associated with design and setting up operations, and for complex programs, such as conditional cash transfer programs, that have a number of costs associated with specific design features. It is essential to keep in mind that this examination of program costs, transfers, and CTRs includes not only the costs required to transfer the money to the beneficiaries, but also costs of activities that may enhance the effectiveness of the program (e.g., targeting or monitoring of conditionality). Therefore, in addition to the level of costs, we focused on the structure of costs as reflected in the various activities involved in each program. These details must be considered to make sensible comparisons between programs, either within the same country or between countries.

This paper begins to fill the large gap that exists in the empirical knowledge of the cost structures of poverty alleviation programs. In the context of three large poverty alleviation programs in Latin America, we have shown how typically available cost data, augmented by program-level information on time use, can be used to undertake an assessment of the cost-efficiency of the program. The analysis also underscores that the estimates we present, and how they should be interpreted and used for comparison between alternatives, depends sensitively on how they were calculated. Very different numbers emerge when one takes snapshots of programs at different stages or when we include or exclude up-front setup or fixed costs. This reflects the fact that fixed costs are typically a more important component of total program costs earlier in the life of the program. Over time, average fixed costs converge to zero, so that the average CTR (or, equivalently, share of administrative costs in total costs) converges to the ratio of recurring operating costs to total transfers (or to their share in total costs).

How do these three programs' cost-efficiencies compare to those of other poverty alleviation programs in the region? As highlighted at the outset, such evidence is hard to come by and, where it exists, is often not comparable. Grosh (1994) finds that the share of administrative costs for programs she considered ranged from under 1 percent to 29 percent, with a median of 9 percent. For programs involving proxy-means tests, the median was slightly higher, at 10 percent. In Section 4, we calculated various CTRs for

each of the programs, two of which serve as lower and upper bounds of our best estimates of the long-run CTR. These are the final year annual CTRs for the program without external evaluation and all fixed costs (Table 4, bottom row), and is the program without external evaluation and program design, but including the other fixed costs that may, to some extent, be recurring (Table 4, penultimate row). These produce a range for each of the programs of 0.041–0.047 for PROGRESA, 0.068–0.161 for PRAF, and 0.212–0.245 for the RPS pilot. The lower estimated costs for PROGRESA undoubtedly reflect, in part, economies of scale (it is a massive program in comparison to the others), as well as the fact that it does not have a supply-side component.

For PROGRESA, even its upper bound CTR of 0.047 compares well with the median program reported in Grosh (1994), all the more impressive, given the relative complexity of PROGRESA's design compared to more conventional social safety net programs. Furthermore, it is very low when compared to the LICONSA (a subsidized milk program delivered through state shops in urban areas) and TORTIVALES (a tortilla subsidy program) programs in Mexico, which had program costs equivalent to 40 pesos and 14 pesos per 100 pesos transferred, respectively (Grosh 1994). If we assume that the median levels reported in Grosh (1994) adequately reflect operating costs, then the lower-bound CTR for PRAF also compares well with the median program, though this conclusion is subject to the caveats made throughout regarding our estimates for PRAF. The RPS pilot, however, which has a lower-bound CTR equal to 0.212, appears to be relatively expensive. Of course, RPS is much more complex than conventional poverty programs, and there is clear evidence that it has had large human capital impacts—much is being bought with these expenditures.

In closing, we caution that it is difficult to be certain about these comparisons, since it is unclear exactly what is included in the figures quoted in Grosh (1994).[21] It may be that the variation in these numbers reflects different cost definitions rather than

[21] Grosh (1994) discusses a range of difficulties associated with collecting and analyzing cost data for poverty alleviation programs. One of the biggest drawbacks faced by her study was "the imprecision in calculating administrative costs" (30).

different levels of cost-efficiency. It is difficult to compare them more formally without having substantially more detail about the cost structures of the other Latin American programs. The analysis of these three programs constitutes an important contribution to this research gap, both in terms of providing a thorough cost analysis of the programs and by providing a useful framework for other such analyses.

Appendix

Table 6—Time allocation matrix: Share of time allocated each year to each activity

	PROGRESA				*PRAF* Phase II[a]				*RPS* Pilot		
Program activity	**1997**	**1998**	**1999**	**2000**	**1999**	**2000**	**2001**	**2002**	**2000**	**2001**	**2002**
1. Program design and planning	0.138	0.068	0.060	0.054	0.705	0.100	0.000	0.000	0.272	0.219	0.247
2. Identification of beneficiaries	0.095	0.057	0.055	0.050	0.030	0.170	0.000	0.500	0.075	0.094	0.013
3. Incorporation of beneficiaries	0.098	0.134	0.113	0.111	-	-	-	-	0.145	0.100	0.079
4. Delivery of demand transfers	0.179	0.153	0.148	0.150	0.050	0.150	0.300	0.300	0.029	0.025	0.018
5. Delivery of supply transfers	-	-	-	-	0.000	0.300	0.300	0.050	0.169	0.304	0.282
6. Conditionality	0.195	0.312	0.339	0.342	0.000	0.000	0.200	0.050	0.000	0.028	0.092
7. Monitoring and evaluation	0.295	0.276	0.285	0.293	0.215	0.230	0.150	0.050	0.144	0.101	0.161
8. External evaluation	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.050	0.166	0.129	0.108
Total	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

[a] The identification and incorporation of beneficiaries were not separable for PRAF; the figures in the row for identification represent the sum of those two activities.

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