

THE COST OF CONDITIONAL CASH TRANSFERS

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Abstract: A common criticism of antipoverty programmes is that a large proportion of their budgets never reaches the intended beneficiaries but is absorbed by administration costs. Yet, there is little empirical evidence on the costs, and even less on the cost structures, of such programmes. This paper outlines and implements a replicable methodology for a disaggregated cost analysis of a pilot conditional cash transfer programme in Nicaragua, examining the administration and private costs associated with a one-unit transfer to a beneficiary—referred to as the cost–transfer ratio. We find that for a meaningful assessment of cost efficiency, it is misleading to make calculations using only the typically available raw accounting data. Rather, one must delve into the details and specific activities of the programme. This is particularly important for pilot programmes, which typically have many upfront fixed costs associated with design and setting up operations. It is also important for conditional cash transfer programmes, which have additional costs associated with their specific design features and require changes in beneficiary behaviour that may engender substantial private costs. Copyright © 2005 John Wiley & Sons, Ltd.

1 INTRODUCTION

It is widely recognized that social safety net programmes have a crucial role to play both in alleviating poverty and in promoting social and economic development. Nevertheless, a common criticism of such programmes is that a large proportion of their budgets never reaches the intended beneficiaries but is absorbed by administration costs (Grosh, 1994). Depending on how such administrative resources are used, the poverty alleviation effect of the programmes may be reduced, and, consequently, their overall cost effectiveness.

Careful assessments of these concerns are difficult, as there is little empirical evidence on the costs, and even less on the cost structures, of social safety net programmes in

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developing countries (Newman *et al.*, 1994; Coady *et al.*, 2002). This paper begins to fill this gap by describing and implementing a replicable methodology for disaggregated cost analysis. We assess the cost efficiency of a pilot conditional cash transfer programme, the Nicaraguan *Red de Protección Social* (RPS), by examining the administration and private costs associated with a one-unit transfer to a beneficiary. Following Coady *et al.* (2004), we refer to this as the cost–transfer ratio or CTR.¹

While focusing on the CTR would be sufficient to evaluate a programme whose sole objective was to disburse transfers, RPS has more ambitious goals, such as human capital development, and specific design features to achieve them. In particular, transfers are targeted to poor areas and to poor households within those areas. Further, transfers are conditioned on households investing in the health and education of their children, behaviours monitored by the programme. These programme features require resources, introducing a potential tradeoff between reducing programme costs and promoting programme objectives. In this analysis, then, we explore not only how much is spent in total on administration, but also how those administrative resources are used, since both aspects of the cost structure influence programme effectiveness. The conditionality of RPS has a second implication for cost analysis: beneficiaries may need to alter behaviour to comply with programme requirements. Therefore, in addition to administration costs, we incorporate the necessary, and potentially substantial, private costs beneficiaries may incur to take up the programme.

Given RPS's design and multiple objectives, particularly improved human capital for children that is likely to yield returns over many years, we caution that it would be incorrect to interpret the CTR either as a measure of overall cost effectiveness of the programme or as a cost–benefit ratio. We interpret the CTR only as a measure of cost efficiency.

2 DESIGN AND IMPLEMENTATION OF THE RED DE PROTECCIÓN SOCIAL²

To analyse the cost structure of RPS, it is first necessary to describe the programme's operation and evolution. Modelled after the *Programa Nacional de Educación, Salud y Alimentación* (PROGRESA) in Mexico (Skoufias, 2003), RPS is designed to address both current and future poverty via conditional cash transfers targeted to households living in extreme poverty in rural Nicaragua. RPS's specific objectives include:

- supplementing household income for up to three years to increase expenditures on food;
- increasing the healthcare and nutritional status of children under age 5; and
- reducing school desertion during the first four years of primary school.

RPS was designed to be implemented in two phases over five years. Starting in 2000, the pilot phase, or Phase I, was for three years with a budget of \$11 million, approximately 0.2 per cent of GDP and 2 per cent of annual recurring government spending on health and education (World Bank, 2001).

¹Even ignoring private costs, the CTR is not equivalent to the percentage of the total budget absorbed by administrative costs, which is by definition always smaller; therefore one cannot make direct comparisons between the CTR and that frequently reported measure of costs.

²This section draws from Maluccio and Flores (2004) where additional details and programme impacts can be found.

2.1 Programme Targeting

For the pilot, RPS chose rural areas in six municipalities from two departments in the northern part of the Central Region of Nicaragua. Areas were chosen on the basis of poverty as well as on their capacity to implement the programme. The focus on rural areas reflects the distribution of poverty in Nicaragua: of the 48 per cent of Nicaraguans designated as poor in 1998, 75 per cent resides in rural areas (World Bank, 2001). In 1998, approximately 80 per cent of the rural population in the selected municipalities was poor, and half of those extremely poor (IFPRI, 2002). These areas also had relatively strong institutional capacity and local coordination, good school coverage, and were less than a one-day drive from the central RPS office in Managua (Arcia, 1999).

In the next stage of geographic targeting, a marginality index based on information from the 1995 National Population and Housing Census was constructed and an index score calculated for all 59 rural *comarcas*³ in the selected municipalities. The index was a weighted average of a set of comarca-level average poverty indicators: family size, access to potable water, access to latrines, and the literacy rate (Arcia, 1999). The 42 comarcas with the worst index scores were chosen for the pilot phase's first stage, described below. For the impact evaluation, one-half of the 42 comarcas were randomly selected as intervention comarcas, leaving the remaining 21 for the control group (Maluccio and Flores, 2004).

The pilot phase was implemented in two stages. In the first stage, RPS benefited nearly all of the approximately 6000 households in the 21 intervention comarcas described above. In the second stage, approximately 4000 additional beneficiary households from the remaining 17 non-control comarcas in these same municipalities were selected via household-level targeting mechanisms. Using the 1998 Nicaraguan Living Standards Measurement Survey (LSMS), a proxy means model predicting logarithmic per capita expenditures was estimated for the rural Central Region based on easily measured household characteristics.⁴ The explanatory variables for this model were then included in the RPS census survey questionnaires implemented before the programme began. In comarcas with household-level targeting, only those households with predicted per capita expenditures below the national poverty line were selected as beneficiaries. About 20 per cent of all households in the 17 second-stage comarcas were excluded (IFPRI, 2002).

2.2 Programme Design

RPS had two main components:

Food security, health, and nutrition. Each eligible household received a bimonthly cash transfer known as the 'food security transfer', contingent upon attendance at bimonthly health educational workshops held within the community and on bringing their children under age 5 for scheduled preventive healthcare appointments. The specific healthcare services required by the programme were provided free of charge to beneficiary households and included growth monitoring, vaccination and provision of antiparasites,

³Comarcas are national census administrative areas within municipalities that include between one and five small communities averaging 100 households each.

⁴These included household size, age of household head, education of household members, housing characteristics (including number of rooms; tenure status; and type of toilet, floor, roof, and lighting), assets, and type of work.

vitamins and iron supplements. Children under age 2 were seen monthly; those ages 2–5 were seen bimonthly.

Education. Each eligible household also received a bimonthly cash transfer known as the ‘school attendance transfer’, contingent on enrolment and regular school attendance of children ages 7–13 who had not completed 4th grade. Additionally, for each eligible child, the household received an annual cash transfer intended for school supplies (including uniforms and shoes), known as the ‘school supplies transfer’ and contingent only on enrolment. Unlike the school attendance transfer, which was a fixed amount per household regardless of the number of children in school, the school supplies transfer was a per-child transfer. To provide incentives to the teachers (who had additional reporting duties and were likely to have larger classes after the introduction of RPS) and to increase resources available to the schools, there was also a small cash transfer, known as the ‘teacher transfer’. The delivery of the funds to the teacher was monitored (and was a programme condition), but not their ultimate use.

Table 1 summarizes the eligibility requirements and demand- and supply-side benefits of RPS. In comarcas where there was only geographic targeting, nearly all households were eligible for the food security transfer, which was a fixed amount per household. Households with school age children were also eligible for the education transfers. In comarcas with household targeting, only households selected via the proxy means model described above were included.

Table 1 also shows the year 2000 U.S. dollar annual transfers and their Nicaraguan córdoba (C\$) equivalents: the food security transfer was \$224 a year; the school attendance transfer was \$112. By itself, the food security transfer represented about 13

Table 1. RPS eligibility and benefits

	Programme components	
	Food security, health, and nutrition	Education
Eligibility		
Geographic targeting	All households	All households with children ages 7–13 who have not yet completed fourth grade of primary school
Household targeting	Households with predicted expenditures below poverty line	Selected households with children ages 7–13 who have not yet completed fourth grade of primary school
Demand-side benefits		
Monetary transfers	Food security transfer C\$2880 per household per year (\$224)	School attendance transfer C\$1440 per household per year (\$112) School supplies transfer C\$275 per child beginning of school year (\$21)
Supply-side benefits		
Services provided and monetary transfers	Bimonthly health education workshops	
	Child growth and monitoring -Monthly (0–2 year olds) -Bimonthly (2–5 year olds)	Teacher transfer C\$60 per child per year given to teacher/school (\$5)
	Provision of antiparasites, vitamins, and iron supplements Vaccinations (0–5 year olds)	

per cent of average total annual household expenditures in beneficiary households before the programme. Households with children benefiting from the education component received an additional transfer of 8 per cent. Over the two years, the overall average monetary transfer (excluding the teacher transfer) was approximately \$300, or 18 per cent of total annual household expenditures. The value of the supply-side services, as measured by how much RPS paid to the providers, was also substantial. On an annual basis, the education workshops cost approximately \$50 per beneficiary household; the health services for children under age 5 cost \$100 per beneficiary child.

To enforce compliance with programme requirements, beneficiaries did not receive the food or education component of the transfer if they failed to carry out any of the conditions. The monitoring was done via a management information system (MIS) designed by RPS. It comprised a continuously updated relational database of beneficiaries, healthcare providers, and schools. The MIS was also used to (i) select beneficiaries and invite them to programme incorporation assemblies, (ii) calculate transfer amounts, (iii) determine requests to the Ministry of Health for vaccines and other materials, and (iv) monitor whether beneficiaries and service providers were meeting their responsibilities. Decision rules capturing the programme requirements were programmed directly into the MIS. Substantial effort was dedicated to designing data forms for the various programme participants that fed into this system, including household census, school, and healthcare provider forms.

RPS strictly monitored conditionality and enforced programme rules. During the first two years, approximately 10 per cent of beneficiaries were penalized at least once and therefore did not receive one or both transfers. It was also possible for households to be expelled from the programme for repeated infractions. Only 1 per cent of households, however, were expelled from the programme during the first two years, though 5 per cent voluntarily left the programme, e.g., by dropping out or migrating out of the programme area.

Although centrally administered, with its multisectoral approach across education, health, and nutrition, RPS required bureaucratic co-operation at the national, municipal and community levels. Committees composed of delegates from the health and education ministries, representatives from civil society and RPS personnel co-ordinated activities at the municipal level. At the comarca level, RPS representatives worked with local volunteer representatives known as *promotoras* (beneficiary women chosen by the community) and local school and healthcare service providers. The *promotoras* were charged with keeping beneficiary household representatives (95 per cent of whom are women) informed about upcoming healthcare appointments for their children, upcoming transfers and any failures to fulfil conditions.

3 THEORETICAL FRAMEWORK AND EMPIRICAL METHODOLOGY

In this section we present a simple welfare model, first presented in Caldés *et al.* (2004), that characterizes how we think about the welfare impacts of RPS. This framework also underlies our approach to assessing cost efficiency using the CTR. We then outline the methodology we use to calculate the CTRs.

3.1 Theoretical Framework

Consider a programme that transfers resources to households using both cash transfers and in-kind transfers in the form of increased expenditures on human capital services, such as

schooling. Maximized utility for household h 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 programme, m^h , the increased expenditures on human capital services, E , and a vector of commodity and factor prices, \mathbf{q} . For expositional convenience, we assume that initial transfers and expenditures are zero (e.g., before the programme begins), so that $dm^h = m^h$ and $dE = E$.

We characterize social welfare with a standard Bergson–Samuelson welfare function, $W(\cdot)$, defined over all households. The welfare effect of the programme is derived by differentiating $W(\cdot)$ with respect to cash transfers and in-kind expenditures. Holding 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

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

where 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 programme, WTP^h is the household's willingness to pay for one additional unit of programme expenditures on human capital services, and E is the total expenditure by the programme on these services. The total welfare impact of the programme is thus the sum of the social valuation of cash and in-kind transfers. This valuation depends 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 ($\text{WTP} = \sum_h \text{WTP}^h$), and assuming for expositional convenience that the share of each household's cash transfers in the total cash transfers is the same as the share of each household in the aggregate willingness to pay, we have

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

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 programme administration costs (C). Multiplying and dividing by B , we can rewrite the total welfare impact of the programme as

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

which is the welfare impact per unit of programme expenditure (i.e., the benefit–cost ratio) multiplied by B , the size of the programme. A full cost–benefit analysis of the programme would require an assessment of both the targeting effectiveness of the programme (as captured by α) as well as the benefits arising from in-kind expenditures (as captured by WTP).

To focus on cost efficiency, we make two further simplifying assumptions. First, we set $\alpha = 1$, which is equivalent to setting welfare weights to $\beta = \{1, 0\}$ for {poor, non-poor}

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 programme is given by the sum of cash and in-kind transfers. Under these assumptions the cost–benefit ratio can be written as

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

where CTR is the cost–transfer ratio defined earlier, i.e., the ratio of non-transfer programme costs to total programme transfers.

To this point, we have ignored the effects that conditionality may have on households, in particular, the likely private costs necessary for programme participation. A simple way to incorporate these into the above framework is to include them in the costs of the programme, replacing C with $C^* = C + P$, where P are the private costs induced by the programme. If the private costs are positive, then, the CTR including private costs will be higher.

The CTR as developed here ignores programme effectiveness. Hence, we refer to it as a ‘cost–efficiency ratio’. Since some components of programme non-transfer costs (C) can affect the overall cost effectiveness of the programme, it is not necessarily desirable to simply minimize this ratio but rather to minimize it for a given level of welfare improvement. For example, programme expenses arising from implementing targeting may yield returns in terms of improved targeting effectiveness (higher α), but while the costs will be included in the CTR as developed here, the benefits will not.

3.2 Empirical Methodology

We now turn to the empirical methodology for calculating the CTR, considering what to include as costs and how to measure them, and what to include as transfers and how to measure them.

The first step is the delineation of programme activities (Coady *et al.*, 2004; Fiedler, 2003). To the extent possible, we categorize programme activities depending on whether they correspond to fixed or variable costs for the programme, and in a manner to facilitate comparison with related programmes. This approach has the advantage of making them both managerially and policy relevant (Fiedler, 2003). It allows us to approximate the cost structure of a mature programme that would not have the upfront activities undertaken during the pilot. It also allows us to assess hypothetical alternative programmes that do not include all the activities of the actual programme. For example, we explore how the costs would differ if there were no effort to verify that households are carrying out their responsibilities.

The primary source of information for the programme costs is typically the programme’s accounting system. For a given time period—in this case the pilot phase of RPS—we first examine the programme’s detailed accounting records. For programmes spanning a number of years, adjustments to account for inflation and depreciation of capital investments can be made. Given the relatively short, three-year pilot phase of RPS, low levels of capital investment, and an inflation rate of about 4 per cent per year, we do not make these adjustments in the analyses presented below; doing so does not change our substantive findings.

This accounting-based approach was possible because RPS operated autonomously, and the majority of programme-related activities were carried out directly within the project and were therefore under its accounting system. This is not always possible, however. For example, Fiedler (2003), in a cost analysis of a Honduran community-based integrated childcare programme that did not have a centralized accounting system, had to construct total programme costs from the bottom up, estimating the costs required for each activity and then aggregating them.

The next step is associating programme accounting costs with programme activities. First, where possible, we directly assign line-item accounting costs to activities. Some accounting line-item costs can be allocated directly to certain activities without ambiguity. For example, the cost of collecting the baseline evaluation survey can be allocated directly to the evaluation activity or the fees paid to firms delivering the monetary transfers to the benefit delivery activity. We refer to these as 'directly assignable costs'. About 25 per cent of total costs can be assigned in this fashion. For many other costs, such as salaries of management personnel, direct assignment is not possible because they cut across programme activities. The remaining unassigned costs are allocated to programme activities using a time-allocation matrix, described in detail below. By multiplying the total of all unassigned costs by the time-allocation matrix percentages, we can distribute these shared costs across programme activities (Coady *et al.*, 2004). We refer to these as 'indirectly assignable costs'.

The key assumptions underlying this methodology for assigning costs are:

- the average wage of individuals in each activity is the same (true if there were an identical mix of personnel of different skill and salary levels working in each activity); and
- the average use of other inputs is the same in each activity (e.g., computer time, transportation, furniture, and other overhead) (Coady *et al.*, 2004).

While in practice it might be that some activities are more intensive in high-wage personnel or other inputs than others, there is no reason to think this would severely bias our results, as all the broad activities involve personnel and materials ranging across the wage spectrum.

After distributing all current costs among programme activities, we turn to the current benefits of the programme as measured by the transfers. For cash transfers, valuing the transfers is straightforward and only required minor adjustments to the aggregate accounting categories, such as taking out fees paid to the firms delivering the cash. For in-kind service transfers, however, it is more complicated. As an approximation, we take the current monetary value of these services, that is, how much they cost RPS to deliver. 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 services. While this may be more or less than the beneficiaries' willingness to pay for the services, since most of the providers are NGOs, it is reasonable to assume that their fees approximate the actual cost of those services and do not include substantial profits.

When measuring costs and transfers, we only consider *current* costs and transfers that are incremental as a result of the programme. We do not attempt to assess future benefits or future costs due to the programme, or to include them in the calculation of the CTR. While there are some straightforward methodologies to approximate the value of improved education outcomes (Morley and Coady, 2003; Knowles and Behrman, 2003), there are

few parallel methodologies for improvements in nutritional status and health, not to mention other possible benefits of the programme, such as women's empowerment. For this reason and the others mentioned above, what follows cannot be considered a cost–benefit analysis. Nevertheless, we believe this approach has the advantage of being conservative, since the resulting estimates of the CTR are likely to be larger than the true cost–benefit ratio. It is easy to envision future benefits (e.g., due to higher human capital for programme beneficiaries which in other contexts have been substantial), but more difficult to envision future costs accruing.

Finally, it is important to emphasize that we are analysing RPS in its pilot phase—and the results must be interpreted with this in mind. The intensity of certain activities undertaken during a pilot phase differs from that of an established programme, with consequent implications for the cost analysis. For example, a large part of the work during the pilot included refinements in design and completion of startup activities for operations. Similarly, during the pilot, substantial resources were devoted to training personnel. Moreover, the criteria for selection of programme areas may have been different had it been a full-blown programme. It is possible that the selected municipalities had atypical capacity to carry out RPS—other municipalities may have less capacity, which would lead to additional costs. While we make several adjustments to remove the effects of these pilot-specific features of RPS, we do not claim to have removed every single potential source of bias.

4 RPS PROGRAMME ACTIVITIES, COSTS AND CTRS

By highlighting and considering the above dimensions for costs and transfers, we ensure a comprehensive analysis that guards against missing important resource allocations made by, or in response to, the programme. We first examine current programme costs and transfers, for which we have the most accurate information; we then explore how inclusion of current private costs affects the results.

4.1 Programme Activities and Time-Allocation Matrix

The first step in identifying the main programme activities was, in conjunction with RPS staff, to construct a detailed timeline of all the activities undertaken during the pilot phase. This yielded monthly percentages of the time devoted to each specific activity.⁵ The next step was to categorize them into more 'aggregate' programme activities, as shown in Table 2. While any such categorization is subjective, there were some fairly obvious, broadly defined activities in RPS common to most social safety net programmes such as programme design and benefit delivery. Other RPS activities were common to conditional cash transfer programmes, such as beneficiary identification and incorporation, and conditionality. We assigned each specific programme activity to a single aggregate activity and then calculated the total average annual time allocated by staff for each aggregate programme activity to construct the time-allocation matrix. Although this methodology is best treated as approximate, it does appear to identify broad trends and patterns.

We first examine the overall averages in the final column. Fully one-quarter of office time was devoted to general programme design, for both the pilot phase itself, and for

⁵These activity lists and respective percentages are available (in Spanish) upon request from the authors.

Table 2. RPS activities, time allocation, and staff

	2000 ^a	2001	2002	Average ^b
By activity (percent of total time)				
General programme design	27.2	21.9	24.7	24.7
<i>–Pilot phase</i>	27.1	9.6	5.9	14.8
<i>–Phase II</i>	0.1	12.3	18.8	9.9
Institutional strengthening	14.4	9.8	6.9	10.6
Beneficiary identification	7.5	9.4	1.3	6.2
Beneficiary incorporation	14.5	10.0	7.9	11.0
<i>–Expansion</i>	14.2	6.5	0.2	7.4
<i>–Maintenance</i>	0.3	3.5	7.7	3.6
Benefit delivery: demand-side transfers	2.9	2.5	1.8	2.4
<i>–Expansion</i>	1.4	0.8	0.0	0.7
<i>–Maintenance</i>	1.5	1.7	1.8	1.7
Conditionality/certification of requirements	0.0	2.8	9.2	3.8
Benefit delivery: supply-side services	16.9	30.4	28.2	24.7
<i>–Expansion</i>	16.9	15.8	4.2	12.5
<i>–Maintenance</i>	0.0	14.6	24.0	12.2
Monitoring/evaluation of supply-side services	0.0	0.3	9.2	3.0
External evaluation of the programme	16.6	12.9	10.8	13.6
	100.0	100.0	100.0	100.0
Average full-time staff				
<i>–Central office (Managua)</i>	46	58	62	55
<i>–Regional offices</i>	34	46	50	43
	12	12	12	12

Source: Calculations by authors based on list of activities and time allocation provided by RPS.

^aYear 2000 includes weighted average activity time-shares for the first two months of the programme in 1999; this period was dedicated almost entirely to programme design and institutional strengthening activities.

^bThe overall average includes the weighted average activity time-shares for the first two months of the programme in 1999 and thus is not the simple average of the columns appearing in the table.

Phase II, begun in 2003. This is a natural consequence of being a pilot—despite careful advance planning there are always details to work out as a programme converts plans into action. Another one-fourth of the time was devoted to implementing the supply-side of the programme: RPS contracted, trained and directly paid private providers to deliver the health services, co-ordinating activities between them and the Ministry of Health. In addition, these providers assisted in programme monitoring by reporting beneficiary attendance (and the healthcare data from the visit including weight and any vaccines or supplements given). Of course, internalizing the health service delivery costs in the programme had implications for the programme activities and budget. Lastly, during the pilot just over 10 per cent of time was spent on each of the following activities: institutional strengthening (activities such as hiring and training staff), beneficiary incorporation (planning and carrying out incorporation meetings in which the programme's goals and the rights and responsibilities of beneficiaries were explained), and external evaluation. These percentages change little if we instead calculate a weighted average of time allocation using as weights the (growing) number of people in the office in each year (bottom panel of Table 2).

The evolution of the time-shares during the three years of the pilot demonstrates how some activities represent upfront or fixed investments while others represent ongoing activities. Programme design of the pilot phase declined substantially, from 27 per cent in 2000 to 6 per cent in 2002. Offsetting this decline, however, was increased effort in designing (and lobbying for) Phase II. The combined effect was that the total share

dedicated to design activities was largely unchanged over the three years. Unsurprisingly, the next two activities, institutional strengthening and beneficiary identification, declined in intensity as the programme matured. The beneficiary identification census was carried out in 2000 and 2001, but having achieved the pilot phase target of reaching 10 000 beneficiaries, very little activity of this sort was necessary in 2002.

Time spent incorporating new beneficiaries also declined, though related activities remained an important part of the overall time allocation in 2002. We have separated incorporation activities into two types: *expansion* activities necessary for expansion into new programme areas (e.g., carrying out the assemblies) and *maintenance* activities necessary for day-to-day incorporation of new beneficiaries in existing programme areas (e.g., due to changes in family composition). While the former decreased over time, the latter increased as the beneficiary base grew. In similar fashion, we separated the activities dedicated to demand-side transfer delivery into expansion and maintenance subcategories. Overall, this activity was declining in intensity over time, though the ongoing maintenance component remained roughly constant at 2 per cent.

Activities related to monitoring compliance with programme conditionality grew in intensity along with the number of beneficiaries. As the healthcare services came on line, delivery of supply-side services was much more time intensive in 2001 than in 2000. Over time, expansion-related activities within this category, such as the diagnostic interview needed to integrate each child into the MIS, diminished in importance, while maintenance activities increased. Monitoring of supply-side services also increased substantially over the period; the large increase in 2002 was due to an intensification of monitoring, including random spot-checks of private providers. Finally, the time devoted to evaluation declined steadily over the three years.

4.2 Programme Costs and Cost Shares

RPS accounting records were the principal source of information from which we identified programme (administration) costs and benefits (the monetary transfers and value of services provided). Table 3 presents the annual programme accounting costs and transfers for the pilot phase, before making any adjustments. Programme costs rose gradually over the three years, while programme transfers rose steeply as both the number of beneficiaries, and the number of transfers made per year, increased. As designed, a normal year of demand-side operations in RPS includes six bimonthly transfers to households. In 2000, however, because the programme was just beginning, only two transfers took place in the latter part of the year. In 2001 and 2002, which can be considered more operationally normal, 5 of the scheduled 6 transfers were made. Similarly for payments to healthcare providers, in 2001 only 2 of 12 planned payments were made, as the services only got underway in mid-2001. However, in 2002, 11 of 12 payments were made. These shortfalls in planned transfers suggest an upward bias in the estimated CTRs we present below of between 10 and 15 per cent in 2001 and 2002, compared with the potential. Table 3 also shows that most equipment costs (e.g., computers, office furniture, etc.) were made in the first year. Long-term consultant costs declined in the third year as the design phase was completed, though this was more than offset by an increase in operating costs. Finally, even though the evaluation-related 'service flows' were evenly spread out during the three years, evaluation costs increased over time, reflecting the payment schedule.

Table 3. RPS accounting costs and transfers (\$)

	2000 ^a	2001	2002	Total
Programme administration costs				
Long-term consultant and staff salaries	354 875	441 956	351 976	1 148 807
Operating costs	225 340	239 641	482 732	947 713
Equipment	202 262	35 256	52 751	290 269
Training and technical assistance	125 969	197 935	166 224	490 128
Food security transfer delivery	13 108	70 554	40 276	123 938
Education transfer delivery fees	3384	30 358	23 254	56 996
Incorporation assemblies	20 948	14 655	0	35 603
Targeting	103 533	74 940	0	178 473
External evaluation	86 928	178 310	314 886	580 124
Auditing	0	6950	16 050	23 000
Financial costs	13 000	57 000	44 000	114 000
Total programme administration costs	1 149 347	1 347 555	1 492 149	3 989 051
Programme transfers				
Total demand-side transfers	442 966	2 314 632	2 232 654	4 990 252
Food security, health, nutrition	356 958	1 626 706	1 543 765	3 527 429
Education	86 008	687 926	688 889	1 462 823
Total supply-side transfers	9046	386 674	959 995	1 355 715
Food security, health, nutrition	1767	349 514	923 537	1 274 818
Education	7279	37 160	36 458	80 897
Total transfers	452 012	2 701 306	3 192 649	6 345 967
Cost-transfer ratio				
Total costs/demand + supply transfers	2.543	0.499	0.467	0.629

Source: RPS accounting records from February 2003.

^aYear 2000 includes 1999 expenses (\$38 484 in total, \$27 720 in consultants, and \$10 764 in operating costs).

At this point, we present our first crude estimates of the CTR (bottom row of Table 3). The interpretation is that this is what it cost to deliver one unit of transfers to a beneficiary, given all the previously mentioned features of the programme. For the pilot as a whole, the ratio was 0.629—but this overall average masks a sharp decline over time. Since transfers only started at the end of 2000 and the programme was undertaking a lot of its initial fixed investment, it is no surprise that the CTR for 2000 is quite high (2.5). In the latter two years, it declined substantially—to less than 0.5—reflecting the declining importance of fixed costs (such as programme design) and the increasing transfers. If we stopped the analysis here, we would conclude that an ongoing programme requires approximately 50 cents in administration costs for every dollar of current benefit delivered. This conclusion would be premature, however, as it fails to account for any one-time fixed costs, particularly those associated with programme design.

Table 4 presents the disaggregated programme cost shares across programme activities for all three years, after programme costs in Table 3 have been allocated to the activities first shown in Table 2. For each activity we have added the directly and indirectly assigned costs (described in Section 3.2). Since 75 per cent of the costs are indirectly assigned, the broad patterns seen in the time-allocation matrix are replicated here, though some of the cost shares do differ from the time-shares. Whereas approximately 25 per cent of the time was allocated to programme design and supply-side benefit delivery, only 20 per cent of the administration costs is allocated to each of these activities, since they were relatively time-intensive, as opposed to resource-intensive. The reverse is true for the evaluation expenses, which were 22 per cent of the total administration costs, in part due to the

Table 4. RPS activity cost shares

	2000 ^a	2001	2002	Total
By activity (percent of total costs)				
General programme design	19.8	15.9	18.4	18.0
<i>–Pilot phase</i>	19.6	7.0	4.4	9.7
<i>–Phase II</i>	0.2	8.9	14.0	8.3
Institutional strengthening	9.1	7.1	5.2	7.0
Beneficiary identification	20.1	16.1	1.0	11.6
Beneficiary incorporation	14.8	8.4	6.0	9.3
<i>–Expansion</i>	14.6	5.9	0.2	6.2
<i>–Maintenance</i>	0.2	2.5	5.8	3.1
Benefit delivery: demand-side transfers	4.0	9.3	5.6	6.3
<i>–Expansion</i>	1.2	0.6	0.0	0.5
<i>–Maintenance</i>	2.8	8.7	5.6	5.8
Conditionality/certification of requirements	0.0	2.0	6.8	3.3
Benefit delivery: supply-side services	15.1	22.1	21.0	19.7
<i>–Expansion</i>	15.1	11.5	3.1	9.4
<i>–Maintenance</i>	0.0	10.6	17.9	10.3
Monitoring/evaluation of supply-side services	0.0	0.2	6.8	2.6
External evaluation of the programme	17.1	18.9	29.2	22.2
	100.0	100.0	100.0	100.0
Total programme administration costs (\$)	1 149 347	1 347 555	1 492 149	3 989 051

Source: Calculations by the authors using Tables 2 and 3 and methodology described in the text.

^aYear 2000 includes the costs and activities for the first two months of the programme in 1999.

expense of carrying out three large household surveys. The cost share for implementing the demand-side transfers declines over time, suggesting that learning-by-doing led to an increase in efficiency in that activity as the number of beneficiaries increased.

4.3 Programme CTRs

Table 5 presents CTRs by programme activity. Rather than discuss them one by one for each activity, which would largely mimic the above descriptions for the time-allocation matrix and cost shares, we explore how they might vary for different programme types—making adjustments by sequentially removing fixed costs not associated with pilot operations, fixed costs associated with pilot operations, and fixed costs associated with expansion—to arrive at estimates of the CTR for continued programme operation. In the first row of the second panel of Table 5, we reproduce the aggregate CTR before any adjustments (from Table 3).

In the second row, we consider how the ratio changes when we remove the fixed costs related to Phase II and external evaluations. We treat these as fixed costs not related to the pilot phase, because they primarily informed the design of Phase II. Removing these costs substantially reduces the estimated CTRs and yields a programme to-date average CTR of 0.437 and a final year ratio of 0.265, following a steep decline from the first year and a more gradual one from 2001.

In the third row of the second panel of Table 5, we remove all the remaining fixed costs associated with programme design of the pilot phase, further reducing the programme to-date average (0.376) and individual year figures. The decline over time reflects the relative

Table 5. RPS cost–transfer ratios (CTRs)

	2000 ^a	2001	2002	Total
By activity				
General programme design	0.501	0.080	0.086	0.113
– <i>Pilot phase</i>	0.497	0.035	0.020	0.061
– <i>Phase II</i>	0.004	0.045	0.066	0.052
Institutional strengthening	0.232	0.035	0.024	0.044
Beneficiary identification	0.511	0.080	0.005	0.073
Beneficiary incorporation	0.377	0.042	0.028	0.058
– <i>Expansion</i>	0.371	0.029	0.001	0.039
– <i>Maintenance</i>	0.006	0.013	0.027	0.019
Benefit delivery: demand-side transfers	0.102	0.047	0.026	0.040
– <i>Expansion</i>	0.031	0.003	0.000	0.003
– <i>Maintenance</i>	0.071	0.044	0.026	0.037
Conditionality/certification of requirements	0.000	0.010	0.032	0.020
Benefit delivery: supply-side services	0.384	0.110	0.098	0.124
– <i>Expansion</i>	0.384	0.057	0.014	0.059
– <i>Maintenance</i>	0.000	0.053	0.084	0.065
Monitoring/evaluation of supply-side services	0.000	0.001	0.032	0.017
External evaluation of the programme	0.436	0.094	0.136	0.140
Overall				
Aggregate	2.543	0.499	0.467	0.629
– <i>Phase II design and evaluation</i>	2.103	0.360	0.265	0.437
– <i>Pilot phase design</i>	1.606	0.325	0.244	0.376
– <i>Beneficiary identification and other expansion activities</i>	0.309	0.156	0.223	0.202
– <i>Institutional strengthening</i>	0.077	0.120	0.201	0.158

Source: Calculations by the authors using Tables 2 and 3 and methodology described in the text.

^aYear 2000 includes the costs and activities for the first two months of the programme in 1999; there were no transfers made during 1999.

importance of fixed (design) costs at the outset and how these diminish with programme maturity. These estimates approximate the costs for an *expansion* of the programme, in its current form, to different areas, since they continue to include the one-time expansion activities associated with incorporation of new beneficiaries and benefit delivery.

Next, we remove the beneficiary identification activity and all the expansion tasks. This approximates the expected ratio for programme *continuation* in 2003 if RPS were only continuing to serve the same beneficiaries in the same areas at current levels of efficiency. Now the programme to-date average is 0.202, less than half the CTR when fixed costs related to the pilot are included.

To this point, we have adopted a relatively conservative approach to assessing the cost-efficiency of RPS opting, where possible, toward ‘overestimates’ of the ratio. In the final row in the second panel, we relax this conservative approach and consider the cost efficiency without those activities related to institutional strengthening. While it would be inappropriate to assume that institutional strengthening activities would completely disappear in an ongoing programme, it is also unlikely that they would continue at the levels seen in the first three years of operation; indeed, they declined substantially over that period. Thus, we can treat the last column of the final two rows in the second panel as representing ‘bounds’ for our estimate of the long-run CTR for programme continuation of the mature programme in its current form. Taking into account all of the potential biases described above, in particular the failure to make all six scheduled transfers in either 2001

or 2002, we conclude that on balance (and before considering private and social costs) the CTRs presented here are, if anything, overstated.

At the outset, we highlighted two key design features of the programme—targeting and conditioning—and their associated costs. What would the CTR be if these were not features of the programme? Using the component CTRs in Table 5, we can approximate how the overall CTR would change when we consider alternative programme designs. As a starting point, we take the CTRs without design and evaluation components (the third row in the second panel of Table 5). This represents the targeted and conditioned programme. When we remove those activities related to conditioning, we see a large decline in 2002, the year in which conditioning was fully operational and comprised about one-quarter of the costs associated with delivering transfers. Removing targeting-related activities, which include identification and incorporation of households, has a larger effect on the ratio at the outset; however, in the final year there is only a 15 per cent decline. Without targeting or monitoring of conditions, the estimated long-run CTR approaches 0.15, a total decline of about 40 per cent, underscoring that targeting and conditioning require substantial resources.

4.4 Adjusted CTRs Incorporating Private Costs

While our information is most complete for *programme* costs and transfers, there are other current costs that result directly from the introduction of the programme, particularly related to the conditionality. Indeed, failure to include them may lead to severely under- or overstated CTRs. Most of the private costs that stem from the programme are time costs incurred by beneficiaries.

We assume that the value of increased time costs for children is not significant, because only young children are targeted. This is uncontroversial for those under age 5, but some school-age children may have to forego income-earning activities. For the 70 per cent of children who were in school before the programme, however, there is no, or little change in private costs. It is therefore reasonable to assume that, on average, time costs for children are not substantial.

The value of time dedicated to the programme by adults, particularly the household representatives, is a different matter. Beneficiaries incur time costs as a result of the programme in several ways: they must attend health education workshops, bring their children to the health controls, and travel to transfer distribution points. Other costs, such as more time spent caring for children, are related to the programme but not strictly necessary for participation, so we do not consider them. The surveys carried out for the programme evaluation included questions specially designed to value these additional costs. The median time cost for a household representative is about 40 hours over the year; the increased out-of-pocket cost for travel is about C\$40.

We calculated those amounts as follows, focusing attention on *changes* in time allocation due to the programme.⁶ Each representative has to attend six workshops per year, each of which lasted 4 hours, for a total of 24 hours. They also must bring their children to the health controls. Because the RPS health services are delivered closer to the communities than the typical health post, and are expressly for beneficiaries, travel and

⁶These calculations are based on a first-difference, comparing programme beneficiaries with non-beneficiaries from the randomly selected control group in 2002.

waiting time actually decrease for beneficiaries, on a per visit basis (hence it is a private benefit). This gain, however, is somewhat offset by the fact that due to the requirements, beneficiary children go to more controls than their counterparts in the control group (Maluccio and Flores, 2004). The net effect is that travel time is about the same for the two groups, while waiting time decreases by about one hour for beneficiaries. We therefore estimate that there is no change in private costs due to this component of the programme (including out-of-pocket travel costs).

The final component of the programme that induces a time cost to the household representatives is travelling to transfer distribution points. For beneficiaries, we asked how many *extra* trips (compared to if there had been no programme) they made to the distribution points in the previous year to receive their transfers and how long they waited for the transfer after they arrived. The total time necessary for these additional activities during the year was approximately 6 hours of travel and 10 hours of waiting. In addition, beneficiaries spent an extra C\$40 during the year for travel expenses for these visits. If we value the time of these women at C\$30 for an eight-hour day, slightly more than most rural women who work reported earning in the 1998 LSMS, we calculate an incremental private cost for household representatives of C\$190, including the out-of-pocket expenses.

Additional private costs are also borne by the promotoras. As they are also beneficiaries, some of their work coincides with their own responsibilities as programme participants. Based on discussions with promotoras and their counterparts in RPS, we estimate that they contribute three additional days per month for their duties. Each promotora has on average 17 beneficiaries in her charge, so that the average additional time per beneficiary is about 2.5 days a year, or 20 hours. Valuing their time at C\$30 per eight-hour day yields an incremental private cost of C\$75.

Combining the total costs for both household beneficiaries and promotoras, then, yields an estimated private cost of some C\$265 a year per beneficiary, a bit less than \$20 for each of the 10,000 beneficiaries. These costs are largely split between two activities in the programme, the delivery of demand- and supply-side benefits. Including private costs in the CTR leads to an increase of some magnitude. For example, including those costs in the numerator for the continuation estimate in 2002 would change the ratio from 0.223 to about 0.290, a 30 per cent increase. Programme designers must be aware of the costs their programmes impose on private individuals.

4.5 Consideration of Social Costs and Benefits

Of course, there are other costs incurred (or saved) or benefits received by other actors in the economy as a result of the programme, i.e., social costs and benefits. For example, some programme expenditures include taxes that are not true social or resource costs, but constitute a transfer of resources from the RPS budget to general revenues. In a full, general equilibrium accounting, one would treat these costs as benefits in the 'government account', thereby reducing the CTR.

At the same time, the programme expenditures reported here do not include supply-side costs incurred by the ministries of health and education, for example for providing vaccines or hiring new teachers. The Ministry of Health provides RPS-contracted healthcare providers with vaccines and other materials, and the providers deliver them to beneficiaries. As with other in-kind service transfers, we can consider treating the value of these items (approximately \$10 per beneficiary child) as the value of the in-kind

transfer. It is not possible, however, to assess the additional costs to the Ministry of Health associated with the programme, though arguably they are not very large and almost certainly are smaller than \$10 per beneficiary child, since savings associated with not having to carry out the delivery of vaccines as well as provision of health services offsets marginal costs.

On balance, we expect that by ignoring social costs and benefits, as we do because of inadequate information, the CTRs we present slightly overestimate the society-wide CTR.

5 CONCLUSIONS

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 only interventions, which increase the availability and quality of health and education services, are often ineffective in resolving this problem, since resource constraints facing poor households preclude them from shouldering the private costs associated with utilizing those services. Innovative programmes like RPS attack this problem by targeting transfers to the poorest communities and households and by conditioning these transfers on attendance at school and health clinics. This effectively transforms pure transfers into human capital subsidies for poor households. A criticism of these programmes, however, is that a large proportion of their budgets is absorbed by administration costs and thus never reaches the intended beneficiaries.

This paper outlined a methodology for assessing cost efficiency focusing on the cost-transfer ratio, defined as the ratio of non-transfer costs to transfer costs, and then applied it to the pilot RPS. In doing so, we demonstrate that the usual approach to assessing cost efficiency—making calculations using only the typically available raw accounting data—is misleading. Rather, we must delve into the details and specific activities of the programme. Understanding the features of the programme and exactly how the CTR is calculated, are crucial for interpreting it, particularly for pilot programmes such as RPS that typically have many upfront fixed costs associated with design and setting up operations. Very different numbers emerge when one takes snapshots of such programmes at different stages in their development or when we include or exclude fixed costs. In the case of the RPS pilot, ongoing costs were halved when we excluded fixed costs not likely to repeat under programme continuation. Understanding programme features is also important for complex programmes such as conditional cash transfer programmes that have costs associated with specific design features, or that induce changes in beneficiary behaviour that may engender substantial private costs.

For targeted and conditioned transfer programmes such as RPS to be cost effective at reducing poverty, they must be cost efficient in terms of having low nontransfer costs and, at the same time, effective at generating human capital impacts (Caldés *et al.*, 2004). Since the latter requires that resources be devoted to targeting and monitoring conditionality, there is a potential tradeoff between cost efficiency and cost effectiveness that must be considered in any cost-reduction exercise. Reducing the CTR may not be desirable if it comes at the expense of activities devoted to important administrative tasks.

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