

**Performance-Based Incentives for Health: Demand- and Supply-Side  
Incentives in the Nicaraguan Red de Protección Social**

By Ferdinando Regalía and Leslie Castro

**Abstract**

Nicaragua's *Red de Protección Social* (RPS) is one of the first conditional cash transfer (CCT) programs implemented in a low-income country. Demand-side incentives, in the form of monetary transfers, are provided to poor households on condition that their children attend school and visit preventive health care providers. The design of the program is unique among CCT programs because these demand-side incentives are complemented by supply-side incentives aimed at improving the provision of health care. Health care providers are paid on the basis of their performance against predetermined targets. Both private and nonprofit health care providers contracted by the government extend the coverage of services to previously underserved areas.

While it is difficult to disentangle the individual impact of performance-based, demand-side interventions from the impact of performance-based, supply-side incentives, a rigorous evaluation of the program shows that their combination can work to increase the utilization of health services among the poor, and to improve health outcomes significantly. An evaluation undertaken ten months after demand-side incentives were stopped in certain areas revealed that the utilization of preventive health care services remained high. It is possible, therefore, that a well-targeted strategy of supply-side, performance-based incentives on its own may be sufficient to maintain high levels of health care service utilization, at least among poor households that have benefited from a relatively long period of education on the importance of preventive health care, while receiving demand-side financial incentives. However, the RPS evaluation results cannot exclude that, even after their removal, demand side incentives continue to exert, at least in the short term, a positive impact on service utilization. In the implementation of future RPS-type approaches, research efforts should focus on and be devoted to “unbundling the bundle” and assessing the relative contribution of supply vs. demand-side incentives.

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Nicaraguan Red de Protección Social**

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## ACRONYMS

AIN-C	Integrated Attention to the Child at the Community level
CCT	conditional cash transfer
CGD	Center for Global Development
CTR	cost transfer ratio
DHS	domestic health survey
DPT	diphtheria, pertussis and tetanus vaccine
ESIF	Nicaraguan Emergency Social Investment Fund
GDP	gross domestic product
GON	Government of Nicaragua
IADB	Inter-American Development Bank
IFPRI	International Food Policy Research Institute
LSMS	Living Standards Measurement Survey
MOF	Ministry of the Family
MOH	Ministry of Health
NGO	non-governmental organization
P4P	pay for performance
PMT	proxy means test
RPS	Red de Proteccion Social
SILAIS	Local System of Integrated Health Care
WHO	World Health Organization

## I. INTRODUCTION

The *Red de Protección Social* (RPS) is one of the first Conditional Cash Transfer (CCTs) programs to be implemented in a low-income country. Modeled after the Mexican conditional cash transfer program *Progresa*, (now called *Oportunidades* (Skoufias 2005)), the Government of Nicaragua (GON)'s RPS program is designed to address both current and future poverty via cash transfers targeted to households living in poverty in rural Nicaragua. The transfers are conditional, and households are monitored to ensure that their children are, among other things, attending school and making visits to preventive health care providers; when they fail to fulfill those obligations, they no longer are eligible for the program. Monitoring and effective enforcement of households' compliance with these "conditions" make RPS transfers a demand-side "pay-for-performance" (P4P) scheme, which addresses financial constraints preventing individuals within households from accessing basic education and health services<sup>3</sup>. By targeting the transfers to poor households, the program alleviates short-term poverty. By linking the transfers to investments in human capital, the program aims at addressing long-term poverty (Maluccio and Flores, 2005).

Though demand side incentives are a key element of the RPS design, one of the RPS's most interesting and unique features is its reliance on complementary supply side incentives and a P4P scheme to improve use and quality of preventive health care services among the very poor. Since the early stages of the RPS design, the GON recognized the urgent need to strengthen the supply of specific health care interventions

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<sup>3</sup> See Eichler, R. (2006) for a definition of P4P used by the Working Group on Performance Based Incentives of the Center for Global Development (CGD).

in the areas targeted by the RPS. Failure to do so would have meant that beneficiary households could not comply with the “conditions” imposed by the program, putting the very same essence of a CCT program at stake.

Two key implementation decisions were therefore taken by the GON. First, faced with the Ministry of Health (MOH)’s inability to expand capacity, in a relatively short time frame, to provide health care services to residents of the most remote localities within the areas served by the RPS, the GON decided to outsource these services to private providers (for-profit agencies and non governmental organizations) through a competitive bidding process. The MOH was to retain the supervision of these providers. Outsourcing of publicly financed basic preventive health care services had never before been carried out in Nicaragua. Secondly, contracted health care providers were to be paid based on their performance, i.e. against the achievements of measurable and predetermined coverage targets to be verified by independent sources. The adoption of a P4P scheme was intended to provide strong incentives for health providers to develop and implement efficient plans to quickly expand service coverage and outreach activities in areas which were significantly underserved.

The combination of providing performance based awards (monetary transfers) to households and setting up incentives for health care service providers so that they are rewarded for achieving performance targets proved to be an effective mechanism to increase access and quality of basic preventive health care services in RPS localities.

The RPS was originally conceived as a two phase program, to be implemented over a period of five years starting in 2000. The first phase, which was supported by the Inter-

American Development Bank (IADB) and executed by the Nicaraguan Emergency Social Investment Fund (ESIF), was supposed to last for three years, with a total budget of US\$ 11 million, representing approximately 0.2% of GDP or 2% of annual recurring government spending on health and education. In 2002, as a condition of the IADB's loan financing the project, and to assess whether the program deserved to be expanded in the same or in a modified form, the GON solicited various external evaluations of the first phase of RPS. The International Food Policy Research Institute (IFPRI) conducted a quantitative impact evaluation of the RPS's first phase, using a randomized locality-based design. In late 2002, based in part on the positive findings of the various evaluations, GON and IADB agreed to an expansion of the program for three more years with a budget of US\$ 22 million. The GON decided that the execution of the second phase should be passed to the Ministry of the Family (MOF), with the objective of institutionalizing the program within a line ministry. The original RPS design was slightly modified during the second phase to include a broader array of preventive health care interventions, to reduce the size of transfers and to strengthen targeting tools. IFPRI also carried out a quantitative impact evaluation (using a quasi-experimental design) alongside a qualitative evaluation of the RPS's second phase.

## **II. DEMAND VS. SUPPLY CONSTRAINTS: WHY CONDITIONAL CASH TRANSFERS?**

One of the stated objectives of the RPS, as well as of all CCT programs, is to ease the budget constraints (or income related demand constraints) families face when “buying” health or education for their children. Transfers are meant to help families cover the private costs (both direct costs and opportunity costs) of sending children to school or bringing them for preventive health check ups. CCTs aim to bridge the gap between

demand and supply of preventive health and education services among the very poor and to help households overcome demand side barriers or obstacles they may face which prevent optimal utilization of these services. In fact, demand for these services might remain constrained for different reasons even if supply is enhanced. This might be due for example to: an imperfect knowledge of returns to human capital investment<sup>4</sup>; high total costs of accessing these services; an increased risk environment which reduces the incentive to invest in human capital<sup>5</sup> and social exclusion. Demand for preventive health care services of a given level of quality, for example, is influenced by factors that determine whether an individual appreciates the value of it and is willing and able to seek this type of care, which in turn depends on the direct and opportunity costs of accessing services. Recognizing these tensions and introducing demand side P4P interventions, such as CCTs, that try to align consumer objectives with social goals has the potential to support care seeking behavior<sup>6</sup>.

Was there any evidence of these demand side constraints that justified the adoption of a cash transfer approach when the RPS was designed? At the time the program was conceived the available evidence was stronger for education than for health. For example, according to the 1998 Living Standards Measurement Survey (LSMS)<sup>7</sup>, 48% of extremely poor children in Nicaragua cited economic problems as their reason for not attending school and another 6% declared that rural labor activities prevented them from attending. Further evidence of the existence of demand side constraints in education came

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<sup>4</sup> In many African countries for example, the Demographic and Health Surveys (DHS) show that only a small percentage of young people are aware of multiple ways to prevent HIV/AIDS.

<sup>5</sup> For example, high prevalence of HIV/AIDS associated with declines in average years of schooling in African countries.

<sup>6</sup> Eichler, R (2006).

<sup>7</sup> A nationwide multi-topic household survey.

from the RPS impact evaluation baseline data (IFPRI, 2001b), collected just before the program started. In RPS localities, only 58.9% of extremely poor children age 7-13 were in school (ibid.). The same figure was 65.7% and 81.7% respectively among the poor and the non-poor (ibid.). This evidence was strongly suggestive of the existence of income related demand side constraints, but nevertheless it was not conclusive. At the time in fact, no attempt was made to assess the relative contribution of possibly different supply-side constraints (for example distance to school, school infrastructure, etc..) that extremely poor, poor and non-poor households were facing.

The evidence of demand-side constraints households may have faced in their utilization of health services was also relatively limited when the RPS was designed. However the RPS impact evaluation baseline provided some support, though not conclusive, to the hypothesis. Before the program started, in RPS localities, only 66% of extremely poor children younger than three received any health check up in the six months prior to baseline data collection (ibid.). This figure was 73% among the poor and 78% among non-poor children residing in the same localities (ibid.). A similar pattern is observed for other indicators, such as the percentage of children younger than three in the growth monitoring and development program (ibid.)

One thing that was clear from the very beginning was that health supply constraints (in terms of both access and quality) were much more binding than those in education. This was corroborated by locality-specific surveys that were collected by the RPS team to assess the conditions of the health and education services prior to the beginning of the program. Therefore, from the very beginning, more than a third of the total resources



allocated to the RPS program were earmarked to strengthen the supply of preventive health services and, to a lesser extent, education services.

Interestingly, during the first 24 months of program execution the greatest impacts on service utilization in both education and health were observed among very poor households (IFPRI, 2003). Although the RPS impact evaluation was not designed to disentangle the relative contribution of demand vs. supply side interventions, these results seem to lend some indirect support to the idea that demand side constraints (essentially households' scarce resources) might have been more binding in terms of service utilization among extreme poor households before the program started. Once the RPS began, all residents enrolled in the program had to comply with the same set of conditions to receive transfers and faced a fairly uniform access and quality of preventive health services<sup>8</sup> (Maluccio et al, 2006).

At the program preparation stage no real attempt was made to estimate the private costs faced by households to access health and education and the "optimal size" of the transfer, mainly for lack of data especially in health. The average size of the transfer was estimated taking into consideration the consumption-poverty gap, i.e. the difference between extremely poor households' average consumption and the official extreme poverty line. During the RPS's first phase, this resulted in an average transfer of about 21% of recipients' total annual household expenditures prior to program implementation. In relative terms this percentage is similar to that received by beneficiaries in other CCT

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<sup>8</sup> In this analysis, Maluccio, J., Murphy, A. and F. Regalia (2006) attempt to disentangle the relative contribution of demand vs. supply side constraints on the program's impact in education by merging impact evaluation survey data with administrative data collected over the years at school level.

programs in Latin America and the Caribbean, such as in Mexico and Colombia. During the second phase transfers were reduced about 30% on average.

### **III. CASH VS. CONDITIONAL CASH**

RPS beneficiary households receive transfers as long as they comply with sending their children to school and to preventive health check ups as explained in greater detail below. Conditioning the transfer to a certain behavior is justifiable on three grounds. First, parents or care-givers might not fairly value the returns from investing in their children's health and education. Lack of information on future returns might be one explanation. In this case, parents' investment decisions are sub-optimal and conditioning the transfer might be welfare-enhancing for both parents and children. Second, parents or care-givers might reasonably assess and value the returns from investing in their children's health and education, but they simply like to spend their money on other things. In this case, conditions impose a welfare loss for parents and enhance children's welfare. Parents might always opt out from the program. Finally, investments in health and education have large externalities that families do not internalize. In this case, conditions address market failures and help capturing cross-sector effects. More pragmatically, conditions are broadly seen by policy makers as a necessary ingredient to achieve political support for these types of programs, otherwise perceived as pure social assistance.

No matter the rationale behind conditions, if households' budget constraints are the main reason behind their sub-optimal investment in children's health and education, income transfers alone might deliver an increase in the utilization of health and education services (Schady, 2006). The marginal contribution of conditions should be assessed

against the costs of ensuring their compliance. The design of the RPS impact evaluation does not allow direct assessment of the relative contributions of income (transfers) and price (conditions) factors on the final outcomes. However, the fact that RPS impacts on health and education service utilization were higher among the very poor (IFPRI, 2003) suggests that income factors might have played a key role beyond conditions. On the other hand, the conditions that the RPS imposes and, even more important, the fact that their compliance was generally enforced, have definitely boosted collective action at the municipality level to exert pressures on local and central authorities to improve the coverage of both health and education services. By itself, this empowerment factor represents a very important feature of CCT programs. However, if supply capacity is not stepped up in response to demand-side incentives, conditions could become a source of frustration among beneficiary households. Pressures to ease monitoring of households' compliance with programs' requirements normally ensue and the "conditionality" part of the transfers is diluted, as observed in a few countries currently implementing CCTs.

#### **IV. RPS HEALTH INTERVENTIONS: HOW THEY WERE CHOSEN AND IMPLEMENTED**

At the end of the 1990s, Nicaragua had levels of infant mortality well above the Central American average, a high prevalence of infectious and parasitic diseases, and pervasive malnutrition. Infant mortality accounted for the majority of all premature deaths and was primarily due to infectious diseases and malnutrition. Acute respiratory infections were the principal cause of illness and the second cause of death among children under five, while diarrheal disease was another important cause of child deaths. Malnutrition was the main factor underlying over half of under-five mortality and 20% of maternal deaths (World Bank, 2001). Before the RPS program started, 37.9% of children younger than

age five living in RPS program areas suffered from retarded growth (stunting) because of malnutrition or illness (IFPRI, 2001b). This figure was 1.6 times greater than the national prevalence of stunting for this age group for 1997-1998 and nearly 20 times greater than the statistically expected prevalence for healthy populations (Maluccio and Flores, 2005). In program areas, the poorest 20% of children showed the highest levels of stunting (ibid.).

Access to health care was (and still is) characterized by large and persistent differences between the poor and non-poor in Nicaragua. Extremely poor children reported illness with 50% greater frequency than non-poor children, and when sick, the non-poor consulted 50% more frequently. To access health care, the extreme poor had to travel three times the distance, and spend three times as much to reach health facilities, as their non-poor counterparts (World Bank, 2001). Before the program started in 2000, in RPS areas only 40% of children aged 12-23 months had received up-to-date vaccinations (IFPRI, 2001b). According to the Demographic and Health Survey (DHS) 1998 the vaccination coverage in rural areas was 68%. Before the program started, in RPS areas just above 70% of children younger than three had received any medical check up during the previous six months (Maluccio and Flores, 2005). As mentioned above, service utilization was lower among the poorest households.

Given this background, the RPS health interventions, during the first phase, concentrated on preventive health care services for children 0-5 years old. Scheduled preventive health care check ups for children 0-5 years old included: child growth and development monitoring (monthly for newborn to two years-olds, and every two months for two to

five year-olds), vaccinations (newborns to five-year-olds)<sup>9</sup>, and provision of anti-parasite medicines and micronutrients (vitamins and iron supplements). Sick children were referred by preventive health care providers to the closest health unit. The RPS adapted the nutrition counseling materials from the Integrated Attention to the Child at the Community level (AIN-C) implemented in Honduras. Health educational workshops were also held every two months in RPS localities and were typically attended by groups of about twenty participants. Workshop topics included household sanitation and hygiene, nutrition, reproductive health, breastfeeding, among others.

To ensure an adequate supply of the specific healthcare interventions required by the program in the poor rural *comarcas* (hereafter, localities), the RPS team, jointly with the Ministry of Health (MOH), selected and contracted private providers through a competitive bidding process, as described below. Preventive health services were provided free-of-charge.

Some RPS localities did not have any access to health services prior to the RPS intervention. Others did have access to health posts, at least in theory; however the reality was that the closest might be many hours of walk away. During the planning stage, when decisions had to be taken as to where preventive health care services supply needed to be strengthened, the RPS program adopted the World Health Organization (WHO)'s definition of "access": preventive health interventions had to be delivered at a service location (typically a community center, a church or house of one of the beneficiaries) no more than an hour of walk away from where the RPS beneficiary

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<sup>9</sup> The Ministry of Health guidelines prescribe that a child ages 12-23 months should have at least the following vaccines: (1) one dose of BCG; (2) three doses of polio; (3) three doses of either pentavalent or diphtheria, pertussis, and tetanus (DPT), and (4) one dose of measles, mumps, and rubella (MMR).

families lived. Given the topography of many of the municipalities covered by the RPS, this “distance” requirement created a stark difference between the accessibility of the “traditional” supply of services provided by the MOH and that of the RPS program.

The RPS’s biggest impact on service supply accessibility was achieved during its second phase, when the program entered the impervious terrains of the Atlantic Coast. For example, the municipality of Wiwili, in the Nicaraguan Atlantic Coast at the border with Honduras (with an extension of 3,011 squared kilometers, low population density, no paved roads and where most localities are only accessible by boat) was served by only nine rural health centers before the RPS program entered the municipality in 2004. It was not uncommon for a family to have to travel about eight hours by boat to reach the closest health center (a very expensive trip given the price of the gasoline) where people were assisted by auxiliary nurses, and rarely by doctors and generally no medicine could be found. During the dry season, the same trip would take many hours of walk.

Currently, under the RPS, preventive health care services are provided in 325 service locations in Wiwili. Every month, private provider health care teams leave the municipality center and travel for two/three weeks in a row to visit their assigned remote localities. A similar situation is found in Río Blanco in the Department of Matagalpa (with an extension of about 2,600 squared kilometers and low population density). The municipality was served by only four rural health centers before the RPS program. Now 130 service locations reached periodically by health care providers cover the municipality’s entire territory.

Mothers bring their children to the local service location to be seen by the private provider’s health care team. Each team is made up of three members: (i) a doctor; (ii) a

professional nurse and (iii) an auxiliary nurse or psychologist or a nutritionist. During the RPS's first phase, guidelines were as follows: first the professional nurse measured the child, inquired about the child's health and the caretaker's caring and feeding practices, and checked the vitamin A supplementation record. Then a doctor examined the child, prescribed appropriate anti-parasitic medicines and/or iron supplements according to the MOH protocol. If the child was growing well the doctor congratulated the caretaker. Then the caretaker returned to the nurse to receive individual counseling on how to maintain or improve growth, with key messages on breastfeeding, child feeding, illness care and hygiene, taking into consideration several factors such as the age of the child, whether the child had gained weight adequately during the previous month, and whether the child had been ill (Maluccio and Flores, 2005). Vaccinations were also administered. The transportation of vaccines to the most remote localities represented a big logistic challenge to preserve the integrity of the cold chain. This challenge was often met with the support of the communities by placing for example refrigerators that ran on gas in key locations.

This prescribed procedure for health check ups did not change during the RPS's second phase, however during this second phase, the RPS, in coordination with the MOH, increased the menu of health interventions provided to include: (i) sexual reproductive health including the distribution of contraceptives to women in childbearing age and adolescents; (ii) maternal health (pre-natal and post-natal check ups and logistical support to ensure adequate treatment, outside their localities, of women with at risk pregnancies); and (iii) vaccination boosters (DPT) for children 6-9 years old. Finally, in the most remote localities, such as those of the municipality of Wiwilí and Río Blanco, in

agreement with the MOH, private providers' health teams are also carrying medicines and administering treatment.

*Promotoras*, who are beneficiary women selected by the community, are always present when the services are delivered and get trained on the job. The objective is to create a net of human resources capable of at least performing the tasks associated with the child growth and development monitoring protocol and with nutritional counseling.

## **V. THE DEMAND SIDE: RPS TRANSFERS**

### **IDENTIFYING AND SELECTING BENEFICIARY HOUSEHOLDS.**

With limited information on poverty rates throughout the country<sup>10</sup>, during the first phase, the RPS team had to figure out the best way to identify the population intended to be targeted by the program – rural extremely poor households with children 0-14. During the first phase, the RPS team wanted to compare the effectiveness of two targeting options: (i) only geographical and (ii) geographical combined with household-level targeting. Geographical targeting was used to select departments, municipalities and, within municipalities, localities. Then, in some localities, household targeting was used to identify and select households based on poverty criteria.

At the beginning, all rural areas in all 17 departments of Nicaragua were eligible for the program. The focus on rural areas reflected the distribution of poverty in Nicaragua—of the 48% of Nicaraguans designated as poor in 1998, 75% lived in rural areas (World Bank 2001). For the first phase, the Government of Nicaragua selected the departments

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<sup>10</sup> The consumption based poverty map at the municipal level was launched at the end of 2000.



of Madriz and Matagalpa from the northern part of the Central Region, on the basis of poverty as well as on their capacity to implement the program. This region was the only one that showed worsening poverty between 1998 and 2001, a period during which both urban and rural poverty rates were declining nationally (World Bank 2003). In 1998, approximately 80% of the rural population of Madriz and Matagalpa were poor, and half of those were extremely poor (Maluccio 2005). In addition, these departments had easy physical access and communication (including being less than a one-day drive from the capital, Managua, where RPS is headquartered), relatively strong institutional capacity and local coordination<sup>11</sup>, and reasonably good coverage of schools and, to a much lesser extent, of health posts (Arcia 1999) which reduced the share of resources that, during the first phase, the RPS had to devote to increasing the supply of educational and health-care services (Maluccio, Murphy and Regalia, 2006).

During the next stage of geographic targeting, six (out of 20) municipalities were chosen, based on criteria similar to those used at the department level<sup>12</sup>. The six were well targeted in terms of poverty. Between 36 and 61% of the rural population in each of the chosen municipalities were extremely poor and between 78 and 90% were poor (Maluccio 2005), compared with national averages of 21 and 45%, respectively (World Bank 2003).

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<sup>11</sup> The Nicaraguan Social Investment Fund (NSIF) had launched its participatory micro-planning initiative in quite a few municipalities in these two departments. Under this initiative, Committees were created with the participation of municipal authorities, local representatives of the Ministries of Health and Education, of the NSIF and civil society organizations. The role of these Committees was to coordinate the investment in basic social infrastructure at the municipality level.

<sup>12</sup> The six were Totogalpa and Yalagüina municipalities in the department of Madriz, and Ciudad Darío, El Tuma-La Dalia, Esquipulas, and Terrabona municipalities in the department of Matagalpa.

During the last stage of geographic targeting, a marginality index was constructed, based on information from the 1995 National Population and Housing Census, and an index score calculated for all 59 rural census localities<sup>13</sup> in the selected municipalities. The index was a weighted average of a set of poverty proxy indicators (including family size, access to potable water, access to latrines, and illiteracy rates) in which higher index scores were associated with more impoverished areas (Arcia 1999). During the first stage of the RPS's first phase, 42 localities with the highest scores were deemed eligible to receive the program. These localities also formed the impact evaluation area of the RPS's first phase. The initial design called for geographic targeting alone in these 42 localities (that is, all resident households were eligible to receive the transfers). Nevertheless about 2.5% of the 6,690 households living in these 42 localities deemed to have substantial resources (for example own a vehicle a pickup truck, or more than 20 *manzanas* - 14.1 hectares - of land) were excluded *ex ante* from the program (Maluccio 2005). Another 6.8 percent of households of these 6,690 households was excluded after the orientation assembly and program registration for one or more of the following reasons: (i) households comprising a single man or a women who was not disabled; (ii) households with significant economic resources or a business; (iii) households that omitted or falsified information during the RPS census of these localities that was carried out to create a register of beneficiaries; and (iv) households did not attend the orientation assembly and/or decided not to participate in the program. In total about 6000 households were included in the roaster of beneficiaries at the end of 2000.

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<sup>13</sup> Census comarcas are administrative areas within municipalities that include between one and five small communities, each averaging 100 households.

An additional 4000 households were incorporated in mid 2001 using per-household targeting in the remaining 17 localities (of the 59 initially selected), based on a proxy means test (PMT) methodology. Using information from the 1998 LSMS survey, a model predicting households' per capita expenditures in rural areas was estimated. The model was collapsed down to 21 explanatory variables that were included in the RPS population census questionnaire administered to all households living in the localities selected through geographical targeting. This questionnaire was designed to collect the necessary information to register beneficiaries into the program, as well as to collect the information needed to apply the PMT. In these 17 localities, households whose predicted per capita expenditures were above a certain threshold were excluded from the program. The threshold was chosen to reduce the under-coverage among extremely poor households (i.e. the percentage of extremely poor households who were not selected into the program) to a level deemed acceptable to the RPS team<sup>14</sup>. Unintentionally, the threshold chosen for the application of the PMT almost coincided with the country's official poverty line.

During the RPS's second phase, geographical targeting was strengthened, with the adoption of a consumption-based poverty map for rural areas which was consistent with the country's official poverty map. Following a thorough analysis of the strengths and weaknesses of the PMT methodology, it was also decided that per-household targeting be applied only in localities with predicted extreme poverty incidence of less than 45%<sup>15</sup>.

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<sup>14</sup> Households with a 10 percent probability or higher of being extremely poor were selected into the program.

<sup>15</sup> Poverty incidence at the locality level was estimated applying the PMT algorithm to the RPS population census information.

**THE LOGISTICS BEHIND THE TRANSFERS: MONITORING HOUSEHOLDS' COMPLIANCE WITH CONDITIONS AND DELIVERING PAYMENTS.**

RPS Beneficiary households are eligible to receive transfers for a three year period if they comply with the program's requirements. The three-year rule was driven more by fiscal sustainability considerations rather than by any other technical rationale. The impact evaluation results described below suggest that some of the demand constraints households face are not overcome in three years, especially in education.

During the RPS's first phase, each eligible household received a cash transfer (*Bono Alimentario*) of US\$224 per year, paid out in six installments, on a bi-monthly basis. The transfer's size was independent from the household's size. Receipt of this transfer was contingent upon attendance to the educational workshops held every other month and upon taking all children 0-5 years old to scheduled preventive healthcare appointments. During the RPS's second phase, this flat transfer was reduced to US\$ 168 during the first year, US\$ 145 during the second and US\$ 126 during the third and last year of eligibility<sup>16</sup>.

Additionally, the education component provided each eligible household with children aged 7-13 who had not completed fourth grade a cash transfer (*Bono Escolar*) of US\$11 per month (for ten months each year), paid bimonthly. This transfer was contingent upon enrollment and 85% attendance in school of all children.<sup>17</sup> Households received this

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<sup>16</sup> The first phase transfers were considered too generous by the GON. Additionally, there was a general perception among researchers who peer reviewed the first phase impact evaluation results, that the same impacts on the utilization of services could be achieved by lower (more fiscally affordable) transfers. The impact evaluation results of the second phase lent some support to this hypothesis as discussed in section VII of this paper.

<sup>17</sup> Most rural schools did not offer 5th or 6th grade at the time.

amount regardless of the number of children aged 7-13 they have enrolled in school. If one child complies but the other(s) does(do) not, the household does not receive the transfer. In addition, during the first phase, the household received an annual transfer of US\$21 (*Mochila Escolar*) per eligible child and which is intended for school supplies, including uniforms and shoes and is contingent upon enrollment. This latter transfer was increased to US\$25 during the RPS's second phase to match the value of the beginning of the year in-kind package of school supplies that the MOE delivered to children in non-RPS schools, while the *Bono Escolar* was reduced to US\$ 9 per month (for ten months each year).

During the first phase, beneficiary households also received US\$5 per year for each child aged 7-13 who had not completed fourth grade. Households were required to transfer this amount to each child's teacher in order to supplement the teacher's salary and to compensate for his additional reporting duties<sup>18</sup> and to increase resources available to the school to purchase educational materials and other inputs (Maluccio, Murphy and Regalia, 2006). This transfer was increased to US\$ 8 in the RPS second phase.

Only the designated household representative is allowed to collect the cash transfers, and almost always, the RPS appoints the mother to this role<sup>19</sup>. As a result, more than 95% of the household representatives are women. This approach was motivated by the great amount of empirical evidence available world-wide showing that resources controlled

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18 In contrast to the health services component, which is provided by private contractors, the education services component of the program is provided by the Ministry of Education.

19 Only when the mother is not available (deceased, living and working far away from the home etc.) does the primary caretaker assume this responsibility.

directly by women show higher returns for the well-being of children and the overall family.

Cash payments are made each second month by contracted payment agencies at payment posts in each municipality. Overall, the frequency of payments has been regular. Lack of funding affected the number of payments households received between the first and the second phase of the program during the fall of 2003 and at the beginning of 2004.

Beneficiary women accrue to the payment posts in groups organized by the *promotoras*.

To receive her payment each beneficiary woman (or household representative) has to show her RPS card. This card, complete with picture, is issued by the RPS and is uniquely identified through a bar code<sup>20</sup>. All children enrolled in the program are also uniquely linked to the mother's or care-taker's bar code. At the payment post, each beneficiary woman receives a pre-printed receipt itemizing each transfer she is entitled to receive during that period. Although many beneficiary women (or household representatives) are illiterate and cannot read the receipt, they nevertheless know how to count the money received. RPS local representatives and *promotoras* often must spend much time explaining why certain amounts were subtracted during a certain pay period due to non-compliance with the program's requirements. At this stage, beneficiary women can also request a revision of the penalization they received. Records are checked by both local and central-level RPS representatives during the days following the claim and, if a mistake was made, the subtracted payment is re-instated during the following pay period.

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<sup>20</sup> Other CCT programs use different system to reduce fraud. The system employed by the RPS is however particularly efficient.

Households' compliance with program requirements is recorded by health service providers and school teachers on *ad-hoc* forms printed and distributed by the RPS team. Health providers' forms include the bar-codes and names of all households' members who, according to the program's rule, are expected to attend regular health check ups. These forms are also used by health providers as planning tools to schedule all check ups with eligible households' members. The RPS team regularly collects these forms from both health providers and teachers and constantly input the data in the RPS management information system. The beneficiary households' data base is therefore kept updated and the information on each individual household's compliance is used to prepare payment orders. There is always a time lag of about two months between the period during which households' compliance with program's rule is monitored and related payments are processed (e.g. a payment received at the beginning of May is related with compliance with program's rules in January-February). Data collected by health care providers is also transferred to the MOH.

During the first two years of RPS operation, approximately 10% of beneficiaries were penalized at least once and therefore did not receive one or both of the transfers (*Bono Escolar* and *Bono Alimentario*). A household can receive only one of the possible two transfers if, during the same period, compliance for one component is complete while compliance for the other component is incomplete. A full listing of program requirements<sup>21</sup> during the first phase (including those that were initially planned but ultimately not enforced) by household type is presented in Table 1.

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<sup>21</sup> When it was learned that some, but not all, schools practiced automatic promotion, enforcement of the grade promotion condition was deemed unfair and therefore was never enforced. Similarly, when there

In the second phase, program's requirements were increased to include participation in reproductive health care sessions by adolescents and women in childbearing age, maternal health (pre-natal and post-natal check ups) and vaccination boosters for children 6-9 year old.

It is also possible for households to be expelled from the program. Causes for expulsion include: (i) repeated failure to comply with program requirements; (ii) failure to collect the transfer during two consecutive periods; (iii) more than 27 unexcused school absences during the school year per beneficiary child<sup>22</sup>; and (iv) discovery of false reporting of information during any part of data collection, including information about fulfillment of program responsibilities. Initially failure of a beneficiary child to be promoted to the next grade was included by the RPS team as a possible cause of expulsion but this condition was never enforced. Less than 1% of households were expelled during the first two years of transfers, though approximately 5% voluntarily left the program, e.g., by dropping out or migrating out of the program area (Maluccio and Flores, 2005).

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were some delays in the delivery of vaccines, the up-to-date vaccination condition was also never enforced. A third condition, punishment of children who did not have adequate weight gain, was dropped at the end of the Phase I because of a concern about the role of measurement error and the finding that the poorest households were more likely to be punished. These changes highlight the importance of careful consideration of the required responsibilities and how they are to be monitored during the design of a conditional cash transfer program. They also show the importance of flexibility during program implementation (Maluccio and Flores, 2005).

<sup>22</sup> Non assistance is excused if accompanied by medical certificate



**Table 1: Nicaraguan RPS Requirements – Phase I**

	HOUSEHOLD TYPE			(B) + (C)
	(A)	(B)	(C)	
PROGRAM REQUIREMENT				
Attend bimonthly health education workshops	✓	✓	✓	✓
Bring children to prescheduled health care appointments Monthly (0-2 years) Bimonthly (2-5 years)		✓		✓
Adequate weight gain for children under 5 <sup>a</sup>		✓		✓
Enrollment in grades 1 to 4 of all targeted children in the household			✓	✓
Regular attendance (85 percent, i.e., no more than 5 absences every two months without valid excuse) of all targeted children in the household			✓	✓
Promotion at end of school year <sup>b</sup>			✓	✓
Deliver teacher transfer to teacher			✓	✓
Up-to-date vaccination for all children under 5 years <sup>b</sup>		✓		✓

Source: Maluccio and Flores (2005).

a. The adequate weight gain requirement was discontinued in Phase II, starting in 2003.

b. Condition was not enforced.

## VI. THE SUPPLY SIDE: OUTSOURCING AND P4P

In order to understand the real extent of the innovation brought about by the RPS in terms of the delivery and payment of primary health care services according to performance

(P4P), it is important to analyze the incentive structure providers faced in 2000, prior to RPS program implementation in targeted municipalities, as well as to compare the changes introduced by the RPS with the trends of the sector wide health reform.

As mentioned above, before the program started in 2000, preventive health care services, more specifically maternal and child care services, were under-utilized in RPS areas, especially by the poor. Service provision was carried out by MOH health centers, understaffed and chronically under-funded. No financial or material incentives targeting providers were in place aimed at contributing to the improvement of health outcomes. MOH budget allocations to these areas were decided according to historical trends and not the result of a needs-based planning and budgeting process. Often area-specific budget allocations were not known by those responsible for running health centers. In the municipalities served by the RPS, public health providers did not have any incentive to identify and implement strategies to provide more people with the needed services, nor to provide logistically difficult and extremely time-consuming outreach (providers were expected to cover wide geographical areas, requiring traveling long distances in many cases and the sums that were provided to cover costs of mobilization were often insufficient). Additionally, in 2000, the MOH did not have any experience contracting private providers. Therefore, in the RPS catchment areas, the measures introduced by the program in terms of contracting private health care providers and aligning payments of providers to the achievements of real and measurable service coverage targets, which will be discussed more thoroughly below, represented a drastic change compared with the pre-program situation.

Approximately one year after the launch of the RPS, in 2001, the MOH started reforming the way publicly provided medical care was organized and financed. The modernization project, supported by external donors, was aimed among other objectives, at improving budgeting arrangements between the MOH and hospitals and health centers (previously based on historical patterns), providing incentives to track the flow of funds more closely and tying financial rewards and sanctions to how the funds were used. As part of the MOH's strategy to strengthen the management of primary health care, annual "management" agreements were introduced which are contracts signed between the MOH, the Local System of Integrated Health Care (SILAIS), i.e. the MOH regional health authorities, and health centers. These contracts specify certain actions to be taken, goals to be achieved and the budget allocation at the facility level (though the great bulk of funding is not managed either at the SILAIS or at the facility level but centrally).

By 2004 all 17 SILAIS and a set of 152 health centers were under these "management" agreements. Perhaps the most important accomplishment of the reform has been the streamlining of health planning and budgeting through a new needs-based bottom up planning and budget methodology adopted by MOH, which benefited from the development and implementation of a new health information system (World Bank, 2005). This has helped specify what the MOH wants SILAIS and health centers to deliver given the budget allocation contained in the "management" agreements and making clear to SILAIS and health centers the envelope of resources available for their catchment areas. In theory, the level of funding specified in the contract annually were to be responsive to measures of local performance, so the agreements should have provided some kind of incentives. In practice, at this stage, the implementation of financial rewards

and sanctions does not seem to be systematic and compliance with annual agreements seems to be largely assessed against budget execution results rather than against reliable coverage externally verified target results. What the reform has delivered is a better execution by SILAIS and health centers of the programmed budget, a better management of commitments and the development of mechanisms to monitor them. Issues of recruiting policies, human resources planning, staff performance management and payment are yet to be addressed.

Finally, the expansion of health coverage to remote areas through NGOs contracting following the RPS model, which was another mayor line of interventions under the reform plan, has achieved only mediocre results (only two NGOs were initially contracted and one contact was discontinued just after one year)<sup>23</sup>.

Two considerations follow. The P4P scheme adopted by the RPS for contracting and delivery of health care services in the most underserved areas seems to have gone beyond what, at this stage, the broader health sector reform effort has been able to achieve. By effectively piloting outsourcing of services to private providers, the RPS has proved that it is possible to overcome, in a very short time period, capacity constraints that prevent poor people's access to preventive health care services. By paying providers based on their actual performance, i.e. against the achievements of measurable and predetermined coverage targets to be verified by independent sources, the RPS has gone beyond the implementation of a more efficient planning and budgeting process, by also offering a concrete example of how financial rewards and sanctions can be used as an effective mechanism to increase access and quality of basic preventive health care services.

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<sup>23</sup> World Bank (2005).

Unfortunately, as discussed below, the model adopted by the RPS for preventive health care service delivery and payment has not yet gained sufficient political and institutional support with the GON to be fully considered as part of a sector wide strategy to improve health outcomes. To constructively engage the GON in this policy discussion, future research should try to address an important issue which is not discussed in this chapter: the relative cost-effectiveness of RPS-like schemes for delivering services compared to other alternatives, for example the cost-effectiveness of direct delivery of services by the MOH, with or without demand side incentives.

### **HOW ARE SERVICE PROVIDERS CHOSEN BY THE RPS?**

The MOF, in coordination with the MOH, is responsible for the selection of health service providers through an international competitive bidding process<sup>24</sup>. The terms of the bidding specify the type of preventive health care services to be offered and the size and age characteristics of the population to be served<sup>25</sup>. Depending on the size of population to be served in a municipality, more than one provider can be contracted. Two types of providers have offered their services: for profit private agencies and non governmental organizations (NGOs). Selected providers must be trained and certified by the Departmental authorities of the MOH: the Local System of Integrated Health Care (SILAIS).

### **TERMS OF THE P4P CONTRACT**

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<sup>24</sup> Given the amount of the contracts, an international competitive bidding process is required by IADB procurement rules.

<sup>25</sup> This information is collected by the RPS team through the population census questionnaire administered to all households living in the localities and used to build the beneficiary households' registry.

The contract specifies a unit cost for each specific preventive health care service (e.g. one growth and development check up – which includes vaccinations, nutritional counseling and de-worming and micronutrients - one prenatal control, etc...). Contracted health care providers are paid each second or third month, depending on the municipality<sup>26</sup>. The amount a provider is paid is determined by multiplying the number of people served (by different groups: children 0-2 years old; 3-5 years old; 6-9 years old; pregnant and breastfeeding women, etc...) by the unit cost of the specific service provided (e.g. prenatal care, growth and development check ups, etc...). Health care providers are paid for the services offered. Vaccinations, micronutrients and other inputs are provided and paid for by the MOH.

Contracted health care providers carry out an initial analysis of the coverage of the preventive health care services promoted by the RPS in the localities they are assigned to cover. This activity is carried out with the support of the *promotoras*. All households residing in these localities are surveyed. This initial diagnostic allows: (i) to validate the household-level demographic information collected through the RPS population census questionnaire; (ii) to identify the final “universe” of households a provider will be serving and to get a final estimation of the amount of the contract between the MOF and the health provider; (iii) to enroll households with the provider; and (iv) to establish a baseline for the services that are going to be provided. This baseline is household-specific and allows the RPS team to issue *ad-hoc* forms for each household detailing which of the preventive health care services promoted by the RPS household’s members need. This information is also passed to the municipal delegations of the MOH to ensure

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<sup>26</sup> In the first phase payments were made monthly.

an adequate planning of the inputs (vaccines, micronutrients, etc..) the MOH has to make available to the health care providers. Health care providers are paid a per-household fee to carry out this initial diagnostic (about US\$ 9.3 per household on average).

#### **HOW PERFORMANCE IS MEASURED AND PROVIDERS ARE PAID**

Before the provision of preventive health care services starts a provider is paid an upfront fee of 3% of the entire amount of the renewable one-year contract. The rest is paid bi-monthly or quarterly against the achievement of coverage targets by groups (children 0-2 years old; 3-5 years old; 6-9 years old; pregnant and breastfeeding women, adolescents, etc...). For each specific group, the target is set at 98% of the active beneficiary households' members (e.g. those households who are actively enrolled in the program and receiving the demand-side transfers). If, after two or three months, the 98% target is missed for one group, the RPS information management system automatically prevents the provider from being paid for the services targeted to that group during that period. Payments are still made to the providers for the services offered to all the other groups where targets were met. If targets are missed for reasons outside the provider's control, the provider can present the RPS with an appeal (for example, households migrate and leave the localities, or some households' member was hospitalized, which has to be proved by supporting evidence). Verification ensues by the RPS team at the local and central level. If the documentation supports the appeal, the provider's payment can be re-issued at a later date. Taking into consideration these processes, the "real" coverage met by providers for each group is on average around 93% – 95% of the active beneficiary households' members. In terms of vaccinations or administration of micronutrients, a

provider is considered in compliance with the terms of the contract if the scheduled meetings with beneficiary households took place, despite the fact that the service was not delivered because the MOH did not provide the health provider with vaccines or micronutrients in a timely fashion<sup>27</sup>. These situations, more common at the beginning of the RPS implementation, became relatively rare later on.

Health care providers also serve households which are not enrolled in the RPS program yet reside in the same localities. Providers can cover up to 10% of these households and be paid for services offered on the basis of the group-specific unit costs mentioned above. In this case no targets are set and providers are paid only on the basis of the coverage achieved, whatever this coverage is.

All payments to providers are contingent upon the RPS team's verification of the coverage targets. The RPS team supplies health providers with *ad-hoc* forms for each beneficiary household and persons within the household. When a person receives a specific service, she or her mother or care-taker (*titular*) signs an *ad-hoc* form. A record of this visit is also kept by the beneficiary woman or care-taker. All these forms are stored by the providers and are periodically collected by the RPS team. The RPS team processes this information to assess not only households' compliance with the program's requirements but also whether coverage targets were achieved by the providers.

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<sup>27</sup> In order to increase the likelihood of vaccine and micronutrient availability at contracted provider service delivery points, the program designed official forms and made them available to providers. The program requested that providers use these forms to request inputs on a regular and frequent basis. In addition to being a useful programming tool, these forms also served to increase accountability on both sides: the MOH signed the forms, thus acknowledging receipt of the request and committing to providing the inputs, while providers who did not submit requests on a regular basis could be held accountable for stock-outs.



Payments are then issued by the MOF. As in the case of households' transfers, a time-lag of about two months occurs between verification and payments.

Every six months, the RPS team carries out random checks on a sample of providers, households and individual beneficiaries to verify that the information supplied by the health care providers is accurate. Discovery of false reporting of information triggers a suspension of payments, and repeated false reporting causes the termination of the contract with the health provider. Additionally, twice a year a firm of independent external auditors perform random checks of the records held a representative sample of providers, localities, households and persons. This verification of performance results by an independent entity did not create any disincentive either for contracted service providers or for the RPS program to develop a strong management information system.

Although the financial risk health care providers face under this scheme might seem *ex-ante* relatively high, in practice it turned out to be manageable<sup>28</sup>. Since the beginning of the program, providers have always complied with the 98% coverage target for all groups and therefore received the full payment for their services, albeit sometimes with some delays due to the verification processes described above. This success might also be due to the program's outreach effort. For example, *Promotoras* are heavily involved in organizing the groups of women and siblings to attend health check ups. Moreover, in some cases, providers use some of their resources to mobilize school teachers and other community leaders and to buy air-time on the radio to get the message around.

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<sup>28</sup> It might also be the case that this risk is fully discounted in the fees providers charge for their services.

Health care providers sub-contract health care teams whose members are paid on average 30-50% more than the MOH personnel operating in the same municipalities. Moreover, teams operating in the most difficult terrain receive additional economic incentives (a bonus on travel subsistence expenditures). Average yearly per household costs for the services provided vary substantially across municipalities, from US\$ 73 in Ciudad Dario to US\$ 177 in the most remote areas of Wiwili (including the initial diagnostic). The average yearly per household cost, across all municipalities, was US\$134 in 2005.

In those localities where demand side transfers to beneficiary households were discontinued in 2003 but the supply of health services carried on, the P4P nature of the providers' contract did not change. While initially providers kept being paid upon compliance with the 98% coverage target by group, over time this changed: providers were still paid according to performance, but, instead of receiving an all or nothing payment conditional on reaching the 98% target, providers instead were paid according to population covered. Despite the withdrawal of demand side transfers and changes in the terms of the contract described, preventive health service utilization rates remained very high 8-10 months after cash transfers were discontinued (IFPRI, 2004)

## **VII. MAIN QUANTITATIVE AND QUALITATIVE EVALUATION RESULTS**

A rigorous impact evaluation strategy was included in the RPS original design. The two-phase nature of the IADB loan required the achievement, during the first phase, of a set of quantitative triggers as pre-conditions to start the preparation of the loan's second phase. These triggers were agreed by the GON and the IADB during the negotiation of the first phase. Among other triggers, targets on preventive health care service utilization

(attendance of child growth and development monitoring for children 0-2 year-old, up to date vaccinations for children 12-23 month-old) were included. Most of the targets were expressed in terms of net impacts, e.g. the difference between changes in the treatment group compared to changes in the control group (“difference in difference”). The RPS impact evaluation was therefore expected to rely on a robust design which had to include a control group and a baseline and follow up surveys to enable the estimation of net impacts through “difference in difference”. Both the GON and the IADB wanted to learn as much as possible from the implementation of such of an innovative intervention, which was one of the first of this type in a low-income country.

The impact evaluation strategy was carried out by the GON and the International Food Policy Institute (IFPRI) very successfully, with strong ownership and commitment from the GON. Continuous IADB support for the evaluation also played an important role. A baseline survey was carried out in 2000. Follow up surveys were carried out in 2001, 2002 and 2004. Additionally, a qualitative evaluation was carried out in 2003. Overall, the RPS impact evaluation strategy is one of the most comprehensive and better executed among all social program impact evaluations carried out in the Latin America and Caribbean region, and, surely, one of the best of CCT programs worldwide. This proves that a carefully thought out and well implemented impact evaluation strategy can be carried out in low-income countries at reasonable costs<sup>29</sup>. Some of the key factors that contributed to this success are: (i) a team of dedicated external consultants with solid analytical skills and capacity to lead and oversee survey field work; (ii) the capacity and the experience of the local counterpart team that directly carried out survey field work

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<sup>29</sup> 2.5% of the RPS total investment. This percentage would have been even lower if the RPS could have expanded its coverage beyond the current 30,000 households.

activities under the external consultants' supervision; (iii) the team of consultants' dedication to transfer knowledge to the local RPS team; (iv) the careful planning of all the evaluation stages from design through implementation; and (v) the RPS team's commitment to stick with the planned evaluation design and implementation plans. Of course, no good evaluation would have been possible if the RPS execution had not been overall coherent and successful throughout the 2000-2005 period. The latter is a factor which is too often taken for granted. Off-track program execution often is the main determinant of ineffective impact evaluations.

Before summarizing some of the principal findings from the quantitative evaluations, it is important to briefly describe the key elements of the methodological approach. The RPS first and second phase impact evaluations were carried out under two different methodological designs<sup>30</sup>. The design of the first phase was based on the randomization of localities in treatment and control groups. This randomization took place in 2000 through a very transparent process<sup>31</sup>. The sample comprised a total of 1,528 households of which 810 households were "treatments" and the rest "controls". "Control" localities were informed that they would join the program two years later, at the end of 2002. In fact, during the first semester of 2003, the first phase "control" localities entered the program. The evaluation design of the second phase was quasi-experimental. A set of "control" localities for the second phase were selected among those where the RPS did not plan to expand. The selection was achieved by "matching", through statistical

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<sup>30</sup> See Flores and Maluccio (2005) for details.

<sup>31</sup> A lottery was conducted in a public event attended by the GON authorities, local authorities of the selected municipalities and the IADB. When resources are limited compared to the size of the potentially eligible population and the number of equally deserving localities, a lottery is certainly the most transparent way of allocating available funds.

techniques, locality-level observable characteristics of control and treatment localities (the latter being the first phase control localities). The household sample comprised a total of 1,303 households, of which 688 households were “treatments” and the rest “controls”.

The second phase evaluation design is in principle less robust than the first phase randomization, but it was the only design deemed feasible. In fact, since the evaluation of the RPS first phase showed that the program could deliver important impacts, excluding localities by means of a lottery in the second phase was not considered ethically appropriate.

During its first phase (2000-2002), the RPS had positive and significant double-difference estimated average effects on a broad range of indicators and outcomes. Where it did not, it was often due to similar, though smaller, improvements in the control group. Almost all estimated effects were greater for the poorest households, often reflecting their lower starting points. As a result, the program reduced inequality across expenditure classes for a variety of outcomes (Maluccio and Flores 2005): the RPS net impact on per capita annual total household expenditures was 18 percent, on average. Most of this increase was spent on food and resulted in an improvement in the diet of the beneficiaries.

In terms of health outputs and outcomes, between 2000 and 2001 the RPS induced an average net increase of 16.4 percentage points (over an initial 70 percent) in the percentage of children under three who were attending preventive health controls (Maluccio and Flores, 2005). Between 2000 and 2002 the net increase was “only” 8.4

percentage points, largely as a result of continued improvement in this indicator in the control group. In fact, in the treatment group, the percentage of children under three who were attending preventive health controls grew from 73.7% to 92.7% between 2000 and 2002, while in the control group it grew from 73.6% to 84.1% over the same period. At the same time, the services provided by the RPS, as measured by process indicators including whether the child was weighed and whether their health card was updated in the previous 6 months, improved to an even greater extent, especially among the extremely poor. The average net impact on this latter indicator was 13.1 percentage points between 2000 and 2002, but the net impact among extremely poor households was 18.8 percentage points. Participation by children age three to five in preventive health check ups also increased substantially.

**Table 2: RPS average effect on percentage of children age newborn to 3 years taken to health control and weighed in the past 6 months, by poverty group.**

<b>Group</b>	<b>Extremely Poor</b>	<b>Poor</b>	<b>Non-poor</b>
Taken to health control			
DD (Double Difference) 2001-2000	<b>17.5*</b> (9.0)	<b>20.6*</b> (8.8)	6.6 (9.4)
DD 2002-2000	<b>15.2*</b> (8.3)	6.5 (6.4)	-9.1 (8.6)
Weighed			
DD 2001-2000	<b>29.9***</b> (9.6)	<b>23.5***</b> (8.9)	13.0 (12.1)
DD 2002-2000	<b>18.8**</b> (9.5)	7.3 (9.1)	8.3 (13.1)

Source: Maluccio and Flores (2005) using Nicaraguan RPS evaluation data

Notes: Standard errors correcting for heteroskedasticity and allowing for clustering at the *comarca* level are shown in parenthesis (StatCorp 2001). Analysis based on all children newborn to 3 years old in 706 households in the intervention group and 653 households in the control group in each year. Bold indicates significance at \*\*\* the 1 percent level, \*\* the 5 percent level, and \* the 10 percent level.

While it is not possible to statistically demonstrate that the RPS increased vaccination coverage for children ages 12–23 months in the intervention group relative to the control

group, it was demonstrated that vaccination rates climbed over 30 percentage points to above 70 percent coverage in the intervention areas during the 2000-2002 period. A similar, though smaller increase was observed in control areas. These results are even more striking when compared to figures from the DHS that showed that coverage in the rural areas the country decreased from 68% in 1998 to 60% in 2001 (Maluccio and Flores 2005). Since, as mentioned above, the MOH was responsible for the distribution of vaccines to the contracted health providers, it is very plausible that this arrangement might have had a strong positive effect on the general availability of vaccines in the RPS municipalities for both private health providers in the treatment localities and public health units in the control localities. Given the RPS municipalities' initial vaccination coverage for children ages 12–23 months, it is all but implausible not to attribute at least some part of this substantial improvement in both treatment and control localities to the RPS.

**Table 3: RPS average effect on percentage of children age 12-23 months with updated vaccinations**

Survey Round	Intervention	Control	Difference
Follow-up 2002	71.4 [91]	69.4 [121]	2.0 (6.0)
Follow-up 2001	81.9 [105]	72.8 [114]	9.1 (7.1)
Baseline 2000	38.9 [139]	41.5 [123]	-2.6 (9.2)
Difference 2001-2000	<b>43.1***</b> (7.1)	<b>31.3***</b> (6.8)	11.7 (9.8)
Difference 2002-2000	<b>32.6***</b> (7.2)	<b>28.0***</b> (8.5)	4.6 (11.0)

Source: Maluccio and Flores (2005) using Nicaraguan RPS evaluation data

Notes: Standard errors correcting for heteroskedasticity and allowing for clustering at the *comarca* level are shown in parenthesis (StatCorp 2001). Analysis based on all children 12-23 months old in 706 households in the intervention group and 653 households in the control group in each year (number of children shown in brackets). Bold indicates significance at \*\*\* the 1 percent level, \*\* the 5 percent level, and \* the 10 percent level.

Given the RPS's targeted nature, its P4P demand and supply side interventions were particularly effective in reaching the poorest of the poor. The biggest impacts on service utilization in both education and health were observed among very poor households (IFPRI, 2003). For example, health service utilization<sup>32</sup> in RPS localities was systematically greater, sometimes by a considerable magnitude, among children belonging to extremely poor households than among other beneficiary children.

**Table 4: RPS effect on percentage of children under age 5 who are stunted [Height-for-age z-score (HAZ) <-2.00]**

Survey Round	Intervention	Control	Difference
Follow-up 2002	36.5 [469]	41.7 [518]	-5.2 (4.7)
Baseline 2000	39.8 [512]	39.5 [483]	0.3 (4.9)
Difference 2002-2000	<b>-3.4***</b> (1.3)	2.2 (2.8)	<b>-5.5*</b> (3.0)

Source: Maluccio and Flores (2005) using Nicaraguan RPS evaluation data

Notes: Standard errors correcting for heteroskedasticity and allowing for clustering at the *comarca* level are shown in parenthesis (StatCorp 2001). Analysis based on all children newborn to 3 years old in 706 households in the intervention group and 653 households in the control group in each year. Bold indicates significance at \*\*\* the 1 percent level, \*\* the 5 percent level, and \* the 10 percent level.

The more varied household diet and increased use of preventive health care services for children have been accompanied by an improvement in the nutritional status of beneficiary children under five (Maluccio and Flores 2005). The net average effect was a 5.5 percentage point decline in the percentage of children who were stunted (height for age), from an initial level of 39%. This decline is more than 1½ times faster than the rate of annual improvement seen at the national level between 1998 and 2001. Very few programs in the world have been able to show rigorously such a substantial decrease in

<sup>32</sup> For example: check up visits in the six months prior to the interview; growth monitoring and development control in the six months prior to the interview; and vaccination coverage.



stunting in such a short time (Maluccio and Flores 2005). During the 2000-2002 period RPS improved the distribution of iron supplements and anti-parasite medicines to these same children. The net impact on the distribution of iron supplements (during a four month recall period) was 38 percentage points. Despite these improvements, the RPS was unable to increase hemoglobin levels or to lower the dramatically high rates of anemia among children 6-59 month-old, standing at 33%. The qualitative evaluation found that mothers knew that supplements were important for their children's health. After a careful investigation it appeared very clear that mothers were not regularly administering these supplements to their children for a variety of reasons, including the fact that children did not like the taste or supplements caused vomiting or diarrhea (Adato and Roopnaraine 2004). This non compliance might have been an important factor behind the RPS failure to reduce anemia.

The qualitative evaluation shows that RPS beneficiaries developed a positive attitude towards the provision of preventive health care services and felt that health education materials were presented in a simple manner. Nevertheless, the process of putting into practice what was presented during the health education sessions turned out to be rather difficult. Beneficiaries greatly valued the quality and easy access to the health services provided and the "good treatment" received overall from health care providers (Adato and Roopnaraine 2004).

The program's second phase (2002-2004), with average transfers reduced by 30%, was about equally effective as the first phase though the measurement of effects was less certain without an experimental design (IFPRI, 2005). Given the three year eligibility rule, the 2000-2002 treatment households stopped receiving transfers at the end of 2003

but continued receiving preventive health care services throughout 2004 and 2005. The second phase evaluation shows that, during 2004, health service utilization by the 2000-2002 treatment group (children's attendance to preventive health check-ups, to growth and development monitoring) remained around the peak reached in 2002, and, in some cases (such as vaccination rates), improved further despite the fact that demand-side transfers had been discontinued. These results could be interpreted in very different ways. On the one hand, it could be argued that the RPS generated, at least in the short term, i.e. 8-10 months after transfers were stopped, a lasting effect on beneficiary households' utilization of preventive health care services. On the other hand, this evidence could also be interpreted as suggesting that demand subsidies might not be needed to increase preventive health care service utilization and that setting up a relatively effective delivery scheme and outreach strategy for preventive health care service delivery is what really matters.

Interestingly enough, for the 2000-2002 treatment households, education service utilization declined 8-10 months after transfers were discontinued, halving the net gains achieved in school enrollment during the RPS first phase. One possible interpretation of these results is that households' total costs of sending children to school are likely to be higher than those associated with the attendance to preventive health check ups.

Discounting the transfers would therefore have greater negative impact on school enrollment and attendance than on preventive health care service utilization.

Finally, during the RPS second phase (2002-2004), the program generated a net average impact of 5 percentage points in the use of family planning methods by women age 12-49 year old (from an initial level of 24%) (IFPRI, 2004). The net impact was three times

greater among women 30-40 year-old (ibid.). The qualitative evaluation stresses the variation across localities with respect to the practice of family planning, mainly related to religion, with less support for it in evangelical localities (Adato and Roopnaraine 2004).

The RPS net impacts on use of maternal care services were rather modest, mainly due to improvements observed in the control group. During the program's first phase, the RPS net impact on the percentage of pregnant women who had at least one pre-natal control was estimated in 24.5 percentage points (from an initial rate of 65%). During the RPS second phase, the 15.1 percentage points net impact on this indicator was only marginally statistically significant because of the parallel improvements observed in both control and treatment groups. In terms of post-natal controls, during the RPS second phase the program generated a marginally significant net impact of 4.6 percentage points in the percentage of women who had at least one post-natal check-up (from an extremely low initial coverage of 8.3 %).

## **VIII. ROLE OF THE GOVERNMENT**

### **INSTITUTIONAL CAPACITY**

The RPS first phase was designed from scratch and successfully executed by the Emergency Social Investment Fund (ESFI). ESFI's solid institutional structure, accounting systems and nationwide presence at local level nationwide provided a excellent platform for the development of the RPS program. However, the type of activities that the RPS planned to carry out bore little similarity to the core activities

traditionally financed by the ESFI, such as social basic infrastructure projects. Therefore, initially, the small RPS team within the ESFI had to design all the operational tools and processes needed to ensure correct program implementation. The upfront investment of time and resources (including external technical assistance) was very high.

General program design activities, the implementation of the program's supply-side interventions (selecting, contracting and training health care providers), inter-ministerial coordinating activities, hiring and training RPS staff, beneficiary incorporation activities, designing and building the management information system (which included the process of monitoring households' compliance with program requirements), acquiring computers, office furniture and other activities such as setting up an external impact evaluation were all carried out during the first year of operation. Transfers and supply side interventions were not started until the end of the first year of operation. Therefore, the first year cost-transfer ratio (CTR i.e. the administration and private costs associated with a one-unit transfer to beneficiaries) was 2.54, that is US\$ 2.54 were spent to transfer US\$ 1 of benefits to eligible households either as demand subsidies or health care services. This ratio tumbled to .49 and .46 during the second and third years of operation when the RPS coverage reached almost 10,000 households (Caldes and Maluccio, 2005). No precise CTR estimates exist for the RPS's second phase during which the program reached coverage of 30,000 households in 2004. Nevertheless, considering the financial information available from administrative records<sup>33</sup>, the CTR at the beginning of 2005 stood approximately around .20.

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<sup>33</sup> IADB loan-related financial records and RPS records.

Before the beginning of the program's second phase, the RPS team and logistical structure was literally "moved" from the ESFI to the MOF. The transition, requested by the GON, was not trouble-free. At the beginning, the RPS team continued to operate the program in a rather efficient manner by maintaining a certain degree of autonomy in its operations while managing a gradual institutionalization of the program into the MOF's structure. However this degree of autonomy gradually eroded. The operation of the RPS program was negatively affected by an excessive centralization of the decision-making process and generally weak ministerial planning capacity. Frequent changes in the ministerial post added to the poor governance structure of the MOF. The program's planned reduction in administrative costs also received a set back. One of the objectives pursued by the GON with the transition was to strengthen the inter-institutional coordination at central level between Ministry of Education (MOE), MOF and MOH. This objective was only partially achieved since coordination efforts between MOE, MOF and MOH was at best patchy, especially at the central level, and had been more the result of *ad hoc* interventions (in response from pressures coming from the localities) than of a systematic planning process. All key program operational features were maintained during the transition, from the first to the second phase, including the way supply side interventions in health were carried out through the contracting of private providers.

#### **MINISTRY OF HEALTH'S RELUCTANCE TO CONTRACT PRIVATE PROVIDERS**

During the RPS preparation stage, long discussions took place between the RPS executing agency, the MOH and the MOE, regarding ways to absorb the future potential

increases in service utilization. The MOH declared itself unable, at that stage, to reach the most remote localities targeted by the program. The IADB team played an instrumental role in these negotiations, pushing for the adoption of an outsourcing model for the provision of health services. The MOH accepted this argument, but rather reluctantly. The working relationship between the MOH and the RPS executing agency (Emergency Social Investment Fund) was quite tense during the RPS's first phase for different reasons. Private providers' operation in the localities increased the MOH municipal delegations' workload, for example by stepping up the need for adequate planning and distribution of vaccines and other inputs. Additionally, the number of referrals to the health units for curative services increased because of the increase in case detection. Local level MOH personnel complained because they were not compensated for this additional workload. Higher wages among health teams contracted by private providers were also a source of discontent among the MOH personnel. The claim that better remuneration levels offered to private providers might have generated negative spillovers for the MOH in the RPS municipalities by inducing its personnel to quit working in health centers has never been substantiated. At least at the beginning, the RPS was a "headache" for the MOH. Additionally, the budgetary allocations required to contract private service providers went through the ESFI (and later through the MOF) and not to the MOH, which might have reduced the MOH's support for the RPS. Despite all these tensions, the coordination efforts slowly bore results and the inter-institutional channels of communication improved, especially at the local level where the coverage gains from outsourcing became quickly obvious.

At the central level, the MOH's relative opposition to the program persisted into the negotiation of the second phase. On the one hand, as mentioned above, the MOH requested the RPS team expand the menu of preventive health care services provided. On the other hand, the MOH wanted to set a ceiling on health per household costs. The ceiling proposed by the MOH (US\$ 90 per household per year) would have probably made it impossible for anyone, including the MOH<sup>34</sup>, to deliver the program preventive health care services to most of the RPS households who lived in remote localities. As mentioned before, average yearly per household cost, across municipalities, turned out to be about 50% higher than the ceiling proposed by the MOH. At least at the beginning, this might have been partially due to the limited competition in the new "market" for private delivery of preventive health care services in remote localities<sup>35</sup>.

Gradually, the MOH's and the MOF's working relationship improved during the execution of the RPS second phase. Three factors contributed to this outcome. First, contracted providers filled in and shared with the MOH all forms the Ministry required to feed its information system and statistics. Therefore the private providers' coverage "officially" became part of the MOH's coverage. Secondly, the RPS's second phase earmarked resources to finance joint supervision of private providers by the MOH municipal delegates and SILAIS personnel and the RPS team. Through these joint supervisions, the MOH personnel gained a better appreciation of the effort made by private providers to expand the coverage of preventive health care services in very

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<sup>34</sup> The MOH claimed to be able to deliver the full package of preventive health care services for US\$ 90 per household per year. Unfortunately, the MOH was never able to support this claim with hard data on the cost structure of services delivered in the RPS localities.

<sup>35</sup> A system of external audits aimed at periodically analyzing the operational costs of private providers (including the costs of inputs used for service delivery) was in place during the RPS's second phase. This system is believed to have helped keeping overall costs under control.

remote areas that previously had never received any care. Thirdly, the MOH provided frequent training, especially on plague control to those private providers working in the most inhospitable environments. Despite this progress and the impact evaluation results achieved, the model of private services provision is far from being institutionalized in the Nicaraguan health sector.

Very regrettably, at the time this work is being written, the MOH budgetary allocations have not prioritized the RPS localities to ensure continuity in the provision of preventive health care services through contracted private (for or not for profit) providers beyond the five years originally covered by the second phase IADB loan. For extremely poor households residing in RPS localities, real access to preventive maternal and child care services will become once again elusive, as it was before the RPS was launched.

## **IX. CONCLUSIONS**

While it is difficult to disentangle the individual impact of performance-based demand-side incentives from the impact of performance-based supply-side incentives, the evaluation of the Nicaraguan Red de Protección Social clearly shows that a package of both targeted demand and supply P4P incentives can work, not only to increase poor households' utilization of health services, but also to improve health outcomes, such as children's nutritional status, significantly. It is also interesting to note that an evaluation carried out approximately ten months after demand-side incentives were stopped in certain areas, revealed that utilization rates for preventive health care services remained high. This might be due to the fact that the RPS P4P strategy for health care service delivery drastically improved providers' outreach activities and, as a result, poor



households' access to services, reducing costs of time and travel to reach their delivery points. It is possible, therefore, that a well targeted strategy of supply-side P4P incentives on its own may be sufficient to achieve and maintain high levels of utilization of health care services among Nicaraguan rural poor populations. The RPS evaluation shows that this conclusion holds among poor households that have benefited from a relatively long period<sup>36</sup> of education on the importance of preventive health care alongside demand side financial incentives, at least ten months after the latter had been discontinued. However, the RPS evaluation results cannot exclude that, even after their removal, demand-side incentives continue to exert, at least in the short term, a positive impact on service utilization. In the implementation of RPS-like approaches future research efforts should be devoted to “unbundling the bundle” and assessing the relative contribution of supply vs. demand incentives.

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<sup>36</sup> Three years in the Nicaraguan case

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