

**CASH TRANSFERS, RISK MANAGEMENT, AND ASSET ACCUMULATION:  
POLICY EVALUATION FOR RURAL POVERTY REDUCTION IN NICARAGUA**

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## NARRATIVE DESCRIPTION

### A. MOTIVATION, OBJECTIVES AND MAIN FEATURES OF PROPOSED ACTIVITY

#### Motivation

Rural households' asset endowments have long been recognized as key factors in conditioning their income strategies, welfare, and quality of life. Households' asset endowments are also increasingly seen as determining households' possible pathways out of poverty. Vice versa, lack of a minimum endowment of assets can cause households to be stuck in long-term poverty traps. Negative shocks can cause households to fall below the minimum asset threshold necessarily to pull themselves out of poverty. As a consequence, escaping from such poverty traps then implies the need of positive asset shocks to facilitate further asset accumulation. In this light, interventions that help lift households above these asset thresholds are key to launch them on a dynamic pathway out of poverty. Yet, relatively little evidence exists on actual interventions that manage to produce such dynamic gains.

Among the interventions aimed at increasing household asset endowments, rigorous impact evaluations are most abundant for conditional cash transfer programs, which typically aim at increasing households' investment in education, health and nutrition. While continued CCT interventions are well placed to provide long-term investments in human capital, it remains unclear whether sustainable human capital gains can be obtained from short-term CCT interventions. Furthermore, CCT programs are not typically designed to address short to medium-term constraints for enhancing the income portfolio options of the poor. Nevertheless, with the size of CCT transfers typically often 10-30 percent of household income, they carry the potential of improving household's physical asset base and short-term income generating potential via relaxing household's liquidity constraints. Moreover, given that CCT programs are typically targeted to women, they might in particular facilitate asset accumulation by those household members that otherwise have the least control over household assets. Finally, by providing communities with new

household's investment in human capital, and in initiating new income generating activities. In addition, the evaluation activities also explore impacts on early childhood development (ECD) outcomes, a research area that is key to understand long-term asset accumulation and poverty dynamics and that has not yet received much attention in the evaluation of other CCT programs. Finally, the initial results indicate evidence of short-term increases in physical and social capital (e.g. increases in beneficiary households' investments in livestock and non-agricultural productive assets, and improved social relationships in the beneficiary communities).<sup>2</sup>

#### Box 1: Original pilot objectives and components

##### Objectives

**Short-run safety net objective:** reduce the impact of aggregate shocks on human and physical capital investments by decreasing the need for ex-post, adverse coping mechanisms (such as asset sale, children dropping out of school, temporary nutrition deficiencies in early childhood/pregnancies) through cash transfers; and

**Long run upward mobility and poverty reduction objective:** enhance households' asset base and income diversification capacity and reduce poverty by strengthening households' ex-ante risk management strategies that aim at improving human and physical capital accumulation, thus reducing short and long-run vulnerabilities to shocks (e.g. exposure to drought).

##### Pilot components

A unique strength of the pilot is its experimental design, which allows a rigorous impact evaluation of the various components of the program (also see Appendix 1). Specifically, the pilot uses 3 different "packages" in order to evaluate and compare the effectiveness of each to reach the stated objectives above. Specifically, the beneficiaries were randomly divided in 3 groups:

**(i) Traditional CCT.** All selected beneficiaries received the benefits of the traditional CCT, conditional on children's school and health service attendance during a one year time period. This provides the possibility to evaluate impact of the CCT in a region which, in addition to high prevalence of poverty also is prone to high weather risks (droughts). It also serves as an anchor in order to evaluate the additional benefit on various outcomes of the other two interventions discussed below.

**(ii) Training.** In addition to the traditional CCT, one third of the beneficiary households received a "scholarship" that allowed one of the household members (preferably a member between 15-25) to choose among a number of technical training courses aimed at providing them with new skills for income diversification. In addition to covering the costs of the training, the program also compensates the participants for lost wages while in training (up to 6 months).

**(iii) Business grant.** Another third of the beneficiaries received, in addition to the traditional CCT, a business grant aimed at productive investments in livestock or non-agricultural activities with the goal of income diversification. This grant was conditional on the household developing a household development plan that outlined the objectives and proposed action that would allow the household to expand their income generation options.

<sup>2</sup> Aguilera et al., (2006).

A unique strength of the original pilot is its experimental design, which allows a rigorous impact evaluation of the various components of the program as well as any new components that will be piloted as part of this proposal. Building on the original design, the proposed research consists of the following components:

1. **Q-squared evaluation to identify and design complementary pilot interventions.** The objective of this component is to use the results of the initial impact evaluation, complemented with a qualitative assessment of medium-term impacts, to identify various types of complementary activities that might be useful in order to further enhance households' long-term risk management capacity and asset accumulation. This component would then design a complementary pilot project that corresponds to these findings. Possible avenues for such complementary interventions (based on initial findings) are:

- a. Micro-credit schemes that would increase access to capital facilitating further investments in lumpy assets, and sustainable asset accumulation;
- b. Programs with additional and more targeted training in skills for small-scale business development. Such programs could be targeted at improving information about, and access to, opportunities in input and output markets that go beyond the borders of the communities and municipalities, allowing households to increase the return to their assets;
- c. Programs targeted at rural empirical middle school education, such as the program being piloted by USAID and Padre Favretto (a rural development NGO) in the region of study;
- d. Programs targeted at improving early childhood development through improvements of parent's knowledge of, and investment in, preventive health care, nutritional needs or child stimulus.

2. **Implementation and evaluation of the complementary pilot intervention.** This component includes the implementation of the pilot program (above), which will be randomly allocated

## **Main features of proposed activity - Training and capacity building components**

In parallel, and building on these different research activities, the project aims at enhancing training and capacity building through:

- 1. Collaboration in all the different phases with Nicaraguan researchers.** US and Nicaragua researchers will collaborate in all the different aspects of the design, implementation management, analysis and outreach of the findings. The US researchers are planning to travel to Nicaragua on a regular basis and spend significant amounts of time in the country to facilitate joint research with researchers of CIERUNIC, CIASES and Nitlapan.<sup>3</sup> A specific objective of this joint work will be to contribute to capacity building in quantitative analysis and impact evaluation, particularly for the junior researchers. As such the collaboration aims at further enhancing the existing research potential, and is expected to culminate in a number of joint dissemination products and research publications.
- 2. Active involvement of Nicaraguan and US students**
  - a. At the beginning of the project, 3 Nicaraguan students will be identified by the Nicaraguan researchers from CIASES and Nitlapan based on their thematic interest as well as their analytical and quantitative skills. Nitlapan has established a 3-year mentoring program that students participate in between their BA and MA that incorporates those students in the different analytical and operational activities of Nitlapan. Following the model of this existing mentoring program, students will be engaged for 3 years in the different stages of the project, before completing a master thesis in the 4<sup>th</sup> year that will focus on one of the themes of the proposed project.

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<sup>3</sup> These efforts will build on a history of collaboration between the US researchers and CIERUNIC, including intensive day-to-day collaboration for the different stages of the qualitative and quantitative evaluation of the MIFAMILIA pilot during three months of field work in 2006, as well as for shorter periods and more long-distance collaboration since the inception of the pilot in the fall of 2004; it also builds on collaboration between US researchers and CIASES for Q-squared analytical work on poverty dynamics in Nicaragua (see further info on researchers' qualification and past collaboration).

researchers. All courses will be open for collaborating students and junior researchers, who will be strongly encouraged to participate.

- b. **Program design and implementation**, where operational lessons derived from qualitative and quantitative assessments of the pilot interventions will be discussed with staff of government ministries, NGOs, and other development organizations. Potential topics to be addressed in such a course are<sup>5</sup>: (a) targeting; (b) monitoring (with emphasis on systems that provide systematic and effective information dissemination to beneficiaries and stakeholders at different stages of program implementation); (c) training-of-trainers (e.g. for programs that include interventions aimed at increasing business skills and market linkages of small rural entrepreneurs in a sustainable way).<sup>6</sup>

The curriculum of these courses will be developed by the Nicaraguan and US researchers jointly.

The training and capacity building activities proposed are expected to contribute to the strengthening of local analytical and operational capacity. Moreover, we expect them to improve the quality and interest of impact evaluation practices in the country.

## **B. PROPOSED RESEARCH METHODOLOGY AND INTELLECTUAL CONTEXT**

The methodology of the current proposal builds on the two-staged randomized design of the MIFAMILIA pilot, and the panel dataset that was collected for the short-term evaluation of that pilot. The existing panel data contains rich information on human, business and social capital assets, on income generating activities and consumption patterns. It also includes a separate extensive module on early childhood development with indicators of a large set of cognitive skills (fine and gross motor skills, socio-emotional

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<sup>5</sup> These topics were selected based on the available evidence to date (Aguilera et al., 2006). Topics will be re-evaluated as more qualitative and quantitative evidence becomes available throughout the stages of this project.

<sup>6</sup> The close linkages of the project with the MIFAMILIA pilot provide a natural entry point for local capacity building

household behavior and intra-household dynamics.<sup>7</sup> All of these insights will inform and guide the specific attributes and final design of additional, complementary pilot components.

### **Impact evaluation methodology**

Given the randomized allocation of the interventions, long-term impacts can be measured by collecting a third round of the panel and comparing the means of the 3 different intervention groups with the control group. Moreover, the extensive baseline data allow for a difference-in-difference estimator for outcomes related to human capital (including education, health, anthropometrics and cognitive development), physical capital (including livestock) as well as income diversification and overall poverty outcomes.<sup>8</sup> These outcomes were also measured during the second round of the panel, which allows analyzing how the three interventions have affected the dynamic changes in asset accumulation and income generating activities. To further understand the different long-term impacts of one-year intervention versus a longer-term CCT, we will compare our findings with the evaluation of the original Nicaraguan CCT, on which the pilot was build (Maluccio and Flores, 2005). Moreover, the impacts of the pilot program on early childhood development will be compared with (non-experimental) impacts of an early childhood stimulus program, PAININ, operated by the same ministry in the regions studied.

In order to allow an equally rigorous evaluation of the complementary interventions that will be piloted as part of this proposal, we will follow the approach taken by Kremer and Miguel (2006) and Duflo, Kremer and Robinson (2006). In their evaluations of interventions to promote de-worming drugs and fertilizer adoption in Kenya, they piloted different interventions in subsequent years, each time randomizing new

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<sup>7</sup> Evidence presented in Macours and Vakis (2007) suggests strong effects of mother's control over cash flows on early childhood cognitive development outcomes, and strong complementary effects between nutrition and stimulus, once a minimum nutritional threshold has been reached.

<sup>8</sup> These comparisons will benefit from the large sample size of the panel dataset (around 4300 households), which was determined using power calculations that allowed for detecting relatively small differences between the different groups.

after the occurrence of a shock. As such this question ties in with the growing literature on the effects of adverse shocks on household's investment in human capital.<sup>11</sup> Based on the available evidence, it has been argued that coping through reduction of human capital leads to intergenerational transmission of poverty. Therefore social safety nets, including CCTs, that insure households could contribute to long-term poverty alleviation.<sup>12</sup> This could have important implications for new CCT designs, such as, for example, incorporation of insurance elements to protect human capital assets from uninsured risk exposure.<sup>13</sup> Yet, to our knowledge, there is no evidence of sustainable gains of short-term interventions that directly address these issues, which is what this research aims to contribute.

2. **Can short-term CCT programs lead in particular to permanent improvements of early childhood cognitive development (ECD) outcomes?** While the impact of CCT programs on education of school age children has been widely analyzed in many contexts and settings, little is known about the impact of CCT programs on the cognitive development of pre-school children.<sup>14</sup> Yet understanding such a potential impact seems key as both theory and evidence from developed countries indicate that investments in early childhood development are likely to translate in major gains for individual's long-term welfare.<sup>15</sup> In developing country settings where household's decisions regarding human capital investments are arguably more severely constrained, gains in early childhood development might be an even more important factor in breaking the intergenerational transmission of poverty. Evidence from both developed and developing countries suggests that early-childhood cognitive development is linked to income and nutritional

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<sup>11</sup> Hoddinot and Kinsey (2001); Handa and King (2003); Carter and Maluccio (2003); Jensen (2000); (Jacoby and Skoufias, 1997); (Thomas et al., 2003) ; (Vakis et al., 2005)

<sup>12</sup> Skoufias (2003); Duryea and Arends-Kuenning (2003). Empirical evidence in support of such an intervention can be found in de Janvry et al. (2005) who show that Progresa, a CCT in Mexico, was successful in keeping children in school when their families were affected by both idiosyncratic and covariate shocks.

<sup>13</sup> de Janvry et al. (2006)

<sup>14</sup> Limited evidence exist from a non-experimental evaluation of Progresa/Oportunidades (Gertler and Fernald, 2004). Paxson and Schady (2007) provide evidence on an un-conditional cash transfer in Ecuador.

<sup>15</sup> Connolly, et al, (1992); Currie and Thomas, (1999); Feinstein, (2003); Robertson and Symons, (2003).

constraints to asset accumulation and income diversification.<sup>20</sup> While there exist some evidence suggesting that cash transfer programs can enhance income diversification by relaxing liquidity constraints,<sup>21</sup> the multi-dimensional design described in his proposal is uniquely suited to shed light on the potential of various types of interventions to help households overcome poverty traps and launch them on pathways out of poverty. While arguably a panel dataset over a much longer time frame would be needed to gauge the ultimate gains of such interventions, this research will focus on the changes in household strategies and asset accumulation in the medium run to help shed light on the underlying mechanisms. Given the high frequency of both covariate and idiosyncratic shocks in the region studied, it will also allow to test whether these interventions were successful in enhancing household's capacity to protect their asset base.

4. **Can interventions targeted at asset accumulation by women contribute to sustainable empowerment and increased gender equity in the household?** Intra-household bargaining models, as well as related empirical evidence, indicate that mother's increased control over cash flows can have important effects on household's investments in human capital, consumption patterns, and income strategies.<sup>22</sup> Vice versa, negative shocks can have differential effects along gender lines, and women (or girls) in poor households often bear the largest burden.<sup>23</sup> The available evidence hence would suggest that, in risk-prone environments, interventions targeted at improving the risk-management capacities of women might have a proportionally higher effect on women's welfare. This can be further enhanced by the empowerment effect of such interventions, and shifts in the intra-household bargaining power. Such empowerment gains might be more

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<sup>20</sup> Theory and empirical (mostly non-experimental) evidence point to various types of constraints such as low capital entry barriers, transaction costs, economies of scale, and risk associated to alternative income strategies with higher average pay-offs (Eswaran and Kotwal, 1986; Banerjee and Newman, 1993; Rosenzweig and Wolpin, 1993; Aghion and Bolton, 1997; Dercon, 1998; Fafchamps, 2003; Rogg 2005).

<sup>21</sup> Martínez (2004); Gertler, Martínez and Rubio (2005), Ravallion et al. (2001).

<sup>22</sup> E.g. Duflo (2003); Quisumbing (2003), Udry and Duflo (2004). Bobonis (2006). Evidence based on baseline data from the MIFAMILIA pilot suggests that mothers' migration income can have strong positive effects on early childhood development outcomes (Macours and Vakis, 2007).

<sup>23</sup> Behrman and Deolalikar, (1990), Rose (1999), Foster (1995); Dercon and Krishnan (2000)

redesign existing initiatives. Ministries such as the Family Ministry, Health, Education, Agriculture and Rural Development will benefit from this research almost immediately after its commencement through the planned capacity training activities. The capacity training activities will also provide a natural entry point for engaging in the broader policy debate as well as providing operational knowledge and technical assistance to several of these ministries.

Similarly, the research activities address a number of the policy priorities that have been identified by the new Nicaraguan government (such as reduction of hunger and extreme poverty, malnutrition, gender empowerment, micro-finance) and will shed light on some of the key discussions between the government and the donors (e.g. regarding the effectiveness of CCTs versus direct food aid). As such the proposed research can contribute to both the debate on the policy agenda, and the design of specific interventions. The research proposed will further be particularly valuable for different programs in the Family Ministry such as: (a) the new phase and expansion of the existing CCT program (Red de Proteccion Social), for which changes in the original design are being considered; (b) the new phase of PAININ, an early childhood development pre-school program. The continued relationship and collaboration between the US researchers and MIFAMILIA, since 2004, offers a strong base for a fruitful dialogue on the design of these different programs.

The lessons derived from the research are also expected to have broader implications for policies and programs in other Latin American countries and elsewhere. In particular, the lessons regarding the complementarity of different types of interventions with CCT programs are expected to be of interest in many Latin American countries that have adopted CCT programs (e.g. Mexico, Brazil, Colombia, Honduras) or are considering doing so. Furthermore, given that many countries in the region are regularly affected by natural disasters (droughts, hurricanes, earthquakes, etc), the evidence regarding long-term impacts of short-term CCT interventions will carry particular relevance. For the same reason, evidence on effective mechanisms that can facilitate household's risk management and asset accumulation, can

(e.g. the new pilot middle school program of Padre Favretto). Initial contacts have been made with the USAID mission, to explore such options.

With regard to the objective of economic freedom, our proposal complements USAID efforts to improve food security among the rural poor by diversifying their crops and linking them to markets, by also exploring options for income diversification through livestock and non-agricultural activities and possibly piloting interventions directly targeted at improving market linkages for those activities.

This proposal also reflects several of the *BASIS research priorities*, as it's focus is the evaluation of pilot interventions related to: 1) Asset building for growth and poverty reduction, including human capital accumulation through transfers specifically targeted at women; 2) Leveling the playing field for broadly based agricultural growth through better access to input and output markets; and 3) Understanding the relationships between asset protection and accumulation and risk management.

#### **Relation to MCA**

One of the main focuses of the recently approved compact between the Millennium Challenge Corporation and the Government of Nicaragua focuses on increasing rural business productivity, by extending rural business development services that facilitate higher-profit agriculture and related activities to poor farmers. As such, it shows important potential parallels with the business grant intervention of the MIFAMILIA pilot, as well as with the potential complementary interventions.

Therefore, lessons learned from the proposed research, are likely to be of particular value for the MCA program that is being developed, and special care will be given to early exchanges of ideas related to program design, and potential for mutual learning.

#### **Relation to World Bank**

The World Bank provided both the funding for the MIFMAMILIA pilot, technical assistance to help design the various components, and developed the impact evaluation methodology jointly with

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## ANTICIPATED OUTPUTS

The objective of the proposed research is to contribute with empirical evidence to the rural poverty policy debate in Nicaragua, and by linking to theory and literature, to the broader development policy debates. By piloting and evaluating different pilot interventions, the proposed research is also expected to have a direct development impact on the poor rural households in the region of study.

### **Dissemination and outreach**

The planned research and training will provide insights and build capacity for local Ministries and other development organizations to help reshape their existing programs. It will also improve their operational capacity to include M&E components in future programs, and as such have a long-term pay-off in providing the sustainable foundations for better project and policy design.

Research findings will be disseminated within the community of development professionals in Nicaragua, through workshops, stakeholder meetings and publications. Special efforts will be made for dissemination of the findings in the region studied, in order to facilitate learning by community leaders, local governments, civil society organizations, other programs and donors active in the region. The dissemination will take advantage of a graphical method to represent descriptive statistics, which was explored by Carol Herrera (from CIERUNIC) for the 1998 national household survey.

The dissemination activities will build on existing contacts of both the Nicaraguan and US researchers with several ministries and donor agencies, as well as on the contacts that will be generated through the capacity training component of this pilot, to promote the adoption of recommendations that emerge from the research. Indeed, the short-term training courses included in this proposal provide a powerful

## BENCHMARKS

### **Overall goals in the areas of training, policy integration, achievement of USAID objectives and development impact**

- 120 practitioners trained in program design and implementation, and policy integration of lessons learned by these practitioners.
- 60 practitioners, researchers and students, trained in impact evaluation methods; and implementation of lessons learned in M&E components of new development initiatives.
- 2 US and 3 Nicaraguan students with completed MA and project-related research completed
- Successful implementation of complementary pilot interventions enhancing household's asset accumulation potential.
- Successful completion of Q-squared evaluation and third round data collection
- Academic publications on research findings
- Dissemination of qualitative and quantitative findings through workshops, and stakeholder meetings, and a final dissemination conference.
- Publication and distribution of dissemination material integrating qualitative and quantitative findings.

### **Annual goals: 2007-2008**

- 40 practitioners trained in program design and implementation, and policy integration of lessons learned by these practitioners.
- 20 practitioners, researchers and students, trained in impact evaluation methods, and implementation of lessons learned in M&E components of new development initiatives
- Successful completion of Q-squared evaluation.
- Dissemination of Q-squared findings through workshops, and stakeholder meetings

## **TIMELINE**

**Timeline.** The proposed timeline of implementing the different phases of this project is as follows:

Phase 1 (Qualitative assessment and design complementary pilot):	Spring-Summer 2007
Phase 2 (Complementary pilot implementation):	Fall 2007-Summer 2008
Phase 3 (Third round data collection):	Summer-Fall 2008
Phase 4 (Medium term evaluation):	Fall 2008-Fall 2010
Phase 5 (Training, capacity building and dissemination):	Spring 2007-Spring 2011