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on Disaster Risk Reduction

Addressing Disaster Risk through Conditional Cash Transfer and Temporary Employment Programs in Latin America

Almudena Fernandez
Evans Jadotte
Javier Jahnsen

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I. Introduction

Natural hazards often impose both heavy human and material tolls on societies, driving improvisto an innumerable amount of people into precariousness and deep poverty. The setbacks of such hazardous events are often avertable; nevertheless they are magnified particularly in least developed countries (LDCs) context, with poorer countries, ill-endowed with adequate infrastructure, suffering more. The most recent example in the Latin American and Caribbean (LAC) region is the 7.3 Richer scale earthquake in Haiti in January 2010 that killed more than 220,000 people and caused economic damage estimated at more than 120% of the country´s GDP (PDNA-Haiti, 2010), while in Chile the 8.8 February temblor that same year was responsible for about 500 fatal casualties and some material loss evaluated at 15% of the nation´s GDP. Or, for that matter the 7.0 February 2010 seism in Japan with only 1 loss of human life and negligible economic damage, according to local authorities.

The LAC is a high-intensity disaster-prone region. It is constantly exposed to cataclysmic events, including earthquakes, hurricanes, volcanic eruptions, landslides, droughts and floods (which frequently are a consequence of the ENSO (El Niño Southern Oscillation) phenomenon), and sometimes anthropic calamities (e.g. hazards caused in regions occupied by irregular armed groups in Colombia). While those shocks may not be warded off, their mortiferous consequences could have been mere emergencies instead of disasters, had a state of better management and emergency preparedness prevailed. Risks turned into disasters have immediate and long term consequences on households and render them poorer and more vulnerable. Yet, household´s ex ante poverty and vulnerability often determine whether risks will be transformed into disasters. Hence, the existence of a dual causality between poverty/vulnerability and natural hazards-related disasters (de la Fuente, López-Calva, and Revi, 2008). While the direction of causality is not easy to disentangle, the fact is that more than 94% of disaster-related deaths between 1975 and 2000 are from low to lower-middle income, among which 68% are extremely poor (ISDR; 2008).

Certain development choices and their impact on the rural sector and the latter´s relationship with growth of cities may also play a key role in determining households´ vulnerability. For instance, the majority of LDCs have been going through a structural change associated with productivity gains in agriculture due to the introduction of machineries and other more efficient agricultural technology, which per se is good news. Unfortunately, too often this change is not accompanied by more employment opportunities in sectors other than agriculture in the rural area and has as a corollary the rural exodus. Lack of planning for city growth often means that low income individuals flocking to cities under such conditions usually choose hazard-prone locations to settle, such as riverbanks, ravines, or steep slopes, where the land is much cheaper. Such a decision may be made by the poor and even some non poor in an attempt to mitigate risk because of perceived greater access to public services and employment in the cities (UNDP, 2004: 61). However such a development choice of agricultural output growth

[1] Based on documents prepared by Evans Jadotte and Javier Jahnsen.

leading to rural exodus, coupled many times with city governments' lack of planning for city growth, which is reflected often in their inability to enforce land use laws and building regulations, constitutes one of the major causes of city dwellers vulnerability. This is an increasing phenomenon in LDCs in general and the LAC region in particular. While Haiti is not necessarily characterized by steady growth in agricultural output in the last years, some cases of unplanned city growth in point are *Cité Carton* (part of *Cité Soleil*) in the Metropolitan Area of Port-au-Prince, *Trousable* in Gonaïves, or *La Fossette* in Cap-Haïtien. Those squatter settlements in Haiti are home for hundreds of thousands of people, who literally have to reconstruct their houses anew after heavy rains, which unfortunately happen to be frequent. Even when financial resources are not a big hurdle to go beyond makeshift quality homes, the hallmarks of constructions are absence of retrofitting and limited access to services, including sanitation, piped water, and emergency. This simply boils down to living in a hazardous environment, which exacerbates vulnerability. Again, the setbacks of the Haiti January 2010 earthquake is a good example and the images are to this date still vivid.

It is quite plausible to assume that ex ante safety net measures can be highly effective in making households more resilient, and therefore less vulnerable to shocks. In more general terms, policies geared toward improving overall living standards may by themselves be a disaster risk mitigating factor. As Kahn (2005) suggest, economic development provides implicit insurance against nature's shocks. Nevertheless, as we just pointed above, the development path itself can be a source of vulnerability. Development-induced human disasters are probably best reflected in the increasing number of people reported killed or affected by hazardous events during the last decade in a context of global growth. While there were 155,283 disaster related deaths in 1999 worldwide, the number steadily increased to reach 1,243,480 in 2008. The amount of people affected followed the same pattern: from 302,467 in 1999 to 2,695,813.[2] The vast majority of deaths and affected people registered are in low or medium human development countries, most of which are located in Asia or the LAC region.

The previous examples lead one to think that disaster risk and related vulnerability may be seen as an unresolved problem of development (UNDP, 2004). The interactions between development and disaster risk are intricate. The latter may be either mitigated or caused by the former depending on the development choice, while sound development planning can act as a cushion against disaster risk. Therefore, risk management and prevention should be a part of governments development agenda in their efforts to bring improved living standards of their citizens. Multilateral agencies such as the World Bank and the regional development banks have been taking the right steps towards incorporating disaster risk reduction as part of their portfolio. Such endeavors are to be strengthened and also be embraced by local governments. In sum, not incorporating prospective and compensatory disaster risk management into development agenda is like erecting a 10 story building on weak foundations.

In order to offset consumption shortfalls, poor or vulnerable and unprotected households hit by a shock will resort to different measures as ex-post coping strategies; these include taking children out of school and be sent to work (with serious consequences on their future productivity), or deplete productive assets for which these households may have slaved away to accumulate over time. While these typical risk

[2] World Disaster Report (2009), Red Cross/Red Crescent. Data source: EM-DAT, University of Louvain, Belgium.

coping strategies may have some instantaneous positive effects on household´s wellbeing, as they allow them to smooth consumption, the long term consequences can be deleterious since future income generation ability can be severely curtailed. Beyond the immediate effects at the micro (household) level, infrastructure collapse in entire communities may also mean stagnant economic activities and therefore lower employment opportunities, making ex-ante risk management and prevention measures far more important than ex post interventions and relief. Worse, the latter measures often have a bias of trying to revert to the status quo ex-ante, which, if successful, can at best bring communities and households within them back to the conditions prior to the disaster. And that generally implies at least the same level of vulnerability as before.

In a series of studies under the project "Disaster Risk and Poverty in Latin America and the Caribbean" by the UNDP to analyze the impacts of natural events on household living standards, evidence points to the short and long term negative consequences of those events when public policy is absent (see López-Calva and Ortiz-Juárez, 2009). Therefore, a good understanding of the potential effects of natural events and ex-ante risk management to avert or mitigate their impact is imperative. In the present report we discuss the extent to which social assistance programs can be used to address the need of both poor and vulnerable non poor households hit by a natural hazard-related disaster. Our focal point will be the LAC region. In particular, the policy implications that arise from the discussion will be geared towards preventing the decapitalization of households´ assets in general, and productive assets in particular. Specifically, we will try to answer whether Conditional Cash Transfer programs (CCTs) and Temporary Employment Programs (TEP) can be effective in deflecting or mitigating disaster risks. We will provide some evidence in the LAC context where such programs have helped protect human capital advancement of children in qualified households hit by a shock. Then, we explore other options that can better address productive assets depletion vulnerable non poor in the presence of hazardous events. This paper is organized as follows. Section 2 presents an overview of the potential impacts of hazardous and their relationship with global development goals. In Section 3 evidence of the devastating consequences of hazardous events is provided for the LAC region. Section 4 makes a digression into conditional cash transfers and presents a brief overview of their purposes. Evidence of their role in protecting human capital asset is also provided as well as a discussion about the importance of CCTs as safety nets in preventing the decapitalization of household's productive assets to smooth consumption. Section 6 explores the role of Temporary Employment Programs in mitigating the effects of extreme climatic events. Finally, Section 6 presents some concluding remarks.

II. Background

Natural disasters in the LAC region are among the most frequent and intense in the globe. Many of the climatic activities in the region have become more frequent and have intensified lately. It is widely believed that the proximate cause for the higher frequency and intensification of hazardous events (particularly meteorological) is global warming (Weiss, 2008). For instance, the Pan American Health Organization (PAHO/WHO, 2006) reported dramatic increases in the frequency of floods, droughts, and hurricanes (respectively, 266%, 360%, and 521%). According to the same organization, 75% of the population in the region lives in areas at risk of natural event disasters. Catastrophes in other parts of the world also testify to the violent

repercussions of these hazardous events (e.g. the 2004 Tsunami in the Indian Ocean, the Monsoon rains that flooded Pakistan where more than 20 million people are affected and thousands others unaccounted for).

Natural hazards can be nocuous to societies, particularly for the poor and the vulnerable non poor. However, the convergence of different factors, including the level of development and the development choice itself, and above all emergency preparedness and availability of coping mechanisms, will ultimately determine whether hazardous events translate into disasters or remain mere emergencies that can be thwarted in a relatively easy manner. The two (approximately) 7.0 magnitude earthquakes that hit Haiti and Japan in, respectively, January and February 2010 are a case in point. The temblor in Haiti reduced to rubble more than 120% of the country´s GDP in a twinkling, and caused some 220,000 fatalities and more than a million people affected. In Japan however the statistics point to only 1 death and a negligible material toll.[3] The differing impact of these two cataclysmic events, with similar level of energy release, lies in the above-mentioned factors. These factors are different in both countries, with Japan being more prepared than Haiti. Albeit preparedness for this type of fortuity is mainly a function of skills, expertise, and particularly money, which are wanting in the context of most LCDs, prevention knowledge does exist and can and should be put into use. In that respect, a proper set of incentive mechanisms can make the difference.

Countries of relatively similar level of development (or lack thereof) also have differing experience in terms of impact of natural hazards. One good example is the passage of hurricane Jeanne through the Caribbean region in 2004. Hurricane Jeanne pass through Haiti and claimed more than two thousand lives and left behind more than 300,000 homeless.[4] The disaster caused in Haiti by this climatic event could have been a mere emergency as in Cuba or the Dominican Republic where Jeanne also landed and no fatal casualties were registered. The Western part of the island, which Haiti occupies, is rendered more vulnerable because of bad development choices. The country´s inadequate warning system, lack of accountability, and poor governance in general, were the ultimate causes of the disaster caused by a mere tropical storm. Again, the country is the showcase example of failure to protect its citizenry from disaster risk.

There seems to be a certain belief regarding developing countries people´s nonchalance about disaster risk protection (World Bank, 2005). We are however confident that, given the choice (i.e. access to timely information and resources, correct set of incentive mechanisms, and law enforcement), people will make the best decision to live in a safe environment to protect themselves and those whom they care about. Hardship makes individuals value things differently and they may grant low probability of occurrence to future events. So, when parents have to steer south and west to make ends meet and are busy looking for something to put on the table first and feed their children, disaster protection measures, if they require upfront disbursement, may be construed thus as a sumptuous good. Under such circumstances, the discount rate applied to future benefits of protection may be revised upward. That is, a low return will be attributed to protection and safety standards since risk management in this case is regarded as a cost

[3] It should be mentioned however that there is no correlation between human and material toll in disaster-related events, particularly when it comes to earthquakes. Human casualties are in general higher in LCDs while material damage is heavier in developed countries (Kenny, 2009).
[4] CEPALC´s (2005) report on Haiti.

rather than an investment. Under such circumstances, there will be low or no investment at all in risk prevention measures.[5]

Evidence amounts though that country´s development prospects are hindered by natural hazards related disasters.[6] So, if risk management and disaster risk reduction are not part of a cohesive government plan and country´s effort to bring sustainable living standards to their population, development efforts may be wasted. Indeed, disasters wreak havoc and inflict grievances and sufferings of monstrous proportions on individuals and societies. They often lay waste past performances in terms of social and economic development and will, in the event, undeniably threaten some of the advances made toward achieving the Millennium Development Goals (MDGs), particularly in the areas of MDG1 (eradication of extreme poverty and hunger), MDG2 (achieving universal primary education), and MDG7 (ensuring environmental sustainability). Also to some extent MDG3 (promotion of gender equality and empowerment of women) since women tend to suffer more from disasters, despite the fact that men are more inclined to underestimate disaster risks than women. Besides, there is evidence from many developing countries that girls in households facing an adverse consumption shock are more likely to suffer malnutrition than boys as parents, particularly in rural areas, tend to favor the latter when distributing scare resources. Moreover, since disasters generally affect more agriculture infrastructures in LDCs, given the importance of this sector in developing economies and the preeminence of female labor on farms, women will tend to experience more unemployment during disasters and may therefore see their financial independence and empowerment eroded. Thus, integrating risk management and disaster risk mitigation as part of development planning can help in the global efforts to achieve the MDGs in general.

III. The evidence for the LAC region

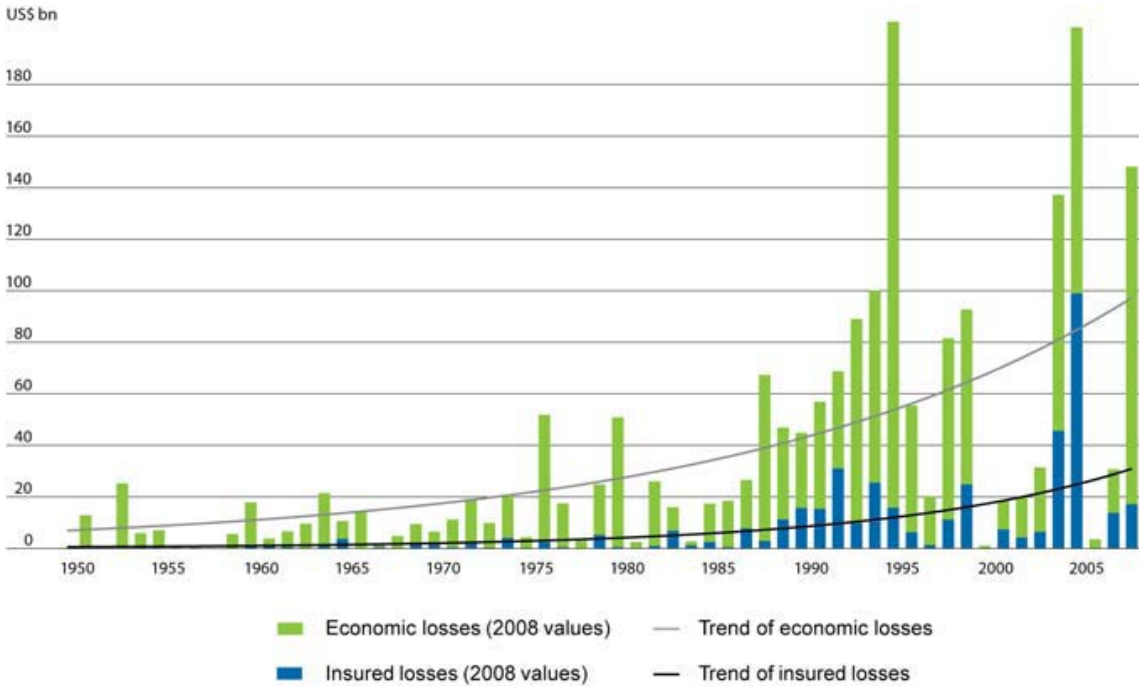
Fatalities from hazard-related disasters from 1973 to 2007 in LAC amounted to almost 105 thousand, while total economic impact has been evaluated at more than 242 billion in constant 2007 USD, of which about 148.5 billion represent assets destruction (Zapata and Madrigal, 2009).[7] Figure 1 below gives an idea of losses from disasters over the past 10 decades or so in the region. As can be observed, economic damages have been increasing steadily, reflecting maybe the higher frequency of hazardous events. Although before the mid 1960s all material damage was uninsured, insured losses have started to increase particularly from the mid 1980s. However, they have not kept pace with total economic losses.

[5] This should not mean that the poor are not risk averse or are less risk averse than the non poor. It is just a question of priority; when basic needs, such as food, are not met yet, risk prevention measures will not be at the top in the priority list.

[6] See for instance Mora (2009) and further evidence therein.

[7] Bringing these figures to 2010 and accounting only for the Haiti earthquake fatalities would be at more than 325 thousand and economic losses would increase by 7.8 billion USD.

Fig. 1. Economic Value of Losses from Disasters in LAC 1950-2005



Source: Munich Re (from Zapata and Madrigal, 2009).

Hazardous events in the region are also correlated with sharp decline in GDP. As can be observed from Table 1 below, disasters may cause damage of up to or more than a hundred percent of GDP. The most disastrous hazards recorded during the past three decades or so in the region are the hurricane Mitch (1998), which wreaked havoc in the economies of five Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua) and the Haiti earthquake (2010), which literally destroyed the country´s center of economic activities (Port-au-Prince) and seriously damaged infrastructure in surrounding cities. This event could not have a worse timing to compound misery in this already poverty-afflicted Caribbean nation, who has been struggling to recover from four hurricanes in 2008 that claimed 800 lives and caused insurmountable economic damage in Gonaïves-Artibonite Valley (some 150 kilometers north of Port-au-Prince).

Table 1. Economic impact of hazardous events for selected countries in the region

Country	Year	Type of hazard	Loss to GDP
Argentina	1985	Flood	1.48%
Bahamas	1992	Hurricane	8.75%
Barbados	1987	Hurricane	6.86%
Bolivia	1982	Flood	19.80%
Bolivia	1986	Flood	1.26%
Bolivia	1988	Drought	1.09%
Bolivia	1992	Flood	1.63%
Brazil	1984	Flood	1.00%
Chile	1985	Earthquake	9.10%
Chile*	2010	Earthquake	9.00% to 18.00% (estimation)
Colombia	1983	Earthquake	1.06%
Colombia	1985	Volcano	2.87%
Costa Rica	1988	Hurricane	1.50%
Costa Rica	1991	Earthquake	8.87%
Costa Rica	1996	Flood	2.73%
Costa Rica*	1998	Hurricane	1.00%

Ecuador	1982	Flood	1.68%
Ecuador	1987	Earthquake	6.65%
Ecuador	1993	Landslide	3.50%
El Salvador*	1998	Hurricane	6.40%
Guatemala	1982	Flood	1.20%
Guatemala*	1998	Hurricane	3.90%
Haiti	1988	Hurricane	4.09%
Haiti*	2007	Hurricane	1.90%
Haiti*	2008	Hurricane/Flood	14.60%
Haiti*	2010	Earthquake	121.00%
Honduras	1982	Tropical storm	3.44%
Honduras	1990	Flood	1.57%
Honduras	1993	Hurricane/Flood	3.39%
Honduras*	1998	Hurricane	70.00%
Jamaica	1980	Hurricane	2.39%
Jamaica	1986	Flood	3.00%
Jamaica	1988	Hurricane	28.21%
Jamaica	1991	Flood	6.62%
Mexico	1985	Earthquake	2.18%
Nicaragua	1982	Tropical storm	18.74%
Nicaragua	1988	Hurricane	32.57%
Nicaragua	1992	Earthquake	1.36%
Nicaragua	1994	Drought	8.74%
Nicaragua*	1998	Hurricane	45.00%
Panama	1988	Hurricane	1.23%
Paraguay	1983	Flood	1.36%
Peru	1983	Flood/drought	5.96%
St. Kitts & Nevis	1995	Hurricane	85.42%

Source: Adapted from Charvériat (2000) and * updated by author from ECLAC dataset, except Chile data from official sources and Haiti data from UNDP-Haiti reports.

A growth spurt may be observed in the ensuing years of the disaster, but this is mainly due to disaster-related relief activities (i.e. rescue, international assistance, debris clean up) and replacement of destroyed assets. So, the observed post disaster economic acceleration is not to be regarded as real gains in terms of improvements in living standards, but rather partial make-up loss. Most importantly, the most vulnerable and poor households may not be able to fully participate in the recovery if specific measures permitting them such participation are not implemented; in that respect, recovery efforts that boost the demand for the assets (whatever is left of them) of the poor and the vulnerable are in general the best way to guarantee achievement of such objective.

On the other hand, relief activities may have positive effects on the economy in the long run since disasters can be a catalyst for upgrading and extending capital equipment (Hallegate, Hourcade, and Dumas, 2007). Nevertheless, the evidence so far indicates that on balance the effect of such hazardous events on growth is negative. For instance, Strobl (2008), using local wind estimate along with a power dissipation index as proxies for potential destructive effects of hurricanes in Central America and the Caribbean (CAC), finds that the net effect of hurricanes in that region is a 0.8 percentage points decline in the rate of growth of GDP. This a very conservative estimate compared to what other studies revealed.[8] Other macroeconomic impacts of disasters are also manifested through accelerated inflation and current account deterioration. The overall

[8] For intances, Noy (2009) estimated that hazardous events cause on average a 9.72 percentage points decline of developing countries´ GDP. Meanwhile, he calculated that the effect of such events are positive for the group of OECD countries (1.33 percentage points).

economic impact will be more important as the loss to output ratio becomes greater, as is usually the case for small developing economies.

It has been found that natural events impact negatively households´ living standards. For Mexico, Rodríguez-Oreggia, de la Fuente, and de la Torre (2009) determined that natural events are responsible for increases in food, capacities, and assets poverty by about 8, 5.8, and 2.3 percent, respectively, over the span 2000-2005. Negative effects of hazards are also found on Human Development Index (HDI) in various municipalities for the same period. Those average figures may blur the impact of shocks occurring at different sections of the distribution since households at the lower end of living standards are likely to be more vulnerable and with lower social indicators. Calero, Maldonado, Molina (2009) also investigated the consequences of the natural hazardous events on wellbeing between 1990 and 2001 in Ecuador. Their research revealed that, in Cantons severely hit by a natural event shock that killed an innumerable amount of people, poverty declined over the period. Meanwhile, in Cantons where a negligible human toll was registered poverty actually increased. However, the decline of poverty in disaster-hit Cantons may in fact be due to the decimation of people in more vulnerable and therefore poorer households, which may bring down the poverty rate. By the same token, if poverty is measured according to income the rise of poverty incidence in disaster-hit Cantons with no considerable death toll may be an indication of depletion of capital assets to cope with disasters. As a consequence, assets-based poverty analysis can better reflect the change in poverty after a hazardous event shock than a mere monetary one.

In the case of Peru, Glave, Fort, and Rosemberg (2008) contend that natural hazards shocks over the period 2002-2006 may have forced households to deplete assets as a consequence of income losses. The authors reach that conclusion after estimating an increase in the probability of non poor households to become poor and the poor ones to remain in that state. Their findings suggest a decapitalization of households´ assets due to lack of formal insurance schemes that could have helped them smooth consumption. The majority of those households derive income mainly from the agricultural sector, which has a substantial weight in economic activities. In El Salvador, the 2001 earthquakes induced households in areas most exposed to the energy release to recur to assets liquidation in order to smooth consumption (Santos, 2007). Despite the substantial real income increase (about 28%) in this country between 2000 and 2002 and the ensuing decline in relative poverty, about one third of households affected by the two earthquakes at some point have resorted to assets decapitalization. In fact, despite the dramatic income growth, absolute poverty was reduced by less than 4% over the same period. This indicates that some vulnerable households may not have been able to fully benefit from the post disaster growth due to their previous assets decapitalization. Similar account is found across countries that have been exposed to hazardous events not just in the LAC region, but in other parts of the globe, particularly Asia and Africa south of Sahara.

The effects of natural events related disasters go beyond the immediate increase in poverty or assets decapitalization. Households facing hard times may sell off their hard accumulated assets just to defray their offspring´s human capital expenditures. But certain times cashing in assets may not be enough a measure to shield children human capital; smoothing consumption may dwarf parents´ desire to see their children at school. Therefore, the last coping mechanism is many time the recurrrence to taking

children out of school and send them to work to make up for the income shortfalls. Given the salient role education plays in enhancing an individual´s productivity, such a coping mechanism will have serious negative long-term consequences on the ability of children to generate income in the future. Those children will simply befall the fate of poverty and vulnerability in their adulthood, being even more prey to natural events related disasters. This is the classical manner in which poverty and vulnerability are transmitted across generations. Moreover, disaster-hit households may not have children education at the top of their priority list if they have to migrate and relocate to safer areas to put their lives outside of danger. Also, supply side restrictions may inhibit school attendance since educational establishments may have been partially or totally destroyed.

After two earthquakes hit El Salvador in 2001, Santos (2007) revealed that children in households heavily exposed in the energy release of the earthquakes had a 7% lower probability to remain in school; 4% of rural households also declared not being able to send children to school to due impoverishment from the earthquake. While school attendance increased some years after the event, an enrollment gap persisted between children of affected households and children in non affected dwellings. Many other studies have also analyzed the household´s response to different kinds of shocks. In general, they point to long-lasting effects of hazardous events on welfare indicators. For instance, Ureta (2005) found that the 5.0 Saffir-Simpson scale hurricane Mitch in Nicaragua (1998) was responsible for low retention rates and poor performance of children in school in affected areas. Santos (2007) also depicted low nutritional outcomes and higher rate of child labor due to this climatic event.

That households hit by shocks should be provided safety nets to prevent the depletion of their productive assets is manifest. The question to beg now is: what is the best means to achieving such assets protection in a context of credit markets imperfections?

When households need to make up for consumption shortfalls and are uninsured, as a measure of last resort they may simply have to deplete their assets to cope with the risks. Too many a time those are productive assets upon which the household´s livelihoods depend. In such context, assets decapitalization may have irreversible consequences on the household´s ability to generate income in the future (de Janvry et al., 2006b) and can trigger a vicious cycle bringing previously a non poor vulnerable household into poverty, or a poor household into dire misery. Too often, in the context of LDCs and particularly in the LAC region the first best solution, which would consist in borrowing against future income in the formal credit markets, is simply not an option, be it because of lack of collateral or some other demand constraint.[9] So, when disaster hit and households have to recur to this last resort measure of assets decapitalization, they often face they impossibility of replacing such assets accumulated over time by the sweat of their brow. Two available instruments capable of preventing uninsured poor and vulnerable non poor households from decapitalizating their productive assets to smooth consumption after being hit by a natural hazard related shock may be Conditional Cash Transfer programs (hereafter CCTs) and temporary employment programs. In the following sections, we make a brief digression into such programs.

[9] In LDCs context, particularly in the rural area, household may frequently use informal credit channels to make up for income shortfalls. These include food borrowing or informal loans; the latter many times are accorded by moneylenders at exorbitant interest rates that can go from 50 to more than 1000 percent annually. The perverse consequences of that option on the borrower are self-evident.

IV. A look into Conditional Cash Transfer programs

There exists an array of social assistance programs that include service subsidies, food transfers, cash transfers, and conditional cash transfers. Their general objective is to help the poorest or vulnerable segments of society. The one aspect that distinguishes conditional cash transfers from the other three social assistance programs is the conditionality, whereby benefits hinge upon verifiable actions to be taken by eligible households. Such actions include enrolment and attendance of children at school (sometimes emphasis is put on performance in lieu of just attendance, e.g. *Subsidio Condicionado a la Asistencia Escolar* (SCAE) in Bogota-Colombia, or Cambodia´s Education Sector Support Project (CESSP) and Nicaragua´s Red de Protección Social (RPS) programs), regular visits to a health center to immunize children, and for pregnant women and lactating mothers to attend a minimum number of informational sessions at local clinics on hygiene and nutrition (World Bank, 2009). To simplify and avoid confusion, we will refer to this type of program, the aim of which is to correct structural human capital deficits in children of poor households in order to break the intergenerational transmission of poverty, structural conditional cash transfer programs (or structural CCTs). It is however commonly referred to simply as CCTs in the literature, while there exist other types of conditional cash transfer programs that serve other purpose.

Structural CCTs are generally tailored according to age and sex. Typically, more money is transferred to families with children attending secondary school than those in primary school; so, this partly takes into consideration the higher opportunity cost of poor households´ children attending secondary school. Likewise, payments are generally more generous for girls than for boys.[10] Or the structural CCT scheme may simply be designed to exclusively address girls´ education, as in the case of Bangladesh and Cambodia. Provision can also be made to include nutrition expenses. Structural CCTs envisage sanctions in case of non compliance with the program´s stipulated conditions (the co-responsibilities). Those sanctions vary in type and degree of enforcement. However, their common trait is a timely reduction of part or total benefits; recidivists are eventually suspended from the program. Certain countries do not adopt such a hard stance and prefer to have social workers interact with and help non compliant beneficiaries, recognizing by that possible *cas de force majeure* that may inhibit compliance with the program (e.g. Brazil, Jamaica, El Salvador). Such programs are thus directed towards poor households, who are in principle incapable of investing in their children human capital due to lack of resources. Table 2 below presents a synopsis of current programs in the LAC region by implementation year.

Table 2. Structural CCTs in the LAC region

Country	Social Assistance Program	Incipience year	Beneficiaries (as of)
Honduras[11]	Programa de Asignación Familiar-PRAF I/PRAF-BID II/PRAF-BID III	1990/1998/2007	150,000 households (2008)
Mexico	PROGRESA/Oportunidades	1997	5.8 million househods (July 2010)
Nicaragua	Red de Protección Social-RPS	2000	30,000 households (2006)

[10] One exception is Jamaica´s Program of Advancement through Health and Education (PATH), where payments for boys enrolment in secondary school are higher. In general programs are designed to benefit those that are at disadvantage, which is the present case of boys in secondary school in Jamaica with respect to girls.

[11] Co-responsibilities regarding schooling, health, and nutrition, as stipulated in most CCTs, were not fully introduced until PRAF-BID II.

Costa Rica[12]	Superémonos/Avancemos	2000/2006	165,749 persons (2009)
Colombia	Familia en Acción-FA	2001	2.5 million househods (June 2010)
Jamaica	Program of Advancement through Health and Education-PATH	2001	341,000 persons (2009)
Brazil	Bolsa Escola/Bolsa Familia	2001/2003	> 12 million househods (June 2010)
Argentina	Programa Jefes de Hogar	2002	1.5 million persons (2005)
Chile	Chile Solidario-CHS	2002	1.15 million persons (2008)
Ecuador	Bono de Desarollo Humano-BDH	2004	1.74 million persons (August 2010)
El Salvador	Red Solidaria	2005	120,000 households (2009)
Dominican Republic	Programa Solidaridad	2005	463,544 househods (May 2010)
Paraguay	Tekoporâ	2005	109,692 households (2009)
Peru	Juntos	2005	420,574 households (2009)
Trinidad and Tobago[13]	Targeted Conditional Cash Transfer Programme (TCCTP)	2005	22,000 households (2007)
Uruguay	Ingreso Ciudadano/Plan de Equidad	2007	74,500 households (2009)
Panama	Red de Oportunidades-RO	2006	63,245 households (July 2010)
Suriname	Suriname´s Social Safety Net	2006	?
Bolivia	Bono Jancito Pinto	2007	1.8 million persons (2009)
Guatemala	Mi Familia Progresa	2008	591,570 househods (September 2010)

Source: Argentina (Ministerio de Trabajo, Empleo, y Seguridad Social), Brazil (Ministerio do Desenvolvimiento Social e Combate à Fome), Bolivia (Ministerio de Educación), Chile (Ministerio de Planificación), Colombia (*Agencia Presidencial para la Acción Social y la Cooperación Internacional*), Costa Rica (mideplan), Dominican Republic (Solidaridad: La Revista, No. 9), Ecuador (Miniterio de Inclusión Económica y Social), El Salvador (CEPAL, 2009), Guatemala (Consejo de Cohesión Social-Gobierno de Guatemala), Honduras (IADB, 2008), Jamaica (Ministry of Labor and Social Security), Nicaragua (Inter-Regional Inequality Facility, Policy Brief No. 3), Panama (MIDES), Paraguay (Secretaria de Acción Social), Peru (Programa Nacional de Apoyo Directo a los más Pobres-Juntos), Trinidad and Tobago (Hailu and Peterbom, 2007), Uruguay (Baráibar, 2009).

In any case, the ultimate goal of structural CCTs is to promote human capital formation of children in poor households. It does so by tackling structural poverty and by trying to combat inequality as a means to achieve social inclusion.

In the Latin American context the experience with Structural CCTs can be dated back to the late 1990s, specifically with Mexico´s PROGRESA (1997). The other well known structural conditional cash transfer program in the region is Brazil´s Bolsa Familia (2003), which is an excrescence of previous social assistance programs such as Programa de Erradicação do Trabalho Infantil-PETI (1996) or Bolsa Alimentação (2001). In fact, these two programs, PROGRESA (now Oportunidades) and Bolsa Familia, constitute the main references in the region, as they have been subject to extensive evaluations. However, structural CCTs have been in efflorescence throughout the LAC and in other parts of the globe since the early 2000s.[14] Some programs even have contingency clauses permitting vulnerable non poor households to receive benefits.[15] The figure below provides the list of existing programs in the LAC region to date.

[12] Support is provided for secondary education only.
[13] Support is provided for tertiary education only.
[14] Early structural conditional cash transfer programs pre-date these Latin American ones. In fact, some schemes of STRUCTURAL CCT could already be found in post-World War II Europe or post-revolution Romania in the late 1980s. Even Bangladesh started its girls´ education subsidy program in 1993. In fact, Honduras´ PRAF (Programa de Asignación Familiar), which was instituted in July 1990, conditions some of its benefits since its inception. So, it predates PROGRESA as a STRUCTURAL CCT.
[15] For instance, the Chile Solidario program, Nicaragua´s Sistema de Atención a Crisis (a pilot CCT), Indonesia´s Jaring Pengamen Social, or South Africa´s Social Relief of Distress Award.

Structural CCTs have so far proven their effectiveness in the areas of education (Behrman, Sengupta, and Todd, 2005), health (Gertler, 2004; Levy and Ohls, 2007), improved child nutrition (Leroy, Ruel, and Verhofstadt, 2009), and reduced child labor (ILO, 2007), to the point that some experts in the development field have coined them `magic bullet´ in social assistance programs. Albeit such programs are far from being a panacea to the many ills of LCDs, due to their performance in fighting inequality and long term poverty, they are garnering large support from both governments and international development agencies as a policy tool for social inclusion. Their general success has prompted exaltation of their ability to help countries attain certain development objectives, including the MDGs. Structural CCTs can be used as a tool to protect the assets of the poor.[16] However, addressing the need of non poor vulnerable households hit by a shock through Structural CCTs designed to tackle structural poverty may be just too cumbersome. Therefore other programs (including other conditional cash transfer such as workfare) may be better.

Structural CCTs have their share of skeptics. Arguments *en contra* run the gamut from: scarce public funds can find better use (e.g. investment in infrastructure and other public services) than structural CCTs, because the latter have lower return than the former, wrong incentives because of the reduced worked by beneficiary families and the dependency the programs create in them, to adverse psychological effects on recipients due to lower self-respect that handouts generate. Others also propose the outright removal of the conditionality associated with money transfers in favor of no strings attached allowances. However, evidence supports a much greater response of school attendance when benefits are conditioned. For instance, for Brazil Bourguignon, Ferreira, and Leite (2003), using micro-simulation techniques, found that an unconditional cash transfer has no effect on children not previously attending school to enroll. Meanwhile, payments tied to enrolment and minimum attendance produce a 58% decline in children who before were not attending school. Kakwani, Veras, and Son (2005) also provide argument against pure cash transfers in Africa. The authors contend that unconditional cash transfers would provoke under the best circumstances only negligible increases in school attendance compared to their conditional counterpart. De Janvry et al. (2006a) also demonstrated that at the mean income of the poor a dollar transferred with conditions brings forth 8 times more school attendance than an unrequited transfer of the same amount.[17] There is no evidence indicating a decline in labor hours supplied by or labor market participation of adults in beneficiary households (see for instance: Skoufias and di Maro, 2008 for Mexico; Teixeira, 2009 for Brazil).

a. The role of structural CCTs in protecting human capital asset and consumption in the presence of shocks

Researches and evaluations to assess the role of CCTs in protecting productive physical assets of households hit by natural hazard shocks are at best scarce in the region. However, there exists much evidence of the human capital asset shielding role of such programs. It has been demonstrated that CCTs are effective as a risk coping instrument

[16] See for instance de Janvry et al. (2006b).

[17] There exists some concern that CCTs may produce low quality education, due to overcrowding of classrooms and quality divides across income quintiles distribution, and over-education at the secondary level in some countries. Those considerations go beyond de the purview the present note and therefore will not be discussed here. For further discussion, see Reimer, da Silva, and Trevino (2006) and Farrington and Slater (2006).

to protect children human capital formation of beneficiary households (Cameron, 2002; Jensen, 2000; Coady, Olinto, and Caldes 2004; Schady, 2004; Maluccio, 2005; Sparrow, 2007; Gitter and Barham, 2009).

In LDCs context households constantly face shocks of different kinds, be they idiosyncratic (e.g. unemployment, illness, or death of the breadwinner) or covariate (e.g. droughts, floods, terms of trade deterioration, earthquake), and against which they are frequently not insured. Such shocks often constrain poor and vulnerable non poor households to adopt ex-post coping strategies that, albeit may help them smooth consumption in the short-run, can have adverse long-term consequences on their wellbeing. Those strategies include the use of buffer stock savings, depletion of other physical productive assets, and pulling children out of school to be sent to work in order to offset the income and consumption shortfalls.

The latter coping strategy stalls the expansion of the children human capital and by that lowers their future productivity and ability to generate income. When families are provided with safety net measures, particularly when there exist conditionalities such as those imposed under CCT schemes, one should expect that the effects of shocks be mitigated or totally compensated for, and children human capital advancement in poor households protected. The evidence supports this contention.

Using Mexico´s PROGRESA randomized experiment, de Janvry et al. (2006a) revealed that the high incidence of both idiosyncratic and covariate shocks has serious negative consequences on schooling decision in Mexico. Poor households that received a shock (typically unemployment or illness of breadwinner) are forced to interrupt their children human capital formation when no safety nets exist. This is done in the spirit to economize on fees, tuition, and other schooling related costs. As a corollary, those children are also put in the labor market precociously to contribute to the family pot. There is also a state dependence triggered once a child´s education has been interrupted, in that the probability of resuming school diminishes with time. In that respect, the authors find that once taken out of school those children have on balance a 23% lower probability to resume school attendance the following semester. This impact is even stronger among girls. However, the study discloses that children in households that receive PROGRESA treatment are shielded and are able to continue with their education. This means that PROGRESA benefits fully compensate the effects of these shocks in treated households (supra). So, the uninsured risk and the irreversibilities created by the short term coping strategy contribute to the depletion of the human capital asset of present poor and invariably feed the stock of future poor (de Janvry et al., 2006b). The same conclusion applies to Argentina (Rucci, 2004) and Guatemala (Guarcello, Mealli, and Rosati, 2010).

Noteworthy, this short term risk coping strategy may have instantaneous positive impact since it allows the household to make up for the consumption shortfall. However, the long term consequences can be deleterious for both the children and the parents. Firstly, the discontinuity in human capital formation imposed by this risk coping strategy will be translated into a lower ability of children to generate income in the future. Secondly, many parents in LDCs context decide to have children not as a pure consumption good but rather as an investment for old age pension[18] since social security institutions are

[18] At least after a certain number of children additional ones are considered investment good (see Becker and Lewis, 1973).

frequently either dysfunctional or simply do not exist in many of these countries. As a corollary, those future adults will be unable to generate enough income and this may mean that the old age parents will have nothing to fall back on. So, the long term consequences are bad for both.[19] Perfect credit markets could probably bring a solution to this problem by allowing parents to borrow against their childen´s future income. Nevertheless, perfect credit markets are still wanting in most of LCDs. As has been understated above, for households who are already living on the edge parents will most likely apply a high discount rate to future benefits of their children education. Besides, there is no guarantee that educated children once they become adults will live up to their parents´ expectations of being taken care of at old age when pension benefits virtually do not exist. So, absent this type of insurance provided by a structural CCT type program, asset depletion (of any sort) as a short-term coping mechanism to the presence of a shock may be the household´s first best solution; but in the long term the entire society will endure the consequences of such `first best´ short-term solution. The ambit of such a measure may run from greater inequality, deeper poverty and vulnerability, more crime, to overall instability as excluded group air violently their grievances in demand for a just share of the economic pie. The usual corollary is a polarized society, which does no good to any development planning.

Between 2000 and 2001, worldwide excess supply of coffee brought international prices down to 100-year low, inflation adjusted (Varangis et al., 2003). This affected many coffee exporting countries, in particular several Central American countries. In Nicaragua, households hit by this terms of trade shock befell different fate depending on whether or not they received treatment from government sponsored Red de Protección Social (RPS), a social assistance program to foster human capital advancement and to fight inequality and poverty. Beneficiary households have been able to keep their children in school thanks to the RPS program (Maluccio, 2005). Moreover, protected households were able to maintain their pre-RPS expenditure level and keep their children at school, while woe betide non eligible households in the same coffee region. Consumption level for the latter households declined by 18% on average. In light of the usual negative relationship between teenage education and child labor, the study uncovered that overall child labor declined (and considerably among treated households) while school enrollment increased by 25% (for treated boys) in the affected coffee communities. These overall positive impacts of the RPS have been confirmed by other studies.[20]

An evaluation of Honduras´ PRAF under the coffee price shock by Coady, Olinto, Caldes (2004) also suggests that benefits from the PRAF relaxed liquidity constraints imposed by the exogenous shock that decreased the returns to coffee growers´ productive assets. Therefore, treated households´ assets not only were protected but their consumption on balance also boosted by 14%. Likewise, children human capital of those beneficiary households in affected coffee communities was insulated.

Such protective role of human capital asset from structural CCTs is also confirmed for Indonesia (Cameron, 2002; Sparrow, 2007), Côte d´Ivoire (Jensen, 2000), and Peru (Schady, 2004). Guarcello, Mealli, and Rosati´s (2010) research further corroborates

[19] Hastening to add that has the household not used this coping strategy of taking children out of school and be put in the labor market could have been a matter of life or death since the alternative under such circumstances is often sending a child to school or having household members starve to death.
[20] See for instance Moore (2009) and Gitter and Barham (2009) and the references therein.

how unanticipated shocks impact negatively human capital asset and how pauses in the building of such asset create a path dependence with irreversible consequences on households´ ability to resume education of their children in Guatemala.

b. Can CCTs be used as a risk management or risk coping instrument to deal with natural hazards related disaster?

The evidence reviewed above indicates that structural CCTs can be an effective risk coping instrument when it comes to helping eligible beneficiary households protect their productive assets and human capital asset of their children. Beyond misgivings, disaster-shattered households pressed to decapitalize their productive assets need assistance to thwart the devastating consequences that such decapitalization may have on their wellbeing in the long term. The question to beg now is whether CCTs are the best policy instrument for such assistance to all households.

By their very nature, structural CCTs will work better in addressing structural problem at the micro or household level. Such structural problem, capable of keeping households in poverty and of reproducing inequality, is essentially the lack of human capital (in its two facets of education and health). So, long-term commitments will be needed for its eradication. In turn, covariate or systemic shocks, which can stem from the very structure of a country (e.g. the development choice), driving many households into poverty, may need a tailor-made program that does not impose the usual conditionalities of structural CCTs (i.e. minimum schooling attendance of children, regular health checkups of children, and pregnant women and lactating mothers to attend nutrition and hygiene talks) and does not require a long-term commitment.

In fact, covariate shocks will tend to affect a heterogeneous set of households. And although those households at higher risk of suffering a disaster are by their own nature the poor and vulnerable non poor, not necessarily will all those affected have under-aged children whose human capital formation is threatened, which happens to be *the* eligibility criterion of structural CCTs. Evidently, the design of a structural CCT program can be made flexible enough so as to permit those affected households already under treatment receive timely greater benefits in order to weather the distressful event. The mechanism for these greater benefits would be automatically triggered upon quick verification that the household has indeed been affected by a shock that can lead to sharp reductions in her living standards, forcing her to decapitalize her productive assets or putting at risk their children human capital compliance with the program.

In that spirit, certain countries in the region (e.g. Chile and Ecuador) have provisions in their program for supplemental payments on exceptional basis. For instance, after the February 2010 earthquake in Chile, a lump sum transfer of 40,000 CLP (roughly 73 USD at that time) was approved under the Chile Solidario and Programa Puente.[21] The transfer was aimed at assisting the program´s qualified households affected by the earthquake. The Chile Bono $40,000 initiative was also extended to other affected

[21] Bono $40,000: Reseña Legislativa 943/Boletín 6852-05, Gobierno de Chile. The Bono $40,000 Act was in fact instituted as a stimulus package in 2009 to help the poor already in the Chile Solidario bear up against the potential adverse impact the global economic crisis could have on their living standards. Such initiative was not intended to last, however the government decided to continue with the Bono after the quake and expanded the eligibility criterion to incorporate non poor affected households. Note: Programa Puente is a sort of antechamber of Chile Solidario.

households who were not under Chile Solidario or Programa Puente treatment prior to December 2009, provided their monthly income was at or below a government-established threshold of 457,954 CLP. The latter measure was however adopted within the broader national social assistance program. Also, Chile Solidario allows eligibility re-examination submitted by non poor households seeking admittance to the program after having suffered a shock causing a decline in their living standards.

The main lever that the Chile Solidario program has established to cater different vulnerability situations is the "Ficha de Protección Social", which identifies vulnerable households. Specifically, in the event of an emergency, such as a disease that inhibits the full dedication to daily activities, a vulnerable household becomes eligible to benefits through the "Prestaciones Monetarias Garantizadas", one of the components of Chile Solidario. So, among the objectives of Chile Solidario´s Prestaciones Monetarias Garantizadas a key element is exactly to provide timely cushion to the vulnerable ones in case of a shock to prevent, inter alia, the depletion of assets and guarantee a minimum subsistence level when labor income declines.

Two other countries in the LAC region (Jamaica and Mexico) have also introduced countercyclical buffers to their respective program in response to the 2008 global economic downturn in an effort to protect beneficiary households´ purchasing power.

So, existing structural CCTs can be massaged to accommodate timely exceptional payments to disaster-shattered current beneficiary households; and this can be made in a very efficient manner.

Verification process, moral hazard, benefits, and graduation

The swiftness with which verification is assessed is crucial for households facing the risk of decapitalization and sometimes households simply will not be able to wait until the verification process is completed and payments ordered. So, the verification process in that case can be assessed ex-post and cash disbursements be made upfront using existing payment mechanisms of the program without much additional invisible and hidden costs involved (e.g. employing more staff or having them make longer shifts). The extra benefits would continue to apply until accurate verification of the decline in the household´s living standards due to the disaster. Such a process can guarantee self-restraint and prevention of moral hazard behaviors since penalty can easily be applied on future program´s `regular´ benefits, or households may even face the risk of being suspended from the program in case of fraudulent declaration. One way of putting in check moral hazard behaviors is by capping the exceptional payments so that total gains from such benefits are inferior to the losses that a household would incur were her to be suspended from the program or to see future installments curtailed.

A recurring issue in social assistance programs of that sort is the dependency or poverty trap social assistance can create. In order to avoid such dependency, exceptional payments should have a time limit and early graduation should be encouraged by inducing beneficiaries to engage in income generating activities with the extra benefits received, as well as to acquire income diversification and risk management skills to reduce their vulnerability to future shocks. An interesting example in that respect is the Nicaragua´s pilot project "Atención a Crisis". Very important lessons can be learned from it to address the necessity of poor and vulnerable households in time of crisis or

shock. The pilot program was implemented within the Nicaragua´s broader Red de Protección Social between November 2005 and December 2006, with the objective of providing short-run safety net to households in six municipalities in the northern part of the country constantly exposed to droughts. Its main objectives were to reduce the impact of shocks and households´ vulnerability by decreasing their necessity to recur to adverse ex-post coping strategies, such as depletion of physical assets or taking children out of school. There were two clearly specified temporal objectives. In the short-term the program seeks to reduce the impact of systemic shocks on the accumulation of human and physical capital as well as prevent assets depletion; the latter is achieved by making cash transfers. The long-term objective of the pilot program is sustainable asset creation and enhancement of income generating capacity. Among the three interventions of the program two acquired particular interest: 1) a conditional cash transfer plus a scholarship that allowed one of the household members to participate in a vocational training course; and 2) a conditional cash transfer plus a productive investment grant, aimed at encouraging recipients to start a small non-agricultural activity.[22]

Nine months after the implementation of Atención a Crisis, treated households were able to improve their assets base. Through new choices they were consequently able to engage in higher productivity activities through a transition from traditional agriculture to commerce. Impact evaluation also disclosed that beneficiary households were less likely to recur to adverse risk coping mechanisms and more likely to use ex-ante risk management to address shocks than before participation in the program. Overall, the program´s evaluation proved that results in terms of risk management and risk coping were highly satisfactory for participating households and taught some very important lessons to design pilot program in the case of disaster emergency in countries facing the similar administrative, infrastructure, and resource constraints as Nicaragua.[23]

Certain times, payment can also be made in a lumpsum; in such a case local authorities would have to make clear (and people should believe!) that no further benefits will be granted (e.g. the Chile Bono $40,000).

What about the vulnerable non poor?

The example provided above for Chile makes manifest how, within the wider context of social assistance programs, a disaster triggered by a cataclysmic event can be properly addressed to assist the vulnerable non poor and help them bear the brunt of the shock. In a similar vein, the South African´s "Social Relief of Distress Award", which is one scheme within the broader South African Social Security Agency (SASSA), provides assistance by making payments during a period of three months (with the possibility of receiving benefits for a longer period in some cases), in the event of a shock inhibiting a household to meet her basic needs. Nonetheless, disaster-shattered vulnerable non poor households may need assistance for much longer time and not just for the purpose of smoothing consumption. Also, governments may not have the amount of money necessary for transferring substantial amounts of money via lump sum.

[22] It should be mentioned that the conditional cash transfer had a structural component, in that schooling and improved nutrition of underaged children were part of the conditionalities.
[23] For more discussion see Marcours and Vakis (2008)

While emergency relief to poor households already participating in a structural CCT program can be straightforward and is recommendable, incorporating vulnerable non poor households that cannot comply with the structural CCT program co-responsibilities to a roster may be too cumbersome and is probably not be the best strategy. It can divert the structural program from its main objective, which is to fight long-term poverty and inequality. Sometimes, keeping objectives simple, with clear and abiding rules to all stakeholders can guarantee efficiency of a project, which is fundamental to get results. In that respect, structural CCTs are probably not the best policy tool to address transitory shocks faced by all vulnerable non poor households, albeit such shocks can slip them into poverty permanently when not properly attended.

Other form of conditional cash transfers that does not require the long-term commitment underlying the structural CCTs can be quite appealing in period of crisis and emergency relief. Workfare for example can serve widely the purpose of bringing immediate relief to some groups vulnerable non poor households affected by a disaster, and can therefore prevent them from adopting adverse ex-post coping strategies, which can have irreversible consequences on their wellbeing. Additionally, such a program can enjoy much wider acceptance since the earmarked money will not be seen as a handout because beneficiaries will be giving something in return, i.e. their work effort. Moreover, besides being more equitable, workfare may involve less paternalism and patronizing, arguments to which skeptics of structural CCTs often refer. If the underlying public project is valuable (other debate in the public works literature), then the cost of the workfare program to society is lowered or offset.[24] Such programs are also a bridge to future more stable employment while they permit many people to upgrade their skills and prevent them from remaining idle, a situation that can potentially add further psychological stress on bereaved people.

Possible abuse of the program and moral hazard behaviors can also be reduced considerably under workfare since participants would be revealing their `true´ need for cash. Moreover, the mere participation can serve as a verification, which would lower substantially the costs associated with such a process.

So, workfare can be used as safety net and response to covariate shocks, including natural hazards-related disasters affecting the vulnerable non poor, free of impediment to work. Examples from the region include Argentina Trabajar, Bolivia PLANE, Mexico PET, or Peru A Trabajar –Rural and Urbano. The ongoing Cash-for-Work program in earthquake-devastated Haiti under the auspices of the UNDP is another example, although results from this program are pending.

Vulnerable non poor households with and without children and free of some type of constraint that prevents them from working are the obvious candidates for workfare programs. Meanwhile, for senior citizens and people with some sort of disability affected by a disaster, other relief schemes could be envisaged. If these groups were already covered by some program within the country´s broader social security system, then temporary adjustments, if necessary, could be made to provide them with greater benefits to withstand the shock. If such system did not exist, then the disaster should create the opportunity for the government to think about instituting one. Meanwhile, timely disbursements could be made to such groups upon verification and certification

[24] This can also be taxable income that will put some money back into the government coffers.

of their status of affected senior citizens or disabled. Verification process in that instance could take longer and moral hazard behavior could possibility be higher as well. However, it seems that the elderly tend to be more honest and therefore less inclined to fraud. This potentially reduces abuse of the program in this group.

Uninsured small entrepreneurs

It would not make much sense to ask uninsured small entrepreneurs who have lost properties that were essential to their business operations to participate in a workfare program. This in fact would be counterproductive as these former entrepreneurs could easily crowd out other less skilled job seekers, driving unemployment further up. Microenterprises are the engine of LDCs´ economies in general and disaster-prone LDCs´ economies in particular, due partly to the ease with which they can be rebounced rapidly with small loans. Fraud and graduation are not so much an issue here because: firstly, verification based on inventories is straightforward and the loan repayment period would set the program time limit.[25] Those enterprises can be crucial in trying to put an economy back on its feet in time of crisis. In this regard, microcredits to these small entrepreneurs who wish to have their businesses up and running again should be the right policy and this can be preferably implemented through already established microfinance institutions (MFIs). In earthquake-devastated Haiti, one good example is how Fonkoze[26] was able to quickly mobilize resources to help small entrepreneurs have their businesses up and running again very quickly. Their success in rapidly and efficiently reaching out to small entrepreneurs was due in part to the *ad hoc* procedures used in offering new financial products to small entrepreneurs, while the majority of commercial banks in the capital city of Port-au-Prince remained dysfunctional for several weeks after the seism.

V. The Case for Temporary Employment Programs

Temporary employment programs are instruments to create direct sources of employment. These measures can be either public sector employment generation programs or job subsidies (or tax incentives such as tax breaks) granted to private enterprises and have three objectives: (i) avoid or slow down layoffs; (ii) increase the stock (level) of existing jobs; (iii) increase employment for specific groups, such as women, youth, elderly and minorities.

Programs related at the first two objectives aim at maintaining or increasing the total number of jobs in the economy. The programs corresponding to the third objective seek to modify the structure of employment in favor of certain groups of under qualified workers who are discriminated against when seeking employment. The main risk is that this can lead to a "substitution" process, whereby subsidized workers gradually replace workers who do not fall under any of the categories mentioned above.

[25] An alert reader would here certainly beg the questions, do small entrepreneurs in developing economies have bookkeeping habits or the knowledge to do so? What about unrecovered loans? These are legitimate questions which have been largely debated in the microfinance literature and the discussion of which are beyond the scope of the present report. Incentive mechanisms for high repayment rates have also been proposed (see for instance, Baland, Somanathan, and Wahhaj (2010).

[26] Fonkoze is a microfinance institution in Haiti.

a. Benefits of Temporary Employment Programs

Unlike CCTs whose main concern is combating the underlying structural causes of poverty, Temporary Employment Programs are geared toward assisting individuals and communities smooth consumption in times of shock. These programs are tools to absorb low-skilled poor workers and allow them to earn basic income while remaining in their home regions. The main aim of these programs is to suplement the income of poor families affected by shocks. Work projects are usually labor intensive public service and infrastructure programs such as building rural roads, street cleaning and reforestation. These kinds of programs have been put in places in various countries such as Mexico, Bolivia, Argentina and Chile usually during times of macroeconomic crises or natural disasters with mixed results.

In the region, evaluations show that program targeting has been successful in supplementing the income of the poorest sectors of the populations. The majority of the beneficiaries of these programs live below the poverty or extreme poverty line. For example, 80% of the beneficiaries of the *A Trabajar* program belonged to 20% of the poorest families in Argentina and 89.8% of the workers included in the *Programa de Emergencia Social Productivo* (PESP) in Peru also lived below the poverty line. Similarly, in the program *Urban Work* and in *Programa Jefes y Jefas de Hogar*, both in Argentina, 90% of participants came from 60% of the poorest families.

Evaluations show that the positive effects in terms of monetary income in the short term mainly favor women and reduce extreme poverty in programs. For example, in *Programa Jefes y Jefas de Hogar* participant poverty dropped from 82% to 70%, while extreme poverty was reduced from 51% to 29%. In the *Programa de Empleo Temporal* (PET) in Mexico, 60% of the participants overcame extreme poverty. However, there is no empirical evidence on the medium and long term effects. Once participation ends in *Programa Jefes y Jefas de Hogar*, a drop in the income of the ex beneficiaries was observed, which reached three quarters in the first six months and a little less than half in the full 12 month period. The effects related to monetary incomes of the beneficiaries who finished their participation in the Chilean direct job creation programs were positive.

In terms of employment, these programs have had positive effects on the creation of jobs in the short term. For example, in *Programa Jefes y Jefas de Hogar* 26% of the beneficiaries would have been unemployed and 23% would have been inactive if it had not been for the Program. The PET program of Mexico resulted in a significant increase in the number of days worked. In the *Empleo en Accion* Program in Colombia, the participants showed an increase of 36% in the number of hours worked per week. In Chile's employment program the beneficiaries found that their possibilities of finding a job increased from 11% to 38%, depending on the year in which they entered the program.

The effect of temporary employment programs in terms of creating infrastructure for the poorest communities has yet to be systematically covered in the evaluations despite the fact that this should be one of the main program objectives. Based on available information, we can suggest that the program *A Trabajar* permitted the creation of more than 10,000 projects that benefited 300,000 people per year, mostly residents of poor communities. For its part, the Colombian program "Jobs in Action" approved 3,845

projects, but ended with only 2,788 finished (74.9%), mostly because of a lack of counterpart funding.

In terms of the relation of expenditures to GDP, there are three programs, two in Bolivia (0.86 and 1%) and another in Argentina (0.8%), that have the best cost ratios in relationship to all the other programs in the region.

Bolivia's Special Emergency Fund (FSE), after four years of operation (1988 – 1991), completed 3,300 projects, costing $194 million, which constructed and refurbished 550 schools, 417 health centers, improved 8800 km of roads, built 9,974 basic houses, serviced 980 km of sanitary sewerage networks, 320 km of potable water system networks, among other others(Ávila, Campero, Patiño. 1991). The project generated approximately 60,000 direct jobs and 45,000 indirect jobs during the four years of operation. In 1990, the number of jobs created was equivalent to 1.8% of the national Economically Active Population (PEA-Spanish acronym), nearly a third of the country's unemployed (UDAPE 1991). The investments contributed 1.1% to the GDP growth in 1990, which is to say that without the FSE, GDP growth in 1990 would not have been 2.6% but rather 1.5% (UDAPE 1991).

In terms of expenditure one observes a relatively high impact on administrative costs. This indicates that temporary employment programs are less cost effective than programs where fund transfers are dependent on the condition of investment in training human capital. Although this is more effective, it is also a relatively expensive way to affect the incomes of the poor directly. Hoewever, some direct employment programs have a much higher cost efficiency rate than indirect employment programs that are more geared to permanent employment creation (Capitulo V Programas Sociales CEPAL. 2004).

b. Problems and Challenges in the Implementation of Temporary Programs

In general terms, one of the constant challenges of these programs is assisting beneficiaries acquire new productive capacities. There is a lack of evidence regarding the long-term effects on the "employability" of the beneficiaries so it is hard to say how effective they are in the long term. Another important challenge has to do with the gener implications of the program. Women often face conflicts between their childcare obligations, other household chores, and the imperative to work, often outside the home, to maintain the family. These conflicts should be taken into account when designing employment programs.

Also, it is important that temporary employment programs are instituted before crisis and not during crises when there is a high degree of urgency. The lack of defined emergency plans based on past experiences translates into delayed targeting and delivery of funds for those in need.

These operational formulation and application problems to often translate into inefficient screening of beneficiaries, lack of transparency in program management, and the use of clientelism for resource allocation; all traits that compromise not only the efficacy of the effort but also the legitimacy of even well-intentioned interventions. Another very common problem is the lack of adequate planning regarding the length of

the program or explicit, predefined rules that stipulate when beneficiaries may no longer be part of the program.

Indeed, some programs were prolonged for a very long time specifically due to the lack of explicit exit criteria that would bring an end to the activities once the crisis had terminated. For this reason, temporary employment programs should be flexible in order to expand, reduce or close in response to prevailing economic conditions and to prevent the beneficiaries becoming highly dependent on aid.

These programs should include the tools and mechanisms needed to facilitate an adequate transition of the beneficiaries to permanent employment, with productive initiatives, training programs, and job seeking assistance. In the same vein, programs should channel beneficiaries to other social services they may need with the goal of integrating programs as part of a spectrum of permanently available interventions in the fight against poverty.

One of the most controversial aspects of these temporary employment programs has been how to determine the wage to avoid introducing disincentives to permanent employment. In the majority of programs observed the stipend/salary fluctuates around the minimum wage, plus or minus 10 percent. These wage level limits the participation to the poorest (typically, beneficiaries come from the poorest 20% of the population overall) and ensures that people already employed or capable of obtaining other employment disqualify themselves.

c. Experience in Disaster Intervention

Many countries in the region have hands on experience of disaster intervention. In the case of Peru, FONCODES has had programs that offer temporary employment and income to substitute for losses suffered by emergencies such as natural disasters and droughts. In this case the emphasis is on immediate attention to the affected population. Among the programs offered are high employment generation activities such as rehabilitation of lands, sanitary landfills, mini-hydroelectric facilities, and forestation and reforestation works. In Mexico with the Temporary Employment Program (PET), there are actions that permit the creation of jobs and the consequent generation of incomes for the beneficiaries. The execution of these projects and actions temporarily help men and women during low labor demand periods and in natural and economic emergencies, complementing the strategies of other social programs in the development of basic social infrastructure and productive activities

From the experiences and capacities that the majority of countries in the region already have we should be able to prepare the conditions necessary to create programs oriented toward employment with risk management for the purpose of compensation of the possible social costs of natural disasters, the deterioration of employment conditions, including salaries, all of which accompany these natural disasters. There should be instruments and transitory mechanisms with the perspective that once prevention and reconstruction processes have been undertaken then the regular dynamic of development and economic growth will derive in better economic activity, jobs and salaries, with the consequent improvement in social and economic conditions. These mechanisms should develop good institutional capacity for intervening in vulnerable rural and urban areas already at risk of natural disaster threats and funding infrastructure

works and processes of intensive training in manual labor oriented to the reconstruction and reduction of risk and seeking social participation at the local level, the municipalities, and the communities, from identifying problems to solving them.

d. Case Studies: Bolivia, Argentina

Next we analyze two case studies of development programs in Argentina and Bolivia associated with the Work Program and geared to generating job opportunities. The second study will be about PLANE II whose objective is to generate temporary employment. Impact studies were conducted on these two programs with very interesting results.

Argentina Trabaja Program

The objective of the *Argentina Trabaja* program is to reduce poverty through the simultaneous generation of employment opportunities for the poor and improvement of the social infrastructure in poor communities

Argentina Trabaja I is a pilot program created in 1996 in response to the current economic crisis which resulted in an unemployment rate of over 17%. *Argentina Trabaja* II was launched in 1997 as a larger and reformed version of the pilot phase and projects started to be approved in 1998. The program offers relatively low salaries in order to attract (self-select) participants who are poor and unemployed. This program finances a workforce needed to finally do community projects that will meet the needs of the poor. To be a beneficiary the person should be unemployed and register below the poverty line.

Projects in which labor participants are contracted are proposed by local governments and NGOs, who should cover the all costs of the projects except wages. These projects are approved at the regional level according to instructions sent by the central government.

The evaluation showed that the program benefited from design changes and new operational procedures. In *Argentina Trabaja* II different reforms were introduced to improve how projects targeted specific beneficiary groups. Poverty indicators and provincial unemployment data now play a larger role in how budget funds are allocated by the central government. Moreover, projects proposals coming from poor areas rank higher within the guidelines for project approval. At the local level, as with WORK II and WORK III, efforts were made to strengthen the capacity of the local ministries to help the poor areas put projects together and raise infrastructure quality standards.

WORK II achievements include a US$ 200 million loan from the World Bank, financing to 17,000 sub-projects, 75% of projects completed by the time the project closed, 400,000 jobs created, and 300,000 beneficiaries which covered 20% of the target population (poor unemployed). The wage for this project was US$ 200/month, which was similar to the minimum wage.

It is important, however, to take into account the income that the beneficiaries would have earned in the absence of the program. Descriptive statistics of the participants in

Argentina Trabaja II seem to indicate that without access to a program (per capita family income less that the program salaries), almost half of 85% participants in the program would have fallen 20% lower in terms of the national income distribution figures, making the participants truly qualified as poor in Argentina.

The results of the evaluation clearly indicate that the *Argentina Trabaja* program participants are to a large extent poor. Having participants self-select by offering low salaries is a strategy that works in Argentina and the participants benefit from being paid even though their net income is lower than the minimum wage because there is, to some extent, foregone income to be taken into account. The program does not discriminate against women participating.

The *Argentina Trabaja* II reforms improved the results of geographic targeting. The program now targets more funds to the neediest areas; nonetheless, there are different levels of performance, which is constantly observed in a few provinces where special policies are required.

Finally, the disappointing results in project infrastructure quality have resulted in enormous efforts by the project team to improve the work in this area by perfecting the operational procedures and insisting on more field visits to evaluate and supervise, punishing those agencies that are not working hard enough on the projects and strengthening the evaluation manual.

Plan Nacional de Empleo (PLANE) in Bolivia

PLANE generates massive temporary employment by using a dual strategy: strengthening effective demand and relieving the impact of the loss of employment on the reduction of income in the poorest parts of the population. The program works in urban, peri-urban and rural areas in all the Bolivian municipalities and it also helps in public investment at the prefect and municipal levels.

PLANE workers are people who belong to the poorest income strata of the society and who are unemployed and typically between 25 and 55 years old. These laborers work five days a week, seven hours a day, for a maximum period of five "quincenas" (2½ months). They receive payment every fortnight of approximately US$30.50, or US$61 per month, an amount that is 10% higher than the national minimum wage.

PLANE is made up of a number of specific projects including: the Service Employment Program (PES) that finances labor-intensive projects; the Public Works Programs Providing Employment (POE) specifically oriented to rural development; the Employment Productivity Program (PEP) geared to legally-registered productive units and/or private businesses; and the On-Site Professionals Program (PRO) oriented technicians and professionals in the area with the specialized skills needed in the different PLANE projects.

The program also responds to social and institutional requests for emergency employment and includes leveraging prefecture and municipal resources. The program is decentralized with a national and eight regional offices, with linkages and information exchanges with all the institutional participating.

PLANE II, in 14 months of national operations, achieved coverage of more than 98% municipalities (306 of the 312 rural and urban municipalities were attended to). They contracted 204,000 workers, equivalent to 7,786,882 paid workdays in 5,900 projects (works), all completed. There is also a fund worth approximately US$27.5 million, from which 87.78% is used to pay salaries and 12.22% are administrative costs (General presentation and final results PLANE II. UNDP BOL/03/002. 2004).

A profile analysis of the typical beneficiary of this program shows an important gender difference in both the rural and urban participants. More than ⅔ of the urban area (71%) are women while the men represent ⅓ (29%) of the workforce employed. In rural areas male and female participation is more evenly split– 50% male and female. The average age of the beneficiaries was 38 for men and 36 for women. With respect to beneficiary satisfaction it was observed that the great majority (87%), independent of gender or rural or urban location, agrees PLANE II is a good program. (The profile analysis of external evaluation of PLANE II, MKT S.R.L. 2004)

PLANE II offered equal opportunities to urban and rural workers. On average, a rural worker was employed 1.4 times in PLANE II projects, while in the urban area the average reached 1.6 times. In general terms PLANE II employed rural and urban workers for two and a half months (between 77 and 78 days), and paid a salary of US$ 61 per month. For more than a third of both urban and rural workers the program income represents the most important source of family income. On average, 92% of the workers state that their income covers basic family needs, such as food and utilities (electric and water). Despite the high level of satisfaction expressed by the beneficiaries, the urban workers expressed a certain level of dissatisfaction with the temporary nature of the program.

With respect to program impact on job training, the results clearly show that the female employees in PLANE II were able to acquire new work skills. The majority (86%) feel that this experience allowed them to acquire new work skills and helped them find new employment compared to only 37% of the men who felt they learned a new career. This shows that for women PLANE II represents their first work experience (outside the home). The characteristics of the works executed fall under the categories of masonry, forestation, gardening, excavation, retention walls, etc. From the point of view of the impact of PLANE II on the communities, the majority of those interviewed said that the works undertaken (stone roads, sidewalks, improvement of green areas, etc.) represent a development in the communities and/or neighborhoods and the strengthening of communal work, especially in rural areas.

VI. Conclusion

After disasters hit, poor households can be driven into more precariousness and the vulnerable non poor ones can be slipped into poverty. The efficiency and swiftness with which assistance and relief are provided to them can prevent the adoption of ex-post coping strategies that can have further negative consequences on their wellbeing, in particular the vulnerable non poor. Among such strategies the most frequent is the depletion of productive assets, or the interruption of children human capital formation (frequently to be put precociously in the labor market), to smooth consumption.

In countries where conditional cash transfer programs exist to address poor households´ structural deficits in human capital, it has been proven that such programs can be an effective tool in helping the poor keep their children in school and spare their productive assets after having been hit by a shock. In fact, in an effort to allow poor households withstand punctual adverse events, some countries of the LAC region do have provisions in their structural CCTs for exceptional additional benefits to treated households in time of crisis. Also, such programs can be used as an effective risk management tool for the poor (e.g. Nicaragua´s "Atención a Crisis").

What is not too clear however is the use of structural CCTs to address disaster risk of the vulnerable non poor. The main reason is that structural CCTs address the need of a relatively homogeneous set of households that can objectively comply with the conditionalities imposed by the program.[27] Such homogeneity lies in the human capital deficits of poor households and the high probability of transmitting them over to the next generation, which would complete the vicious cycle of poverty. Moreover, given the nature of structural CCTs there is a long-term commitment underlying them despite the time limit imposed on beneficiary households and the encouragement for their graduation from the program.

Natural hazards-related disasters can drive vulnerable non poor households into dire misery and poverty permanently. In fact, it has now become widely recognized that movements in and out of poverty are very common, particularly in the context risk-prone LDCs. In the fight against poverty some advances have been made towards the MDGs, but if we want to preserve them the design of anti-poverty policies should be forward looking. That is, they ought not to focus just on those presently poor but also on those facing the risk of slipping into poverty. And, as de Janvry et al. (2006b) rightly put it, helping the chronic poor move out of poverty is as important as preventing downward mobility into poverty of the vulnerable non poor. Nevertheless, structural CCTs may not be the best policy tool, both as risk management and risk coping mechanisms, to prevent the vulnerable non poor downward mobility. Using structural CCTs as a holdall may make policymakers miss the target in their fight against structural poverty and inequality. Thus, workfare programs, which are more nimble, can better serve the purpose of preventing the asset decapitalization of the vulnerable non poor. They can be successful safety net if conveniently designed and well implemented (further discussion can be found in, *inter alia*, Ninno, Subbarao, and Milazzo, 2009).

The evidence supports that Temporary Employment Programs are successful in generating employment and building infrastructure. These programs with good organizations, competent technicians and flexible administrations are capable of adjusting to extreme situations. There are many examples throughout Latin America and the Caribbean –the earthquake in Paez, Colombia 1999, Hurricanes Mitch and George in Honduras and the Dominican Republic, etc. However, problems of transparent management and the use of political clientelism to allot resources compromise the efficacy and legitimacy of these efforts. Another common problem is

[27] Certainly, CCTs should not be a straightjacket and such conditionalies can be relaxed and tailored accordingly. However, the bureaucratic red tap involved in accommodating the highly heterogeneous disaster-hit non poor, the definition of their entry and exit strategies, and which conditionalities they should comply with may produce less gains than a straightforward short or medium-term program such as workfare.

the lack of adequate exit strategies and explicit pre-defined termination rules for the beneficiaries. It is necessary to establish precise timeframes based on the magnitude of the disaster and the complexity of solutions in infrastructural terms.

One of the most complex aspects of Temporary Employment Programs is to define the amount of money transfers that is most adequate to complete the objectives of equity and assure maximum efficient participation of the poorest while maximizing the well-being of the targeted groups and avoiding disincentives to work. Emergency programs associated with employment are relatively efficient mechanisms to respond to crisis situations and have provided income to those population groups most vulnerable to the economic crisis.

Finally, as mentioned at the outset, households´ vulnerability is largely determined by a country´s development choice. This will in turn delimitate the ultimate impact of natural hazards. That is, the development choice will tell whether natural hazards are transformed into disasters or remain mere emergencies that can be thwarted easily. Land use planning and building codes are also important factors shaping households´ vulnerability to natural hazards. Too many a time do households, in a cost-benefit analysis, choose disaster-prone locations to settle (particularly in growing cities) as a way to mitigate short-term risks. The lack of enforcement of land use law and building regulations is thus one of the proximate causes of natural hazards-related disasters. Small gains in the field of social and economic development are often laid waste by disasters. And, as mentioned above, if risk management and disaster risk reduction are not mainstreamed into government plan and country´s effort to bring sustainable living standards to their population, development efforts will be in vain. Sometimes, countries have to spend years and even decades to recover. This makes risk management and mitigation, through, for instance, adequate warning systems, enforcement of land use law and building codes, accountability, to be a much superior policy than going to the rescue of households, poor and vulnerable non poor alike, ruined by natural hazards-related disasters. There is evidence that good institutions produce less damage from potential disasters (see for instance Raschky, 2008).

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