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## **Countercyclical Safety Nets for the Poor and Vulnerable**

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## **1. Introduction.**

Many of the conditions that destabilize food prices in developing countries also have a direct impact on incomes. Indeed, this is one of the key elements of Sen's (1981) perspective on famine. For example, when local grain prices rise in the wake of a natural disaster, the pressure on the purchasing power of the poor from the price rise is often accompanied by reduced production and earnings of farmers, agricultural laborers, and small enterprises. In such circumstances addressing food availability will not fully mitigate the impact of the shock. Thus, a basic tool in risk management includes safety nets to maintain purchasing power of the poor. These are often informal or market based, but in many contexts such pillars of risk response prove inadequate.

Despite extensive research on publicly supported safety nets in developing countries, however, far more is known about how to achieve their income transfer function than is understood about their insurance function, either following a natural disaster or in the downturn of an economic cycle. While many core principles of safety nets are shared over both objectives, they differ in three broad categories. First, to serve an insurance function safety nets need to have a counter-cyclical budget so that they can be scaled up as need increases. Second, they need to be able to target on transitory need rather than more chronic correlates of poverty and, finally, they need a flexible implementation strategy. This overview will address these three considerations in turn, although it is clear that, while the issues can be separated conceptually, they interact in the process of program design.

## **2. Financing of Counter Cyclical Safety Nets**

In any given budget cycle the number of individuals that will be affected by a natural disaster is not known, even if the statistical probability of shocks can be determined in advance. Nor is the level of need of those who are already receiving state support always predictable. To the degree that governments seek to protect the assets and consumption of their population following natural disasters or major price shocks, expenditures on programs to mitigate economic shocks would be expected to fluctuate annually. Moreover, fiscal balances are also negatively affected by shocks through their impact on state revenues. Additionally, shocks can destabilize trade deficits by both increasing import requirements and by reducing export revenues.

These two tendencies - increasing social outlays and fiscal contraction - tend to happen in concert, doubly straining the ability of a government to provide an effective safety net. This limits the Government's ability to expand programs at these critical times. These tendencies often have the effect of making social protection programs in developing countries pro-cyclical and not counter-cyclical, as they effectively need to be. For example, the share of GDP devoted to targeted social spending decreased in both Argentina and Mexico during economic downturns in the mid-1990s in the two countries, although the level of poverty increased. Thus the targeted spending per poor person decreased much more than per capita GDP, yielding an elasticity to growth (in this case, to a recession) of targeted spending per poor person of about five in the two countries. Therefore, instead of being counter-cyclical in order to protect the poor, spending on safety nets was highly pro-cyclical (Hicks and Wodon, 2001). There can be a similar tendency with increased poverty in natural disasters.

Formal insurance is a centerpiece of risk mitigation for many households and firms (Ibarra and Hess, 2005). Governments may similarly use the data and mechanisms employed by market based insurance to finance social protection. For example, a central government may use insurance triggers to fund local level programs as with Mexico's FONDEN under which the federal government, in effect, served as insurance provider for local governments for the reconstruction of public infrastructure (Skees et al. 2002). Mexico's program can equally be conceived as a targeting mechanism for a line item on the federal budget. However, recently the municipalities have been able to use central funding to pay premiums and, thus, insure against weather risk directly.<sup>1</sup> Countries may also insure at a national level using private providers though few countries have actually done so (IMF, 2003). Similarly, although catastrophe bonds are a financial instrument that have been used by insurance companies to securitize disaster risk, they have not been issued by developing countries.

Possibly one reason why countries do not seek insurance is that insurance works best for low frequency high cost events rather than relatively high frequency events. The latter may be a more accurate description of droughts and floods in many low income areas. Moreover, the Samaritan's Dilemma under which the expectation that aid would be received following a disaster may reduce the incentive to invest in ex ante insurance mechanisms. Indeed, donors have been fairly willing to respond with additional resources following natural disasters – though funding gaps may increase as real losses grow with increases in population and in the value of capital stock (Gurenko and Lester, 2004). That is, for a given natural hazard, exposure may be increasing in many areas.

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<sup>1</sup> Hector Ibarra, personal communication.

Funds from donors, however, are often delayed due to administrative requirements and mismatch of fiscal years and the timing of disasters. To avoid delays in securing financing of food aid, the World Food Program (WFP) is currently considering using weather indexed insurance mechanisms to finance drought assistance to Ethiopia. Moreover, when the assistance is in the form of food aid, the logistics of transport adds to the delays.<sup>2</sup>

International financing mechanisms for direct budgetary support to affected nations also exist to mitigate the impact of disasters on foreign exchange or fiscal budgets. For example, historically one of the main instruments to respond to the financing of imports following a shock has been the IMF's Compensatory Financing Facility (CFF) which, after some debate, was expanded in 1981 to cover the import of cereals and oil in the wake of balance of payments difficulties caused by declines in export earnings or rising import prices. While utilized 344 times prior to 2000, the absence of concessionality as well as the requirement of proving that the balance of payments crisis was temporary has limited the attractiveness of the CFF (WTO, 2002, IMF, 2003). In recent years, the Poverty Reduction and Growth Facility (PRGF) has filled the function for which the CCF was intended since it can be augmented to meet the needs imposed by a shock. While the borrower is required to repay the full principal as well as a token interest rate on PRGF financing, the deferred repayments implies that

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<sup>2</sup> Barrett and Maxwell (2005) provides a balanced review of the extensive literature on food aid. While the disincentives to producers from food aid has achieved almost a catechism status among agricultural economists, local effects depend on market integration and the degree of substitution for commercial imports. Yamano et al. (2005) indicate the impact of food aid on nutritional status during droughts.

there is an implicit grant element of around 30%, a significant advantage over CFF financing.

Moreover, the IMF has been able to provide emergency financial assistance outside of either the CFF or the PRGF. This flexibility has proven useful though the data requirements impose delays and a degree of conditionality. One such alternative has been Emergency Assistance for Natural Disasters (EAND). To date, 24 members affected by natural disasters have received emergency assistance on 27 occasions in this manner. In most cases, such assistance has amounted to 25 percent of recipient countries' quotas in the IMF. As with the CFF one drawback with the EAND has been the cost. However, in January 2005 the Fund's Executive Board adopted a proposal to subsidize the EAND for PRGF-eligible members. This subsidization will bring the rate of charge down to 0.5 percent per year, though because the repayment schedule is quicker than the standard PRGF, the overall implicit grant element will be somewhat less.

The principal mechanism for ex-post financing used by the World Bank for natural disasters or civil disturbance are Emergency Recovery Loans (ERL). These are intended for recovery and rehabilitation rather than relief, but they often include quick disbursing components to meet additional import needs. Food imports are explicated ruled out by the regulations governing these loans, except in targeted, monitored programs with a health or education objective, but as funds for other imports on government account are fungible, this legalism has minimal practical impact. While such loans can be rapidly appraised and brought to the Bank's board, the time lag until arrangements are completed for funding to be disbursed limits the scope of such loans in preventing asset depletion, although they may fund social protection programs for

recovery. In addition to setting up new ERLs, often undisbursed components of existing portfolios are reprogrammed to meet emergency needs.

Beyond seeking multilateral or bilateral assistance to deal with natural disasters, governments can use own revenues or deficit financing to provide social protection to affected populations, particularly in the case of localized distress for which it may be difficult to mobilize international assistance. Some countries such as Mexico, India, and the Philippines hold reserve funds for relief programs (Gurenko and Lester, 2004). Similarly, Maharashtra state in India has earmarked a specific tax to fund a counter-cyclical public works program, the Employment Guarantee Scheme. While such funding may be adequate for localized emergencies, the needs imposed by large covariate shocks such as Bangladesh's flood in 1998 or the recent tsunami can not be met without either external support or macro-economic consequences or both.

Governments also face a dilemma when making such budget allocations for assistance; they can attempt to make relief an entitlement – implying that all individuals who meet a certain criteria of need are eligible for assistance - or they can determine a budgetary target and then prioritize among individuals subject to this budget constraint. This affects targeting incentives as well as fiscal balances, since hard budget constraint provide more incentive to utilize information necessary for targeting efficiency and, thus, holds total costs down. Such a constraint, however, also increases the risk that the funds will be inadequate for legitimate local needs.

### **3. Targeting of Counter Cyclical Safety Nets**

The dilemma noted above implies that determining how programs can be funded following a natural disaster or a macro-economic crisis – often based on aggregate needs assessments – is intrinsically tied with the problem of how to determine who are the most suitable program beneficiaries and how to deliver services to these individuals. While there is an extensive literature on the targeting of transfers (Coady, Grosh, and Hoddinott, 2004), a relatively small share of this literature makes the distinction between the targeting of income transfer programs for individuals with few assets and targeting to mitigate income shocks. The data requirements of targeting on wealth or earning potential, however, are likely different than they will be for a program targeting on income *loss*. This distinction may be phrased in terms of static versus dynamic targeting but, in fact, it goes to the motive of a transfer program; is it designed as a safety net – to prevent a household from falling below a threshold – or as a safety rope – to prevent losses from exceeding a specified amount or share of initial wealth (Sumarto, Suryahadi, and Pritchett, 2003)? These two concepts are related but not identical; a dynamic targeting system may aim to acquire information on either the number of individuals that have recently fell below a minimum income (to improve a safety net) or to gauge the extent that incomes have declined over a wider segment of society.

While there is overlap between static and dynamic targeting – one can, for example, target subsidized insurance or ex post relief on a combination of loss and level of need – the data requirements to address transitory shocks are generally very different than needed to find an indicator of asset poverty. For example, a common means of allocating transfers, proxy means targeting, utilizes coefficients of regressions based on assets recorded in household surveys to predict income for households not necessarily in

the survey sample. Similarly, small area poverty mapping predicts the poverty rate of an administrative unit based on regression results and information obtained in censuses (Demombynes et al., 2003). With a few exceptions – for example, the use of information on earthquake damage for Armenia’s proxy means testing (Grosh and Glinskaya, 1998) – few of the indicators to construct a proxy means or poverty map can be considered time variant. This may reflect the fact that proxy means tests for targeting have appreciable fixed costs and, thus, may constitute a high share of total program costs if the costs are not distributed over other programs or utilized repeatedly. Almost by definition, dynamic indicators are less suited for repeated use than are static indicators and, thus may be comparatively costly.

Geographic targeting, an approach to targeting that bases allocations on area of residence, is well suited to address covariate shocks. It is more accurate the more homogenous the areas targeted and, thus, any indicator that can be collected for small areas is likely to assist in increasing the effectiveness of geographic targeting. One candidate for dynamic geographic targeting of social protection programs is the local rainfall deviation and, thus, rainfall data collected at diverse stations as is promoted for insurance (Ibarra and Hess, 2005) may also serve to trigger social protection programs.

Often local governments are authorized to utilize community knowledge to determine individuals most in need of safety nets (Conning and Kevane, 2002). This has a bearing both on the costs of obtaining information and on the type of indicators used to allocate resources. Community targeting may adapt to changing circumstances faster and more accurately than proxy targeting (Alderman, 2002) but it may also be susceptible to

local norms that discourage different treatment among neighbors, with variable performance between different communities within a single country (Sharp, 1997).

A final category of targeting for consideration here is self targeting by which individuals self select into programs based on their preference (Alderman and Lindert, 1998). If, for example, families tend to shift consumption away from a commodity or grade of a commodity as incomes rise the poor will receive more of any subsidy on that good in absolute terms than the non-poor without an administrator having to determine eligibility. Self targeting is thus based on behaviors which individuals reveal rather than incomes which they tend to mask. Moreover, as circumstances change individuals will opt in or out of a self targeted program without the need to update a data base or without the need for governments to make a politically unpopular decision to terminate benefits.

However, there are actually very few commodities that are both self targeted and also a significant share of the budget of the poor – a necessary condition for a subsidy to contribute appreciably to real income. Yellow maize may be one such commodity in much of Africa although governments often are reluctant to distribute yellow maize for drought relief since globally its main use is for animal feed. However, Dreze and Sen (1989) cite an example of the distribution of yellow maize during a drought in Kenya in 1985 in which self targeting eased the burden on community leaders by reducing pressure to allocate assistance equally. The suitability of yellow maize for safety nets in this circumstance may reflect both consumer preferences over types of maize as well as the possibility that the cost of stigma rises with income providing a degree of implicit self targeting for transparent community targeting.

Moreover, since the cost of leisure or wages generally rise with income public works programs can use wage rates to screen households with the highest need, conditional on their having an economically active individual in the household. The principle of targeting on wages is well known; if a public work wage is below the market clearing wage, then individuals with other employment are unlikely to be attracted to the workfare (Coady, Grosh, Hoddinott, 2004). On the other hand, wages set too low can be inadequate as a safety net. Conversely, low turn out at the offered public works wage can be a sign that the need for assistance has been over-estimated. The latter may account for the initial low response to public works in Afghanistan in regions where opium trade provided employment at wages higher than that offered in the public works.

Experience, particularly with the Employment Guarantee Scheme in India, shows that public works can be self-targeting and counter-cyclical to adapt to intra- and inter-annual employment cycles if budgets are allowed to respond to increased demand for employment (Dreze and Sen, 1989; Ravallion, Datt, and Chaudhuri, 1993). Conversely, if the funding cannot expand to provide sufficient employment for the number of individuals who offer their labor at the public works wage rate, it is necessary to find an additional targeting or rationing mechanism to clear the market. This weakens the safety net objective and can result in regressive targeting as happened with Maharashtra's Guarantee Scheme when real wages were increased (Ravallion, Datt, and Chaudhuri, 1993).<sup>3</sup>

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<sup>3</sup> This is similar to the known difficulty with under-funded floor price programs that are required to place quotas (officially or otherwise) on purchases. These also may fail to serve as a safety net and may result in regressive rents to those having access to the program.

Counter-cyclical targeting often is implemented in a multi-tier fashion using more than one targeting modality. For example, a specialized agricultural fund that complements Mexico's FONDEN targets weather affected municipalities which are responsible for distributing transfers to individuals based on farm size – a static indicator - with the upper limit of eligibility differing across states. In other cases, geographic targeting may determine how much drought assistance a community will receive and then communities are expected to use local knowledge to allocate this quota – perhaps augmented with a simple set of decision rules that serves as a proxy means ranking of need. To a fair degree, this is how WFP utilizes vulnerability assessment.

#### **4. Implementation of Counter Cyclical Safety Nets**

Even if financing and targeting issues are resolved, difficulties in scaling up of programs often impose additional lags in providing assistance following a rapid onset disaster. For example, Gurenko and Lester (2004) indicate that donor pledges and reprogrammed Bank lending aimed at meeting reconstruction after the earthquakes in Gujarat totaled \$3.1 B after 2 years only \$700M had been spent reflecting a combination of three factors. First, not all donors delivered on commitments. Second, delays occurred due to disbursement and procurement procedures. Finally, many disaster-affected regions are unable to constructively employ major increases in funding. Indeed, some of the planned resources were again reprogrammed to address reconstruction needs following the December 2004 tsunami. The issue, however, is common to ex post financing and program design.

As indicated, some public works programs do have the ability to accommodate counter-cyclical demand. The Maharashtra Employment Guarantee Scheme, which at

one time accounted for 12% of state expenditures, was able to expand by 64% in response to a drought in 1982 (Echeverri-Gent, 1988). Such an expansion is not without its strains on administration and dilution of quality. Nevertheless, the general impression of many studies is of a flexible management and a targeting to low income beneficiaries (Echeverri-Gent, 1988). The net impact on incomes of such employment, however, is not necessarily the same as the wage bill for such programs. For one thing, most poor cannot afford to be idle. Thus, employment in public works replaces other activities; the net impact on earnings, then, is less by the returns to these other activities, including preparing fields for the next crop year. Ravallion et al. (2005) claim that these alternative earnings may account for 25% (India) to 50% (Argentina) of public works earnings. In places like rural Ethiopia, however, where wage employment opportunities are minimal and agricultural activities highly seasonal, this type of substitution is likely to be relatively small.

However, if it is the case that public works beneficiaries leave low paying casual employment and piece work for public works then the full impact of the program should also consider the possibility that other workers are hired to undertake the work these beneficiaries would have undertaken. For example, if the firms where the current beneficiaries of Argentina's *trabajar* program formerly worked had hired the profit maximizing number of casual laborers prior to these workers leaving for public works the firms would want to replace these workers. There would be some loss of efficiency to the degree that the worker had job specific skills or there are search costs for replacement. But it is a strong assumption that the firm would not hire any replacements at all. To be sure, under various assumptions of the structural reason for unemployment,

the poor will have a lower than average probability of getting this job (say if they have fewer skills than the average person lured away from the job). Still, given that it is appropriate to reduce the public works benefits by the expected earnings in the absence of public works (the counterfactual estimate of earnings), then it is also appropriate to add the full indirect labor market adjustments to the total welfare benefits.<sup>4</sup>

A modification of the concept of public works can be found in Argentina's response to its macro-economic crisis at the end of 2001. Instead of targeting by wage rates, the *jefes* and *jefas* program introduced a transfer in exchange for meeting a work requirement of 20 hours a week in community work, training or school attendance.<sup>5</sup> While this relaxed a self-targeting wage mechanism that had effectively reached the poorest segments of the population, it retained an element of self selection since fully employed individuals would be unlikely to meet the work requirement. Thus, program played a significant role in mitigating the impact of the crisis (Galasso and Ravallion, 2004).

The full impact of public works and similar programs goes beyond the immediate income transfer. The value of the assets created are indirect benefits of these programs (Ravallion 1999); these may also be explicitly targeted to poor communities and thus increase the poverty reduction impact. Often there is a tradeoff on types of benefits; attempts to maximize labor intensity may come at the expense of non-wage inputs into asset creation or in lieu of expertise needed for planning. For example, until recently,

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<sup>4</sup> Depending on the wage rate for public works and the degree to which it is really an entitlement (that is, whether employment is rationed or not), public works may also influence the market clearing wage rate and, thus, the market clearing supply and demand for casual labor.

<sup>5</sup> The program also had a provision for subsidizing wages for six months for individuals in private employment.

food for work programs in Ethiopia included little or no cash and, consequently, were unable to obtain the inputs necessary for productive investment.

From the standpoint of counter cyclical programming it is important that communities have a shelf of feasible public works investments so that the engineering and environmental assessments necessary for productive investments need not be undertaken in a crisis mode. Where communities have development plans a counter-cyclical flow of funds into public works can be utilized to accelerate the timing of investments that have already been deemed local priorities.

To the degree that public works – or any transfer programs for that matter - serve an insurance function they may also protect the poor from asset depletion. While the assets created by public works tend to be public goods, the function of asset protection refers to the prevention of sales of assets to maintain consumption following an income shock. Public works may also allow households to sustain investments in health and schooling. However, in principle, the impact of public works on schooling is indeterminate; the income effect favors schooling of other members in a household but the wage effect may draw youths away from continued schooling.

Social funds. Early versions of social funds such as those in Bolivia and Chile were designed to compensate for negative impacts of adjustment. While such programs were not designed to scale up in bad times and down after recovery, the efficiency that social funds have demonstrated in financing local infrastructure and supporting local governments have made such programs valuable in reconstruction after natural disasters. For example, the social fund in Honduras approved 2,100 projects within 100 days of Hurricane Mitch; the speed of implementation was four times pre-Mitch averages

(Warren, 2003). This not only helped restore infrastructure, it created employment in a manner not dissimilar to work fare programs such as Argentina's Trabajar.

More generally, social funds tend to have an autonomous status with streamlined decision-making procedures which may enable them to rapidly in respond to changing needs as well as to take decisions such as altering the labor intensity of the menu of activities. This response capacity can be enhanced if social funds prepare contingency manuals ahead of time as has been done in a few hurricane prone countries such as St. Lucia. While there is a risk that rapid increases in either public works or small scale infrastructure can lead to inefficient planning and bottlenecks, this may be less an issue for the small scale projects undertaken by social funds than with larger infrastructure construction.<sup>6</sup>

Micro-Finance. While the primary objective of microfinance institutes (MFI) is to increase poor households' access to credit for small scale investments rather than participate in relief, they may also serve to assist in consumption smoothing, particularly smoothing over seasonal cycles (Pitt and Khandker, 1999). To a degree this comes from ex ante income diversification as well as from fugibility of credit. There is less evidence that micro-finance can smooth consumption between years, but the mechanisms by which this might occur are similar to smoothing over more predictable seasonal cycles.

Moreover, with enhanced emphasis on savings mobilization – occasionally with implicit subsidies - MFIS may assist households self-insure (Morduch, 1999). MFIs are generally encouraged to suspend savings requirements following a natural disaster and to

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<sup>6</sup> The costs of pro-cyclical variability in large scale program budgets are well known and prompt the creation of mechanisms to smooth revenues, such as funds to smooth oil price windfalls (Davin and Titman, 2004).

reschedule loan payments and, thus, indirectly assist households smooth consumption. Additionally, they may encourage borrowers to purchase insurance either as a condition of borrowing or by serving as an agent selling insurance and by forming insurance groups. Furthermore, depending on the scale of the MFI, these institutes may spread risk spatially and, thus, provide some protection from covariate shocks. However, as the 1998 floods in Bangladesh revealed, there may still be a need for such institutes to reinsure their aggregate risk

Subsidies. While the programs discussed focus mainly on scaling up safety nets to offset income shocks, counter cyclical safety nets may also be considered to mitigate price shocks. This may be the case, for example, when a production shock requires a country to import when it otherwise would not, pushing domestic prices towards import parity. Or a spike in world food prices may put upward pressures on local prices. While, as mentioned, IMF financing is often available for such an eventuality, governments still need to determine how much of the short term spike they want to transmit to consumers. Indonesia faced this problem with a similar – but less short term – rise in the price of rice following the devaluation and drought in 1997. The government had originally attempted a generalized subsidy but this proved both expensive and a temptation for re-export with subsidy costs rising to 1.6% of GNP. They eventually shifted to a targeted quota determined by a combination of survey data and village grants and mediated by community targeting (Olken, 2005). The rice quota indicates a common feature of scaling up: scaling down is politically difficult. Although the Indonesia economy has improved, by 2005, the subsidy had not yet been scaled back.

One form of subsidy that has been designed as counter-cyclical is a subsidy to livestock transport in pastoral regions of Kenya. This program reduces the cost of trucking animals south in times of drought and, thus, increases the price that distressed herders are able to receive for their animals. Botswana has similarly responded to drought by purchasing animals in affected areas on government account.

## **5. Conclusions.**

While funding of programs to address income shocks is always a consideration, given the number of donors and lending instruments, the timeliness of resource flows rather than the level of funding *per se* is likely the more limiting element in a well functioning counter-cyclical safety net program. Weather based triggers for targeting of resources may be one means of shortening the time from identification of a local shortfall to the implementation of a public works or a transfer program. In other cases, when food aid is anticipated, but expected to arrive somewhat latter than desired, agreements to lend from national pipeline stocks may also positively affect project timelines. Other features that may shorten the time from declared need to program implementation include decentralization or at least deconcentration of administration to local governments, a preexisting set of rules for distribution of safety nets or of contracting of public works as well as the assembly of a shelf of possible public works projects.

Many low income countries can not afford to provide public transfers to a significant share of their poor residents (Smith and Subbarao, 2003). Such countries may find it expedient to maintain a core social protection program that can respond in a timely manner to prevent economic and weather cycles from contributing to excess mortality as well as contributing to asset depletion. That is, while low income countries do not have

the fiscal space to finance transfer program, they may be able to provide a basic social insurance. To do so, it may be necessary to have a program template pre-positioned. Although publicly supported safety nets do not automatically serve an insurance function, their presence in normal years can provide a scaffold to scale up implementation and coverage in the event of excess need. Relatively small scale programs may provide the administrative infrastructure – including the rules of operation and of eligibility – that can adapt without costly implementation bottlenecks.

Monitoring of counter-cyclical safety net programs has to take into consideration the insurance function of a program as well as its role of addressing asset poverty. Ex post evaluations, for example, may find that the amount of assistance received is correlated with pre-disaster wealth – since loss is correlated with wealth. - even if the probability of receiving assistance declines with wealth as observed by Morris and Wodin (2003) in Honduras following Hurricane Mitch. This, of course, varies by type of shock and locale, but it reinforces the need to design incidence of expenditures in keeping with program objectives (Sumarto, Suryahadi, and Pritchett, 2003).

Similarly, if safety nets are to serve an insurance function evaluation needs to be consistent with that objective. From the point of view of a transfer, social protection needs to be well targeted and, ideally, with little crowding out of other assistance or of household labor. However, from the point of view of risk management, the efficacy of safety nets includes the degree to which assets are protected or the speed at which the affected households return to the level of production or earnings that the household had achieved prior to the shock. To be sure, often the necessary data to evaluate a safety net

form this perspective is not available. Nevertheless, understanding the objective will encourage the design of evaluation approaches compatible with this purpose.

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