



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



THEMATIC OVERVIEW NOTE: EXPANDED MARKETS AND INCREASED INVESTMENTS

FEED THE FUTURE LEARNING AGENDA

Michael R Carter

University of California, Davis

BASIS Assets & Market Access Collaborative Research Support Program

I₄ Index Insurance Innovation Initiative

The overarching FTF initiative goal is to “*sustainably reduce global hunger and poverty by tackling their root causes and employing proven strategies for achieving large scale and lasting impact.*”¹ Sustainable agricultural intensification is key to meeting the above challenges. Investment in agriculture is a proven lever for combating food insecurity and encouraging broad economic growth. The poverty reduction impact of agricultural growth is, in general, greater than the poverty reduction impact of nonagricultural growth, and is greater when the agricultural growth is broadly based and includes the small farm sector.

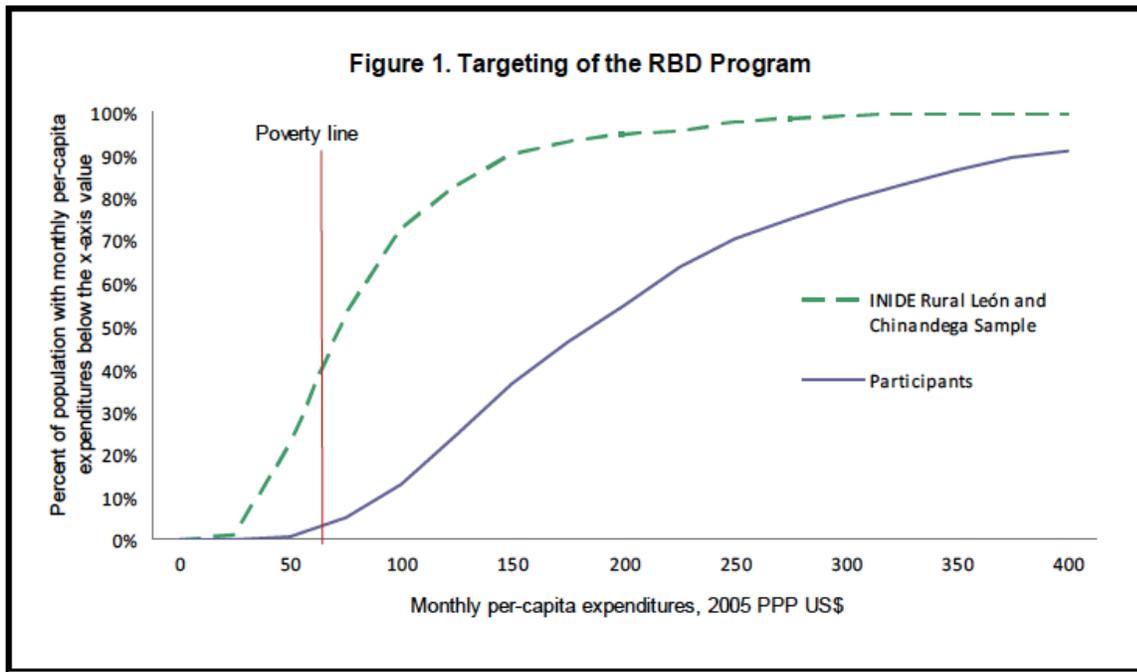
The value chain work proposed by the USAID missions in Uganda and Zambia begins with the observation that there is substantial untapped productivity in the small farm sector in both food and export or commercial crops. This untapped potential translates into substantial “money that’s left on the table” year after year in the form of reduced growth and poverty reduction. While USAID has heretofore invested substantially in agricultural value chain development, meeting the FTF goals requires not just doing more of the same, but

¹ Feed the Future Guide (2010). http://www.feedthefuture.gov/FTF_Guide.pdf

learning how to create pro-poor value chains by reaching further down the wealth continuum to involve resource poor farmers in the uptake of new technologies and market opportunities.²

To help fix ideas, consider the following results from the Millennium Challenge Corporation (MCC) value chain-oriented Rural Business Development (RBD) program in Nicaragua. Only those households with a *minimum* of 2 to 5 hectares allocated to targeted crops were eligible for participation in the program. While the logic behind such minimum requirements was clear (especially to program implementers who were incentivized to generate high immediate economic rates of return on program investments), the results were predictable.

According to a national living standards measurement survey, 73% [29%] of the rural population in the target Nicaraguan provinces was under the poverty line in 2005 [was extremely poor] as shown by the dashed income distribution line in Figure 1. How do participants in the MCC value chain program compare to this figure? As shown by the solid line in Figure 1, only 10% of those who participated in the RBD project are below the poverty line, and only 3% are categorized as extremely poor. Approximately 50% of RBD participants have per capita expenditures of between one and three dollars per day. This percentage is similar to the entire rural population of Nicaragua (51%), and yet the other 50% of RBD participants have expenditures greater than three dollars per day, while only 10% of the entire country's rural population exhibits these expenditure levels.



² Once this first challenge is solved, a second challenge will be to create a cargo net or other graduation pathway that will allow the poorest households to build the minimum assets needed to participate in pro-poor value chains. Discussion of such efforts is beyond the scope of this brief note.

This less-than-pro-poor targeting could perhaps be justified if the evidence indicated that the farmers with resources less than the eligibility criteria could be shown to be unable to effectively participate in the value chain activities. There is, however, no evidence on this point. Impact evaluation of the RBD program reveals substantially heterogeneous effects, with some farm households benefitting substantially from the program, and others not at all. Given that the RBD project established minimum conditions for project eligibility, we might suspect that the low performers would be those households with fewer assets and lower initial living standards. Of importance here, the data do not support this interpretation. Indeed, if anything, the data suggest that initial living standards were higher among the households that benefited least from the program.

The message for FTF is that the minimum requirements for effective participation in value chain programs is an open question that requires exploration. From this perspective, standard program evaluation criteria that fail to create either the incentives or the space for program implementers to probe those requirements should be revisited. More globally, FTF's learning agenda needs to prioritize exploration of these requirements or minimum asset thresholds.

While the minimum asset threshold for effective participation in value chain programs is far from clear, it is apparent that the participation of small farms in new technologies and value chains—including those likely well above the putative threshold—is stunted by both risk and uncertainty.

Regarding risk, development economics has long been preoccupied with the notion that one of the biggest costs of risk is that it induces farm households to 'income smooth' and shy away from riskier, new technologies and economic opportunities that offer improved incomes on average. In addition, risk stunts the development of rural financial markets, compounding the adoption problems for liquidity-constrained farm households. Finally, risk and the absence of deep credit markets create consumption variability that contributes to the intergenerational transmission of poverty, lessening the long-term human development impacts of even those incomes and growth rates that are achieved.

Both the Uganda and Zambia value chain programs recognize the potential for risk transfer mechanisms (e.g., agricultural index insurance contracts) to ameliorate this problem. Indeed, interlinking credit with insurance is a promising area of innovation. Pilot projects in Ethiopia and Mali are currently underway to explore whether or not risk index insurance can crowd-in both the credit supply and the credit demand to allow small-scale farmers to finance and adopt higher returning, but riskier, crops and technology. Learning from and expanding on these novel efforts to innovate financial technologies that will empower pro-poor agricultural growth must clearly be an FTF learning agenda priority.

In addition to known risks, new technologies and market opportunities also confront small-scale farmers with unknown risks, or uncertainty: Will a new opportunity even pay off on average? Historically, such uncertainty results in relatively slow diffusion process (for example, hybrid maize in the US was only slowly adopted over a period of several decades). One way to try to speed adoption is to subsidize the purchase of inputs needed for new technologies and opportunities. Voucher coupons have been used effectively to this end in a number of African countries. Such programs can offer a number of advantages, including the creation of the secure and large market for inputs needed to incentivize the creation of an agri-dealer, input supply network. Less clear is how long such programs need to last in order to create a sustained uptake of technology, and what, if anything, else needs to be done to secure their effectiveness. An impact evaluation of a maize technology

improvement project in Mozambique already reveals three lessons. First, absent some mechanisms to deal with risk, such programs can come to a crushing halt if subsidy impacts are undercut by drought or other unfavorable conditions. Second, they can in fact substantially increase uptake of new technologies and small farm yields. Third, the impacts of such programs are only likely to be sustainable if the credit or savings mechanisms are put in place to subsidize the liquidity provided by voucher coupons.

Plumbing these problems deeply to identify an optimal value-chain deepening strategy will likely require an integrated programming and pilot project research agenda. Table 1 illustrates a possible 3x2 experimental design to illustrate how this might be done. All of these interventions are assumed to take place against the backdrop of the index insurance contract. The columns of the table define one dimension of these proposed interventions: the distribution of voucher coupons that partially subsidize the initial adoption of productivity-enhancing investments. The rows of Table 1 list the perspective sources of credit in order of increasing leverage.

Table 1: Experimental Design for Ancillary Interventions

		Technology Uptake	
		No Voucher Coupons	Voucher Coupons
Capital Access	Self-finance through Savings	R ₁₁	R ₁₂
	Savings-secured Loans (SSLs)	R ₂₁	R ₂₂
	Group Credit	R ₄₁	R ₄₂

A first possibility is simply that farmers self-finance the needed investments with their own savings. Communities in row 1 would be offered access to improved savings services and financial education. Especially in combination with voucher coupons (which will temporarily raise incomes), it can be hypothesized that a well-defined savings program will position farmers where they can finance their own improved input packages. An advantage of this approach is that it would allow farmers to slowly and partially adopt improved practices without creating a debt burden. Insurance in this context could be extremely valuable. In the Mozambique voucher scheme project described above, first-year voucher recipients experienced a major drought, effectively losing their own funds that they had invested in the project. Provision of an insurance option—which could perhaps be bundled as part of a savings program—would enable farmers to preserve their savings and continue their uptake of improved technology in the future. While self-financing is cheaper than loans, it may be that existing income levels are so low and liquidity constraints so high that this approach will not work. Further on-the-ground investigation will be required to determine the promise of this approach.

Rows 2 and 3 of Table 1 propose to use loan capital to fund the needed investments in value chain activities. While index insurance can mitigate the risk problem that discourages agricultural lending, lending institutions

also demand protection against the risk of what might be termed strategic default. This risk is typically managed by having borrowers pledge collateral assets that can be seized in the event of default. While agricultural land is often pledged or mortgaged for this purpose, it appears that the current land tenure system in many FTF countries will not allow land rights to be used in this fashion. If this limitation is correct, then the challenge is to find alternative collateralizable assets or collateral substitutes.

One approach, which is a half-step removed from self-finance, is to use Savings Secured Lending (SSL). Under SSL, the farmer must meet a savings target (say \$200) and is then allowed to borrow some multiple of the target (e.g., \$600) with the savings account standing as the collateral to be forfeited in the event of default. When combined with index insurance, SSL would work in a fashion fairly similar to pure self-finance, except with much greater leverage. The key question is what kind of leverage ratio will be offered by the banking system. Assuming a lender (with portfolio insurance) is willing to offer a leverage ratio greater than one, then this leveraged scheme may lead to quicker results than the pure self-finance scheme. It would rely on many of the same savings interventions required for the self-finance option.

Group loans (row 3 in Table 1) is an alternative form of high leverage credit. Under a group loan, a group of villagers become legally liable for repayment of each other's loans. While such loans are typically not secured by any physical asset, they can be viewed as secured by individuals' social assets. That is, each individual borrower knows that her or his neighbors will be most unhappy if the individual defaults on their portion of the credit. Defaulters can thus anticipate loss of their good social reputation and relationships, as well as possible loss of more tangible assets that are valuable to their neighbors, but not to a bank (e.g., a plow animal). In addition, joint loan liability incentivizes neighbors to do the lender's work. Neighbors will only agree to be jointly liable on loans for people whom they trust to be honest and hardworking (i.e., they do the loan screening for the bank). Neighbors are also positioned to supervise use of the credit after it is issued, again fulfilling a monitoring task that would be expensive for a bank to directly execute. In the particular case of tree crops like coffee, it is easy to imagine a group holding collateral rights over the trees of its members. Anyone defaulting on a loan for which the group was liable would forfeit their harvesting rights on their trees to the credit group.

In closing, while these ideas are in no way meant to be definitive, they are indicative of the possibilities. One way to move forward would be to divide a program area into subregions that would be assigned to these different program designs. Impact monitoring over time should reveal which of these interventions is most effective at sustainably bringing small farms into remunerative value chains.³ Lessons from such a study could then be used to guide future scaling and expansion of such efforts. While only indicative, it does illustrate the sort of integrative approach in research and program implementation that needs to be undertaken if the Feed the Future program is to meet its broad and ambitious goals.

³ Impact monitoring needs to include not only traditional agriculture program measures (such as crops yields), but also human development outcomes (e.g., child health and nutrition) that reflect food security and poverty.