

# Mobilizing Migrant Remittances for Agricultural Modernization in Mozambique

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## Key Message

Mobilizing private resources for agricultural modernization may reduce the need for scarce government resources to be used for financing this modernization (for example, to be invested in fertilizer subsidy programs). We examine the potential role of one such private source: migrant remittances. Recent literature on migration has suggested that migrants have a stronger preference for remittances to be used for investment and savings, relative to their origin households. Without direct control over the use of remittances, migrants may choose to keep their earnings for themselves and to remit less. It is therefore relevant from a policy point of view to examine the potential role for migrant remittances to partially financing agricultural inputs for rural farming households.

## Motivation for Research

Average crop yields remain very low in Mozambique, even among its peer countries in sub-Saharan Africa. In 2009 the average per hectare yield for maize, one of Mozambique's three major staples, was less than one ton,

compared to 4.5 tons for the sub-Saharan Africa region. A major contributing factor to this low agricultural productivity is the scarce use of fertilizers in Mozambique. As of 2007, only 4% of Mozambique's smallholder farms were using fertilizer compared to 70% in Kenya. The world average for nitrogenous, potash and phosphate

fertilizer use per hectare of arable land was 127 kg in 2007. In sub-Saharan Africa, fertilizer use has lagged behind: in Malawi it was 41 kg, and in Kenya it was 36 kg. Mozambique, however, stands out even among sub-Saharan African countries; in 2007, average fertilizer use was only 3.1 kg per hectare, putting it amongst the 15 lowest countries for fertilizer use in the world. Data from pilot surveys we conducted with smallholder farmers in Dondo, Manica and Gondola suggests that lack of access to credit at affordable interest rates is one of the main constraints Mozambican farmers face. A major objective of the project was therefore to find an innovative way to reduce barriers to fertilizer adoption posed by a key market imperfection—credit market inefficiencies. Rural farmers in Mozambique are severely credit constrained. According to a 2009 report by FinScope, 77.8% of Mozambicans were financially excluded. This figure was as high as 90% in certain rural provinces such as Manica, one of the two provinces we included in the Pilot phase of the project. In the capital city of Maputo, however, only 32 percent of the population was found to be “financially excluded”.

According to the most recent agricultural survey of Mozambique, these remittance flows constitute an important funding source for small and medium size agricultural enterprises – 14.6% of these enterprises received funding from migrant remittances as opposed to 2.6% that received credit. There have been few attempts to mobilize these resource flows for agricultural modernization in the country.

This project therefore was designed to shed light on the potential role for financial support from urban migrants in alleviating rural credit market inefficiencies. The project attempted to examine the extent to which enhancing urban migrants’ control over the use of remittances could raise fertilizer use among remittance recipients.

## Research Design

The logistical structure for giving greater control to internal migrants in Mozambique was to offer migrants in Maputo the ability to send a fixed-amount of money that would pay for the purchase and delivery of an agricultural package consisting of fertilizers (NPK and urea), and hybrid seeds (either rice or maize, depending on the needs of their rural household).

Our two project partners, the International Fertilizer Development Corporation (IFDC) and Banco Oportunidade de Moçambique (BOM), were instrumental in helping us run the first

phase of the pilot project. Their efforts made the pilot possible—IFDC, through its network of agro-dealers, and BOM with its infrastructure to facilitate the “remittance” transfers from project participants to the agro-dealer nearest their chosen family member in a selected region. The money was to be sent to the agro-dealer from IFDC’s network who was closest to the migrant’s rural household, and would deliver it to that household within one week of the original money transfer from the migrant to the agro-dealer’s account. To improve accountability, we required that all agro-dealers have a bank account with Banco Oportunidade de Moçambique, so migrants were therefore required to come in to the bank’s main branch to make the deposit.

During a 6-week period from early September through mid-October of 2011, a survey team of 10 enumerators conducted semi-random household surveys in 15 different neighborhoods throughout the city of Maputo. Households were chosen randomly within each neighborhood and screened on whether or not they had a relative family member who lived in one of 13 districts in the central provinces of Manica and Sofala in Mozambique. These districts had been pre-selected based on the available network of trained agro-dealers in project partner IFDC’s network. In all, 228 households were interviewed and given an explanation of how the project worked, along with a map of how to get to Banco Oportunidade de Moçambique, and a project participation card that was given if the migrant expressed initial interest in participating.

Migrants who were interviewed were offered one of three randomly selected treatments, control, treatment 1, or treatment 2, as detailed in the following table. As seen, the offerings to each treatment group evolved as the project team reacted to initial low indicators on take-up.

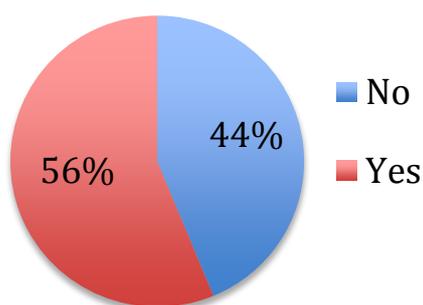
	C	T1	T2
8/25 – 9/28	Migrant asked to pay 3,000 mzn (\$110) 1 bag urea, 1 bag NPK, & 12.5 kg maize or 25 kg rice	Not offered.	Not offered.
9/29 – 11/1	Option to pay for less expensive mixes of seeds & fertilizer.	Offer to request loan for 3,000 mzn (if eligible). 5.5% interest (4-6 months). Option to pay without loan.	50% subsidy; option to pay for less expensive mixes (any amount) of seeds & fertilizer (at 50% subsidy).
11/2 – 11/9	No change from previous.	No change from previous.	100% subsidy.

## First phase findings

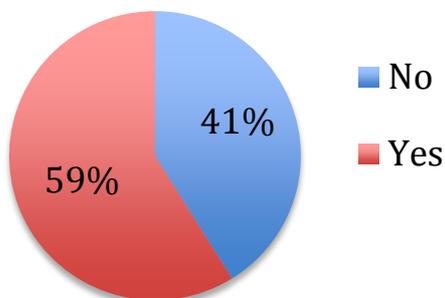
The first phase of the pilot revealed a number of interesting findings. Here is a summary of some of those findings from the sample group of 228 migrants:

The majority of internal migrants do in fact send money to their families with some regularity each year (most common, in fact, is remitting monthly).

**Percent of Migrants in Sample who Remit Cash**



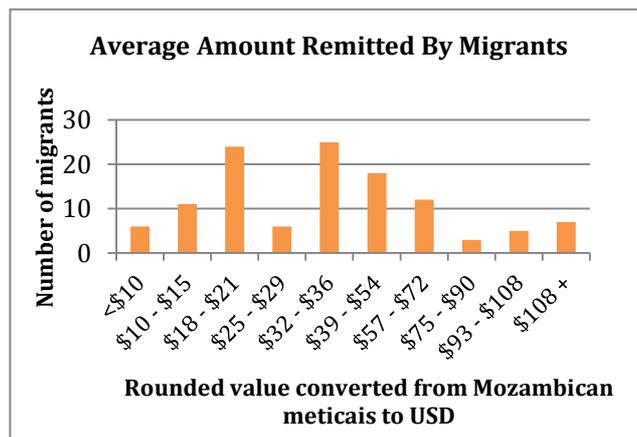
**Percentage of Migrants in Sample who Remit In-Kind**



\*Based on original sample including 228 randomly selected migrants in the neighborhoods of Maputo with relative households in the provinces of Manica / Sofala.

The frequency with which remittances were sent to the origin household also varied between bi-weekly (8% of the study population) to approximately once a year (18% of the study population). The most common frequency, as noted above, was once per month (24%).

The average amount sent per migrant varied between 100 mzn (\$3.75) and ~4,000 mzn (\$150), with the median amount being approximately 850 mzn (~\$30). These results are displayed in the following chart.



\*From sub-sample of 125 migrants who reported sending remittances in the past year.

Due to the fact that we worked with a population of internal migrants, the costs for remitting were very low on average. 91% of those reporting remittance sending in the past year said that they paid 10 meticaais (\$0.35) or less to send that money (either through a bank transfer, or a deposit to their rural household's accounts). In cases where their rural family member does not have a bank account, the migrants often arrange to deposit to a trustworthy friend or extended family member who lives nearby the destination household.

To examine preferences related to fertilizer use, we also asked a question on what level of importance the migrant places on the use of fertilizer for increasing productivity on a farm. Amongst the sub-sample of migrants who had farming experience (130 in all), 43% answered that it is somewhat important, while 38% said that it is either not very important, or not important at all. It was therefore not very surprising to find that a very small number of migrants interviewed had ever heard of the types of fertilizers being supplied in this kit (NPK and urea). This project set out to try to tackle exactly this type of catch-22 issue of: in order to get people to adopt fertilizers, they need to believe in the benefits of it, but in order to believe in those benefits, they need to adopt it to see the results.

In the end, despite a high percentage of migrants expressing initial interest in participating, and in spite of the use of different "marketing techniques" (the different treatment groups) offered to make participation more attractive to a certain sub-section of the sample, the take-up was low across the different groups.

As a result, we implemented a new set of surveys that were administered to a sample of MFI clients (and included a sub-sample of internal Mozambican migrants). The new survey incorporated behavioral economics questions to

better understand important factors that might affect the likelihood to use a remittance product like the one we developed in the first phase of the study. These factors included questions on present-bias and on preferences on giving. The initial results we have from those surveys are useful not only in helping develop and improve a migrant remittance product to be offered, but also in potentially supporting important policy-decision making processes.

## Second phase findings

The second phase is a natural continuation of the first phase, seeking to test some of the assumptions made during the first phase. In particular, we take an in-depth look at preferences to giving, and how those preferences are shaped by time preferences as well as different rates of return.

One of the most interesting findings of this second phase was the evidence that participants did demonstrate a desire for control over the use of money allocated to their relative. In a series of allocation decision questions we asked of the participants, we offered an in-kind option whereby the client could allocate a certain sum of money towards purchases of in-kind goods for their relative (that the client would choose themselves with the money awarded, and then purchase for their relative). We found that participants chose to keep a statistically significant lesser amount for themselves in the cases where in-kind goods were an option (relative to when the only option for giving to their relative was a cash deposit to the relative's bank account). Additionally, when we administered the same in-kind option but told the client that their *relative* would have control over any in-kind purchasing decisions, that statistically significant difference was no longer present. This suggests that when given the option to exercise greater control over money sent to their family, migrants may indeed choose to remit more than they would otherwise.

A second conclusion of the behavioral economics study we implemented was that present-bias was not as strong as we might expect. In fact, for all rates of return to waiting greater than 10%, the participants allocated more to the future time period (one month from now) than they did to the present (money to be received within 24 hours of participation). This difference is even more drastic when we compare the choice between two months versus three months that participants were asked to make. The migrant sub-sample we surveyed also demonstrated a lack of present-

bias, though they were comparatively more biased towards present (or near future versus far future) allocations than the non-migrant sample. This result is encouraging for developing financial products both for low income and migrant populations. If, as our results show, these populations are indeed willing to wait for a higher return to their money, this indicates the usefulness of financial products such as certificates of deposit and other savings mechanisms that allow for a higher rate of return to waiting.

An additional finding of the second phase of our study was that a higher level of education (controlling for income level) is strongly correlated to a greater preference for giving. These results reflect similar findings by Jakiela, Miguel and te Velde (2010) from a field experiment they conducted in Kenya that indicated that greater academic achievement decreases the likelihood for a participant to draw upon the theoretical earnings of others for their own use. The results from our survey work here in Mozambique in particular suggest the importance of implementing a series of well-designed workshops discussing the benefits of any new remittance product (or financial product for that matter) that could benefit microfinance or migrant clients.

## General conclusions from our study

We are confident that under the right context, an intelligently designed remittance product that would give greater control to migrants over the money they send back home can play an important role in modernizing the agricultural sector of Mozambique through the financing of agricultural inputs.

It is important that such a product take into serious consideration the important factors of convenience, cost (whether or not to subsidize a portion of the agricultural inputs at least initially to provoke a "pioneer" effect), and context.

In terms of convenience, it is important that the migrant would have close access to a transfer facility—some of the larger banks (primarily BCI and BIM) in Mozambique are therefore in a good position to provide this service. Regarding cost, our findings indicated that at least initially, a partial subsidy may be necessary to incentivize take-up, and then once a larger number of people begin to adopt fertilizer and the results become noticed, this subsidy could be phased out. Essentially, this product will be most useful for migrants who place a high value on the

impact of the money they send back home. As such, contextually, it would perhaps be worthwhile to work with a sample group of overseas “economic” migrants, due to the important differences between this group and the sample of internal migrants chosen for this study, namely: income, their perception of their role as a migrant, and the costs they face to remit.

### Overall Policy Implications

A review of the recent literature on remittances and the role money transfers play in economic development reveal a number of important policy conclusions. While these conclusions cannot necessarily be applied in every context, they are a useful starting point for an under-studied market such as remittances in Mozambique.

The first useful finding from recent literature on remittances is that lowering the costs to international remittances can lead to significant increases in remittance flows. Studies to demonstrate this include Gibson, McKenzie and Rohorua (2006), which found that Tongan migrants in New Zealand reported they would send a much higher amount of remittances if the fixed costs were reduced on sending. In addition, Aycinena, Martinez and Yang (2010) find that Salvadoran migrants in Washington DC who faced lower remittance fees sent money more frequently, and overall, the total amount of remittances sent was higher for those facing lower fees. Based on this evidence, researchers have recommended policies that promote competition for money transfer services, and services to promote increased information access for migrants on which services are available to them.

On the issue of control, several recent studies have demonstrated migrants’ desire for access to savings facilities. A randomized control trial conducted by economists Ashraf, Aycinena, Martinez and Yang (2011) that studied a group of Salvadorian migrants living in Washington DC found that migrants demonstrate a strong desire for control over remittance uses, and that there is a significant demand for savings facilities in their country of origin. A similar study by Chin, Karkoviata, and Wilcox (2010) looked at the demand for savings accounts by Mexican migrants in their destination country, (in this case the United States), and found that making the process of obtaining a bank account sufficiently easy leads to a higher rate of opening a bank account, and more significantly, a higher rate of savings. Additionally, and consistent with these findings, our recent study here in Mozambique analyzing the role that remittances can play in

modernizing the agricultural sector has revealed a desire for control over money shared with participants’ most closely connected household. In tandem then, these studies suggest the impact that providing sufficient savings mechanisms to migrants can have, and the need to allow migrants to have some degree of control over the money they share with their origin household(s).

Finally, in regards to the potential role that migrant remittances can play in modernizing agricultural practices in the Mozambican context, our main findings underline the potential that innovative financial products that provide the migrant with control over remittance use may play to mobilize migrant remittances for agricultural modernization. But our work also shows that this potential is subject to caveats such as initial subsidization to promote positive “pioneer effects” and win over initial innovation distrust, as well as convenience and context-specific product design to facilitate adoption.

Given the limited resources the government has to spend on agricultural subsidies, innovative solutions that allow for self-sustaining practices by farmers and their families remains crucial.

Even though remittances have been decreasing in importance as the number of migrants to South African mines falls, miner remittances are still a crucial inflow for external finance of Mozambique and historically they have also been an essential source of funding for agriculture and new business formation (cf. Castel-Branco, 2002).

Taking into consideration the strong urbanization trends in Mozambique, the potential role of remittances may be regarded as even more promising.

We therefore find our results and reviewed literature encouraging for the Mozambican government to collaborate with researchers, NGOs, and private sector businesses to rigorously test even further new possibilities for developing mechanisms through which urban migrants can assist in financing agricultural inputs for their origin rural farming family.

Recent literature on remittances has helped form a number of useful general conclusions related to remittances on the policy front. These studies are informative when applied to the Mozambican context as well—but should not stand in the way of generating new evaluative research in Mozambique to further test these conclusions and determine the extent to which they apply to both internal and external Mozambican migrants.

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