Baseline Report

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1 Pre-Intervention Research

In December 2011, we conducted a pre-intervention research survey on 320 microentrepreneurs in urban areas in Cairo, Giza, and Alexandria to determine the feasibility and demand for a macroeconomic shock microinsurance product. The responses to this pre-intervention research survey indicated a strong demand for macroeconomic shock insurance and a high likelihood of development impact.

In order to gauge demand for a macroeconomic shock insurance product, we elicited projections of future economic shocks and directly asked about interest in such an insurance product. Specifically, 77% are worried about food inflation, 66% about subsidized goods inflation, 23% about currency depreciation, 36% about a stock market crash, and 44% about a further decrease in tourism levels. Of the people who are worried about anything, 71% say food inflation is the biggest worry and 13% say subsidized goods are. 65% consider the current political climate in Egypt an obstacle to doing business. Of this 65%, 67% consider the political climate to be a "large" or "very large" obstacle. In light of these obstacles to business and macroeconomic worries, we directly asked the following question:

If a local, well trusted NGO offered you insurance on macroeconomic shocks** would that decrease risk enough for you to invest in new capital? Macroeconomic shocks are defined as any month in which the Case 30 [Egyptian stock market] is suspended or anytime year to year food inflation is above 75% or subsidized item inflation is above 20%. In the last year, there would have been a payout in February, March, and November since the stock market was suspended at that time. There would have been payouts from October 2009 to January 2010 due to food inflation, and there would have been payouts July through September 2008 due to subsidized goods payouts. The insurance product would last for 1 year and it would be paid out the first month in which there was a shock. The insurance product would cover either a new microloan or a new authorized asset purchase (up to 5000 LE) and the insurance would pay out the full value of either the loan or the authorized asset. The cost of the insurance would be 5% of the value of the loan or authorized asset purchase.[1]

43% say they would purchase this macroeconomic shock insurance product for of 5% of the loan/asset value. 27% would purchase the insurance if the price was lower at 2% of the loan/asset value.

The median microentrepeneur would like to make an investment of 5000 LE in new capital. But, 57% plan to delay investments until the economic and political climates regain stability, 14% don't know whether to delay or not, and 29% plan on investing anyways. Of the people who would take up the insurance, 48% say their investments would differ whether they have or don't have the macroeconomic shock insurance and 24% say they don't know. Of the people who would invest differently with insurance, the median microentrepreneur would invest 2,000 LE more if he had the insurance than he otherwise would without it.

[1] The description of this macroeconomic insurance product is different than the EPP because the EPP evolved based on the market research and discussions between Innovations for Poverty Action (IPA) and ABA.

It's also of interest to note that only 8% owned any kind of insurance, which is not surprising since Egypt has one of the least developed insurance industries in the world and this sample consisted of microentrepreneurs.

2 Informed Expectations and Actuarially Fair Price

ABA clients, ABA management, and World Bank economists working in Egypt believe that the likelihood of any one of the shocks occurring in the next year is about 50%. See Table 1 for expectations of specific macroeconomic shocks.

Table 1. Macroeconomic Shock Expectations

	ABA Clients	World Bank Economists and ABA Management
Suspension of the stock market for 5 or more consecutive days	24	11
Higher inflation than any other time in the last 5 years	37	23
Increase in the official subsidized price of benzene 80 to over 2 LE/ltr	32	14
Increase in the official subsidized price of benzene 90 to over 4 LE/ltr	31	16
Increase in official subsidized price LPG cylinder to 30 LE/cylinder	31	17
Curfew for 14 or more hours per day for 5 or more consecutive days	21	11
Any of the above 6 events happening	47	49

Given the vast economic and political uncertainty in Egypt, it's difficult to apply any economic or political models to predict economic shocks (even month-to-month inflation). We can approximate the actuarially fair price by ignoring the EPP's potential second payout (and thereby underestimating the price) and defining the likelihood of a macroeconomic shock through the wisdom of crowds: the mean expected likelihood of any macroeconomic shock.

$$Actuarially\ Fair\ Price = (Mean\ Expected\ Likelihood\ of\ a\ Macroeconomic\ Shock) * (Value\ of\ Payout)$$

The actuarially fair price comes out to be 8%, which is 16 times greater than the price of the EPP. We intentionally devised the price of the EPP to be lower than even an underestimate of the actuarially fair price to boost take-up enough to successfully evaluate the EPP's social impact.

3 Sample Population

The evaluation sample consists of 2,980 individuals, with equal numbers assigned to treatment and control. The initial sample was selected from a list of 3,807 clients in 14 of ABA's branches in Alexandria who were scheduled to repay their loans between 4/15/2012 and 7/31/2012 and whose loans are between 1,500 LE and 10,000 LE ($250 and $1,667). In the field, we excluded 927 clients from the initial sample who either didn't own a business themselves or ABA's loan officers indicated are not eligible for future loans due to likelihood of future repayment delinquency.

4 Randomized Experimental Design

The 2,980 ABA clients in our sample were randomly assigned by a computer program to two groups: treatment and control. The only difference between the two groups is the treatment group was eligible to purchase the EPP and the control was not. In order to achieve balance between the two groups, we used a combination of stratification and pair-wise matching.

First, we stratified on gender and microfinance office branch to create 32 strata. There were 16 office branch codes; 14 of which are branches that make up ABA's operations in Alexandria, 1 was the code for clients who've transferred between branches, and 1 was the code for clients who've graduated from a sub-microlending program within ABA to microlending.

Within these 32 strata, we created pair-wise matches using an "optimal greedy algorithm" to minimize the Mahalnobis distance between the values of 13 variables likely to drive loan take up and investment decisions. These 13 variables include the following:

- **Minimum expected likelihood of payout** (403) defined by the maximum expected likelihood of any individual macroeconomic shock
- **Risk aversion** (1403)defined as 1 for anyone who chooses business 1 through 4 and 0 for anyone who chooses business 5 through 8 in the Binswanger lottery
- **Ambiguity neutral** (1404) defined as 1 for anyone who chooses the bag with an unknown proportion of green and white marbles and 0 for anyone who chooses the bag with a specified number of green and white marbles
- **High basis risk** (607) defined as decrease in sales of 20% or more immediately after the Egyptian revolution in February and March 2011
- **Medium basis risk** (607) defined as decrease in sales of 5 to 20% immediately after the Egyptian revolution in February and March 2011
- **Considering delaying investments** (313)defined as 1 for yes and 0 for no
- **Not expecting to renew** (306) defined as a dummy variable
- **Expecting to renew a loan less than 3000 LE** (308) defined as a dummy variable
- **Expecting to renew a loan between 3001 and 5000 LE** (308) defined as a dummy variable
- **Self reported profits in February 2012** (605)
- **Self reported profits in January 2012** (605)
- **Missing profit data in February 2012** (605) defined as a dummy variable
- **Missing profit data in January 2012** (605) defined as a dummy variable

Table 1 in Appendix I reveals the balanced sample.

3.6 Power Calculations

We expect the macroeconomic shock insurance will boost profits by 10% or more (the minimum detectable effect) for firms who purchase the product, but we also expect that take-up of the EPP will only be about 40%. Based on the pre-intervention research survey, we can predict the median microentrepreneur income will be 775 LE per month and the standard deviation 250 LE for our experimental sample. With 2980 individuals, we have over 90% power to detect type II errors.

It's less clear what the loan renewal rate is at ABA, but firm executives suggest it's about 70%. Given a sample size of 2980 individuals split evenly into treatment and control groups, if 10% is our minimum detectable effect, then we have 87% power to avoid type II errors.

5 Key Data Sources

The primary sources of data are a baseline survey conducted in March 2012 immediately before the EPP was offered to ABA clients, a midline survey, another follow-up survey immediately after any economic shock, and an endline survey one month after the last ABA client's EPP expires or one year after the economic shock. In addition, ABA will provide us with administrative loan tracking data.

6. Baseline Snapshot

64% of the microentrepreneurs are male and the median age is 44 years old. 80% are married and the median household size is 4 people. 14% never attended school, 49% completed less than high school, 28% completed high school, 4% completed vocational school, and 6% completed university.

In terms of business ventures, 49% participate in retail (groceries, apparel, etc.), 8% manufacture textiles (clothing, furniture, etc.), 6% work in land transport (taxis, microbuses, etc.), 6% work in the food and beverage (cafes, restaurants, etc.). The median age of a business is 6 years. 98% of the businesses are permanent as opposed to seasonal, and only 16% operate in a mobile location. 61% of businesses are located in a residential area, and only 5% of businesses are in a central or secondary market place. 22% businesses operate inside a home, and 9% of businesses don't operate in any one specific place. 41% own the land upon which the business rests. 48% own the building, shed, or kiosk in which they conduct business.

89% own the business themselves rather than through a joint-venture with someone else. 28% have a tax ID card and 23% have a business license. 76% have 0 full time paid employees and 23% have between 1 and 4 employees. Only 7% of firms have any part time employees. The median business owner spends about 9 hours a day, 6 days a week at his or her business.

The median loan size is 3000 LE, and the median expected value of a new loan is 5000 LE with 89% intending to renew their loans. 97% of those who desire to renew their loans intend to renew within one month of paying off the current loan. 85% used their current loan to increase inventory and 3% bought new assets. With a new loan 13% plan on making new investments in machinery and equipment, but 10% of the population is considering delaying investment due to political and macroeconomic instability. Specifically, 70% are concerned about a large political crisis, 88% are concerned with inflation, 62% are concerned with currency depreciation, and 75% are concerned about the price of subsidized goods. 63% of respondents believe that inflation is the greatest worry followed by 15% who are most worried about a future political crisis.

94% indicated an interest in joining the EPP, which is not too surprising given the high risk aversion of many respondents. Only 15% of respondents rate themselves as 6 or higher on a 1-10 scale of appetite

for risk. Furthermore, 89% of respondents prefer a “business with less profit every month where you can’t lose money to a business with a lot of profit but you can possibly lose your money.” The discount rate among the sample is fairly high: more than 50% of the sample discounts the value of money by 30% or more to receive money today rather than one month from now and about 25% of the sample discounts the value of money by 30% or more to receive money in 5 months rather than 6 months.

For the 89% of businesses who own any assets (tools, equipment, machinery, or vehicles), the median value of assets is 1010 LE. For the 66% of business who have any inventory, the median value of inventory is 2000 LE. For the 79% of business who have anything on hand to sell at the beginning of the day, the median value of these things is 1900 LE. For the 75% of businesses with any cash on hand, the median cash on hand is 1000 LE. If business owners had an extra 1500 LE, 82% would spend it to buy more inventory and 7% would spend it on new assets.

The reported median monthly profit is 800 LE and median monthly household consumption is 507 LE. The median monthly sales is 2000 LE and the median monthly expenses is 2129 LE, which suggests (1) business owners are likely reporting lower than actual sales and (2) monthly expenses might be exaggerated.

71% faced significant decline in sales after the Egyptian revolution. 7% of firms started operations after the first couple months of the Egyptian revolution. 35% earn income outside of their businesses, which amounts to a median additional income of 750 per month. Since the revolution, 66% are making less profit and 55% have more expenses. 41% say that macroeconomic uncertainty is still an obstacle to business.

95% could fill in the missing number in a sequence that increases by 10 but only 49% could fill in the missing number in a sequence that increases by 8. 70% of people could successfully subtract 7 three times from 100. 60% of people seem to understand that inflation makes one’s money less valuable. 50% of people can successfully compute a 16% interest rate on a 1000 LE loan. 37% have a basic understanding of insurance.

6% have ever received a loan from a bank and 2% have ever received a loan from an MFI other than ABA. 1% has ever defaulted on a loan.