



## Regular Article

# Macroinsurance for microenterprises: A randomized experiment in post-revolution Egypt<sup>☆</sup>

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## ABSTRACT

Firms in many developing countries cite macroeconomic instability and political uncertainty as major constraints to their growth. We conduct a randomized experiment in post-revolution Egypt to measure the impact of insuring microenterprises against this uncertainty. Demand for macroeconomic shock insurance was high, with a take-up rate of 36.7%. However, purchasing insurance does not change the likelihood a business takes a new loan, the size of the loan, or how they invest this loan. We attribute this lack of effect to microenterprises largely investing in inventories and raw materials rather than irreversible investments like equipment, suggesting that macroeconomic and political risk is not inhibiting their investment behavior. The challenges of introducing an innovative insurance product in an environment where microentrepreneurs had little previous insurance exposure are particularly evident in a second year, where take-up was extremely low following political events that came close to, but did not, trigger insurance pay-outs.

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## 1. Introduction

Policy uncertainty and macroeconomic instability are the two most common constraints to firm growth listed by firms in developing countries in the World Bank's Investment Climate Surveys, ranking ahead of taxes, regulation, corruption, and access to finance (World Bank, 2004). A large macro literature has highlighted the central role of uncertainty in investment decisions, especially as these investments become more irreversible. Increases in uncertainty temporarily increase the return to waiting for more information (Bernanke, 1983), increasing the option value of waiting to make investments (Dixit and Pindyck, 1994). The result is that higher uncertainty increases the region of inaction,

in which firms are unwilling to hire and invest (or fire and disinvest), with business activity only picking up when uncertainty subsides (Bloom, 2009).

The macroeconomic consequences of uncertainty have received increased attention in developed countries in the wake of the global financial crisis (e.g. Bloom, 2014). Meanwhile, the Arab Spring has resulted in dramatic increases in political and macroeconomic instability in much of the Middle-East and North Africa regions, but to date there has been little research on the consequences of these changes on firm behavior. Moreover, in neither developed nor developing countries have there been policy efforts to provide new tools for firms to actively protect themselves against some of the risks entailed by this uncertainty.<sup>1</sup>

We use a randomized experiment to pilot a new product designed to provide insurance against macroeconomic and political shocks to microenterprise owners, and test whether this insurance changes firms' decisions to borrow and invest. We do this with clients of Egypt's largest microfinance organization, in the context of considerable uncertainty after the January 2011 revolution had brought about the fall of the Mubarak regime. Microenterprises dominate the firm size distribution in developing countries (e.g. Hsieh and Olken, 2014), and it has been hypothesized that smaller firms are more vulnerable to macroeconomic instability and policy shocks because they have less ability to diversify

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<sup>1</sup> Shiller (1998) has proposed the creation of macro markets to help manage some of these risks, but to date there does not appear to have been implementation of any of these ideas.

and less access to mitigation mechanisms (World Bank, 2004).<sup>2</sup> Our experiment enables us to assess microenterprises' demand for insurance against uncertainty during one of the least stable periods in any country in recent history and measure how the provision of this insurance affects firm behavior.

The insurance product was offered to microfinance clients who were just about to pay off their current loan and were in the process of deciding whether or not to take a new loan, and if so, the size of the loan and how they would use this loan. In the first year that the insurance was offered, 36.7 of microentrepreneurs in the treatment group purchased the insurance. Despite this large demand for the insurance, we do not find statistically significant effects of offering insurance on the likelihood that a microfinance client obtains a new loan, the size of the loan obtained, or the value of new investments in capital stock made. If anything, purchasing insurance reduces the profits and revenues of the firm. We examine several potential explanations for this lack of effect. One of the most plausible explanations is that firms of this size largely use microfinance loans for working capital needs by purchasing inventory items. As a result, the degree of reversibility of these investments is relatively high, so the option value of waiting to make investments is low. Our results show that the reason for buying inventories rather than equipment does not appear to be inability to insure the risk of equipment investments.

The experience of this pilot also highlights the challenges of introducing a new insurance product in an environment in which few firms have had previous exposure to any separate insurance product. Baseline knowledge of the concept of insurance was low, and although credit officers explained the product, there was incomplete knowledge of the exact payout conditions and thresholds. As a result, when the product did not pay out after curfews were imposed following the military overthrow of President Morsi, dissatisfaction with the product from clients and loan officers led to an extremely low (3.3%) take-up rate in the second year the product was offered.

The product offered here is novel, and we are not aware of any previous attempt to provide such insurance to microenterprise. However, several international agencies and governments offer some types of political risk insurance to multinationals and to exporters, and we discuss the similarities and differences in Section 3.2.

In addition to providing the first evidence on the effect of insuring microenterprises against macroeconomic and political uncertainty, this paper contributes more broadly to a literature which considers the impact of insurance on small firms. Poor business owners in developing countries face enormous volatility in their incomes (Collins et al, 2009; Fafchamps et al, 2012). Yet very few insurance products exist to help them reduce this riskiness. The existing literature has largely focused on providing weather insurance to subsistence farmers (e.g. Cole et al, 2013; Cole et al, 2014; Gine and Yang, 2009; Karlan et al, 2014; Mobarak and Rosenzweig, 2013). Some of this work has struggled to get sufficient take-up of the insurance, with the research pointing to the importance of factors such as trust and experience with prior payouts as key determinants of insurance purchase. However, Karlan et al. (2014) do find that insurance results in significantly larger agricultural investments and riskier production choices. There has been considerably less attention given to the possibility of insuring the incomes of urban small business owners. Our paper provides a first step in this direction.

The remainder of the paper is structured as follows. Section 2 describes the context of our experiment in post-revolution Egypt, the study population, and the randomization process. Section 3 provides

details of the insurance product offered, and its triggers and price. Section 4 examines take-up of this product, and Section 5 the impacts of receiving this insurance on firm decision-making. Section 6 discusses the reasons for a lack of effect, and our failed attempt to re-sell the product in a second year. Finally, Section 7 concludes.

## 2. Context, study population, and randomization process

### 2.1. Antecedents and motivation

We began working in Egypt in October 2009 with the aim of evaluating an expansion of microfinance into the poorest villages in Upper Egypt under a project to be financed through a World Bank loan. However, this project was abandoned as a result of the revolution that began on January 25, 2011 and ousted President Hosni Mubarak after almost thirty years in power.<sup>3</sup>

The period that followed involved several years of widespread economic and political uncertainty. Fig. 1 provides a timeline of some of the main events over our study period. In the immediate aftermath of the revolution, the Cairo and Alexandria Stock Exchange was closed for 55 days, and the government imposed curfews of up to 18 h per day. An interim government was formed under the control of the Supreme Counsel of Armed Forces, and there was a prolonged period of debate as a constitutional referendum was held. Large-scale protests continued to take place on a consistent basis in Tahrir Square. In the twelve months following the revolution, three Ministers of Finance resigned from their positions to protest the state of affairs of the Egyptian government. Tourist arrivals fell 33% compared to the year before the revolution, and currency reserves shrank, leading to prolonged negotiations with the IMF about an emergency loan package. On the political side there were several delays before parliamentary elections were held, and several leading candidates were disqualified from being able to stand in the Presidential election. In June 2012, Egypt democratically elected Mohamed Morsi, a candidate from the Muslim Brotherhood, a political party which had been outlawed under the former regime. However, a year later, in June 2013, protests called for his resignation, and on July 3, 2013, Morsi was ousted by the military.

In the context of so much uncertainty, microfinance organizations were reluctant to try to expand to new areas. Moreover, they expressed uncertainty about the likelihood of existing clients renewing their loans: on one hand they thought that the drop in business suffered by firms might increase their need for credit to cover day to day financing, but on the other hand they thought that firms may put off any larger investments until the economic and political situation was more stable. In a market research survey of 320 microenterprise owners in Alexandria, Cairo and Giza between December 2011 and January 2012, respondents expressed concerns about the likelihoods of food and subsidized goods inflation in the coming year, and of further decreases in tourism levels. Half of the sample said they would like to invest at least 5000 LE (\$833) in new capital,<sup>4</sup> but 57% of the entire sample said they planned to delay investments until the economic and political climate regained stability.

### 2.2. Partner microfinance institution and selection of clients for the study

In this context there was interest from microfinance institutions (MFIs) in developing a new product to help their clients mitigate

<sup>2</sup> The lack of panel data on firms has limited the empirical literature on how affected microenterprises are by large crises in developing countries. Exceptions are studies using labor force panels such as McKenzie (2004) who finds the self-employed in Argentina experienced increased rates of exit, and reductions in hours worked following the 2002 financial crisis; and Bosch and Maloney (2008) who find increased exits from self-employment in Mexico and Brazil during financial crises there.

<sup>3</sup> The Social Fund for Development (SFD) still attempted to launch this project after the revolution, leading us to conduct baseline surveys of 13,413 households and 2525 microenterprises in Menya. Two months after conducting this baseline, they abandoned the project. Data and survey instruments from this baseline are available in the World Bank's Open data library: <http://microdata.worldbank.org/index.php/catalog/1972/study-description>.

<sup>4</sup> The exchange rate was 1USD = 6.0 Egyptian Pounds (LE) at the start of January 2012. The exchange rate has subsequently depreciated so that at the time of revision (May 2015), 1 USD = 7.6 LE.

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