Credit, Change, and Lost Sales: A Field Experiment Among Firms in Kenya

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Sector(s): Finance, Firms

Fieldwork: Innovations for Poverty Action (IPA)

Location: Busia District

Sample: 508 firms

Target group: Small and medium enterprises

Outcome of interest: Profits/revenues

Intervention type: Financial literacy Information Nudges and reminders

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Research Papers: Minding Small Change among Small Firms in Kenya

Partner organization(s): University of California, Santa Cruz (UCSC)

Researchers in Kenya issued a questionnaire to firms which may have made lost sales and profits due to poor change management became more salient. A second intervention more explicitly emphasized the costs of having insufficient change. Highlighting the importance of carrying correct change helped firms to change their behavior and increase profits.

Policy issue

Small businesses in developing countries are thought to face numerous challenges in their efforts to expand and increase profitability. While credit and human capital constraints (i.e. lack of training) have frequently been highlighted as potential barriers, another constraint may be limited attention. Most people face constant tradeoffs between investing attention in work versus in other matters, such as home life. The poor may face comparatively greater challenges in maintaining their household (because of higher rates of illness, for example), which may divert attention away from their work. It is possible to test whether this limited attention reduces productivity by focusing on one particular business decision for small firms: how much change to keep on hand to break larger bills. Not having proper change can have an impact on a firm's profit level. If a firm does not have sufficient small bills or coins to give a buyer change, the buyer may choose to buy the item elsewhere and the firm would lose the sale. Evaluation estimates suggest that the average firm in Western Kenya loses 5 to 8 percent of profits due to lost sales because of a lack of small change.

Context of the evaluation

The businesses included in this evaluation, which were randomly selected from ten market centers in Western Kenya, included barbers, tailors or other artisans, market vendors, and hardware shops. The typical business was small - only 16 percent of businesses had any salaried workers - and approximately 56 percent of firms were operated by women. Losing sales because of

insufficient change was a common problem for these firms. At the baseline, over 50 percent of firms reported having lost at least one sale in the previous seven days because they did not have sufficient change. Furthermore, firms spent over two hours on average looking for coins or small bills in the previous seven days. Even firms that had not lost any sales in the past week spent over an hour and a half searching for change for customers.



Man buying bananas from a women's fruit stand in Kenya.

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Details of the intervention

To understand whether firms run out of change because they do not fully internalize the profits they are losing, the evaluation proceeded in two phases. First, a field officer visited each firm on a weekly basis to administer a short questionnaire, which asked a number of questions about change management, including the number of times they ran out of change (i.e. the number of “changeouts”), the number of lost sales due to changeouts in the previous 7 days, the value of these sales, how much time they spent searching for change, and how often they gave or received change from nearby firms. The survey also asked about total sales and profits. Although the survey did not provide any training or information about change, or any direct "reminders," it may have served as a catalyst for firms to start altering behavior, as lost sales and profits due to poor change management became more salient. To measure this effect, the start date for the changeout questionnaire was randomized across firms. This enabled an estimation of the impact of the visits themselves, by comparing lost sales between those firms that started the survey earlier to those that started later.

The second intervention more explicitly emphasized the costs of having insufficient change. After following firms for several

weeks, researchers calculated the lost sales for each firm due to insufficient change as well as the market average. This information was then presented to a randomly selected subsample of firms.

Results and policy lessons

Impact on frequency of changeouts: Veteran firms, meaning firms that had joined the survey early, were, on average, 6 percentage points (12 percent)less likely to experience a changeout in a given week than firms who we had just begun the changeout survey. Firms who were randomly selected for the information intervention were similarly 8 percentage points (20 percent)less likely to experience a changeout than those not selected.

Impact on lost revenue and profits: Veteran firms, because they had fewer changeouts, also lost less income due to lost sales. Specifically, lost revenue for veteran firms decreased by 32 percent and lost profits decreased by 25 percent. Additionally, they also lost fewer sales while away from their shop to get change during the day. The information intervention also reduced lost revenue by 42 percent and lost profits by around 33 percent.

Impact on behavior: Firms that had been in the survey longer brought 13 percent more cash to work each morning. These veteran firms also visited nearby firms for change on average 2.4 fewer times per week and shared change with other businesses on average 1.1 fewer time per week. Similarly, upon receiving the information, intervention firms began receiving change 1.7 fewer times per week and sharing one fewer time per week. Estimates indicate that overall, behavioral changes resulted in a 5 to 10 percent increase in profits.

As the weekly surveys provided no skills training, nor any direct information, it is most plausible that they served as a reminder which made the importance of changeouts and the amount of money being lost more salient. While the information intervention provided some new information (the average behavior of other firms), the firm-specific information would have already been known to firms if they had processed the information. Thus, a likely explanation for the results is that firms were not paying attention to the lost sales to change, and the interventions reduced the cost of processing the information already available to them.

Beaman, Lori, Jeremy Magruder, and Jonathan Robinson. "Minding Small Change among Small Firms in Kenya." Journal of Development Economics, Forthcoming.