



Shortening Microentrepreneur Supply Chain through Mobile Technology

Agruppa, a start-up based in Colombia, aggregates small vendors' orders to purchase produce at wholesale quantities, and delivers the goods directly to the vendors.

Can vendors benefit from lower procurement and travel costs through Agruppa's services? If so, are the benefits passed onto consumers.

Context

Micro-entrepreneurs in developing countries are often constrained by inefficient supply chains, facing high travel costs and high prices in purchasing their inventory. At the same time, due to their small scale, they buy in small quantities, limiting their benefit from economies of scale, whether in bulk discounts or transport efficiencies. Small-scale food vendors in Bogotá, whose customers are residents of low-income neighborhoods, face these very issues. Based on initial research, these vendors spend an average of 15 hours per week and 20-30 percent of their weekly income travelling to the central marketplace (Corabastos) for their purchase.

Intervention

Agruppa, a start-up, has developed a new mobile based technology that agglomerates orders for these small vendors. The technology system aggregates produce orders from the vendors that add up to wholesale quantities, purchases them from farmer cooperatives, and delivers them directly to the vendors. It is estimated that the bulk orders are priced an estimated 30% below the small orders. Agruppa, through its technology, not only aims to lower the inventory and travel cost of the small vendors, but also intends to measure the benefits to spillovers to the residential consumers. The study measures the impact of these direct effects of the technology, as well as the indirect effects, which are the

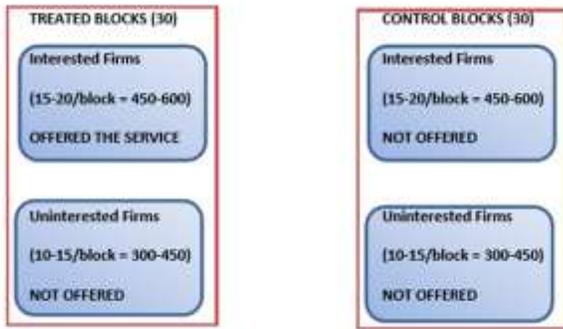


Agruppa visiting a microenterprise in Bogotá.
Photo by Agruppa

loss of sales of the competitors who do not take-up the technology.

Evaluation Design

Given that the vendors are located in densely populated residential areas, many of them are geographically close to one another. Thus, the evaluation takes a randomized block design, where the micro-entrepreneurs are divided into approximately 60 equal blocks, using major roads and natural geographic boundaries. These blocks are then randomly assigned to treatment and control blocks. It is assumed that within each block there will be interested vendors and uninterested firms. Thus, the evaluation measures the direct impact of the program by comparing the interested firms across the treated and untreated blocks, and the indirect impact by comparing the uninterested firms. The diagram below illustrates this:



Policy Relevance

This impact evaluation contributes to a larger question of how technology can be utilized to the benefit of MSMEs. This study specifically looks at 1) technology's role in connecting small vendors to larger suppliers, 2) its ability to create value through new modes of transaction, and 3) its effects in creating competition.

Results

In the beginning, the Agruppa service operated as initially planned. Two thirds of business owners adopted its service and was able to save time and costs of going to the market. These figures varied over the course of the project, but at Agruppa's peak usage firms benefited on average of 0.17 fewer days traveling to the market, which corresponded to a cost reduction in 20,566 COP or 6.66 USD, which is equivalent to 5% of weekly profits.

Purchase prices on the five main fruits and vegetables offered by Agruppa decreased by 6 to 8 percent, and

these cost savings translated into both reduction in consumer prices and increase in profits. Non-participating firms decreased their prices as a result as well. By the end of the evaluation period, however, business owners saw reduction in sales of items that were beyond the fruits and vegetables offered by Agruppa, and this led to a reduction of total sales by 9%. Agruppa usage dropped to 16% and eventually led to its closure. Overall, the study sheds light on how a new technology can solve firm's search frictions as well as competition effects on microenterprises.

Documents

[Detailed Methodology Note](#)

[Policy Note](#)

[Endline Technical Paper](#)

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Funding Partners

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