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Timeline

2016-2018

Sample Size

1620 firms

Research Implemented by IPA

Yes

Evaluating the Impact of Virtual Cooperatives on Microenterprises in Colombia

Abstract

Microenterprises such as produce vendors face disadvantages compared to larger firms in sourcing inventory because they must travel frequently to restock and pay higher costs when doing so. Researchers evaluated Agruppa, a mobile phone-based technology service, which creates virtual buyer groups to buy more cheaply in bulk. The evaluation found that initial demand for the service was high, saving business owners time and expense, and increasing profits on certain staple goods. However, since business owners cut back on sales of other products, revenue and profit fell on average and demand for the service decreased over time. Agruppa ultimately closed, pointing to the challenges of competing against centralized produce markets.

Policy Issue

For microenterprises in low- and middle-income countries, the process of finding and purchasing inventory to sell can be costly and inefficient, compared with larger firms with

more formalized supply chains. In addition to the time, the small scales on which these businesses buy and transport goods add costs, ultimately sapping their already limited profitability. Little research, however, exists on how to make value chains for microentrepreneurs more efficient. Research from the project partner in informal settlements in urban Colombia has found that to purchase inventories, vendors spend an average of 15 hours per week and 20 percent of their weekly revenue traveling to make inventory purchases, and because they purchase small quantities at a time, do not benefit from bulk discounts. Taking advantage of technological innovations to reduce these costs and allow microenterprises to benefit from the same advantages as larger firms, such as buying in bulk, could improve their business efficiency, profitability, and ultimately, livelihoods for these microentrepreneurs.

Context of the Evaluation

Small-scale food vending is a common microenterprise in low- and middle-income countries, especially in marginalized urban areas. This evaluation is being conducted in southern Bogotá, near Corabastos, a low-income area with the largest marketplace in the country. Businesses targeted in this area consists of small retail stores that sell fruit and vegetables, along with selected other products like grains, eggs, dairy products, bottled drinks, household and personal cleaning products, and bread. Fruits and vegetables are typically the most purchased products in rotation.

The social enterprise Agruppa, the partner in this study, used mobile-phone technology to create virtual buyer groups in low-income urban areas. The system aggregated small vendors' demand for produce, creating collective orders that added up to wholesale quantities, with the goal of reducing costs for businesses and, ultimately, consumers.

Details of the Intervention

Researchers evaluated the Agruppa service over the course of a one-year expansion period to determine if Agruppa reduces the amount of time and money vendors spend traveling to purchase inventory, the price they pay for these inventories, the amount of spoilage/unsold inventory, and whether these translate into higher profits. They also explored how much of the savings passed on to consumers, whether vendors increase the variety of fresh food offered in low-income neighborhoods, and how competitors respond to these changes.

Researchers partnered with Agruppa to offer approximately 500 interested vendors on randomly selected blocks access to the service and compared them to a similar group of vendors on other blocks not offered the service.

IPA conducted an initial survey of 1,620 firms in 63 market blocks, in which 70 percent expressing interest in using the service. These blocks were then grouped into matched pairs, with one block in each pair randomized to be offered the service and the other to the comparison group. Agruppa then offered the service to one new block per week, offering it to all interested firms in the treatment blocks. Several rounds of surveys on treatment and

comparison blocks over a one-year period after the offer enabled the research team to trace the trajectory of impacts on both firms offered the service, as well as any effects on uninterested firms in these same blocks who were not offered the service.

Results and Policy Lessons

Initial demand for the Agruppa service was high, saving business owners time and expense of frequent visits to the market, and reducing stress. Prices on certain staple products were reduced; business owners enjoyed higher profit margins on certain products, and consumers enjoyed lower prices on frequently purchased staple goods. However, stores reduced their sales of products not originally offered by this new service, and their total sales and profits fell in the short-run, with service usage falling over time. Agruppa ultimately closed in January of 2018.

Demand for the service: Initial interest in the service was high, with 66 percent of interested firms (46 percent of all firms in the blocks offered the service) making a purchase from Agruppa. The service initially focused on the heaviest and highest rotation products, offering five types of fruits and vegetables. After four months they began increasing the variety of products offered ultimately offering 28 products. Demand for the service fell steadily over the one-year evaluation period until only 16 percent of originally interested firms continued to use the service.

Travel time and costs: After 6 weeks, when demand was highest, firms offered the Agruppa service travelled 0.17 fewer days to the market and spent fewer minutes at the market when they did go. Combined, this resulted in a cost reduction of 20,556 COP per week (US\$6.66), which is equal to approximately 5 percent of weekly profits.

Quality of life: During the initial six-month period, when demand was highest, period participants also reported having a better quality of life, such as being less stressed, and having more time for family. These effects diminished over time as demand for the service decreased.

Price, sales, and profits: Firms offered Agruppa lowered purchase prices for the five main vegetables sold by 6 to 8 percent. Cost savings on those products were not completely transferred into consumer prices, resulting in profit margins 3–5 percentage points higher than firms not offered the service. Uninterested firms operating in the same blocks as firms served by Agruppa also reduced their prices for these core products. However, those offered Agruppa services also cut back on sales of other products (since they were going to the market less), and their total firm sales fell by 9 percent. Sales and profits for firms offered the service had decreased on average at the end of the evaluation period.

Overall, the results highlight the potential for new technologies to solve firm coordination problems, offer a window into the nature of competition among small retailers, and point to the challenge of achieving economies of scale for microentrepreneurs who sell multiple different products.

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