Goldilocks Case Study: Premise

Premise: Monitoring Food Prices in Post-Disaster Environments

In most countries, government agencies collect data on the prices of consumer goods throughout the year, using periodic market and household level surveys run by National Statistics Offices (NSOs). The data are reported in aggregate (in the form of a monthly consumer price index, for example) and are used for central planning and macroeconomic policy as well as private sector decision-making.

In tandem, the World Food Programme (WFP) monitors prices for a small set of staple goods, particularly in areas of the world prone to food insecurity, where emergencies are frequent and resources to collect high quality data are scarce. WFP is a United Nations (UN) humanitarian agency that fights hunger worldwide through food aid, emergency assistance, and disaster prevention activities. A key function of the agency is to track food security globally, through a program of Vulnerability Analysis and Mapping (VAM). The VAM is a collection of continuous and periodic monitoring systems that track changes in community access to food, forecast food scarcity, and alert the humanitarian sector to potential emergencies. During the recent Ebola epidemic in West Africa, which reached its peak in 2014-15, WFP played a key role in capturing price data across Liberia, Sierra Leone and other affected countries.

Yet throughout the epidemic, WFP faced challenges in collecting high quality data. Reaching

remote regions and recruiting survey workers is particularly hard. Because rural markets and small retailers are expensive to survey, they are often excluded from the sampling frames of large national surveys. The low frequency of data collection is exacerbated by delays in manual data aggregation, cleaning and analysis. For this reason, economic shocks may not be detected or reported for several weeks. The delays make it difficult to update interventions and respond to emergencies in a timely manner while the limited information-infrastructure captures only a relatively restricted list of food staple items.

Technology Solution

As part of the Goldilocks Project, WFP piloted a new technology for capturing market prices in Liberia; this pilot tackled some of the data collection challenges that humanitarian agencies face. The technology was developed by Premise, a venture-backed startup headquartered in San Francisco that supports a global network of data contributors. Premise has created a smartphone application that allocates tasks to individuals in its network, and then provides tips to guide them through the data capture process. The contributors live in close proximity to target markets and can readily visit shops, clinics, and other outlets on a regular basis to perform price checks. They are compensated with a small cash incentive for each instance of data capture. Submissions can include text (e.g. prices, inventory) and images (for verification of text data). The data are georeferenced and logged with a time-stamp, then sent to Premise over the mobile network.

On the back end, the company has developed a software platform that automates several processes—including the allocation of tasks across the network of contributors, the optimization of contributor incentives, and the classification and analysis of data. Premise also implements multiple layers of validation to minimize fraud and improve data quality, including both human and computer control checkpoints.

The Goldilocks pilot was based on a successful proof-of-concept deployment in rural Indonesia, operated by Premise in cooperation with the WFP, FAO and Pulse Lab Jakarta. In this project, Premise monitored a basket of core consumer food staples in traditional markets in West Nusa Tenggara, one of Indonesia's most rural provinces (with 4.7 million inhabitants across 19,700 square kilometers). Data were collected using a network of more than 200 local residents who were recruited virtually and guided by an app downloaded to their smartphones. In 10 weeks, the Premise platform analyzed price trends across 65,000 data points throughout the province for twenty products ranging from tofu to mackerel. The results demonstrated that the Premise platform can be an effective, rapid method to monitor a basket of core consumer food staples in traditional markets in rural and difficult to reach locations (UN Global Pulse Feasibility Study 2015).

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