



## Private Enterprise Development in Low-Income Countries

### Using Mobile Salary Payments to Improve Afghan Firm Performance

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***This randomized controlled trial with a large Afghan firm reveals that paying salaries using mobile money instead of physical cash produced significant cost savings for the employer, boosted demand for the services of the mobile network operator, and increased employees' propensity to save part of their incomes.***

Promoting private sector development in fragile and conflict-affected states is a key international policy challenge. Afghanistan provides a stark example of the urgency of this objective. Currently, 90 percent of government expenditure is comprised by foreign aid, and foreign aid disbursements equalled 47 percent of GDP in the 2008/09 fiscal year. When foreign troops withdraw in 2014, these numbers will fall precipitously, and only the most optimistic forecasts allow for continued progress against poverty and persistent underdevelopment (World Bank, 2011).

Firms in these environments face daunting challenges. Imperfect government control, rampant corruption, poor infrastructure, underdeveloped and fragile financial systems, and weak state institutions all interact to impede private sector development. These issues are reflected in the ecosystem surrounding the processing and disbursement of employee wages. The vast majority of Afghan firms pay their employees by physical cash transfers. In an environment where only 5 percent of the population has access to a bank account, electronic deposits are not an option. These problems are compounded by: (i) an absence of trust in banks because of the 2011 Kabul Bank failure; (ii) leakage/graft of employee salary by supervisors; and (iii) high costs of currency transport, due to unreliable transport infrastructure and concerns of physical security.

#### Using mobile money to pay salaries

In collaboration with Roshan, Afghanistan's largest mobile network operator, we designed, implemented, and evaluated a Mobile Salary Payments (MSPs) system using Roshan's mobile money product, M-Paisa. This system enables employers to pay salaries using mobile money instead of cash, creating a dramatic reduction in transaction costs while providing an instantaneous, auditable record of payment transactions. In this way, Mobile Salary Payments hold great promise for improving the transparency, accountability and efficiency of regularized payments, which could improve firm performance.

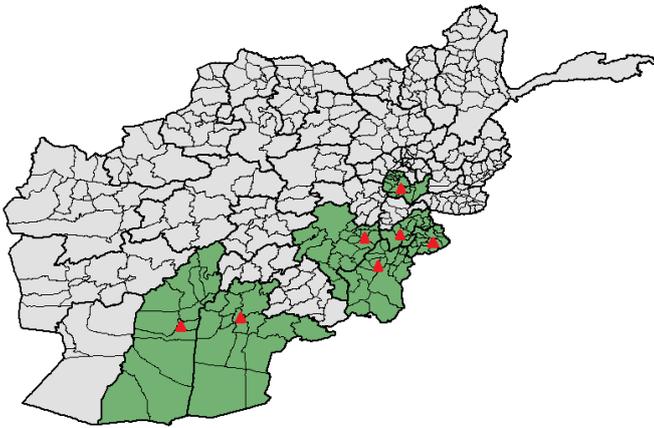


Figure 1 - Employees using the mobile salary payment system

#### An experiment in Afghanistan

We implemented a randomized controlled evaluation of MSPs in Afghanistan, in seven Southern and Eastern provinces between August 2012 and March 2013. All of these provinces experienced heavy conflict during the study. Prior to our intervention, all employees received their salary payment in an envelope containing cash once a month. We trained all employees on the use of mobile money and provided them with a new handset equipped with a mobile money-enabled SIM in order to ensure that the effect of treatment is attributable only to MSPs.

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**Figure 2 - Locations of employees participating in disbursement system study**

Next, we assigned half of the employees working for the Central Asian Development Group (CADG), a large Afghan-staffed development contractor, to receive their salaries via MSPs. We assessed impact by drawing on several independent data sources including face-to-face and phone surveys, administrative records, and mobile transaction records from the operator. Figure 2 depicts the locations of the employees in the study.

### Effects on the firm and the mobile network operator

The intervention generated several benefits for the firm (CADG) and for the mobile network operator (Roshan). During the research study, Roshan's setup fee was US\$40 per employee and the recurrent disbursement fee was 150 Afghanis (about US\$3 over the study period) per employee per month. By comparison, CADG's existing

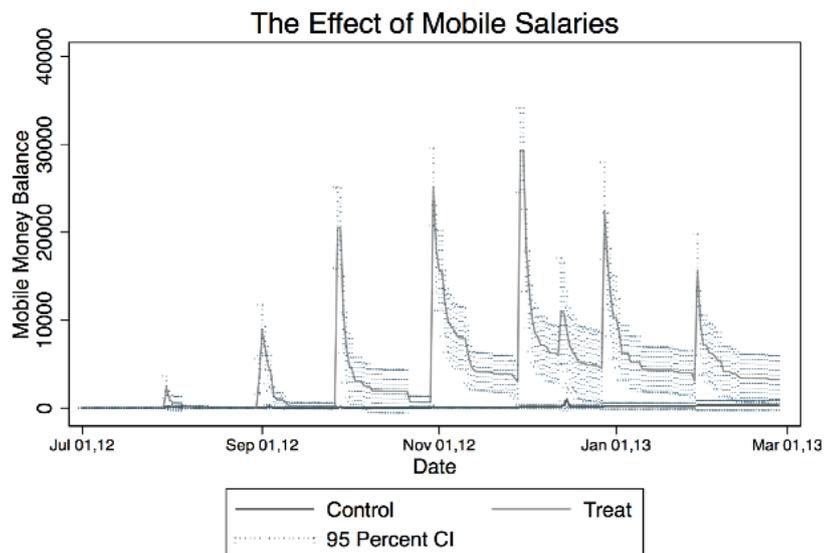
cash salary required monthly transfer costs of approximately US\$10 per employee per month, including the bank fee and other transportation costs associated with moving cash across the country. Thus, the M-Paisa setup fee was recoverable within six months, after which time the firm realized significant savings in its direct costs.

Reflecting this, CADG scaled up the use of mobile salaries, making the service available to all employees in the sample at the conclusion of the study. The savings they experienced have generated enthusiasm both for CADG and for their funder (USAID) to use MSPs in other projects both inside and outside of Afghanistan.

We also find significant evidence that the MSP system increased airtime purchases. As is common in many developing countries, Roshan operates on a pre-paid voice business model in which customers purchase airtime credits prior to initiating a call. In the CADG study, employees who were randomly assigned to the MSP groups made larger and more frequent airtime purchases each month and spent more in total on airtime. This is because mobile money users can purchase mobile airtime using mobile money accounts rather than by travelling to a vendor to purchase airtime in person. The average size of increased airtime purchase was approximately 100 Afghanis, or about US\$2 per month. The degree of increase in airtime purchases is large enough for it to be in mobile network operators' interest to partially subsidize MSPs in order to expand the mobile voice business.

### Effects on employee savings behaviour

Figure 3 shows the impact on the mobile wallet balances of CADG employees, based on the mobile transactions records. Two patterns emerge. First, balances rise dramatically on pay day. Second, balances accrue gradually through the study. Employees do not appear to cash out their entire pay check every month. By the end of the study, average savings in the treatment group is 3,232 Afghanis or about US\$64. This corresponds to about one tenth of the average baseline monthly salary. The increased average balance, as far as we can tell from surveys of employee finances, broadly represents new savings, particularly by employees at the middle and the top of the wage distribution.



**Figure 3 – Effects on mobile balances**



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We also find considerable heterogeneity in mobile balance accruals based on employees' expectations of violence. Employees who think that an attack is likely keep much less money in their mobile wallets and keep more of their savings in cash, compared with employees who perceive they face a lower risk of attack - even when they work in the same office and face the same underlying risk. These differences are most stark in locations where mobile agent availability is limited. In high conflict environments, mobile money agents demand high premiums to operate because they need to keep large quantities of cash, which poses a risk to them. They are also likely to refuse to engage in mobile money transactions as risks increase. This suggests that one consequence of conflict for financial behaviour is to increase the demand for liquid relative to illiquid assets.

### Moving forward...

The successful development and implementation of a mobile salary product lays the groundwork for a set of additional potential innovations. We will begin this autumn by working on a mobile-salary-linked savings account. We can now have workers pre-commit to save a portion of their salary that will be automatically deducted on payday. Because of the salary link, we can examine whether innovations that have proven highly effective in increasing savings in developed countries such as defaulting employees into participation (Beshears et al, 2008), having employees commit to allocating a future portion of wage increases to saving (Benartzi and Thaler, 2004), and anchoring cues (Choi, Haisley, Kurkowski, and Massey, 2013) can increase savings.

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