Policy brief
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Scarcity at the end of the month

A field experiment with garment factory workers in Bangladesh

In brief

- Dealing with sudden, unpredicted financial costs such as health expenses or unemployment poses a particular challenge for people living in the poorest households, whose income often barely allows them to get by.
- In Bangladesh, many garment factory workers struggle to make their incomes stretch until the next payday, forcing them to seek credit, often from informal sources.
- This brief uses a study of 632 garment workers to evaluate whether changes in the timing of wage payments can help workers smooth their consumption and avoid budget shortfalls at month's end.
- The authors find that workers who receive a pre-payday bonus had significantly greater total savings and were less likely to report borrowing money from an informal lender.
- However, it was also found that those paid in cash increased food consumption, but those paid through electronic payroll accounts didn't, suggesting that workers paid in cash were previously more likely to be short on money. Therefore, the cash bonus had a disproportionally large effect on increasing their consumption.
- Overall, the findings suggest electronic wage payments can automatically act as a consumption smoothing tool and have larger welfare benefits for workers.

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Policy motivation

People around the world face financial risks such as sudden health expenses, unemployment, and weather-related events. But when they have a safe place to save money as well as access credit when needed, they are better able to manage future risks. This is especially important for people living in the poorest households, whose income often barely allows them to get by. When poor households are unable to smooth their consumption – that is, maintain their living standards and pay their bills despite being short on funds – they can be forced to make choices that have severe long-term effects such as withdrawing a child from school, cutting health spending, and skipping meals. Such decisions can hurt workers' job performance and make households dependent on informal moneylenders, further reducing their long-term ability to accumulate savings and cope with unanticipated expenses.

Poor people all over the world struggle with consumption smoothing. The challenge of getting people to budget and save for the future has been studied in many other settings (see Laibson 1997, Benartzi and Thaler 2004). Our research studies consumption smoothing by low-income workers in developing countries. In a garment factory in Bangladesh, we examine whether changes in the timing of wage payments can help workers smooth consumption and avoid running out of money at the end of the month.

Factory in Bangladesh where research was conducted

In Bangladesh, garment factory workers are the first generation to be employed in large numbers in the formal private sector. Still, many struggle to make their incomes stretch until the next payday. In our baseline survey for an earlier study in two large factories in Bangladesh, 17 percent of workers at a factory that is representative of the general workforce said they regularly have to cut meals at the end of the month (see Figure 1). Female workers seem to suffer more, with 20 percent cutting or skipping meals at the end of month, against only 13 percent of male workers (see Figure 2). Despite having a stable and predictable income stream, many workers rely on expensive informal credit to smooth consumption and satisfy their basic needs over the course of the month. Half of workers report having to borrow at least once monthly to meet expenses, typically from moneylenders or shopkeepers at extremely high interest rates (see Figure 3).

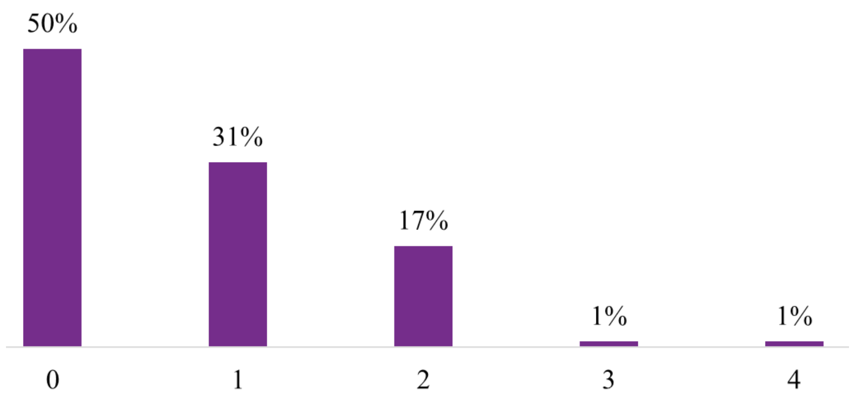
Figure 1: Nearly a fifth of workers reduce food consumption at month's end

Workers reporting cutting the size of meals or skipping meals because of shortage of money in the past year (% at baseline).

Figure 2: Women almost twice as likely as men to reduce food consumption

Workers reporting cutting the size of meals or skipping meals because of shortage of money in the past year (% at baseline).

Figure 3: Half of workers borrow money to meet expenses at least once a month



Frequency of end-of-month borrowing in the past year (at baseline)

Policy implications

We study whether changes in the timing of wage payments can help workers smooth consumption and avoid budget shortfalls at month's end by paying a one-time cash bonus equal to approximately 10-15 percent of a typical worker's monthly pay. We test how workers are affected by the timing of payments, and the channel through which the bonus payments are made -- in cash or directly into an electronic payroll account.

ATM set up at factory site to initiate electronic wage payments

- We find that workers who received a pre-payday bonus had significantly greater total savings, suggesting that at least some workers were not short on money before the pre-payday bonus and were able to put away the extra earnings.
- Similarly, results show that workers who received the pre-payday bonus were less likely than the control group to report borrowing money in the past week, specifically from an informal lender.
- Finally, we find some evidence that workers who did not have access to electronic payment accounts also increase their end of month food consumption as a result of the treatment.

The findings of this paper can inform the payroll practices of firms and public sector employers. Employers have traditionally paid workers monthly due to the high costs of cash disbursements, but as more firms move to electronic direct deposit platforms, more flexible payment schedules may become financially viable. Furthermore, financial service providers have begun treating garment workers, who have previously been unbanked, as a new market to develop. The evidence we uncover in this study could provide insights for both the development and regulation of new financial products.

For firms that pay workers monthly, these results suggest a demand for short-term savings products, for example two-week savings products that artificially mimic bi-monthly wage payments, or perhaps for payday loans. If borrowers understand these monthly liquidity patterns, then designing smart savings devices is the lower-cost option for reducing periods of scarcity. Lessons from this study will also be relevant to institutions such as the Bangladesh Garment Manufacturers and Exporters Association that aim at ensuring compliance and improving worker welfare in the garments industry.

Factory assembly line

Details of the study

The sample population for our experiment consists of 632 workers at a large garment manufacturing firm in Bangladesh. The experiment was designed as an addition to an earlier IGC project that introduced electronic wage payments to workers at several manufacturing firms in Bangladesh (Breza et al 2017). This intervention involved paying a one-time cash bonus equal to approximately 10-15 percent of a typical worker's monthly pay. Keeping the amount of the bonus constant across all workers, the experiment randomly varied its timing:

1. in the treatment group, workers received the bonus one week before the regular payday, the time when they are most likely to experience financial constraints.
2. in the control group, workers receive the pre-announced bonus on the factory's regular payday.

Table 1 reports summary statistics for all workers in the sample. The gender breakdown of workers is roughly 55 percent women and 45 percent men. Almost all the employees are Muslim and largely comprised of migrant workers from rural areas of Bangladesh. We randomly and individually assigned workers to either continue receiving their monthly wages in cash or begin receiving electronic monthly wage payments through either a bank account or an account with a mobile money provider. Within our sample of 632 workers, 54 percent receive electronic wage payments into either a bank or mobile money account, and the remaining 46 percent receive wage payments in cash.

I. Demographics	
Female	55%
Married	75%
Has children	63%
Has savings	81%
Has formal savings	49%
Time in current job (years)	2.15
Years expected to stay in current job	3.27

II. Supervisor Rating of Worker	**Score out of 10**
Punctuality and attendance	8.41
Meets production target	8.57
Production mistakes	7.97
Speed and focus	2.93
Pressure required from supervisor	2.97

The summary statistics suggest that workers in our sample want to save for the future but struggle to meet their savings goals. When comparing the baseline survey, completed in 2014, to results from the endline survey, completed in 2016, we find that workers ended up saving much less than they wanted. The summary statistics also show that workers find it difficult to smooth their consumption over the course of the month. When we asked workers if, in the past year, they had ever run out of money by the end of the month, 32 percent reported that they needed to borrow, 45 percent reported that they had to delay payments to shops, and 5 percent reported that they were forced to cut meals at the end of the month to make ends meet. Note, however, that that for a large subset of the study population, income smoothing problems may not necessarily reflect a cash shortage at the end of the month: a relatively high percentage of households facing budgeting problems are nonetheless able to borrow, albeit at high interest rates.

Cash vs electronic payments

An important finding in our study is that effects vary depending on whether the workers received their bonus payment in cash or directly into an account. Workers paid in cash increased food consumption, but there was no such effect for workers who used electronic payroll accounts. This result suggests that workers paid in cash were more likely to be short on money, and therefore the cash bonus had a disproportionally large effect on increasing their consumption. Workers who received their wages via electronic payroll accounts did not increase food consumption because they did not need to. Formal accounts helped these workers smooth their consumption and make their earnings last through the end of the month.

This implies that receiving wages as a direct deposit into a formal account through electronic wage payments can have real effects similar to those of varying the timing of one's income stream. In this case, the effect of receiving wages through electronic payroll was comparable to the effect of increasing the frequency of payments over the month. Our findings suggest that compared with cash, electronic wage payments can automatically act as a consumption smoothing tool and have larger welfare benefits for workers.

Further reading

Benartzi, Shlomo and Richard H. Thaler, "Save More Tomorrow: Using Behavioral Economics to Increase Employee Savings," Journal of Political Economy, 2004, 112 (1),S164–S187.

Breza, Emily, Martin Kanz and Leora Klapper, "The Real Effects of Electronic Wage Payments," Working Paper, 2017.

Laibson, David, "Golden Eggs and Hyperbolic Discounting," Quarterly Journal of Economics, 1997, 112, 443–477.