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Value of Embedded Services

Digital Payments for Vaccine Campaigns

Benjamin Mazzotta

CAMBRIDGE, MA | 1 August 2022

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Value of Embedded Services

A digital payment embeds other services into the transaction that are valuable to both sides, the payer and the recipient.

- Timely disbursement
- Record of clearing
- Risk controls

How valuable are these services to the payer and to the recipient? This report provides some estimates and the evidence behind those estimates.

Service	Value to payer	Value to recipient
Timely disbursement	Digital payments reduce the time elapsed between commitment of funds to the payment process and final accounting on the use of those funds.	Timely payments are more valuable than delayed payments. Low-income populations tend to place greater value on promptness.
Record of clearing	Confirmation numbers for individual payments provide proof of <i>both</i> the use of funds as well as the discharge of an obligation to pay.	Confirmation numbers are critical pieces of information in answering queries about payments that may have been lost or sent in error.
Risk controls	Digital payments reduce three risks: misuse of cash held for disbursement; the safety of personnel with custody of it; and the personnel's financial liability for the money.	Receiving cash entails the risk of theft at the point where it is disbursed or in transit. Cash must be safeguarded under lock and key or on the bearer's person.

Timeliness: Payer's View

Payer organizations place funds into specific accounts for disbursement. For digital payments, these are bank accounts authorized to send money over a payments gateway. For cash, funds are ultimately withdrawn in cash and driven to a point where disbursements are made and recorded by hand.

Digital payments are authorized and cleared on the same day. Finance staff can account for the funds disbursed on a daily (or even intraday) time scale. Reconciliation of funds for cash payments takes days longer and involves manual inspection of signatures.

Finance professionals have a strong preference for the shorter time frame between releasing funds for payment and reconciliation of funds disbursed.

BFA did not evaluate the payer's willingness to pay for this service. BFA did not believe that it was possible to accelerate cash disbursement to a similarly rapid tempo *at any price*.

Service	Value to payer	Value to recipient
Timely disbursement	Digital payments reduce the time elapsed between commitment of funds to the payment process and final accounting on the use of those funds.	Timely payments are more valuable than delayed payments. Low-income populations tend to place greater value on promptness.
How we estimate	BFA interviewed financial professionals who administer digital payments to frontline staff for vaccine campaigns.	60 decibels interviewed recipients to learn whether they would prefer a prompt payment or a greater payment.
Value derived	No quantitative estimates	Prompt payments are worth roughly 40% of the value of the payment.

Timeliness: Recipient's View

A recent study by 60 decibels estimated recipients' valuation of a prompt payment using a hypothetical question.

What would you prefer to have, a payment worth \$11 in 10 days or a payment worth \$12 in 30 days?

The amount of the latter payment was variable, taking on values of {\$12, \$13, \$14, or \$15}. Each individual was randomly assigned one of those values. The greatest value offered, \$15, was 36% greater than the more prompt payment.

Prompt payments were more desirable than larger payments. Even with the 35% premium, over half of respondents chose to take less money sooner.

The indifference point — meaning the value of the premium that would convince half of respondents to wait for a larger payment — was roughly 40%.

At shorter time horizons, recipients expressed an even stronger preference for immediate payments.

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Recordkeeping: Payer's View

Payer organizations are able to provide a higher level of service in finance and accounting with prompt confirmation of individual payments.

- Finance staff can create dedicated accounts for disbursement by specific offices on each payment deadline. Funds are transferred from the program's general account into the disbursement account, in the precise amount authorized for a batch of allowances.
- Finance staff receive daily (or even intraday) notifications when payments fail due to invalid payment credentials, exceeded limits on accounts, or other problems.
- Daily reports are generated with the balances on disbursement accounts, and the remaining funds can be transferred promptly back into the program's general account.

With cash disbursement, it would take days or weeks to report on the disbursement of funds withdrawn for cash payment of allowances. Final accounting cannot be completed until the balance of remaining funds are received.

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Recordkeeping: Payer's View (2)

Staff perceive that their own individual risk is greater with cash payments.

First, transporting large amounts of cash requires protection for the cash in transit — sometimes armed guards, depending on local conditions.

Second, staff are aware that they are under accountability risk while transporting cash on behalf of the payer organization. That is, staff are held accountable for cash balances that are entrusted to them, until the cash is disbursed or returned to the proper account. While staff accept this accountability risk as inevitable, they prefer to use digital payments that do not entail the same accountability risk.

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Value of payments: estimate by cost of the nearest substitute

What is the cost of replicating a payment confirmation?

At right, we see a screenshot of a payment confirmation using M-PESA in Kenya.

BFA Global investigated this question by contacting frontline healthcare workers from a recent campaign in Ethiopia.

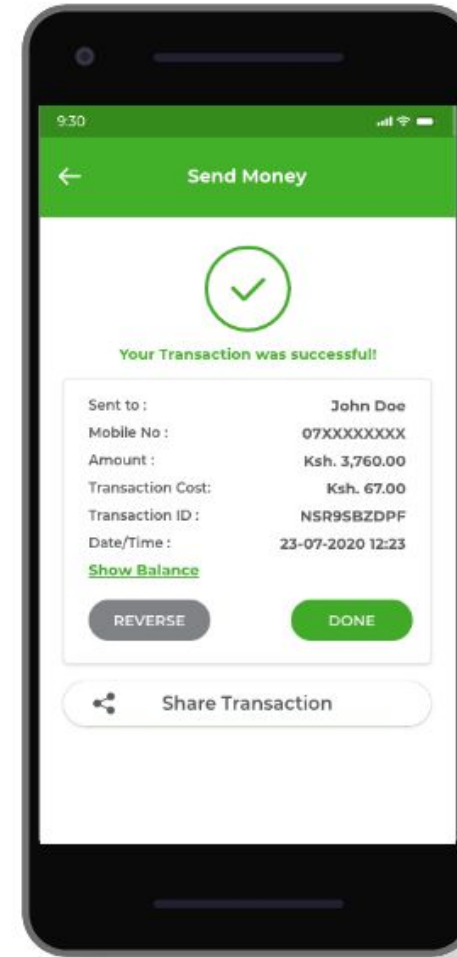
The workers were affiliated with four local offices. These workers all participated in the most recent vaccine campaign in Ethiopia and received allowances for their work.

We sent up to three SMS messages on successive days until a response was reached. Next, we tried up to three telephone calls on successive days, for a total of six attempts, stopping when a response was received.

Sample size: 2,191 individuals

SMS response rate: 6.4% (5.4% valid responses)

Telephone response rate: 68.6% (68.2% valid responses)



No more “Imefika”
You can now share transaction

Survey of frontline workers in Ethiopia

Research objectives	Interpretation
(1) Estimate the time required to reach frontline healthcare workers.	Digital payments provide confirmation of each payment upon clearing. Cash payments provide no independent confirmation that the recipient has received the funds. The time required to reach frontline healthcare workers is a proxy measurement of what the campaign would be required to spend, in order to replicate those payment confirmations with cash disbursement.
(2) Consider the feasibility of SMS as a channel for payment confirmations.	Two-way SMS is a highly efficient method for reaching users at scale. The variable cost of reaching all 2050 healthcare workers by SMS was just \$140 (in US dollars); or roughly \$70 per thousand workers. If SMS is effective in reaching healthcare workers, it could also be a cost-effective means of generating payment confirmations for cash disbursement.
(3) Evaluate the preferences of frontline healthcare workers for payment methods.	Digital payments are highly efficient from the payer's perspective. They economize on the cost of distribution and accounting; and provide detailed visibility into the clearing of individual payments. What about the payee's perspective? In the aggregate, do they tend to prefer cash or digital payments? Do those preferences differ by gender and for different regions?

Hello, This is a study on the payment system for health professionals involved in the recent vaccination campaign. This study does not affect your future payments.

How would you prefer to be paid if a choice were given? Please reply:
 (1) Cash; (2) Bank; (3) Tele Birr; (4) No answer. Your response will be free of charge.

(2) Bank account

Choices for payment methods

The single question that we asked our respondents in Ethiopia was,

“If you could choose, how would you prefer to be paid for your work? Please reply (1) cash, (2) a bank account, (3) telebirr, (4) no preference.”

This question was phrased identically for SMS and telephone surveys.

Our goal was to ask a single question related to payments, without specifically asking respondents to disclose that they had been paid, nor the amount paid.

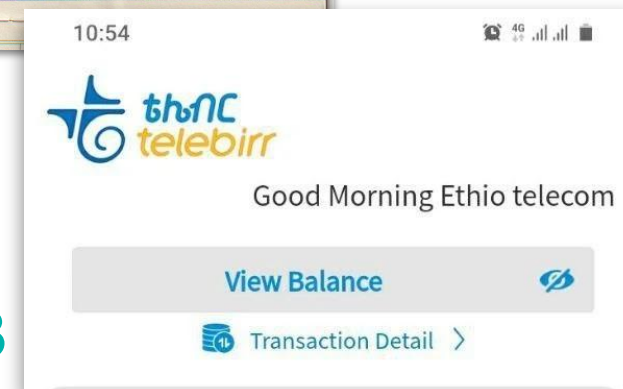
We suspected that asking directly for a confirmation of payments would have reduced response rates to the SMS and telephone surveys.



1

DATE	MEMO	ESCR. RECTS & DISBURSE	ESCROW BALANCE	INT. AND MISC. CHGS	PRINCIPAL PAYMENTS	LOAN BALANCE	TELLER
04 22 88 7	TAY	49.94-	87.45			21453.69	2B
MAY 2, 88 LC		75.00	162.45	153.32	271.68	21182.01	2B
JUN02, 88 LC		75.00	237.45	163.41	261.59	20920.42	3B
JUL01, 88 LC		75.00	312.45	161.40	263.60	20656.82	3A
AUG05, 88 LC		75.00	387.45	159.30	265.70	20391.12	3B
08 13 88 2 TAY		188.55-	198.90			20391.12	3B
SEP 6, 88 LC		75.00	273.90	157.35	267.47	20123.65	3B
OCT 7, 88 LC		75.00	348.90	155.60	269.40	19854.25	1B
NOV09, 88 LC		75.00	423.90	153.52	271.48	19582.77	3A

2

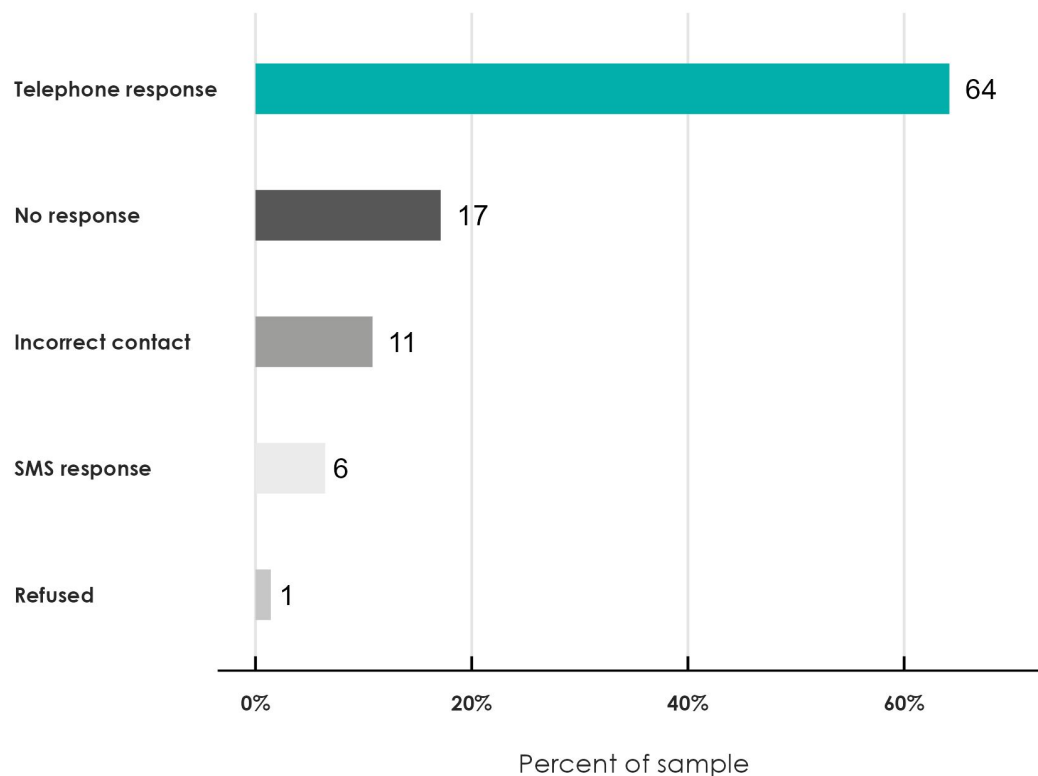


3

Is SMS cost-effective as a method for confirming payments in cash?

Response rates

BFA Global study of frontline healthcare workers in Ethiopia



No. Response rates are too low for finance offices to use SMS to confirm receipt of cash payments.

The SMS response rate in our sample was 6.4% of respondents, or 5.3% if we consider only valid responses. With such a low response rate, two-way SMS messaging cannot replicate the function of a payment confirmation.

The variable costs of SMS messaging were \$70 per thousand employees.

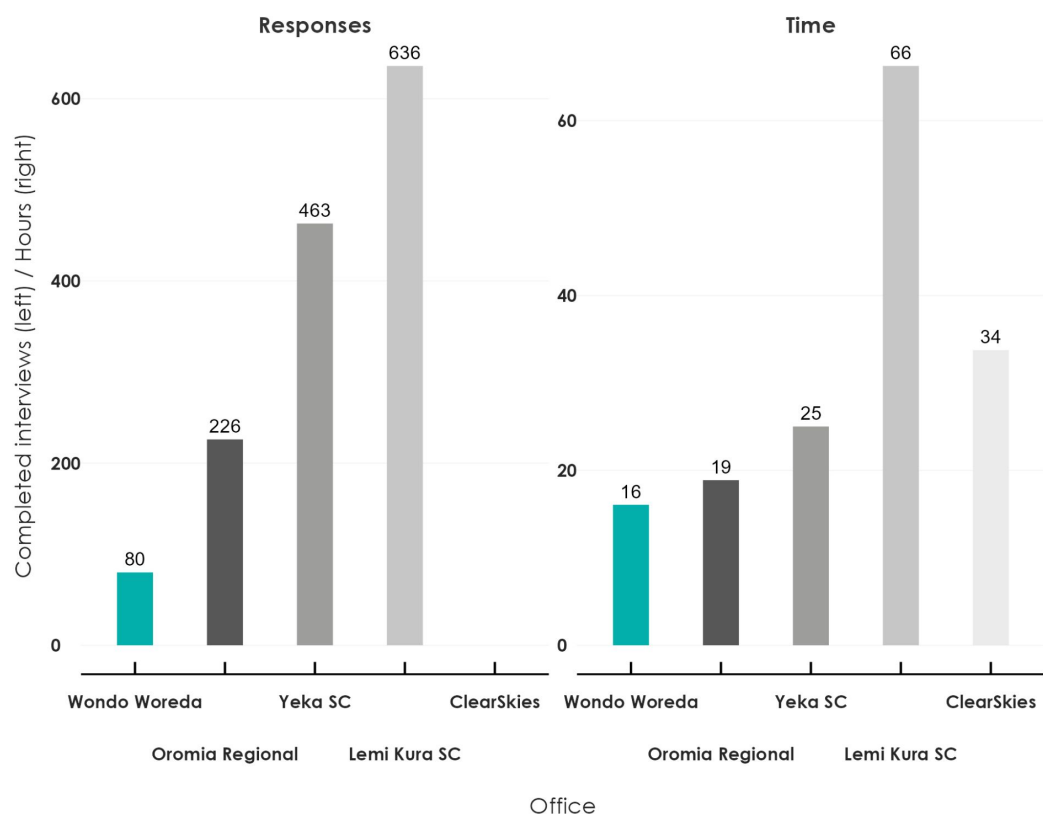
A payment confirmation message can effectively *separate the functions of disbursement and control* in accounting.

Today, organizations that pay workers in cash seldom separate the functions of disbursement and control. Typically, recipients are asked to sign a form when they receive cash. But because the form is managed by the same personnel that dispense the cash, the disbursement and control functions are unified and not separated.

Is mobile telephone cost-effective as a method for confirming payments in cash?

Effort required for telephone survey

Ethiopia Study of Healthcare Payments | June 2022 | BFA Global



ClearSkies was a call center that completed phone calls on behalf of the study in all four locales.

No. The success rate is too low and the burden of payment confirmations on staff time is too high to justify.

Confirming payments by telephone can achieve a 68% response rate. Perhaps with additional practice the nonresponse rate could be driven down from 32% to less than 5%, but even that level of nonresponse would be insufficient to address the risks of cash payments.

In terms of costs, generating the payment confirmations would require one additional day of staff time for every 70 recipients, or 14 days of effort per 1000 recipients.

Moreover, it cannot address certain common problems with mobile phone penetration: shared numbers, using borrowed phones, errors in data entry, and numbers that change over time.

Although this procedure is already feasible with today's technology, it is not widely used — presumably because it is costly, slow, and ineffective.

Bank accounts are preferred to cash

Respondents had a clear preference for bank payments, with 72% of valid responses and a further 12% stating they were indifferent.

Cash payments were preferred by just 11% of respondents, roughly on par with the number that were indifferent between cash and bank accounts.

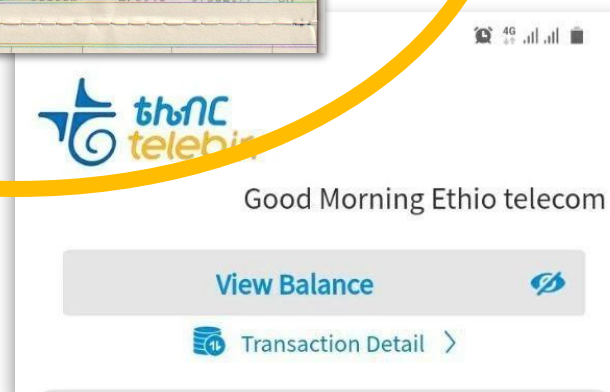
Mobile money is new in Ethiopia. It was rare (5%) for respondents to prefer mobile money to other forms of payment. Due to the extremely brief format of the survey, we were not able to learn why respondents preferred mobile money to bank accounts and cash.



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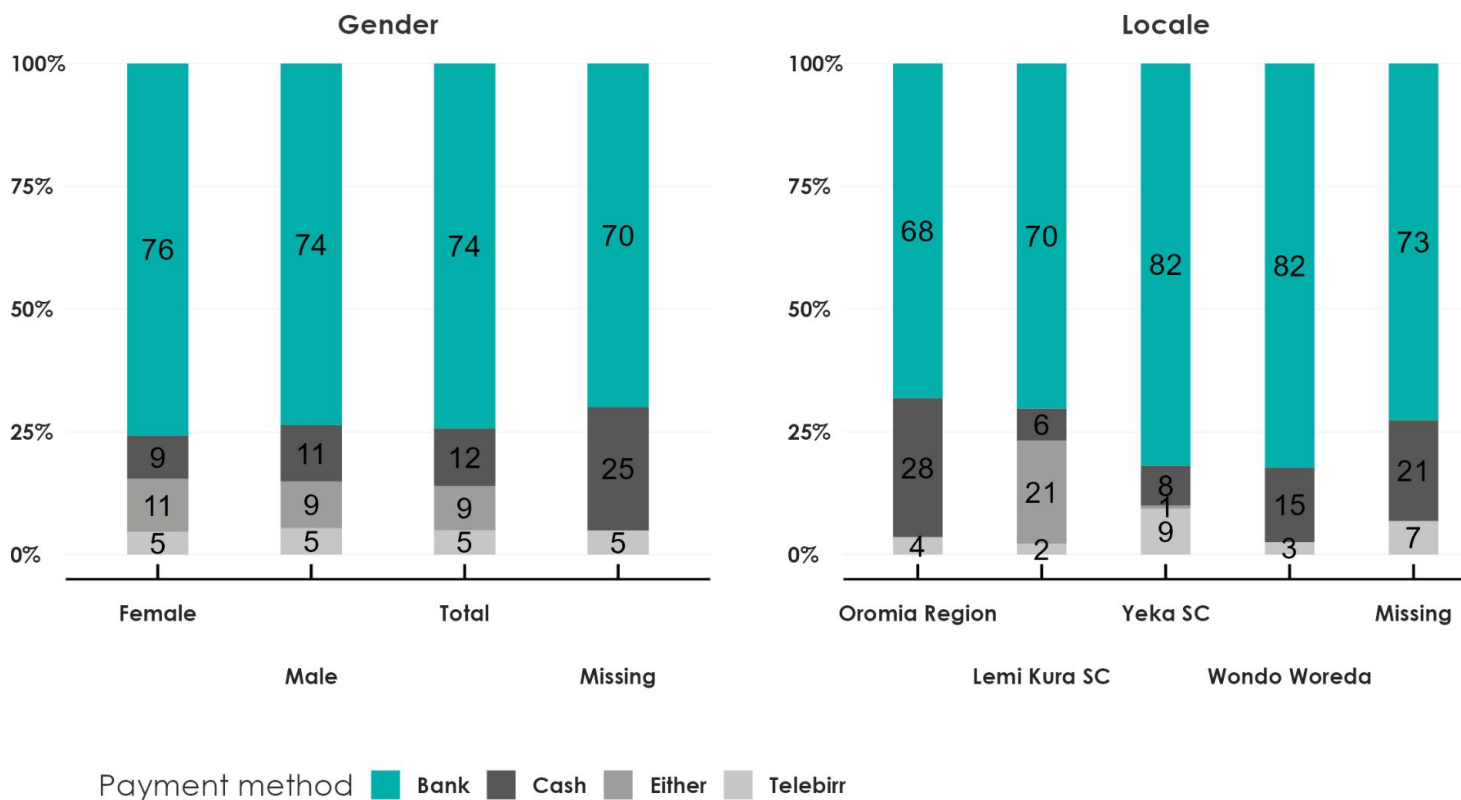


3

Gender, location, and payment preferences

Payment preferences of healthcare workers

Ethiopia Study of Healthcare Payments | June 2022 | BFA Global



Bank account payments are preferred by large majorities of healthcare workers, with 74% of responses overall.






Women and men have nearly identical preferences for bank accounts, followed by cash or indifference between methods.

In the Oromia region, the minority who prefer cash do so largely at the expense of mobile money and indifference.

Yeka Sub-city and Wondo Woreda were the two regions where a preference for bank accounts was the greatest; perhaps reflecting easier access to cash in and cash out.

Telebirr has yet to make significant inroads in this market.

Conclusions

-  There are good reasons why payers and recipients prefer to send and receive electronic payments.
-  Because digital payments are prompt, most recipients will prefer to receive digital payments rather than cash.
-  Digital payments are only prompt when recipients can spend the funds provided to them promptly.
-  Cash-out costs would not be sufficient dissuade recipients from preferring cash unless they amount to more than 30% of the payment due.
-  Digital payments offer an embedded service for free: payment confirmations. The value of embedded confirmations is approximately one staff day of effort for every 70 payments.



Thank **you!**

Benjamin Mazzotta

www.bfaglobal.com

info@bfaglobal.com

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