

Pension watch

Briefings on social protection in older age



Briefing no. 8

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Electronic payment for cash transfer programmes:

Cutting costs and corruption or an idea ahead of its time?

Introduction

There is growing interest in the use of electronic payment (e-payment) systems in cash transfer programmes. When cash is transferred to beneficiaries through e-payment technologies such as mobile phone accounts or smartcards, there is potential to cut costs and reduce corruption compared with physical payment methods. E-payment systems can also improve accessibility and security for programme recipients, which is important for reaching vulnerable groups including older people, people with disabilities and people in remote areas. But the lack of regulatory and financial infrastructure in low income countries means that e-payment systems need substantial up-front investment. In addition, the bewildering array of e-technology platforms and providers makes it difficult for policy makers to determine whether e-payment is the most cost-effective option. This paper discusses the issues involved and the advantages and disadvantages of e-payment systems compared with physical payment systems. This paper draws heavily on an expert learning event on e-payment systems organised by HelpAge International for UK Aid in 2012.¹

What is an e-payment system, and how does it work?

In traditional cash transfer programmes, cash is physically delivered to a set of paypoints – often post offices or government offices. Programme recipients travel to these paypoints to collect cash payments at a set time. Physically delivering cash incurs high transport costs and security risks for the programme provider. In addition, these paypoints are often infrequent, especially in rural or remote areas, so recipients often have to travel long distances to get to the paypoints. This can also involve costs that eat into the value of the cash transfer

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if recipients have to pay for transport or spend hours travelling and queuing to collect the cash. This has proven to be a considerable barrier for the most vulnerable recipients, especially older people, people with disabilities, or those who are unable to travel due to ill-health.

In e-payment systems, cash is transferred electronically to a bank which uses (or sets up) a network of paypoints to pay cash to recipients on request (see Figure 1). Paypoints can be bank branches, ATMs² and/or a network of branchless bank 'agents' – usually local shopkeepers. Bank agents use cash flow from their own business activities to pay recipients and are reimbursed by the bank, along with a small commission which is credited to their account. The agents use a mobile phone or point of sale (POS) device to process the payment, which is linked to the bank via a mobile phone network.³ The POS provides an electronic record of the transaction and produces a paper receipt for the beneficiary and the agent. POS devices can include biometric identification technology – typically a thumb-print recognition device. Programme recipients are issued with a smartcard or magnetic stripe (magstripe) card,⁴ a personal identification number (PIN) or mobile phone-operated 'account',⁵ which they present at any network agent for payment. A recent HelpAge film (see www.pension-watch.net/pensions/about-social-pensions/about-social-pensions/film-social-protection-for-older-people-in-africa/) shows how social pensions are being paid to older people through networks of local shops in remote rural areas of northern Kenya.

1. The use of new technologies in cash payment is a rapidly evolving area; this paper captures issues relevant and current in 2012. It is based on a learning event for UK AID, January 26 2012 with expert speakers including Prateek Shrivastava of Monitise plc; Caroline Pulver of Bankable Frontiers Associates; and Chris Bold, UKAID, formerly advisor to CGAP on technology and cash transfers.

2. Automatic Teller Machines

3. POS devices can operate offline; the agent only needs to connect to the cellular network intermittently. POSs can be charged with a solar panel, useful in remote areas without good power connections.

4. A **smartcard** is a plastic card about the size of a credit card, with an embedded microchip that can be loaded with data, used for telephone calling, electronic cash payments, and other applications, and then periodically refreshed for additional use. A smartcard contains more information than a magnetic stripe card and it can be programmed for different applications. Some cards can contain programming and data to support multiple applications and some can be updated to add new applications after they are issued. Smartcards can be designed to be inserted into a slot and read by a special reader or to be read at a distance, such as at a toll booth. See <http://searchsecurity.techtarget.com/definition/smart-card>

A **magnetic stripe card** is a type of card capable of storing data by modifying the magnetism of tiny iron-based magnetic particles on a band of magnetic material on the card. The magnetic stripe, sometimes called **swipe card** or **magstripe**, is read by physical contact and swiping past a magnetic reading head

5. The recipient has an electronic 'store of value' into which payments are made. This can be a simple current or savings account, which government mandates the financial institution to offer.

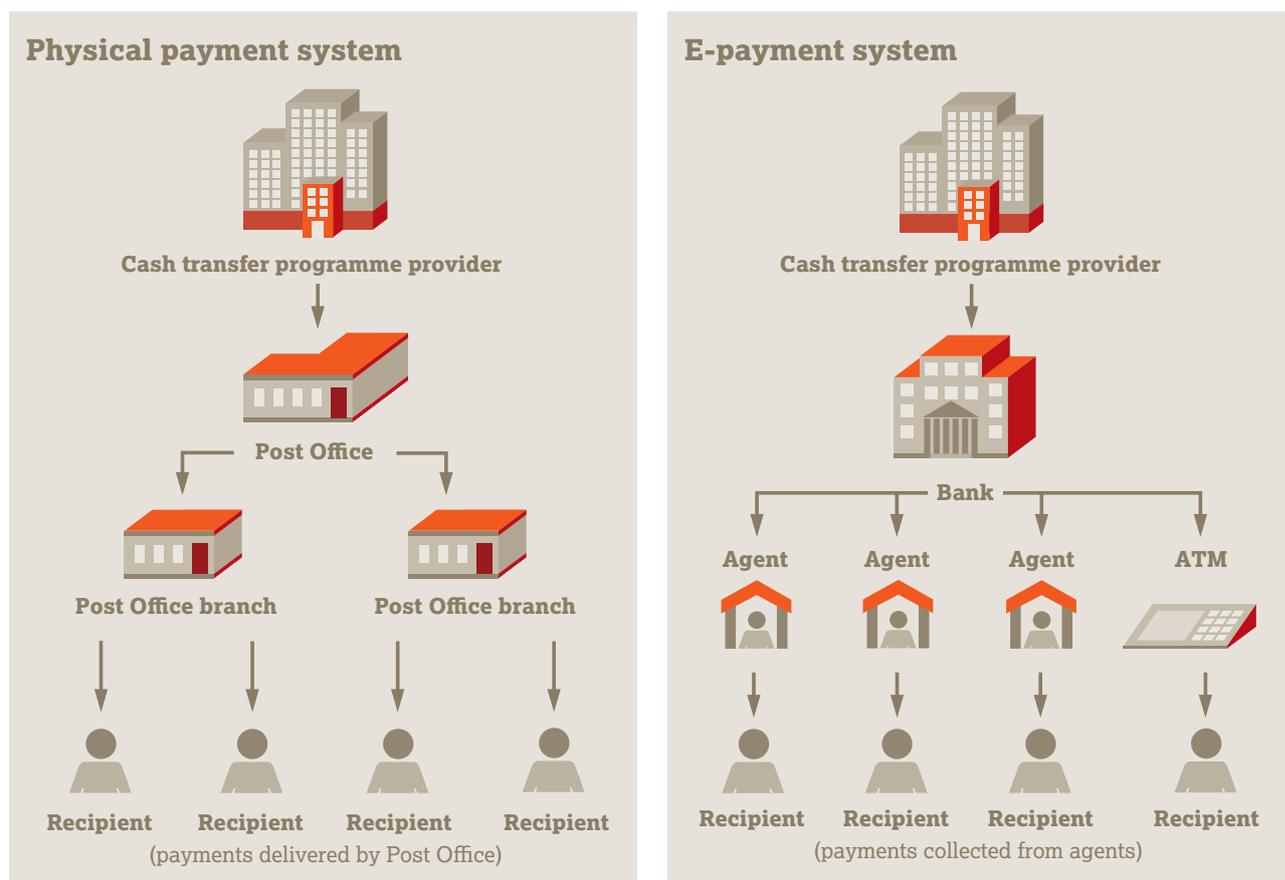


Source: Presentation of Pungky Sumadi, National Development Planning Agency, Indonesia at Social Transfer Course, EPRI, Cape Town, 26 July 2009

For older people, e-payment can mean the difference between travelling miles on foot to queue at dawn for cash payment, or withdrawing the money at their convenience from the local shop.

Source: adapted from Bold and Rotman (2010)

Figure 1: Physical and e-payment systems



Source: adapted from Bold and Rotman (2010)

Where are e-payments being used?

Almost half of the 40-plus cash transfer programmes set up since 1999 involve e-payment systems, including those in China, Bangladesh, Cambodia, Kenya, Pakistan, India, Peru and Yemen.⁶ Some of the largest cash transfer programmes using e-payment systems include the following:

- Pakistan's 2009 flood response delivered 1 million prepaid smartcards to recipients within 70 days using a network of 12,000 branchless bank agents.
- Mexico's *Oportunidades* conditional cash transfer (CCT) programme, reaches 6 million households using payment mechanisms including magstripe cards linked to accounts and smartcards.
- South Africa's Social Security Agency (SASSA) pays the Older Person's Grant and other cash transfers to 9 million recipients using prepaid smartcards and magstripe cards linked to a bank account.
- Colombia's *Familias en Acción* cash transfer reaches 1.8 million recipients via savings accounts that pay interest.
- 2 million of Brazil's *Bolsa Familia* recipients receive cash payments into basic current accounts accessible via magstripe card in the public *Caixa Economica* bank.
- In India, 4 million recipients of benefits under the National Rural Employment Guarantee Act (NREGA) have chosen branchless banking over physical payment mechanisms.⁷

6. Bold, C. and Rotman, S, 'Financially inclusive payment mechanisms for social cash transfer programmes' presentation for CGAP 2010; Pickens M, Porteous D, and Rotman S, *Banking the poor via G2P payments*, CGAP Focus note No. 58, December 2009

7. Presentation by Abrar Mir, United Bank Limited Pakistan, at DFID, London, 26 January 2012; Bold and Rotman (2010); and Pickens M, Porteous D, and Rotman S, *Banking the poor via G2P payments*, CGAP Focus note No. 58, December 2009.

Advantages and disadvantages of e-payments compared with physical payment systems

The advantages and disadvantages depend on the specific country context. E-payments have the potential to reduce transaction and security costs for governments and recipients alike, with faster payments and less leakage than physical cash payment systems. However, substantial barriers to uptake of e-payment systems remain.

There is little rigorous data and few evaluations comparing costs and benefits of e-payments and physical payment systems or for different types of e-payment technology. For example, there are no national-scale cash transfer programmes that deliver payments using mobile phone technology.⁸ Figure 2 makes comparisons based on available data, showing some clear benefits of e-payment systems in terms of reduced costs and leakage.

Figure 2: Comparing costs and performance of e-payment and physical payment systems

	Physical cash payment	Technology enhanced (electronic) cash payment	Country
Time taken by beneficiary to collect (hours)	2-4 hours	0.5 hours	(29% of recipients lose income) South Africa, India
Cost per payment cycle (%/US\$)	2-15%/US\$1-4	2-10%/US\$1-2	South Africa, India, Colombia, Democratic Republic of Congo, Malawi
Leakage (%)	4-15%	1-4%	South Africa (8% paid to get grant), India
Time to implement (months)	3-12 months	6 months +	Various
Additional financial services	None	Yes: savings, credit, insurance	
Additional developmental impact	None	Yes	

Source: adapted from Pickens et al, 2009

High set-up costs

Making cost comparisons between payment systems is difficult because of different grant sizes, varying frequency of payments, fluctuating currency values, and other country-specific factors.⁹ Major costs in physical payment systems include fuel and recruitment of security personnel to deliver cash. With e-payment systems, the initial investment costs can be substantially higher as they include purchase of hardware (e.g. mobile phones, smartcards or magstripe cards for recipients, POS devices etc for agents). For instance, a study of payment options for the Haiti earthquake response in 2010 found that the e-payment delivered through mobile phone accounts used by one aid agency was 30 per cent more expensive than the equivalent manual distribution; a significant proportion of this was due to the cost of providing phones and training programme staff, agents and recipients in how to use the new technology.¹⁰

Furthermore, most countries do not already have a network of payment agents or the necessary regulatory infrastructure to permit the transfer of money between payment agents who are not banks. Setting this up will be the most significant investment in e-payment systems. Initial investment and set-up costs for programme providers should be considered as offsetting potential savings in average annual

8. Personal communication with Caroline Pulver, Bankable Frontier Associates, January 2012.

9. The move towards financially inclusive cash transfers', presentation by Chris Bold at Department for International Development learning event on e-payment, London, January 2012.

10. Smith G., MacAuslan I., Butters S. and Tromme M., *New technologies in cash transfer programming and humanitarian assistance*, a study by Concern Worldwide, Oxford Policy Management (OPM) and the Partnership for Research in International Affairs and Development (PRIAD) for the Cash Learning Partnership (CaLP), 2012, p.45

costs over the entire period of implementation – whether this is viable in shorter emergency responses is discussed below. Whether these set up costs are born primarily by the programme provider, or by the private technology provider, who benefits from extending their client base into new areas, is likely to be the subject of careful negotiation at contract stage.

Where there is a pre-existing network of payment agents, moving from physical to electronic systems need not be more expensive. In Brazil, there was already a network of 20,000 stores, ATMs and merchants accepting the programme's magstripe card, which made switching to electronic payment of the *Bolsa Familia* cash transfer relative straightforward. Switching to e-payment, along with consolidating several benefits payments into one payment resulted in a substantial reduction in administrative costs.¹¹

The costs of various systems must take into account the benefits a particular system provides. For example, although set up costs for e-payment systems may be more expensive initially, they may be more cost-effective in the longer term if they deliver substantial benefits such as better security, and financial inclusion for recipients – this is discussed in more detail below.

Reducing corruption and leakage

E-payment systems have the potential to reduce leakage and corruption.¹² Unique recipient identifiers such as biometric recognition devices or personal identification numbers (PINs) can reduce payment to the wrong recipient. Paying cash direct to technological devices such as mobile phones that are owned by recipients can also reduce opportunities for bribes.¹³ Record-keeping for better monitoring of cash payments is stronger, with POS devices providing electronic and paper records of payments for the recipient and payment provider alike. In Argentina, after the Ministry of Social Development switched from cash payments to a prepaid debit card, the number of participants who said they paid a bribe to access their benefits dropped significantly (twelfefold).¹⁴ And in the 2011 Horn of Africa drought response, cash transfers were perceived as less prone to corruption than food assistance, in part due to strong record-keeping associated with the e-payment systems.¹⁵

Of course, corruption and leakage can still occur with e-payment systems. If recipients have been registered erroneously or fraudulently, a unique identifier will not eliminate this kind of leakage, which represents 6-15 per cent of benefits in developed economies and is likely to be at least as prevalent in developing countries.¹⁶ Ensuring that payment agents do not make additional charges has been a challenge for Pakistan's flood response and other cash transfer programmes.¹⁷

Reducing travel and waiting times, and improving security

Having to travel long distances and queue for hours to collect the cash is a substantial barrier to accessing cash transfer programmes. Older people, people with disabilities, pregnant women and the chronically sick may only be able to travel short distances (if at all) to paypoints, particularly where there is a lack of facilities (such as shade, seating or toilets) when they arrive.

11. Switching to e-payment and consolidating several benefit payments into one payment resulted in a fall in proportional administrative costs from 14.7 to 2.6 per cent of the grant's value between 2001 and 2006. See Lindert et al (2009) in Bold, C. and Rotman, S. (2010).

12. "Opportunities for fraud and corruption depend on the mechanisms used for disbursing the funds/processing the cash payment. Forms of fraud and corruption that can occur at payment stage of program implementation can include diversion of cash by administrative staff, payments made to "ghost" beneficiaries, instances of collusion between administrative staff and beneficiaries or between staff processing the benefit and those paying the benefits, etc. In some cases, informal "taxes" or kickbacks can be levied by the local elite once benefits have been paid". Marie Chêne, Transparency International, for U4 Expert Answer: 'Corruption prevention strategies in cash transfer schemes' www.u4.no/publications/corruption-prevention-strategies-in-cash-transfer-schemes/

13. 'Pickens, M., Porteous, D. and Rotman, S., 'Banking the Poor via G2P Payments' CGAP/ DfID Focus Note 2009 58 (2009, 8)

14. Duryea and Schargrodsky (2007) in Bold and Rotman (2010).

15. Harmer A, Harvey P, and Odhiambo M, *Food assistance integrity study: analysis of the 2011 drought response in Kenya*, Transparency International Kenya, 2012, www.transparency.org/news/pressrelease/20120321_drought_response (accessed 26 July 2012).

16. World Bank (2007) in Pickens, M., Porteous, D. and Rotman, S. (2009, 8). Also see Marie Chêne, Transparency International, for U4 Expert Answer: 'Corruption prevention strategies in cash transfer schemes' www.u4.no/publications/corruption-prevention-strategies-in-cash-transfer-schemes/

17. Presentation for DfID by Abrar Mir, United Bank Limited Pakistan, January 2012 and personal communication with author from Visa com.

E-payments have the potential to reduce waiting times at paypoints and distribution costs. Agents need minimal infrastructure to set up a paypoint – a mobile phone connection and a POS that can be charged with a solar panel – hence it is possible to set up a larger number of paypoints even in remote areas with no roads or electricity. A network of agents is used in remote, arid Northern Kenya to make payments under the Hunger Safety Net cash transfer, though some paypoints (particularly in Wajir district) are reportedly still long distances from target communities.¹⁸

E-payment also means recipients can choose when to collect their cash payment, which improves security and allows them more discretion over how the money is used. This was cited as a major benefit by programme managers and recipients alike in the Haiti earthquake response, where levels of robbery and crime were a significant threat to physical cash distributions at designated locations.¹⁹



Frederic Dupoux/HelpAge International

Jean Simon Wilner, 74, is part of HelpAge's cash transfer programme to help older people recover from the earthquake.

HelpAge provided 25,000 older people and their families with food, cash, shelter, mobility aids and survival kits after the Haiti earthquake in January 2010. Cash was delivered through the mobile payment system T-Cash from mobile operator Voilà. Recipients felt that e-payments were more secure because they didn't have to queue in public to collect the cash and had a PIN identifier, so no one else could claim their cash payment.

Source: See HelpAge International website www.helpage.org/where-we-work/caribbean/haiti/ (accessed 23 July 2012)

Promoting financial inclusion

E-payment systems have the potential to deliver broader benefits by making other banking services such as current accounts and savings accounts accessible to cash transfer recipients. To achieve this, the recipient's account into which the cash transfer is paid (which the recipient accesses through a mobile phone or magstripe card) must be linked to the mainstream banking system and be able to store money and make transfers, e.g. to pay bills or send payments to other bank accounts.²⁰ This potential does not exist for systems that use proprietary technology such as biometric identification or some types of smartcards as these are not compatible with the mainstream banking infrastructure. There are only a few government-funded cash transfer programmes using financially inclusive payment systems at present, and financial inclusion is by no means automatic; evidence shows that many recipients are reluctant to save or store money in these accounts and few are currently accessing other services.²¹

18. Personal communication to HelpAge International as part of targeting review for the Hunger Safety Net Programme (HSNP), Kenya

19. see Smith et al, 2012, p.45

20. To be financially inclusive, the account must provide safe storage of funds and transactional capability – that is, enabling the recipient to save money, make payments from the account or access loans and insurance. See Pickens et al, 2009

21. Chris Bold, former Financial Sector Specialist at the Consultative Group to Assist the Poor (CGAP), personal communication with author, January 2012.

Lack of regulatory and physical infrastructure

Most e-payment systems have been set up in middle-income countries where networks of branchless bank agents already exist. However, most developing countries (estimated at 60 per cent)²² lack the regulatory infrastructure necessary to transfer money between banks and payment agents who are not physically located in bank branches. This problem can, however, be resolved with new regulatory infrastructure; it would require substantial extra time and investment but would have wider developmental benefits in the longer term. However, even where branchless banking networks are relatively well developed, such as in Kenya, coverage can be patchy; more agents may be concentrated in urban areas, and some may have problems with cash flow. Mobile network coverage can also be an issue – though this is easier to resolve with additional investment.

Commissioning and managing technology providers

Many cash transfer programme managers may need additional training or support to develop the skills needed to confidently assess which is the most appropriate technology platform or technology provider. These skills include commissioning technology, managing and negotiating with private providers and banks, and understanding financial and legislative requirements in-country. Private technology providers may also be on a steep learning curve if they are setting up e-payment systems for cash transfer programmes for the first time.

Is recipients' age, illness or illiteracy a barrier to using e-payments?

Older people, people with chronic illnesses or disabilities, and those with visual impairments may find it difficult to use new technology such as mobile phones. Low levels of education or literacy may impede take-up initially, however, recent evidence shows that there is already wide use of mobile phones amongst older people and people with little or no education.²³ People of all ages appreciate the additional benefits of improved communication, convenience and income-generation opportunities of owning a mobile phone.²⁴ Investment in training and awareness-raising and allowing a named relative to withdraw cash on behalf of the recipient can also help.²⁵ In addition, some programmes have provided hands-on assistance in how to use technologies such as mobile phone, biometric devices and smartcards at paypoints – for example, through community volunteers.²⁶

Are e-payments suitable for emergency response?

The government of Pakistan's 2009 flood response delivered 1 million prepaid smartcards to recipients in 70 days, probably the largest emergency response using an e-payment system. This response could not have been delivered at such speed without pre-existing use of branchless bank agents and a sophisticated national identification system. A recent report reviews the use of e-payments in four emergency cash transfer programmes and details considerable benefits including: improved security for staff and recipients; reduced leakage; improved reconciliation and control of expenditure; greater speed and efficiency of transfers; and reduced costs for the agency and recipient.²⁷ However, the existence of a functioning network of payment agents and enabling regulatory infrastructure were noted as key to these positive outcomes – something that is unlikely to be in place in many emergency contexts, particularly those in low income countries or fragile states.²⁸ Where there is no agent network, the relatively short term of emergency response programmes and the smaller recipient base compared to longer term cash transfer programmes may make e-payment systems unviable in many emergency response contexts.

22. Ibid.

23. A 2012 research survey of older people in Kibaha district, Tanzania showed that 41% of older men and 15% of older women owned mobile phones and older people reported mobile phones were widely available to them through relatives and friends. People appreciated being able to talk with family without having to travel, and being able to order 'bodaboda' (motorbike) taxis. Collaborative research project between Kibaha Local Government Authority, HelpAge International Tanzania, Good Samaritan Social Services Trust, Research on Poverty Alleviation [REPOA] and Durham University, UK.

24. Vincent, K, Cull T, and Freeland N, "Ever upwardly mobile": How do cellphones benefit vulnerable people? Lessons from farming cooperatives in Lesotho', Wahenga brief, No. 16, Regional Hunger & Vulnerability Programme, February 2009.

25. Vincent et al, 2009

26. "Hands-on presence on the ground and interaction with recipients were deemed essential to support recipients through the process. Some considered this a requirement for oversight of the cash-out or purchase process (including ACF, WFP and Mercy Corps). Concern's program in Niger, WFP's in DR Congo and Help Age's in Haiti are examples of where agencies had community animators on hand to assist with the cash-out process through mobile money. Some target groups are likely always to require this type of support." Smith et al, 2012, p.22

27. Smith et al, 2012

28. Smith et al, 2012

HelpAge International helps older people claim their rights, challenge discrimination and overcome poverty, so that they can lead dignified, secure, active and healthy lives.

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Conclusion

There is growing interest in the use of e-payment systems as the mode of payment in cash transfer programmes. Money transferred to programme recipients through mobile phone accounts or smartcards has the potential to cut costs, reduce leakage, improve accessibility and provide better security compared to physically delivering cash to fixed paypoints in bank branches or post offices. However, most countries lack the regulatory or physical infrastructure necessary, and most crucially, an extensive network of 'branchless' bank agents from whom recipients can collect cash payments.

Investing in an appropriate regulatory framework, a payment agent network and providing training and technology to agents and recipients can incur substantial set-up costs which make e-payment systems more expensive than physical payment systems in most low income countries in the short term. Whether these set up costs are born primarily by the programme provider – who benefits from the use of the technology provider's infrastructure – or by the private technology provider – who benefits from extending their client base into new areas – needs careful negotiation at contract stage. Programme providers must weigh the initial set-up costs against wider development benefits and the potential to make savings in average costs over the entire period of programme implementation. E-payment systems in emergency response contexts where there is no existing payment agent network is less likely to be cost-effective as the programme lifetime is shorter and the number of recipients is relatively small.

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