



Third World Quarterly >

Volume 30, 2009 - [Issue 7](#)

4,675 Views

161 CrossRef citations to date

9

Altmetric

Articles

Mobile Phones and Financial Services in Developing Countries: a review of concepts, methods, issues, evidence and future research directions

Richard Duncombe & Richard Boateng

Pages 1237-1258 | Published online: 12 Oct 2009

Cite this article <https://doi.org/10.1080/01436590903134882>

Sample our
Global Development
Journals



>> [Sign in here](#) to start your access
to the latest two volumes for 14 days

Full Article

Figures & data

Citations

Metrics

Reprints & Permissions

Read this article

Share

Abstract

Research concerning mobile phones and financial services in developing countries has undergone rapid growth in recent years. This paper seeks to improve understanding of the current state of knowledge by reviewing the content of 43 research articles. A framework is developed that differentiates research activity according to a lifecycle model that incorporates financial needs, design, adoption and impact. The review finds that research to date has resulted in a high level of practitioner involvement, providing valuable links from the mobile phone industry to the research community but, as a consequence, research has become too narrowly defined. Thus, issues of assessing financial need and the measurement of impact have been comparatively neglected, while application design and adoption studies have received greater attention. This

paper suggests a future direction for research and practice within the mainstream of micro-financial services and finance for the poor, correcting this imbalance, and contributing towards the mobiles-in-development-research agenda.

Notes

1 Consultative Group to Assist the Poor (CGAP), *Banking on Mobiles: Why, How, for Whom?*, Focus Note 48, Washington, DC: CGAP, 2008, at <http://www.cgap.org>, accessed 6 August 2008 [10].

2 The most recent International Telecommunication Union (ITU) data show that in the case of the poorest continent—Africa—mobile penetration for individual countries has increased from an average of 2% of total population in 2000 to an average of 25% in 2007. This impressive growth masks extreme variations between countries, but overall mobile cellular networks have now extended coverage to over 60% of the total African population, creating network access potential for previously un-served communities in some of the poorest countries. Many sub-Saharan African countries with a GDP per capita of less than US\$500 (in 2007) are fast approaching near universal mobile network coverage. For example, Ghana stands at 68%, Rwanda at 80%, Sierra Leone at 70% and Uganda at 80% coverage of the total population. ITU, *ICT Statistics Database*, Geneva: International Telecommunication Union, 2008, at <http://www.itu.int/ITU-D/ict/e/Indicators/Indicators.aspx>, accessed 27 November 2008.

3 J Donner, 'M-banking and m-payments services in the developing world: complements or substitutes for trust and social capital?', Working Paper 1, *Most Mobiles*, 29 June 2007, at <http://www.jonathandonner.com>, accessed 1 April 2008.

4 See M Shahrokhi, 'E-finance: status, innovations, resources and future challenges', *Managerial Finance*, 34 (6), 2008, pp 365–398; and T Dahlberg, N Mallat, J Ondrus & A Zmijewska, 'Past, present and future of mobile payments research—a literature review', *Electronic Commerce Research and Applications*, 7 (2), 2008, pp 165–181.

5 Donner & Tellez classify these three functions of m-finance as the ability to: 1) store value in a remote account accessible by a handset; 2) convert cash in and out of the stored value account by visiting a bank branch or a retail agent that may be located

locally in a kiosk; and 3) transfer the stored value between accounts of individual account holders by means of text message or menu-driven commands and PIN numbers. J Donner & CA Tellez, 'Mobile banking and economic development: linking adoption, impact and use', pre-publication draft for Asian Journal of Communication, at http://www.jonathandonner.com/donner_tellez_mbanking_use.pdf, accessed 20 September 2008 [17].

6 Porteous defines 'mobile payments' as financial transactions undertaken using mobile devices such as a mobile phone. Mobile banking (m-banking) includes m-payments but involves access by mobile devices to the broader range of banking services, such as account-based savings or transaction products offered by banks. M-payments and m-banking are themselves subsets of the broader domains of e-payments and e-banking respectively. D Porteous, The Enabling Environment for Mobile Banking in Africa, report commissioned by the UK Department for International Development (DFID), Somerville, MA: Bankable Frontier Associates, July 2006, p 3, at <http://www.bankablefrontier.com>, accessed 4 April 2008 [31].

7 Research carried out by James & Versteeg distinguishes between mobile phone subscribers, owners and users and points to some of the methodological problems of defining access to mobile phone services, and the difficulties in relying on data from published sources (eg the ITU) that define mobile phone penetration according to the number of subscriptions per head of population. J James & M Versteeg, 'Mobile phones in Africa: how much do we really know?', Social Indicators Research, 84, 2007, pp 117-126.

8 Based on a schema used by RB Heeks (ed), 'Theorizing ICT4D research', Information and Communication Technologies and International Development (special issue), 3 (3), 2006, pp 1-4, at <http://www.mitpressjournals.org/toc/itid/3/3>, accessed 8 August 2008.

9 Search criteria cross-referenced key words linked to mobile technologies (eg mobile networks, cell phones, mobile phones) with those linked to finance (eg financial services, finance, payments, remittances, banking, transfers) and those linked with the developing country contexts (eg developing countries, the poor, the unbanked).

10 On-line searches were conducted accessing a broad range of databases from within the social sciences—incorporating a broad range of disciplines—economics, banking and finance, development studies, business and management studies, as well as more specialised disciplines that cross into the socio-technical and technical domains:

computer science, informatics, information systems and information and communication technologies for development (ICT4D). Databases searched were: ABI-Inform (ProQuest), EBSCO Business Source Premier, Emerald Fulltext and Science Direct, as well as more general searches using both Google and Google Scholar. Additionally, a number of websites specialising in the dissemination of research concerning mobile phones and development were searched (kiwanja.net/ dgroups.org/; mobileactive.org).

11 S Batchelor, N Scott & S Hearn, Senegal Household Survey M-Payments Analysis: Transformational M-Payments, in Association with DFID—Catalysing access to ICTs in Africa, London: Gamos, 2007, at <http://www.gamos.org.uk>, accessed 2 February 2008 [4].

12 N Hughes & S Lonie, 'M-PESA: mobile money for the "unbanked": turning cellphones into 24-hour tellers in Kenya', *Innovations: Technology, Governance, Globalization*, 2 (1-2), 2007, pp 63-81 [19].

13 S Aminuzzaman, H Baldersheim & I Jamil, 'Talking back: empowerment and mobile phones in rural Bangladesh—a study of the village pay phone of the Grameen Bank', *Contemporary South Asia*, 12 (3), pp 327-348 [1].

14 CGAP, *Use of Agents in Branchless Banking for the Poor: Rewards, Risks and Regulation*, Focus Note 38, Washington, DC: CGAP, 2006, at <http://www.cgap.org>, accessed 2 April 2008 [8]; and Porteous, 'The enabling environment for mobile banking in Africa'[31]. See also CGAP, *Regulating Transformational Branchless Banking: Mobile Phones and Other Technology to Increase Access to Finance*, Focus Note 43, Washington, DC: CGAP, 2008, at <http://www.cgap.org>, accessed 6 August 2008 [9]; and CGAP, *Banking on Mobiles*[10].

15 Hughes & Lonie, 'M-PESA'; P Vaughan, 'Early lessons from the deployment of M-PESA, Vodafone's own mobile transactions service', in D Coyle (ed), *The Transformational Potential of m-Transactions*, Policy Paper Series 6, London: Vodafone, 2007, at <http://www.vodafone.com/m-transaction>, accessed 4 April 2008 [36]; and M Kapoor, J Morduch & S Ravi, 'From microfinance to m-finance—innovations case discussion: M-PESA', *Innovations: Technology, Governance, Globalization*, 2 (1-2), pp 82-90 [24].

16 InfoDev, *Micro-payment Systems and their Application to Mobile Networks: An InfoDev Report*, Washington, DC: World Bank, January 2006, at <http://www.infodev.org>, accessed 2 April 2008 [20]; and H Williams & M Torma, 'Trust and fidelity: from under

the mattress to the mobile phone', in Coyle, *The Transformational Potential of m-Transactions*[42].

17 G Ivatury & M Pickens, *Mobile Phone Banking and Low Income Customers: Evidence from South Africa*, Washington, DC: CGAP, World Bank and United Nations Foundation, 2006, at <http://www.cgap.org>, accessed 4 April 2008 [21].

18 M Knight-John, A Zaindeen & S Khan, 'An investigation of the replicability of a microfinance approach to extending telecommunications access to marginal customers', Discussion Paper WDR0506, Version 3.1, *World Dialogue on Regulation of Network Economies*, 2005, at <http://www.regulateonline.org>, accessed 12 May 2008 [25].

19 EC Jimenez & PB Roman, 'Electronic banking: delivering microfinance services to the poor in the Philippines', *Banking with the Poor Network*, Singapore, 2005, at <http://www.bwtp.org/pdfs/arcm/jimenez.pdf>, accessed 20 April 2008 [22].

20 I Brown, Z Cajee, D Davies & S Stroebel, 'Cell phone banking: predictors of adoption in South Africa—an exploratory study', *International Journal of Information Management*, 23, 2003, pp 381–394 [7].

21 UNCTAD, 'E-banking and e-payments: implications for developing and transitional economies', in UNCTAD, *Information Economy Report 2007–2008: Science and Technology for Development—The New Paradigm of ICT*, Geneva: United Nations, 2007, ch 5 [39].

22 G Coetzee, K Kabbucho & A Njema, 'Taking banking services to the people: Equity's mobile banking unit', *Microsave*, Nairobi, 2003, at www.microsave.org, accessed 3 April 2008 [14].

23 A Bayes, 'Infrastructure and rural development: insights from a Grameen Bank village phone initiative in Bangladesh', *Agricultural Economics*, 25, 2001, pp 261–272 [5].

24 J Goodman & V Walia, 'Airtime transfer services in Egypt', in Vodafone, *The Transformational Potential of m-Transactions*, Vodafone Policy Paper Series 6, 2007, section 4, at <http://www.vodafone.com/m-tran/sactions>, accessed 4 April 2008 [18].

25 See, for example, J Chipchase & I Tulusan, 'Shared phone practices: exploratory field research from Uganda and beyond', *Future Perfect*, 2007, at <http://www.janchipchase.com/sharedphoneuse>, accessed 6 April 2008 [12].

26 Ivatury & Pickens, Mobile Phone Banking and Low Income Customers.

27 For a more detailed description of this categorisation of approaches to ICT4D research, see Heeks, 'Theorizing ICT4D research'.

28 Y Au & RJ Kauffman, 'The economics of mobile payments: understanding stakeholder issues for an emerging financial technology application', *Electronic Commerce Research and Applications*, 7 (2), 2008, pp 141–164 [2].

29 Williamson 1985; Prahalad 2005.

30 Knight-John et al, 'An investigation of the replicability of a microfinance approach to extending telecommunications access to marginal customers'.

31 Donner & Tellez, 'Mobile banking and economic development'; and J Benamati & MA Serva, 'Trust and distrust in online banking: their role in developing countries', *Information Technology for Development*, 13 (2), 2007, pp 161–175 [6].

32 F Shamin, 'The ICT environment, financial sector and economic growth: a cross country analysis', *Journal of Economic Studies*, 34 (4), 2007, pp 352–370 [37].

33 See K Pousttchi & DG Wiedemann, 'What influences consumers' intention to use mobile payments?', Mobile Communications Working Group, University of Augsburg, 2007, at <http://www.marshall.usc.edu/assets/025/7534.pdf>, accessed 8 August 2008 [33]; and K Pousttchi, 'Conditions for acceptance and usage of mobile payment procedures', in G Giaglis, H Werthner, V Tschammer & K Foeschl, *Proceedings of m-Business 2003—The Second International Conference on Mobile Business*, Vienna, 2003, at <http://mpra.ub.uni-muenchen.de/2912/>, accessed 8 August 2008 [34].

34 Brown et al, 'Cell phone banking'.

35 S Choi, D Collins, G Mastuszak & S Collins, 'Mobile payments in Asia Pacific', *Information, Communications & Entertainment*, KPMG, 2007, at http://www.kpmginsiders.com/pdf/Mobile_payments.pdf, accessed 11 August 2008 [13]; and S Kadhlwal & M Anwar, 'Analysis of mobile payment security measures and different standards', *Computer Fraud & Security*, June 2007, pp 11–16 [23]; D Porteous & N Wishart, *m-Banking: A Knowledge Map*, Washington, DC: World Bank, 2006, at <http://www.infodev.org/en/publication.169.html>, accessed 3 April 2008 [30]; Bankable Frontiers Associates, *Scoping Report on the Payment of Social Transfers through the Financial System*, Somerville, MA: Bankable Frontier Associates, July 2006, at

<http://www.bankablefrontier.com>, accessed 4 April 2008 [16]; and T Tsiakis & G Sthephanides, 'The concept of security and trust in electronic payments', *Computers and Security*, 24 (1), pp 10–15 [38].

36 Batchelor et al, *Senegal Household Survey M-Payments Analysis*; CGAP, *Banking on Mobiles*; and CGAP, *Regulation of Transformational Branchless Banking*.

37 Williams & Torma, 'Trust and fidelity'.

38 H Yu, K His & P Kuo, 'Electronic payment systems: an analysis and comparison of types', *Technology in Society*, 24 (3), 2002, pp 331–347 [43].

39 For a discussion of these issues, see V von Reijswoud, 'Mobile banking—an African perspective', *World Dialogue on Regulation for Networked Economies*, 2007, at <http://www.regulateonline.org/content/view/948/63/>, accessed 20 September 2008 [43].

40 D Porteous, *Just How Transformational is m-Banking?*, Somerville, MA: Bankable Frontier Associates, 2007, at http://www.finmarktrust.org.za/accessfrontier/Documents/transformational_mbanking.pdf, accessed 20 September 2008 [32].

41 Williams & Torma, 'Trust and fidelity'.

42 TS Parikh & ED Lazowska, 'Designing an architecture for delivering mobile information services to the rural developing world', in *Proceedings of the 15th International Conference on the World Wide Web* (Edinburgh, 23–26 May 2006), New York: ACM Press, at <http://doi.acm.org/10.1145/1135777.1135897>, accessed 25 March 2008 [29].

43 This model focuses specifically on mobile phone applications, but links into a broader avenue of research that falls outside the remit of this review. This includes a growing number of studies that investigate the adoption and use of ICTs by micro-finance institutions. These include use of ICTs for upgrading internal information systems as well as externally facing systems linking with micro-finance clients. See, for example, N Magnette & D Lock, *What Works: Scaling Microfinance with the Remote Transaction System—Increasing Productivity and Scale in Rural Microfinance*, Washington, DC: World Resources Institute, 2005, at <http://www.digitaldividend.org/pdf/rts.pdf>, accessed 22 July 2008.

44 Aminuzzaman et al, 'Talking back'.

45 KB Saji & A Agarwal, *Mobile Payments—Six Issues*, Lucknow: Indian Institute of Management, 2006, at <http://www.scribd.com/doc/2241323/Mobile-Payment-I-Six-Issues>, accessed 8 August 2008 [35]; and Saji & Agarwal, 'Antecedents of business to business m-payment technology adoption', paper presented to the second IIMA conference on 'Research in Marketing', Indian Institute of Management, Ahmedabad, 3-5 January 2007 [36].

46 Hughes & Lonie, 'M-PESA'; and Vaughan, 'Early lessons from the deployment of M-PESA'.

47 Action research is a reflective process of problem solving led by individuals or teams or as part of a 'community of practice' to address issues and solve problems. Action research can also be undertaken by organisations, assisted or guided by professional researchers, with the aim of improving their strategies, practices and knowledge of the environments within which they practise. See, for example, DJ Greenwood & M Levin, *Introduction to Action Research: Social Research for Social Change*, Thousand Oaks, CA: Sage, 1998.

48 Porteous, *Just How Transformational is m-Banking?*.

49 JH Cheong, M Park & JH Hwang, 'Mobile payment adoption in Korea: switching from credit cards', paper presented to the 15th International Telecommunication Society—Europe Regional Conference, Berlin, 5-7 September 2004, at http://www.itseurope.org/ITS%20CONF/berlin04/Papers/Hwang_paper.pdf, accessed 11 August 2008 [11].

50 Donner & Tellez, 'Mobile banking and economic development'; and O Morawczynski & G Miscione, 'Examining trust in mobile banking transactions in Kenya: the case of M-PESA in Kenya', paper presented at the IFIP WG 9.4-University of Pretoria Joint Workshop, Pretoria, 2008, at <http://www.springerlink.com/content/u1r30876431x3432/>, accessed 20 September 2008 [28].

51 D Cracknell, 'Electronic banking for the poor—panacea, potential and pitfalls', *Small Enterprise Development*, 15 (4), 2004, pp 8-24 [15]; and B Maurer, 'Retail electronic payment systems for value transfers in the developing world', Department of Anthropology, University of California, Irvine, 2008, at http://www.anthro.uci.edu/faculty_bios/maurer/Maurer-Electronic_payment_systems.pdf, accessed 20 September 2008 [26].

52 Since 2000 there has been an unprecedented growth in the outreach of Brazil's banking system. The most striking has been the huge expansion in 'correspondent banking outlets', with 32 000 new outlets created between 2000 and 2004. The correspondent outlets focus mostly on transaction and payment services, including government benefits and payment receipts, as well sale of pre-paid cell phone cards and SIM cards. Correspondent outlets have been particularly successful in reaching poor clients, thanks to the considerable reduction in variable and fixed costs of providing services. See A Kumar, A Nair, A Parsons & E Urdapilleta, 'Expanding bank outreach through retail partnerships: correspondent banking in Brazil', World Bank Working Paper 85, Washington, DC: World Bank, 2006.

53 D Balaban, 'Going mobile with remittances, technology, mobile banking', *Cards & Payments*, April 2008, at <http://www.cardsandpayments.net>, accessed 2 June 2008 [3].

54 S Mendes, E Alampay, E Soriano & C Soriano, 'The innovative use of mobile applications in the Philippines—lessons for Africa', Swedish International Development Agency (SIDA), Stockholm, 2007, at <http://www.sida.se/publications>, accessed 4 April 2008 [27].

55 See, for example, I Matin, D Hulme & S Rutherford, 'Finance for the poor: from microcredit to microfinancial services', *Journal of International Development*, 14, 2002, pp 273-294.

56 See G Walsham & S Sahay, 'Research on information systems in developing countries: current landscape and future prospects', *Information Technology for Development*, 12 (1), 2005, pp 7-24.

57 James & Versteeg, 'Mobile phones in Africa'.

58 The methodology of the review has sought to search out a comprehensive range of literature concerning m-finance in developing countries and apply an objective and balanced analysis, but some limitations to the review are also noted: First, there are gaps in the literature coverage as a result of coverage being limited to peer-reviewed journals and other non-peer-reviewed sources printed in the English language. Coverage is also biased towards those countries where m-finance initiatives are underway, with a particular focus on African English speaking countries such as South Africa and Kenya. Second, the review included available published sources only, which

may have excluded 'grey literature' and other reports or studies compiled in developing countries that have not been disseminated via established networks.

Related Research Data

[Recent applications of economic theory in information Technology research](#)

Source: Decision Support Systems

[The Economic Institutions of Capitalism: Firms, Markets, Relations, Contracting.](#)

Source: The Economic Journal

[Wider impacts of microfinance institutions: issues and concepts](#)

Source: Journal of International Development

[Interaction between the formal and informal financial sectors: The Asian experience](#)

Source: World Development

[Past, present and future of mobile payments research: A literature review](#)

Source: Electronic Commerce Research and Applications

[Integrated Impact Assessment for Sustainable Development: A Case Study Approach](#)

Source: World Development

[The ICT environment, financial sector and economic growth: a cross-country analysis](#)

Source: Journal of Economic Studies

[Mobile phones in Africa: how much do we really know?](#)

Related research

People also read

Recommended articles

Cited by
161

[Financial inclusion research around the world: A review](#) >

Peterson K. Ozili

Forum for Social Economics

Published online: 25 Jan 2020

[On the Fintech Revolution: Interpreting the Forces of Innovation, Disruption, and Transformation in Financial Services](#) >

Peter Gomber et al.

Journal of Management Information Systems

Published online: 30 Mar 2018

Information for

[Authors](#)

[R&D professionals](#)

[Editors](#)

[Librarians](#)

[Societies](#)

Opportunities

[Reprints and e-prints](#)

[Advertising solutions](#)

[Accelerated publication](#)

[Corporate access solutions](#)

Open access

[Overview](#)

[Open journals](#)

[Open Select](#)

[Dove Medical Press](#)

[F1000Research](#)

Help and information

[Help and contact](#)

[Newsroom](#)

[All journals](#)

[Books](#)

Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2026 Informa UK Limited [Privacy policy](#)

[Cookies](#) [Terms & conditions](#) [Accessibility](#)

Registered in England & Wales No. 01072954
5 Howick Place | London | SW1P 1WG



Taylor & Francis
by informa