Research Article

Perceptions of Digital Financial Services in Rural Fiji

Glen Finau
Nacanieli Rika
Jale Samuwai

University of the South Pacific, Fiji

James McGoon

The Reserve Bank of Fiji, Fiji

Abstract

This article examines rural dwellers' perceptions of digital financial services (DFS) to identify which factors may enhance or impede their adoption. The article is based on a survey and follow-up interviews in rural Fijian communities with relatively low income levels. In Fiji, DFS are provided by mobile network operators, either individually or in collaboration with commercial banks. The provision of these services is consistent with policies of the Fijian government and The Reserve Bank of Fiji, which advocate financial inclusion as a means of promoting economic growth and enabling citizens to more efficiently receive remittances and welfare payments. However, the survey findings indicate that DFS uptake is hindered by agents' lack of liquidity and the implicit costs that agents impose on consumers. In addition, consumers tend to fully spend the funds received through mobile money, but fail to use their mobile phones for saving purposes.

Introduction

This article examines rural dwellers' perceptions of the benefits of and deterrents to digital financial services (DFS), particularly those provided through a mobile phone platform (mobile money). These services facilitate financial inclusion by giving consumers access to financial services relevant to their needs, used frequently beyond a short time, and ultimately, improve their welfare (Alliance, 2010). In developed nations, where people are more likely to have bank accounts, DFS provide their customers with flexibility in accessing financial services. In less developed countries DFS can increase the proportion of the population participating in the formal financial system, particularly among rural communities that have previously experienced minimal access to banking and financial services. DFS can be accessed in any urban or rural area offering mobile and/or Internet coverage.

Banking and financial services support the growth of income-generating initiatives and enable people to save for their future needs and retirement. Thus, central banks strongly encourage commercial banks to develop financial inclusion programs such as rural banking and microfinancing (Mathison, 2007), which target groups often excluded from traditional financial services. Despite these sound intentions, such programs may fail because banks incur high transaction costs and experience logistical difficulties in managing these operations (Bouman & Houtman, 1988). Technology can eliminate logistical difficulties and significantly reduce transaction costs, thereby increasing financial inclusion in rural areas (Beshouri, Chaia, Cobert, & Gravråk, 2010). For instance, some commercial banks have provided rural banking services through electronic funds

To cite this article: Finau, G., Rika, N., Samuwai, J., & McGoon, J. (2016). Perceptions of digital financial services in rural Fiji. *Information Technologies & International Development* [Special Issue], *12*(4), 11–21.

transfer using point-of-sale technology hosted by retail businesses operating in rural communities. More recently, commercial banks have responded to the pervasive use of mobile and Internet technology by providing DFS in partnership with mobile network operators (MNOs).

Although mobile phones were originally designed for communication, they have evolved to incorporate other functions, ranging from entertainment, education, and time management to the dissemination of news and weather reports. Mobile phones are widely used because they are readily acquired at affordable prices without the need for the installation and connection services associated with conventional telephones (i.e., landlines). Mobile phones' advanced functionality and technological capacity create an alternate platform for financial transactions, and this has enabled telecommunication companies to offer some services traditionally provided by commercial banks. One of the most successful DFS systems using mobile phones is M-PESA, which was launched by Safaricom in 2007. M-PESA gained popularity in Kenya as a cheap, convenient, and safe medium for urban migrants to transfer money to family members in rural areas. It is used by 60% (13.3 million) of Kenya's population, and the number of annual transactions on the M-PESA network exceeds the number of global transactions by Western Union money transfer. M-PESA has also been launched in other African, Asian, and European countries, with varying degrees of success (Kendall, Maurer, Machoka, & Veniard, 2011).

This article presents survey data from Fiji, which is the second-largest economy in the South Pacific and one of the first Pacific Island countries to introduce mobile money. Previous studies on mobile money in developing countries have examined nations such as Haiti and Kenya (Horst & Taylor, 2014; Hughes & Lonie, 2007; Singh, 2013). Unlike these countries Fiji has a relatively well-developed banking infrastructure, with six commercial banks of which five are multinationals.[1] Most of these banks have already implemented mobile banking initiatives or are in the process of doing so. Fiji's central bank, The Reserve Bank of Fiji, has used national financial inclusion strategies to advocate for mobile money in general as well as the deployment of mobile money initiatives for unbanked rural dwellers. In this regard it has worked closely with commercial banks, MNOs, and other development partners such as the Pacific Financial Inclusion Programme.[2]

This article extends the literature by examining perceptions of mobile money among rural communities in a small island developing state and specifically considers the impact of financial literacy training. The article also includes a literature review of mobile money, the context and design for the study, analyses of findings disaggregated by demographic factors, and a summary of practical implications.

Mobile Money Adoption in the Developing World

This section reviews four themes examined in the literature on mobile money, including mobile money ecosystems (Jenkins, 2008); consumer adoption (Duane, O'Reilly, & Andreev, 2014; Jaradat & Al-Mashaqba, 2014; Mas & Morawczynski, 2009; Medhi, Ratan, & Toyama, 2009); the nexus between mobile money and economic development (Abraham, 2007; Aker & Mbiti, 2010; Jack & Suri, 2011); and legal, security, and regulatory issues (Chatain, Zerzan, Noor, Dannaoui, & de Koker, 2011; Hughes & Lonie, 2007; Maurer, 2008).

Mobile money ecosystems create the platform for mobile transactions and these ecosystems use a currency known as mobile money (or m-money; Hughes & Lonie, 2007). Mobile money allows consumers to store electronic value in a mobile wallet on their mobile phone. Mobile phone companies tend to be "young and fast moving," unlike banks, which are "old, traditional, conservative, and slow moving" (Hughes & Lonie, 2007, p. 64). Characteristically, mobile phone companies constantly enhance their suite of financial products and rapidly introduce them across their global networks (Donner & Tellez, 2008). Mobile money ecosystems now facilitate the purchase of bus tickets, groceries, prepaid airtime, and micro-insurance[3] (Jenkins, 2008). In many countries, mobile subscribers can use mobile money for a wide range of transactions, including bill payments, domestic and international remittances, loan receipts and repayments, and payroll deposits.

1. ANZ (domiciled in Australia), Westpac (domiciled in Australia), Bank of the South Pacific (domiciled in Papua New Guinea), Bank of Baroda (domiciled in India), and BRED Bank (domiciled in France).

2. Cofunded by AusAID and the UN Development Programme.

3. Microinsurance relates to insurance specifically provided to people with low-income levels.

The identified factors that enhance or impede the adoption of mobile money are as follows. Consumers are more likely to adopt mobile money if they trust the mobile money ecosystem, have been exposed to mobile phones from a young age, and encounter positive experiences with mobile money agents. Consumers are unlikely to use mobile payment systems unless they perceive them as safe and reliable. An Irish study found that trust was "the most powerful factor influencing consumers' willingness to use Smart Phones to make m-Payments" (Duane, O'Reilly, & Andreev, 2014, p. 319). Moreover, younger consumers who have grown up with mobile technology may be more receptive to using mobile money than older consumers. This view is supported by a Jordanian study of undergraduate university students that found 62% of respondents were willing to make purchases using their mobile phones (Jaradat & Al-Mashaqba, 2014).

Retail agents play a pivotal role in promoting consumer adoption by marketing mobile money services. In Kenya, Safaricom closely monitors the retail agents to ensure that consumers receive a positive experience, which could increase their disposition to conduct further transactions and to ensure that retail agents maintain sufficient liquidity to satisfy consumers' withdrawal requests (Ngugi, Pelowski, & Ogembo, 2010). In addition, Safaricom leverages its own brand image by instructing agents to remind consumers that all transactions were with Safaricom and not with the agent (Mas & Morawczynzski, 2009). However, despite the benefits associated with mobile money, agents may lack sufficient incentives to promote it. For example, a major impediment for mobile money agents in the Philippines is the smaller commission they receive for mobile money transactions than for selling airtime. Moreover, consumers lack trust in mobile money agents because they do not always pay out the full amount sent to recipients (Pickens, 2009).

Mobile money does offer rural and economically marginalized communities an affordable way to access formal financial services (Hughes & Lonie, 2007). This is particularly pertinent in developing countries where rural dwellers may be financially reliant on remittances from family members and relatives who work in urban centers or reside overseas. Although remittances represent a significant portion of income for some rural dwellers, these communities have traditionally experienced significant challenges in accessing financial services. Mobile money may alleviate these challenges by reducing the time and costs associated with receiving remittances, although the benefits are countered by implicit costs to the sender. Kusimba, Chaggar, Gross, and Kunyu (2013) found that in Kenya the ease of transferring funds by mobile money led to increased financial demands for remittances from relatives and others.

Mobile money can also contribute to broader economic development (Aker & Mbiti, 2010), especially where financial exclusion has disadvantaged the poor by restricting their participation in the formal economy (World Bank, 2007). This is particularly important in poorly organized markets that consist of small-scale producers who cannot afford large investments in information and communication technology. For instance, mobile phones provided fisherfolk in Indian communities with an efficient way to communicate with buyers, ultimately enhancing the productivity of their microenterprises (Abraham, 2007).

The role of regulatory frameworks for mobile money systems for many developing countries has led to the implementation of national policies aimed at increasing access to banking and financial services. However, consumers may revert to informal financial systems if regulatory frameworks are overly burdensome (Chatain et al., 2011), for example, when consumers are required to provide photographic identification when registering for mobile money. Such requirements may prohibit people (particularly in remote areas) from accessing the financial system, particularly in countries where personal identity documents lack photographs and a significant portion of the population has no formal address. These challenges highlight the need for regulations that are contextual and flexible and are phased in gradually. Regulators can create the space for experimentation and, as experience accumulates, build the policy frameworks needed to encourage further growth (Jenkins, 2008).

While most previous studies have been conducted in emerging African and Asian economies, including early adopters such as Kenya, little research has been conducted in Pacific Island countries, which are among the fastest adopters of digital technology. This article addresses that gap through a study of Fiji's mobile money environment. In addition, previous studies have not considered how mobile money adoption is impacted by financial literacy training provided by banks, nongovernmental organizations, and registered training providers such as schools and universities. Financial literacy training may address attitudes, behavior, knowledge, and

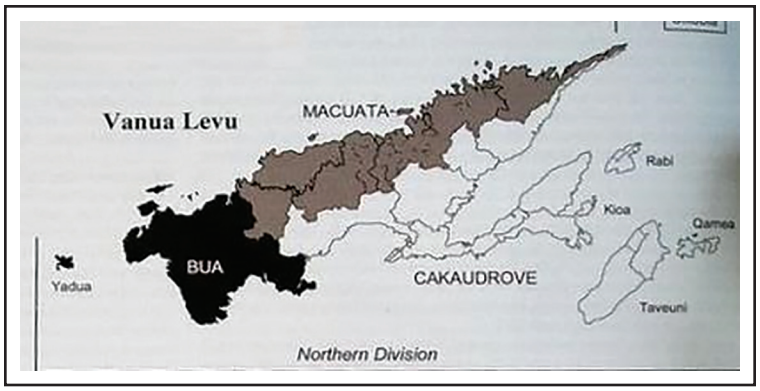

Figure 1. Map of Vanua Levu, showing its three provinces.

skills in various areas, including budgeting, expenditures, savings, and setting financial goals. It could help consumers effectively select and use financial services, irrespective of whether they are provided through digital or nondigital platforms.

Background and Context

The revolution in mobile technology has significantly transformed the financial landscape, prompting banks to provide financial services through digital platforms (Prakash & Gounder, 2007). In Fiji the number of people who own a mobile phone far exceeds those with a bank account (Cave, 2012). Mobile money is primarily facilitated by three MNOs (Vodaphone, Digicel, and Inkk), which collectively reach an estimated 90% of Fiji's population (Rika, Finau, & Samuwai, 2015). Banks are leveraging MNOs' reach to enhance their own banking services to rural areas.

The largest MNO in Fiji is Vodafone, with a share of the mobile network estimated at 88%. Vodafone's nearest competitor is Digicel, and the third operator is Inkk mobile, a low-cost mobile network that uses Vodafone's network. In 2010, Vodafone launched Fiji's first mobile money service, known as M-Paisa. Based on the Kenyan M-PESA, M-Paisa was initially conceived as facilitating loan disbursements and repayments from microfinance institutions such as South Pacific Business Development, but later evolved to include utility bill payments. M-Paisa enables rural dwellers to receive loans (Sathye, Prasad, Sharma, Sharma, & Sathye, 2014), welfare allowances (Leonard, 2011), and salary payments. Vodafone also facilitates foreign remittances in collaboration with World Remit. In 2011, Digicel introduced its own mobile money product, called Digi Money. Like M-Paisa, Digi Money offers a wide range of services, including overseas money transfers (through KlickEx) as well as domestic and international bill payments. Although foreign remittances feature prominently in Pacific economies (Jayaraman, 1996), the cost of remittances has been expensive relative to other regions (Brown & Leeves, 2007; Jayaraman, Choong, & Kumar, 2011). However, international transfer services have significantly reduced the cost of sending and receiving money (Singh, 2013).

Design

Although approximately 310,000 customers (51% of Fiji's adult population) have activated their mobile money accounts, activity rates remain low (Sathye et al., 2014). Hence, it is important to examine the deterrents to uptake of mobile money in rural areas, which account for almost half (49.2%) of the total population (Narsey, 2014). The research is based on Fiji's second-largest island, Vanua Levu, because of its relatively large rural population and limited economic development, which are both targeted through financial inclusion strategies. Compared to the main island (Viti Levu), Vanua Levu remains underdeveloped, with a large (63.2%) rural population that relies heavily on subsistence farming. The map in Figure 1 shows Vanua Levu and its three provinces.

Data were collected through a survey of 101 participants drawn from rural areas in the provinces of Bua, Cakaudrove, and Macuata. The research sites within each province were selected based on proximity to mobile money agents. The survey captured general demographic data and information on how consumers used mobile money. It also examined perceptions of benefits and deterrents to using mobile money. The survey was administered by two research assistants who conducted follow-up interviews with mobile money users. The survey and follow-up interviews were designed to address these research questions:

Table 1. Demographic Information about Participants.

Ethnicity		Gender		Age					Highest Education Level			
T	I	F	M	<21	21–30	31–40	41–50	51–60	P	S	T	V
78%	22%	44%	56%	3%	26%	35%	25%	11%	6%	25%	33%	36%

Key: T = iTaukei, I = Indo-Fijian; F = Female, M = Male; P = Primary, S = Secondary, T = Tertiary, V = Vocational.

Table 2. Average Weekly Household Income.

Below $100	$100–200	$201–300	Over $300
16%	50%	26%	8%

Q1: *What do rural users perceive as the main benefits of using digital financial services delivered through a mobile platform?*

Q2: *What do rural users perceive as the main deterrents to using digital financial services delivered through a mobile platform?*

The responses were entered into an Excel spreadsheet and analyzed using SPSS software. The findings are presented in the Analysis and Discussion section of this article.

Table 1 presents the participants' demographic details. In terms of ethnicity, most participants were iTaukei (78%), which is consistent with the overall population in rural Vanua Levu. Although there is a well-established difference in the use of money and other forms of exchange by the major ethnic groups in Fiji (see Brison, 2007), little is known about their perceptions and use of DFS. The sample included a slightly higher proportion of males (56%) than females (44%). Most participants (97%) were in the productive range of 21–60 years old, so they could be expected to earn income and use DFS. Ninety-four percent of the participants reported progressing beyond primary school; thus, they could be expected to possess sufficient literacy and numeracy skills to use DFS.

Table 2 presents information on household income.[4] The sample generally consisted of low-income earners, with 92% earning $300 or less per week, placing them below the annual income tax threshold of $16,500. Half the participants earned between $100 and $200[5] a week, which is broadly equivalent to Fiji's minimum hourly wage of $2.33.

Analysis and Discussion

In the survey questionnaire, participants were presented with potential benefits and deterrents related to DFS adoption. The factors were derived from the literature, and participants were asked to score each factor on a five-point Lickert scale, where 1 represented strong disagreement and 5 represented strong agreement. The mean scores and summarized responses are presented in Table 3 (for deterrents) and Table 5 (for benefits).

We also tested for significant differences in perceived benefits and deterrents based on participants' characteristics. Significance can be conducted using parametric or nonparametric tests; however, parametric tests can only be used when the data follow a normal distribution. The Shapiro-Wilk test indicated the data were not normally distributed;[6] therefore, we used nonparametric tests: the Mann-Whitney U Test for variables with only two categories (gender and ethnicity) and the Kruskall Wallis Test for variables with more than two categories (age, education, income, and financial literacy). Tables 4 and 6 present the p-values of the tests of significance for deterrents and benefits, respectively.

4. Unless otherwise stated, all amounts are stated in Fiji dollars.

5. Approximately AU$55 to AU$110.

6. The test produced a p-value of 0.0134, which is less than the chosen alpha of 0.05, indicating the data are not normally distributed.

Table 3. Perceived Deterrents to DFS.

	Costly	Risky	Language Difficulty	Technical Difficulty	Not Necessary
Mean score (out of 5)	3.3	2.6	2.6	2.5	2.6
Strongly agree	10%	3%	0%	1%	3%
Agree	40%	15%	16%	14%	12%
Neither agree nor disagree	28%	32%	36%	27%	31%
Disagree	19%	41%	43%	50%	48%
Strongly disagree	4%	10%	6%	9%	7%

Deterrents

Table 3 summarizes participants' perceptions of deterrents to using DFS. In general, they did not perceive DFS as risky (51% disagree; 18% agree), difficult in terms of English (49% disagree; 16% agree), technically complicated (59% disagree; 15% agree), or unnecessary (55% disagree; 15% agree).

The strongest deterrent to using DFS was the perception that it is costly. Interestingly, 50% of participants agreed or strongly agreed that DFS were costly even though transfers via M-Paisa cost a maximum of $1 and withdrawals cost a maximum of $2. In general, it costs less to send money through M-Paisa than a telegraphic money order (TMO) through the post office. Of the participants who received financial literacy training from banks, only 27% perceived DFS as costly, compared to the survey average of 50% (trained and untrained customers). This could be attributed to knowledge and skills acquired from financial literacy training. For instance, some training programs included modules on comparing the cost of alternative financial products; therefore, financially literate participants may have understood how to compare the cost of mobile money versus TMOs.

The general perception that DFS are costly may also reflect some of their hidden costs. For instance, some participants reported that agents refused to disburse the full amount of funds received through mobile money, which is supported by Pickens' (2009) research in the Philippines. Moreover, in Vanua Levu customers reported that agents forced them to spend a portion of the funds they received in-store, although they wanted to use the money for other items such as school fees. Participants who have received financial literacy training from banks may be better equipped to handle such situations as they could have developed skills to distinguish between needs and wants and to exercise assertiveness by refusing demands they could not afford. Reported conflicts with agents also suggested that customers preferred to withdraw the full amount of funds received via DFS rather than saving some of it in their mobile wallets, although they are actually cheaper than a conventional bank account because they do not incur maintenance fees. Agents required users to spend money as they used their personal cash to pay them and sometimes merchants did not have enough cash on hand for customer withdrawals. Float management and lack of liquidity were the two biggest challenges agents encountered. This led to a number of outlets pulling out of the mobile money agent network as there was a perceived lack of value from providing the service.

Relative to the sample, participants who had received financial literacy training from banks registered higher levels of disagreement for DFS risk of 73%, with only 4% agreement. This suggests that these participants better understood the dual layer of security incorporated in the DFS system. Mobile phone users can restrict access to their phone through a personal identification number, and their MNO also issued a separate PIN to access DFS. The group that received financial literacy training from banks was also more inclined to perceive DFS as unnecessary. This could be explained by this group already having had access to rural banking services before DFS became available. This is plausible as banks are likely to conduct financial literacy training in communities with access to services such as rural banking, which could have included visits from staff based in a town branch. However, financial literacy training does not address language competence or technological proficiency. Therefore, it is unsurprising that this group yielded results similar to the overall sample in relation to language difficulty and technical complexity.

Table 4. Significance Tests for Deterrents to DFS.

	Costly	Risky	Language Difficulty	Complicated Technology	Not Necessary
Ethnicity	0.9828	0.2795	0.3932	0.0957	0.4486
Gender	0.2207	0.0993	0.4309	0.3286	0.1214
Age	0.4776	0.1138	0.4001	0.5482	0.1072
Level of education	0.0852	0.0803	0.4393	0.3099	0.9231
Financial training	0.0047**	0.0128*	0.8138	0.5428	0.0298*
Income level	0.0957	0.021*	0.6343	0.0663	0.3454

** Significant at the 0.05 level; **Significant at the 0.01 level.*

Table 5. Perceived Benefits of DFS.

	Safe	Convenient	Save Time	Save Money
Mean score (out of 5)	2.6	2.8	3.0	3.0
Strongly agree	0%	1%	3%	5%
Agree	18%	31%	36%	34%
Neither agree nor disagree	34%	25%	23%	24%
Disagree	41%	38%	34%	33%
Strongly disagree	8%	6%	5%	5%

Benefits

Table 5 summarizes participants' responses to the benefits of DFS. In general, they perceived savings in terms of cost (38% agreement) and time (39% agreement) as the major benefits of DFS although an equal proportion disputed these benefits. The main cost saving probably relates to transportation as some participants could have incurred significant costs traveling to town by bus or hired vehicle to access financial services. This benefit was particularly appreciated by those who used their mobile wallet to pay bills. For instance, one participant stated:

> We stay too far away from town. Going to town takes hours by bus and is very expensive. Mobile [financial services] have made things easier as I have been able to receive money and make bill payments such as my SKY [television] bill using my mobile phone. (July 15, 2015)

Time savings were particularly valued by the highest income earners (89% agree), who are likely to hold senior positions in their workplaces or manage their own business. The demanding nature of their roles could explain why they regard time as an important factor. It was also significant for the youngest age group, which has been exposed to mobile technology from a young age and is accustomed to receiving information rapidly. However, time savings were less important among the oldest age group, some of whom may be retired and have fewer competing activities.

Although 32% of the participants perceived DFS as convenient, 44% disagreed and went on to explain some of the challenges they faced. Participants who had received financial literacy training from banks were more inclined (62%) to believe that DFS were inconvenient. During interviews some customers explained that agents may lack sufficient cash to service their withdrawal requests. This was not an issue with larger agents, but it could present a serious challenge to smaller and more remote retail outlets that maintain lower liquidity. In this respect the Fiji experience differs from Kenya, where Safaricom carefully monitors agents to ensure they maintain sufficient liquidity (Mas & Morawczynzski, 2009). In addition, not all survey participants valued the

Table 6. Significance Tests for Benefits of DFS.

	Safe	Convenient	Save Time	Save Money
Ethnicity	0.7667	0.6462	0.3157	0.7830
Gender	0.5587	0.9971	0.7871	0.3405
Age	0.2288	0.0601	0.0147*	0.0801
Level of education	0.3787	0.2473	0.6908	0.4969
Financial training	0.0850	0.0359*	0.0011**	0.0026**
Income level	0.0128*	0.0557	0.0299*	0.1016

**Significant at the 0.05 level; **Significant at the 0.01 level.*

ability to conduct transactions using their mobile phones on a 24-hour basis. One participant provided the following explanation for preferring not to make payments using her mobile phone:

Original text (iTaukei language)
Vei au na lako i taoni, e dua na ka levu saraga. Cava meu vakayagataka kina noqu talevoni meu sausaumi kina?

English translation
To me, going to town is a really big event. Why should I use my phone to make those payments?

The participant considered a day in town as a treat and a contrast to mundane village life. Apart from paying bills, each trip to town could also provide villagers an opportunity to socialize with friends and feel connected to the outside world. Rural dwellers who do not have regular employment do not place much premium on convenience; however, perceptions may differ in urban areas and among those with regular employment.

While perceptions of convenience, cost savings, and time savings were somewhat normally distributed, only 18% of participants perceived DFS as safe; 49% did not. This seems to contradict their responses to deterrents to using DFS and the perception that DFS was not risky. Based on interviews, these differences could mean that while participants did not perceive risk in "transacting" through DFS, they felt unsafe "storing" money in their mobile wallet. This was due to a fear that any stored funds would be lost if their phone was stolen or lost, despite a two-point security system. However, the highest income earners perceived DFS as particularly safe (67% compared to 18%) and as their transactions involved higher amounts, this suggests they have confidence in this aspect of the service.

Conclusion

This article makes several important observations. First, the implicit costs of DFS incurred by recipients, as opposed to senders in Kenya (Kusimba et al., 2013), appear to be the major deterrent to DFS adoption among rural communities in Vanua Levu. Although the explicit cost of sending and receiving money through DFS is relatively low compared to conventional methods such as TMOs, consumers may incur implicit costs because agents refuse to disburse cash unless consumers first spend a minimum amount in-store. The negative experience of not receiving the full value of their remittances may discourage consumers from using mobile phones to receive or send money in the future. Furthermore, consumers display a lack of trust in agents, which is consistent with research in the Philippines (Pickens, 2009). In addition, it is unethical for agents to impose these costs on consumers since MNOs already pay them a commission for each transaction. Such questionable behavior by agents indicates the need for stronger consumer protection supported by mechanisms for monitoring and redress. As a result, DFS do not always deliver the benefits associated with financial inclusion or improve convenience for consumers if agents (particularly small businesses) fail to maintain sufficient liquidity.

Second, this research extends the literature through more nuanced findings regarding safety and trust. Previous studies (Duane et al., 2014) have documented that consumers will not use mobile money to make payments unless they regard it as safe. Although consumers in rural Vanua Levu do not perceive DFS as a risky

medium for financial transactions, they do perceive mobile wallets as unsafe due to a limited understanding of the dual layer of protection available to them. Consequently, they are reluctant to use their mobile wallets as a savings mechanism. In addition, many consumers still have a "traditional" mindset that leads them to withdraw all the money from their mobile account as soon as it is received. This highlights a major difference between mobile money (which permits consumers to save money in a mobile wallet) and TMOs (which lack this capability). Consumers who have used TMOs for many years are conditioned to withdrawing the full value of remittances. Furthermore, very low income levels may impose challenges in setting money aside for savings. Collectively, these issues indicate that the intended benefits of financial inclusion strategies may not be realized without consumer education and financial literacy training. In particular, consumers need reassurance as to the safety of mobile wallets, knowledge about the importance of personal savings, and skills to develop a savings habit.

Third, the findings demonstrate that financial literacy training may mediate perceptions of DFS. In particular, consumers who received financial literacy training from banks were able to more accurately evaluate the explicit costs of DFS and better understand the mechanisms for reducing risk through DFS. Therefore, financial literacy training plays an important role in reducing the perceived deterrents to DFS.

Finally, this article extends the literature by highlighting demographic factors that may influence consumers' perceptions regarding DFS' benefits. In relation to age, younger consumers may appreciate the time saved by using DFS because they have grown up with technology (Jaradat & Al-Mashaqba, 2014) and are used to quick response times. However, older consumers who lack full-time employment may place less importance on time savings because they have more time to spare. Perceptions also differ on the basis of income. Higher income earners may appreciate time savings because they occupy senior roles in their workplace or manage their own business. They also value safety because they engage in higher value transactions. Interestingly, this research found that ethnicity, gender, and general education levels do not significantly affect perceptions of DFS among the sample group. ■

Glen Finau, Assistant Lecturer, School of Accounting and Finance, University of the South Pacific, Fiji. finau_g@usp.ac.fj

Nacanieli Rika, Senior Lecturer, School of Accounting and Finance, University of the South Pacific, Fiji. nacanieli.rika@usp.ac.fj

Jale Samuwai, PhD student, School of Accounting and Finance, University of the South Pacific, Fiji. jale.samuwai@usp.ac.fj

James McGoon, Analyst, The Reserve Bank of Fiji. james.m@rbf.gov.fj

References

Abraham, R. (2007). Mobile phones and economic development: Evidence from the fishing industry in India. *Information Technologies & International Development, 4*(1), 5–17.

Aker, J. C., & Mbiti, I. M. (2010). *Mobile phones and economic development in Africa* (Center for Global Development Working Paper, no. 211). Retrieved from http://www.cgdev.org/files/1424175_file_Aker_Mobile_wp211_FINAL.pdf

Alliance for Financial Inclusion. (2010). *Financial inclusion measurement for regulators: Survey design and implementation.* Retrieved from http://www.afi-global.org/sites/default/files/afi_policypaper_datameasurement_en.pdf

Beshouri, C., Chaia, A., Cobert, B., & Gravråk, J. (2010). Banking on mobile to deliver financial services to the poor. *Global Financial Inclusion,* Fall, 24–31. Retrieved from https://www8.gsb.columbia.edu/leadership/sites/leadership/files/Global_Financial_Inclusion.pdf

Bouman, F. J. A., & Houtman, R. (1988). Pawnbroking as an instrument of rural banking in the Third World. *Economic Development and Cultural Change, 37*(1), 69–89.

Brison, K. (2007). *Our wealth is loving each other: Self and society in Fiji.* Plymouth, UK: Lexington Books.

Brown, R. P. C., & Leeves, G. (2007). *Impacts of international migration and remittances on source country household incomes in small island states: Fiji and Tonga* (Discussion Paper No. 347). Brisbane, Australia: School of Economics, The University of Queensland.

Cave, D. (2012). *Digital islands: How the Pacific's ICT revolution is transforming the region.* Retrieved from Lowy Institute for International Policy at http://www.lowyinstitute.org/publications/digital-islands-how-pacifics-ict-revolution-transforming-region

Chatain, P-L., Zerzan, A., Noor, W., Dannaoui, N., & de Koker, L. (2011). *Protecting mobile money against financial crimes: Global policy challenges and solutions.* Washington, DC: International Bank for Reconstruction and Development & World Bank. Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/2269/600600PUB0ID181Mobile09780821386699.pdf?sequence=1

Donner, J., & Tellez, C. A. (2008). Mobile banking and economic development: Linking adoption, impact, and use. *Asian Journal of Communication, 18*(4), 318–332.

Duane, A., O'Reilly, P., & Andreev, P. (2014). Realising m-payments: Modelling consumers' willingness to m-pay using smart phones. *Behaviour & Information Technology, 33*(4), 318–334.

Horst, H. A., & Taylor, E. B. (2014). The role of mobile phones in the mediation of border crossings: A study of Haiti and the Dominican Republic. *The Australian Journal of Anthropology, 25*(2), 155–170.

Hughes, N., & Lonie, S. (2007). M-PESA: Mobile money for the "unbanked" turning cellphones into 24-hour tellers in Kenya. *Innovations, 2*(1–2), 63–81.

Jack, W., & Suri, T. (2011). *Mobile money: The economics of M-PESA* (NBER Working Paper No. 16721). Cambridge, MA: National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w16721

Jaradat, M. R. M., & Al-Mashaqba, A. M. (2014). Understanding the adoption and usage of mobile payment services by using TAM3. *International Journal of Business Information Systems, 16*(3), 271–296.

Jayaraman, T. K. (1996). *Financial sector in Fiji: Some empirical evidence of financial deepening.* Sydney, Australia: Centre for South Pacific Studies, University of New South Wales.

Jayaraman, T. K., Choong, C. K., & Kumar, R. (2011). Role of remittances in small Pacific Island economies: An empirical study of Fiji. *International Journal of Economics and Business Research, 3*(5), 526–542.

Jenkins, B. (2008). *Developing mobile money ecosystems.* Washington, DC: International Finance Corporation & Harvard Kennedy School.

Kendall, J., Maurer, B., Machoka, P., & Veniard, C. (2011). An emerging platform: From money transfer system to mobile money ecosystem. *Innovations, 6*(4), 49–64.

Kusimba, S., Chaggar, H., Gross, E., & Kunyu, G. (2013). *Social networks of mobile money in Kenya* (IMTFI Working Paper 2013-1). Irvine, CA: University of California, Irvine Institute of Mobile Money, Technology and Financial Inclusion.

Leonard, M. (2011). *G2P: Expanding financial inclusion in the Pacific report.* Retrieved from http://www.uncdf.org/sites/default/files/Documents/pfip_g2p_1_0.pdf

Mas, I., & Morawczynski, O. (2009). Designing mobile money services lessons from M-PESA. *Innovations, 4*(2), 77–91.

Mathison, S. (2007). E-banking with the poor: Opportunities and implications for microfinance provider. *Development Bulletin, 72,* 19–22.

Maurer, B. (2008). *Retail electronic payments systems for value transfers in the developing world.* Retrieved from www.anthro.uci.edu/faculty_bios/maurer/Maurer-electronic_payment_systems.pdf

Medhi, I., Ratan, A., & Toyama, K. (2009). Mobile-banking adoption and usage by low-literate, low-income users in the developing world. In N. Aykin (Ed.), *Internationalization, design and global development* (pp. 485–494). Berlin, Germany: Springer.

Narsey, W. (2014, July 26). Poverty and justice. *The Fiji Times.* Retrieved from http://www.fijitimes.com/story.aspx?id=275418

Ngugi, B., Pelowski, M., & Ogembo, J. G. (2010). *M-PESA: A case study of the critical early adopters' role in the rapid adoption of mobile money banking in Kenya.* Retrieved from http://www.ejisdc.org/ojs2/index.php/ejisdc/article/view/713/331

Pickens, M. (2009). *Window on the unbanked: Mobile money in the Philippines.* Retrieved from http://www.cgap.org/publications/window-unbanked-mobile-money-philippines

Prakash, N., & Gounder, R. (2007). The role of remittance in financial development in Fiji. *Fijian Studies: A Journal of Contemporary Fiji, 9*(2), 123–136.

Rika, N., Finau, G., & Samuwai, J. (2015). Mobile money services in rural Fiji: Perceptions, challenges and opportunities. *The Accountant: Journal of the Fiji Institute of Accountants,* December 8–9.

Sathye, M., Prasad, B., Sharma, D., Sharma, P., & Sathye, S. (2014). *Mobile value added services for inclusive growth: A study of women micro-entrepreneurs in Fiji.* Paper presented at the Pacific Asia Conference on Information Systems, Chengdu, China.

Singh, S. (2013). *Globalization and money: A global south perspective.* Plymouth, UK: Rowman & Littlefield.

World Bank. (2007, October). *Financial sector assessment: Fiji.* Retrieved from http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2007/11/09/000020439_20071109103515/Rendered/PDF/SecM200700477.pdf