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THE EFFECT OF INFORMATION TECHNOLOGY ON GROWTH OF MICRO-INSURANCE BUSINESS: A SURVEY OF COMMERCIAL INSURANCE COMPANIES IN KENYA

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ABSTRACT: *The micro-insurance business has a huge potential for growth in Kenya, which is typically a micro-insurance market. However, the country's paltry growth in overall insurance penetration from 2.54% in 2006 to 3.0% in 2010 is not attributable to emerging business areas such as micro-insurance, but to the traditional insurance product lines. Information technology can be leveraged to increase micro-insurance penetration. This study examined the influence of information technology on the growth of micro-insurance business in Kenya. A survey of commercial insurance companies was conducted to provide an understanding of the effect of information technology as a driver of micro-insurance growth. The findings revealed a high positive significant correlation between information technology and growth of micro-insurance. The implication is that sustainable growth of micro-insurance business among the low-income Kenyan population can be greatly enhanced by leveraging the benefits of information technology. Therefore micro-insurance service providers should embrace information technology systems as a strategic action in order to tap into the ripe micro-insurance client base.*

KEY WORDS: Micro-insurance, Growth, Information Technology

INTRODUCTION

The majority of low-income people in Kenya lack access to facilities that can hedge them against financial loss. They are particularly vulnerable to risks, illness, death, natural disasters, damage to property, and accidents; all these can have devastating effects on their livelihoods if there is no buffer to mitigate the debilitating financial impact (Matul, McCord, Phily & Harms, 2010; Chamberlain, Bester & Hougaard, 2009; Churchill, 2006). The informal mechanisms they resort to such as rotating savings and credit associations, informal borrowing, selling assets or taking children out of school, offer short-term protection at great long-term costs, preventing escape from poverty.

The failure of informal risk mitigation arrangements and government-led programs has led to the development of micro-insurance (MI) products and services (Matul *et al*, 2010). MI is the

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protection of low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of the risk involved. The ultimate goal of MI is to enable these low-income people to mitigate risks through insurance, reduce vulnerability and increase their welfare in an affordable and appropriate manner (Chamberlain, Bester & Hougaard, 2009). Cohen and Sebstad (2006) reviewed several case studies in the world which indicated the group of risks common among low-income earners. These risks constrain their cash flow, liquidity and earning abilities (Geron, 2006). A practical solution is to purchase a type of insurance that can mitigate these risks in ways that are affordable and appropriate.

MI has made headway in various parts of the world. By 2010, 300 million low-income people in India were covered by MI schemes, showing the dramatic growth experienced (Churchill, 2012). MI is already popular in the Philippines where there is significant exposure to natural disasters, and there has been active participation of Munich Reinsurance in providing indemnities. Bangladesh and Pakistan have also experienced significant MI growth. In Latin America, Brazil is experiencing the fastest growth in MI due to the government's proactive approach (Bester, 2010 and Churchill, 2012). In all these instances, insurers are the main drivers of growth as they move to new less competitive markets with more space for innovation.

It is estimated that the MI market in Africa could be worth $25 billion, driven by a potential customer base of 700 million people. However, the total MI premiums received in 2008 amounted to about $257 million, covering 14.7 million lives. This constitutes only 2.6% of the targeted MI market in Africa (World Bank, 2007; Matul *et al*, 2010). Majority of these premiums (88%) were collected by regulated insurers, the bulk being in South Africa (56% of lives covered) where funeral insurance is very common, even in the poorest areas.

Smith, Smit, Chamberlain, Ncube and Chelwa (2010) indicate that the majority of the Kenyan population is typically MI target market. However, insurance has a low penetration rate (currently at about 3 percent of the GDP) with only a few commercial insurance companies involved in some form of MI business (Centre for Financial Regulation & Inclusion, 2010). Out of the total KShs.79.06 billion premiums written in 2010 (life insurance being about 34%), commercial lines (motor, fire and medical) comprised about 70% of the non-life insurance premiums, with the balance being personal lines where MI falls.

Finaccess (2009) points out that only 6.8% of adults in Kenya have some kind of insurance product, and Smith, Smit & Chamberlain (2011) show that only 3% of the adult population is covered under MI. According to CBK (2009) and Finaccess (2009), 91% Kenyan adults have never used insurance products by directly purchasing the product. This low uptake of MI will not spur the much needed insurance penetration, nor effectively broaden insurance coverage among low-income earners (Biener & Eling, 2011). These statistics point to the conclusion that in Kenya, the sale of insurance is targeted at the middle to high-income earners, and neglects the low-income population who view MI as a cost to be avoided.

Adopting appropriate information technology (IT) can help insurers to improve service delivery without increasing premiums. Low-income earners can therefore reap the benefits of lower premiums and efficient services. An efficient risk management system is important for establishing new enterprises as entrepreneurs take advantage of the risk transfer mechanism. By transferring risk, MI can decrease the vulnerability of communities and individuals to disasters and aid in coping with large and covariate events (Churchill, 2006, 2011).

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Kenya lags far behind other countries such as South Africa in the development of MI, even though it has a well-developed financial market of 40 banks (CBK, 2009) and 49 commercial insurance companies (IRA, 2010). Dercon and Kirchberger (2008) point out the need to understand the challenges hindering sustainable provision of MI. Despite the growing public interest in MI (Dercon, Gunning, & Zeitlin (2011), there is limited research focused on low-income earners to date.

The few studies relating to MI have not adequately addressed the issues hindering the growth of MI in Kenya. For instance, Harms (2011) investigated the relationship between MI product design and consumer preferences in Kenya, while Mutua (2008) reviewed the status and provision of MI in the East African countries of Kenya, Uganda, Tanzania and Rwanda. Dercon, Gunning and Zeitlin (2011) reviewed evidence of demand for MI products in Kenya. Matul *et al* (2010) focused on policy and regulatory approach to MI. In response to the general paucity of MI research in Kenya, and to specifically address MI growth, this study examined the effect of IT on MI growth through a survey of commercial insurance companies in Kenya.

LITERATURE REVIEW

One of the determinants of the success of MI products is the extent to which IT enables low-income earners to interact with insurers and intermediaries (Churchill, 2012). The benefits and risks of using IT, especially to enhance affordability, reach clients in remote areas, collect premiums and pay claims, are important considerations that inform the design of MI products. IT will increase efficiency to enable insurers achieve scale in addition to assisting in product development. The risks associated with IT usage can be managed by investing in appropriate MI management information systems (Churchill, 2012; Gerelle & Berende 2008). The relationship between the insurer and other partners, together with the processes, are vital for successful application of appropriate IT to grow the MI market.

MI has been shown to be economically and technically viable if it is backed by a good IT system (Matul *et al*, 2010). Gerelle and Berende (2008) studied the users of IT in MI, the technologies available to support MI and how the cost of IT translates into benefits. In their conclusion they noted that reducing transaction costs is one of the major challenges facing MI. They classified MI platforms into low-end, mid-range and high-end systems that support different volumes of MI business, and proposed an innovative approach to the application of IT infrastructure, so that IT is used to generate income as opposed to being a cost centre.

IT is useful in reducing administrative costs, and this enhances the development of MI (Matul *et al*, 2010). It also increases access to MI, and helps to locate and develop efficient delivery channels. The future of IT in MI lies in bypassing obsolete IT models. Using the latest mobile applications to access innovations like shared software as service platforms will reduce operational costs and make MI more financially viable (Churchill, 2012).

An organization must make a choice on the IT to put in place for the smooth operations in its MI business. This includes answering the question on which IT to apply, the efficiency improvement coming with the use of the IT and the general transparency the clients will enjoy, among others. This is because it is impossible to buy ready-made IT and start using it immediately without customizing it. Gerelle and Berende, (2008) outlined specific issues and

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gaps appearing in the range of technologies available. Among these are: access to the right IT, errors in manual data entry, data transfer delays due to connectivity problems, data security, authentication of clients and transactions and shared management information system platforms. They also pointed out that the overall costs may rise as IT is applied in more processes.

Churchill (2012) explicated a number of issues which, if not handled well could lead to failure of the IT application. They include matching investment in IT with complementary investment in human capital; unreliability of IT providers; greater standardization of data formats; the need to implement IT in stages to allow for learning, and poor connectivity leading to delays in data processing.

Mutua (2008) proposed development of an IT systems infrastructure to anchor MI provision. The choice of an appropriate IT system is a major determinant of future success, just as important as having an appropriate reinsurance arrangement to smoothen exposure to outlier risk (Churchill, 2012; Mutua, 2008). The Micro-insurance Network Technology Working group, in conjunction with the Micro-insurance Innovation Facility, prepared a catalogue of technologies used or potentially usable in extending MI to the low-income population and making it accessible to practitioners (Gerelle and Berende, 2008). The component technologies for MI are classified into three groups: customer interface, transaction processing and data analysis and processing. The catalogue allows insurers to find the software that most suits their needs. The main question to be answered is how to integrate IT into the business operation to both maximize service delivery and minimize cost to clients (Gerelle & Berende, 2008).

Biener and Eling (2011) observed that MI market growth is slowed by a number of factors affecting supply and demand. Existing delivery channels often do not notice the opportunities in MI or recognize the secondary benefits as they tend rather to focus only on how insurance benefits them. Wiedmaier-Pfister (2009) noted that high client acquisition costs incurred to reach potential policyholders living in remote areas unreached by conventional distribution networks is a real challenge for insurers. MI also needs favorable regulation that ensures a fair playing field, minimizes supervision and regulation costs. Moreover, the legislation should motivate insurers to innovate and provide MI services.

The success of MI should not only be assessed by measuring uptake, but by measuring actual impact (Dercon, S., & Kirchberger, M., 2008). Working together with other stakeholders, the MI Network in 2007 developed performance indicators which can be used to show the success of MI growth initiatives (Wipf & Gerand 2008). These indicators dwell mainly on marketing and distribution, organisation structures, risk, investment and operations management, and client value. However, the most salient growth measures they outlined are the growth ratio, which measures the growth activity from one period to another, and the coverage ratio, which measures the proportion of the target population covered under MI at any given time (which is also a measure of marketing effectiveness). Market penetration measures the general growth of insurance in a country, inclusive of MI.

This study therefore examined IT as a factor which has a bearing on growth of MI in Kenya. This was achieved by surveying commercial insurance companies in Kenya. The study variables are illustrated in a relationship framework (Figure 1).

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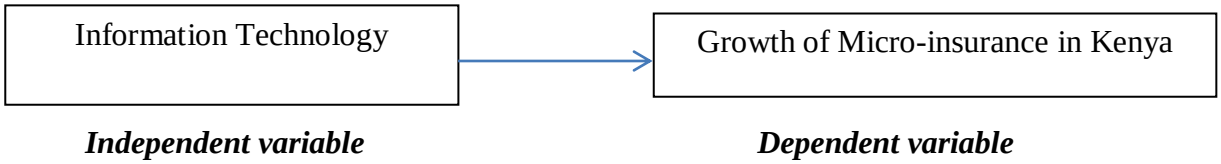

Figure 1: Conceptual Framework

METHODOLOGY

The study used a descriptive survey approach. This method was preferred because it ensures a complete description of the situation under investigation and minimizes bias in data collection (Kothari, 2008). The target population was all the 49 commercial insurance companies registered in Kenya (IRA 2010). The study respondents were the staff who handled MI business in these companies. These staff had sufficient education to provide the requisite information elicited in the research instrument. Contact with these respondents was provided by the human resource departments of the respective insurance companies.

Being few in number (n=49), a census of all registered commercial insurance companies was conducted, because a census is convenient and attractive for small populations (Mugenda & Mugenda 2003). It eliminates sampling error by providing data on all the units in a population (Kothari, 2008). Structured self-administered questionnaires consisting of a mixture of open ended and close ended questions were used to collect primary data. This allowed for intensity and richness of respondents' individual perceptions and responses (Polit, and Beck, 2003). The study respondents received appropriate explanations regarding the purpose of the study, in order to eliminate response distortion. A pilot study was conducted to refine and enhance the reliability and validity of the research instrument. The questionnaires were hand delivered and similarly collected after respondents completed filling them.

Descriptive statistics (frequencies, percentages, etc.) and inferential statistics (correlation and simple linear regression), with the help of SPSS 17.0, were used to analyse the data. Equation 1 shows a simple linear regression model expected to fit the data.

***Equation 1*:** $Y = A+b\mathbf{IT} + e$

Where: Y = Growth of MI; A = constant; b= regression coefficients;

IT = Information Technology and e = error term.

RESULTS

In the pilot study to test the validity and reliability of the questionnaire, the Chronbach's alpha index (α=0.751) exceeded the prescribed lower threshold of 0.7 (Nunnally, 1978). The sample was large enough to be representative so that the study was not susceptible to biases (Seliger and Shohamy, 1989). Out of the 65 issued questionnaires, 53 (81.5%) were returned fully completed. Majority of the respondents (79.3%) agreed that IT influences growth of MI business. IT facilitates the interaction between insurer and clients at distant places. Thus, the

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role of IT in facilitating interaction with the product distributor or other insurance service provider is important for the growth of MI. 69.7% of the respondents agreed that application of IT in premium collection is critical for MI expansion.

In addition 73.6% of the respondents agreed that a central service point providing a one-stop-shop will not only offer accessibility of the products but also the much needed faster service and claim settlement, which increases trust for the insurers. Concerning the IT system employed in MI, a majority (77.2%) of the respondents indicated that most insurers use the same system as for the traditional insurance (non-MI) product lines; they do not process MI data separately. Although a majority of respondents (66.0%) indicated that users of the insurer's IT system are able to access the system from outside, it is only the designated insurer's personnel who have this access. This denies MI clients the much-needed interaction with the insurer.

Smartcards, biometrics, point of sale terminals and mobile devices are used to enhance efficiency, as pointed out by a majority of the respondents (73.6%). Nonetheless, 68.0% strongly agreed that the deployment cost of IT in MI business is high relative to the benefits. The main challenge is how to integrate IT into the business operation to both maximize service delivery and minimize cost to clients. The prevalent low understanding of MI on the part of the targeted population has resulted in very small MI portfolios for insurance companies (Tower, C. & McGuiness, 2011). This has discouraged insurers from adopting appropriate IT to support growth of MI business.

Inferential statistics involving coefficient of correlation, coefficient of determination and regression analysis were computed to determine the correlation between the dependent and independent variables. For correlation (strength), the Karl Pearson's coefficient of correlation (r) was employed (Table 1). It showed a strong positive correlation between growth of MI business and IT (r=0.510).

Table 1: Coefficient of Correlation

		Growth of MI	**IT**
Growth of MI	Pearson Correlation	1	
	Sig. (2-tailed)		
IT	Pearson Correlation	0.510	1
	Sig. (2-tailed)	0.0023	

A regression analysis was conducted to determine the relationship between Growth of MI business and IT (Table 2). Equation 2 shows the regression equation.

***Equation2*:** Y= 1.180+ 0.504**IT**

An increase of the independent variable (IT) will result in an increase in Growth of MI business. This implies that investment in IT will grow MI business. The model is significant at the 10% level (p=0.08).

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Table 2: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.180	0.3303		0.5449	0.000
IT	0.504	0.268	0.351	1.023	0.082

DISCUSSION

The purpose of the study was to examine the influence of IT on growth of MI through a survey of commercial insurance companies in Kenya. Literature reviews and empirical studies guided formulation of the data collection instrument. The findings show that increasing investment in IT will be matched by an increase in growth of MI business. This implies that IT can play a big role in increasing MI premiums. These findings corroborate those by Churchill (2012) and Mutua (2008), who found that IT will be a major determinant of future success in MI, just like having appropriate reinsurance arrangement to smoothen exposure to outlier risk. By integrating IT into MI business processes, insurers can maximize service delivery and minimize costs.

The findings also show that there are a number of available IT devices that can be used to spread MI. These findings confirm the position of Donian and Eltringham (2011), who observed that the applications of IT devices allow staff to have remote access to information on their clients and the collection and payment of premiums. In the case of health insurance, IT devices provide information to clients on the cover they have. The devices also enable them to make claim reimbursements, and support other financial transactions in bundled products. In addition, a central service point providing a one-stop-shop will not only offer accessibility to the products, but also speed up service delivery and claim settlement, which will increase insurers' reputation.

Gerelle and Berende (2008) noted that technologies may hold the key to the development of MI in Kenya, as there has been a rapid expansion in the IT sector. The growth of the mobile money transfer and its application in banking has demonstrated the potential of IT in business. It can be used to enrol clients, collect premiums and service insurance claims, giving insurers the double advantage of increased efficiency and data capture. Innovative use of communication and IT will shape MI.

IMPLICATIONS FOR RESEARCH AND PRACTIVE

The findings of this study provide information to guide decision making by insurers. By evaluating their IT investment strategies and adopting the appropriate IT, they will improve service delivery, and this will contribute to long term survival and growth of their MI businesses. This study also provides information that has been lacking to help policymakers, regulators, MI providers and development organisations in the appropriate allocation of resources towards IT for MI development. It also shows that MI research is gaining currency in Kenya and provides an important platform for researchers to have in-depth discussions on further MI research in Kenya.

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CONCLUSION

This research indicated a direct relationship between IT and growth of MI business. Appropriate technological infrastructure can be effective in reducing exposure to risk, increasing access to client information, facilitating collection and payment of premiums, and providing information to clients. Therefore the success of MI business relies on the extent to which IT enables low-income earners to interact with insurers and their intermediaries. IT has the potential to increase an insurer's efficiency, against the backdrop of increasing competition from local and international insurance providers and regulatory reporting requirements. This makes a strong case for exploiting IT to grow the MI market

FUTURE RESEARCH

The study covered commercial insurance companies who are suppliers of MI products. Demand-side factors that affect the growth of MI business, such as lack of understanding of how insurance works and difficulties in paying premiums (Matul *et al*, 2010) were not addressed. Future research can focus on the demand-side factors of MI business. Also, the study was carried out in Kenya; economic conditions in other African countries may be different. This study can be replicated in other African countries, to see whether the same findings will hold.

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