

Social Capital and Health Micro-Insurance Uptake by the Informal Sector Workers in Kenya

John Magambo^{1*}, Beatrice Warue¹, Levi Mbugua² & Dominic Mwenja³

¹African International University

²Technical University

³California Miramar University

Corresponding Author's E-mail: johnodhiambom@gmail.com

Cite: Magambo, J., Warue, B., Mbugua, L., & Mwenja, D. (2022). Social Capital and Health Micro-Insurance Uptake by the Informal Sector Workers in Kenya. *The University Journal*, 4(1), 77-94.

Abstract

This paper focuses on social capital as a determinant of health micro insurance uptake by informal sector workers in eight regions (Lake, North Rift, Central, Pwani, South Eastern, Frontier counties, Narok-Kajiado and Nairobi) in Kenya. Further moderating effects of mobile telephone technology was explored to find out its influence on the health micro insurance uptake. The study target population comprised 7,399,347 micro and small enterprises while sample size of 1,387 was selected out of the population using stratified sampling technique. Social capital was found positive and significant (p -value < 0.05) in relation to health micro insurance uptake. The mobile telephone technology was found positive and significant (p -value < 0.05) in seven regions while Nairobi region, it was found to be negative and insignificant (p -value = 0.123). The study found that social capital is an important factor to consider when selling micro insurance products.

Keywords: Social Capital, Health Micro-Insurance Uptake, Mobile Telephone Technology, Informal Sector Workers

Introduction

The concept of social capital (SC) may be described as those intangible assets that count for most in a person's daily life. They may include good will, fellowship, sympathy and social intercourse among individuals and families who make up a social unit. Hence SC is the glue that binds society together (Gegersen, 2013). Indeed, SC is the sum of resources, actual and virtual, that accrues to an individual or a group by virtue of possessing durable networks (Bourdieu, 1986). Other studies have identified SC as a set of elements that facilitates collective actions forming social structure, and it is characterized by social organizations, trust and networks that make society more efficient (Coleman, 1988; Putman, 2000; WorldBank, 2014).

Fusheini et al.'s (2017) findings were in agreement with (Gegersen, 2013) that, the tangible assets such as goodwill, fellowship, sympathy, and social intercourse within the individuals and families make up a social unit. Furthermore, solidarity encourages risk equalization and cross subsidization in a social setting. Therefore, minimizing solidarity, will result in curtailing the progress since the success of health financing system depends largely on the size of the pool of willing contributing members. Communitarians looking for the number and density in group in a given community, argues that SC is inherently good, that more is better, and that its

presence always has more positive effect on a community's welfare (Woolcock & Narayan, 2000). They further found that in Haiti SC is rich at the local level, employed by peasant groups to meet labor requirements, gain access to land, protect clientship at the market place, promote mutual aid, assure protection from state authorities and generally manage risk. Therefore, SC residing in a given network can be leveraged or more efficiently used, which is essentially is the genius of group-based credit programs including Grameen Bank of Bangladesh (Bastelaer, 1999). Dror and Firth (2014), opined that when community-based governance manifests, members of household will express their willingness to pay (WTP), for Health micro-insurance (HMI) thereby creating a solvent demand on which viable supply could be anchored. Willingness to pay often reflects group consensus on the value of goods/services to all or majority of members of the community, which means that most of the members' perception of rare events is unlikely to manifest. Whereas HMI is perceived as a necessary good, not a normal good, the WTP is determined by consensus on the amount that all or majority of the members could pay, it is not paged on the actual value of out-of-pocket payments that the insurance is meant to replace. Additionally, an increase in WTP for HMI over time depended on the increase in the community's perception of the welfare gains, as opposed to higher input prices. Ogaden *et al.* (2013) argued that SC process facilitates the systematic and effective inclusion of community voices in the health policy process and HMI strategies, resulting to a strengthened program effectiveness, health system accountability and corporate governance. Additionally, social capital encompasses communication and new innovations uptake, norms and standards between professional communities of practice. It provides an important mechanism for integration of sectoral processes which is usually a major challenge for health policy makers. This is in line with Dror and Firth's (2014) definition of HMI, as insurance which responds to the needs and priorities of those whose earnings are derived from the informal sector, generally untaxed business sector and excluded from conventional health insurance. This paper reviews the relationship between social capital and health micro-insurance uptake by the informal sector workers in Kenya. It attempts to explore the positive effect of HMI on social protection and economic development of the vulnerable people, the poor and the rural residents (Karyani, *et al.*, 2019).

Statement of the Problem

Universal Health Coverage (UHC) is an aspiration that all people should have access to quality, effective, promotive, preventive, rehabilitative, palliative and curative health services at the time of need without suffering financial ruin (WHO, 2014). Access to essential healthcare is a human right and a social and economic necessity (ILO, 2012; WHO, 2017). Although many countries are pursuing government-sponsored health insurance as a primary means to extend and supplement social protection, majority of low-income households in developing countries still lack adequate access to public or private health insurance (Etrata & Montemayer, 2019). Globally an estimated 400 million people lack access to essential health services, 17% of the people are impoverished or pushed deeper into poverty by healthcare costs, whilst almost a third of households in Africa and South East Asia regions (SEAR) are forced to borrow money or sell assets to pay for healthcare at the point of use (Gitahi, 2017).

Healthcare represents a substantial portion of the budget in most economies of developed countries and several developing countries. Therefore, understanding the welfare associated with the principle mechanism for financing and gain to access of healthcare whether private or public is an important undertaking, based on the size of the health care sectors alone (Nyman,

2006). Demand being a necessity and sufficient condition for the creation of a HMI market, it will only manifest when the community, applying its rules-in-use, recognizes that acquisition of health insurance is welfare enhancing. The community creates consensus when the scheme is governed by rules that members understand and accept.

Theoretical Foundation of the Study

This study was anchored on the theory of demand of HMI for informal sector; social capital and diffusion of innovation theory all of which are discussed in the following sections.

Theory of Demand for Health Micro-insurance for Informal Sector in Low and Middle-Income Counties (LMIC)

The theory of demand for health insurance for the informal sector in LMIC was developed by Dror and Firth in 2014. The theory opines that those governments and stakeholders wishing to propel demand for voluntary and contributory health insurance in the informal sector of LMIC, can only assist the process by supporting the propagation of bottom-up governance structures among communities in the informal sector. Taking into consideration the perception that health insurance enhances welfare to the entire community. This theory is based on relevant and workable assumptions of the role of groups in making financial decisions in the informal sector (Dror, 2018). Group consensus influences personal decisions to join and pay for the product and that groups only reach consensus when they are comfortable that the local governance of the scheme is embedded with their priorities. This theory is significant since it will anchor the response variable HMI uptake by the informal sector in Kenya.

Social Capital Theory

The Theory of Social Capital is based on the recognition that capital is not only economic and that social exchanges are not purely self-interested and need to encompass capital and profit in all their forms (Bourdieu, 1986). Coleman (1988) advanced the theory arguing that the concept of SC as a resource for action gives a window of introducing social structure into the rational paradigm. If the state, the corporate sector, and civil society work in tandem to pursue common goals, development will proceed. In this case SC has a role as a mediating variable that is shaped by public circumstances by both public and private institutions (Berry, 1993). Woolcock (1998) opined that one would expect communities blessed with high stocks of SC to have an advantage in appreciating risk mitigation elements such as HMI than those with low stocks. Additionally, Putman (2000) advanced the theory's definition by stating that SC is the connection among individuals that originate from social networks and the norm of reciprocity, trustworthiness, and civic engagement. This emphasizes the significance of SC as an essential catalyst of coordination and achievement of enhanced social and economic outcomes. Field (2017) argued that the theory SC formed the basis of definition of the intangible resources of a community; their shared values and trust upon which they draw their livelihood. The theory is also linked to demand for health micro-insurance for informal sector. Its integrity retained and its negative perspective dissipated while simultaneously helping the poor gain access to formal institutions resulting to a more diverse stock of bridging social capital (Woolcock & Narayan, 2000). The researcher in this study used SC theory to determine the extent of influence of SC on uptake of HMI by the Informal Sector in Kenya.

Diffusion of Innovation Theory

Rogers (1962) developed diffusion of innovation theory (DOI), with its origin from communication to explain how over time, an idea or product mutates and diffuses through a

specific social system. Resulting to people, as part of a social system, adopting new ideas, behaviors, or products. First a person perceives the idea, behavior, or product as innovative (Singer, 2016). According to Dearing and Cox (2018), diffusion principles can be used as a strategy known as purposive dissemination to stimulate the spread of innovations especially in low-resource settings. Rogers (2003) proposed four main elements that influence diffusion of innovation thus; new idea innovation, practice/product to the individuals or units of adaption. Bringing into focus, communication channels, the process of generating and sharing information with an ultimate aim of reaching a consensus. In public health, DOI Theory is applied to accelerate the adoption of public health programs of high importance with the main aim of changing the behavior of a social system. The most successful adoption of a public health program is informed by understanding the target population and factors that influence the population's rate of adoption (Singer, 2016). As regards to the insurance industry, normalization and standardization procedures minimizes uncertainty, hence creating network effects that increase the profitability of adoption (David, 1985; David & Greenstein, 1990). The insurance system may also reduce the risk, at least for some sectors like medicines (Mutegi, 2018). Mutegi (2018) further found that 88 per cent of the respondents concurred that technological innovation contributed to insurance penetration in line with Roger's diffusion theory. It is in the light, that this study sets out to look at the moderating effect of mobile technology on uptake of health micro-insurance among the informal sector worker in Kenya.

Empirical Literature

Health Micro-Insurance Uptake among the Informal Sector Workers

Micro-insurance is the protection of low-income earners against specific perils in exchange for regular premium payment proportionate to the likelihood and cost of the risks involved (Elabed, & Carter, 2015). It has a significant role in the development efforts of a country (Olaosebikan & Adams, 2014). Meaning that the risk insured under a micro-insurance policy is managed based on insurance principles and funded by premiums (Ndirangu & Nyamogo, 2015). In a study of factors influencing uptake of national health insurance, Ndung'u (2015), affirmed that more females (18.9%) had enrolled in the HMI program as compared to male (14.53%). The enrolment for those in the age bracket of 46 to 49 years was (14.2%), and the married ones had higher enrolment of 79 (23.0%). People with higher income too had higher enrolment. This was in support of Macharia's (2017), findings that those employed and those in trade were more likely to take up HMI. Majority of insured were either by default of employment or because of the affordability of insurance premiums. Macharia (2017) argues that, the main reasons for HMI uptake was affordability and accountability. Matul et al. (2013), opined that for HMI, product's scope of benefits and quality of healthcare service had higher importance in triggering the demand. Therefore, HMI strategies should embrace cost leadership through deployment of technology to lower administration cost, prudent underwriting, flexible payment of premium, scrutiny of claims and efficiency in claims settlement, innovative distribution channels, product differentiation, market focus and customer education. Investment in research and actuarial services will result in improvement on product pricing and risk selection (Ndirangu & Nyamogo, 2015).

Access to Health Care among the Informal Sector Workers

According to Levesque et al. (2013), access to healthcare is influenced by approachability, acceptability, availability, accommodation, affordability, and appropriateness. Gitahi (2017) found that in Kenya, utilization of healthcare services was negatively correlated to distance to

health facility. Mohammed et al. (2016) opined that devolving healthcare is one way of improving efficiency in the delivery system. Chege et al. (2020) argue that devolved healthcare, being the transfer of the management of healthcare services to counties is one of the means of improving access. The benefit is realized when a localized decision space is created in terms of finance, service, human resources and governance rules. Conversely, earlier studies in Burkina Faso and India reported lower enrolment rates among households travelling longer distance to health facilities (Panda et al., 2013). Micro-insurance Network (2015), found that access to healthcare through HMI, allowed sick people to receive treatment hence avoidance of prolonged sickness. It further found that improved access to healthcare also meant that children stayed in school and performed better. Dror et al. (2016), found that MHI schemes improved the insured households' access to healthcare, enhanced financial protection and improved equality of access. Additionally, Wrede et al. (2008) found that reaching the low-income markets would require designing accessible products given that access to finance was key to unlocking the demand in this sector.

Annual Premium and Health Micro-Insurance

The low-income purchasing power is encumbered by budget constraints, insurance as a promise may be of lower priority as compared to consumable need by the low-income earners. Therefore, HMI premiums have to be affordable especially where there are no subsidies (Wrede et al., 2008). Being cognizant of the fact that fair price may influence low-income people to buy HMI product. Aregu & Worku (2018) opined that setting affordable price for HMI increased the probability of household's subscription. Since, micro-insurance schemes were price elastic, any adjustment of premium or price to affordable level increased quantity demanded by more than proportionate. Wrede et al. (2008) further found that a simple premium structure was easier to administer, and easily explained to the target population, thus increasing understanding of the product and higher uptake. Affordable and simple, products resulted to an increase of uptake; making it easier to spread fixed costs for sustenance of the scheme (Micro-insurance Network, 2015). If scale is achieved, uncertainty as to pricing and other financial criteria would reduce. Trust, liquidity constraints, quality of the client value proposition and behavioral constraints were also found to be important determinants of demand for first sales. This was supported by the argument that timing of premium collection and the amount not only influenced the uptake but sustainability of Community-based Health Insurance (CBHI) schemes (Fadlallah et al., 2018).

Renewal Rate for Premium of Health Micro-Insurance Product

Policy contracts for HMI generally have one-year duration. Runuka and Susan (2016) opined that evaluating the drivers of renewals was important if uptake of HMI has to be sustained. Taking into account consumer education which was found to have a positive impact on renewals, since those who might have tested the product may not renew it if the product is confusing. If only low-income earners continuously renewed their premium, then, HMI products could claim a measure of acceptance (Fitzpatrick, Magnoni & Thornton, 2011). Microinsurance Network (2015), found that consumer education as an on-going activity, with a focus on scope of coverage, how to claim and how to request for more information contributed to renewals. Significant enabler to renewals included increases understanding and improved client value proposition. Platteau and Ontiveros (2013) found lower renewal rates in India depended on frequency of consultation and amount of benefit received by clients were important determinants of renewal. Renewal rate was found to be comparatively high among

those who did not use services at all compared to those who used services 1–8 times (Iqbal et al., 2017).

Social Capital and Health Micro-Insurance Uptake

Social capital (SC) can be defined as those intangible assets, goodwill, fellowship, sympathy, and social intercourse among the individuals and families who make up social unit (Fusheini, et al., 2017). Relationships that last are anchored on mutual benefit and respect, being cognizant of who they are, knowing their needs, and how to satisfy them (Boone & Kurtz, 1998). Solidarity encourages risk equalization and cross subsidization in a social setting, minimizing solidarity, will curtail progress since the success of HMI system depends largely on the size of the pool of willing contributors (Fusheini et al., 2017). Smith (2016) found that the integral tradition of self-help spirit of Ghanaians and their social structures were advantageous in upholding Social Insurance programs, which were based on the collective will of the people.

Duru (2012) opined that the whole insurance industry have to uphold trust, failure to which will impede the advancement of micro-insurance. HMI operators have to earn, retain and sustain customer's trust to remain in business (Ajemunigbohun et al., 2015). Lower levels of demand in developing countries may be as a result of weaker formal trust-building institutions that governs insurance transactions. HMI clients therefore rely on informal trust building mechanisms as substitutes for formal trust-building institutions for reducing the risk of opportunistic behavior in the insurance transaction (Morsink & Geurts, 2012). Another manifestation of SC embodies norms and values that facilitate exchanges, reduced cost of information and lower transaction costs (Fukuyama, 1995). In Kenya individuals trust levels on the product on offer by insurers has significant influence on the uptake of insurance (Dercon et al., 2012). Radermacher and Dror (2006) underlined the importance of trust along two dimensions: willingness to pay and ability to deliver payments to clients. Trust of individuals and communities can be built by education and careful marketing and sales strategies. Matul et al. (2013) opined that practitioner needs to implement a multi-dimensional approach to build trust in the product, in the underwriters together with the value chain. Penda et al. (2015) on the other hand add that trust in the underwriter was a key determinant of renewal of HMI in Africa with a summary effect of = 0.77. In Indian, trust was also found to have a positive effect on the renewal with summary effect of = 0.18. The combined effect size for the trust variable was estimated to be 0.5076 for both locations. People's trust in CBHI management facilitated uptake of HMI; while reciprocity, was found to be a defining feature of social exchange. Commitment will only be sustained through the improvement of reward-cost balance in relationships (Ream, 2010).

Mobile Telephone Technology and Health Micro-Insurance Uptake

According to Wrede et al. (2008), mobile technology holds the potential to first-track the uptake; enhance efficiency while reducing insurance cost along the value chain of micro-insurance. Ndurukia et al. (2017) recommended that the regulatory framework should be designed to support better integration of mobile technology and insurance products/services in order to foster insurance uptake. As the mobile revolution marches on, actors in the micro-insurance space must continue their innovation refining both products and delivery channels (Mohan & Noor, 2015). Owour (2016) found that mobile money was the most preferred method of premium payment. While Mohan and Noor (2015) further established that technology improves the customer's value proposition, by the accuracy in calibration of premiums. Mobile phone was also found to be a critical feature for micro-insurance since it

enabled real-time communication within the value. According to Mwatima (2018), mobile phone technology support market price, transactions and risk mitigation. These informed the authors' argument that mobile telephone technology has moderating effect between social capital and health micro-insurance uptake among the informal sector in Kenya.

Research Methodology

The study used explanatory and descriptive research design to define variables and their relationships in order to further the understanding of phenomena and to allow the use of both primary and secondary data by relying on respondent's views and opinions (Mugenda & Mugenda, 2003).

Factor Analysis for Social Capital

Table 1 indicated that SC was measured using 11 indicators. Using the KMO Measure of Sampling Adequacy, the statistic was found at 0.965 which was close to 1.0. Bartlett's test of sphericity which indicates that variables are unrelated, reported smaller values which were less than 0.05 at significance level. The findings indicate that the factor analyses were useful.

Table 1: KMO and Bartlett's Test for Social Capital

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.965
Bartlett's Test of Sphericity	Approx. Chi-Square	10773.923
	Df	55
	Sig.	.000

Table 2 shows the total variance explained. Out of the 11 variables used to measure SC, only 1 component had an eigenvalue of at least 1, therefore, only one underlying factor emerged. The other components having low quality scores- were assumed not to represent any specific traits underlying the 11 indicators. The study found that 64.735% of the variance was accounted for by only one factor.

Table 2: Total Variance Explained, Initial Eigenvalues and Extracted Factors

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.121	64.735	64.735	7.121	64.735	64.735
2	.625	5.680	70.416			
3	.600	5.451	75.866			
4	.558	5.076	80.942			
5	.428	3.888	84.830			
6	.393	3.573	88.403			
7	.336	3.055	91.458			
8	.274	2.493	93.951			
9	.254	2.306	96.257			
10	.235	2.141	98.398			
11	.176	1.602	100.000			

Figure 1 conceptualizes the scree plot, visualizing the magnitude of the variability associated with each one of the components extracted. This allowed the researcher to examine the pattern of decreasing variability attributed to each successive component. The line chart showed the eigenvalues on the y-axis and the numbers of factors on the x-axis displaying a downward

curve. Scree plot displays 1 component having eigenvalues over one, after that -component 2 and onwards- the eigenvalues drop off dramatically confirming that only 1 factor underlie the questions.

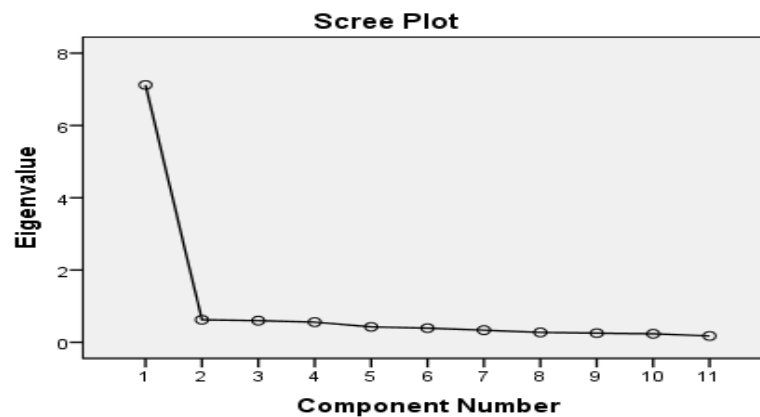


Figure 1: Scree Plot Confirming the Result of Choice of One Component

In addressing the extent to which the underlying factors account for the variance of the 11 input variables, the h^2 values the communalities are reported in Table 3. The first extraction implied that predicting the enterprise will go for an insurance plan if guaranteed positive relationship with the component by multiple regression, the study finds that $h^2 = 0.747$, the variables communality.

Table 3: Communalities of the Factor Analysis for Social Capital

	Initial	Extraction
The enterprise will go for an insurance plan if guaranteed positive relationship	1.000	.747
A health plan should be consistent regardless of the environment	1.000	.736
Good relationship will increase confidence on insurance company willingness to pay hospital bills as agreed during enrolment	1.000	.620
Good relationship will increase demand only when the insurer is trusted and trust is enhanced when customer's rules of governance apply	1.000	.765
Good relationship will make selling health insurance easy since it will support building of trust among our members	1.000	.755
Good relationship will increase trust in agent who consistently visit members to find out whether they are well	1.000	.651
Good relationship is contingent on our enterprise agreeing that most of their staff can gain welfare from purchasing health insurance	1.000	.450
Acceptance of responsibility by insurer and customers will increase the health micro-insurance uptake	1.000	.415
Insurer keeping their word to pay claims after receipt of premium will increase the health micro-insurance uptake	1.000	.488
Consistent and clear message of health micro-insurance products will increase their uptake	1.000	.757
Consistent and disciplined agent will increase the health micro-insurance uptake	1.000	.736

Gender of the Respondents

The authors in this study found that 52.49% of the respondents were male and 41.53% were female. In the five out of eight regions (Economic Blocks in Kenya), more of the owner/managers of Micro and Small Enterprises (MSEs) were male than female. However, in

North Rift region female were leading as owner/managers of MSEs at 49% followed by the male respondents at 48%.

Regression Analysis for Social Capital and Uptake of MHI

Table 4 shows the test for SC and HMI Uptake. Logarithm of uptake was regressed against Social Capital and the results were found to be significant ($F=97$, $p\text{-value}<0.05$).

Table 4: ANOVA for Social Capital and Uptake of HMI

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14.992	1	14.992	97.990	.000 ^b
	Residual	198.893	1300	.153		
	Total	213.884	1301			

Table 5 reported R^2 at 0.070 which implies that 7% of the proportion of the variation of the uptake of HMI was explained by the predictor variable Social Capital.

Table 5: Coefficient of Determination for Social Capital

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.265 ^a	.070	.069	.39114

A change of one unit of standard deviation in SC is associated with a change of β standard deviations in HMI Uptake as indicated in Table 6. Table 6 therefore shows that social capital positively affects HMI uptake. If SC increased by one unit, the uptake of HMI uptake will be .089, hence the rejection of the null hypothesis that SC has no effect on uptake of health micro-insurance among the informal sector in Kenya. The study hence concludes that SC has an effect on the uptake of HMI among informal sector workers in Kenya.

Table 6: Bivariate Coefficients for Social Capital

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.954	.040		23.712	.000
Social Capital	.089	.009	.265	9.899	.000

The log-linear function depicted a positive impact from the SC as shown on Table 7 in all regions except for Nairobi where it has a negative impact at -.044 but not significant ($p\text{-value}=0.123$). Where β are positive in regions such as Lake region, Central, Narok-Kajiado and North Rift, SC was found to have positive impact at 11.5%, 11.2%, 16% and 10.7% consecutively on HMI uptake. While in the other regions including Pwani, Frontier counties and South Eastern SC had a positive effect of 1.5%, 2.4% and 5.1% however they reported ($p\text{-value}=.525$), ($p\text{-value}=.289$) and ($p\text{-value}=.201$) which was greater than $p\text{-value}<0.05$ significant level, making SC not significant in uptake of HMI. The reviewed literature revealed that SC is the aggregation of resources embedded within, available through, and derived from networks of relationships endowed in individuals and groups. The social structure was found to be beneficial in upholding social insurance anchored on the collective will of the people

(Mwenja, 2006). Relationships that last were found to have been built on mutual benefit and respect (Boone & Kurtz, 1998). In the whole insurance sector, trust was found to be a key operator of SC, and failure of which impedes the growth of HMI. Therefore, the retention and sustainability of customer's confidence and trust to remain in business is integral to SC. Trust levels on the product on offer by insurers in Kenya was found to have significant influence on the uptake (Duru, 2012; Ajemunigbohun et al., 2015; Dercon et al., 2012). In all the regions except Nairobi, SC was found to influence uptake of HMI this was in agreement with the empirical literature which stated that when individuals, groups, or organizations establishes network that ties with other individuals, groups and organizations. The tie becomes a social capital between the parties. HMI operators through social capital can earn, retain and sustain customer's confidence and trust to remain in business. (Mwenja, 2006; Boone & Kurtz, 1998; Duru 2012; Radermacher & Dror 2006; Matul et al., 2013; Aregu & Worku 2018; and Penda et al., 2015).

Table 7: Regional Social Capital

Region	R squared	B0	Unstandardized B1	Sig
Nairobi	.009	1.563	-.044	.123
Lake	.109	.874	.115	.000
Pwani	.003	1.268	.015	.525
Central	.166	.690	.112	.000
Narok Kajiado	.107	.481 (.028)	.160	.002
North Rift	.153	1.021	.107	.000
Frontier	.015	1.272	.024	.289
South Eastern	.023	1.640	.051	.201

Moderating Effect of MTT between SC and HMI Uptake

When mobile telephone technology was used as a moderator between the interaction SC and uptake of HMI the results were as follows:

Interaction with Social Capital

Table 8, shows that after logarithm of uptake of HMI was regressed against Social Capital and as moderated by MTT the results were found to be significant ($F=71$, $p\text{-value}<0.05$).

Table 8: ANOVA Moderating Effect of MTT between SC and Uptake of HMI

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21.263	2	10.632	71.644	.000 ^b
	Residual	192.170	1295	.148		
	Total	213.434	1297			

In Table 9, R^2 was found at 0.100 implying that 10% of the proportion of the variation could be explained by the interaction of MTT between SC and HMI uptake. If R^2 is greater than 1 it means that the covariates jointly explained the variation in the outcome HMI. This means HMI uptake was accurately predicted in some sense using the covariates of SC and MTT.

Table 9: Coefficient of Determination of MTT as a Moderator between SC and Uptake of HMI

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.316 ^a	.100	.098	.38522

Table 10 shows that a change of a unit standard deviation in social capital was found to be associated with a change of β standard deviation in HMI. The study compared the effect of social capital when moderated by mobile telephone technology on the outcome of health micro-insurance. When SC increased by one unit, uptake of HMI responded by an increasing by 7.7% significantly MTT.

Table 10: Bivariate of Coefficients for MTT as Moderator between SC and Uptake of HMI

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.785	.047		16.559	.000
	Technology	.077	.012	.180	6.258	.000
	Social Capital	.066	.010	.196	6.796	.000

Table 11 shows that F-Value reduced from 71.871 to 47.821 at significant level ($p\text{-value} < 0.05$), making MTT to have a positive interaction effect between SC and uptake of HMI.

Table 11: Model 2: ANOVA of Moderating Effect of MTT between SC and Uptake of HMI

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21.301	3	7.100	47.821	.000 ^b
	Residual	192.132	1294	.148		
	Total	213.434	1297			

Model 2 showed the Logarithm of HMI after being regressed against SC and moderated by MTT, resulted to a no changes on the effect as shown on Table 12. The implication was that MTT had no effect between SC and HMI Uptake.

Table 12: Model 2: Coefficient of Determination of MTT as a Moderator between SC and Uptake of HMI

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.316 ^a	.100	.098	.38533

Table 13 shows the significant effect of MTT in the relationship between SC and HMI uptake. The adjusted R^2 was constant at 0.098, showing that about 9.8% of the variation in uptake was represented by SC wherein MTT work as a moderator. Furthermore, though still more accurate prediction about uptake could be done ($F\text{-ratio} > 1$) with the inclusion of interaction effect, this accuracy decreased $F\text{-ratio}$ from 71.644 to 47.821 in model 2 with a ($p\text{-value} < 0.05$), which showed significance. The $p\text{-value}$ of SC reported in model 1 was also less than the significance level of the study ($p\text{-value} < 0.05$). Thus, SC works as an independent variable in influencing HMI uptake and also when it is moderated by MTT.

Table 13: Coefficients for MTT Moderating Variable with Interaction Effect

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.774	.052		14.852	.000
	Technology	.080	.013	.187	5.970	.000
	Social Capital	.067	.010	.198	6.799	.000
	Interaction of Social Capital and Tech	-.003	.005	-.015	-.507	.612

Overall Moderating Effect of MTT between SC and Uptake of HMI

In Central region MTT was found to have a moderating effect between SC and HMI uptake. The β increased from .112 to .113 with a ($p\text{-value} < 0.05$), making the interaction significant. These findings imply that MTT enhances HMI uptake when SC is used by the underwriters and their agent to sale HMI products in central region. MTT Nairobi had an increase in negative β from -.043 to -.045 with ($p\text{-value} = 0.468$) and not significant, Lake region reported an increase of β to .060 from .050 with significant interaction a ($p\text{-value} < 0.05$), Pwani β was found to have significantly increase to .051 from .015, ($p\text{-value} < 0.05$) implying MTT was effective as a contributor of HMI uptake when SC was being used as the main driver. In Narok-Kajiado β decreased to .087 from .137 with a ($p\text{-value} < 0.05$) despite the decrease MTT had significant contribution to the uptake as moderator, North Rift β decreased to -.021 from .103 with ($p\text{-value} < 0.05$) significantly contributing to the uptake. While Frontier Counties too reported a negative β of -.015 decreasing to -.014 with a ($p\text{-value} = 0.242$), while South Eastern region β was found to have decreased to .021 from .043 with a ($p\text{-value} = 0.214$) both $p\text{-value} > 0.05$ significant level. The implication is that MTT does not contribute in increase in uptake of HMI in these two regions when social capital is the key driver of uptake as shown in Table 14.

Table 14: Overall Moderating Effect of MTT between SC and Uptake of HMI

		Adjusted R2	Uns B	Stad B	F	P PVP	P MTT	P Overall
Nairobi	Model 1	.002	-.043 -.002	-1.452 -.038	1.203	.148	.970	.302 ^c
	Model 2	-.002	-.045 -.003 -.019	-.101 -.004 -.025	.850	.137	.950	.696 .468 ^c
Lake Region	Model 1	.199	.050 .155	.145 .362	30.473	.033	.000	.000 ^c
	Model 2	.197	.060 .161 -.009	.171 .378 -.053	20.410	.031	.000	.511 .000 ^c
Pwani	Model 1	.117	.015 .130	.056 .358	8.951	.513	.000	.000 ^c
	Model 2	.117	.051 .123 .074	.192 .339 .162	6.305	.232	.000	.317 .001 ^c
Central	Model 1	.273	.091 .143	.325 .334	66.859	.000	.000	.000 ^c
	Model 2	.299	.086 .169 -.029	.308 .394 -.174	50.653	.000	.000	.000 .000 ^c
Narok Kajiado	Model 1	.093	.137 .064	.280 .093	5.518	.020	.437	.006 ^c
	Model 2	.105	.087 .060 .078	.179 .086 .181	4.444	.192	.466	.146 0.00
North Rift	Model 1	.135	.103 .007	.374 .025	8.587	.004	.844	.000 ^c
	Model 2	.160	.069 -.021 .024	.253 -.081 .275	7.143	.072	.552	.056 .000 ^c
Frontier Region	Model 1	.027	-.015 .074	-.077 .280	2.058	.639	.090	.135 ^c
	Model 2	.017	-.014 .086 -.007	-.070 .325 -.072	1.426	.670	.094	.650 .242 ^c
South Eastern	Model 1	.009	.043 .023	.128 .121	1.341	.290	.317	.268 ^c
	Model 2	.062	.021 .025 -.073	.061 .135 -.173	1.533	.633	.264	.174 .214 ^c

Discussion

HMI operators through social capital can earn, retain and sustain customers' confidence and trust to remain in business (Mwenja, 2006; Boone & Kurtz, 1998; Duru 2012; Dror, 2006; Matul et al., 2013; Aregu & Worku 2018; Penda et al., 2015). This concurs with the researchers finding that Social Capital has a positive and significant ($p\text{-value} < 0.05$) in Lake, Central, Narok-Kajiado and North Rift regions. The study further found that trust of individuals and communities as an operator of Social Capital can be built through education and existing social structures. This was in agreement with the other literature findings that in Kenya individuals trust levels on the product on offer by insurers had significant influence on the uptake of insurance (Duru, 2012; Ajemunigbohun et al., 2015; Dercon et al., 2012).

Mohan and Noor (2015) found that emergence of digital platforms opened additional channels for selling health micro insurance. Their study concurs with this study finding that mobile telephone technology has a moderating effect between social capital and health micro insurance uptake in Central, lake, Narok-Kajiado, North Rift and regions. On the contrary, the rest of the regions including Nairobi, Pwani Sooth Eastern, Frontier counties, mobile telephone technology reported no moderating effect in contrast with Gikonyo (2014), who found that growth in mobile technology enhanced micro insurance uptake in the whole of Kenya as a country. However, as the mobile revolution marches on, actors in the micro insurance space should continue their innovation refining both products and delivery channels. Being cognizant that access to insurance is a fundamental component in protecting the poor from severe and recurrent risks that may expose them into greater poverty (Mohan & Noor, 2015).

Implication to Research and Practice

This study is significant because the result provides evidence that an increase of HMI uptake significantly contributes to economic development of Kenya given that the informal sector leads in job creation. The study also revealed the need for policy makers to consider laying emphasis on affordable HMI products to increase the uptake. Policy intervention is also required to increase the efficiency in claim settlement by the industry. The study further demonstrated that the SC significantly influenced HMI uptake among the informal sector in Kenya. Managers must therefore take cognizance of these interactions and formulate their promotion strategies accordingly. First, the study showed current products on offer required increased visibility hence underwriters, brokers and agents must continuously embrace changes and opinion of the informal sector if uptake of HMI has to be increased. It therefore, provides understanding to the industry players for the need to innovate and strategize on what alternative may increase uptake of HMI and sustain renewals. The study further contributes to the understanding of the industry players in developing marketing strategies that recognize the sector characteristics in term of structure, size age and ownership as factor that impact on the uptake of HMI.

Conclusion

This paper investigated social capital as a determinant of uptake of health micro-insurance. SC being the aggregation of resources embedded within, available through, and derived from networks of relationships endowed in individuals and groups. In all the seven economic blocks apart for Nairobi social capital contributed to HMI uptake. This supports the empirical literature which stated that when individuals, groups, or organizations establishes network that ties with other individuals, groups and organizations the tie becomes a social capital between the parties. The evidence also supported the argument that SC can be used to promote the public

good, suggesting that one of the most important examples of SC at work is the absence of formal insurance mechanisms and financial instruments making the poor use their social connections as a risk instrument. The underwriters using this approach will contribute to financial inclusivity through increase HMI uptake which the study observed was low in the informal sector. Mobile telephone technology was found to be effective moderator between social capital and HMI uptake in the rest of the region except in Nairobi where MTT contribution was insignificant. To reiterate, the social networks of the informal sector workers are one of their primary resources they hold for managing risk and vulnerability, and HMI providers need to innovate on ways to complement these resources, rather than substitute for them.

The purpose of this study was to identify SC as a determinant of HMI uptake among the informal sector workers in Kenya. The respondents were drawn from micro and small enterprises managers and owners; excluding others such as employees of MSEs, health micro-insurance providers and policy makers. This created a gap for future research to further identify the determinants of uptake of health micro-insurance by the informal sector workers in Kenya.

Recommendation

In order to increase HMI uptake by the informal sector workers in Kenya, the micro-insurance operators should embrace SC which transcends social divides, building social cohesion and trust which was found crucial for HMI uptake. In addition, they should be cognisant of social capital as a provider a common language for the different stakeholders, and an enabler of communication between each other. Therefore, HMI interventions should be viewed through a SC lens, and assessments of their impact should include the potential effects of the intervention. From the findings, the following recommendations may be considered: First, Insurance Regulatory Authority (IRA) should include in the policy document the marketing activities, education, tax exemptions to attract investment in this sector since sustainability of HMI can only be achieved with patient capital. This can be achieved by ensuring stable political environment, efficient infrastructure, and investment in technological facilities. Second, the government and industry players working to propel demand for both voluntary and contributory HMI in the informal sector should propagate a bottom-up governance structures among communities to influence perception that HMI enhances welfare gains to the entire community. Their willingness to pay will only be evident if they are comfortable about the governance.

References

- Ajemunigbohun, S. Suleiman, Q. & Ayodele, S. (2015). *An exploratory study of the awareness and accessibility of micro-insurance products in selected insurance*, <https://www.researchgate.net/publication/333404811>
- Aregu, A. & Worku, A. (2018). Determinants of micro-insurance demand in Jimma zone. *International Research Journal of Business Studies*, 11(3), 145-157.
- Bastalaer, T. (1999). *Does social capital facilitate the poor's access to credit? A review of the microeconomic literature, social capital initiative*. Working Paper 8. World Bank, Social Development Department, Washington D.C.
- Berry, S. (1993). *No condition is permanent: The social dynamics of Agrarian change in Sub-Sahara Africa*. Madison, Wis: University of Wisconsin Press.
- Boone, L. & Kurtz, D. (1998). *Contemporary Marketing-Wired*. Dryden Press

- Bourdieu, P. (1986). The forms of capital, In J. Richardson (ed.), *Handbook of Theory and Research for Sociology of Education* (New York, Greenwood), pp. 241-258.
- Chege, A., Mwenja, D., Kiambati, K. & Mbugua, L. (2020). Budget Execution and service delivery of public county health facility. *J Indus Policy Technol Manage* 2 (91)
- Coleman (1988). Social Capital in the creation of human capital. *The American Journal of Sociology*, (94)-95-120.
- David, P. & Greenstain, S. (1990). Economic of innovation and new technology. *APA*, 1(1-2), 2-41.
- David, P. (1985). Clio and the economics of QWERTY. *American Economic Review, American Economic Association*, 75(2), 332-337.
- Dearing, J. & Cox, J. (2018). Diffusion of innovations theory, principles, and practice. *Health Affairs*, 37(2), 183-190. doi: 10.1377/hlthaff.2017.1104.
- Dercon, S. Gunning, J., Zeitlin, A., Cerrone, C. & Lombardin, S. (2012). *The impact of health insurance programme, evidence from a randomized controlled trial in Kenya*. ILO Microinsurance Innovation Facility Research Paper No. 10.
- Dror, D. & Firth, L. (2014). The demand for (micro) health insurance in the informal sector. *The International Association for Study of Insurance Economics*, 1018-5895/14
- Dror, D. (2018). Financing micro health insurance: Theory, method and evidence. *Health Management Journal*, (18), 3.
- Dror, D., Chakroborty, A. & Koren, R. (2016). Impact of community-based health insurance in rural India on self-medication and financial protection of the insured. *India Journal of Medical Research* 143 (6), 809-820.
- Duru, M. (2012). New Challenges for Industrial Policy in Nigeria, *Universal Journal of Management and Social Science*.
- Elabed, G. & Carter, M. (2015). Compound-risk aversion, ambiguity and willingness to pay for micro-insurance. *Journal of Economic Behavior & Organization*, 118, 150-166
- Etrata, A. & Montemayor, C. (2019). Determinants of micro-insurance uptake as a social protection tool of the marginalized: A conceptual framework. *International Journal of Modern Trends in Business Research (IJMTBR)*, 2(7), 1-16.
- Fadlallah, R., El-Jedili, F., Hemad, N., Morsi, R., Samara, C., Ahamed, A., Arif, K., Hishi, L., Haidar, G. & Akl, E. (2018). *Barriers and Facilitator of Implimentation, Uptake and Sustanability of Community Based Health Schemes in Low- and Middle-Income Countries, A systematic Review*. *Int J Equity Health*, 17(1), 13, doi: 10.1186/s12939-018-0721-4.
- Field, J. (2017). *Social capital*. New York, NY: Routledge
- Fitzpatrick, A., Magnoni, B., & Thornton, R. (2011), *Micro-insurance utilization in utilization in Nicaragua, A report on effects on children, retention and health*. In ILO Micro-Insurance Innovation Facility Research paper.
- Fukuyama, F. (1995). *Trust: The social virtues and die creation of prosperity*. New York: Free Press.
- Fusheini, A., Marnoch, G. & Gray, A. (2017). Stakeholders perspectives on the success drivers in ghana's national health insurance schemes, identifying policy translation issues. *Int J Health Policy Manag* 1, 6(5), 273-283. doi: 10.15171/ijhpm.2016.133.
- Gikonyo, T. (2014). The effect of mobile technology on the growth of microinsurance in Kenya. (Unpublished Thesis), University of Nairobi.

- Gitahi, J. (2017). Innovative *Healthcare financing and equity through community-based health insurance schemes (CBHIS) in Kenya*.
<http://erepo.usiu.ac.ke/bitstream/handle/11732/3654/>
- Gregersen, K. (2013). *Assessing the glue that holds society together: social cohesion arguments in liberal democracy*. Semantic Scholar
- ILO, 2012. *Strategies towards universal access to health care*. International Labour Organization.
- Iqbal, M., Chowdhury, Sheila, S., Nahid, M., Mia, A., Hanifi, M. & Bhuiva, A. (2017). *Socioeconomic and programmatic determinants of renewal of membership in a voluntary micro health insurance scheme: Evidence from Chakaria, Bangladesh*. Glob Health Action, 10(1), 1287398. doi: 10.1080/16549716.2017.1287398.
- Karyani, A., Sari, A. & Woldemichael, A. (2019). Eliciting Preferences for Health Insurance in Iran Using Discrete Choice Experiment Analysis, *International Journal of Health Policy and Management*, 8(8), 488-497.
- Levesque, J., Harris, M. & Russell, G. (2013). Patient-centred access to health Care: Conceptualizing access at the interface of Health Systems and Populations, *International Journal for Equity in Health*, 12 (18). <http://www.equityhealthj.com/content/12/1/18>
- Macharia, G. B. (2017). Factors influencing uptake of social health insurance in Kenya: A case of Nyeri County. *International Journal of Current Business and Social Sciences*, 1 (6), 117-194.
- Matul, M., Dalal, A., De Book, O. & Gelade, W. (2013). *Why people do not buy microinsurance and what we can do about it*. Microinsurance. paper no. 20.
- Microinsurance Network (2015). *The state of microinsurance, the insider's guide to understanding the sector*. Microinsurance Network
- Mohammed, J., North, N. & Ashton, T. (2016). Decentralization of health services in fiji: A decision space analysis. *International Journal of Health Policy and Management*, 5(3), 173-181. doi: 10.15171/ijhpm.2015.199
- Mohan, R. & Noor, W. (2015). Can technology push micro-insurance further? 4 reasons to say yes. CGAP.
- Morsink, K. & Geurts, P. (2012). The trusted neighbour effect: Local experience and demand for micro-insurance.
- Mugenda, M. & Mugenda, A. (2003). *Research methods: Quantitative and qualitative approaches*. ACT, Nairobi, Kenya.
- Mutegi, F. (2018). Role of innovation strategy on insurance penetration in Kenya. (Unpublished Thesis), JKUAT. <http://hdl.handle.net/123456789/3764>
- Mwatima, S. (2018). *Contribution of railway transport in boosting rural economic development in tanzania: A Case of Tanzania railway limited*. (Unpublished Thesis), The open University of Tanzania.
- Mwenja, D. (2006). Fonder centrality and top management team social network effects on top management behavioral integration and firm performance in family businesses.
- Ndirangu, L. & Nyamogo, E. (2015). Financial innovations and their implication for monetary policy in Kenya.
- Ndurukia, Z., Njeru, A.W. & Waiganjo, E. (2017). The determinants of demand for micro insurance services in Kenya *American Journal of Finance*, 2(6 No.3.), 79 – 107.

- Nyman, J. (2006). Evaluating health insurance: A Review of the theoretical foundation. *The International Association for the Study of Insurance Economics* 1018-5895/06 www.palgrave-Journal.com/gpp
- Ogaden, J., Morrison, K. & Hardee, K. (2013). Social capital to strengthen health policy and health systems. *Health Policy and Planning*, 29, 1075–1085 doi:10.1093/heapol/czt087
- Oloosebikan, O. & Adams, M. (2014). Prospects for micro-insurance in promoting micro credit in Sub-Saharan Africa. *Qualitative Research in Financial Markets*, 6(3), 232-257
- Panda, P., Chakraborty, A., Dror, D. & Bedi, A. (2013). Enrolment in community-based health insurance schemes in rural Bihar and Uttar Pradesh, India. *Health Policy and Planning*, <http://doi.org/10.1093/heapol/Czt077>
- Penda, P., Dror, I., Koehlmoos, T., Hossain, S., John, D., Khan, J. & Dror, D. (2015). What factors affect uptake of voluntary and community-based health insurance schemes in low and middle-income countries? A Systematic Review and Meta Analysis. *PloS one*, 11(8), e0160479. <https://doi.org/10.1371/journal.pone.0160479>.
- Platteau, J. & Otiveros, D. (2013). Understanding and information failure in insurance: evidence from India. *Development Research Working Paper Series 7*, Institute for Advanced Development Studies.
- Putman, R. (2000). *Making democracy work: Civic traditions in modern Italy*. Princeton University press.
- Radermacher, R. & Dror, D. (2006). Handbook of micro health insurance in Africa.
- Ream, A. (2010). Relationship and the importance of reciprocity. <https://www.goodtherapy.org/blog/relationship-reciprocity>.
- Rogers, E (2003). *Diffusion of Innovation Theory, 5th Edition*, New York Free Press
- Rogers, E. (1962). *Diffusion of Innovation Theory, 5th Edition*, New York Free Press
- Runuka, S. & Susan, T. (2016). The real Cost of Credit Constraints: Evidence from Micro-finance.
- Singer, L. (2016). Diffusion of innovation theory. <http://sphweb.bumc.bu.edu/otlt/MPHModules/SB/BehavioralChangeTheories/BehavioralChangeTheories4.html> on January 9, 2020
- Smith, K. (2016). Sharing economy: Blue marble seeks profitability through cost sharing (microinsurance). *Best Review*, 116(9), 20-22.
- WHO, (2014). (World Health Organization). Child health development, information education and communication, available at, www.emro.who.int.
- WHO, (2017). *Health is a fundamental human right*. Human Rights Day 2017. World Health Organization.
- Woolcock, M. (1989). Social Capital and Economic Development: Towards a Theoretical Synthesis and Policy Framework. Woolcock, M. & Narayan, D. (2000). Social capital: implication for development theory, research, and policy. *The World Bank Research Observer*, 15(2)
- World Bank (2014). *The big business of small enterprises: Evaluation of WB experience with target market support to small and medium size enterprises*. World Bank
- Wrede, S., Benoit, C. & Einarsdattir, T. (2008). Equity and dignity in maternity care provision in Canada, Finland and Iceland. *Canadian Journal of Public Health = Revue Canadienne de Santé Publique*, 99(Suppl 2), 16–21. <https://doi.org/10.1007/BF03403799>