COMMUNITY BASED HEALTH INSURANCE SCHEMES' ENROLMENT AND HEALTH EQUITY IN KENYA

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Abstract

The objective of this study was to examine the influence of CBHIs enrolment on health equity in Kenya. The study adopted descriptive and explanatory research designs to collect data from members of management team of all registered CBHIs in Kenya. Descriptive statistics, factor analysis, path analysis and multivariate regression analysis in structural modeling equation (SEM) were conducted to determine drivers of enrolment in terms affordability, unit of membership, timing of collections and trust, and their influence on health equity in CBHIs in Kenya. Notable findings include significant correlation between enrolment in CBHIs in Kenya and health equity in terms of improving access to quality healthcare and enhancing equity in contributions to the marginalized in the community. Key drivers of enrolment included affordability, timings of collections and trust. The strengths of CBHIs in extending health equity through enlisting of precluded groups' lies in their focus on pre-existing social capital that stimulate willingness to pre-pay for healthcare through community involvement. It was inferred that single annual contribution reduces enrolment particularly for households that does not receive lump sum incomes suggesting the need of exploring the possibility of spreading premium payments on a need basis.

Keywords: Enrolment, Universal healthcare, Contributions, Health Equity

INTRODUCTION

The World Health Organization (WHO) views risk pooling and prepayments mechanisms as one of the mechanisms of mitigating against high out of Pocket (OOP) expenditure and a vehicle towards the realization of Universal Health Coverage (UHC) and consequently health equity. Risk pooling and prepayments approach involves making payments in advance of sickness, pooling the funds and purchase of health services for the covered based on their health needs (WHO, 2010). CBHIs are viewed in many world economies as one of the ways of realizing health equity as increase access to healthcare services by offering an alternative to OOP payments for the excluded population groups. In Kenya, CBHIs have emerged in the backdrop of extensive exclusion from prepaid health insurance where almost half the country's population is excluded from private and public prepaid health insurance schemes (MOMS, 2011; KNBS, 2010). It is estimated that only 4% of all health resources are pooled through health insurance, while risk pooling mechanisms account for 17.1% of the population. On the basis of wealth status, only 2.9% of the poorest quintile is covered (Chuma & Okungu, 2011; MoH, 2014).

Estimates based on Ministry of Health (2014) indicate that OOP spending on outpatient and inpatient accounted for 78% (48.4 billion) and 22% (13.7 billion) of total household health expenditure respectively (MoH, 2014).As a result OOP pushes about 1.48 million Kenyans below poverty line while millions lack access to essential healthcare services and many more are deterred from seeking healthcare services (Chuma & Maina, 2012, MoH, 2015).The percentage of population that has signed up for CBHI compared to the target is critical for long term viability of CBHIs given the voluntary nature of CBHIs (Jütting, 2004, Chen, Daukste, Przybyl & Fechter, 2012). The enrolment strategies employed by CBHIs should therefore respond to willingness to pay. Uptake of CBHIs health insurance is influenced by affordable premiums, flexible and varied options of payments, trust and unit of enrolment (Carrin, Waelkens & Criel, 2005).

Given voluntary enrolment of CBHIs, affordability of premium is often cited as the main determinant of membership (Carrin, 2003).This can be attributed to the fact that low income households' exhibits high price elasticity for demand as a consequence of low and irregular income (Dercon, Gunning, Zeitlin, Cerrone & Lombardin, 2012). Generally, premium should be proportionate to income level low income households', however, establishing an affordable price for low-income households is an intricate task (Churchill, 2006). Leftley (2005) rule of thumb recommends that insurers targeting the poor should work with members to establish the cash they can spare on an average day before making cost adjustment. Moreover, low income households' purchase decision is influenced by their perception of products cost and benefits (ILO, 2012). Pricing products for this market requires that the CBHIs achieve a delicate balance

of equitable, affordable premium, benefits and sustainability. An innovative model dubbed as Choosing Healthplan All Together (CHAT) offers a quick and a practical tradeoff tool between costs and benefits since it assists low-income households in choosing benefits based on their ability to pay (Dror, 2007). Belonging to lower or upper quintile influences enrolment decisions in CBHIs as evidenced by a study conducted by Jütting (2004) in Senegal. 31% of the wealthiest quintile was insured compared to 8% in the poorest quintile. Given the high association of poverty and larger family size, flat rates have been found to increase the probability of enrolment of poorer and vulnerable families (Wodtke, Elwert & Harding, 2012). This implies that the average premium per household decreases as family becomes larger, inducing enrolment.

With regard to unit of enrolment, it is easier to achieve adequate membership rates when households or even villages, cooperatives or mutual benefit societies are adopted as the basis of membership. This strategy extends schemes membership beyond voluntary membership (Atim, 1998), mitigating the problem of adverse selection. Carrin (2003) found that a number of schemes had actually switched to this type of membership, after experiencing problems of adverse selection, as a result of families signing up ill family members or family members most prone to consume health care. Also, most of the case studies (14) reviewed in the WCA study had an automatic family coverage (Atim, 1998).

Some schemes have gone beyond adapting family as a unit membership and set a minimum percentage of households in a village would be required to enroll before providing insurance. For instance Kasturba Hospital scheme in India set at minimum enrolment of 75% of poor households in a village while the Vietnam Health Insurance programme insurers adequate numbers of children by establishing a minimum of 50% per class (Bennett, Creese & Monash, 1998, Carrin, Ron &Yang, 1999). Correspondingly, some CBHIs in Uganda have defined a minimum of 60% membership from mutual benefits societies (Carrin,Desmet & Basaza, 2001). The same is true for Grameen Health plan in Bangladesh and Mburahati scheme in Tanzania. In Bangladesh, participating in Grameen Bank credit programme guarantees automatic membership of the scheme while Mburahati scheme targets the entire membership of co-operative societies (Desmet,Chowdhury & Islam, 1999).

The periodicity of the payment of premiums seems to influence the decision to enroll especially for the poor and vulnerable groups. Indeed, it appears that the obligation to pay the enrolment fee and/or the yearly membership premiums in one payment constitutes an important obstacle, in particular for the poor and vulnerable (De Allegri, Sanon & Sauerborn, 2006). Adoption of approaches that make premium payments more flexible is critical for enrolment and renewal of policies in CBHIs given the low and irregular income earned by the poor households (ILO, 2012). Spreading enrolment fee and renewal fees are some of payment policies that

encourage enrolment (De Allegri *et al.*, 2006). Mathauer, Schmidt & Wenyaa (2007) observe that inability to pay lump sum premiums when they fall due influenced the poor not to enroll according to a study conducted in Kenya. Annual contributions, collected at the time of harvest of cash crops, seem to be prevalent among schemes in rural areas (Bennett *et al.* 1998). However, in some schemes, such as the ORT Health Plus Scheme (OHPS) in Philippines, payment schedules are held flexible, with monthly, quarterly or semi-annual payments (Ron, 1999). Other schemes link the time of payment of the contribution with a suitable event in the community. For instance, burial societies in Uganda use their monthly meetings for the collection of premiums, for both first-time members or for those who renew their membership (Carrin *et al.*, 2001).

Given the amount of risk that is inherent in this nature of insurance schemes, trust is another important factor when considering enrolment in CBHIs. CBHI enrollment rates are likely to be affected by three manifestations of trust relationships—trust in others within the community, trust in health providers covered by the scheme, and trust in the CBHI scheme and management team (Chen *et al.,* 2012). Trust among individuals in a community can effectively be assessed through examining social networks. In rural environments, trust is based primarily on the relationships created by traditional customs, ethnic groups, and common occupations, rather than other social arrangements. Conversely, in urban settings, individuals look to build trust relationships with one another according to the degree of reciprocity and/or mutually beneficial support that can be derived from those relationships, rather than through kinship ties as often found in rural settings. Generally, urban networks tend to form with greater diversity and are generally larger in size; however urban networks are usually more susceptible to instability as a result of the transient and impermanent nature of urban dwellers (Chen *et al.,* 2012).In terms of trust in health providers covered by the CBHI scheme, factors such as the availability, quality, and reliability of health providers have been found to be significant determinants of enrollment. Trust relationships between health providers and individuals are generally influenced by experiential lessons which are mainly composed of the past and current experiences. The trust relationship between individuals and health providers covered by the CBHI scheme is based largely on experiential knowledge comprised of past and current experiences. An analysis of qualitative data from 13 rural and urban CBHIs drawn from multiple regions across the world established that there exist high level of trust between the members and the CBHIs management team. Further, the perception of fairness and transparency in schemes is better positioned to nature trust relationships with the community (Chen *et al.*, 2012).This study sought to investigate CBHIs enrolment and its implications on health equity in Kenya.

METHODOLOGY

To draw inferences on enrolment in CBHIs enrolment and its implication on health equity in Kenya, the study adopted both descriptive and explanatory research designs. Data was collected from all registered CBHIs in Kenya. Primary data was collected from four members of each CBHIs management team by use of a self-designed questionnaire where responses were sought on a five point likert-type scale. In terms of secondary data, longitudinal data on total premiums collected (from households, government and donors), healthcare costs reimbursements and administration cost was collected from each CBHIs from 2010-2015 using a self-designed secondary data sheet. Descriptive statistics was used to compare the values numerically while structural equation modelling (SEM) partial least square (PLS) approach was used to develop the measurement and structural model for testing hypothesized relationships between the enrolment and health equity

RESULTS

This section presents the descriptive statistics, Cronbach's Alpha Coefficients, AVE and KMO values for CBHIs enrolment and the test for hypothesized relationship between enrolment and health equity. In terms of coverage, majority (91.5%) of the CBHIs covered up to 500 households, while 6% covered between 1001 – 2000 households with 2% of the CBHIs covering between 501 – 1000 households. The total number of households covered is 12,101 households while 1680 households had dropped the NHIF/CBHIs cover as a result of increase in NHIF premiums for those in the informal sector.

Findings on affordability of premiums in CBHIs indicate that members are given a chance to allocate premium among preferred products (Mean = 4.63; Std. Dev. = 0.511), mutual benefit societies are basis of CBHIs membership (Mean = 4.75; Std. Dev. = 0.444), CBHIs have also adopted households as unit of membership (mean =4.75; std. dev =0.444). With regard to the timing of collection, the members of the CBHIs pay in a single annual premium or contribution (Mean = 4.70; Std. Dev. = 0.470). Findings on trust in CBHIs indicate existence of strong social networks in CBHIs. Members interact with the scheme's administrative/ management team about their needs, concerns and suggestions for improvements (Mean = 4.74; Std. Dev. = 0.439), members participate in setting of benefit package (Mean = 4.63; std. dev. = 0.511), members of the CBHIs participate in setting the premiums (Mean = 4.77; Std. Dev. = 0.420).

Findings on health equity show that membership is distributed across income categories in the CBHIs (mean = 4.70; std. dev. = 0. 498), the contracted providers of the healthcare services are within the proximity of covered population in the CBHIs (mean = 4.71; std. dev. =

0.472), some CBHIs cater for transport and or accommodation cost related to healthcare utilization (mean = 2.58; std. dev. = 0.624), CBHIs allocate a larger claim budget for low cost products (mean = 4.63; std. dev. = 0.511), CBHIs have put in place a standard complaint management mechanism (4.63; std. dev. = 0.511), CBHIs have put in place mechanisms to check on patient perceived quality of care in contracted health facilities on issues concerning waiting time availability of staff, services, drugs and supplies (Mean = 4.65, std. dev. = 0.505), there are other organization(s) that conduct quality checks in the contracted health facilities (4.70; std. dev. = 0.489). The organizations share their findings with the CBHIs. SmartPLS was used to measure the construct, composite and convergent reliability and discriminant validity. Construct reliability was assessed by computing the composite reliability and the Cronbach alpha of the constructs at a threshold of 0.6. Average variance extracted (AVE) was used to measure convergent validity which estimates that ability of indicators relevant latent constructs to actually measure a particular construct. A 0.5 threshold was adapted indicating that the latent constructs should account for at least fifty percent of the variance in the items. Discriminant validity was measured using Kaiser–Meyer–Olkin (KMO) at thresholds of 0.5. Only items significance levels of each test were retained for further analysis. Table 1 presents the summary of the Cronbach's Alpha Coefficients, AVE and KMO values for enrolment.

Table 1: Cronbach's Alpha Coefficients, AVE and KMO values for Enrolment

2nd order construct	First order constructs	Cronbach's alpha	Item	Item total correlation	KMO	PCA component loading	variance extracted	Items deleted
Enrolment	Affordability	0.964	AF1	0.931	0.763	0.983	96.57%	AF2, AF3, AF4
			AF4	0.931		0.983		
	Membership	0.977	MT1	0.956	0.500	0.989	97.78%	MT2 , MT3
			MT4	0.956		0.989		
	Timing of collections	0.939	TM1	0.886	0.500	0.971	94.29%	TM1, TM2 , TM4
			TM3	0.886		0.971		
	Trust	0.934	TRU1	0.770	0.766	0.864	71.45%	None
			TRU2	0.850		0.907		
			TRU3	0.764		0.859		
			TRU4	0.825		0.892		
			TRU5	0.561		0.685		

The results presented in Table 1 shows Cronbach's alpha coefficients above the 0.7 threshold for all first order constructs, total item correlations of above 0.3, AVE of above 65%, KMO

values greater than 0.5 and satisfactory principal component loadings of above 0.50. The factors with low standardized regression weights were subsequently deleted. These findings imply that the items of measure were measuring what they were initially set out to measure, and therefore the data was maintained for further analysis.

Table 2, provides the summary of the Cronbach's Alpha Coefficients, AVE and KMO for health equity.

Table 2: Cronbach's Alpha Coefficients, AVE and KMO values for Health Equity

Health Equity	Cronbach's alpha	Item	Item total correlation	KMO	PCA component loading	variance extracted	Items deleted
Healthcare access	0.833	ACC1	.551	0.786	.725	67.19%	None
		ACC2	.707		.848		
		ACC3	.693		.846		
		ACC4	.712		.852		
QOC	0.961	QOC1	.956	0.722	.981	92.79%	
		QOC8	.930		.969		
		QOC9	.868		.939		
AMC	0.953	AMC1	.947	0.812	.976	88.52%	
		AMC2	.945		.973		
		AMC3	.905		.952		
		AMC6	.767		.858		
Sustainability	0.909	FS1	.848	0.784	.917	73.84%	
		FS2	.785		.862		
		FS5	.740		.838		
		FS8	.702		.795		
		FS10	.792		.880		

The results presented in the table show Cronbach's alpha coefficients of above the 0.7 threshold for all first order constructs, total item correlations of above 0.3, AVE of above 65%, KMO values greater than 0.5 and satisfactory principal component loadings of above 0.50. These findings imply that the items of measure were measuring what they were initially set out to measure, and therefore the data was maintained for further analysis.

The validity of the theoretical measurement model was measured against the sample data collected. This was achieved by evaluating the path coefficients, t-values, overall model fit and significance levels for the structural paths to determine the causal relationships between CBHIs enrolment and health equity as hypothesized in the integrative model. Figure 1 and 2 and table 3 presents the paths coefficients, standard deviations, t-statistics and P values for the hypothesized effect of CBHIs enrolment on health equity.

Hypothesized effect of Enrolment in CBHIs on Health Equity
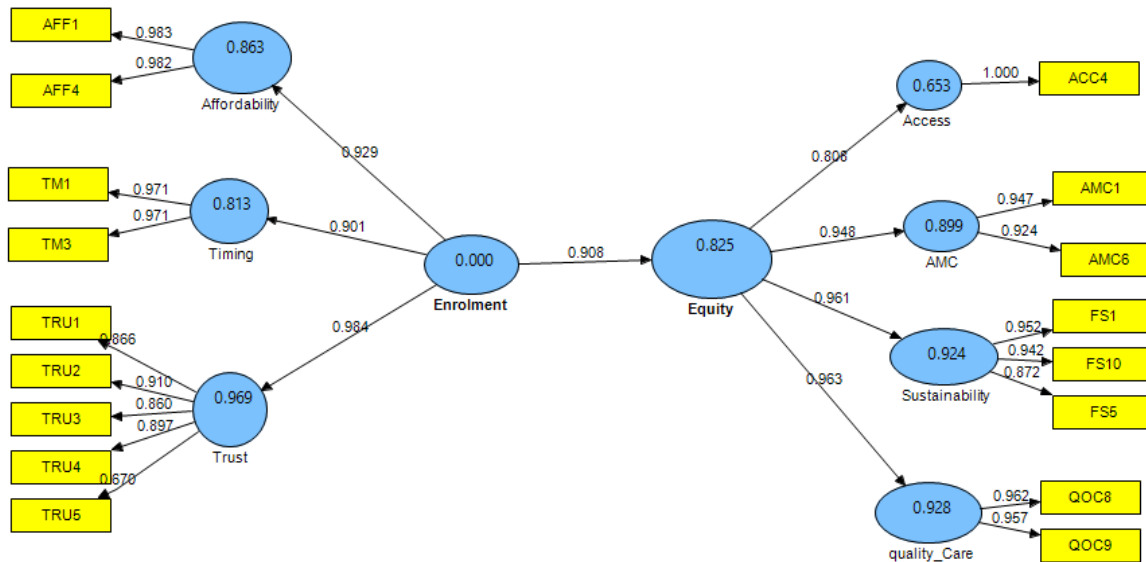

Figure 1 Path coefficients for effect of enrolment in CBHIs on equity in health care

Figure 1 shows that enrolment had a coefficient r^2 mean of 0.825 showing the proportion of variation in dependent variable explained by the SEM model. r^2 indicates that 82.5% of the variations in health equity can be accounted for by CBHIs enrolment. Results also reveal that, when enrolment increases by 1 unit, health equity increases by 0.908 units.
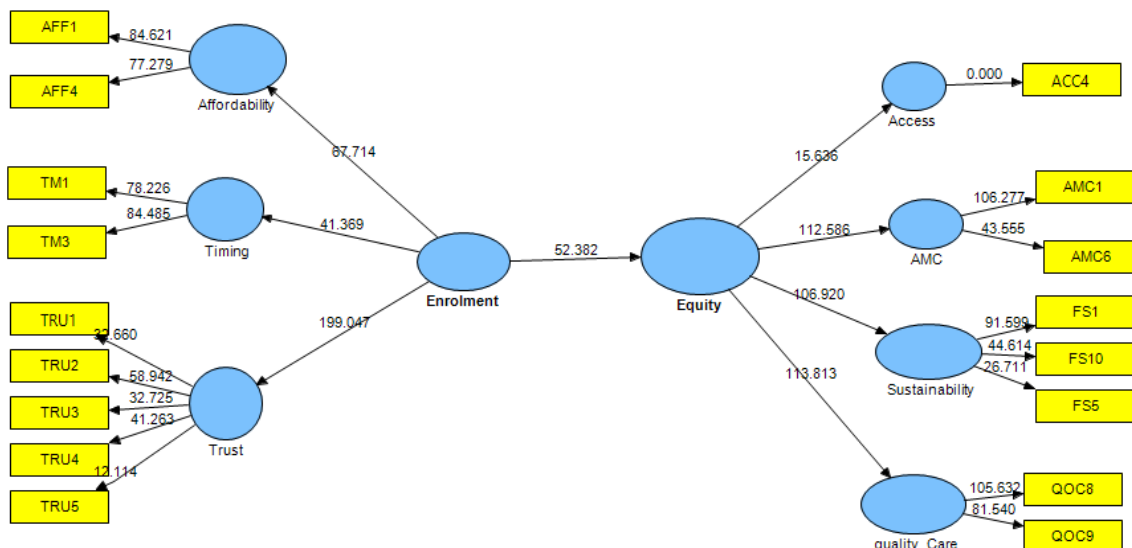

Figure 2 t-values for effect of enrolment in CBHIs on equity in healthcare

Figure 2 shows that the t-value was greater than 1.96 at a significance level of 0.05 indicating that CBHIs has a positive and significant effect on health equity.

Table 3: Path Coefficients (Mean, STDEV, t-value)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Enrolment -> Equity	0.908386	0.910345	0.017342	52.381868	0.0000

Enrolment in CBHIs had a positive statistically and significant effect on health equity at the 0.05 level of significance (β=0.908, t-value=52.382 >1.96, p<0.05) as indicated in figure 1, figure 2 and table 3.

DISCUSSION

The study established that there was a positive and significant relationship between enrolment in CBHIs and health equity at 5% level of confidence. This finding is consistent with the findings of Carrin *et al* (2005) which established that high membership rates increase health equity in CBHIs. The study also shows that studied CBHIs have extended coverage to 12,101 households and majority of CBHIs had enrolled up to 500 households. This finding is in congruence with WHO (2010) that although voluntary schemes attract fewer members they are effective in enrolling precluded segments of the population. As a result of changes in NHIF premiums prices in 2015, 1680 households dropped the cover. Dercon *et al.* (2012) concur that low income household's display high price elasticity due to low and irregular income, a factor that influences demand for health insurance. The CBHIs also encourage members to use savings-linked premium payment mechanisms. The study however found that the schemes do not allow contributions in installments, while in-kind payments for premium are not allowed and subsidies for poor people through CBHIs do not exist.

This study supports earlier findings of various researchers (Atim, 1998;, Desmet *at al.*, 1999; Carrin, 2003; Carrin *et al.*, 2005) which reported that most CBHIs recruit their members from mutual benefits societies besides using family as a unit of membership. CBHIs membership is open to the poorest and vulnerable groups while majority of members (63%) live with proximity of 5 kilometers from contracted healthcare providers. Result on the influence of geographical proximity on enrolment is supported by findings of Carrin *et al.* (2005). Carrin *et al.* (2005) found that physical proximity in China Rural Co-operative was suggestive of the low enrolment rates and small risk pools given that enrolment was reliant on trust among community members. This study also found that members are required to pay premium in a single payment. This finding is inconsistent with the findings by Basaza *et al.* (2007) that found that a

Ugandan mutual greatly increased its membership by spreading its premium payments over the year.

Trust is a critical determinant of uptake in CBHIs given their voluntary nature of enrolment. The study established members interact with the scheme management team during annual general meetings and other scheduled meetings where they air their views, concerns and give feedback on issues concerning CBHIs. Additionally, that there exist high levels trusts among members since CBHIs draw their membership from mutual benefits societies which already enjoy high degree of reciprocity and or mutually beneficial support. Members are actively involved in determination of benefits packages and setting of premiums. These results are supported by finding by Chen *et al.* (2012) that found that trust in CBHI management team and in the scheme itself has a positive impact on enrolment decisions. Further, the perception of fairness and transparency in schemes is better positioned to nature trust relationships with the community (Chen *et al.*, 2012).

CONCLUSION

To conclude, although single annual payments ease the collection of premiums, they may reduce enrolment particularly for households that does not receive lump sum income. This study recommends that CBHIs management team in consultation with their members explore possibilities of modifying premium policies to widen the enrollment. They may consider for instance extending the duration of contributing the premiums as well as the renewal periods given the members cash-inflows for purpose of maximizing the probability of enrolment and renewal.

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