

Human Capital Deprivation and Its Contribution to Multidimensional Poverty: Access through Rural Organisations in Nyakagabagaba, South-Western Uganda

Charlotte Arinaitwe Xiaoyun Li*

College of Humanities and Development Studies, China Agricultural University, 17 Qinghua Donglu, Haidian District, Beijing 100083, China

Abstract

This study elaborates how human capital deprivation contributes to the overall multidimensional poverty in Nyakagabagaba and how rural dwellers in the study area belonging to rural organisations (members) access or accumulate human capital desired for their livelihood through the cooperatives and associations they belong to while nonmembers gain access to the needed human capital components through the spillover effects created by rural organisations' function, purposes and services provided. The relationship between perceived rural organisation influence in access to human capital component and the condition (deprived or nondeprived) of human capital components is studied to establish the significance of rural organisations in accessing or accumulating on the components of human capital. Findings show that rural organisations enhance access to human capital, deprivation of which contributes to multidimensional poverty.

Keywords: Rural organisations; human capital; multidimensional poverty; livelihoods; cooperatives; associations

1. Introduction

Human capital entails the skills, knowledge, ability to labour and good health which all combined enable people to adopt varied livelihood strategies for their wellbeing (DFID 1999). Although it is not an all important capital in that human capital has to make use of the other livelihood capitals to enable one overcome multiple deprivations there by achieving positive livelihood outcomes, human capital is associated with high productivity and income (Kinsella et al. 2010).

Material poverty does not proxy illbeing or bad quality life. In other words, poverty viewed as bad quality of life has multiple interlocking dimensions which when combined generates and (if not controlled) sustains the inability of effective co-production¹ (Narayan et al. 2000). In this study, multidimensional poverty concerns deprivations in livelihood capitals. In other words, one is rendered multidimensionally poor if he/she is deprived of two or more dimensions that make up the five capitals in the Livelihoods Framework. As far as human capital is concerned, Narayan et al. (2000) infers that poor people's experiences of sickness and weak capabilities due to lack of information, education, and skills renders them multidimensionally poor in human capital dimensions. Given that rural organizations are formed as people come together to pool resources meant to meet their needs that they would hardly meet individually, this study explores how through rural organisations residents in Nyakagabagaba access human capital components required for their wellbeing. Are human capital components of hospital and healthcare access; child education; and knowledge and skills needed to carryout livelihood activities accessed through rural organisations?

To assess the access to human capital (a livelihood asset) accessed through rural organisations and contribution of human capital deprivation to multidimensional poverty, concepts are borrowed from the DFID Livelihoods Framework. The contribution of human capital deprivation to multidimensional poverty is determined using the AF method (Alkire Foster method) as part of the assessment of the contribution deprivation in each livelihood asset makes to multidimensional poverty. The multidimensional poverty measure (AF Method used in this study) being founded on Amartya Sen's Capability Approach, and human development being founded on the capability approach yet Pressman (2016) argues for the integration of human development and human capital for increased productivity, is the basis upon which the current study links human capital deprivation to multidimensional poverty. The capability framework observes poverty or wellbeing as not just resource deprivation but also capability or functioning deprivation. Capabilities being referred to the combination of functionings and functionings, the beings and doings that a person achieves including but not limited to being adequately nourished, in good health, educated, and possessing adequate knowledge and skills required for co-production. Another reason for linking human capital deprivation to multidimensional poverty stems from the DFID (1999) sustainable livelihoods guidance sheet's elaboration that human capital is required to make use of other capitals arguing that human capital is necessary although not sufficient on its own to achieve positive livelihood outcomes there by reducing multiple deprivations.

¹ co-production is the "ongoing interaction and mutual transformation of man and living nature" (Ploeg 2008).

Considering the DFID (1999) definition of human capital, this study considers three components of human capital *viz.* 1) child education; 2) hospital and preventative healthcare access; and 3) knowledge and skills acquired to carryout livelihood activities. The decentralisation of health, education, and agricultural advisory services with the aim of improving service delivery enabling access by majority Ugandans especially rural dwellers in remote areas is critically challenged by a low financial resource base available to local governments (Bashaasha, Mangheni, and Nkonya 2011). There are many factors that limit access to human capital components in Uganda especially in rural areas that are remote and characterised by poor infrastructure even with the decentralisation efforts that aimed at bringing services closer to the people. This study explores how through rural organisations residents in Nyakagabagaba access human capital components required for their wellbeing.

This study refers to rural organisation as both cooperatives and associations operating in the study area. Whereas this study adopts the definition of cooperatives as "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprise" (MTIC 2012), the definition of associations is derived from DFID (1999) definition of social capital referring to associations as "informal groups"² developed to increase member's ability to work together and or expand their access to livelihood assets capitalising on relationships of trust, reciprocity and exchange with membership built on mutually agreed or commonly accepted rules, norms and sanctions.

Previous research indicates subjective benefits obtained by community members through rural organisations as far as poverty reduction and enhancing community development is concerned (Francesconi and Heerink 2011; Bernard et al. 2010; Biru Ashenafi 2014; Magigi 2013; Bacque 2005; Dubey et al. 2009). Among other benefits rural organisation members receive, income earned through selling member's produce may improve rural livelihood but also compromise household consumption with the ever increasing need to earn more money. Even though cooperatives generally benefit members, benefits accrued vary between cooperatives depending on defining characteristics of the place in which the cooperative operate (Kausik and Chameli 2007). Moreover, the local situation may force people to work harder or acquire some skills to improve their way of life.

Recognising that the country's major handicap to social and economic transformation is associated with the inadequacy of the country's human capital, Uganda's second National Development Plan (NDPII 2015) highlights the need to improve the country's human resource for a healthy, educated and skilled population that will drive Uganda's planned growth and transformation. He and Zhang (2014) infer that consideration should be given to improved school education, enhanced vocational training, learning by working, enlarged investment in healthcare and perfected social security system in order to restore human capital.

Even though highly desirable for agricultural production, agricultural extension services are largely relayed verbally rather than through demonstration, innovative and hands on practical guidance to farmers (Akpalu 2013) thus extension does not reach many farmers. The desire to learn and acquire certain skills can be triggered by the harsh environment that rural dwellers face yet still, learning capabilities are desired for better outcomes. Decentralisation in Uganda resulted in transfer of the mandate to plan and implement agricultural extension services from the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) to district local governments which coordinates National Agricultural Advisory Services (NAADS) that run farmer groups and coordinate extension services (Buyinza et al. 2015). Farmers interested in benefiting from NAADS join farmer groups through which they make their service requests known then receive grants and obtain advisory services through the farmer group registered with NAADS (Benin et al. 2011). In the study limited to groups that were formed in order to register with NAADS, Holloway (2010) reveals that clearly-defined rules determined through participatory procedures and defined systems of rule enforcement contribute to farmer groups' persistence in Mbarara, Uganda, while others collapse. However, it is not known whether this applies to other settings or other groups not formed to register with NAADS. Even though the procedure for the formation and joining rural organisations is not known, this research does not seek to explore this information. This study explores whether through rural organisations rural dwellers are able access agricultural extension services hence accumulating knowledge and skills needed for their livelihood activities.

Regarding hospital access, both the Community-Based Health Insurance (CBHI) scheme and the Engozi³ societies existed in Uganda to help the rural communities access healthcare (Musau 1999) way before the decentralisation programme in the late 1980 (Bashaasha, Mangheni, and Nkonya 2011). The Engozi also commonly known as Kweheka associations are formed locally and managed by members who pull resources to meet transport costs of ill members. In addition to transporting the ill, Kweheka associations runs a loan scheme providing members small loans at an interest of 5%. Money borrowed from the association to foot the medical bills is not charged interest but must be repaid within three months. The Kweheka associations also run income

²informal in a way that they are not registered with the registrar of cooperatives societies

³ The "Engozi" was originally a hand-carried stretcher owned by the association to transport ill members (Musau 1999)

generating projects to ease financial needs of the association. Uganda is struggling with slow progress in bringing down many of the health indicators such as maternal mortality ratio, infant and child mortality rates despite the realised improvements in health of the entire population. Characterised by geographical isolation coupled by the hilly terrain in addition to inadequate service provision similar to other rural areas in developing countries (Akpalu 2013), rural areas in Southwestern Uganda have witnessed steady transformation over years as residents work together to overcome their uncomfortable situation. Human beings being the center for sustainable development and therefore entitled to a healthy and productive life, Village Health Teams (VHT)⁴ were also established in 2001 to promote health and safety, hygiene in homes, early treatment seeking behavior, mothers going for antenatal (ANC) visits and taking their children for immunisation among other health programmes undertaken. This study explores whether through rural organisations rural dwellers are able to access healthcare services for a healthy being vital for productive livelihood.

Whereas poverty and poor health may be the original cause of school dropout rather than an end result of dropping out of school, the poor and unhealthy have made it through the education system sometimes. Possible combinations and interaction between the various causes of school dropout presents the space to regard strategies for overcoming vulnerabilities and multiple deprivations as a way forward to enabling children stay longer in school. Household situations including but not limited to child labor and poverty have been coined the number one cause of school dropout since these present a high opportunity cost for schooling and poverty alone renders the household unable to support their children financially as far as school fees and other costs associated with education are concerned (Sabates et al. 2010; Sanduleasa, Matei, and Ghenta 2013). Breier (2010) indicates that let alone financial constraints, socio-economic deprivations in developing countries contribute a great deal to school dropout concluding that many students leave school before acquiring qualifications because they were too poor to stay. Even though basic education in Uganda is funded by the government, some cost to cater for scholastic materials are to be met by the child's parents. Rural areas in Uganda being characterized by poverty, and indicated by Ploeg (2008) that cooperation is one way of defending individual interests and prospects thereby overcoming multiple deprivations as people work together to meet their needs, do residents in Nyakagabagaba meet their children education needs through rural organisations?

Located in the Southwestern highland area of Uganda, Nyakagabagaba is characterized by poor roads that are not easily accessed by majority residents given the nature of terrain. Although people tend to settle in the low lying areas, the majority live uphill. Poor infrastructure makes access to public services like hospitals and schools cumbersome as much time is required in transfer from place to place. As suggested by Banjo (2001), there is need for infrastructure investment in rural areas to save time spent on travel in order to help rural dwellers free their labour for livelihood activity engaged in. Notwithstanding the ability of investment in rural road lowering transportation costs, means of transport are not at zero cost hence they have to be paid for. Financial resources not being readily available in rural areas to finance transport needs especially for expectant mothers, the elderly and ill people in need of medical attention, membership in any rural organisation through which money can be borrowed at low interest rates comes in handy. Recognising the need to fill the human capital access gap, especially due the defining characteristics of the study area, do rural organisations enable residents in Nyakagabagaba access human capital components of: hospital and healthcare access; child education; and knowledge and skills needed to carry out livelihood activities? This study explains rural organisations as a pathway to obtaining human capital components needed by rural dwellers for more productive use.

1.1. Content and structure

This study aims to: (a) measure multidimensional poverty (capitalising on the Livelihoods Framework to aid selection of dimensions and indicators) using the sample data obtained in Nyakagabagaba; (b) assess the contribution of human capital deprivation to multidimensional poverty; (c) assess rural organisations as a livelihood strategy through which required and predicted human capital can be accumulated.

The following sections present first, the theoretical framework, followed by data and sample procedure; results; discussion and lastly, conclusion in this order.

1.2. Analytical framework

The framework for this study sets out to conceptualize how human capital deprivation contributes to multidimensional poverty then how rural dwellers in Nyakagabagaba belonging to rural organisations (members) access or accumulate human capital desired for their livelihood. Although determinants of joining rural organisations is beyond the scope of this study, it is important to note that livelihood activities and income strategy are some of the determining factors for which cooperative or association to join.

DFID's definition of livelihoods comprises the capabilities, assets and activities required for a means of

⁴ VHT is a strategy implemented by the Ministry of Health to ensure that every village in Uganda has village health team members who work together to mobilize individuals and households for better health. VHT members are community volunteers who are selected by communities to provide accurate health information, mobilize communities and provide linkage to health services.

living. The AF method is adopted to capture various income and non-income poverty indicators, aspects that contribute to poverty (Alkire 2015). Borrowing the Livelihoods Framework concepts, the AF method employed in this study captures deprivations of capabilities, assets and activities required for a means of living identifying [first] the poor through considering various deprivations suffered using the counting approach, thereafter combines the deprived with the Foster-Greer-Thorbecke (FGT) method, a widely used income poverty measure. (Alkire 2015).

To determine the contribution of human capital deprivation to multidimensional poverty, analysis relies on the censored deprivation score (Alkire et al. 2015) to describe human capital components across individuals with multidimensional poverty cutoff, K of 40 (meaning that people are deprived in at least two out of five (2/5) dimensions). The aggregate information produced is broken down by indicator to reflect livelihoods deprivation. Aggregation of dimension achievements enables display of human capital deprivation contribution to multidimensional poverty. Subgroup decomposition by village displays the extent to which people in given villages have access to assets needed for their livelihood. For this study, only human capital indicators will be displayed.

1.2.1. Regression model predicting human capital accumulation through rural organisations

This study applied the micro regression model with the unit of analysis being the individual. The focal variable modeled was the censored deprivation score, ci reflecting a joint deprivation characterising an individual as multidimensionally poor. Generalized linear model (GLM) is applied as indicated by Alkire et al. (2015) that GLMs are preferred since they account for the bounded and discrete nature of the AF-type dependent variables. The probability model is used.

Regression analysis of rural organisation influence in access to human capital component predicting rating of human capital accumulation through rural organisations is done to express how rural dwellers in Nyakagabagaba access or accumulate human capital desired for their livelihood. To assess to probability of considering human capital accumulation through rural organisations, comparison is done between rural organisation influence in access to human capital component (knowledge and skills; hospital and healthcare access; and child education) and rating of human capital accumulation through rural organisations on a scale of 1-5, 5 being Human Capital mostly accessed through rural organisations. For example, if an individual considering rural organisation influential in access to knowledge and skills rates human capital accumulation through rural organisations highly, the individual is said to have accessed knowledge and skills through rural organisations.

2. Data and sample procedure

2.1. Participants

This study capitalises on the portion of data collected for an inquiry on how membership and existence of the rural organisations in Nyakagabagaba enable residents access and improve their livelihood assets for coproduction. A cross-sectional small scale survey was done, first with a multistage cluster sampling dividing the parish, Nyakagabagaba into villages then five villages chosen at random (i.e Kamuhungu, Nyung, Omuruganda, Rukiri and Kihorezo). A random sample of 20 respondents was drawn from each village. Before this subsample was drawn, the selected cluster (village) was stratified by gender and subsamples from selected villages joined to form a complete stratified sample. In each villages, married 10 men and 10 women were chosen at random to complete the questionnaire. One household adult was engaged thus 20 households were visited in each of the 5 villages. A total of 100 questionnaires were administered and the sampling procedure used provides the ability to generalize to the entire parish (Nyakagabagaba).

2.2. Alkire Foster (AF) measure and variables

The Alkire Foster multidimensional methodology identifies the poor using a 'dual cutoff' method (Alkire and Foster 2011). The AF method is applied, to evaluate the contribution of human capital deprivation to multidimensional poverty in Nakagabagaba. Whereas the livelihood framework treats each livelihood outcome (5 capitals) separately, the AF method provides an aggregate measure of multidimensional poverty.

The 7 dimensions adopted are derived from the 5 capitals and the 16 indicators used are obtained from the DFID Guidance Sheets' subsequent sections on the information required to analyse the various capitals. The indicators are chosen considering information relevant to this study. Having determined the deprivation cutoff (poverty line) for each indicator, the poverty line was applied and personal achievement replaced with their respective status with respect to each cutoff in terms of 1 for deprived and 0 for nondeprived. The study does not assume equal weights as some indicators are considered more important in the wellbeing of people. Having assigned weights to all indicators, the number of deprivations per person was established. A second cutoff, k , was then set at 40% (after a robust analysis) giving the number of dimensions in which a person must be deprived in order to be considered multidimensionally poor. Cutoff k was applied to obtain the set of multidimensional poor persons and all nonpoor data was then censored. Focusing on the profile of the poor and

the dimensions in which they are deprived enabled calculation of the Headcount (H), the Average Poverty Gap (A), and the Adjusted Headcount (M0). Adjusted Headcount Ratio = $M0 = H \cdot A$. The M0 was later decomposed by village to compare human capital indicators across sampled villages in Nyakagabagaba and broken down by dimension to study the contribution of each indicator to multidimensional poverty. For this study, focus is put on human capital indicators.

Exploring the explanation of rural organisations as a pathway to obtaining human capital components needed by rural dwellers for more production, the focal variable is the censored deprivation score (n=96), the multidimensional deprived sample. Inference is made to rural organisational influence in access to human capital components (indicators in the multidimensional poverty measure) with response categories of 0 for rural organisations influential in access to human capital component and 1 for rural organisation not influential in access to human capital component (in other words 1 denotes: deprived in access to human capital component through rural organisations). The human capital components referred to are 1) knowledge and skills satisfaction; and 2) hospital visit and access to preventative healthcare.

Knowledge and skills satisfaction, entails the ability to command labour. This indicator was awarded weight of 1/10. An individual is deprived if he/she is not very satisfied or completely satisfied with the knowledge and skills possessed to fully execute livelihood activities. Analysis of knowledge and skills in relation to its acquisition through rural organisations entails comparison between the deprived and non deprived in knowledge and skills against influence of rural organisations in acquisition of this human capital component assessing whether the non deprived report rural organisations influential in knowledge and skills accumulation.

Hospital visit and access to preventative healthcare, indicator denotes the ability of respondents to seek medical attention when need be in addition to preventative healthcare access. An individual is deprived if he/she does not always consult a doctor and has no access to preventative healthcare service. This indicator was assigned weight of 1/20. Analysis of hospital visit and access to preventative healthcare in relation to enabled access through rural organisations entails comparison between the deprived and non deprived in hospital and healthcare access against influence of rural organisations in acquisition of this human capital component assessing whether the non deprived report rural organisations influential in enabling access to hospital visit and access to preventative healthcare.

Health status, was captured as respondent having longstanding illness and in severe pain (in the multidimensional measure). This indicator is also considered a human capital component since good health is paramount in executing livelihood activities. In the multidimensional poverty measure, this indicator was awarded weight of 1/20 with the deprivation cutoff considering an individual deprived if he/she has a longstanding illness, ever in pain and discomfort limiting their livelihood activities. Analysis of rural organisation influence in this human capital component entails the assessment of rural organisation influence in enabling hospital visit and access to preventative healthcare for individuals suffering longstanding illness, and are ever in pain and discomfort.

Child education, was not included in the multidimensional poverty measure since the unit of analysis was individual and only one of the household adults (either male or female) was interviewed. Child education is however considered a human capital component in a sense that it enables acquiring knowledge and skills not only for personal use but for the benefit of others through sharing and knowledge transfer (Mariana and Ionita 2009). Determining deprivation in child education through assessment of child education quality and years of schooling in addition to child education impact and value to livelihoods is beyond the scope of this study. Concurring with the argument that both direct and indirect support to human capital accumulation only achieves its aim if people are willing and able to invest in their own capital (DFID 1999), analysis of child education human capital component in relation to rural organisation influence focuses on access to the resource pool and decisions that members take in relation to using the resource pool for loan and or utilization to support child education financial needs. In this case, the overall importance of rural organisation in human capital accumulation expressed through rating (1-5, 5 being human capital mostly accessed through rural organisations) and rural organisation influence in child education is studied. This is done to ascertain whether those who consider rural associations important in human capital accumulation utilize the resource pool to support education of their children.

3. Descriptive statistics of data

91% of the respondents reckon that human capital components of: child education, health, and knowledge and skills are accessed through rural organisations when asked to rate the assess of the human wellbeing components through rural organisations on a scale of 1-5, 5 being the mostly accessed component of their wellbeing through rural organisations. Whereas 16% of the multidimensionally deprived sample (57% of respondents) indicated that they had no access to human capital components through rural organisations, none of the non-deprived declared that they did not access human capital components through rural organisations.

3.1. Support for child education

Asked to rate the influence of rural organisations to the education of respondent's children education, 19% did not consider rural organisations important as far as using the pooled resource to support the child's education is concerned. On the other hand, 81% of the respondents declared that rural organizations are very influential in their children's education majority of whom are aged between 25 and 65 years. Whereas most of the elderly above 65 years who indicated that rural organisations were not influential in their children education argued that they had struggled to support their children through the education system to a level they could afford by the time most rural organisations were established, those below 30 years and have not witnessed the role played by rural organisations have children who are not yet school going age.

3.2. Health

Whereas 98% indicated that they have access to healthcare services, only 47% pay for healthcare services through associations. While this indicates that not even half of the sample pay for healthcare services using money pooled or borrowed from the association, 79% agree that rural organisations are influential in their health and the health of their household members. This implies that rural organisations not only enable financial support for settling medical bills but also enable access to healthcare through other services rendered to the sick beneficiaries like transportation to hospital.

3.3. Knowledge and skills

61% of the respondents are deprived in knowledge and skills needed to execute livelihood activities compared to a meager 39% who concur that they are satisfied with the knowledge possess to fully execute their daily activities. Although only 25% of respondents indicated that rural organisations have no influence in the knowledge and skills they possess, 75% indicate that they have benefited from rural organisations as far as acquiring knowledge and skills needed for production is concerned. Of the 61% deprived in knowledge and skills (those that are not satisfied with the knowledge and skills possessed to perform their livelihood activities), more than 60% agree that the little knowledge they have was obtained through rural organisations. Whereas only 5% of those not deprived in knowledge and skills indicate that rural organisations have slightly influenced their ability to effectively carryout their daily activities, 95% appreciate the role of rural organizations concurring that rural organisations have significantly contributed to their knowledge and skill accumulation.

4. Results

Results of the uncensored headcount, censored headcount, and adjusted headcount (M0) for human capital indicators are represented in Table 2. Contribution of deprivation for each of the five livelihood capitals to multidimensional poverty and decomposition of deprivation in human capital indicators across villages are represented in Figures 1 and 2 respectively.

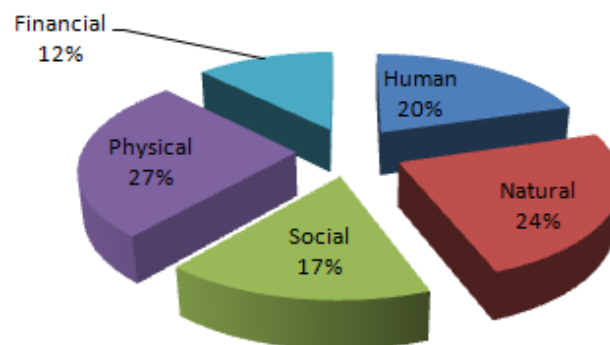


Figure 1. Contribution of livelihood assets deprivation to multidimensional capital

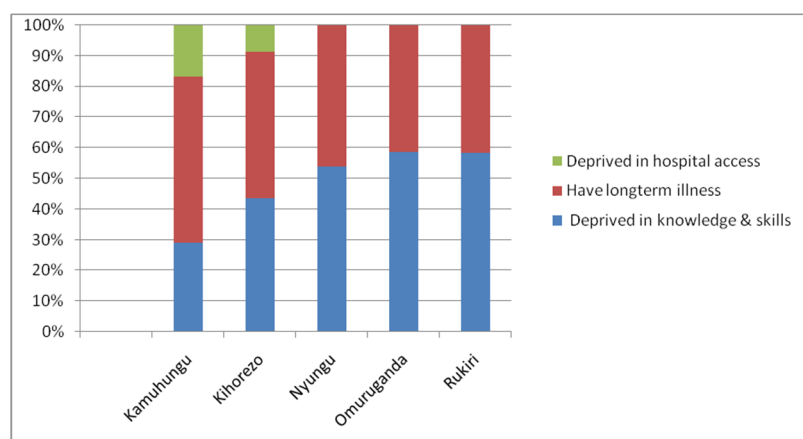


Figure 2: Deprivation in human capital components at village level

Table 1. Logistic regression analysis for rural organisation influence in access to human capital component (Knowledge and skills; hospital and healthcare access; and child education) predicting rating of human capital accumulation through rural organisations

Variable	Coef.	Std. Err.	z	Significance level	Odds Ratio
RO significance in Knowledge and skills acquisition	-1.883063	0.8293316	-2.27	**	0.1521234
RO significance in hospital and healthcare access	-0.3974276	0.2528404	-1.57	*	0.6720466
RO significance in support of child education	-0.5874735	0.2438439	-2.41	**	0.5557296

**p<0.01. *p<0.1

The non-indicator measurement variables considered in assessing whether people access or accumulate human capital through rural organisations comprise variables whose values portray the significance of rural organisations in access to human capital components of: knowledge and skills; hospital and healthcare access; and child education). Table 1 shows the logistic regression results for human capital accumulation through rural organisations. All variables are significant and show expected signs. For a given individual, the log of the odds of accessing and or accumulating human capital decrease with high rural organisation influence in access to human capital component. The odds ratio for rural organisation significance in knowledge and skills acquisition indicates that increase in the significance of rural organisations influence in access to human capital component of knowledge and skills decreases the odds of rating human capital accumulation through rural organisations highly, recognising the important role played by rural organisations in human capital accumulation by 85% ceteris paribus similarly rural organisation significance in hospital and healthcare access decreases the odds ratio of rating human capital accumulation through rural organisations highly by 33% ceteris paribus and decreases by 44% for increased significance of rural organisations in support of child education.

4.1. Multidimensional poverty

Table 2: Uncensored Headcount, Censored Headcount, and Adjusted Headcount (M0) for human capital indicators

Dimensions	Indicator	%Uncensored Headcount	%Censored Headcount	%Adjusted Headcount (Mo)
Knowledge and skills	Knowledge and skill satisfaction	60.78431	43.13726	13.46939
	Longstanding illness and in severe pain	56.86274	40.19608	6.27551
Health	Hospital visit & access to preventative healthcare	5.882353	3.921569	0.612245

Logistic regression analyses in Table 3 tested whether the multidimensionally poor showed statistically significant differences compared to nonpoor in the human capital component variables under study. The three human capital components assessing the significance of rural organisations in: support of child education; hospital and healthcare access and lastly knowledge and skills acquisition were entered into the equation in a sequential manner to further analyze the combined contribution of each variable. Model 1 analyzed the relationship between rural organisation significance in support of child education and multidimensional poverty in a bivariate manner. Whereas Model 2 jointly analyzed rural organisation significance in hospital and healthcare access to

Model 1, Module 3 integrated rural organisation significance in knowledge and skills acquisition variable to Module 2.

As seen in Module 1, increased significance of rural organisations in support of child education decreases the odds of being multidimensionally poor. The addition of rural organisation significance in hospital and healthcare access in Model 2 indicate increased significance of rural organisations in both: support of child education; and hospital and healthcare access decrease the odds of being multidimensionally poor by 25% and 40% respectively⁵. As rural organisation significance in knowledge and skills acquisition is included in Model 3, the statistical significance of rural organisation significance in support of child education is removed.

Generally, final results in module 3 suggest that rural organisation significance in the two human capital components of: hospital and healthcare access; and knowledge and skills acquisition were key to understanding the contribution of human capital deprivation to multidimensional poverty. In other words, the non multidimensionally poor were assessed as those who consider rural organisations very influential in enabling access to: knowledge and skills needed to execute livelihood activities; and hospital and healthcare service.

Table 3: Logistic regression analysis for rural organisation influence in access to human capital component (knowledge and skills; hospital and healthcare access; and child education) predicting multidimensional poverty, K=40

Variable	Model 1 Pseudo R ² = 0.0341				Model 2 Pseudo R ² = 0.1001				Model 3 Pseudo R ² = 0.1503			
	Odds Ratio	Coef.	[95% Conf. Interval]		Odds Ratio	Coef.	[95% Conf. Interval]		Odds Ratio	Coef.	[95% Conf. Interval]	
RO significance in support of child education	0.744*	-0.296	-0.574	-0.018	0.751*	-0.286	0.568	0.995	0.8157+	-0.205	0.609	1.090
RO significance in hospital and healthcare access					0.601**	-0.508	0.420	0.860	0.593**	-0.523	0.408	0.861
RO significance in Knowledge and skills acquisition									0.468**	-0.758	0.259	0.846

**p < 0.01, *p<0.1, +p<0.5

5. Discussion

Benefits obtained by community members through rural organisations as far as poverty reduction and enhancing community development is concerned (Francesconi and Heerink 2011; Bernard et al. 2010; Biru Ashenafi 2014; Magigi 2013; Bacque 2005; Dubey et al. 2009) are established. As for contribution to multidimensional poverty (M0), human capital deprivation comes third after physical and natural capital deprivation followed by social and lastly financial capital deprivation implying that human capital deprivation is not an all important capital but has to make use of the other livelihood capitals to enable one overcome multiple deprivation (Kinsella et al. 2010).

The significance of human capital accumulation through rural organisations is examined in Table 4 where human capital components of: knowledge and skills; and hospital and healthcare access derived from the livelihood framework (DFID 1999) are studied. The findings still supports Musau (1999) argument that associations (like Community-Based Health Insurance scheme and the Engozi societies) that exist in Uganda help the rural community members access healthcare. Focusing on the profile of the poor, a multidimensional poor sample (n=96) was used to analyze the knowledge and skills; and hospital and healthcare access correlates of rural organisation influence.

Human capital indicator of hospital visit and access to preventative healthcare contributes the least to multidimensional poverty implying that majority poor always consult a doctor and have access to preventative healthcare service. For minor diseases, medicine is collected from the village health center for free. Associations come in handy incase more health need arise with the need to take the association beneficiary to hospital or if payment for medical bills is required. On the other hand, deprivation in knowledge and skill satisfaction contribute a great deal to poverty. This finding supports the idea that human capital has to make use of the other

⁵the coefficients exhibiting a negative sign indicate a decrease in the odds and the figures(percentages) presented are obtained as (1-odds ratio)*100.

livelihood capitals for better livelihood outcomes (Kinsella et al. 2010).

Table 4: Sample size, percentage, Fisher's exact, and Cramer's V test on Human capital variables

Human capital variables	RO influential in access to human capital component	RO not influential in access to human capital component	Fisher's exact	Cramer's V
Knowledge and Skills			0.000***	0.3649***
Non deprived of knowledge and skills				
Yes (n)	37	2		
Yes%	50.68	8.7		
Deprived of Knowledge and skills				
Yes (n)	36	21		
Yes%	49.32	91.3		
Hospital and Healthcare access			0.000***	0.4719***
non deprived of hospital and healthcare access				
Yes (n)	77	14		
Yes%	100	73.68		
deprived of hospital and healthcare access				
Yes (n)	0	5		
Yes%	0	26.32		

***p < 0.001

Of the majority individuals who consider rural organisations influential in access to knowledge and skills, there is a slight difference in the number of individuals deprived and those not deprived in knowledge and skills. This implies that as more individuals deprived as non deprived all consider rural organisations influential in acquisition of desired livelihood knowledge and skills. This finding demonstrates that even those not satisfied with the little knowledge and skills they have recognise the influence rural organisations in access to knowledge and skills. This finding supports that spillover benefits are accrued by rural organisation nonmembers as some respondents confirmed that they benefited from the NAADS 2000 association even though they are not members in this particular association expressing their appreciation of the knowledge and skills shared by members in a collaborative learning manner. Also, most of the individuals who regard rural organisations not influential in the acquisition of knowledge and skills are deprived of desired knowledge and skills. In this regard, findings on the important role played by rural organisations in accumulation of knowledge and skills required for people's wellbeing concur with Jeanz (1996); (Quemeneur et al. 1989) argument that farmer associations facilitate agricultural extension and assist the government in implementation of agricultural development plans.

Table 5: Sample size, percentage, Fisher's Exact and Cramer's V test on rating (scale of 1-5) of access to human capital through RO and influence on Child's education

Access to human capital through RO rating (1-5, 5 being Human Capital mostly accessed through rural organisations)	RO influential in Child's education	RO not influential in Child's education	Fisher's Exact	Cramer's V
			0.000***	0.4985***
1 (Less important)				
Yes(n)	0	3		
Yes %	0.00	17.65		
2				
Yes(n)	3	1		
Yes %	3.80	5.88		
3				
Yes(n)	1	2		
Yes %	1.27	11.76		
4				
Yes(n)	18	6		
Yes %	22.78	35.29		
5 (More important)				
Yes(n)	57	5		
Yes %	72.15	29.41		

***p < 0.001

Investigation of income strategy, allocation of accumulated resources to competing demands among

members who considered rural organisations vital in enabling access to human capital revealed that members mostly used the resource pool to support their children in school. Previous research having established a relationship between school attendance and poverty reduction (Adow et al. 2013), and education expenditure being an important component of human capital investment in children (Chi and Qian 2016) explains the important role played by rural organisations as far as influence in Child's education and long-term multidimensional poverty reduction is concerned. In agreement with the argument that self will and ability to invest in own capital is paramount to achieving desired outcomes (DFID 1999), self investment in human capital through rural organisations increases the influence of rural organisations in child education.

Table 6: Sample size, percentage, Chi2 and Cramer's V test on RO influence in access to hospital and healthcare and respondent's health status

RO influence in access to hospital and healthcare	Respondent has no long-term illness that limits productivity	Respondent has long-term illness that limits productivity	X ²	Cramer's V
			0.0691(n.s)	0.0268
RO influential				
yes (n)	35	42		
Yes %	81.40	79.25		
RO not influential				
yes (n)	8	11		
yes %	18.60	20.75		

n.s, not significant

Taking health status into account, respondents with long-term illness don't necessarily have access to hospital and healthcare through rural organization. This finding supports the argument that despite the benefits associated with membership in rural organisations, not all members benefit hence subjective benefits are obtained by members (Dubey et al. 2009). The tendency of vulnerable groups especially the poorest not being beneficiaries of local cooperatives has been considered in previous research (Bernard et al. 2010) yet these need more attention in order to improve their poverty situation.

6. Conclusion

The present study examines human capital accumulation through rural organisations considering the relationship between individual human capital components of: knowledge and skills; and hospital and healthcare access in addition to child education examining acquisition or support of these through rural organisations. Findings show that rural organizations enhance access to human capital, deprivation of which contributes to multidimensional poverty. Non-members also gain access to the human capital components through the spillover effects created by rural organisation's functions, purposes and services provided. Rural organisations are therefore influential in enabling access and accumulation of human capital as rural dwellers obtain, maintain or accrue human capital components that they would hardly access individually.

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