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Social Capital in Kenya: A Strategy for Rural Development

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Abstract
Social capital can best be understood as a means or a process for accessing various forms of resources and support through networks of social relations whereas livelihood refers to a means of living or survival including resources that provide people with capability to build a satisfactory living, the risk factors that people must consider in managing their resources, and the institutional and policy context that help or hinder people in their pursuit of a viable living. Rural households adopt diversification strategy of livelihoods that reflects the socio-economic dimensions of households. The aim of this paper is to investigate social capital as a strategy for promoting rural development in Kenya. The paper uses primary data collected from a sample of 340 households from Nyeri district in 2009 to demonstrate the linkage between social capital and rural livelihoods. The outcome of rural livelihoods is proxied by total household consumption expenditure. Econometric methods are used to explore the nexus between social capital and livelihood outcomes.
Keywords: Social capital, livelihood, rural households, diversification strategy, rural development.

1. Introduction

The growth of output of the small farm that was pursued for many years in several countries as a dominant strategy for rural development and improvement of rural welfare was criticized in that it tended to neglect the diverse dimensions of rural livelihoods other than success at farming (Ellis, 2000). According to Ellis, the survival of the rural poor for whom own-account farming was unable to provide a sufficient livelihood, received scant attention in rural development mainstream under the growth strategy. Government of Canada (2003) emphasized that social capital was an important resource and a process in facilitating achievement of a broad range of major public policy objectives in areas of health, education, economy, labor markets, immigration management, poverty reduction, social exclusion, crime prevention and safety, neighborhood revitalization and civic renewal.

The livelihoods of individuals and households in rural communities are shaped by local institutions such as local customs and land tenure rules regarding access to common property resources, as well as social relations and economic opportunities. Under the diversification strategy, rural households that are endowed with social capital will promote rural development and their welfare in terms of increased incomes, positive social changes such as improved access to education, basic health, water, credit, etc, positive political and cultural changes, as well as traditions, customs, morals, ethics and attitudes (Ellis, 2000).

The main indicator of a livelihood process is the livelihoods portfolio or livelihoods outcome, which is most directly measured by the composition and level of incomes of the household. The income composition of a rural household in developing countries including Kenya comprises 40 percent farm activities, 13 percent off-farm activities, and 47 percent non-farm activities (Ellis, 2000). Livelihood outcomes also include increased well-being, reduced vulnerability, increased food security, and more sustainable natural resources base (Department of Foreign and International Development [D.F.I.D], 2000).

According to Sabatini (2007), the documentation of social capital in Kenya is only very recent but the underlying concept can be traced to the activities of the *Mau Mau*[1] uprising in the 1950s and the *harambee*[2] self-help movement since 1960s. Kirori (2009) identified four areas including education, rural finance, rural development, as well as democracy and political involvement in which social capital played an important role in the development of Kenya.

In any community, various stakeholders including parents and local citizens take an active role in the educational well-being of their children as well as access to education services. The harambee [self-help] secondary school movement born in Kenya soon after independence in 1963 was a good case where social capital was critical in education development (Kirori, 2009). The *harambee* schools were a spontaneous grassroots community initiative to develop greater access to secondary education than what could be provided by the Government at that time that resulted in rapid expansion of primary school enrolments. The h*arambee* model

[1] The meaning of the term *Mau Mau* is much debated. Most preferred meanings include (i) a acronym for *"Mzungu Aende Ulaya-Mwafrika Apate Uhuru"*, a Swahili language phrase which translates in English to, "let the white man go back to Europe; let the African attain freedom", (ii) reference to the secrecy of the communication between group members: "*Maundu Mau Mau*" in Kikuyu translates to "those things, those same things [we have talked about] (Evans, 2001).
[2] The term *harambee* is a Swahili term that literary means "pulling together". It is a Kenyan tradition of community self-help events. Following independence in 1963, Kenya adopted "Harambee" as a concept of pulling together the country to build a new nation (Aderinto and Akimwale, 2008; Smith and Elkim, 19981). Communities are encouraged to raise funds for various community development projects and activities.

was extremely successful from the perspective of building indigenous community institutions to advance local development, getting girls into schools and expanding secondary school opportunities in rural areas although the quantitative expansion was not matched by the needed quality improvement in many schools.

Social capital plays a crucial role in mobilizing rural finance in Kenya (Kirori, 2009) Financial sector stakeholders agree that there is a serious problem of limited access to financial services among lower income and rural households (The Steadman Group, 2007). The source of financial services for rural households is predominantly informal finance mechanisms that are savings-led taking several variants of rotating and savings and credit associations (ROSCAs), often referred to as merry-go-rounds. The key feature of ROSCAs is their ability to harness social capital through collective action providing individual commitment to savings and flexibility to adapt to local circumstances. ROSCAs have their roots in the traditional mutual guarantee system, which make them very popular in rural Kenya especially among women (Stevenson and St. Onge, 2005). ROSCAs provide a simple means through which to save and accumulate a lump-sum in terms of regular pooling of usually small contributions in groups which is borrowed by each member in turn.

Social capital has been instrumental in helping the Kenyan society make profound achievements in democracy and political involvement during the pre-independence and reforms in the post-independence periods (Kirori, 2009). The *Mau Mau* revolt in the 1950s led to the solution of land and freedom issues in 1960 between the people of Kenya and the British colonial administration (Maloba, 1993). The revolt was a movement without educated leadership in which peasants took leadership roles under a body named the Council of Freedom that launched the liberation war in 1953. The role of social capital in post-independence Kenya's democracy and political governance can be looked at from two angles, the positive and negative sides. Civil society actors in Kenya have been at the forefront in the organization of strategic political alliances for democratic changes leading to an environment of improved governance in Kenya. Social capital, in the form of group activists, has played a key role in bringing about these reforms. This is the positive side of social capital. The negative side of the role of capital in post-independent Kenya relates to the ethnic conflicts and violence during general elections especially the 2008 post-election violence that emerged between tribal groupings to an extent that threatened the very existence of Kenya as a cohesive national entity (Kirori, 2009). The conflict led to destruction of lives and livelihoods, breeding feelings of insecurity, fear and terror among the population as well as exacerbating social exclusion.

Social capital is an important factor for development of rural communities in that rural community groups become more efficient and effective in performing key development tasks including decision-making, resources mobilization and management, communication with each other and coordination of their activities, and conflict resolution that lead to sustenance of individual and community well-being (Upholf, 1986). Rural groups in Kenya in 2001 were more than 2,830 with a total membership of 1.9 million persons and a turnover of KSh.17.2 billion (Republic of Kenya, 2002). The key goals for Kenya for rural development is improving the well-being of the rural people and sustaining the improvements (Republic of Kenya, 2002).

2. Literature Review

2.1 Theory of Social Capital

The theory of social capital is relatively new although the idea that social capital can guide economic activity dates as far back as 18th century (Woolcock, 1998). For instance, Burke (1757) contended that markets could not function at all without prior existence of civilizing norms and moral principles; Hume (1777) speculated that an appropriate 'moral sense' would emerge of its own accord to guide markets; Adam Smith (1776) argued that while peoples' pursuit of self-interest was tempered by an innate moral sense, there was need to regulate markets by the church and state (Woolcock, 1998). The first proponents of the modern concept of social capital are identified by Woolcock (1998) as being Hanifan (1920) and Jacobs (1961). Hanifan invoked the concept of social capital to explain importance of community participation in improving school performance. Jacobs researched on culture of urban communities based on the theory of social interaction.

The concept of social capital was popularized profoundly in the last three decades by three prominent researchers. Bourdieu (1986) defines social capital in terms of social networks and connections and posits that social capital provides potential support and access to resources. Coleman (1988, 1990) contends that social capital is a resource in terms of social structure of families and communities and helps actors to achieve their objectives and interests. Putnam (1993a, 1993b, 1995) defines social capital as a key characteristic of communities that is crucial for policies of grassroots participation, community development and empowerment. Durlauf (2002) contends that social capital refers broadly to community relations that affect personal interactions.

Social capital theorists have placed critique on some common notions in traditional economics. Narayan (1997) argues that the notion of development capital, as traditionally used in economic operation to determine measures of poverty and household welfare, is inadequate as it ignores the social dimension. The author describes a social capital model as a new innovation focusing incorporation of social dimension into the development equation of capital. Lehto (2001), contests the notion of competitiveness contending that the notion of competitiveness in traditional economics is connected only in three capital types: the natural capital, the human-made capital and the human capital and ignores social capital. According to the author, efficiency in production is also created by social capital comprising key factors such as human relationships, rules of the game in the group and society, trust and mutual support and the spirit of cooperation, all of which form a mixture of social factors and economic performance. The author explains that the importance of social capital has grown because of the changing structures of production systems demanding more flexibility and networking and a working life requiring creativity, learning capacity, and social skills. In this way, the concept of social capital is a key factor to understanding the experience of rural development in finding solutions towards local economy competitiveness.

2.2 Attributes of Social Capital

Social capital has important attributes distinguishing it as true capital (Grootaert et al. 2004). For instance, social capital requires resources to produce, especially time and is subject to accumulation and depreciation. According to the author, stock of social capital can lead to a stream of benefits which can take many different forms including improved access to credit, improved access to education and health services, improved risk management, among others. Grootaert and Bastelaer (2002a) contend that unlike other forms of assets, social capital heavily relies on the goodwill of the actors allowing them to produce and provide for one another outside the logic of the market and represents genuine capital with input and output sides. On the input side lies the investment required to create a lasting asset while on the output side lies the resulting ability to generate a stream of benefits. Social capital can directly enhance and lead to higher productivity of other resources such as human and physical capital (Grootaert and Bastelaer, 2002a). The authors explain also that social capital exhibits characteristics that distinguish it from other forms of capital. First, unlike physical capital but like human capital, social capital can accumulate as a result of its use. Social capital is both an input and an output of collective action. Second, creating and activating social capital requires at least two people, whereas every other form of capital is potentially productive in a one-man economy. Third, social capital has public good characteristics that have direct implications for the optimality of its production level. Like other public goods, social capital is under produced because of incomplete collective internalization of positive externalities inherent in its production.

Grootaert et al. (2004) explains the multi-dimensionality of social capital at micro level in developing countries. The authors distinguish six different dimensions of social capital including: groups and networks, trust and solidarity, collective action and cooperation, information and communication, social cohesion and inclusion, and empowerment and political action.

2.3 Theory of Livelihoods

The theory of livelihoods places emphasis on urgency for maintaining people's possessions including capital assets as a prerequisite for survival (Buckland, 2005). In rural Kenya, as in other rural areas, households depend for their livelihoods on five capital assets including natural capital, physical capital, human capital, financial capital, and social capital. Access to all capital types is required for a sustainable livelihood (Heffernan and Misturelli, 2000). Ellis and Freeman (2005) define a livelihood as comprising the assets, the activities, and the access to these assets and activities as mediated by social capital which together determine the living gained by the rural individual or household. The author shows the significance of various asset-types, including social capital in underpinning the livelihood strategies of the individual and household. The author explains further that, the access attribute of a livelihood includes rules and social relations subsumed under the asset-type which is important in determining the ability of people in the rural areas to own, control, claim, and make use of a resource as well as the ability to participate in and derive benefits from social and public services that are provided by the state such as education, health services, roads, water supplies, and so on. Social capital is essential for facilitating and sustaining diverse income portfolios and access to opportunities and resources to individual households (Berry, 1989, 1993; Hart, 1995; Bryceson, 1996).

Rural households are constantly engaged in a process of rural livelihoods diversification, a survival strategy in which the households construct an increasingly diverse portfolio of activities and assets in order to survive or improve their standard of living (Ellis 2000). Baron et al. (2000) emphasize that social capital is a useful resource that underpins the livelihood strategies of the rural household as it enables participants to act together more effectively in pursuit of shared objectives. The authors explain that social capital enhances rural livelihood directly and also increases access by people to goods and services particularly those that exhibit public good characteristics. Knack and Keefer (1997) argue that cooperative norms act as constraints on narrow self-interest, leading individuals to contribute to the provision of public goods of various kinds. For example, in communities within countries where capital markets are weak, strong social capital can facilitate the pooling of finances, which then can be invested in projects such as schools, village enterprises, or irrigation infrastructure.

The fundamental characteristic of rural households in most contemporary developing countries is the ability to adapt, through rural livelihoods diversification, in order to survive (Ellis, 2000). Rural livelihoods diversification is a socio-economic process or a survival strategy where the rural household adapts diverse portfolio of activities and assets, in order to survive. The author explains further that, although participation in multiple activities by rural households is not new, there was relative neglect of diverse dimensions of rural livelihoods other than access to farming until mid-1980s. The dominant strategy for improving rural welfare was small-farm output growth. The extent of diversification away from agriculture is an indicator of the degree to which farming operations only, can provide a secure and improved livelihood.

Ellis (2005) advanced two opposing theories regarding the actual driving force that cause emergence of rural livelihood diversification: the agriculture optimistic theory and agriculture skeptic theory. According to the agriculture optimist stance, rural livelihoods diversification emerges as a result of success in agriculture, i.e. agriculture is the driver of non-farm opportunities in rural areas. The opposing view, agriculture skeptic theory, sees diversification as responding to the failure of agriculture to generate sufficient secure livelihoods for those in rural areas.

World Bank (1981) and Bates (1981) explain that the prevailing agricultural policy environment in Kenya in the 1970s encouraged emergence of marketing boards for "crop parastatals", as well as input subsidies, floor prices, export crop taxes, non tariff import barriers and import taxes with the effects of widening marketing margins between farm gate and sales prices and extracting surpluses from the rural economy that made the lives farmers miserable. The structural adjustment programs (SAPs) introduced in the 1980's were expected to influence change in the agricultural policy environment in favor of internal market liberalization that would facilitate competitive trade in rural areas but the liberalization thrust occurred too late to overcome conditions set in during the epoch of the parastatals (Ellis, 2005). The effects of SAPs were detrimental to farm incomes and outcomes as farmers were often never paid for crops delivered or were paid months in arrears in addition to low real prices that they obtained for product sales to middlemen.

Livelihood activities are the sources of household means of survival (Heffernan and Misturelli, 2000). The authors studied livelihood of pastoralists, agro-pastoralists, and subsistence farmers in six districts in Kenya and found that households pursue a wide variety of activities. Over 30 activities were reported across the six districts. On average, rural households are involved in 3.6 different livelihood activities. The main livelihood activities include livestock related (livestock marketing, hides and skins, butchery, herding, sale of livestock products), fruit and vegetable, casual labor, firewood and charcoal, business, employment, kiosk and hotel, and handcraft manufacture. Further, the authors show that clear and well-defined gender divisions with regard to livelihood activities exist. Activities that were female-dominated included sale of livestock products (e.g. eggs and milk), fruit and vegetable (homegrown produce), handcraft manufacture, employment in kiosks and hotels, sale of firewood, whereas male-dominated activities included all other livestock related activities and casual labor. The Steadman Group (2007) studied main livelihood activities in relation to access to financial services in Kenya and found that about 70 per cent of the rural livelihood activities are linked to the agricultural sector. Sale of food crops is the most common way of earning a living by a household in rural Kenya. The households that depend on food crops for a livelihood obtain financial services from informal sources while those who depend on cash crop obtain financial services from non-bank formal sources including agricultural SACCOs (The Steadman Group, 2007).

3. Methodology

3.1 Conceptual Framework

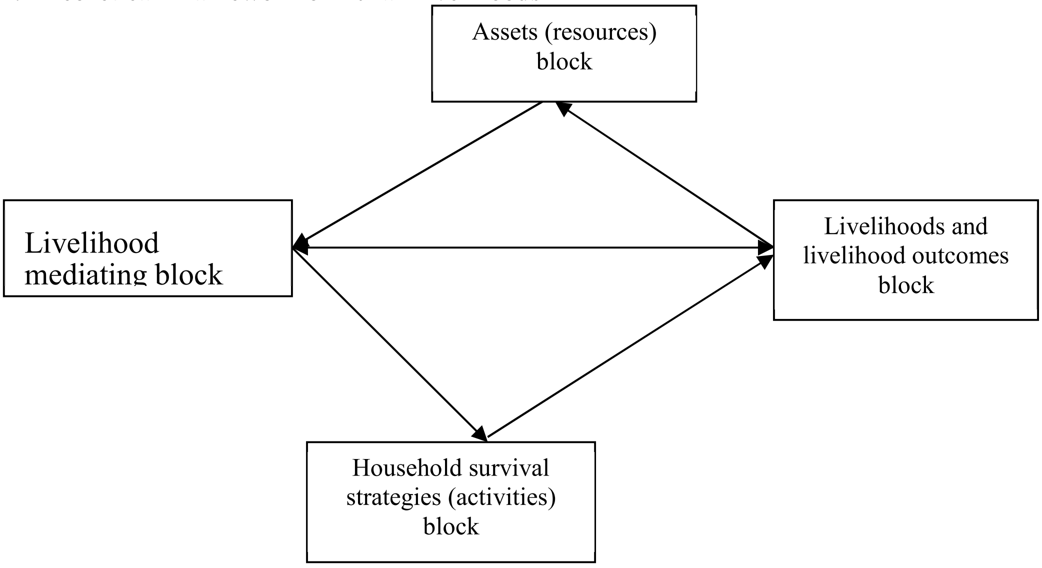
3.1.1 Rural Livelihoods Approach

The rural livelihoods approach is used in the study to explore behavior of rural households in their attempt to improve their wellbeing. The approach is described as the rural livelihoods diversification which is the process that rural households use to produce livelihood outcomes (Ellis, 2000). The behiour of rural households is assumed to follow the basic economic model of utility maximization subject to a budget constraint (Nicholson, 1991). The interactions of the households can be assumed to be strategic and based on cooperative game theory in which each actor pursues an independent self-interest while trying to take into account the effects of decisions made by other actors (Branzei et al., 2008; Moulin, 1995).

The rural household maximizes utility by participating in multiple means of survival reflected in diverse portfolio of resources and activities that produce livelihood outcomes. The key resources are social capital, natural capital, human capital, physical capital, and financial capital. The livelihood outcomes for a household include real income, educational attainment, access to water, credit, health services, and so on. Livelihood outcomes do not give direct utility on their own, rather it is only when the outcomes are turned into consumption goods that any utility results.

The rural livelihoods approach is essentially a micro policy analysis framework comprising four blocks: the assests/resources block, the livelihood mediating processes block, the livelihood strategies and activities block, and the outcomes/effects block. Figure 1 presents the connection between social capital, livelihood process of a rural household, and other forms of capital.

Figure 1: Theoretical Framework of Rural Livelihoods



Source: Author's formulation based on Ellis (2000)

The resources block comprises resources categorized and distinguished between five capital type: natural capital, physical capital, human capital, financial capital and social capital. The resources block is the basic building block upon which households are able to undertake production, engage in labor markets, and participate in exchange with other households. The livelihood mediating processes block is characterized by factors that influence households' access to resources and pursuit of viable land tenure institutions such as ownership structure comprise good determinants of access to land.

The household survival strategies block is characterized by coping strategies and adapting behaviors that involve interaction of resources and opportunities accessible to the rural household for its survival. Two categories of activities that form potential components of a livelihood strategy are the natural resource (NR)-based activities and the non natural resource (NNR)-based activities. NR-based activities include activities such as collection or gathering; cultivation of food and non-food; livestock keeping and pasturing; non-farm activities such as brick making, weaving, thatching and so on. NNR-based activities include activities such as rural trade activities and other non-farm activities such as wage work, remittances from urban and international sources and other transfers such as pension. The livelihood outcomes block is characterized by some combination of attributes related to the level and stability of rural household income as well as access of the household to social services and basic needs including education, health, water, shelter, and so on.

Adherence to positive social capital will produce welfare-enhancing livelihood outcomes (w_{ij}) and benefits for individuals, households, and the economy such as lower crime rates, improved health, improved educational attainment, increased household income, improved economic performance and improved government efficiency. From Ellis (2000), welfare (W_{ij}) is a function of livelihood outcomes and can be written as:

$$W_i = f(X_i, Y_i) \qquad (1)$$

Where

X_i denote social capital goods
Y_i denote non-social capital goods
} demanded by household i,

The objective of the household is to maximize welfare (W_i) subject to the budget constraint, I , given by:

$$\left.\begin{array}{l} \text{Max } W(\cdot), \text{ s.t} \\ I_i = p_x X_i + p_y Y_i \end{array}\right\} \qquad (2)$$

Where

p_x and p_y are the prices of X_i and Y_i.

The solution to this problem is a set of household's demands for X and Y as functions of I, p_x, p_y and other environmental characteristics.

Replacing W_i in equation (1) which is unobservable with the observable real household consumption expenditure, E_i,, to get:

$$E_i = f(X_i, Y_i) \qquad (3)$$

Thus, the livelihood outcomes of a household as summarized by its real household consumption expenditure, E_i,, is a function of social capital goods (X_i) and non-social capital (Y_i) goods, as shown in equation (3).

3.1.2 Rural Livelihood Model

A rural household has an asset endowment consisting of social capital, physical capital, human capital, natural capital, financial capital. The household combines these assets to engage in productive activities either in enterprises within the household or in external labor markets. The structural equations of the model may be given by:

$$E = \alpha X + \beta Y + \mu \tag{4}$$

Where

E = Real total household consumption expenditure

α = A vector of coefficients on endogenous variables (X)

β = a vector of coefficients on exogenous variables (Y)

μ is a random error term.

A central idea is that the rural household's real consumption expenditure level, (E_i), varies with the levels of social capital (X_i) and non-social capital (Y_i). The non-social capital variables relate to household assets and are twofold, the natural resource-base types (land, human capital, livestock, and so on) and non-natural resource-base variables (radio, television, bicycles, refrigerators, and so on).

Household i's consumption expenditure can therefore be specified as:

$$E_i = \alpha + \beta_j X_{ij} + \tau_i Y_{ij} + \mu_i \tag{5}$$

Where j refers to the specific measure of social and non-social capital.

X_i has the following elements

X_{GNi} = Group and network variables

X_{TSi} = Trust and solidarity variables

X_{CAi} = Collective action and cooperation variables

X_{ICi} = Information and communication variables

X_{SCi} = Social cohesion variables

X_{EPi} = Empowerment and political action variables

Y_i has the following elements

Y_{HCEi} = Human capital of the household head

Y_{NCi} = Natural capital of the household (land)

Y_{HCi} = Household characteristics

Y_{CCi} = Community and/or locality characteristics

μ_i = error term

It should be noted that the influence of social capital on total rural household consumption expenditure, E, may be negative or positive.

A primary feature of the model is the assumption that social capital is a part of the household's exogenous asset endowment, that is, those assets that determine the household's income and consumption. The key shortcomings in this assumption are the two issues of reverse causality. Social capital, like human capital, is partly a consumption 'good' and demand for it increases with income. Social capital is endogenous and its estimated coefficient using OLS method will be biased (Grootaert, et al. 2004).

The preferred solution to the endogeneity problem is to use instrumental variable (IV) estimation, which provides an empirical test of two-way-causality. The social capital model can therefore be specified as:

$$X_i = \alpha_1 Y_i + \alpha_2 Z_i + v_i \tag{6}$$

Where

X_i and Y_i are as defined earlier;

Z_i is a set of instrumental variables;

v_i is a random disturbance term.

To address the endogeneity issue, social capital is instrumented by three variables: religion of the household head, lobbying leaders by citizens for support in the provision of services benefiting the community, and the proportion voting variable capturing democratic rights of citizens. The three variables are covariates of social capital but do not directly affect household livelihoods. For example, the religious background of a household member will influence the need and type of association and participation in the activities of the network (Putnam, 1995) but will not necessarily affect the livelihoods directly. Involvement of community in lobbying for provision of social services, including infrastructure, affects social capital accumulation, but has no direct effect on livelihoods (Grootaert, 1999). Communities that lobby for support or vote for leadership are likely to be more cohesive than communities that do not involve themselves in these activities. Such communities are more likely to fight together for their rights and improve their welfare.

In addition to controlling for endogeneity, the study also controlled for heterogeneity bias in the social capital and livelihoods relationships. The heterogeneity bias arises in the household livelihoods model from unobserved household characteristics that are correlated with social capital and may impact on livelihoods. Examples of such unobserved household characteristics include virtues, traditions, and experience that can lead to transfers from extended relatives, cohesion in a family, ability to influence others, and community goodwill, for instance, a retired teacher in a village may be given a hearing by society or may be more respected than anybody else.

To take into account heterogeneity bias, the identification condition should be explored through a control function (Florens et al., 2008). This would involve addition of a reduced form social capital model residual to the estimated livelihoods model so as to purge the observed relationship between livelihood and social capital of any effect of the unobservables by allowing social capital to be treated as if it were exogenous during estimation. The inclusion of the residuals leads to an OLS estimate of the coefficient of social capital that is identical to the one obtained by IV instrumenting for social capital. Assuming the unobserved component is non-linear in the social capital residual (X*), the addition of an interaction term of the social capital and its residual (XX*) as a second control variable is sufficient to eliminate endogeneity bias even if the reduced form social capital is heteroscedastic (Card, 2001; Mwabu, 2009). This controls for the effects of neglected non-linear interactions of unobservable variables with determinants of livelihoods. Introduction of the control function variables into equation (5) yields the following control function approach model:

$$E = \alpha + \gamma X + \lambda X^* + \eta XX^* + \mu \qquad (7)$$

Where
X is the social capital variable,
γ captures the linear direct effects of social capital on livelihoods,
X* is the fitted residuals from the reduced form of social capital model,
λ captures the non-linear indirect effects of social capital on livelihoods,
XX^* is the interaction between social capital and its reduced form residuals,
η captures the effect of the non-linear interaction between the potentially endogenous social capital and the unobservable household characteristics over livelihoods.

4. Results and Discussion

The basic question addressed in the study is whether rural households with higher levels of social capital are better off than rural households with lower levels. The key hypothesis of this study is the null hypothesis that social capital does not influence rural livelihoods. Annex 1 presents the OLS results of the basic rural livelihoods model with aggregate social capital and the five dimensions of social capital (group and networks, trust and solidarity, collective action and cooperation, social cohesion and inclusion, and empowerment and political action) shown as specifications (1)-(6). Social capital is treated as exogenous. The predictors of livelihoods include wealth score (economic status), male gender dummy, human capital (years of schooling), age and age squared, and marital status dummy. The log of household consumption expenditure is used as the dependent variable as a proxy for household livelihood outcomes. The results aim to test empirically the proposition that social capital has measurable benefits to households and that it leads to a higher level of well-being.

The R-squared suggests that the variables explain between 16 and 23 percent of the variation in the log of the rural household expenditure. This level of explanation is not unexpected of cross sectional data. The Chow (F) test shows that the overall model is significant at 1 percent, suggesting that the model fits the data better than an intercept only model.

The results indicate that social capital significantly affects total rural household expenditure. In particular, two cases can be distinguished: whether total household expenditure is negatively or positively associated with social capital. On the basis of these cases, this study considers three-fold implications of the results for both aggregate social capital and the dimensions. Unlike the finding by Aker (2007) that household-level social capital increased household consumption expenditures, this study shows that aggregate social capital influences the total household expenditure negatively and significantly at 5 percent. Other studies including Narayan and Pritchett (1997) found a positive impact of social capital on welfare.

The result in this study suggests that a unit increase in aggregate social capital reduces total household expenditure by 13 percent. This result has two implications. One, although households with large aggregate social capital endowments seem to experience low consumption expenditures, they use social capital as a mechanism which enables them to meet their basic needs through non-cash transactions. For example, they could feed their children during difficult times as well as access credit (both cash and in-kind). Therefore, the actual consumption for the households with larger social capital endowment is higher than what is reflected in the measured expenditure. This implies that, aggregate social capital in fact does not have an overall adverse effect on the households' welfare status. This view is supported in the research work by Collier (1998) which indicated that social capital can be used to substitute for other forms of capital. The results also imply that households with low social capital endowments may have high purchased consumption but may not enjoy the non-monetary benefits accruing from social capital. Two, households with larger aggregate social capital endowments are able to save now for future consumption, thus again there is no adverse effect on their welfare status. The results in this study are therefore generally consistent with empirical evidence that social capital enhances livelihoods (Durlauf and Fafchamps (2004), Rose (2002), Grootaert (2001), Krishna and Uphoff (1999)). These studies suggest a direct impact of social capital on livelihoods while this study suggests an indirect effect through substitution.

The third implication of the results relates to the social capital dimensions. Three social capital dimensions (groups and networks, trust and solidarity, and social cohesion and inclusion) are positively associated with total household expenditure although only groups and networks dimension is moderately significant. The other two dimensions (collective action and cooperation and empowerment and political action) are negatively and strongly associated. This study relates the interpretation of these positive and negative effects of social capital to the private goods and public goods perspectives of social capital. Social capital as a public good has been supported by several researchers including Grootaert and Bastelaer (2002a), Krishna and Upholf (1999), Helliwell (1996), Helliwell and Putnam (1995), and Coleman (1988).

As a private good, social capital in the form of groups and networks, trust and solidarity as well as social cohesion and inclusion, will increase total household expenditure. Being a private good, these social capital dimensions enable households to participate in various welfare generating activities, including access to credit, as reflected in the increase in total household expenditures. In particular, groups and networks influence the livelihood outcomes of rural households significantly (at 5 percent), implying that a unit increase in the level of endowment of a rural household's groups and networks social capital is associated with an increase in total household consumption expenditure by 14 percent. These results are consistent with findings in the literature (Aker, 2007; Durlauf and Fafchamps, 2004; Narayan and Pritchett, 1997).

As a public good, social capital in terms of collective action and cooperation and empowerment and political action, will reduce a rural household's need for total cash expenditures without necessarily reducing the household's well-being. In particular, both dimensions influence the livelihood outcomes negatively and significantly at 1 percent. This suggests that a unit increase in the level of endowment of a rural household's collective action and cooperation and empowerment and political action is associated with a reduction of the household's need for cash expenditures by 25 percent and 29 percent, respectively. Being a public good, these social capital dimensions will enable the rural households to derive benefits from public investments, thus increase their well-being and reduce their need for cash expenditures. For instance, access to water facilitated by a community project will tend to lower the total household expenditure on water, *ceteris paribus*. The study thus observes that considering only the impacts of aggregate social capital on total household expenditure can lead to misleading interpretations.

The results also show that the livelihoods of rural households are significantly influenced by wealth score and human capital (years of schooling). The magnitude of the effects of groups and networks social capital variable is about 4 times larger than the human capital effects. This result is particularly consistent with the findings of the Narayan-Pritchett's (1997) study which found the social capital effect in Tanzania to be 4-10 times larger than the human capital effect and Grootaert's (1999) study for Indonesia which found a larger effect from social capital than from human capital.

The coefficient of the male gender dummy is negative but insignificant while the marital status dummy is positive and insignificant. The age and its squared term variables were included to capture the life cycle of the household livelihood. The age variable has a positive and significant coefficient at 1 percent suggesting that the magnitude of livelihood outcome increases with age while the coefficient for the age squared variable is negative and significant suggesting an inverse U shaped relationship. This implies that livelihood outcomes improve with age, reach a peak then reverse, implying that beyond a threshold age, lifecycle effects on livelihoods reverse gains to age and accumulated means of livelihoods.

5. Conclusion

The empirical results, contrary to previous studies, indicate that aggregate social capital is inversely related to livelihood outcomes of households. The implication of this finding is that households with strong social capital endowment are able to reduce their total cash expenditure needs without necessarily reducing the household's well-being. As a result of this substitution effect, households are enabled to save for future consumption. The results also suggest that aggregate social capital in the study is a public good, which could facilitate higher consumption either through borrowing or economies springing from collective action activities. The results further show that various social capital dimensions influence livelihood outcomes differently according to whether a particular social capital type is a private good enabling rural households to participate in various welfare generating activities or a public good resulting in substitution and savings opportunities.

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Annexes

Annex I: Determinants of Livelihood Outcomes: Dependent Variable is Log of Household Consumption Expenditure (Shillings)

	OLS Regressions					
	(1)	(2)	(3)	(4)	(5)	(6)
Aggr. social capital	-0.1325					
	[2.08]**					
Groups & networks		0.1391				
		[2.45]**				
Trust & solidarity			0.0258			
			[0.36]			
Collective action				-0.2492		
				[3.45]***		
Social cohesion					0.0173	
					[0.21]	
Empowerment						-0.2933
						[4.11]***
Wealth score	0.1864	0.1561	0.1737	0.1856	0.1731	0.2056
	[3.54]***	[2.99]***	[3.29]***	[3.61]***	[3.39]***	[4.01]***
Gender (1=male)	-0.0478	-0.0816	-0.0815	-0.0367	-0.0752	-0.0508
	[0.33]	[0.54]	[0.56]	[0.26]	[0.51]	[0.33]
Years of schooling	0.0403	0.0379	0.0394	0.0408	0.0395	0.0365
	[3.63]***	[3.34]***	[3.51]***	[3.64]***	[3.52]***	[3.32]***
Age	0.0477	0.0459	0.046	0.0493	0.0457	0.0487
	[2.86]***	[2.80]***	[2.76]***	[3.09]***	[2.70]***	[3.08]***
Age squared	-0.0004	-0.0004	-0.0004	-0.0004	-0.0004	-0.0004
	[2.61]***	[2.60]***	[2.55]**	[2.80]***	[2.49]**	[2.85]***
Marital status (1= married)	0.1534	0.1681	0.1605	0.1541	0.1571	0.1875
	[0.84]	[0.90]	[0.87]	[0.85]	[0.85]	[1.00]
Constant	9.4228	9.4852	9.473	9.3759	9.4803	9.41
	[21.60]***	[22.31]***	[21.97]***	[22.47]***	[21.66]***	[22.73]***
Observations	253	253	253	253	253	253
R-squared	0.18	0.18	0.16	0.19	0.16	0.23
F-statistic (7, 245)	7.86***	9.80***	7.86***	9.04***	7.44***	11.74***
Prob> F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Robust *t statistics* in brackets; *significant at 10%; ** significant at 5%; *** significant at 1% level.

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