The influence of household human and social capitals on participation in agricultural development initiatives in the coastal region of Kenya

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Abstract

The present study sought to establish the human and social capital that determines rural households' participation in agricultural projects and programmes implemented by the Kenyan government and development partners. The research was carried out among rural households in the three counties of the coastal region of Kenya. Multi-stage sampling techniques (purposive, proportionate random and simple random sampling) were used to select the study area and the sample. Data were collected using a semi-structured questionnaire, Focus Group Discussion and observation schedules. The data analysis was carried out using descriptive statistics and regression analysis in Statistical Package for Social Sciences Version 22. Individuals with human capital; namely age (-0.15), primary education (-0.16), secondary education (-0.14), vocational training (0.35), and on the of job training (0.25), had a higher likelihood of participating in agricultural development initiatives. Households with the social capital of membership to groups (0.51), engaged in economic activities (0.53) and with linkages with development agencies (0.44) had a higher likelihood of participating in development initiatives. Key policy recommendations for county government and development partners include: encouraging community members to enrol in adult education; providing support for vocational and technical training; registering as members in existing groups or forming groups based on common interest, and engaging in economic activities. The county governments should enhance advisory services to ensure close contact with professionals who will facilitate training, meetings and interactions with groups leading to the empowerment of members.

Keywords: rural household, participation, human capital, social capital, agricultural development initiatives

Introduction

Rural household participation has been recognised by many international development agencies as a vital component for sustainable development (Cornwall, 2009). The concept of participation originated about 40 years ago from the community development movement of the late colonial era in parts of Africa and Asia. The concept has been recognized as an important element since the early 1990s as a means of improving local welfare, training people in local administration and extending government control through local self-help activities (Ayman, 2011; McCommon, 1993). Today, participation has developed as one of the major models of development gaining acceptance across the spectrum of development actors as a means of improving development practice related to grassroots community development initiatives and viewed as a basis for project success (Cornwall, 2009). In recognition of its vital role in community development, participation has been referred to as the heart that pumps the community life blood (Reid, 2000).

The concept of participation came to be popularised and institutionalised in the 1990s as a novel, common-sense way of addressing development discourses and practices of many mainstream development

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organizations. It has earned its status as an orthodoxy with promises of giving 'the poor' a voice and a choice in development, and an essential ingredient in getting development interventions and policies right (Cornwall, 2006). Participation is commonly understood as the collective involvement of local people in assessing their needs and organizing strategies to meet these needs in partnership with the national government, county government, local organizations and external development partners. (Zaku and Lysack, 1998 cited in Cuthill, 2010).

Extension practitioners seek to institute participatory practice in development initiatives implemented among rural households due to the benefits associated with this approach (Chambers, 1994). The benefits include: a) enhancement of the relevance of programmes to ensure that they are all suited for the needs and circumstances of the beneficiaries (Kironde and Kihirimbanyi, 2002 cited in Cuthill, 2010); b) ensuring that the views of many stakeholder groups are represented in the development process (Cullen *et al*., 2011); c) expectations that the programmes decisions that feed on the insights of many stakeholders are not just relevant to the beneficiaries, and that they are generally smarter (Weaver and Cousin, 2004; Cullen *et al*., 2011); d) greater programme outcomes such as greater access to social services (Bedelu *et al*., 2007), consumption and demand for services (Kilpatrick *et al.*, 2009); e) ensuring programme sustainability due to a greater sense of ownership and responsibility by stakeholders. Their participation enables them to be willing to mobilize and commit local resources for continuity of some or all of the programmes proceeds after external support is withdrawn or reduced (Oakley, 1989).

In an attempt to understand effective community participation in development initiatives implemented by government and development partners, either on their own or in partnership, to attain the benefits associated with it, there is a crucial need for research to identify factors contributing to successful participatory practices in implementation of agricultural projects and programmes (Chambers, 1994). For instance, Bauma *et al.* (2000) argues that the level of participation in social and civic community life is significantly influenced by individual socio-economic status and other demographic characteristics. Supporting this line of thought, Plummer (2002) describes factors such as skills and knowledge, employment, cultural beliefs, gender, education and literacy, social and political marginalization to be key in affecting community participation. Recent research on community participation in development has broadened focus and included community capitals including human, social and institutional factors and the interaction among these components of the community (Cote, 2001, cited in Cuthill, 2010). A theoretical analysis of community participation by Nkwake, Trandafili and Hughey (2013) revealed that communities have seven types of capital which influence community or individual participation in development initiatives. Community capitals include cultural capital, social capital, human capital, built capital, natural capital and political capital. Assessing levels of community capital is an effective way of measuring community capacity to participate in development initiatives for change (Flora and Flora, 2008). It is important to examine the extent to which the community capital influences community participation in development initiatives among households.

Human capital includes characteristics of individuals that strengthen one's ability to earn a living and provide for one's community, family and self-improvement (Cadil et al., 2014). It consists of one's personal assets such as health of the individual, formal education, skills, intelligence, leadership and talents (Flora and Flora, 2008). While human capital consists of a variety of personal assets, Becker (2002) states that human capital which includes schooling, on-the-job training, health information and research, is the most important form of capital in successful economies which depend on how extensively and effectively people invest in themselves. Becker (2002) asserts that human capital stimulates technological innovations and the high-tech sector and identifies education and training as the most essential forms of human capital which are associated with individual occupation. In their theoretical analysis of the scientific literature Ciutiene and Railaite (2014) conclude that human capital includes a wide range of different components such as knowledge, experience, competency, and health among others which are necessary for achieving development.

While there are many definitions of social capital, Fine (2001) defines social capital as the development of networks in which community residents can identify problems, share information, and implement strategies designed to solve problems for the benefit of all. Putnam (1993) defines social capital as features of social organizations such as networks, norms and

trust that improve performance of a society by facilitating coordination of actions for mutual benefits. Social capital is manifested in the relations among people (Coleman, 1988). According to Coleman (1988), social capital resides in people's minds and influences their relationships with each other or plans to interact and may produce potential benefits, advantages and preferential treatment from another person or group beyond that expected in an exchanged relationship. Narayan and Pritchett (1997, cited in Lindon *et al.* (2002) and Heller (1996) argue that increased social capital leads to increased community cooperative action and solves local community property problems and economic development, strengthens linkages among individuals that speed up the diffusion of innovations, quantity and quality of information, reduces transaction costs, pools risks and allows households to pursue more risky and higher return activities. Social capital falls within two contexts of economic development policy. The first is bottom-up development, and depends on intra-community ties which is referred to as integration, and extra-community networks referred to as linkages. The other is top-down development which involves state-society relations referred to as synergy, and institutional coherence, competence and capacity which are called organizational integrity (Woolcock, 1998). In other words, social capital is inherent in individuals and interactions with others.

In Kenya today, participation of the community is mostly ensured through group structures such Community Based Organizations (CBOs), Common Interest Groups (CIGs), and Faith Based Groups (FBGs), which according to Putnam (1993, cited in Cuthill, 2010) are social capital specifically formed for the purposes of achieving common good projects (Hassan et al., 2018; Ong'ayo *et al.*, 2017) and which are among the growing mechanisms for channelling development assistance (Khwaja, 2004). The groups have served as instruments for consultation with supposed beneficiaries about planning and implementation of community projects (Hassan *et al.*, 2018; Ong'ayo et al., 2017). The groups are formed on the basis of interest and for the purpose of sharing of technologies and information on new innovations, networking, forming linkages with other likeminded individuals, groups and professional. The viability of the groups is determined by both the acquired and inherent knowledge, skills and experience in the individual (Ong'ayo et al., 2017) Participation is strengthened by both inherent and acquired individual ability and anticipated gains which include literacy levels, gender, skills, knowledge, and training (Flora and Flora, 2008).

The Kenyan government, both at national and county level, and development agencies have implemented various development initiatives at the coastal region with the goal of alleviating poverty among rural households. Despite the implementation of many projects and programmes, coastal Kenya is the least developed region of the country with more than 62 % living below the poverty line with a poverty index being over 70 (World Bank, 2016). Many development initiatives have been implemented with a focus on ensuring community participation for empowerment. These projects include the Kenya Coastal Development Project (KCDP), Hazina Ya Maendeleo ya Pwani sub-component of KCDP, Health Service Project (HSP) funded by the Danish Development Agency (Danida), Agricultural Sector Projects (ASP) funded by the Kenyan Government in collaboration with development partners, Regional Water Development Projects, United Nation Development Programmes (UNDP) among others (Danida, 2004).

Objective of the study

The study was guided by the following specific objectives: To identify the human and social capital of the households, and to establish the extent the two forms of capitals determine rural household participation in agricultural development initiatives implemented among them by the government and development partners and organizations.

Methodology

The study was carried out in three counties in the coastal region of Kenya (Tana River, Kwale and Kilifi). The climate of the region varies with distance from the coast and it becomes drier towards the inland from the ocean and from south to north (Nicholson et al., 1999). Covering an area of approximately 83,000km^2, the coast region has a population of approximately 3.3 million people with a birth rate of 3 % (Government of Kenya, 2009). About 69.7 % percent of the coastal population lives below the poverty line, with some areas such as Ganze in Kilifi scoring an alarming 84 %, making it the second poorest region of Kenya's eight regions after the North Eastern region with 73.9 % (Government of Kenya, 2013).

The accessed population was the 2,160 community members drawn from households that participated in different development initiatives implemented in

the region by the government either on its own or in partnership with development partners.

The study used a combination of simple random sampling, proportionate random sampling, and purposive sampling techniques. First, simple random sampling was used to select three counties since participatory approaches have been used for implementation of development initiatives in all the six counties. Purposive sampling was then used to select three sub-counties. Two hundred and eighty six households were proportionately sampled from the three counties using a sampling frame obtained from the respective County Population Coordinators as shown in Table 1. According to Kathuri and Pals (1993), a sample of 100 respondents or more is appropriate for a survey study. This is large enough for data collection. With a large sample, the researcher is confident that if another sample of the same size were to be drawn, findings from the two samples would be similar to a high degree (Bordens and Abbort, 2008). A sampling frame for households from the selected sub-counties was obtained and arrangements made on when to visit the field and administer the questionnaire to the selected household heads.

For successful data collection in the field, one set each of a semi-structured questionnaire, and a Focus Group Discussion schedule were used. The questionnaire was administered to households to collect the personal profile of the respondents which included, age, sex, education level, socio economic diversification and social engagements such as frequency of interaction with development professionals, and linkages with development agencies. Data collected were analysed using descriptive statistics including percentages and frequencies, and inferential statistics such as regression analysis with the help of the SPSS version 20.0 software. Regression analysis was used to determine the influence of human and social capital on household participation in development initiatives.

In this study human capital (HC) is captured in terms of gender, the education level, training, occupation and years of work experience. The data analysis was carried out using the following regression function predictor equation:

$$HP = ß_0 + ß_1Gd + ß_2Ag + ß_3Ed + ß_4Trn + ß_5Exp + Ɛ \quad (1a)$$

HC is not observable. However, HP defined by the following formula was observable:

$$\left\{ \begin{array}{l} HP = 1 \text{ if } HC > 0 \\ \quad\; 0 \text{ if } HC \leq 0 \end{array} \right\} \quad (1b)$$

Where
HP= Household participation
Gd = 1 if female, 0 if otherwise.
Ag = 1 if the household member 26 years, 0 if otherwise.

Educational level

Ed = A vector of dummy variables indicating household member's level of education

These are:

Primary = If household member has primary level of education
Secondary = If household member has secondary level of education
Tertiary = If household member has tertiary level of education
(Base category: no schooling)

Training

Trn = A vector of dummy variables indicating household member's type of training
These are:

Vocational = If household member attended vocational training
On-the-job training = If household member attended on-the-job training
(Base category: no training)

Exp = 1 if the household member has 2 years of experience, 0 if otherwise.

Table 1. Proportionate distribution of the sample size.

County	Target population	Proportion	Sample size
Kwale	173176	32.1	92
Kilifi	298472	55.3	158
Tana River	68242	12.6	36
Total	539890	100	286

$ß_s$ are the coefficients to be estimated from equation (1b), while Ɛ is the error term with the assumption HP (Ɛ) = 0.

Equation (1b) can be estimated using a Probit model because the dependent variable is binary.

The characteristics of the household such as education, age and gender of the individual may have either positive or negative relationships with HP. Households with basic or higher levels of education may influence the degree with which they participate in development positively because it enhances ones chances of participating in training such as workshops and seminars and other development initiatives. Individual marital status may also influence the participation in training and access to funds for economic activities due to lack of collaterals.

Social capital (SC) is captured in terms of membership of groups, interaction with other groups and linkages with development agencies. The data analysis was conducted using the following regression function:

$$HP = ß_0 + ß_1Ms + ß_2Mg + ß_3Ig + ß_4Lda + ß_5Se + ß_6Hs + Ɛ \quad (2a)$$

Table 2. Biodata of the respondents.

Variables	Frequency (n)	Percentage (%)
Age:		
<25 Years	4	0
26 - 30 Years	20	7
31 - 50 Years	151	53
>50 Years	111	40
Gender:		
Male	124	44
Female	162	56
Marital status:		
Married	136	47.2
Single	70	24.6
Widow/widower	80	28.2
Membership to Group	160	55.9
Interaction with other groups	146	51.1
Linkages with devt. agencies	170	58.5
Level of education:		
None	89	31.2
Primary school	97	33.7
Secondary School	70	24.6
College	22	7.7
University	8	2.8
Training		
Vocational training	90	24.6
Informal training	129	45.0
None	67	23.4
Socio-economic activities		
Farming	184	64.3
Fishing	02	0.7
Trading	54	19.0
Formal employment	23	8.0
Others	23	8.0
Experience in agricultural activities		
>2 years	209	73.1
≤ 2 years	55	19.2
None	22	7.7

Field Survey data, 2018

HP is not observable. However, HP that is observable is defined by:

$$\left\{ \begin{array}{l} HP = 1 \text{ if } SC > 0 \quad (2b) \\ \quad\;\; 0 \text{ if } SC \leq 0 \end{array} \right\} \qquad (2b)$$

Where
Ms = 1 if married, 0 if otherwise.
Mg = 1 if the household is member of a group, 0 if otherwise.
Ig = 1 if interacts with other groups and development agencies, 0 if otherwise.
Lda = 1 if have linkages with development agencies, 0 if otherwise.
Se = 1 if engaged in economic activities, 0 if otherwise.
$ß_s$ are the coefficients to be estimated from equation (1b), while Ɛ is the error term with the assumption HP (Ɛ) = 0

Results

The biodata of the respondents as presented in Table 2 show that the majority (53 %; n =151) of the respondents fell within the age group of 31 - 50 years, whereas an additional 40 % (n = 111) were above 50 years of age, and only 3 respondents were below 20 years (Table 3). More than half (56 %, n = 161) of the respondents were females, while 46 % (n = 133) were males. More than half (56%, n = 161) of the respondents were single, widows and widowers. In terms of household sizes, slightly more (42.8 %, n = 122) of the respondents had small households of 1 - 5 persons while 41.4 % (n = 118) had a household size of 6 – 10 persons. The educational attainments of respondents were relatively low. Only 7.7 % (n = 22) and 2.8 % (n = 8) had college and university education respectively. More than 70 % (24.6 % and 45 %) had undergone training. Interaction with other groups occurred in over 50 % of the households while 51 % had linkages with development agencies. About 64 % (n = 183) of the respondents engaged in farming as their main source of livelihood. Very few respondents engaged in fishing (0.7 %, n=2).

Community participation by type of human capital

Using a Probit regression, the study assessed the influence of biodata comprising age, marital status, level of education, training, type of economic activity and experience attained by the household member on community participation in development initiatives (Table 3). In this model the reference category was "those who did not participate". Table 3 and 4 show the output from the Probit model and the z-statistics.

According to the results in Table 3, tertiary level of education does not predict the likelihood of a household heads participation in development initiatives. Household heads who are younger (25 years or below) are more likely to participate in development initiatives. The probability of participating is 16 % each. Although these results are weakly significant at the

Table 3. Human Capital influencing household participating in development initiatives.

Variables	Probit dF/dx.	z-stat
If female	0.23	1.12
If aged above 26 years	-0.16*	-1.67
Education level:		
Primary school	-0.16**	4.57
Secondary School	-0.14*	1.60
Tertiary	0.13	-1.44
Training (base no training):		
If attended Vocational training	0.35***	-0.18
If attended on-job training	0.23***	0.29
Experience (base no experience):		
>2 years	0.36***	0.19
≤ 2 years	0.21***	0.26
F-stat (wald chi²)	97.40***	
R^2 (Pseudo-R^2	0.529	
Number of observation	286	

The coefficients on dummy variables indicate changes in probability for each outcome category when the value of the dummy variables changes from zero to one. The second column reports the z-statistics based on robust standard error.

*, **, and *** denotes significant at 10 %, 5 % and 1 % significant levels respectively.

Table 4. Social Capital influencing household participation in development initiatives.

Variables	Probit dF/dx.	z-stat
If married	0.13*	2.87
If member of a group	0.51**	2.21
Interaction with other groups	0.23*	0.29
Linkages with Devt agencies	0.44**	1.95
If engaged in Socio-economic activities:	0.53***	4.95
F-stat (wald chi^2)	92.40**	
R^2 (Pseudo-R^2	0.519	
Number of observation	286	

The coefficients on dummy variables indicate changes in probability for each outcome category when the value of the dummy variables changes from zero to one. The second column reports the z-statistics based on robust standard error.

*, **, and *** denotes significant at 10 %, 5 % and 1 % significant levels respectively.

10 % level, the results for age are consistent with those in Table 2. Household heads with primary education had attended vocational and on-the-job training with a probability of 35 %, 23 % and 53 % respectively and have a higher likelihood of participating in development initiatives. In general, the results show that household heads who have attained primary education and have undergone vocational or on-the-job training predict the chance of participating in development initiatives. This therefore means that basic education is a determinant of rural household participation in agricultural development projects and programmes. However, one of the participants in the FGD stated that:

"I did not go to school, but I am a member of a group engaged in agricultural production in which I am one of the executive members. The group has been in existence for eleven years and has networks. The group works and attracts support from Ministry of Agriculture and other organizations including FAO, KCep and KALRO among others".

The Probit results in Table 4 show that households who are members of groups and have linkages with government and development agencies that include private entities, NGOs and CBOs have a higher likelihood of 51% and 44 % of participating in development initiatives and 53 % being engaged in socio economic activities. The interaction with other groups has a lesser likelihood of the individual participating in development projects and programmes. Groups and engagement in socio economic activities as social capital provide opportunities for engaging in development activities implemented in the community. For instance, one participant in a FGD stated that:
"In Groups individuals gain synergy for demanding for services and engagement in socio economic activities. Membership to groups also serves as an avenue for participation in development initiatives".

Discussion

Human capital is inherent in an individual and is important in providing opportunities for households to engage in active participation in any development process or activities. Knowledge, skills and competency are among the important aspects of human capital acquired by individual households during the learning process, and are necessary for influencing decision-making and perceiving the benefits accrued from projects and programmes implemented in the community. Tanner et al. (2002) states that vocational training is an effective means of producing changes in practice, especially in relation to acquisition of individual human skills. Tanner *et al.* (2002) argues that lack of predictability of the likelihood of stakeholder participation in agricultural projects could be due to the lack of facilitation skills among professionals or extension workers. According to Nwake et al. (2013), the lack of the likelihood of participation could be attributed to the role that the professional development workers play even if the aim is to build the capacity of communities or empower them. Results obtained in a study done by Djomo and Sikod (2012) indicate that an additional year of experience and levels of education increases agricultural productivity. However, an additional year of experience acquired, led to a reduction in the level of inefficiency. Similarly, an additional unit of education reduces the level of inefficiency.

The negative significance findings on level of education are in agreement with those of Aworti (2012) who asserts that education as a human capital is in itself not entirely a determining variable in community participation. He suggests that many uneducated households scored even better than those with secondary school education in variables such as membership of community organizations, attendance of meetings and participation in planning, while those with good education levels speak more in meetings than those without education. High education level can also be a hindering factor in individual participation as explained by Dorsner (2004). Dorsner indicates that educated members of the communities at times are not available for their community even if they have interest, as they tend to have other business commitments. Although on-the-job training which allows acquisition of knowledge, skills and competency in performing various activities had a less likelihood than training, it is a more interactive and dialectic process of knowledge acquisition and provides these categories of participants with the necessary skills for them to participate in agricultural projects and programmes.

The results related to social capital imply that an increase per unit of each of the measures of social capital increases the probability of households participating in development initiatives. Membership of groups provide an avenue for collective action and helps individuals to negotiate the various challenges they face as they strive to pursue their individual goals and mutual interest. According to Seferiadis *et al*. (2015), membership of groups strengthens social fabric and interaction. Networks enable individuals to access resources and information and achievement of common goals. Brodie *et al.* (2009) found out that the socio-economic group a person belongs to has an impact on his/her level of participation, as people from lower socio-economic groups often have less access to resources and practical support making their participation in agricultural development initiatives rather difficult.

The formation of networks and linkages encourages residents to trust one another and therefore enables greater cooperation for mutual benefits. For instance, networks help in involving diverse players in the community in decision making processes, especially the vulnerable members of the community (Putman, 2000). Social networks provide useful information about the potential resources that can contribute to desired outcomes, such as socio-economic development, and in understanding factors that influence the capacity of isolated communities to make effective use of scarce natural or physical resources for achieving economic self-sufficiency (Tirmizi, 2005). Linkages open up avenues for creation of awareness to ideas and access to information and resources found outside the community which are necessary for development.

Conclusion

This study has shown that individual participation in development initiatives requires a set of human and social capital; elements that are closely intertwined. Human capital is associated with active and interactive engagement of the individual in development activities such as workshops, training and other practical activities. The interactive process inherent in group activities increases the ability of individual members to acquire knowledge and skills which are essential for decision making on the use of new ideas introduced to them, potentially leading to improved welfare. Although education as a human capital is necessary especially in the acquisition of technical knowledge, one does not require tertiary education to participate in development initiatives implemented in the community.

Policy recommendation

The Central Government, County Governments and development partners, should:

Emphasise the importance of community members enrolling in learning institutions to acquire basic education, and encourage group formation grounded on a strong foundation of trust. This will allow the individual members in the communities to engage in productive economic activities.

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