

SOCIAL CAPITAL AS A STRATEGY FOR PROMOTING RURAL LIVELIHOODS: CASE FOR KENYA

GABRIEL N. KIRORI



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PREFACE

This study is largely based on the unpublished PhD thesis entitled “Analyzing Rural Livelihoods in Kenya: A Social Capital Approach” by the author in 2009 at the School of Economics, University of Nairobi. The author remains highly indebted to various people for their encouragement and support in the writing and completing the thesis. Special thanks were accorded Professor Tabitha Kiriti-Ng’ang’a and Professor Jane Kabubo-Mariara, the then Supervisors, for their meticulous guidance and support in shaping the thesis. The author has remained most grateful also to Professor Germano Mwabu for providing the necessary drive and advice on key aspects of the thesis, Professor Peter Kimuyu for advice at various stages of my work, Dr. Anthony Wambugu for invaluable advice on applications of Stata software, as well as Professor Dorothy McCormick, then, of the Institute for Development Studies and Professor Enos Njeru, then, of the Sociology Department and Professor Matthews Ogutu of Religious Studies for their advice at the proposal development stage. The Kenya National Bureau of Statistics was instrumental in providing technical support in the fieldwork and logistics while Mr. Mbuvi Kitavi provided valuable input in the data analysis. For this, the author has remained ever grateful. The author is ever grateful also to the dear wife Margaret, and children: Antony and Virginia, Winfred and Antony, and Wilfred and Patricia for their understanding, encouragement and support. Above all, the author has remained ever thankful to the Almighty God for everything.

The capacity of people’s self-organization, social ties and solidarity is at the core of social capital. Social capital provides the means for accessing resources and support at vulnerable life cycles. Rich endowment of social capital allows people to produce and provide for one another outside the mechanism of the market. Evidence from available research has shown that social capital facilitates achievement of a broad range of development objectives. For many years, promoting rural development in Kenya relied on the strategy that focused mainly on achieving economic growth through accumulation of physical capital, ignoring the diverse dimensions of social capital and how these dimensions affect rural livelihoods. This study examined the hypothesis that social capital has a crucial role to play in improving rural livelihoods.

The study used primary data collected from a sample of 340 households from Nyeri district to demonstrate the linkage between social capital and rural livelihoods. The outcome of rural

livelihoods is proxied by total household expenditure and by household poverty status. Descriptive and econometric methods were used to explore the nexus between social capital and rural livelihood outcomes.

Results from econometric analysis show that social capital significantly affects total household expenditure and poverty status. There is evidence in the study area that social capital enables households to generate livelihoods sources that support non-monetary forms of exchange. This non-monetary exchange seems to reduce transactions demand for cash and to facilitate household savings. Contrary to previous studies, it is found that total household expenditure is negatively associated with aggregate social capital. This finding suggests that social capital reduces household welfare. However, contrary to this simple interpretation, the finding instead suggests that households with large social capital endowments are able to meet their basic needs through non-cash transactions. Social capital can enable households to increase consumption without cash expenditure, and without relying on self-purchased goods. The study further shows that the welfare-effects of various forms of social capital differ, indicating that effects of social capital are not sufficiently measured using aggregate value of social capital. The findings of the study are used to suggest policies for promoting formation of social capital as a mechanism for improving living conditions of rural households.

Gabriel N. Kirori 2015

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LIST OF ABBREVIATIONS

| | |
|--------|--|
| ASALS | Arid and semi-arid Lands |
| ASCAs | Accumulating Savings and Credit Associations |
| CFA | Control Function Approach |
| DFID | Department of Foreign and International Development |
| EAs | Enumeration Areas |
| ECD | Early Childhood Development |
| EFA | Exploratory Factor Analysis |
| ERB | Energy Regulatory Board |
| ET | Energy tribunal |
| FA | Factor Analysis |
| FIC | Full Immunization Coverage |
| FSAs | Financial Service Associations |
| GSCS | Global Social Capital Survey |
| IV | Instrumental Variables |
| KDHS | Kenya Demographic Health Survey |
| KEPP | Kenya Entrepreneurship Promotion Program |
| K-Rep | Kenya Rural Enterprises Program |
| KMRA | Kenya Maritime Regulatory Authority |
| KNBS | Kenya National Bureau of Statistics |
| KSUP | Kenya Slum Upgrading Program |
| MFI | Microfinance Institutions |
| M-Pesa | Mobile Phone Banking |
| NASSEP | National Sample Survey Evaluation Program |
| NR | Natural Resource |
| NNR | Non Natural Resource |
| OECD | Organization for Economic Cooperation and Development |
| OLS | Ordinary Least Squares |
| PCA | Principal Component Analysis |
| PFA | Principal Factor Analysis |
| POA | Public Order Act |
| PPP | Public Private Partnership |
| PPS | Probability Proportional to Size |
| PSUs | Primary Sampling Units |
| REA | Rural Electricity Authority |
| ROSCAs | Rotating and Savings and Credit Associations |
| SACCOs | Savings and Credit Cooperatives |
| SAPs | Structural Adjustment Programs |
| SCAT | Social Capital Assessment Tool |
| SCI | Social Capital Initiative |
| SC-IQ | Integrated Questionnaire for Measurement of Social Capital |
| UKONS | United Kingdom Office of National Statistics |
| UNFAO | United Nations Agricultural Food Organization |
| WRMA | Water Resources Management Authority |
| WSRB | Water Services Regulatory Board |
| WSTF | Water Services Trust Fund |

CHAPTER 1

BACKGROUND

1.0 Introduction

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. Research has placed emphasis on the possible role of social capital as a 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 (Government of Canada, 2003). Outputs of social capital are often not monetized as social capital is not easily accounted for in monetary terms. Outputs of social capital should be easily made visible in survey-based studies of households' living standards and activities. Social capital can be measured as part of the stock of resources of an individual or a household, for example, friends who may be able to loan money as and when a loan is needed.

The term livelihood refers to 'a means of living or survival'. It entails what people do in order to make a living, including the 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 or improved living (Ellis and Freeman, 2005). A rural livelihood is a 'means to a living' for households or individuals in rural areas whereby the households and individuals direct attention to the ways of obtaining a living rather than to the net results in terms of income received (Ellis, 2000).

In most developing countries, Kenya included, rural households adopt intricate and diverse livelihood strategies. Diversification is an important strategy for achieving survival and reflects the socio-economic dimensions of households. It is an important aspect for policy prescriptions about rural household income levels, farm productivity and rural poverty reduction. For many years, the dominant strategy for rural development and improvement of rural welfare was about the growth of output of the small farm. Ellis (2000) has criticized this strategy in that it tended to

neglect the diverse dimensions of rural livelihoods other than success at farming. For example, under the growth strategy, the survival of the rural poor for whom own-account farming was unable to provide a sufficient livelihood, received scant attention in the rural development mainstream (World Bank, 1975 and 1988; Harris, 1982). Besides the growth strategy, other processes and strategies that have become popular in transforming rural economies (i.e., transforming agriculture and rural communities) are agro-industrialization processes (United Nations Food and Agricultural Organization – FAO, 1997) and processes/strategies of creation of rural entrepreneurial economies and communities (Flora, et al. 2002; Lafourcade, 2002; Barr 2000a). Putnam (1993a,b) and Uphoff (1986, 1997) emphasize that rural communities depend on social capital to manage risk. In Kenya, emphasis on the agro-industrialization strategy is only recent as presented in the Industrial Transformation Strategy (Republic of Kenya, 1997).

Individuals and households in rural communities are differentiated by their resources, incomes and social status. Their livelihoods are shaped by local institutions such as local customs and land tenure rules regarding access to common property resources, and social relations as well as economic opportunities. In their livelihood strategies, rural households and individuals direct attention to links between resources and options that they possess in pursuit of alternative activities that can generate the income levels required for survival (Ellis, 2000). Scoones (1998) and Carney (1998) distinguish five main categories of resources or capital as including natural capital, physical capital, human capital, financial capital, and social capital. Under the diversification strategy, rural households that are endowed with social capital will promote rural development and their welfare in terms of increased growth (e.g., incomes), positive changes including social (e.g., improved access to education, basic health, water, credit, etc), political and cultural changes as well as traditions, customs, morals, ethics and attitudes (Ellis, 2000).

1.1 Rural Kenya

Rural Kenya comprises two major sectors, the rural farm sub-sector having agriculture as the key enterprise and the non-farm sub-sector made up of enterprises including the traditional economy, ownership of rural dwellings, fishing, forestry, and mining and quarrying, as well as the small-scale and micro enterprises in agro-processing, trading and manufacturing. The contribution of the rural sector in Kenya's national development remains crucial. It accommodates more than 60

percent of the total population, employs more than 70 percent of the total labour force, provides the bulk of foreign exchange earnings, and contributes directly to gross domestic product (GDP) at more than 30 percent of the total (Republic of Kenya, 2005).

One of the key objectives of Kenya's public policy since independence in 1963 has been to improve the rural livelihood and welfare of the people as well as to reduce poverty and hunger. This policy objective is reflected well in the country's rural development concept, which has remained focused on the transformation of the rural economy (Republic of Kenya, 1994, 1995). Rural transformation has many positive implications. For example, the rural society would achieve self-sufficiency in food and basic material needs; diversify activities into labor intensive small-scale industries; promote a social system based on principles of social justice; and finally enhance a planning system close to the people based on their perceived needs and requirements. Essentially, rural transformation would stimulate growth of the national economy and ensure sustainable development (Republic of Kenya, 1995; 1994). In the rural context, public policy has focused on four broad strategies. These are strategies for increasing rural incomes, providing basic social services, reducing inequality in the distribution of rural incomes, and reducing imbalances in rural urban incomes and economic opportunities (Republic of Kenya: National Development Plans, various issues).

In spite of Kenya's efforts in transforming the rural economy and improving the well-being of the rural people, reducing their poverty and hunger, evidence in the recent past showed a declining trend in the performance of the rural sector. For instance, the number of poor people in Kenya increased from 31 percent [or 3.7 million people] in 1972 to 46 percent [or 11.5 million people] in 1994, 50 percent [or 15.0 million people] in 1997, but fell to 46 percent in 2005/2006 (Republic of Kenya, 2007). Manda, et al. (2001) estimated that about 34.8 percent of the rural poor live in extreme poverty so much that they cannot meet their food needs even with their entire resources devoted to food.

The declining trend in the performance of the rural economy is indicative that, Kenya had not fully achieved the goal of improving the level of the welfare of the rural people. Researchers on poverty in Kenya (Manda, et al. 2001; Oiro, et al. 2004; Kimalu, et al. 2002; and Geda, et al.

2001) argue that policy failure in impacting development is the reason for the persistence of poverty despite Government efforts to combat it. The adopted policies have not been adequately effective because of weaknesses in the implementing institutions and mechanisms. National policies in Kenya have remained on a small enclave focusing on trade, privatization, labor, foreign investment policies, and so on. They have not favored, for example, the indigenously-based local economies since they ignore societal values. The importance of social capital is critical in developing countries including Kenya where much economic activity is not yet fully monetized and extended family ties are a primary occurrence. An important concern for policy in this study is the extent to which existing data/surveys in rural Kenya contain information needed to understand how rural households use informal social networks to better themselves and to avoid poverty.

The study argues that policy formulation focus is another source of policy failure. Formulation of policies in Kenya, does not embrace all the resources that people have. For example, little attention is paid to social capital resource. Social capital is important in shaping patterns of households' engagement with the economy and within communities. The household is facilitated by social capital in responding to problems of everyday life to improve its welfare (Rose, 1997). Narayan (1997) argues that the notion of development capital as traditionally used in economic operation to determine poverty and household welfare measures is inadequate because it ignores the social dimension (i.e., social capital). Grootaert and Bastelaer (2002b) indicate that social capital is an important ingredient and determinant of progress in development and a tool for poverty reduction. Social capital can contribute to the livelihood of households directly in increasing incomes (Narayan and Pritchett, 1999; Fafchamps and Minten, 1999) and indirectly through improving access to services including water (Krishna and Uphoff, 1999; Isham and Kahkonen, 1999), sanitation (Pargal et al. 1999), credit (Grootaert, 2001), education (Coleman, 1988), health (Health Development Agency, 1999). Grootaert (2001) and Reid and Salmen (2000) argue that the effects of social capital on outcomes have proved to be as or more important than the effects from other assets such as human and physical capital. Social capital can lead to the creation of opportunities for enhancing incomes and other dimensions of wellbeing.

In spite of the important developmental role of social capital, there is a dearth of empirical studies on this role in rural Kenya. Though there are a few studies on determinants of social capital in Kenya (Nyangena, 2004; Nyangena and Sterner, 2008) there is need to analyze the link between social capital and rural livelihoods in Kenya. This study addresses this research gap and provides critical insights into rural development policy. The overarching research questions to be addressed in the study are: What is the nature and forms of social capital in rural Kenya? What are its determinants? Does social capital matter in shaping the livelihoods of the rural households? Does being socially connected improve the welfare of rural households? What is the composition of the survival portfolio of the rural households?

1.2 Significance and Justification of the Study

One of the weaknesses in Kenya's rural sector development approach has been its narrow policy focus. For example, over the past decades, the policy for rural development has emphasized a 'small farmer'-based agricultural process that ignored other important processes such as agro-industrialization, rural entrepreneurial communities, and social capital. The area of social capital is new ground that is complex and not yet well studied. This study attempts to address this challenge and aims at producing a clear documentation of the dynamics of social capital for reference by various stakeholders including researchers, scholars and policy makers particularly interested in rural development and rural livelihoods. It is expected that the study will increase understanding of social capital and survival strategies of the rural households in Kenya as well as contribute to the formulation of rural policy and development programs and to the efforts of combating poverty. Individuals, households or groups in a community use social capital to produce tangible goods and basic services that are exchangeable and potentially marketable. For instance, social capital is important in accessing water at the community level, or tending animals, repairing of houses, and so forth.

A range of social problems including crime, health, poverty and unemployment have been linked empirically to a community's endowment of social capital or lack thereof (Grootaert et al. 2004). A good concern for policy is about the construction of new social capital and decline of old social capital through changes in technology and demography. By measuring social capital and social support, the study offers a new way of thinking about how rural poverty in Kenya can be

reduced.

A French Professor of Economics at the University of Paris-Sud-Sceaux (Latouche, 2000) explained the survival reality of the people of Africa, which seems incomprehensible in the light of Western logic, as being due to the continent's rich endowment of social capital. The author argues that, this social capital, which is in the form of people's great capacity for self-organization, wealth of social ties and solidarity allows them to produce and provide for one another outside the logic of the market. In this way, social capital provides certain mutuality, a life of insurance, and unemployment insurance. However, the role of social capital in many African countries, Kenya included, has not been empirically studied. This book contributes to the literature by documenting the impact of social capital on rural livelihoods in Kenya.

1.3 Social Capital and Rural Livelihoods in Kenya

1.3.1 Introduction

The history of documented work related to social capital in Kenya is pretty recent. Sabatini (2007), lists the work of Narayan and Nyamwaya (1996) as being the earliest. Since the year 2000, there has been growing interest amongst researchers and scholars in studies on social capital. Although the documentation of social capital in Kenya is only very recent, the concept underlying it can be traced to the activities of the *Mau Mau*¹ uprising in the 1950s and the *harambee*² self-help movement since 1960s. Using evidence from the available literature, this situational analysis identifies four areas of development. These include education, rural finance, democracy and political involvement, and rural development [in which social capital seems to have played an important role in the country]. The situational analysis also reviews the process of social capital formation in Kenya.

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.

Rural livelihood is the means or process by which individuals or households in rural areas earn their living or survival. Instead of directing their attention to net results in terms of income receipts or consumption attainment, the households direct their attention to ways of obtaining a living. This process entails pursuit of strategies formed by a combination of availability and access to assets and activities (Ellis, 2000). The access to assets and activities is influenced by structures including levels of government and private sector as well as processes including laws, policies, culture and institutions (Heffernan and Misturelli, 2000). A person's livelihood is also a product of the environment in which they live.

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).

This analysis further documents rural livelihoods in Kenya on the basis of livelihood assets and activities as well as rural livelihood diversification. The rest of the section is organized as follows. Section 1.4.2 presents a situational analysis of social capital and education; section 1.4.3 looks at social capital and rural finance; section 1.4.4 deals with social capital and democracy and politics; section 1.4.5 presents social capital and rural development; section 1.4.6 deals with various forms of capital (livelihood assets and activities); and section 1.4.7 looks at rural livelihoods diversification.

1.3.2 Social Capital and Education Development

Social capital has been shown to be a key component linked to success of education development in a community (Coleman and Hoffer, 1987; Francis, 1998). 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 can be described as a good case study where social capital has been critical in education development in the country.

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 (Rugh and Bossert, 1998). Rapid expansion of primary school enrolments created much pressure towards the development of the secondary school system.

The *harambee* school projects involved three phases, the initiation, organization, and implementation phases. Leadership in each phase involved different groups. In the initiation phase, major leaders such as the District Education Officers, Chiefs, Community Development Assistants, and teachers created awareness of the community's need for secondary school facilities through discussion groups. In the organization phase, a broader leadership defined participation criteria and fund raising procedures. In the implementation phase, leaders of local work groups took charge of the work teams and sustained their commitment.

On one hand, the *harambee* model 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. On the other hand, the quantitative expansion was not matched by the needed quality improvement in many schools. Majority of students in *harambee* schools tended to perform poorly and were less likely to win admission into next educational stages or qualify for jobs of high status compared to government and private schools. Kenya merged the Government and *Harambee* secondary schools' categories in mid-1980s.

1.3.3 Social Capital and Rural Finance

Social capital plays a crucial role in mobilizing rural finance in Kenya. Kenya recognizes the importance of a good financial system and the need to improve access to financial services across the whole economy (Republic of Kenya, 2004). 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 microfinance institutions, strongly oriented towards informal businesses or micro-enterprises, have been limited until recently, to offering credit services in Kenya primarily through group-based non-collateralized lending. Savings and Credit Cooperatives (SACCOs), largely driven by agricultural-based societies, also provide financial services to the rural population in Kenya. Kenya Rural enterprises program (K-Rep) development agency has supported the development of village-based financial service associations (FSAs) for nearly a decade. These are community-based institutions offering community-based informal finance to poorer Kenyans. CARE Kenya has been supporting the formation of group-based savings and loan associations offering the most basic savings and lending services within small groups.

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. 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 makes them very popular in rural Kenya especially among women (Stevenson and St. Onge, 2005). Many up-coming informal finance mechanisms in Kenya have adopted the methodology of ROSCAs for savings and credit self-help. These include the Kenya Entrepreneurship Promotion Program (KEPP) Ngumbato Savings Initiative. KEPP developed the Ngumbato Savings Initiative in 2004 based on the ROSCAs where every member contributes a sum of money and one member borrows it for a short period of time, paying interest on the loan. The interest payments plus continuing contributions allow the self-help group to accumulate a good amount of financial resources fairly quickly.

A typical ROSCA involves 5-10 members and operates on simple principles of holding a series of regular meetings, each person contributing a pre-determined amount into a collective 'pot' which is then given to one member or used to buy specified goods for the members. ROSCAs follow reciprocity arrangements that are cyclical. These arrangements imply that once you are helped, you help others until everyone has benefited from the scheme. At each period, a member's expected benefits depend on whether or not one has already been helped, similar to a lottery without replacement (Anderson and Baland, 2002). Members take turns in benefiting

from the collective savings. At the start of the scheme, the order of such turns must be decided, usually by a lottery draw, but occasionally on the basis of other criteria including seniority and recognized need.

ROSCAs differ in their organizational structures and functions. The structure of a ROSCA may include at least the allocation of the order of the turn, size of the pot, number of members, length of a cycle whereas the functions include funeral insurance, self-help groups and *harambees* mutual credit. ROSCAs suffer from severe enforcement problems, which are generally solved by social sanctioning mechanisms and reputational effects (Anderson and Baland, 2002). The organizational structure of the ROSCAs can be designed so as to minimize enforcement problems. For example, enforcement problems are lower when the size of the group is small and the turns are not redrawn between cycles. In the absence of social sanctioning mechanism, ROSCAs are never sustainable (Anderson and Baland, 2002). Participation in ROSCAs in rural communities is driven by the need to raise school fees, meet medical expenses, and buy food as well as start or promote small businesses and acquire assets including livestock (Kimuyu, 1999).

Though there is no formal documentation on transfer of remittances in Kenya, the rural economy receives a lot of transfers from urban emigrants. In the remittance of transfers, there is strong reliance in Kenya on informal mechanisms where 58 percent of domestic transfers were sent through a friend or family member (The Steadman Group, 2007). Mobile phone banking (M-Pesa), launched in Kenya in March 2007, enables an M-Pesa account holder to send money to others with or without an M-Pesa account as well as deposit or withdraw cash from the nearby M-Pesa agent. Others like Zap are also producing the same service. About 19 percent of the rural population in Kenya owns a mobile and 29 percent can use someone else's (The Steadman Group, 2007).

1.3.4 Social Capital, Democracy and Political Economy

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. The *Mau Mau* revolt in the 1950s is a good case study for social capital in pre-independence Kenya. The revolt led to the solution of land and freedom issues in 1960 between the people of Kenya and the British colonial administration (Maloba, 1993). The

uprising occurred as a result of long simmering political, economic and racial tension coupled with apparent lack of peaceful political solutions to these problems. The revolt was unique in terms of military and political strategy in that it had no external support and was neither Marxist nor capitalist influenced. The revolt was brought about solely with the goal of getting rid of colonization. It 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 Council of Freedom comprised a network of secret committees including the Passive Wing tasked with supplying weapons, food, money, intelligence and recruits to the Active Wing known as the 'Land and Freedom Armies', named after the two issues which the Kenyans felt were most important. In 1956, the British administration took political measures to end the instability of the uprising. The measures included granting of direct election of 14 Kenyan members into the Legislative Assembly, a program of villagization and land reform that consolidated the land holdings of the Kenyans, as well as relaxation of the ban on Kenyans growing coffee (a primary cash crop). These measures led to a systematic rise in the incomes of the small farmer (Evans, 2001).

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 activists contend that the violent struggle for independence in Kenya produced a structure of repressive legislation and a policing culture of violence and impunity (Afako, 2004). For example, the Public Order Act (POA), enacted in 1950, was used to quell agitation and the *Mau Mau* struggle. In the first three decades of independence, amendments of these repressive laws as well as political change remained gradual. Over the last 15 years, significant victories for freedom along a path of political change have been achieved in Kenya as several repressive pieces of legislation and powers have been repealed and dismantled. 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 following the 10th general elections in December 2007. The post-election violence emerged between tribal groupings to an extent that threatened the very existence of Kenya as a

cohesive national entity. It led to destruction of lives and livelihoods, breeding feelings of insecurity, fear and terror among the population as well as exacerbating social exclusion.

1.3.5 Social Capital and Rural Development

Social capital is an important factor for rural communities in that it facilitates their capacity to organize for development (Upholf, 1986). With the help of social capital, 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. In this way, individual and community well-being is sustained (Upholf, 1986). According to the 2002-2008 issue of the District Development Plans, 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). These groups include agriculture/dairy/livestock marketing, SACCOs, housing, land buying, transport, unions, sand harvesting, handcraft, and fisheries. 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). The Mabati Women Groups movement in Nyeri district is a good case study of the important role of social capital in Kenya's rural development. The movement was started in the early 1960s by women to improve their houses as a development agenda (Malombe, 2006). The groups used locally mobilized resources, had local leadership, and used indigenous reciprocal and communal assistance principles. The group's efforts resulted in improved shelter, empowerment of majority of the women, and successfully addressed poverty concerns.

After improving majority of the houses, the Mabati Women Groups movement undertook other activities according to their felt needs such as construction of water tanks, building rental houses as well as conducting sewing and knitting courses (Malombe, 2006). The activities of these groups benefited significantly the communities in this part of Kenya. By 2006, about 126,000 persons in Nyeri district, had benefited in terms of improved housing and other services, whereas, about 18,000 women had been empowered both socially and economically. It is expected that the activities of the Mabati Women Groups are sustainable because the women are

the main decision makers and only get involved in activities within their means. Group members have developed strong ties that enable them to be committed to the course of the groups.

1.3.6 Livelihood Assets and Activities

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). The terms livelihood activities, main livelihoods and main income sources are used interchangeably in this section and in the rest of the study.

We view capital assets as a basket of goods whose availability and access is directly related to the environment in which they occur. Heffernan and Misturelli (2000) distinguish four types of environment including disabling, neutral, enabling and flourishing with regard to the manner in which they influence households' livelihood choices and outcomes. A disabling environment does not allow a household to meet subsistence requirements. A neutral environment may allow households to meet basic needs but not much else. An enabling environment allows households to exceed subsistence requirements and achieve sustainability in at least one aspect of their livelihood strategies. A flourishing environment allows households to achieve a high level of well-being such that they are no longer vulnerable to poverty. If for instance, an environment is disabling, a capital asset type occurring in that environment is also considered disabling. We present a situational analysis of each form of capital below.

(i) Natural Capital

Natural capital relates to the use and availability of natural resources including land, water, environmental resources, and activities such as hunting wild animals, gathering wild vegetables, and so on (Buckland, 2005). A household is regarded as having no natural capital either because it has no landholding at all or where a landholding is owned, the household does not carry out any agricultural activity such as crop cultivation or livestock keeping (Republic of Kenya, 1996). Landless households include those engaged in non-agricultural activities, those practicing little

agriculture on tiny pieces of land less than 0.01 ha, and those rearing livestock on communal land. Republic of Kenya (1996) shows that, on average, 30 percent of rural households are landless and do not practice agriculture as an option for their livelihood.

The main feature of the environment in which natural capital occurs in rural Kenya is that about one-third of land is arable while the rest is arid and semi-arid lands (ASALs). The arable lands have sustainable environment in terms of rainfall and fertility for crop and dairy production the year round. In the ASALs, rainfall is generally not adequate, majority of households engage in rearing of livestock as one of their key economic activity. The feature of natural capital in the arable lands can be described mainly as enabling while in the ASALs it is mainly disabling. These differences in the capital asset environment have implications on poverty. For example, the proportion of the households living in absolute poverty in arable lands is lower (e.g. 24.3 percent in Central Province) than the proportion of the households living in the ASALs (e.g. 66.1 percent in North Eastern Province) (Republic of Kenya, 2007).

Wildlife and livestock grazing is the dominant land-use activity in the Kenya rangelands (Republic of Kenya, 2008). The rangelands are home to wildlife species that are a major tourist attraction. There has been a decline in various wildlife herbivores due to predation, poaching, and migration as result of land-use changes and unfavorable weather conditions while there has been an increase in the number of elephants, warthog, and ostrich. The major challenges faced by the government in the environmental resources include resource depletion and environmental degradation. The government has introduced programs such as “community development for environment management” and development of education for sustainable development” aimed at capacity building of the local communities on community-based natural resources management. This entails educating and mobilizing the public on conservation and sustainable utilization of natural resources (Republic of Kenya, 2008).

(ii) Physical Capital

Physical capital is crucial in the development and maintenance of physical infrastructure in rural and urban areas of Kenya. The physical infrastructure sector is a key pillar in the development of Kenya’s economy particularly the productive sectors such as agriculture, industry, and tourism. The main sub-sectors of the physical infrastructure sector are roads, energy, housing, water, and

transport. Since 2003, Kenya has made significant strides in enhancing the quality and quantity of infrastructure facilities and services delivery. The Government budget allocation to the sector increased from Kshs13.8 billion in 2002/03 to Kshs57.3 billion in 2007/08 (Republic of Kenya, 2007). Key reforms have been carried out in the sector to increase efficiency in services and private sector participation through public private partnership (PPP). Key reforms in the roads sub-sector include establishment of three new autonomous agencies (Kenya National Highways Authority, Kenya Rural Roads Authority, and Kenya Urban Roads Authority) to oversee the development and maintenance of roads in the country. Reforms in the energy sub-sector include the establishment of the Rural Electricity Authority (REA), the Energy Regulatory Board (ERB), and the Energy Tribunal (ET) to oversee provision of clean and reliable energy services. Key reforms in the housing sub-sector include the implementation Kenya Slum Upgrading Program (KSUP) and development of appropriate building materials and technologies (Republic of Kenya, 2007). In the water sub-sector, key reforms include formation of Water Services Regulatory Board (WSRB), Water Services Trust Fund (WSTF), Water Resources Management Authority (WRMA), and Water Appeals Board (WAB). The reforms in the transport sub-sector include the concessioning of the Kenya rail network, establishment of Kenya Maritime Regulatory Authority (KMRA), deepening programs in road safety, opening up of a new hinterland for exploitation of resources in the country and across the region (Republic of Kenya, 2007). Road network is a good proxy for physical capital in rural Kenya. Heffernan and Misturelli (2000) used the road network variable in their study of livelihoods in relation to veterinary services in six districts in Kenya.

Good infrastructure in rural areas is critical to households' access to markets as well as lowering costs of doing business. The feature of physical capital in rural Kenya can be described as ranging from enabling in some districts to disabling in others (Heffernan and Misturelli 2000). Table 1.1 highlights disparities in regional road network endowment per capita, measured in different road types in 1997. Of all roads types, Nairobi was best endowed with premix roads with only 0.15 (km²) per person. Central, Nyanza and Eastern and Rift Valley provinces were best endowed with graveled roads while Coast and Eastern provinces are best endowed with earth roads. Though there is no definite pattern of correlation between poverty and distribution of

road network institutions, regions with lowest key road network institutions per capita have relatively lower welfare than their counterparts with more institutions.

Table 1.1: Regional Road Network per Capita, 1997

| Road type (km ²) | Province | | | | | | | |
|------------------------------|----------|---------|-------|---------|--------|-----------------|---------|----------|
| | Nairobi | Central | Coast | Eastern | Nyanza | Rift- Valley | Western | National |
| Total service dressed roads | 0.015 | 0.42 | 0.292 | 0.259 | 0.128 | 0.325 | 0.081 | 0.262 |
| Total premixed roads | 0.149 | 0.064 | 0.011 | 0.029 | 0.097 | 0.014 | 0.054 | 0.040 |
| Total graveled roads | 0.014 | 1.018 | 0.903 | 1.263 | 1.362 | 1.737 | 0.790 | 1.268 |
| Total earth road | 0.001 | 0.774 | 2.485 | 1.528 | 0.929 | 0.739 | 0.263 | 1.108 |
| Total road length | 0.179 | 2.276 | 3.690 | 3.076 | 2.516 | 2.800 | 1.186 | 2.673 |

Source: Kabubo-Mariara et al (2007)

(iii) Human Capital

Human capital comprising of labor, health, education, and skills is an important asset that enables the household to pursue different livelihood strategies (Carney, 1998; Boli, 2005). The effectiveness of labor as an asset depends on good health and education. When enhanced through training and other skills, labor becomes a powerfully effective tool for households to gain livelihoods. The national labor force participation rate in Kenya is 72.6 percent with males (75.7 percent) and females (69.7 percent). Central province exhibits the highest rates at 80.5 percent while the Northern Eastern Province at 50.9 percent has the lowest (Republic of Kenya, 2008).

Labour participation and productivity are however dependent on health of workers. It is therefore crucial to provide health care services to support labour productivity. Some indicators of this provision include immunization coverage and other medical services. The national coverage for full immunization (FIC) rate for under one year old children was 73 percent in 2007 compared to 60 percent in 2003. Central Province records the highest rate at (85 percent) followed by the Eastern Province (81 percent) while Nyanza Province (66 percent) had the lowest. The number of registered medical personnel per 100,000 of the population was 188. The trend of prevalence of disease that causes morbidity has declined significantly in the last 5 years except for the pneumonia cases. Of the top 10 diseases causing morbidity in Kenya, malaria and disease of respiratory system constitute 55.6 percent.

In recognition of the important role education and health play in the development of human capital, the Government of Kenya has increased tremendously the budget allocations to these sub-sectors from Kshs 16 billion for health in 2004/05 to Kshs 33 billion in 2007/08 and from Kshs 85 billion to Kshs 130 billion for education over the same period. One of the primary means of increasing human capital is through education. Available data shows that enrolment at the university increased by 44 percent from 2003 to 118,239 in 2007 with the proportion of females being 40.1 percent of the total enrolment (Republic of Kenya, 2008). There was increase in total enrolment at the technical and industrial training institutions of 22.6 percent over the same period. The gross enrolment rates (GERs) at the secondary level of education are 33.3 percent for girls and 40.4 percent for boys while at the primary level the rates are 104.4 percent and 110.7 percent for girls and boys, respectively. The GER at the early childhood development (ECD) is 59.3 percent (Republic of Kenya 2008).

(iv) Financial Capital

Financial Capital is the financial resources available to people either as savings, supplies of credit, regular remittances or pension providing them with different livelihood options (Carney, 1998). The Steadman Group (2007) presents an overview of the financial landscape in Kenya from a national household survey covering all providers of financial services. They include banks, finance companies, savings and credit cooperative organizations (SACCOs), microfinance institutions (MFIs), insurance companies, as well as informal sources such as rotating savings and credit associations (ROSCAs), informal lenders, non-governmental organizations (NGOs), friends and family. The survey found that in total, 23.1 percent of the rural population in Kenya were financed by formal institutions (banks and nonbank institutions), 39.2 percent were financially included through their use of Accumulating Savings and Credit Associations (ASCAs), ROSCAs or other informal groups, and 37.4 percent did not use any institutionalized financial product and were therefore financially excluded.

1.3.7 Rural Livelihoods Diversification

The fundamental characteristic of rural households in Kenya, as in most contemporary developing countries, is the ability to adapt, through the rural livelihoods diversification, in order

to survive. Rural livelihoods diversification is a socio-economic process or a survival strategy in which factors of both threat and opportunity cause the rural household to adapt intricate and diverse livelihood strategies (i.e. diverse portfolio of activities and assets), in order to survive (Ellis, 2000). 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.

Two opposing theories have been advanced with regard to the actual driving force that cause emergence of rural livelihood diversification, the “agriculture optimistic” and “agriculture skeptic” theories (Ellis, 2005). 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) sees diversification as responding to the failure of agriculture to generate sufficient secure livelihoods for those in rural areas.

The agricultural policy environment prevailing in Kenya in the 1970s encouraged emergence of marketing boards or “crop parastatals”, as well as fertilizer and other input subsidies, fixed prices or floor prices, export crop taxes, non tariff import barriers and import taxes. The effect of the crop parastatals was to widen artificially marketing margins between farm gate and sales prices hence extracting surpluses from the rural economy and making lives of the farmers miserable (World Bank, 1981; Bates, 1981). 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 hence facilitating competitive trade in rural areas. But according to Ellis (2005), the liberalization thrust occurred too late to overcome conditions set in during the epoch of the parastatals. The effects of SAPs were detrimental to farm incomes and outcomes. Often farmers were 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.

Another reason why farming on its own does not provide a sufficient means of survival in rural Kenya is the factor of declining farm size, a feature reflecting inheritance norms under customary and state land tenure. Livelihood activities are the sources of household means of survival. Heffernan and Misturelli (2000), studied livelihood of pastoralists, agro-pastoralists, and subsistence farmers in six districts in Kenya and found that households in rural Kenya 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.

Clear and well-defined gender divisions with regard to livelihood activities exist (Heffernan and Misturelli, 2000). 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 study by The Steadman Group (2007) of main livelihood activities in relation to access to financial services in Kenya show 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 next chapter focuses on the literature review.

CHAPTER 2

THE THEORETICAL AND EMPIRICAL PERSPECTIVES OF SOCIAL CAPITAL

2.0 Introduction

The theoretical perspective of social capital in this study covers issues related to the concept, dimensions and uses of social capital, its role in rural livelihoods and public policy, as well as approaches to analysis of structural social capital while the empirical perspective includes issues related to sources and determinants, measurement and effects of social capital. The contents of the empirical perspective are grouped into three broad categories that include: the sources and determinants of social capital, its measurement and its effects.

The key works that inform these perspectives include the works of Grootaert et al. (2004); Donnelley-Roark et al. (2001); Narayan and Cassidy (2001); Fox and Gershman (2001); and Narayan and Pritchett (1999) and the several studies undertaken by the Social Capital Initiative (SCI) of the World Bank and reviewed by Grootaert and Bastelaer (2002a and 2002b). These authors have increased understanding of the nature of benefits that accrue from a stock of social capital as well as its measurement and effects. For example, the authors provide a rich knowledge on the measurement of social capital using proxy indicators as well as the analytical approaches related to probability choice models.

2.1 Theoretical Perspectives

This part of the perspective, gives several insights about social capital including what social capital is, how the concept of social capital has developed over time, nature and dimensions of social capital, the role social capital plays in rural livelihoods and public policy as well as uses of social capital. The section also presents some approaches for analyzing structural social capital.

2.1.1 The Concept of Social Capital

The idea that social capital can guide economic activity dates as far back as 18th century during the period of Scottish enlightenment (Woolcock, 1998). 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 markets³. 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.

In the last two decades, the concept of social capital has profoundly been popularized especially in the prominent studies of Bourdieu (1986), Coleman (1988, 1990) and Putnam (1993a, 1993b, 1995). Bourdieu (1998) 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 where the theory of social capital is crucial for policies of grassroots participation, community development and empowerment. Durlauf (2002) argues that the definition of social capital has remained elusive despite immense amount of research on it. The author contends that social capital refers broadly to community relations that affect personal interactions.

Helliwell and Putnam (1995), Helliwell (1996), Uphoff (1986), and Krishna and Uphoff (1999) define social capital as a community level public good emphasizing that social capital may be embedded in society rather than in any one individual. The authors also explain that social capital is given value by actors including individuals, institutions and organizations who use it to further their individual or collective interests. Ellis (2000) refers to social relations as the social positioning of individuals and households within society where factors such as gender, caste, class, age, ethnicity, and religion create constraints on individuals’ courses of action. Lietaer (2001) explains a model of social capital formation through creation of communities and community (or complementary) currencies emphasizing a need for radical money reform. North (1990) refers to institutions as including formal rules, conventions, and informal codes of

³ Added reference about Edmund Burke and Adam Smith was Wikipedia, the free encyclopedia.

behavior that can be a constraint in human interaction. Examples of institutions include laws (e.g., criminal law), land tenure arrangements (e.g., property rights), the way markets work in practice, i.e., the market as an institution. The role of an institution is to reduce uncertainty by establishing a stable structure for human interaction. Organizations are groups of individuals bound up by some common purpose to achieve objectives, e.g., government agencies (e.g., police force, ministry of agriculture, etc), administrative bodies (e.g., local government), NGOs, associations (e.g., farmers associations), private firms (North, 1990).

The theory of social capital is relatively new. The theory has been used to contest some important notions in traditional economics. 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. The theorist contends 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 Lehto (2001), 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.

Woolcock (2001) sums up the conventional wisdom regarding social capital with the common phrase “it is what you know, it is who you know”. Intuitively, the basic idea of “social capital” is that one’s family, friends and associates constitute an important asset enjoyed for its own sake and or leveraged for material gain. Putnam (2000) explains that, though social capital is always an asset for those individuals and groups involved, it may not always be beneficial to society as a

whole. For instance, horizontal networks of individual citizens and groups that enhance community productivity and cohesion are said to be positive social capital assets while self-serving exclusive gangs and hierarchical patronage systems that operate at cross purposes to societal interests can be thought of as negative social capital and places burdens on society. Portes (1998) identified 4 negative consequences of social capital: exclusion of outsiders, excess claims of group members, restriction on individual freedom, and downward leveling norms.

2.1.2 Attributes of social capital

Social capital has important attributes distinguishing it as true capital. Views differ about whether matters referred to under social capital can sensibly be thought of as true “capital”. Economists have pointed out that social capital has many features of capital (Grootaert et al. 2004). For example, social capital requires resources to produce, especially time; and is subject to accumulation and depreciation. 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. However, 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. Traditional characteristics of capital include matters of fungibility (i.e., transformation), exchangeability (i.e., transferability) and depreciation.

Grootaert and Bastelaer (2002a) contend that social capital represents genuine capital with input and output sides. The authors explain that on the input side lies the investment required to create a lasting asset while the output side lies in the resulting ability to generate a stream of benefits. They argue that social capital can directly enhance and lead to higher productivity of other resources such as human and physical capital. The authors also explain 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, it is under

produced because of incomplete collective internalization of the positive externalities inherent in its production.

2.1.3 Forms of Social Capital

The functional role of social capital is distinguished by its general form. The distinct forms of social capital distinguish various ties among actors, as well as values and norms. Social capital can be distinguished into two forms: the general forms and the distinct forms, which influence development when they interact. General form of social capital represents a variety of entities rather than a single entity having common features such as some aspect of social structure, facilitating actions of individuals within the structure and so on (Coleman, 1988, 1990). Coleman (1988) identifies three general forms of social capital including (a) obligations, expectations and trustworthiness of structures; (b) information channels; and (c) norms and effective sanctions. Fox and Gershman (2001), identify three different kinds of general social capital as being: (a) local horizontal social capital which constitutes the building block for grassroots action; (b) the scaled-up horizontally and vertically linked social capital which plays a critical role in terms of generating bargaining power among actors taking into account freedom of association and participatory policy interactions; and (c) the inter-sectoral social capital created and consolidated between diverse coalition partnerships of national and international actors and enhances the enabling environment for grassroots social capital on the ground. Grootaert and Bastelaer (2002b) view the concept of social capital along three dimensions including (a) the scope or unit of observation of social capital including the meso level (Coleman, 1990), the micro level (Putnam, 1993a and 1993b), and the macro level (North, 1990; Olson, 1982), (b) the form or manifestations of social capital, and (c) the channels through which social capital affects development. The channels of social capital transmit streams of benefits arising from the resource such as information sharing, collective action and decision-making, and reduction of opportunistic behavior that influence development positively.

Grootaert and Bastelaer (2002c) identify two distinct forms of social capital: the structural social capital and the cognitive social capital. Cognitive social capital is a more subjective and intangible concept (Uphoff, 2000) and refers to shared norms, values, trust, attitudes, and beliefs while structural social capital is a relatively objective and externally observable construct and

facilitates information sharing, collective action and decision-making through established roles, social networks and structures supplemented by rules and procedures.

Woolcock (2000), Putnam (2000), and Government of Canada (2003) distinguish structural social capital into three forms, i.e., the (i) bonding, (ii) bridging, and (iii) linking social capital types. Bonding social capital involves ties that exist in dense or closed networks within homogeneous groups such as family, friendship, and neighborhood, and helps people to “get by” in life on a daily basis. Bridging social capital involves overlapping networks that may make accessible the resources and opportunities that exist in one network to a member of another. The conception of bridging social capital draws on the importance of ‘weak ties’ first identified by Granovetter (1973) where diverse social relations become more valuable to individuals seeking to ‘get ahead’ through strong ties to relatives and close friends. Bridging ties often provide contact with different people and with varied opportunities. Linking social capital refers to ties between different strata of wealth and status and is the key to leveraging resources, ideas, and information from formal institutions beyond the community, a particularly important factor in economic development. Linking social capital differs from bridging social capital in that it better captures vertical dimensions of social capital while bridging social capital captures better the horizontal category of interrelations.

2.1.4 Social Capital and Rural Livelihoods

Social capital is important in improving the livelihoods of rural people directly and indirectly through increase in access to goods and services. Ellis (2000) shows the significance of various asset-types, including social capital in underpinning the livelihood strategies of the individual and household. The access attribute of a livelihood, which includes rules and social relations subsumed under the asset-type, 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).

Definitional concepts of livelihoods vary among researchers. For example, Chambers and Conway (1992), define livelihood as ‘comprising the capabilities, assets (stores, resources, claims, access), and activities required for means of living’ focusing directly to the links between assets and options households possess in pursuit of alternative activities that can generate the income level required for survival. Ellis (2000) and 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 authors identify assets, mediating processes, trends and shocks, and activities as the critical components and processes that jointly contribute to rural livelihood strategies.

Rural households are constantly engaged in a process of rural livelihoods diversification. This is 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.

2.1.5 Approaches to Structural Social Capital Analysis

Important theories, schools of thought and laws have been advanced in the analysis of structural social capital. Adler and Kwon (2002) distinguish social networks in terms formal structures or patterns of ties making up the network and the content and quality of those ties. Seibert, et al. (2001) give an overview of some of the major approaches used in structural social capital

analysis including the ‘weak tie theory’ of Granovetter (1973)⁴, the ‘structural hole theory’ of Burt (1992)⁵, and ‘the social resource theory’ as exemplified by the work of Lin (2002)⁶ and suggest that both the pattern or structure and the content and quality of relations are responsible for producing key outcomes. The content and quality social networks include norms of trust and reciprocity and attitudes, and so on (Stone, 2001).

Woolcock and Narayan (2000) identify four approaches or schools of thought to structural social capital analysis including (a) the network analysis approach, (b) the institutional approach, (c) the synergy approach, and (d) the communicarian approach. The network analysis approach focuses on both the resources embedded within a given network such as money and influence as well as network locations. The point of reference in the network analysis approach is the individual. The approach ignores important qualitative and contextual dimensions that are fundamental to understanding and explaining social phenomena. The institutional approach focuses on the political, legal, and institutional environment as the main determinants of social relations in a community or society. This approach is important for studies of interactions between structures of government and civil society but lacks a microeconomic component. The synergy approach integrates elements of both the network analysis and the institutional approach. The communicarian approach used in this thesis focuses on various forms of participation including local organizations such as clubs, associations and other civic groups. The approach assumes that communities are homogeneous and benefits of participation will be enjoyed across members of a community and society. However (Woolcock and Narayan, 2000), have criticized this approach arguing that communities are rarely homogeneous and high levels of participation can perpetuate undesirable cleavages.

The United Kingdom Office of National Statistics [UKONS] (2001), distinguishes three laws

⁴ The weak-tie theory stipulates that distant and infrequent relationships (weak ties) are efficient for knowledge sharing because they provide access to information by bridging otherwise disconnected groups and individuals (Hansen, 1999).

⁵ Structural holes theory is based on the idea that actors are in a better position to profit from their interactions and transactions with others if they are connected to others who are not themselves connected or well organized (Krackhardt, 1995). Connections to others provide opportunities; lack of connections among others are the structural holes.

⁶ The social resources theory proposes that access to and use of social resources (resources embedded in social networks) can lead to a central building of well being (Lin, 2002).

governing social capital according to different research approaches, that is, the cultural, the social, and the situational approaches. In the cultural approach, Fukuyama (1995a) stresses social capital as a property of cultures where everyone has a predisposition to cooperate in all situations. In the social psychological approach, Putnam (2000) treats social capital as a property of individuals such that some people in a society are more cooperative or trusting than others. In the situational approach, Coleman (1988, 1990) hypothesizes that social capital is situational in that some situations encourage cooperation while others do not.

2.1.6 Uses of Social Capital

Uses of social capital are wide-ranging including facilitation of individuals for engagement in microeconomic activities and free market liberal democracy. Rose (1997, 1998, and 1999) gives a detailed description of social capital, its outputs, and its uses. The author explains how social capital describes activities that are familiar in everyday rural life and the cooperation between individuals within and outside their households to meet their every day needs. Uses of social capital are microeconomic as individuals come together to produce, to consume, and to exchange goods and services and that social capital networks are functional and vary with activities across sectors of the society. The author distinguishes between three categories of activities carried commonly within the household. These are (1) productive activities, where social capital becomes part of the household's primary economy producing goods and services for consumption and exchange to the extent that a household tends towards self-sufficiency. These activities include food, water, firewood, shelter, childcare, and so on. Carmen and Friedland (1995) concur that social capital is productive since two farmers exchanging tools can get more work done with less physical capital, rotating credit associations can generate pools of financial capital for increased entrepreneurial activity, and job searches can be more efficient if information is embedded in social networks. (2) Cooperative enterprises are marginal activities and non-agricultural enterprises involving cash exchanges without fulltime employment where 'employees' are often kin or friends viewed as an extension of the immediate household rather than as a conventional business enterprise. Winter (2000), identifies four categories of persons that can be engaged in an enterprise including the working proprietor, unpaid household members, unpaid helpers, and paid employees. (3) Other activities include (i) remittances (ii) education, (iii) job search (iv) crime in the absence of social capital and (v) corruption as an

indicator of 'negative' social capital.

Fukuyama (1999), describes the use of social capital in free-market liberal democracy focusing on the economic and political functions as well as the civil society. In the economic function, the author argues that coordination based on informal norms remains an important part of modern economics and is more important as the nature of economic activity becomes more complex and technologically sophisticated. In the political function, Fukuyama explains the vice of modern democracy, which entails promoting excessive individualism, that is, a preoccupation with one's private life and family, and unwillingness to engage in public affairs.

Fukuyama (1999), argues that an abundant stock of social capital produces a dense civil society, which in turn is a necessary condition for modern liberal democracy. Coleman (1988, 1990), views a dense civil society as one with closure networks in which everyone is connected such that no one can escape the notice of others. A liberal democracy maintains a protected sphere of individual liberty where the state is constrained from interfering. In such a political system, civil society serves to balance the power of the State and to protect the individual from the state's power. In the absence of civil society, the state needs to step in to organize individuals who are incapable of organizing themselves. Excessive individualism is not freedom but tyranny of large and benevolent state Fukuyama (1999). Low levels of social capital lead to political dysfunction; for example, low levels of social capital have been linked to inefficient local governance in Southern Italy and the region's pervasive corruption (Putnam, 1995).

Fukuyama (1999) describes much of what constitutes civil society as being interest groups trying to divert public resources to their favored causes. Public sector NGOs may not represent the public interests contrary to the popular belief, because a too active NGO sector may represent an excessive politization of public life (Olson, 1982).

2.1.7 Social Capital and Public Policy

Research is not yet conclusive as to the best way to conceptualize social capital more precisely (Grootaert, et al. 2004). Durlauf and Fafchamps (2004) contend that social capital has an important role as a determinant of socioeconomic outcomes. They argue that it is important to

know the conditions under which social capital generates beneficial outcomes to be able to orient policy.

UKONS (2001) reviews main issues surrounding policy implications of social capital and shows that social capital relates well with outcomes which are important to policymakers such as economic growth, social exclusion, better health and well-being. Cote and Healy (2001) suggest that specific types of social capital including bridging, bonding, and linking can be important for policies aimed at minimizing social exclusion. In the context of local level institutions, social capital can play an important role in poverty and inequality reduction, promotion of equitable development, rural decentralization and community prosperity (Donnelly-Roark, et al. (2001)). In the rural decentralization model, local people get an opportunity to integrate their local level institutions (i.e., social capital) into legal, economic, and administrative framework, which in turn, shape the institutional environment (Donnelley-Roark, et al. (2001)). A local level development strategy is critical for local capacity mobilization and improvement where local organizations including public organizations, non-governmental organizations, community development organizations, cooperatives, and so on, act as catalysts for local level development initiatives (Alila, 1993).

Social capital has important role for public policy. Beneficial consequences of social capital are important from the perspective of policy evaluation. In the environment where social capital may lead to unproductive or immoral behavior policymakers can focus on influencing social structures rather than their consequences.

2.2 Empirical Perspectives

This section presents the empirical insights about the sources of social capital and determinants as well as the efforts by researchers in the measurement of social capital as well as the effects of social capital on human life and development.

2.2.1 Sources and Determinants of Social Capital

This section reviews evidence pointing at reasons why some individuals and households get involved in particular types of social capital while others do not, that is, the levels of social

capital associated with family characteristics. Family characteristics are distinguished as including geographic location; demographic characteristics (e.g., age, sex, marital status, household composition); and socio-economic characteristics (e.g., tenure, educational attainment, employment status, occupation, income).

Organization of Economic Cooperation and Development (OECD) (2001) identify eight sources or 'dimensions' of social capital including the family, schools, local communities, firms, civil society, the public sector, gender, and ethnicity. Stone and Hughes (2003) argue that an individual's social capital may vary with an array of factors including age, gender, health; family circumstances; education, employment, home-ownership status; attitudes and values; and the characteristics of the area in which an individual resides.

Rose (1997) distinguishes determinants of social capital according to individuals, households, and societies/communities/villages. What accounts for some individuals being involved in particular types of informal social networks while others are not, are factors including gender, education, age, and physical health. These factors have primary influences on economic activities and do affect an individual's capacity for productive activity. In a household, productive social capital varies with various factors including the number of economically active persons in the household; human capital (education and health) of household members; inter-generational capital (education of parents); duration of residence in current community; members away from home earning cash wages; ownership/access to land, water, and other resources. In the case of a community, the capacity of social capital (networks) to produce goods and services requires resources. Many households living in a community may collectively be deprived of resources useful for networking especially resources linking informal networks with formal institutions such as an all-weather road to take goods to a market. It is normally assumed in public policy that spending on infrastructure and community services are good investments in reducing poverty.

Stone and Hedges (2002) use field surveys in Australia to examine levels of social capital associated with varying household circumstances including geographic location, demographic and socio-economic characteristics. They also assess the importance of social capital in shaping

patterns of household engagement with the economy and community. The demographic variables considered include age, sex, legal marital status, relationship status and household composition. The socio-economic variables include tenure, educational attainment, employment status, occupation, and income.

The main sources and determinants of social capital include household characteristics. These characteristics are crucial in explaining the reasons why some individuals are involved in particular networks while others are not.

2.2.2 Measurement of Social Capital

This section focuses on four main aspects that the proposed study considers important in relation to measurement of social capital. These are: the challenges in measuring social capital; the proxy indicators of social capital; the survey instruments/tools for measuring social capital; and the analytical methods.

Important measurement of social capital includes showing how networks cooperate, formally and informally, to produce goods and services monetized or non-monetized for consumption, exchange or sale by a household. This production may be food, child-care, getting water, and other familiar activities in everyday life such as transporting goods from a village to market. Rose (1999) shows that there already exist massive amounts of data about social activities in African societies and institutional infrastructure to collect the data.

Arguments have been advanced against measurement of social capital on two grounds (Grootaert and Bastelaer, 2002a; 2002b). The first argument is that social capital really refers to an underlying social force that eludes measurement. And the second argument is that the various measures of social capital used are at best imperfect proxies. The authors indicate that there is some validity to these views but caution that the measurement variables of social capital should not be equated with underlying social capital. The authors explain that the use of proxy indicators does not detract the measurement exercise from being valid. They support their explanation by the analogy of human capital. Human capital theory claims that the human capital embodied in individuals increases their ability to earn income over their lifetime. Proxies to

measure this activity are the years of schooling and the years of work experience. Grootaert and Bastelaer (2002a) argue that no researcher has confused these proxy indicators with human capital per se. These proxies are input measures for two most important ways in which human capital is acquired. The authors argue also that even 40 years after the development of the human capital model, measuring human capital directly through performance and attitude tests remains very difficult. However, this has not prevented the empirical literature on human capital from blossoming and leading to many useful results for developing and implementing education policy.

Several researches are being advanced towards improvement in the reliability and validity of the measurement of social capital (Narayan and Carssidy, 2001; Grootaert, et al. 2004); Krishna and Shrader (2000); and Donnelly-Roark, et al. (2001). These researchers have used both quantitative and qualitative methods in the analysis of social capital studies. The authors have developed important survey instruments/tools and data collection methods. Grootaert, et al. (2004) developed “The Integrated Questionnaire for the Measurement of Social Capital” (SC-IQ). The authors explain that the SC-IQ is a survey instrument/tool to capture the multi-dimensionality of social capital at micro level in developing countries. The SC-IQ survey instrument provides basis for measuring and generating quantitative data on 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, as part of household survey.

Narayan and Carssidy (2001) developed the Global Social Capital Survey (GSCS) and documented the use of social capital measures in Ghana and Uganda. The authors explain that the GSCS is an instrument to provide a set of statistically validated survey questions for measuring social capital in developing communities. The authors use factor analysis, a multivariate statistical technique to differentiate among determinants, dimensions and outcomes of social capital. They confirm from the data that there are a number of stable factors (dimensions) of social capital including trust, everyday sociability, and generalized norms, among others.

Krishna and Shrader (2000) designed the Social Capital Assessment Tool (SCAT), which is a prototype data collection instrument based on a framework of the three sets of proxy indicators of social capital. They successfully field-tested the SCAT in Panama and India as a valid basis for deriving indicators of institutional memberships; trust and adherence to norms; and collective action.

Donnelly-Roark, et al. (2001) use a model of rural decentralization in Burkina Faso to research the role of social capital on various areas including poverty and inequality reduction; promotion of equitable development; and community prosperity. They use social capital in the context of local level institutions. They apply multivariate regression analysis using three models, that is, the probit, the tobit, and the ordinary least squares (OLS) models. The probit model uses poverty status as the dependent variable and focuses on how different independent variables are associated with the probability of being poor. The tobit model uses the logarithm of income gap per capita as the dependent variable to investigate how different independent variables are associated with the depth of poverty. The OLS model uses the logarithm of expenditure per capita as the dependent variable to investigate associations between the independent variable and the household well-being. The authors conclude that a rural decentralization model provides a development process that is locally-based as it raises local people from a beneficiary status to a partner status. The people become partners in development in that the adopted decisions and strategies are agreed upon within a shared set of cultural values.

Durlauf and Fafchamps (2004) assess empirical work on social capital using statistical analysis. They conclude that social capital studies are often flawed and make claims in excess of what is justified by statistical exercises.

2.2.3 Effects of Social Capital

Social capital has profound impact, positive or negative, in many different areas of human life and development (Aker, 2007; Productivity Commission of Australia, 2003; Rose, 2002; Grootaert and Bastelar, 2002a; 2002b; Woolcock, 2001; Grootaert, 2001; Narayan and Pritchett, 1999). The authors provide empirical evidence regarding the contribution made by social capital to the livelihoods of households. For example, the authors show that social capital results in

direct income gains and more widespread and efficient services delivery; affects the provision of services in both urban and rural areas; transforms the prospects for agricultural development; influences the expansion of private enterprises; improves the management of common resources; helps improve education; and can prevent conflict. More generally, social capital enhances welfare and helps to alleviate poverty for individuals, households, communities, and even countries as a whole (Grootaert and Bastelar, 2002b; Aker, 2007).

Some studies view social capital as an asset that can be accumulated and yield a flow of benefits directly by increasing incomes and indirectly through improving access to services (Krishna and Uphoff, 1999; Fafchamps and Minten, 1999; Reid and Salmen, 2000; Pargal, et al. 1999). The authors distinguish the nature of social capital benefits into organizational benefits (i.e., collective action-based benefits); reduction of transaction costs; and income security. The studies use both quantitative and qualitative analytical approaches and show that social capital can have major impact on income and welfare of the poor by improving the outcome of activities that affect them. They emphasize that social capital enhances access of poor households to water, sanitation, credit, and education. For example, Krishna and Uphoff (1999) analyze watersheds in Rajasthan, India. They develop a social capital index combining structural factors (informal networks and established roles) with an equal number of cognitive factors (solidarity and mutual trust). The authors investigate the influence of the index on livelihood outcomes including water management outcomes and household incomes. They show that social capital has a significant direct impact on livelihoods and conclude that social capital enhances main sources of rural livelihood directly. The authors also argue that the benefit of social capital enhances collective action in managing a common resource effectively.

Fafchamps and Minten (1999) analyzed traders in Madagascar and found that social capital reduces transaction costs and acts as an informal channel for acquiring insurance against liquidity. Isham and Kahkonen (1999), in a study of water projects in Indonesia, investigated the impact of several social capital variables (the density of membership in water users' associations; the extent of meetings attendance and participation in decision-making; and number of collective village activities) on water supply systems management. They found a positive relationship and concluded that social capital increases organizational benefits of the villagers.

Narayan and Pritchett (1999), in a study on associational activities of individuals in Tanzania, obtained a measure of social capital and related the measure to data on household incomes. They found that village-level social capital raises household incomes.

Social capital has positive and negative externalities. Evidence shows that social capital, like human capital, can be used for purposes that hinder rather than help people's welfare (Adler and Kwon, 2002 and 2000; Woolcock, 1998; Portes, 1998). For example, when group membership norms confer obligations to share rather than accumulate wealth or deny members access to services, e.g., preventing girls from going to school, or when, without control and accountability, linking social capital can become nepotistic or a mechanism for insider-trading and political favoritism. A key empirical policy question therefore is 'what institutional conditions and or combinations of different dimensions of social capital generate outcomes that serve the public good (Productivity Commission, 2003).

Fukuyama (1999) argues that social capital differs from other forms of capital because it leads to bad results like hate groups or in-bred bureaucracies. The author emphasizes that the reason why social capital seems less obviously a capital good than physical and human capital is because it tends to produce more in the way of negative externalities than either of the other two forms. This is because group solidarity in human communities is often purchased at the price of hostility towards out-group members. The author also argues that there appears to be a natural human tendency for dividing the world into friends and enemies, which is the basis for all politics. It is important when measuring social capital to consider its true utility net of its externalities. However, this study is not able to explain social externality of social capital since it does not control for group interaction effects.

2.3 Overview of the Social Capital Perspectives

Social capital is conceptualized in terms of institutions, relationships, attitudes, norms, and values that govern interactions among actors. Social capital contributes to socioeconomic development and is important for people's wellbeing and poverty alleviation. The actors include individuals, households, community, and nations. The concept is marked by conceptual uncertainties and controversies particularly on whether or not social capital is true 'capital'.

Social capital has attributes that indicate that it is true capital. For example, to be created, social capital requires investment especially time and effort. Social capital is also an accumulated stock of capital from which flows a stream of benefits. There are several arguments for social capital as an important factor in the development agenda. First, 'social capital is argued to be the missing link in the effective formulation of the process for sustainable economic growth and development'. Two, is the argument that 'the emergent theory of social capital enriches policies of grassroots participation, community development and empowerment'. Third, social capital is seen as 'a model of new innovation that incorporates the social dimension into the development equation of capital'. A fourth argument is that the emergent theory of social capital is a key factor in understanding and promoting rural development through ability to finding solutions towards local economy competitiveness as it takes into account changing structures of production systems that demand more flexibility and networking, creativity and social skills.

Social capital can be categorized in two forms: the general forms and the distinct forms. The literature also reveals that there are several general forms of social capital, namely: information channels, effective sanctions, horizontal social capital, scaled-up horizontal and vertical social capital links, inter-sectoral social capital and meso-micro-macro levels of social capital. There are also distinct forms of social capital: the structural social capital and the cognitive social capital. Social capital plays a crucial role in improving livelihoods. This is because social capital helps households in their microeconomic activities to come together easily to produce, consume and exchange. An abundant stock of social capital is also a necessary condition for modern liberal democracy, which is the art of balancing the power of the State and the protection of the individual from State's power.

Sources and determinants of social capital include household characteristics such as geographic location, demographic characteristics, and socio-economic characteristics. However, social capital is difficult to measure directly. The key argument advanced against measurement of social capital is that social capital eludes measurement and where it is measured, imperfect proxies are used. The challenges in the measurement of social capital are due to the multi-dimensional nature of the social capital resource. There is the counter-argument based on the human capital analogy. The theory developed two measures of this activity, that is, years of

schooling and years of work experience. These proxy indicators should not be confused with human capital per se. The counter-argument emphasizes that the measurement exercise of social capital is valid. Several useful proxies of social capital have been identified. Three proxies of social capital that are most commonly used for empirical purposes and policy include membership in local associations and networks, trust and adherence to norms, and collective action (Grootaert and Bastelar, 2002a, 2002b; Grootaert, 1999).

CHAPTER 3

MODELING RURAL LIVELIHOODS AND SOCIAL CAPITAL

3.0 Introduction

This chapter presents the conceptual framework, both theoretical and empirical, and methodology used in the study. The theoretical framework is a modification of Ellis' (2000) rural livelihoods framework from which a model of rural household expenditure (proxy for rural livelihoods) is derived as a function of social capital and other covariates. The chapter is structured as follows: section 3.1 presents the conceptual framework; section 3.2 deals with the empirical framework; section 3.3 shows the definitions, measurement of variables and hypothesis to be tested; section 3.4 presents the principal factor analysis; and sections 3.5 and 3.6 focus on the study design and summary, respectively.

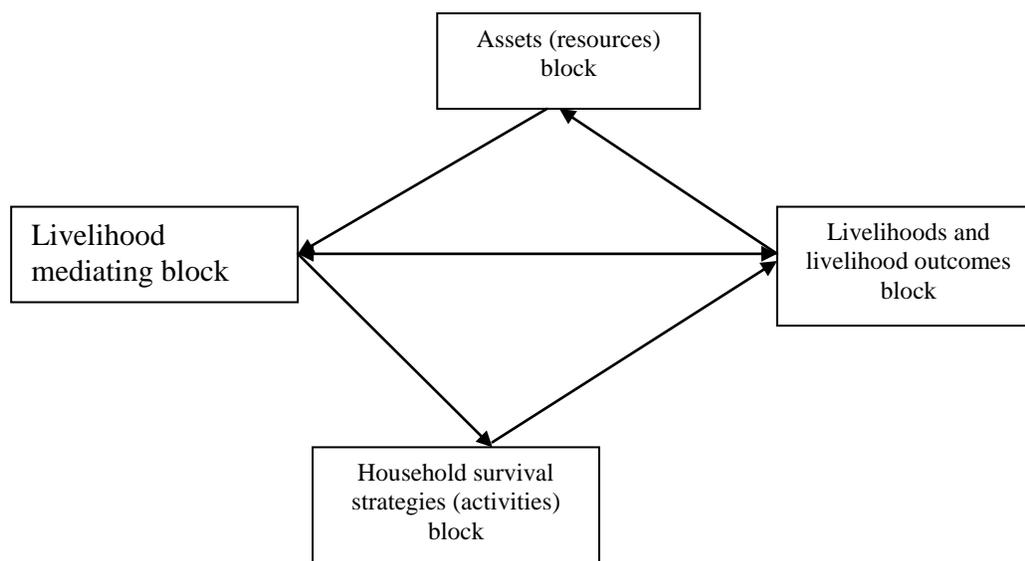
3.1 The Rural Livelihoods Approach

As indicated earlier, social capital is a means or a process for accessing resources and support by actors (households in the study) through networks of social relations. The interactions of the households can be assumed to be strategic, 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 the other actors (Branzei, et al. 2008; Moulin, 1995). Due to data limitations, this approach is not pursued further in this study. To explore the behavior of rural households in their attempt to improve their wellbeing, the rural household approach would be most ideal as it demands data on every member of the household. The data-base for this study is the head of the household and the rural livelihoods approach instead of the household approach is used to explore the behavior of rural households in which the basic economic model of utility maximization subject to a budget constraint (Nicholson, 1991), is assumed.

The rural household maximizes utility by participating in multiple means of survival in terms of a diverse portfolio of resources and activities that produce the livelihood outcomes. Social capital is one of the key resources in the household's diverse portfolio by which livelihood outcomes are produced. Other key resources are natural capital, human capital, physical capital and financial capital. This process that households use to produce livelihood outcomes is described as

diversified livelihoods for rural households (Ellis, 2000). Ellis (2000) indicates that livelihood outcomes are welfare enhancing. A household's livelihood outcomes include real incomes, 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. For example, utility from livelihood income is derived by spending that income in such a way as to yield as much utility as possible (Nicholson, 1991). In this study household consumption expenditure is considered as a summary measure of households' livelihood outcomes yielding utility to households. Social capital can also enable households to consume goods and services without the need to spend money to obtain these commodities. In other words, the cash expenditure of the household can decline even as its total consumption increases.

The rural livelihoods approach is essentially a micro policy analysis framework in which the assets are the devices in processes/activities that improve livelihoods. The framework comprises four blocks, (a) the asset (resources) block, (b) the livelihood mediating processes block or the conditioning factors block, (c) the livelihood strategies and activities block, and (d) the outcomes/effects block. The connection between social capital, the livelihood process of a rural household, and other forms of capital is illustrated in Figure 1 adopted from Ellis (2000).

Figure 1: A Framework of Rural Livelihoods

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

The resources block comprises resources accessed in some way (owned, controlled, or claimed) by the household. The term resources refer to stocks of capital that can be utilized directly or indirectly to generate livelihood of the household or to sustain its material well-being at different levels above survival. Different types of resources are categorized and distinguished between five capital types as 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 livelihoods. The mediating processes for livelihoods encompass the agencies that inhibit or facilitate the exercise of capabilities and choices by individuals and households. For example, land tenure institutions such as ownership structure at a particular moment in time comprise good determinants of access to land. This ownership can be defined in various ways such as by private freehold title; the customary rights of access; the tenure contracts that may enable non-owners to gain access to land; the social mechanisms for resolving disputes among others.

Ellis (2000) distinguishes mediating processes into two categories, that is, the transforming processes category and the vulnerability processes category. The transforming processes category comprise social factors that are predominantly endogenous to the social norms and structures of which households are part, for example, social relations, institutions, and organizations. The vulnerability processes include conditions and trends in terms of history, politics, economic trends, climate, agro-ecology, demography, and social differentiation.

The household survival strategies block is characterized by coping strategies and adapting behaviors of rural household for its survival, a collection of activities made possible by the interaction of resources and opportunities accessible to the household. 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.

Drawing from Ellis (2000), we note that welfare (w_{ij}) is a function of livelihood outcomes. To illustrate this, let X_i denote social capital goods and Y_i denote non-social capital goods demanded by household i , so that

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

Let p_x and p_y denote the prices of good X_i and good Y_i respectively, so that the objective of the household is to maximize welfare subject to the budget constraint, I , given by:

$$\begin{aligned} &\text{Max } W(\cdot), \text{ s.t} \\ &I_i = p_x X_i + p_y Y_i \end{aligned} \quad (2)$$

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 household consumption expenditure, E_i , we have:

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

Thus, the livelihood outcomes of a household as summarized by its real 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). A social capital good or component (e.g., home care for children) can be accessed through social networks without the need to incur cash expenditure. On the other hand, a component of the same good, e.g., nursery care for children, can only be obtained through an outlay of cash expenditure in the market for this care. It is easily seen therefore, that one component of this good, e.g., the one obtained through cash can decrease as the other component increases. In other words, welfare of a household can increase as one of these expenditure component falls.

3.2 The Rural Livelihood Model

Social capital is viewed as one class of assets available to the rural households for generating income and making consumption possible. As in the conceptual framework, a household has an asset endowment consisting of physical assets, human capital, natural capital, financial capital and social 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:

$$E = \alpha X + \beta Y + \mu \quad (4)$$

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.

Real household consumption expenditure, E_i , is expressed as a function of asset endowments and other exogenous characteristics of the household and economic environment in which it makes decisions. A central idea here is that the rural household's real consumption expenditure level, (E_i), varies depending on 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:

$$E_i = \alpha + \beta_j X_{ij} + \tau_i Y_{ij} + \mu_i \quad (5)$$

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 household consumption expenditure, E , may be negative or positive.

An alternative specification of equation (5) uses the poverty status of a household as the dependent variable. Poverty status is a discrete choice variable. Dependent discrete variables have non-linear relationships with the predictors and the outcomes are characterized by the fact that they assume a finite number of integer values. The classic linear regressions are not appropriate for predicting discrete dependent variables because the measurement of the outcome variables, do not meet linear regression model assumptions. The discrete outcomes pose problems for linear regression such as predicted values falling outside the possible range of the outcome; biased regression coefficients; non-normally distributed terms and; heteroscedasticity (Greene, 1997; Long, 1997; Frone, 1997). This study therefore estimates a probit model of the likelihood of a household being poor. Households are classified as poor if they fall below a poverty line of Kshs1,562 expenditure per month (Republic of Kenya, 2008). The probit model is useful for investigating the question whether investment in social capital can help households to escape poverty.

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. This also means that social capital has a measurable return to the households. 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. In this study, the instrumental variable (IV) method can be used to address the endogeneity of social capital, if valid instruments (variables that affect participation and levels of social capital, but in no way directly determine livelihoods) are available. To illustrate this, from equation (5), we need to model the determinants of social capital. The model must include all the control variables in equation (5), i.e., Y and a set of instrumental variables to identify the system of equations. The social capital model can therefore be specified as:

$$X_i = \alpha_1 Y_i + \alpha_2 Z_i + v_i \quad (6)$$

where X_i and Y_i are as defined earlier; Z_i is a set of instrumental variables; v is a random disturbance term.

This study has used the religious background of head of household, the proportion of villagers involved in lobbying (petitioning of leaders) for issues that benefit the community, and the level of people's democratic rights in terms of the voting rate at general elections, as instrument variables. The three indicators 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 endogeneity⁷, we also control 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:

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

where X is the social capital variable, 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

⁷ The estimation procedure specified in equation (6) may still not solve the endogeneity problem completely given the complexity of doing so and also due to issues of obtaining appropriate valid instruments. Some studies propose use of experiments as the best alternative in the absence of valid instruments (see for instance Durlauf, 2002) but experiments also have their own disadvantages. We believe that the instrumentation proposed here still enables us derive policy relevant results and also to make a significant contribution to the emerging literature on social capital and rural livelihoods.

household characteristics over livelihoods. The unobservable include such variables as virtues, tradition, experience, family cohesion, ability to influence others, community goodwill.

3.3 Definitions, Measurement of Variables and Hypothesis to be tested

To achieve the objective of the study, key hypotheses are tested. These include the hypotheses that ‘social capital influences livelihoods of rural households in Kenya’ and that ‘being socially connected is an important factor in improving welfare of rural households in Kenya’.

Definition and measurement of the variables used in the empirical analysis is presented in Table 3.1.

Table 3.1: Definition of Variables

| <i>Dependent Variables</i> |
|---|
| Consumption Expenditure (E_i) |
| Poverty status (1=poor, 0 = non-poor) |
| Independent Variables |
| Social Capital (X_i) |
| X_{GNI} = Group and network variables (structural social capital). This is measured through |
| <ol style="list-style-type: none"> 1. density of membership (household size) 2. Diversity of membership (diversity score) 3. Extent of democratic functioning (participation in decision-making) 4. Extent of connections to other groups <ul style="list-style-type: none"> • Size of network (number of close friends) • Internal diversity of network • Mutual support score |
| X_{TSi} = Trust and solidarity variables (Cognitive social capital) = generalized trust and trust in specific types of people/transactions. This is measured through |
| <ol style="list-style-type: none"> 1. Trust in agencies 2. Trust in members of one’s immediate environment 3. Trust in business community |
| X_{CAi} = Collective action and cooperation. This is measured through |
| <ol style="list-style-type: none"> 1. Extent of collective action 2. Collective activity type 3. Extent of willingness to cooperate and participate |
| X_{SCi} = Social cohesion score (social cohesion and inclusion = Inclusion (perceptions of social unity, and togetherness and exclusion), sociability (frequent everyday social |

interactions), and conflict and violence. This is measured through

1. Exclusion score
2. Diversity of social interactions
3. Fear of violence score
 - Extent and trend of violence
 - Contribution in community of internal divisiveness
 - Feelings of insecurity (fear of crime and violence)

X_{EPI} = Empowerment and political action. This is measured through
Community score on empowerment and political action

Non-social Capital (Y_i)

Y_{PAi} = Physical assets endowed to the household (used to construct wealth score)

Y_{HCEi} = Human capital endowment of the household:

1. Years of schooling of household member

Y_{NCi} = Natural capital endowment of the household:

1. Land
 2. Livestock
-

3.4 Principal Factor Analysis

Multivariate methods in survey investigations are used as data exploration techniques for index construction among other uses. The basic theme underlying the use of multivariate methods is simplification of the data such as reducing a large body of data to a few meaningful summary measures. In this study, we apply principal factor analysis (PFA), one of the multivariate data analysis techniques, to summarize the data and obtain a reduced number of social capital factors. We use PFA to determine the number and the nature of factors that account for the co-variation between variables when the researcher does not have, a priori, sufficient evidence to form a hypothesis about the number and validity of factors underlying the data (Narayan and Cassidy, 2001). PFA reduces a given set of observable variables to a small number of latent factors and identifies underlying factor structure. PFA also establishes the construct validity of the factor scores.

Principal factor analysis has been criticized on the ground of lack of prior assumptions about the number and nature of factors. Optimal ways of extracting knowledge can only be realized when assumptions are made apriori (Mulaik, 1987). Another criticism of PFA is that the technique does not provide a criterion variable against which to test the solution. Thus, factor structures yielded by PFA only succeed in suggesting hypothesis rather than justifying the results (Mulaik,

1987). In a given data set, the relationships among variables may not necessarily be linear as the common factor analysis model is and superimposing linear relationships in a causal relationship that is nonlinear yields misleading results. In PFA, there is also the problem of interpretation and naming of factors. After factor extraction, infinite number of rotations become available, all accounting for the same amount of variance in the observed data but with factors defined differently. The difficulty in interpretation comes about because the researcher lacks prior knowledge and basis on which to make an interpretation. A fourth limitation facing the use of PFA techniques relates to tarnished reputation as a scientific tool. The power of PFA to create apparent order from real chaos attributes to their being seen as an attempt to “save” poorly conceived research. In the minds of many, the various forms of PFA are associated with sloppy research (Tabachnick and Fidell, 2001).

Despite the limitations, when used appropriately, PFA can be helpful to researchers in assessing the nature of relationships among variables and in establishing the construct validity of test scores. The choice of exploratory factor analysis over other techniques, e.g. principal components analysis (PCA), in this study is plausible. While both PFA and PCA are similar in the sense that the purpose of both is to reduce the original variables into fewer composite variables, they are distinct in the sense that the obtained composite variables serve different purposes. In PFA the small number of factors extracted account for the inter-correlation among the observed variables, i.e. identify the latent dimensions that explain why variables are correlated with each other. In PCA the objective is to account for the maximum portion of the variance present in the original data set variables with a minimum number of composite variables. In PFA the observed variables are only indicators of the latent constructs to be measured. The social capital aspects of the survey data aim at determining attitudes (or views). The limitations of the PFA listed above do not nullify use of the approach. Several questions (items) are asked requiring answers on a scoring scale. PFA is used to transform these observed variables into scores in the following manner:

$$Score = \alpha_{11}x_1 + \alpha_{12}x_2 + \alpha_{13}x_3 + \dots + \alpha_{1p}x_p = \sum_{i=1}^p \alpha_{1i}x_i \quad (8)$$

where, α_{i1} 's are standardized scoring coefficients (weights) for the first respondent and the i^{th} social capital variable to be determined from the data and the x_i 's are standardized z-scores of an appropriate subset of p observable social capital variables. The resulting scores are summed over all relevant items to provide an index reflecting individual attitudes (views). An index is a single number calculated from a set of quantities. In this study the common interpretation of an index as being a single value that captures the information from several variables (quantities) in one composite variable, is retained. The index takes the form:

$$\begin{aligned} \text{Index} = & \alpha_{11}x_1 + \alpha_{12}x_2 + \dots + \alpha_{1p}x_p + \alpha_{21}x_1 + \alpha_{22}x_2 + \dots + \alpha_{2p}x_p + \\ & \alpha_{j1}x_1 + \alpha_{j2}x_2 + \dots + \alpha_{kp}x_p = \sum_{j=1}^k \sum_{i=1}^p \alpha_{ji} x_i \end{aligned} \quad (9)$$

for $i = 1$ to 5 and $j = 1$ to 340

where

p = the 5^{th} social capital dimension

k = the 340^{th} household

$\alpha_{ji}x_i$'s = the values (scores) of the latent factor, x .

The decision on the optimal number of factors to extract from PFA is often subjective. However several criteria for the number of factors to be extracted exist as empirical guidelines. These guidelines include Kaiser-Guttman rule, percentage of variances, the scree test, parallel analysis, size of the residuals, and interpretability (Mulaik, 1987). The study uses the Kaiser-Guttman rule or "the Kaiser criterion" which states that the number of factors to be extracted should be equal to the number of factors having an eigenvalue greater than 1.0. The Kaiser criterion has wide appeal because of its simplicity and objectivity. The main shortcomings of the criterion are its arbitrary nature and the fact that it can result either in over-factoring or under-factoring (Mulaik, 1987). However since in PFA communality estimates are inserted in the main diagonal of the correlation matrix and therefore the total variance to be decomposed into factors is less than the number of observable variables, the rule is adjusted downwards.

3.5 Study Design

This section presents a brief description of sampling procedure and data collection as well as the study area. Section 3.5.1 discusses the sample design, the survey instrument, and field work.

Section 3.5.2 presents a description of the study area focusing on location, physical features, climate, agro-ecological zones, demographic dynamics as well as manifestation of social capital.

3.5.1 Sampling Procedure and Data Collection

This study uses primary data to achieve its objectives. The data were collected from a sample of 340 households covering the wider Nyeri⁸ district. The sample was generated from a master national household sampling frame called the ‘National Sample Survey Evaluation Program (NASSEP IV) created by the Kenya National Bureau of Statistics (KNBS) in 2002.

The NASSEP IV sampling frame is a multi-stage stratified cluster sampling design. The first stage comprises Enumeration Areas (EAs) created for the 1999 population and housing census. The EAs form the Primary Sampling Units (PSUs). The second stage relates to the development of clusters which are the secondary sampling units (SSUs). Clusters were selected from the EAs using the Probability Proportional to Size (PPS) method. A cluster is either a complete EA or a segment selected from subdivisions of an EA. A cluster comprises a listing of 100 households. The NASSEP IV sampling design has adequately been documented to facilitate identification and selection of clusters and households on the ground. The third stage involves the selection of the desired sample size of households from the household listing. This was done using the systematic sampling procedure.

At the time of the fieldwork, the study area had a total of 34 operational clusters comprising 10 urban and 24 rural clusters. Data were collected in all the 34 clusters spread in the two districts. Ten households were selected from each cluster using systematic sampling method. This translated to a sample size of 340 households (100 urban households, 240 rural households). A community leader was identified in each cluster to respond to community issues.

Through field visits, data were collected covering social capital, rural livelihoods as well as basic household and village characteristics. At the household level, the main respondent was the head of the household but where “not at home”, any knowledgeable adult member of the household

⁸ In 2007, Nyeri was sub-divided into two, Nyeri North and Nyeri South districts. The term “wider Nyeri” in this study, refers to Nyeri district before the sub-division.

was interviewed. Although the study focused on rural areas, the field visits and data collection also covered the urban areas. This was essentially to provide basis for a rural-urban comparison where that deemed necessary. Annex I gives the survey instrument used in collecting the data for the study.

3.5.2 Study Area

This study is based on data collected from Nyeri district of Central Province in Kenya. The district has 7 divisions, 37 locations, 194 sub-locations, and 4 Local Authorities (Republic of Kenya, 2002). The district is within the highland equatorial zone of Kenya and is part of the country's eastern highlands. The district covers a total area of 3,266 km² and is mountainous being the home of Mt. Kenya at 5,199m above sea level, the Aberdare ranges at 3,999m and a series of hills. Two major rivers, the Sagana and Chania rivers, as well as several streams make the district self-sufficient in water resources for purposes of domestic use, agriculture, and industrial development. About 72 percent of the total area is arable land, 3.3 percent is non-arable while the rest covers gazetted forest (19.6 percent) and urban land (5.1 percent, towns of Nyeri, Karatina among others).

Nyeri district has two forest ecosystems (Republic of Kenya, 2002). These are the Mt. Kenya and Aberdare forests managed by the Forest Department. There also exists in the district isolated forested hills including Karima, Nyeri, Tumutumu, and Gatumbiro hills under the management of the Local Authorities. Two agro-ecological zones can be distinguished in the district: the high potential zone covering Tetu, Othaya, Mathira and Mukurwe-ini divisions, and the marginal zone covering the Kieni plateau. Agriculture is the backbone of the district's economy. Although the district receives equatorial rainfall, the mountains and hills influence the rainfall pattern and mode of agriculture into localized areas. The high potential zone receives good climate in terms of temperatures, weather, and rainfall, which combined with good land tenure system, influence agricultural activities. Much of the agriculture is carried out in smallholder farms, which produce both food and cash crops. The main crops include tea, coffee, horticulture, maize, beans, potatoes and bananas. The marginal zone has low potential land and low rainfall and the predominant agricultural activity is ranching and growing of subsistence drought-resistant crops.

The literacy level in the district has improved from an estimated level of 89 percent in 2002 (Republic of Kenya, 2002) to 91.3 percent in 2007 (Republic of Kenya, 2007). The district has a total road network of 2,974km - 58 percent classified roads, 42 percent rural access roads (Republic of Kenya, 2002). Some parts of the roads are in a deplorable state because of poor maintenance becoming impassible especially during the rainy season. This is a major constraint towards access to markets by farmers. The district also has a total of 19 financial institutions (10 banks, 2 development financial institutions and 7 microfinance institutions). There are also 105 groups and cooperatives of various types in the district including producer, transport, housing groups and SACCOs with a total membership of 154,859 and a turnover of 4.3 billion Kenya Shillings (Republic of Kenya, 2002).

The 1999 population and housing census, estimates the population of the district to be 677,216 people (499,152 rural, 178,064 urban) with the total number of households at 168,786, a female/male sex ratio of 105:100, and an average population density of 202 persons per km² (Republic of Kenya, 1999). The census also estimates that the total fertility rate of the district was about 2.5 percent and a surprisingly low population growth rate at 0.8 percent compared to the national average of 2.9 percent and the Central Province average at 1.8 percent. The district has a large youthful population (0-19 years) at 50 percent of the total population.

3.6 Summary

The focus of the study is the link between social capital and livelihood outcomes. The conceptual framework is based on some theories including the social capital theory, the basic economic model of utility maximization, cooperative game theory and the rural livelihoods approach, explaining the survival mechanisms of the households. Principal factor analysis (PFA) technique is employed to construct social capital variables. An econometric model is used to investigate two of the objectives of the study: One, to investigate determinants of social capital in Kenya and two, to test whether social capital influences wellbeing of the rural households in Kenya. Household consumption expenditure is used as a summary measure of livelihoods. The methodology assumes that household consumption expenditure is a function of the household's exogenous asset endowments including potentially endogenous social capital. The key shortcomings of the assumption are the two issues of reverse causality in social capital and the

heterogeneity bias. The instrumental variable method is proposed to correct for endogeneity of social capital. Three variables are identified as instruments: religion of the household head, variable for lobbying leaders for something benefiting the community, and the proportion of people voting in general elections. To take account of heterogeneity bias that could arise due to correlation between social capital and unobservable determinants of livelihoods, the control function approach is proposed. The next chapter presents the data and sample statistics.

CHAPTER 4

DESCRIPTIVE ANALYSIS OF DATA

4.0 Introduction

This chapter presents a descriptive analysis of the data focusing on the key characteristics of the households; socioeconomic status, social capital endowments, market access, indicators and sources of livelihoods, incomes, and expenditures. Most tables in this chapter have the problem of small sample size entries and the results need to be interpreted with caution. Small sample size may not represent the universe and the inference drawn about the population may be misleading.

4.1 Household Characteristics

Table 4.1 presents key household characteristics. One important highlight in the table is the high average age (28.3 years) of the rural household sub-sample compared to an average value of 22.3 years for the urban household sub-sample. This result seems to indicate that urban population is more youthful than the rural population. Contrary to this interpretation, fertility is actually higher in rural than urban areas so that rural population should be more youthful. A possible explanation of this result is the rural-urban migration where the younger people move to the urban areas leaving the older people in the rural areas..

Table 4.1: Key Household Characteristics by Residence

| <i>Characteristic</i> | Rural | | Urban | | Total | |
|-----------------------|-------|----------|-------|--------|-------|--------|
| | Mean | Std. dev | Mean | StdDev | Mean | StdDev |
| Age in years | 28.3 | 21.1 | 22.3 | 16.0 | 27.7 | 20.7 |
| Age of respondent | 48.2 | 16.3 | 34.3 | 11.8 | 46.2 | 16.5 |
| Gender (1=males) | 0.48 | 0.50 | 0.44 | 0.50 | 0.48 | 0.50 |
| H/hold size | 4.2 | 1.8 | 3.0 | 1.5 | 4.0 | 1.8 |
| Years of schooling | 8.5 | 3.3 | 11.2 | 3.1 | 8.9 | 3.4 |

Source: Study survey data

The 2003 Kenya Demographic Health Survey (KDHS) recorded a national household population median age of 17.5 years (see- KDHS 2003). Although the KDHS does not provide estimates at

district level by which comparisons can be made, the average age from this study, seems to be high. These differences in the average age are due to different categories of respondents. In the study, the respondent is the household head unlike the case for population census and KDHS which cover the entire population and women aged 15-45 years, respectively.

Other important rural household demographic dynamics in the table include the average female/male ratio of 104:100, an average household size of 4.2, and average years in school of 8.5. The corresponding urban estimates for age (22.3 years) and household size (3.0) are much lower than the rural estimates while the estimates for female/male ratio (114:100) and years in school (11.2) are much higher. The values of these figures are comparable with the ones produced elsewhere for Nyeri district, for example, Republic of Kenya (2007) gives a mean household size of 4.1 and a female/male ratio of 112:100.

4.2 Socioeconomic Status

Table 4.2 presents indicators of the socioeconomic status of the households. The proportion of rural female-headed households is 29.3 percent. This is consistent with estimated national average of 30 percent female headed households (Republic of Kenya, 2007). A higher proportion is recorded of widowed females (24.0 percent) than males (5.8 percent) among the rural households. One important feature in the data is that there are almost no widows among the households in the urban sample (zero percent males, 2.5 percent females). In literacy, about 90 percent of the households can read and write. There is no gender disparity in the level of literacy and educational attainment at primary level among the rural households but a higher proportion of females (39.7 percent) than males (31.8 percent) is observed among urban households. At the secondary level of education, there is marked gender disparity among households in rural (31.4 percent males, 22.1 percent females) areas. Overall, relative to men, women seem to be disadvantaged in secondary (rural areas) and tertiary (urban areas) education. The primary occupation is farming (60.2 percent males, 64.2 percent females) followed by employment (36.1 percent males, 25.9 percent females). Women are more likely to be engaged in agricultural activities than men, but men are more likely to be employed, *ceteris paribus*. A higher proportion of the households in both rural and urban areas belong to the Protestant religion compared to Catholic. Gender is a distinct factor in religion as more females (65.6 percent rural, 70.5 percent

urban) than males (54.7 percent rural, 59.1 urban) are Protestants compared to females (33.8 percent rural, 28.2 percent urban) and males (41.9 percent rural, 40.9 urban) who are Catholics. This socioeconomic status has important implications on household social support mechanisms and poverty reduction.

Table 4.2: Socioeconomic Status

| Variables | Rural | | Urban | | Total | |
|---------------------------|-----------|------------|----------|-----------|-----------|------------|
| | Male | Female | Male | Female | Male | Female |
| Sex of HH | 170(70.7) | 70(29.3) | 56(55.7) | 44(44.3) | 226(68.6) | 114(31.4) |
| <i>Marital status</i> | | | | | | |
| Married | 71(82.6) | 99(64.3) | 17(77.3) | 47(60.3) | 88(81.5) | 146(62.9) |
| Single | 8(9.3) | 15(9.8) | 5(22.7) | 23(29.5) | 13(12.0) | 38(16.4) |
| Divorced/separated | 2(2.3) | 3(1.9) | 0(0.0) | 6(7.7) | 2(1.9) | 9(3.9) |
| Widowed | 5(5.8) | 37(24.0) | 0(0.0) | 2(2.5) | 5(4.6) | 39(16.8) |
| <i>Literacy</i> | | | | | | |
| Canread/write,yes | 77(90.0) | 138(89.5) | 21(95.7) | 73(94.2) | 98(90.7) | 211(90.9) |
| Ever.attended sch | 81(93.7) | 140(91.0) | 21(95.7) | 73(94.2) | 98(90.7) | 211(90.9) |
| Primary level | 52(60.5) | 89(57.8) | 7(31.8) | 31(39.7) | 59(54.6) | 120(51.7) |
| Secondary level | 27(31.4) | 34(22.1) | 10(45.5) | 34(43.6) | 37(34.2) | 68(29.3) |
| Tertiary level | 2(2.3) | 3(1.9) | 4(18.2) | 8(10.3) | 6(5.6) | 11(4.8) |
| None | 5(5.8) | 28(18.2) | 1(4.5) | 5(6.4) | 6(5.6) | 33(14.2) |
| <i>Primary occupation</i> | | | | | | |
| Agriculture | 63 (73.3) | 130 (84.4) | 2 (9.1) | 19 (24.4) | 65 (60.2) | 149 (64.2) |
| Employment | 19 (22.0) | 19 (12.3) | 20(90.9) | 41 (52.5) | 39 (36.1) | 60 (25.9) |
| Other | 4 (4.7) | 5 (3.3) | 0 (0.0) | 18 (23.1) | 4 (3.7) | 23 (9.9) |
| <i>Religion</i> | | | | | | |
| Protestant | 47(54.7) | 101(65.6) | 13(59.1) | 55(70.5) | 60(55.5) | 156(67.2) |
| Catholic | 36(41.9) | 52(33.8) | 8(40.9) | 22(28.2) | 44(40.8) | 74(32.8) |
| Other | 3(3.4) | 1(0.6) | 0(0.0) | 1(1.3) | 4(3.7) | 0(0.0) |

Source: Study survey data
% in parenthesis

4.3 Dimensions of Social Capital

The study sought information on the main types of social capital that households invest in. Five main categories of social capital featured as most important. These are groups and networks, trust and solidarity, collective action and cooperation, social cohesion and inclusion, and empowerment and political action. The study also captured data on information and

communication, a measure of market access. Detailed descriptive analysis of each of these categories follows below.

4.3.1 Groups and Networks

Tables 4.3 to 4.6 show the groups and networks category of social capital. Table 4.3 presents group membership and group type, and average number of days worked in the groups over the last 12 months from the date of interview. The total number of households in the sample that belong to groups is 230 (168 rural, 62 urban) or 67.6 percent of the total households in the study.

Table 4.3: Group Membership and Type

| Variables | Rural | Urban | Total |
|-------------------|-----------|----------|-----------|
| Group membership | 168(70.0) | 62(62.0) | 230(67.6) |
| <i>Group type</i> | | | |
| Production | 9(5.4) | 14(22.6) | 23(10.0) |
| Social | 36(21.4) | 5(8.1) | 41(17.8) |
| Not specified | 121(72.0) | 38(61.3) | 159(69.1) |
| Mean days worked* | 13(6.2) | 26(29) | 20(7.0) |

Source: Study Survey Data

% in parenthesis; *average days worked, standard deviation in parenthesis

A large proportion of the households (69.1 percent) did not specify the group type they belonged to. Overall, the social group has the largest membership of 17.8 percent compared to 10.0 percent in the production group. On average, urban households worked twice as many days in groups (26 days) as the rural households (13 days). In either location, females worked for more days than males which accords with other studies such as UNDP (2005) and Elson and Evers (1997).

Table 4.4 presents the participation by the households in decision making in groups that they belong to and the manner in which the decisions are made. The data indicate that almost all group members in the rural areas actively participated in decision making. However, 46.4 percent were only somewhat active and the rest either very active (37.5 percent) or leaders (14.9 percent). The manner in which the decisions were made was mainly by members discussing and deciding together (89.9 percent of the cases).

Table 4.4: Decision Making in Groups by Residence

| Variables | Rural | Urban | Total |
|---|-----------|----------|-----------|
| <i>Participation in decision making</i> | | | |
| Leader | 25(14.9) | 10(16.1) | 35(15.2) |
| Very active | 63(37.5) | 18(29.0) | 81(35.2) |
| Somewhat active | 78(46.4) | 30(48.4) | 108(47.0) |
| <i>Manner of decision making</i> | | | |
| Discuss/decide together | 151(89.9) | 49(79.0) | 200(87.0) |
| Other | 17(10.1) | 13(21.0) | 30(13.0) |

Source: Study survey data

% in parenthesis

Table 4.5 presents benefits accruing to households from belonging to groups and main sources of funding for the groups. Preferences for benefits accruing from joining groups are more evenly expressed among rural than among urban households. The most preferred benefit among rural households is community benefits (17.3 percent) while among urban households, the most preferred benefit is spiritual/esteem benefits (29.0 percent). The main source of funding for the groups is members' dues (97.4 percent).

Table 4.5: Group Benefits and Funding Sources

| Variables | Rural | Urban | Total |
|--------------------------|-----------|----------|-----------|
| <i>Benefits</i> | | | |
| Services | 22(13.1) | 8(12.9) | 30(13.0) |
| Future | 27(16.1) | 6(9.7) | 33(14.3) |
| Community | 29(17.3) | 8(12.9) | 37(16.1) |
| Spiritual/esteem | 19(11.3) | 18(29.0) | 37(16.1) |
| Other | 71(42.3) | 22(35.5) | 93(40.5) |
| <i>Source of funding</i> | | | |
| Members' dues | 164(97.6) | 60(96.8) | 224(97.4) |

Source: Study survey data

% in parenthesis

Another important highlight from the data is the levels of social networking and mutual support among the rural and urban households presented in Table 4.6. No major location disparities are observed. On the whole, the level of mutual support in the district is high. In the case of support with little money, only 17.4 percent of the households did not have any one willing to provide help while in the case of support in emergency it is only 13.5 percent did not have anyone willing to help.

Another highlight from the data although not shown in the table is that gender and clan are more important factors than age and religion in influencing group membership. About 42.9 percent among the rural group members belong to same gender (33.6 percent for males, 46.6 percent for females), while about 57.1 percent belong to same clan (52.9 percent for males, 58.7 percent for females). A similar trend is exhibited by the households in urban areas.

Table 4.6: Mutual Support from Social Networks by Residence

| Variables | Rural | Urban | Total |
|--------------------------------|-----------|----------|-----------|
| Willingness to provide: | | | |
| <i>Little money</i> | | | |
| No one | 40(16.7) | 19(19.0) | 59(17.4) |
| 1 or 2 people | 95(39.6) | 35(35.0) | 130(38.2) |
| 3 or 4 people | 25(10.4) | 9(9.0) | 34(10.0) |
| 5 or more people | 80(33.3) | 37(37.0) | 117(34.0) |
| <i>Assistance in emergency</i> | | | |
| No one | 31(12.9) | 15(15.0) | 46(13.5) |
| 1 or 2 people | 83(34.6) | 41(41.0) | 124(36.5) |
| 3 or 4 people | 22(9.2) | 10(10.0) | 32(9.4) |
| 5 or more people | 104(43.3) | 34(34.0) | 138(40.6) |

Source: Study survey data; % in parenthesis

4.3.2 Trust and Solidarity

Table 4.7 presents the trust and solidarity category of social capital aspects. The data show levels of trust among various actors including people who live in the same village, people from other ethnic groups, strangers, public service providers, as well as the level of people's participation in and contribution toward community projects.

The data indicate that there are substantial variations in levels of trust among the households across various actors as well as residence. The highest trust level (82.0 percent) is recorded for doctors and nurses, the level being slightly higher among rural (83.3 percent) than urban (79.0 percent) households. On the whole, the lowest level of trust (65.1 percent) is recorded for people from other ethnic groups among all the households. Rural households have less trust for the people from other ethnic backgrounds than urban households. But the level of trust on strangers is nearly the same for both rural households (53.3 percent) and urban households (56.0 percent). A plausible explanation for this pattern of behaviour is the differences in rural and cosmopolitan

life. Rural dwellers establish strong bonds and networks among themselves over time but are less exposed to outsiders than urban dwellers. Majority of urban dwellers have had rural backgrounds but break them when they migrate to urban areas where they establish new networks and bonds as well as work with people from other ethnic backgrounds. There is higher level of trust among the people who live within the neighborhood, the level being much higher for rural (89.6 percent) than among urban (56.0 percent) households. The level of trust for police is also high among rural (38.8 percent) compared to among urban (29.0 percent) households.

Table 4.7: Trust and Solidarity

| Trust variables | Rural | Urban | Total |
|--|-----------|----------|-----------|
| <i>People in the village</i> | | | |
| High trust | 215(89.6) | 56(56.0) | 271(79.7) |
| Indifferent | 14(5.8) | 20(20.0) | 34(10.0) |
| Low trust | 11(4.6) | 24(24.0) | 35(10.3) |
| <i>People from other ethnic groups</i> | | | |
| Great extent | 19(7.9) | 14(14.0) | 33(9.6) |
| Indifferent | 57(23.8) | 32(32.0) | 89(25.4) |
| Small extent | 164(68.3) | 54(54.0) | 218(65.1) |
| <i>Strangers</i> | | | |
| Great extent | 18(7.5) | 8(8.0) | 26(7.9) |
| Indifferent | 94(39.2) | 36(36.0) | 130(39.1) |
| Small extent | 128(53.3) | 56(56.0) | 184(53.0) |
| <i>Police</i> | | | |
| Great extent | 93(38.8) | 29(29.0) | 122(34.9) |
| Indifferent | 53(22.1) | 29(29.0) | 82(23.3) |
| small extent | 94(39.2) | 42(42.0) | 136(41.9) |
| <i>Doctors/nurses</i> | | | |
| Great extent | 200(83.3) | 79(79.0) | 279(82.0) |
| Indifferent | 13(5.4) | 11(11.0) | 24(7.1) |
| small extent | 27(11.3) | 10(10.0) | 37(10.9) |
| <i>Community participation:</i> | | | |
| <i>Helping within neighborhood</i> | | | |
| Always | 94(39.2) | 14(14.0) | 108(31.8) |
| Sometimes | 145(60.4) | 83(83.0) | 228(67.1) |
| Contribution of time Yes | 211(87.9) | 56(56.0) | 267(78.4) |
| Contribution of money | 22(83.3) | 49(49.0) | 249(73.3) |

Source: Study survey data: % in parenthesis

The data indicate that nearly every household in the district participate in community projects either at all times (31.8 percent) or occasionally (67.1 percent). The level of household

participation in community projects is also high in terms of contribution of time (78.4 percent) and money (73.3 percent). People living in rural areas have a higher probability of participating in community projects than urban dwellers. This can be explained from the differences in life styles between the rural and urban areas. The activities that rural people engage in promote participation in community projects more than in urban areas. Furthermore, compared to rural areas, the concept of community in urban areas is almost nonexistent.

4.3.3 Collective Action and Cooperation

Table 4.8 presents the collective action and cooperation category of social capital in the sample. The data shows the level of participation among households in community work in the last 12 months, and the main activities participated. (Water issues, road works, and burial activities).

Table 4.8: Collective Action and Cooperation

| Variables | Rural | Urban | Total |
|--|-----------|----------|-----------|
| Community work in past 12 months | 128(53.3) | 26(26.0) | 154(50.7) |
| Mean days worked (Std dev)* | 8(7) | 8(6) | 8(7) |
| <i>Three main activities participated in</i> | | | |
| Water issues | 74(30.8) | 8(8.0) | 82(24.1) |
| Road works | 64(26.7) | 13(13.0) | 77(22.6) |
| Burial activities | 57(23.8) | 11(11.0) | 68(20.0) |
| <i>Proportion contributing time or money</i> | | | |
| Half and more | 198(85.3) | 34(35.1) | 232(70.5) |
| Less than half | 24(10.3) | 29(29.9) | 33(100.0) |
| No one | 10(4.3) | 34(35.1) | 44(13.4) |
| <i>Cooperation in solving water problems</i> | | | |
| Likely | 206(90.0) | 50(54.9) | 256(80.0) |
| Unlikely | 20(8.7) | 36(39.6) | 56(17.5) |

Source: Study survey data

% in parenthesis; *standard deviation in parenthesis

The community work variable is a response to a question of whether the respondents participated in community work in the past 12 months. One important highlight from the data is a marked location disparity in levels of participation. The level of participation in the past 12 months was twice as high among rural households (53.3 percent) as among urban households (26.0 percent). The participation was largely voluntary at 89.8 percent. All respondents worked for an average of 8 days in collective activities in the last 12 months. The mean number of days worked in collective action differs from those reported in Table 4.3 because of different concepts in terms

of the accruing benefits. In collective activities, the accruing benefits are collective, while they are individualistic in the case of groups. The proportion of respondents contributing time or money towards community projects is much higher among rural (85.3 percent, half and more) than urban (35.1 percent, half and more) households. A higher level of cooperation in solving water problems in the community is recorded among rural households (90.0 percent) than among urban households (54.9 percent).

4.3.4 Social Cohesion and Inclusion

Table 4.9 presents the social cohesion and inclusion category of social capital.

Table 4.9: Social Cohesion and Inclusion

| Variables | Rural | Urban | Total |
|--|-------------------|-------------------|-------------------|
| <i>Feelings of togetherness</i> | | | |
| Distant | 17(7.1) | 42(42.0) | 59(17.4) |
| Indifferent | 5(2.1) | 19(19.0) | 24(7.0) |
| Close | 218(90.8) | 39(39.0) | 257(75.6) |
| <i>Differences in the village</i> | | | |
| Great extent | 31(14.3) | 28(28.0) | 59(17.4) |
| Indifferent | 10(4.7) | 14(14.0) | 24(7.0) |
| Small extent | 170(80.6) | 58(58.0) | 228(67.1) |
| <i>Two most common differences that cause problems</i> | | | |
| Wealth/material possessions | 83(34.6) | 41(41.0) | 124(36.5) |
| Religious beliefs | 73(30.4) | 21(21.0) | 94(27.6) |
| Any violence from differences | 13(5.4) | 9(9.0) | 22(6.5) |
| <i>Two most common activities participation denied</i> | | | |
| Political affiliation | 15(6.3) | 7(7.0) | 22(6.5) |
| Participated in festivities, mean (Std dev)* | 8(7) | 6(5) | 7(7) |
| <i>Crime last 12 months:</i> | | | |
| Any household member victim | 21(8.8) | 13(13.0) | 34(10) |
| House burglarized | 13(5.4) | 11(11.0) | 24(7.0) |
| Total | 240(100.0) | 100(100.0) | 340(100.0) |

Source: Study survey data

% in parenthesis; *average number of times a household participated in festivities, standard deviation in parenthesis

The data show levels of feelings of togetherness or closeness, differences in the villages as well as their causes and effects, participation in festivities, and level of crime in the past 12 months.

The differences in the villages relate to different characteristics such as differences in education,

landholding, wealth and material possessions, social status, gender, duration of residence, political party affiliation, religious beliefs, ethnic background, between people living in the same village. The data shows marked disparity in levels of feelings of togetherness (social unity or sociability), the level being much higher among rural households (90.8 percent) than among urban households (39.0 percent). Some differences occur among the households in the villages, but at a lower level in rural (14.3 percent) than in urban (28.0 percent) areas.

Two major causes of such differences are wealth (and material) possessions and religious beliefs. Such differences are however of little consequences, as they do not translate into degrees of violence. For instance, violence resulting from group heterogeneity was reported by only 5.4 percent in rural areas compared to 9.0 percent in urban areas.

On average, the level of participation in festivities (social interaction) among the rural households in the last 12 months was 8 times compared to 6 times among urban households. The survey did not capture participation data by type of festivity. The level of crime rate in the district was low as indicated by the proportions of household crime victims (8.8 percent rural, 13.0 percent urban) and house burglary (5.4 percent rural, 11.0 percent urban) in the previous 12 months.

4.3.5 Empowerment and Political Action

Table 4.10 presents the empowerment and political action aspects of social capital in the sample area. The data show the level of control that people have over decisions that affect their daily activities, the level of petitioning of leaders for things that benefit the community, the level of expression of democratic rights through voting, the level of honesty of local authority and of bribery in the district. One important highlight from the table is that the rural households seem to enjoy a higher level of empowerment and political action than the urban households. All households reported high level of control (i.e., some and overall control estimated at 91.7 percent rural, 86.0 percent urban) of the decisions that affect their daily activities. The level of lobbying leaders for something benefiting community by rural households (46.7 percent) is also high compared to urban households (28.0 percent).

Rural households also reported a higher level of expression of democratic rights (91.3 percent) compared to urban households (86.0 percent). The higher level of democratic rights exhibited by the people living in the rural areas, can be explained by the fact that it is easy to mobilize rural than urban households through door to door and other forms of campaigns. The perceptions about improvement in the level of honesty of the local authority over the last 5 years are much higher among households in urban areas (83.0 percent) compared to 69.6 percent among households in rural areas. The level of payments in bribery is low among the households in the district.

Table 4.10: Empowerment and Political Action

| Variables | Rural | Urban | Total |
|--|-----------|----------|-----------|
| <i>Control over decision making</i> | | | |
| No control | 20(8.3) | 14(14.0) | 34(10) |
| Some control | 183(76.3) | 68(68.0) | 251(73.8) |
| Overall control | 37(15.4) | 18(18.0) | 55(16.2) |
| <i>Lobbying leaders</i> | | | |
| Never | 128(53.3) | 72(72.0) | 200(58.8) |
| At least once | 112(46.7) | 28(28.0) | 140(41.2) |
| <i>Successful petitions</i> | | | |
| At least some | 71(65.2) | 14(51.8) | 85(25.0) |
| None | 38(34.9) | 13(48.1) | 51(15.0) |
| Voting in last general election (2002) | 219(91.3) | 86(86.0) | 305(89.7) |
| <i>Extent concerns voiced taken into account</i> | | | |
| A lot | 27(11.3) | 8(8.0) | 35(10.3) |
| A little | 149(62.1) | 58(58.0) | 207(60.9) |
| Not at all | 63(26.3) | 31(31.0) | 94(27.6) |
| <i>Rating honesty of Local Authority</i> | | | |
| Improved | 167(69.6) | 83(83.0) | 250(73.5) |
| Deteriorated | 25(10.4) | 2(2.0) | 27(7.9) |
| Same | 44(18.3) | 14(14.0) | 58(17.1) |
| <i>Bribe payment</i> | | | |
| Yes | 64(27.5) | 30(30.0) | 94(27.6) |
| No | 169(72.5) | 70(70.0) | 239(70.3) |
| Effectiveness of bribery | 82(46.6) | 42(60.9) | 124(36.5) |

Source: Study survey data

% in parenthesis

4.4 Information and Communication

Table 4.11 presents analysis for information and communication, a measure of market access. The data show the average time taken to reach the nearest facility, as well as access to modern

means of communication. In the rural areas, the nearest post office is within 30 minutes walking distance for only about 21 percent of the households compared to 84 percent among the urban households.

Table 4.11: Information and Communication

| Variables | Rural | Urban | Total |
|---|-------------|-------------|-------------|
| <i>Time to nearest Post office</i> | | | |
| 30 min. and less | 50(20.8) | 84(84.0) | 134(39.4) |
| More than 30 min. | 190(79.2) | 16(16.0) | 206(60.6) |
| Mean newspaper readership (Std dev)* | 2(5) | 9(12) | 3(6) |
| <i>Listening to radio</i> | | | |
| Everyday | 197(81.5) | 87(87.0) | 284(84.1) |
| Other | 20(8.9) | 9(9.0) | 29(8.0) |
| Never | 23(9.6) | 4(4.0) | 27(7.9) |
| <i>Watching TV</i> | | | |
| Everyday | 74(30.8) | 62(62.0) | 136(40.0) |
| Other | 39(16.3) | 18(18.0) | 57(16.8) |
| Never | 127(52.9) | 20(20.0) | 147(43.2) |
| Own mobile phone | 101(42.1) | 71(71.0) | 172(50.6) |
| <i>Three main sources of information about:</i> | | | |
| <i>Government</i> | | | |
| Radio | 193(80.4) | 97(97.0) | 290(83.6) |
| Relatives/friends | 156(65.0) | 50(50.0) | 206(63.6) |
| Local market | 62(25.8) | 18(18.0) | 80(23.6) |
| <i>Market</i> | | | |
| Local market | 210(87.5) | 89(89.0) | 299(88.3) |
| Relatives/friends | 146(60.8) | 44(44.0) | 190(59.4) |
| Radio | 119(49.6) | 58(58.0) | 177(52.5) |
| <i>House accessibility by road</i> | | | |
| All year round | 67(27.9) | 92(92.0) | 159(46.8) |
| Certain seasons only | 134(55.8) | 7(7.0) | 141(41.5) |
| Never easily | 39(16.3) | 1(1.0) | 40(11.8) |
| Total | 240(100.0) | 100(100.0) | 340(100.0) |
| <i>Mean distances to services (Std dev)*</i> | | | |
| Education | 1.45(0.497) | 0.85(0.475) | 1.37(0.469) |
| Health | 3.16(2.06) | 1.79(1.28) | 2.97(2.02) |
| Market | 4.97(3.91) | 1.48(1.22) | 4.48(3.85) |
| Water points | 0.42(0.93) | 0.11(0.37) | 0.38(0.89) |

Source: Study survey data

% in parenthesis, *standard deviation in parenthesis

The level of radio listening is high among all households though there are gender disparities for rural (95 percent males, 77 percent females) and urban (84.0 percent males, 91.4 percent females). One possible explanation of these disparities is the fact that besides household chores, females in rural areas are also actively engaged in farming activities leaving them with less time for listening to radio compared to females in the urban areas. Another reason can be the fact that males among rural households are generally not as active in household activities as females. In urban areas where majority of the males may be engaged in employment activities leaving less time for listening to radios. But it could also be that males in urban areas perhaps watch TV more and thus spend less time listening to radio. Actually one would expect higher radio listening in rural than in urban areas because of TVs in urban areas.

The level of television watching is much lower among rural than urban households. There is also a marked disparity in the level of mobile-phone ownership by area of residence with a higher audience in urban households (71.0 percent) compared to rural households (42.1 percent).

The three main sources of information for both rural and urban households about what the Government does are radio (83.6 percent), relatives/friends (63.6 percent), and local market (23.6 percent). The reverse order is the case for the sources of information on market operations: local market (88.3 percent); relatives/friends (59.4 percent); and radio (52.4 percent).

The data also indicate poor accessibility of the rural households by road at 27.9 percent of the respondents all year round; 55.8 percent only for certain seasons, and 16.3 percent never accessible. In the urban set-up, about 8 percent are not accessible by road all year round. The most plausible explanation for this is that these households are located in urban slum areas.

All facilities (education, health, market, and water) are nearly twice more accessible to urban households as compared to rural households.

4.5 Household Livelihoods

Tables 4.12 to 4.16, present aspects of livelihoods for households in Nyeri district and show levels of household assets ownership and the main household activities. Table 4.12 presents households' ownership of assets. In the rural areas, only a small proportion of the households

(15.8 percent) have electricity in their houses compared to 60.5 percent among urban households. Radio ownership is slightly higher among urban households (91.3percent) than among rural households (88.5 percent).

Table 4.12: Household Assets and Land Ownership

| Variables | Rural | Urban | Total |
|--|-----------|----------|-----------|
| <i>Household asset ownership (Yes)</i> | | | |
| Electricity | 38(15.8) | 58(60.5) | 96(20.9) |
| Radio | 224(88.5) | 63(91.3) | 287(89.1) |
| Telephone | 122(48.2) | 53(76.8) | 175(54.4) |
| Television | 88(34.8) | 44(63.8) | 132(41.0) |
| Other | 26(10.7) | 5(11.6) | 41(10.7) |
| None | 21(8.4) | 8(11.3) | 29(8.8) |
| <i>Land ownership</i> | | | |
| None | 5(1.5) | 61(62.7) | 66(10.2) |
| Less than 1 ha. | 150(62.5) | 16(15.7) | 166(56.8) |
| At least one ha | 83(34.6) | 14(12.9) | 97(28.5) |
| Not specified | 2(0.4) | 9(8.5) | 11(1.5) |

Source: Study survey data
% in parenthesis

The level of ownership of telephones (48.2 percent) and televisions (34.8 percent) among the rural households is lower than the level among urban households (76.8 percent telephones, 63.8 percent televisions). Nearly all rural households own some land but the farm sizes for the majority of the households (62.5 percent) are rather small (less than 1 ha). The land owned by urban dwellers is not necessarily urban land because the survey question was not implicit about location. It is important to note that most of the households are more of peri-urban than urban.

Table 4.13: Household Farm Capital Inventory (Kshs)

| Inventory | Rural | | Urban | | Total | |
|-----------------|-------|---------|-------|---------|-------|---------|
| | Mean | Std dev | Mean | Std dev | Mean | Std dev |
| Farm | 406 | 761 | 33 | 102 | 326 | 693 |
| Livestock | 1,695 | 5,950 | 76 | 451 | 1,348 | 5,318 |
| General | 6,212 | 8,945 | 703 | 3,516 | 5,032 | 8,400 |
| Other | 3,275 | 5,817 | 150 | (...) | 2,650 | 5,228 |
| Total inventory | 8,365 | 12,687 | 814 | 3,980 | 6,747 | 11,805 |

Source: Study survey data

Table 4.13 presents farm capital inventory of the households in the sample. The farm capital inventory is categorized into four groups according to perceived purpose or farm activities. The categories include farm (jembe, folkjembes, plough, and shovels), livestock (animal drawn carts, milk separators, milk shed/store, milk equipment, and feeder for concentrates and forage), general (panga, wheelbarrows, spray pumps, axes, buckets, water tank, and grass cutters), and others.

The total value of farm capital inventory is Kshs 8,365 for a rural household. The level of farm capital inventory for livestock activities for a rural household is 4 times higher (20.3 percent) than for crop activities (4.9 percent).

Table 4.14: Household Crop and Livestock Production over Last 12 Months (Kshs)

| Variables | Rural | | Urban | | Total | |
|------------------------------------|---------|-----------|--------|-----------|---------|-----------|
| | Mean | (Std dev) | Mean | (Std dev) | Mean | (Std dev) |
| Crop production sales ⁹ | 45,735 | 24,172 | 61,160 | 2,857 | 46,474 | 24,973 |
| Livestock production sales | 94,425 | 41,720 | 13,850 | N/A | 92,133 | N/A |
| Total sales | 140,160 | N/A | 75,010 | N/A. | 138,607 | N/A |

Source: Study survey data; N/A means 'not available'.

Table 4.14 presents crop and livestock production outcomes of the households for the 12 months prior to the survey. The average annual income for a rural household from crop and livestock production is about Kshs 140,160. Crop production activities contribute Kshs 45,735 or about 32.6 percent of the farm sales while livestock production activities contribute Kshs 94,425 or 67.4 percent.

Table 4.15 presents average household income from non-farm activities. The total average annual non-farm income for a rural household is about Kshs 43,777. The main sources of non-farm income among the rural households are rent income (47.7 percent), wages (27.2 percent), and remittances/transfers (17.2 percent). On average, the total average income for a rural

⁹ The result showing crop production sales as being more in urban than rural areas arises from the fact that the study sample included areas of urban Nyeri according to the categorization by the Kenya National Bureau of Statistics (KNBS), such as Wambugu Farm, Gatitu, Thunguma, which in themselves are really peri-urban and a lot of agricultural activities including crop farming takes place there.

household from all the three major sources (crop production, livestock production, and non-farm activities) per annum is about Kshs 183,937 compared to Kshs238,703 for an urban household.

Table 4.15: Household Nonfarm Activities over Last 12 months (Kshs)

| Variables | Rural | | Urban | | Total | |
|-------------------------------------|---------|----------|---------|----------|--------|----------|
| | Mean | Std. dev | Mean | Std. dev | Mean | Std. dev |
| <i>Non-farm activities</i> | | | | | | |
| | N = 240 | | N = 100 | | | |
| Remittances/transfers ¹⁰ | 7,509 | 11,074 | 50,171 | 105,148 | 12,890 | 40,201 |
| Gifts from others | 3,482 | 12,823 | 23,332 | 91,250 | 7,370 | 41,902 |
| Wages | 11,919 | 18,658 | 21,357 | 46,533 | 14,856 | 29,944 |
| Rent income | 20,867 | 38,727 | 68,333 | 59,685 | 32,733 | 46,897 |
| <i>Total</i> | 43,777 | 15,539 | 163,193 | 93,744 | 67,849 | 45,874 |

Source: Study survey data

Table 4.16 presents averages of the most common household consumption expenditures in the district. The component for food consumption expenditures by both rural and urban households was deflated using the CPI figures for Nyeri district (0.98) and urban areas (0.96), respectively.

Table 4.16: Household Consumption Expenditures over Last 12 Months (Kshs)

| Variables | Rural | | Urban | | Total | |
|-----------------------------|----------------------|----------|----------------------|----------|--------|-----------|
| | Mean | Std. dev | Mean | Std. dev | Mean | Std. dev. |
| <i>Expenditure category</i> | | | | | | |
| Food | 54,807 ¹¹ | 30,302 | 57,804 ¹² | 42,357 | 56,240 | 40,233 |
| Health | 7,323 | 37,730 | 6,037 | 8,871 | 6,157 | 32,092 |
| Education | 11,330 | 28,450 | 17,742 | 22,947 | 13,192 | 26,923 |
| Other | 4,534 | 6,399 | 10,945 | 13,223 | 8,269 | 9,224 |
| <i>Total</i> | 77,994 | 65,583 | 92,528 | 66,693 | 83,858 | 70,066 |

Source: Study survey data

The study found that beer consumption differences between rural and urban households caused substantial variation in food consumption expenditures. In order to take into account this variation, the study made adjustment on the value for urban food consumption expenditure using the proportion of rural-urban beer consumption expenditure (0.7912) before deflating.

¹⁰ The higher figure for remittances and transfers to urban than rural areas can be explained partly by the possibility that substantial remittances and transfers can originate from the activities in the peri-urban and partly by the fact that the urban dwellers are more likely to have more close relatives in the Diaspora than the rural dwellers, as a source of remittances and transfers.

¹¹ Rural household food consumption expenditure deflated by CPI for Nyeri district (=0.98)

¹² Urban household food consumption expenditure deflated by CPI for urban areas (=0.96)

Table 4.17 shows the respective share of food consumption expenditures for both rural and urban areas. On average, a rural household's share of food consumption expenditure is high (70.3 percent) compared to expenditures on education (14.5 percent) and health (9.4 percent). The patterns of consumption expenditures of these three items show some variations between rural and urban households.

Table 4.17: Budget Shares of Household Consumption Expenditures over Last 12 Months (Kshs)

| Variables | Rural | Urban | Total |
|-----------------------------|-------|-------|-------|
| <i>Expenditure category</i> | Mean | Mean | Mean |
| Food | 70.3 | 62.5 | 62.0 |
| Health | 9.4 | 6.5 | 7.3 |
| Education | 14.5 | 19.2 | 20.0 |
| Other | 5.8 | 11.8 | 10.7 |
| <i>Total</i> | 100.0 | 100.0 | 100.0 |

Source: Study survey data

The share of food consumption expenditure in total income is lower among urban (62.5 percent) than in rural (70.3 percent) households. This result is consistent with Engel's law. Engel's law stipulates that, with a given set of tastes and preferences, the proportion of income spent on food falls as income rises, even if actual expenditure on food rises (Houthakker, 1957).

4.6 Summary

This chapter presents a descriptive analysis of the data collected from households in the sample. The key highlights from the analysis include the following: First, variations exist in household demographic variables between rural and urban areas and there are marked rural-urban gender disparities in secondary and tertiary levels of education. Second, five main categories of social capital featured as most important. These are groups and networks, trust and solidarity, collective and inclusion, empowerment and political action. Social networking and mutual support among the rural and urban households are important in the district. The data suggests that rural households have less trust in people from other ethnic backgrounds than urban dwellers. This is most likely because of the differences in rural and cosmopolitan life. The analysis also portrays rural-urban disparities in levels of collective action and cooperation. People living in rural areas have a higher probability of participating in community projects than people living in urban areas. We also find rural-urban disparities in levels of feelings of togetherness among

households, the level being much higher among rural households (91.8 percent) than among urban households (35.0 percent). Overall, rural households seem to enjoy a higher level of empowerment and political action than the urban households. The main livelihood activities and sources of household incomes are crop and livestock production and non-farm activities. On average, there are profound differences between rural-urban outcomes arising from households, participation in main livelihood activities, the outcomes being higher in urban than rural areas. The differences can partly be explained by fact that urban Nyeri is peri-urban. The share of food consumption to total expenditures is estimated at 70.3 percent and 62.5 percent for rural and urban areas respectively, indicating that the estimates are consistent with Engel's law. Education expenditure takes 14.5 percent and 19.2 percent of total household expenditure for rural and urban areas respectively. The percentage shares of health expenditures are more modest. The social capital variables analyzed in this chapter are further explored in the next chapter in an attempt to derive the main indicators of social capital using principal factor analysis (PFA). In chapter 5, we further investigate the impact of social capital on livelihoods described above.

CHAPTER 5

NATURE AND COVARIATES OF SOCIAL CAPITAL

5.0 Introduction

This chapter presents the nature, dimensions, and covariates of social capital in Nyeri district. The dimensions indicate the forms of social capital in the district and are shown in terms of five indices constructed as indicators of various social capital types and a combined index. The indices are constructed using principal factor analysis (PFA) technique. This study considers five important dimensions of social capital. Each of the indicators resulting from the PFA technique is an index whose value is either positive or negative. A positive value of the indicator implies a higher level of a social capital type among households while a negative value indicates a lower level. The nature of social capital is investigated by means of cross-tabulating the social capital indicators over the hypothesized social capital covariates. Further, the study investigates the sources and covariates of social capital using the OLS model. This is done for both the separate and aggregate social capital indicators. The rest of the chapter is structured as follows. Section 5.1 discusses construction of social capital indicators. Section 5.2 discusses the nature and dimensions of social capital. Section 5.3 deals with social capital and socioeconomic status. Section 5.4 presents livelihoods and assets while section 5.5 focuses on the sources and covariates of social capital. Section 5.6 concludes the chapter.

5.1 Construction of Social Capital Indicators

This study combined various survey questions and variables from each of the five social capital types using PFA to generate the desired indices of social capital including the aggregate. Thus we generated indicators of groups and networks; trust and solidarity; collective action and cooperation; social cohesion and inclusion; and empowerment and political action; and an aggregate measure of social capital.

5.1.1 Social Capital Survey Questions and Variables

Various survey questions relating to different categories of social capital are considered in this study. The survey questionnaire asked respondents questions relating to forms of social capital in each category and responses combined into social capital indexes using PFA technique. The

questions on groups and networks category of social capital, focused on decision making in groups to which members belong and mutual support forms of social capital. In decision-making, the survey questionnaire asked respondents two questions. First, the capacity in which they participated in decision making in groups. The responses were ranked from whether one was a “leader” to “no participation”. Second, the manner in which the decisions in groups were made. The responses were ranked from “members discussed and decided together” to “imposed” from outside. In the case of the mutual support, the survey questionnaire provided three items of information including the size of the network, its internal diversity, and the extent to which it would provide assistance in case of need. The respondents were asked two sets of questions: First, the number of people beyond their immediate households whom they could turn to and who would be willing to provide a small amount of money when suddenly needed. Second, the number of people beyond whom, their immediate households they could turn to and who would be willing to provide assistance when faced with a long term emergency such as death of the bread winner. The four responses for each of the two questions were ranked from “no one”, to “five or more people.

The questions on trust and solidarity category of social capital, dealt with bonding, bridging, and linking forms of social capital. For each form of social capital, the survey questionnaire asked respondents two sets of questions. In bonding, first, whether most people living in the village or neighborhood could be trusted, and would help as and when the need arose. The five responses were ranked from “agreed strongly” to “strongly disagreed”. Second, whether people living in the village/neighborhood helped each other. The responses were ranked from “always helping” to “never helping”. In bridging relations, two questions were asked, first; the extent to which the respondents trusted people from other ethnic groups or tribes, and second the extent to which they trusted strangers. The five responses of each question were ranked from “very small extent” to “very great extent”. As for the linking relations, the survey questionnaire asked respondents about the extent of their relations with the police and doctors/nurses. The five responses were ranked from “very small extent” to “very great extent.

On the questions on collective action and cooperation, the survey questionnaire asked the respondents two questions. First, the proportion of people in the village or neighborhood that

contribute time or money towards common development goals and the five responses ranked from “everyone” to “no one”. Second, whether people were likely to cooperate in solving a water supply problem in the community. The responses were ranked from “very likely” to “very unlikely”.

The questions on social cohesion and inclusion, focused on both social unity or sociability and crime. The survey questionnaire asked the respondents two questions in each case. In sociability, the respondents were first asked ‘how strong their feelings of togetherness or closeness were in their village or neighborhood’. The responses were ranked from “very distant” to “very close”. Second, they were asked ‘to what extent any differences between people living in same village or neighborhood characterized the village/neighborhood’. The responses were ranked from “a very small extent” to “a very great extent”. In the case of crime, the respondents were asked, first; whether anybody in the household had been a victim of a violent crime, for example, assault or mugging in the last 12 months. Second: whether the respondent’s house had been burglarized or vandalized in the last 12 months. The two sets of four responses were scaled from “yes” to “no” for the first and from “no one” to “five or more people” in the second.

The questions on empowerment and political action, dealt with three issues related to community empowerment: First, the extent of their control in making decisions that affected their daily activities. The responses were ranked over a range of “no control” to “control over all decisions”. Second, on community petitions against the Government or political leaders in the past 12 months for something that benefited the community and responses ranked as either “never” to “many times, or more than 5”. Third, the success rate of these petitions and responses ranked over a range of “none were successful” to “all were successful”.

5.1.2 Derivation of Social Capital Indices

The study uses two approaches to derive the social capital indicators using the PFA. One approach performs PFA separately on the variables of each of the 5 social capital types (groups and networks; trust and solidarity; collective action and cooperation; social cohesion and inclusion; and empowerment and political action) deriving the respective social capital indices. To construct the index for the aggregate social capital, all the 22 variables are combined

together. The number of variables in each social capital type ranges between 2 variables in groups and networks to 6 variables in both trust and solidarity and empowerment and political action social capital types. Table 5.1 presents rotated factor loadings for all the six social capital indices including the aggregate social capital index constructed using this approach. The study has applied these indices in the descriptive and econometric analyses. The index for each social capital type is defined uniquely by the respective factor loadings and the issue of meaning and interpretability of the indicators (factors) does not arise.

Table 5.1: Rotated Factor Loadings for Aggregate and Dimensions of Social Capital

| | <i>Aggregate social capital</i> | <i>Groups & networks</i> | <i>Trust & solidarity</i> | <i>Collective action & cooperation</i> | <i>Social cohesion & inclusion</i> | <i>Empowerment & political action</i> |
|--------|---------------------------------|------------------------------|-------------------------------|--|--|---|
| gn7 | 0.2677 | 0.6785 | | | | |
| gn8 | 0.2561 | 0.6785 | | | | |
| ts_1 | 0.5826 | | 0.5015 | | | |
| ts3 | 0.5839 | | 0.549 | | | |
| ts2 | 0.0292 | | 0.1392 | | | |
| ts2_4 | -0.0287 | | 0.0577 | | | |
| ts2_2 | 0.0854 | | 0.1267 | | | |
| Ts_3 | 0.0197 | | 0.1856 | | | |
| ca1 | 0.408 | | | 0.316 | | |
| ca5 | 0.6566 | | | 0.5814 | | |
| ca6 | 0.5762 | | | 0.5599 | | |
| sc1 | 0.6063 | | | | -0.4311 | |
| sc2_1 | -0.2827 | | | | 0.4281 | |
| sc4_2a | -0.1805 | | | | 0.307 | |
| sc4_3 | -0.0678 | | | | 0.1895 | |
| ep1 | 0.0866 | | | | | 0.2929 |
| ep2 | 0.384 | | | | | 0.4194 |
| ep3 | 0.1471 | | | | | 0.3043 |
| ep4 | 0.207 | | | | | 0.4963 |
| ep5 | -0.1726 | | | | | -0.1695 |
| ep6 | 0.0943 | | | | | 0.3758 |
| group | 0.2763 | | | | | |

Source: Author's construction using survey data

The other approach performs PFA on the 22 variables, combined together, of all the social capital types deriving a total of 4 indices presented in Table 5.2. Three factors with eigenvalues

greater than 1.0 were obtained using the Kaiser criterion. A fourth factor was obtained and included in the analysis on adjusting the rule downwards. With the number of retained factors determined, the factors are orthogonally rotated to simplify factor structure and achieve a meaningful and interpretable solution.

Table 5.2: Rotated Factor Loadings for Four Social Capital Factors

| <i>Item no.</i> | <i>variable statement</i> | <i>Factor 1</i> | <i>Factor 2</i> | <i>Factor 3</i> | <i>Factor 4</i> |
|-----------------|--|-----------------|-----------------|-----------------|-----------------|
| ts_1 | Most people who live in this village/neighborhood can be trusted and are willing to help if you need it | 0.5109 | 0.1588 | 0.2567 | -0.0582 |
| ts2_2 | How much do you trust police? | 0.1085 | 0.2713 | -0.1072 | -0.4525 |
| ts3 | How well do people in this village/neighborhood help each other these days? | 0.6127 | 0.0083 | 0.1098 | -0.0211 |
| ca1 | In the past 12 months, have you worked with others in this village/neighborhood to do something for the benefit of the community? | 0.1977 | 0.1416 | 0.5438 | -0.0028 |
| ca5 | What proportion of people in this village/neighborhood contributes time or money towards common development goals, such as repairing a road? | 0.6765 | 0.0778 | 0.0838 | 0.0458 |
| ca6 | If there was a water supply problem in this community, how likely is it that people will cooperate to try to solve the problem? | 0.5859 | 0.0734 | 0.1079 | -0.0281 |
| sc1 | How strong is the feeling of togetherness or closeness in your village/neighborhood? | 0.6715 | 0.0454 | -0.0141 | 0.0231 |
| sc2_1 | To what extent do any differences in characteristics characterize your village/neighborhood? | -0.3658 | 0.0642 | 0.1411 | -0.2517 |
| gn7 | If you suddenly needed a small amount of money (enough for your household needs for a week) how many people beyond your immediate household would be willing to provide you with this money? | 0.1088 | 0.6810 | -0.0446 | 0.0394 |
| gn8 | If you suddenly faced a long term emergency such as death of the bread winner or harvest failure, how many people beyond your immediate household would be willing to help you out? | 0.0478 | 0.7122 | 0.1036 | -0.1472 |
| group | Do you belong to any group? | 0.0883 | 0.3505 | 0.2027 | 0.3089 |
| ep1 | How much control do you think you have in making decisions that affect your daily activities? | 0.1229 | -0.0781 | -0.1221 | 0.4172 |
| ep2 | In the past 12 months, how often did residents in this village/neighborhood get together to jointly petition the Government or political leaders for something benefiting the community? | 0.1929 | 0.0470 | 0.5323 | 0.0938 |
| ep4 | To what extent do local Government/leaders take into account concerns voiced by you and people like you when they make decisions that affect you? | 0.0785 | -0.1083 | 0.3736 | 0.3245 |
| ep6 | In the past 12 months, did any member of your household pay some unofficial money to government officials to get things done? | -0.0034 | -0.1063 | 0.2368 | 0.4087 |

Source: Author's construction using survey data

The interpretation and meaning of the rotated factors is inferred from the variables significantly loaded on their factors from the matrix of factor loadings¹³. The study used a rule of thumb commonly used in the literature where loadings greater than 0.3 in absolute value are considered significant (Simon and Mohankumar, 2004).

On the basis of the factor loadings for the variables, the meaning of the four retained factors is readily interpretable. Factor 1 is interpreted as ‘bonding, cooperation, and sociability index drawing from the trust and solidarity variables ts1_1 (0.5109) and ts3 (0.6127), the collective action and cooperation variables ca5 (0.6765) and ca6 (0.5859), as well as social cohesion and inclusion variables sc1 (0.6715) and sc2_1 (-0.3658).

Factor 2 is interpreted as ‘mutual support’ score index drawing from the social network variables gn7 (0.6810), gn8 (0.7122) and group (0.3505). Factor 3 is interpreted as ‘collective action’ index drawing from the collective action and cooperation variable ca1 (0.5438), and empowerment and political action variables ep2 (0.5323) and ep4 (0.3736). Factor 4 is interpreted as ‘community empowerment’ index drawing from the trust and solidarity variable ts2_2 (-0.4525), empowerment and political action variables ep1 (0.4172), ep4 (0.3245) and ep6 (0.4087) and groups and networks group (0.3089).

5.2 Nature and Dimensions of Social Capital

In this section, we report a detailed exploration of the nature and dimensions of social capital. Table 5.3 presents a cross tabulation of the aggregate social capital index and the five indicators (groups and networks, trust and solidarity, collective action and cooperation, social cohesion and inclusion, and empowerment and political action) over hypothesized covariates.

5.2.1 Aggregate Social Capital

The aggregate indicator of social capital in the study was constructed from combining the five social capital types using PFA technique. The results presented in Table 5.3 indicate that, Nyeri district has a low level of aggregate social capital, being lower among urban than rural dwellers,

¹³ The values of factor loadings range from -1.0 to +1.0; they express correlations between variables (StatSoft, Inc., 1984-2008)

and the average overall index is negative (-0.2523). A positive value of the indicator implies a higher level of a social capital type among households while a negative value indicates a lower level.

Table 5.3 Social Capital Dimensions by Region and Demographics

| | <i>Social capital dimensions</i> | | | | | |
|--|----------------------------------|-------------------|--------------------|---------------------------------|----------------------------|--------------------------------|
| | Aggregate social capital | Groups & networks | Trust & solidarity | Collective action & cooperation | Social cohesion/ inclusion | Empowerment & political action |
| <i>Residence</i> | | | | | | |
| Rural | 0.3463 | -0.0051 | 0.2017 | 0.2387 | -0.1686 | 0.0634 |
| Urban | -0.8509 | -0.0149 | -0.4851 | -0.5876 | 0.4335 | -0.1545 |
| <i>Gender</i> | | | | | | |
| Male | 0.0721 | 0.0245 | 0.0632 | 0.0511 | -0.0102 | 0.0152 |
| Female | -0.1524 | -0.0723 | -0.1215 | -0.1089 | 0.0417 | -0.0307 |
| <i>Religion</i> | | | | | | |
| Protestant | -0.0814 | -0.0418 | -0.0147 | -0.0556 | 0.0624 | -0.0098 |
| Catholic | 0.1284 | 0.0488 | 0.0280 | 0.0868 | -0.0858 | 0.0159 |
| <i>Age group</i> | | | | | | |
| 18-24 | -0.5656 | -0.0380 | -0.2428 | -0.2606 | 0.2256 | -0.5083 |
| 25-34 | -0.2694 | -0.0421 | -0.1383 | -0.1797 | 0.1576 | -0.0401 |
| 35-44 | -0.0386 | -0.0125 | -0.0390 | -0.0516 | 0.0105 | 0.1139 |
| 45-54 | 0.0583 | 0.1221 | -0.0154 | -0.0313 | 0.0462 | 0.0194 |
| 55+ | 0.3892 | -0.0165 | 0.2305 | 0.2845 | -0.2046 | 0.0722 |
| <i>Education</i> | | | | | | |
| Primary level | 0.0710 | -0.0267 | 0.0428 | 0.0460 | -0.0087 | -0.0177 |
| Secondary level | -0.1255 | 0.0775 | -0.0812 | -0.0933 | 0.0698 | 0.0311 |
| Tertiary level | -0.6647 | 0.1082 | -0.5316 | -0.4189 | 0.3526 | -0.0252 |
| <i>Marital status</i> | | | | | | |
| Married | 0.0710 | 0.0347 | 0.0324 | 0.0393 | -0.0314 | 0.0231 |
| Other | -0.1779 | -0.1085 | -0.0720 | -0.1010 | 0.0981 | -0.0550 |
| <i>Lobbying for services provision¹⁴</i> | | | | | | |
| Never | -0.0032 | -0.0080 | 0.0012 | -0.0025 | 0.0072 | -0.0002 |
| Yes | 0.4567 | 0.0919 | 0.1488 | 0.2472 | -0.0557 | 0.4920 |
| <i>Voting rate in last general election¹⁵</i> | | | | | | |
| Voted | 0.0437 | 0.0074 | 0.0142 | 0.0122 | 0.0004 | 0.0950 |
| Not voted | -0.4599 | -0.1582 | -0.1251 | -0.1454 | 0.0732 | 0.9267 |

Source: Author's construction using survey data

The largest contribution of individual social capital dimension to the aggregate level of social capital is from social cohesion and inclusion (social unity or sociability and interaction) (0.1268), followed by groups and networks (mutual support) (-0.0100) and empowerment and political

¹⁴ Lobbying for provision of social services to the community.

¹⁵ Democratic rights exercise through voting in last general elections.

action (-0.0456) while the least contribution is from trust and solidarity indicator (-0.1417) followed by collective action and cooperation indicator (-0.1745).

The results also show that, on aggregate, there are marked social capital endowment differences by residence, gender, and religion. Aggregate social capital is statistically stronger among rural than urban dwellers at 1 percent (t-value = 13.856), among men than women at 5 percent (t-value = 2.213), and among Catholics than Protestants at 5 percent (t-value = 2.266).

The results further indicate that the middle aged and the elderly people are more endowed with aggregate social capital than their younger counterparts. This finding can be explained by the fact that most of the middle aged and the elderly people are married. For the married, endowment of social capital is valuable, in building intra-community relations, facilitating participation in community projects, and creating mutual support mechanisms among households and ensuring social unity. Beggs et al. (1996) show that married individuals with children are significantly more likely than younger individuals to participate in social networking and to belong in interest groups. In this study, aggregate social capital endowment among the married people is high (0.071). The result with regard to education is that endowment in aggregate social capital is strongest among the least educated (0.071) people and weakest among the most educated (-0.665).

5.2.2 Groups and Networks

The groups and networks indicator of social capital is derived from a combination of three social network and mutual support variables using the PFA technique. The indicator measures the extent of the usefulness of social networks in the community.

The results in Table 5.3 show that social networking and mutual support relationships are actively more carried out by rural (-0.005) than urban (-0.015) dwellers, men (0.025) than women (-0.072), and Catholics (0.049) than Protestants (-0.042), but the existing differences are not statistically significant. The results also show that endowment of mutual support social capital is higher among the people in the middle age (35-54 years) than among the young (18-34 years) and the elderly (55+ years). Since mutual support is a social capital asset, this finding is

supported by the life cycle hypothesis which suggests that wealth has an inverse U shape over the life-cycle (Ando and Modigliani, 1963), i.e., wealth decreases as individuals advance in age. A further result indicates that mutual support social capital tends to become increasingly stronger with the level of education and among the married people. These results imply that the middle age people and the more educated tend to enjoy a higher level of mutual support in the community than the young people and the less educated people.

5.2.3 Trust and Solidarity

The trust and solidarity indicator of social capital is constructed from a combination of 6 variables, using PFA. The indicator measures the overall extent of trust as basis for bonding, bridging, and linking relations existing among the people in Nyeri district. Bonding relations show intra-community relations, how local communities trust and relate to others like themselves. Bridging relations indicate cross-community relations, the quality of trust and relationships between individuals and groups who are in other communities. Linking relations deal with quality of relations between communities and service providers (a proxy for decision-makers).

The results in Table 5.3 indicate that endowment of trust and solidarity social capital asset is significantly stronger among rural than urban households (t-value = 9.868), men than women (t-value = 2.434), and Catholics than Protestants (t-value = 3.869). The rural-urban differences in trust and solidarity may be true only with regard to bonding relations but may not be in bridging and linking relations given the varied rural-urban life styles of the people and their economic activities. For example, the main engagement among the rural dwellers is farming and social life is most suitable for building and strengthening intra-community relations. This is in contrast to urban dwellers having varied economic activities and social life suitable for building and strengthening bridging and linking relations. Perhaps bonding relations over-crowd the bridging and linking relations. The result for stronger trust and solidarity social capital among men than women is expected. This can be explained by the fact that males naturally have large social circles and are more outgoing than females who are generally constrained by the way they are socialized and by cultural and traditional institutions.

Further results indicate that endowment of trust and solidarity social capital asset tend to become stronger after the middle ages and among the less educated people than the more educated. Another result is that, being married is an important aspect in building trust and solidarity.

5.2.4 Collective Action and Cooperation

The collective action and cooperation indicator is derived from a combination of three variables of community life and development. The indicator reflects the extent to which the community works together and cooperates towards achieving common development goals such as roads works, water management, burial activities, and so forth.

The results in Table 5.3 indicate that the level of endowment of collective action and social cooperation is significantly higher among rural than urban households at 1 percent (t-value = 11.787), men than women at 10 percent (t-value = 1.896), and Catholics than Protestants at 10 percent (t-value = 1.833). The pattern of endowment of collective action and cooperation social capital asset with regard to age, education, and marital status show marked similarity to the pattern in the endowment of trust and solidarity. Endowment of collective action and cooperation tend to be stronger after the middle age and among the less educated people as well as among the married people.

5.2.5 Social Cohesion and Inclusion

The social cohesion and inclusion indicator was constructed from combining 4 variables, using PFA technique. The indicator shows levels of social unity (general perception of togetherness and closeness of the community), sociability (general level of participation in community events and festivities), and level of violent crime in the community. The indicator measures the extent of 'social health' of the community.

The results presented in Table 5.3 show that the endowment of social cohesion and inclusion social capital asset is statistically stronger, at 1 percent, among urban than rural dwellers (t-value = 9.090). This result is unexpected. This is mainly because of the fact that the economic activities and the life style among the rural dwellers would be more conducive to social interaction and feelings of closeness and togetherness in the community than the case of the

urban life. The results also indicate that the endowment of social cohesion asset is stronger among women (0.0417) than men (-0.0102) but any gender differences are not statistically significant. As for religion, the asset endowment is significantly stronger among Protestants than Catholics at 5 percent (t-value = 2.164).

Further results suggest that the young and the middle aged people as well as the more educated, participate more actively in building social cohesion and inclusion than the elderly and the less educated people. The asset endowment is low among married people (-0.0314)

5.2.6 Empowerment and Political Action

The empowerment and political action indicator was derived from combining 6 variables, using PFA method. This indicator shows levels of decision making as power of the community, lobbying leaders for provision of social services, democratic rights, voice of the community, honesty of government, and bribery. The indicator reflects the extent of community empowerment as relates to expansion of assets and capability of people to participate in negotiations, influence, control, and hold institutions accountable that affect their lives (World Bank, 2002).

Results presented in Table 5.3 show that the endowment of community empowerment social capital asset is statistically stronger, at 1 percent, among urban than rural dwellers (t-value = 2.648). The results also indicate stronger asset endowment among men (0.0152) than women (-0.0307) and among Catholics (0.0159) than Protestants (-0.0098), but any differences in both gender and religion are not statistically significant. Further results show that the middle aged and elderly people as well as people with middle level education and the married are strongly endowed with community empowerment social capital.

5.3 Social Capital, Livelihood Sources and Socioeconomic Status

Table 5.4 presents cross-tabulation results of social capital over main sources of livelihoods and socioeconomic status of households in Nyeri district. The study identified three main sources of livelihoods including crop and livestock production both of which are agricultural related activities, and non-farm activities. The economic status is derived from the quintiles constructed

from the wealth index based on the households' ownership of physical assets and housing characteristics.

Table 5.4: Social Capital Dimensions by Livelihoods and Socioeconomic Status

| | Social capital indicators | | | | | |
|-----------------------------|--------------------------------|-----------------------|------------------------|-------------------------------------|---------------------------------|--------------------------------------|
| | Aggregate social capital index | Groups/networks index | Trust/solidarity index | Collective action/cooperation index | Social cohesion/inclusion index | Empowerment & political action index |
| Main livelihoods | | | | | | |
| <i>Crop production</i> | 0.311 | -0.207 | 0.234 | 0.141 | -0.288 | 0.132 |
| <i>Livestock production</i> | 0.162 | 0.113 | 0.131 | 0.175 | -0.102 | -0.221 |
| <i>Non-farm</i> | -0.022 | 0.112 | -0.023 | -0.021 | 0.083 | 0.005 |
| All livelihoods | -0.003 | -0.008 | 0.001 | -0.003 | 0.007 | -0.0002 |
| Socioeconomic status | | | | | | |
| <i>First quartile</i> | 0.157 | -0.121 | 0.052 | 0.137 | -0.208 | -0.059 |
| <i>Second</i> | 0.183 | -0.090 | 0.101 | 0.147 | -0.110 | 0.015 |
| <i>Third</i> | 0.088 | -0.152 | 0.170 | 0.035 | -0.010 | 0.053 |
| <i>Fourth</i> | 0.146 | 0.089 | 0.083 | 0.057 | -0.006 | 0.117 |
| <i>Richest</i> | -0.567 | 0.244 | -0.357 | -0.382 | 0.422 | -0.077 |
| All | -0.003 | -0.008 | 0.001 | -0.003 | 0.007 | -0.0002 |

Source: Author's construction using survey data

The results indicate that the values of the aggregate social capital indicator, for crop (0.311) and livestock (0.162) production activities as main sources of households' livelihoods are positive. This suggests that endowment of aggregate social capital is an important factor in crop and livestock production as main sources of livelihoods. This is in contrast to the case of non-farm activities with a negative value (-0.022) of aggregate social capital indicator. The results further show that the five social capital dimensions vary distinctly in importance over the three main sources of households' livelihoods. The value of the indicator for groups and networks dimension, for example, is positive over livestock production (0.113) and non-farm (0.112) activities. This suggests that endowment of groups and networks (mutual support) social capital is important among households that engage in livestock production and non-farm activities as their source of livelihoods. The two dimensions of trust and solidarity as well as collective action and cooperation, exhibit a similar pattern over the main sources of livelihoods. The values of the indicators for both dimensions are positive over crop production (0.234, 0.141) and livestock production (0.131, 0.175) while negative over non-farm (-0.023, -0.021) activities. This implies that stronger endowment of trust and solidarity as well as collective action and cooperation social

capital types is important for households engaged in crop and livestock production activities. Endowment of social cohesion and inclusion social capital is important for households engaged in non-farm (0.083). Households strongly endowed with empowerment and political action social capital are more engaged in crop production (0.132) and non-farm (0.005) activities than in livestock production (-0.221). These results suggest that social capital asset can be an important factor in the livelihood diversification strategy of households in Nyeri district in particular and Kenya in general.

The results further show that aggregate social capital is inversely correlated to the richest socioeconomic group. The indicator is positive for all socioeconomic groups except the richest. The results imply that ownership of social capital in Nyeri district is high among the second (0.183) and poorest (0.157) groups of households but lowest among the richest socioeconomic group. This suggests that being rich reduces incentive for socialization and social capital may be considered an inferior good for the rich.

This finding is consistent with the result for Indonesia (Grootaert,1999) which concluded that social capital is, indeed the capital of the poor. However, the richest group of households is strongly endowed with both groups and networks (0.244) and social cohesion and inclusion (0.422) social capital types.

5.4 Household Livelihoods, Assets and Social Capital

The basic question addressed in this section is whether households with high levels of social capital in Nyeri district are better off than those with low levels of it and whether investment in social capital can help such households escape from poverty. Table 5.5 provides a descriptive answer to these questions. Households are grouped in aggregate social capital and household consumption expenditure quintiles. The results of the aggregate social capital quintiles are cross-tabulated over household activities as sources of livelihoods, consumption expenditure, and ownership of assets (wealth index as well as human capital in form of education).

The results indicate that there is strong overall pattern of co-variation between aggregate social capital and livelihood sources, household consumption expenditure, and asset ownership. The

results collaborate with the findings in Table 5.4 that strong endowment of aggregate social capital is important for households engaged in crop and livestock production activities. It turns out that households with higher aggregate social capital have better livelihoods especially from crop production, almost similar levels of human capital and higher levels of wealth. The pattern of household consumption expenditure is fairly evenly distributed across all levels of aggregate social capital. These results support findings for Indonesia (Grootaert, 1999).

Table 5.5: Livelihood Sources, Asset Ownership, Social Capital and Expenditure Quintiles

| | Aggregate social capital quintiles | | | | | |
|--|------------------------------------|--------|---------|--------|---------------------|--------|
| | Lowest | | | | Highest | All |
| Household activities | | | | | | |
| <i>Value of Crop produced (Kshs)</i> | 5054 | 6085 | 5835 | 5623 | 7202 | 4858 |
| <i>Livestock production (Kshs)</i> | 2566 | 3662 | 4413 | 4538 | 2941 | 2890 |
| <i>Income Non-farm activities (Kshs)</i> | 6604 | 5508 | 7958 | 5175 | 5506 | 9961 |
| All household activities (Kshs) | 14224 | 15255 | 18206 | 15336 | 15649 | 17708 |
| Total expenditure, p.a. (Kshs) | 72939 | 82923 | 76553 | 67768 | 66964 ¹⁶ | 80091 |
| Years of schooling | 7.22 | 7.55 | 8.76 | 7.22 | 8.36 | 8.81 |
| Wealth index | -0.332 | -0.512 | -0.343 | -0.139 | -0.184 | 0.002 |
| | Expenditure quintiles | | | | | |
| | Lowest | | | | Highest | All |
| Aggregate social capital | 0.3672 | 0.1627 | 0.22690 | 0.3515 | 0.2036 | -.0032 |
| Groups and networks | -.2378 | -.1703 | -0.0256 | 0.2268 | 0.1274 | -.0080 |
| Trust and solidarity | 0.1839 | 0.0125 | 0.0892 | 0.2346 | 0.2245 | 0.0012 |
| Collective.action.and.cooperation | 0.2210 | 0.1835 | 0.1949 | 0.2168 | 0.0430 | -.0025 |
| Social cohesion and inclusion | -.2186 | -.0534 | -0.2550 | -.1097 | -0.0672 | 0.0072 |
| Empowerment.and.political action | 0.4227 | -.0023 | -0.0236 | -.0408 | -0.0418 | -.0002 |

Source: Author's construction using survey data

The results of the household consumption expenditure quintiles are cross-tabulated over the aggregate and social capital. The results indicate that the households facing lowest consumption

¹⁶ Suggests that social capital enables people to consume without having to spend cash.

expenditure levels are the most strongly endowed with aggregate social capital. Tables 5.4 and 5.5 suggest that these are households in the second and poorest socioeconomic groups.

5.5 Sources and Covariates of Social Capital

This section presents the results of econometric analysis of the determinants of social capital. The five dimensions (or forms) of social capital discussed in section 5.2 are considered in the model as well as the aggregated social capital. The list of covariates investigated in the study include the wealth score, gender, years of schooling as a measure of human capital, age, age squared, religion, marital status, lobbying leaders for provision of social services and voting rate in last general elections. The variables of religion, marital status, petitioning government and leaders, and democratic concerns are considered as possible instruments for identifying social capital over livelihoods. A summary of these variables is presented in Annex 1, Table A1.

The results for individual and the aggregate social capital variables are presented in Table 5.6. The results show that the R-squared values range from 0.06 for groups and networks variable to 0.51 for the empowerment and political action variable. This suggests that the variables jointly explain between 6 percent and 51 percent of the total variation in different dimensions of social capital.

The significance of the Chow test (F-statistics) shows that the model fits the data better than the intercept only model. The specifications (1)-(6) represent aggregate social capital, and social capital dimensions (groups and networks, trust and solidarity, collective action and cooperation, social cohesion and inclusion, and empowerment and political action), respectively. The wealth score variable has a negative and significant coefficient at 1 percent in the aggregate social capital model. The wealth score is a principal indicator of economic status.

The inverse relationship between aggregate social capital and economic status of household as measured by the wealth score indicates that a unit increase in economic status leads to a fall of aggregate social capital by 19 percent. This is not unexpected. Poor households do not have access to most resources and form mutual support social networks that enable them pool resources together. The results suggest that while social capital is important to poor households it

is an inferior good to the rich households. This result is also implied by the study findings arising from the descriptive analysis.

Table 5.6: Determinants of Social Capital: Dependent Variables are Social Capital Indices

| | <i>Social capital types</i> | | | | | |
|-----------------------------|-----------------------------|---------------------|----------------------|----------------------|---------------------|--------------------------|
| | Aggregate | Groups & networks | Trust/ solidarity | Collective action | Social cohesion | Empowerment/ pol. action |
| Wealth score | -0.1889 [4.02]*** | 0.1575 [3.31]*** | -0.1153 [2.79]*** | -0.1448 [3.55]*** | 0.2062 [5.46]*** | 0.013 [0.39] |
| Gender (1= male) | 0.2519 [2.15]** | 0.1063 [0.99] | 0.2594 [2.93]*** | 0.1549 [1.61] | -0.1067 [1.27] | -0.0436 [0.60] |
| Years of schooling | -0.0048 [0.44] | 0.0022 [0.17] | -0.005 [0.50] | -0.0028 [0.28] | -0.0036 [0.42] | -0.0006 [0.08] |
| Age | 0.0446 [3.06]*** | 0.0184 [1.27] | 0.0073 [0.52] | 0.0396 [2.83]*** | -0.0087 [0.77] | -0.0059 [0.60] |
| Age squared | -0.0003 [2.35]** | -0.0001 [1.05] | 0.0001 [0.01] | -0.0003 [2.20]** | 0.0001 [0.25] | 0.0001 [0.58] |
| Religion (1= Protestant) | -0.177 [2.11]** | -0.0935 [1.06] | -0.0178 [0.26] | -0.1072 [1.54] | 0.1268 [1.98]** | 0.0028 [0.05] |
| Marital status (1= married) | -0.161 [1.13] | -0.1083 [0.80] | -0.136 [1.13] | -0.0368 [0.32] | 0.1265 [1.24] | -0.0139 [0.15] |
| Lobbying leaders(1= yes) | 0.7191 [8.97]*** | 0.1505 [1.81]* | 0.209 [3.08]*** | 0.3774 [5.55]*** | -0.0792 [1.26] | 0.7873 [14.27]*** |
| Proportion voted | 0.2536 [1.50] | 0.0803 [0.45] | 0.0369 [0.27] | -0.0538 [0.42] | 0.0001 [0.00] | 0.9157 [11.60]*** |
| Constant | -1.7513 [4.53]*** | -0.6016 [1.57] | -0.467 [1.40] | -1.2246 [3.30]*** | 0.311 [1.05] | -0.9675 [3.70]*** |
| Observations | 322 | 322 | 322 | 322 | 322 | 322 |
| R-squared | 0.38 | 0.06 | 0.16 | 0.23 | 0.2 | 0.51 |
| F-statistic (9,312) | 21.26 | 2.51 | 7.1 | 9.96 | 8.91 | 41.73 |

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

The results for the social capital dimensions are mixed. The coefficients for two dimensions (groups and networks, and social cohesion and inclusion) are positive and highly significant at 1 percent level while coefficients for two dimensions (trust and solidarity and collective action and cooperation indicators models) are negative and highly significant at 1 percent. Coefficient of empowerment and political action is positive but insignificant.

The male dummy variable has a positive and significant coefficient at 5 percent level in the aggregate social capital model. This result implies that aggregate social capital for males exceeds that for females by 25 percent. The results among social capital dimensions are mixed, though only one dimension (trust and solidarity indicator model) has a significant coefficient (at 1 percent).

The coefficient for the human capital variable (years of schooling) is negative but insignificant in the aggregate social capital model and in all social capital dimensions except for groups and networks where it has a positive and insignificant coefficient.

The coefficient of the age variable is positive and significant at 1 percent in the aggregate social capital model suggesting that one more year in age of the head of household is associated with 4.5 percent more of aggregate social capital. In the models of social capital dimensions, the coefficient of the age variable has mixed impacts. It is positive and highly significant in the collective action and cooperation model, positive and insignificant in groups and networks as well as trust and solidarity models, and negative and insignificant in both social cohesion and inclusion and empowerment and political action.

The coefficient for age squared is negative and significant at 5 percent in both the aggregate social capital and collective action and cooperation models. This indicates an inverse U shaped relationship between age squared and social capital suggesting that social capital declines with age squared.

Protestant religion dummy variable has a negative and significant coefficient in the aggregate social capital model. The negative coefficient suggests that an increase in the number of households belonging to the Protestant faith (relative to Catholic) by one reduces aggregate social capital endowment of the household by 17.7 percent. The coefficient of the Protestant religion dummy variable is positive and significant at 5 percent in social cohesion and inclusion model, and negative and insignificant for all other dimensions except empowerment and political action, where it has a positive and insignificant coefficient.

The coefficient for the marital status variable is negative and insignificant in all social capital models except the social cohesion and inclusion where it exhibits a positive but insignificant coefficient.

The coefficient of the variable for lobbying leaders is positive and significant over all the social capital models except the social cohesion and inclusion. The result indicates that areas lobbying leaders index the aggregate social capital of households is 72 higher than in areas without such lobbying index, that for groups and networks is higher 15, the trust and solidarity is higher by 21, collective action and cooperation by 38, and empowerment and political action by 79 t. This result suggests that communities that come together to lobby for services that are beneficial to the society tend to be more cohesive and thus higher levels of social capital.

The coefficient on proportion voting is positive in all social capital models except the collective action and cooperation. All the model coefficients are insignificant except the empowerment and political action, which exhibits a positive and highly significant coefficient at 1 percent. The result suggests that a unit increase in the level of voting in general elections would lead to an increase in a household's endowment of empowerment and political action social capital by 91 percent.

These empirical estimates of the coefficients for the variables are within limits of the results obtained for equivalent studies elsewhere, especially Grootaert (1999), and therefore are reasonable.

5.6 Summary

This chapter investigates the nature, dimensions, and covariates of social capital in Nyeri district. The dimensions are reflected in five separate indices constructed as indicators of social capital types and in the aggregate social capital. The five indicators are groups and networks, trust and solidarity, collective action and cooperation, social cohesion and inclusion, and empowerment and political action indices.. The results of the cross-tabulations of social capital indicators over hypothesized covariates indicate that, on the whole, Nyeri district enjoys a low level of social capital. The largest contribution to aggregate social capital is by the social cohesion and

inclusion indicator, while the lowest contribution is by the collective action and cooperation indicator. The results also indicate that the nature of social capital in the district is distinct by (rural-urban) and gender. Social capital is higher among rural than urban dwellers and among men than women. Another remarkable finding is that the ownership of social capital in the district is higher among the poorest group of households but lower among the richer socioeconomic groups. The OLS results indicate that, the most important sources and covariates of social capital are wealth, gender, age, religion, and lobbying leaders. The next chapter explores the effects of social capital on the livelihood of households as well as on poverty reduction.

CHAPTER 6

SOCIAL CAPITAL AND RURAL LIVELIHOODS

6.0 Introduction

This chapter investigates the effects of social capital on livelihoods of rural households. The basic question addressed is whether households with higher levels of social capital are better off than households with lower levels. The key hypothesis of this study is that social capital influences rural livelihoods. To test this hypothesis, we measure its effects on welfare taking into account that it may be endogenous. To address the endogeneity issue, social capital is instrumented using 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. Tests for validity of instruments are also conducted. The rest of the chapter is structured as follows. Section 6.1 presents the basic livelihoods model with aggregate social capital. Section 6.2 examines impacts of social capital on poverty status while section 6.3 presents a brief summary of the chapter.

6.1 Impact of Social Capital on Household Consumption Expenditure

This part focuses on the basic livelihoods model with aggregate social capital. Section 6.1.1 presents the impact of endogenous social capital on household expenditure. Section 6.1.2 deals with instrumentation of social capital and examines welfare effects of instrumented social capital on household livelihoods.

6.1.1 Impact of Endogenous Social Capital on Household Consumption Expenditure

Table 6.1 presents results of the basic livelihoods model with aggregate social capital and the five dimensions (group and networks, trust and solidarity, collective action and cooperation, social cohesion and inclusion, and empowerment and political action) shown as specifications (1)-(6). In this section, 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.

Table 6.1: Determinants of Livelihood Outcomes: Dependent Variable is Log of Household Consumption Expenditure (Shillings)

| | <i>OLS Regressions</i> | | | | | |
|----------------------------|------------------------|----------------------|---------------------|----------------------|----------------------|----------------------|
| | (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 [3.54]*** | 0.1561 [2.99]*** | 0.1737 [3.29]*** | 0.1856 [3.61]*** | 0.1731 [3.39]*** | 0.2056 [4.01]*** |
| Gender (1=male) | -0.0478 [0.33] | -0.0816 [0.54] | -0.0815 [0.56] | -0.0367 [0.26] | -0.0752 [0.51] | -0.0508 [0.33] |
| Years of schooling | 0.0403 [3.63]*** | 0.0379 [3.34]*** | 0.0394 [3.51]*** | 0.0408 [3.64]*** | 0.0395 [3.52]*** | 0.0365 [3.32]*** |
| Age | 0.0477 [2.86]*** | 0.0459 [2.80]*** | 0.046 [2.76]*** | 0.0493 [3.09]*** | 0.0457 [2.70]*** | 0.0487 [3.08]*** |
| Age squared | -0.0004 [2.61]*** | -0.0004 [2.60]*** | -0.0004 [2.55]** | -0.0004 [2.80]*** | -0.0004 [2.49]** | -0.0004 [2.85]*** |
| Marital status (1=married) | 0.1534 [0.84] | 0.1681 [0.90] | 0.1605 [0.87] | 0.1541 [0.85] | 0.1571 [0.85] | 0.1875 [1.00] |
| Constant | 9.4228 [21.60]*** | 9.4852 [22.31]*** | 9.473 [21.97]*** | 9.3759 [22.47]*** | 9.4803 [21.66]*** | 9.41 [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.

The R-squared suggests that the variables explain between 16 and 23 percent of the variation in the log of the household expenditure. This level of explanation is not unexpected of cross sectional data. The Chow (F) test, however 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 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 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 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 however suggest a direct impact on livelihoods. Our 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 thesis 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 Uphoff (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 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.

6.1.2 Impact of Instrumented Social Capital on Household Consumption Expenditure

Introduction

The model of household consumption expenditure underlying this thesis assumes that social capital, (like human capital) is a consumption good. Descriptive analysis of the social capital quintiles in the last chapter indicated that households with high social capital can have better livelihoods and access to assets especially human capital. Benefits to households' survival are maximized through various social capital activities including mutual support through social networking, collective action, cooperation, and community empowerment among households of different socioeconomic backgrounds. The demand for social capital could also rise with improved household livelihoods implying that there could be endogeneity of social capital over livelihoods. In estimating the impact of social capital on livelihoods, it is important to test for the endogeneity of social capital and if indeed, it is found to be endogenous, to apply appropriate estimation methods to ensure that we obtain unbiased estimates of social capital on livelihoods. If social capital is exogenous, there would be no justification of estimating a structural model of

livelihoods because a reduced form model would still yield consistent parameter estimates for social capital.

Testing Endogeneity of Aggregate Social Capital

Endogeneity of aggregate social capital is tested using the Durbin Wu-Hausman specification test for endogeneity (Wooldridge, 2002). The null hypothesis is that, social capital is exogenous in the livelihoods model. The procedure involves estimation of an instrumental variable model and then calculating the Durbin Wu-Hausman test statistics (both F-statistic and Chi-sq).

Table 6.2: Testing for the Endogeneity of Social Capital

| <i>Social capital variables</i> | <i>Wu-Hausman F test</i> | <i>Durbin-Wu-Hausman chi-sq test</i> |
|---------------------------------|--|--|
| Aggregate social capital | 6.757 F(1, 244) p-value= (0.010)*** | 6.817 Chi-sq(1) p-value= (0.009)*** |

***significant at 1%

The p-values for the F-statistic and Chi-sq test statistics shown in Table 6.2 indicate that aggregate social capital is highly significant at 1 percent suggesting rejection of the null hypothesis of exogenous social capital. Thus, the reduced form livelihoods model results presented in the previous section yielded biased estimates of the impact of social capital on livelihood outcomes.

Testing for Validity of Instruments

The instrumental variable approach entails employing valid instrumental variables that affect social capital but have no impact on livelihoods. One major challenge is to identify good instruments i.e., strong, significant and uncorrelated with the error term of the livelihoods model.

There are various approaches to testing for validity of instruments. One is the parameter restrictions approach whereby we estimate a reduced form livelihoods model (OLS) and probit model with endogenous social capital and include the selected instrumental variables. If they turn out to be significant determinants of livelihoods, they are invalid instruments. In the study, we test for the validity of three instrumental variables: religion of the household head, lobbying (petitioning of leaders) for provision of social services to the community, and the exercising of democratic rights in terms of voting rates in the last general elections.

The results in Table 6.3 indicate that the coefficient for the lobbying variable is highly significant at 1 percent in the livelihoods model but insignificant in the probit model. We therefore cannot conclude with certainty that the lobbying variable is an invalid instrument. Further tests are necessary to ascertain the validity status. The results further show that the other two instruments: religion of the household head and the democratic rights variables are not significant in either model.

Table 6.3: Testing for Validity of Instruments

| | <i>OLS</i> | <i>Probit</i> |
|-------------------------------|----------------------|----------------------|
| Aggregate social capital | -0.0608 [0.92] | 0.188 [1.34] |
| Wealth score | 0.2041 [3.86]*** | -0.4554 [3.93]*** |
| Gender (1=male) | -0.0443 [0.32] | 0.0862 [0.39] |
| Years of schooling | 0.0398 [3.64]*** | -0.0198 [0.85] |
| Age | 0.047 [2.71]*** | -0.0651 [1.74]* |
| Age squared | -0.0004 [2.52]** | 0.0005 [1.54] |
| Marital status (1=married) | 0.1841 [1.00] | 0.3268 [1.27] |
| Religion (1=protestant) | -0.0012 [0.01] | -0.2817 [1.63] |
| Petitioning leaders (1=never) | -0.2687 [2.77]*** | 0.1965 [1.07] |
| Proportion voted | -0.0282 [0.07] | 0.7879 [0.96] |
| Constant | 9.5631 [21.55]*** | 1.015 [0.89] |
| Observations | 253 | 253 |
| R-squared | 0.2 | |
| F-statistic (10, 242) | [6.71]*** | |
| Log likelihood | | -155.8 |
| Wald Chi2 (10) | | 34.2*** |

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

A second test for validity of instruments is to check whether our structural model is correctly identified. The procedure involves estimation of the IV model and calculating the Sargan and Basman test statistics for over-identifying restrictions. The results are presented in Table 6.4. The null hypothesis is that the restrictions hold (i.e., there are over-identifying restrictions in the livelihoods model) implying that the basic livelihoods model will generate a consistent estimator of the error variance under the null of instrument validity, i.e., the instrumental variables are uncorrelated with the residual log consumption, and therefore are acceptable instruments (Baum, et al. 2003). This restriction cannot be rejected (table 6.4), and so the instruments are valid.

Table 6.4: Testing for the Over-identification Restrictions

| <i>Social capital variables</i> | <i>Sargan N*R-sq test</i> | <i>Basman test</i> |
|---------------------------------|-------------------------------------|-------------------------------------|
| Aggregate social capital | 2.501 Chi-sq(2) p-value = 0.2863 | 2.426 Chi-sq(2) p-value = 0.2973 |

The results show that both tests yield insignificant test statistics which do not reject the null hypothesis of over identification restrictions. We can therefore conclude that the model is correctly specified and that the 3 instruments (religion, lobbying, and democratic rights) are valid for addressing the endogeneity problem.

Impact of Instrumented Social Capital

Table 6.5 presents empirical results of the livelihoods model controlling for the endogeneity of social capital and for heterogeneity bias springing from the effect of unobserved covariates of livelihoods that are correlated with social capital. The first two models represent the control function approach (CFA) models for correcting structural parameters for any heterogeneity biases in the livelihoods model. The third model specification is the instrumental variable model to correct for endogeneity of social capital.

The results in all the three specifications indicate that, contrary to previous studies, total household consumption expenditure is inversely associated with aggregate social capital. This supports the earlier finding in section 6.1 of this thesis and seems to indicate that aggregate social capital reduces household welfare. Contrary to this simple interpretation, the finding suggests that households with large social capital endowments are able to generate livelihood sources that support non-monetary forms of exchange. Furthermore, aggregate social capital can

enable households to increase consumption without increasing cash expenditure and without relying on self-purchased goods.

Table 6.5: Household Livelihoods Model and Aggregate Social Capital: Dependent Variable is Log of Household Consumption Expenditure (Shillings)

| | <i>CFA Specification</i> | | <i>Instrumental Variables Specification</i> | |
|---|--------------------------|----------------------|---|-----------------------------|
| | (1) | (2) | <i>1nd Stage</i> | <i>2st Stage</i> |
| Aggregate social capital | -0.1838 [3.10]*** | -0.4259 [3.40]*** | | -0.5420 [2.97]*** |
| Residual term | -0.1892 [2.67]*** | -0.1778 [2.38]** | | |
| Interaction with residual | | 0.3171 [2.35]** | | |
| Wealth score | 0.2046 [3.85]*** | 0.1574 [2.66]*** | 0.0500 [0.95] | 0.2213 [3.47]*** |
| Gender (1=male) | -0.1126 [0.78] | -0.0171 [0.13] | 0.1614 [1.50] | 0.0415 [0.31] |
| Years of schooling | 0.0422 [3.84]*** | 0.0398 [3.69]*** | -0.0061 [0.54] | 0.0431 [3.19]*** |
| Age | 0.0517 [3.07]*** | 0.0657 [3.72]*** | 0.0149 [0.92] | 0.0532 [2.84]*** |
| Age squared | -0.0005 [2.83]*** | -0.0006 [3.41]*** | -0.0001 [0.48] | -0.0004 [2.49]*** |
| Marital status (1=married) | 0.1828 [1.01] | 0.1529 [0.89] | -0.0745 [0.60] | 0.13354 [0.91] |
| Religion (1=Protestant) | | | -0.1923 [2.37]** | |
| Petitioning leaders (1=yes, petitioned) | | | 0.4771 [5.99]*** | |
| Proportion voted | | | -0.0118 [0.03] | |
| Constant | 9.4332 [21.50]*** | 8.9989 [18.05]*** | -0.4631 [0.96] | 9.2684 [18.45]*** |
| Observations | 253 | 253 | 253 | 253 |
| R-squared | 0.19 | 0.21 | | |
| F-statistic (8, 9, 7, 2; 244;243) | [7.86]*** | [9.58]*** | 14.18*** | [7.19]*** |
| Partial R-squared | | | 0.15 | |

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

This non-monetary exchange is presumed to reduce transactions demand for cash and facilitate household savings. Though these results would be seen to support literature on ‘bad’ social capital, it implies that aggregate social capital in our sample is a public rather than a private good. Inclusion of both social capital and its residual in specification (1) tests whether social capital is really endogenous and the residual purges the coefficient of social capital for any possible bias.

The results are consistent with the instrumental variable results, in terms of the signs of the coefficients as well as level of significance. Inclusion of the social capital residual and interaction term of social capital and social capital residual, specification (2), takes into account the heterogeneity of the response of livelihoods to social capital. The most important result to note is that the direction of the influence and the level of significance of the aggregate social capital and the residual term are consistent with the IV results but differ slightly in the magnitude of the coefficients.

The reduced form social capital residual is negatively correlated with livelihoods and the coefficient is highly significant. The significance of the residual, specification (1), suggests that social capital is endogenous to livelihoods and that IV is the correct estimation procedure. However, the resulting standard errors of estimated parameters need to be adjusted because the generated regressors introduce elements of error terms from social capital equation into the disturbance term of the structural equation (Wooldridge, 2002; Mwabu, 2009). This is done by introducing the interaction of social capital and residuals into the model. This increases the magnitude of the coefficient of the aggregate social capital by more than double but reduces that of the residual marginally.

The interaction term has a positive and significant impact on livelihoods. The significance of the interaction of the residual and aggregate social capital suggests the presence of heterogeneity arising from interaction of livelihoods with unobserved determinants of social capital such as virtues and traditions of households. The significant impact of the residual and the interaction term between social capital and its fitted residuals further suggest that the IV estimates are unbiased and consistent.

The results also show that households' livelihoods are positively and significantly influenced by wealth score, human capital, and age variables.

6.2 Impact of Social Capital on Poverty Status

This section addresses the question whether ownership of social capital assets helps households to move to a higher level of livelihoods. To address this question, the study estimated a model of the likelihood of being poor. Section 6.2.1 presents the impact of endogenous social capital while section 6.2.2 deals with the impact of instrumented social capital, on poverty status.

6.2.1 Impact of Endogenous Social Capital on Poverty Status

The results presented in Table 6.6 indicate impact of aggregate social capital and five dimensions (group and networks, trust and solidarity, collective action and cooperation, social cohesion and inclusion, and empowerment and political action) shown as models (1)-(6) on the probability of a rural household being poor.

The Wald (Chi 2) test estimates for social capital variables in Table 6.6 indicate that the model fits the data quite well. The null hypothesis that the joint impact of regressors is zero can be rejected at all levels of significance. As in the previous section, the influence of social capital type on the probability of a household being poor is negative or positive depending on whether social capital is considered as facilitating consumption of a private good or a public good. Two social capital types (groups and networks and social cohesion and inclusion) are considered in this thesis as private goods which reduce the probability of a rural household being poor.

The coefficient for groups and networks social capital is negative and significant at 10 percent suggesting that a unit increase in the level of endowment of groups and networks social capital will lead to a reduction in probability of a household being poor by 0.22. On the other hand, three social capital types (trust and solidarity, collective action and cooperation, and empowerment and political action) are positive and will reduce the probability of a household being poor without necessarily increasing a household's income (i.e., will reduce the need for cash expenditure).

If these types of social capital reduce the need for cash expenditure, household consumption will fall, making the household look poorer, but in fact the household is better off because the overall consumption expenditure of the household (non-cash and cash) has increased due to an increase in the public good facilitating role of social capital. Indeed, social and political empowerment increase consumption, of public good, such as., water, education, health care, without the need to pay for them, thus reducing household expenditure on these.

Table 6.6: Impact of Various Social Capital Components on Livelihood Outcomes: Dependent Variable is Probability of being Poor

| | (1) | (2) | (3) | (4) | (5) | (6) |
|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|
| Aggregate social capital | 0.2682 [2.12]** | | | | | |
| Groups & networks | | -0.2175 [1.92]* | | | | |
| Trust & solidarity | | | 0.0677 [0.44] | | | |
| Collective action/c | | | | 0.3424 [2.23]** | | |
| Social cohesion/incl | | | | | -0.182 [1.08] | |
| Empowerment/pa | | | | | | 0.4634 [3.54]*** |
| Wealth score | -0.4432 [3.93]*** | -0.3905 [3.45]*** | -0.4182 [3.76]*** | -0.4356 [3.94]*** | -0.3959 [3.54]*** | -0.481 [4.01]*** |
| Gender (1=male) | 0.1226 [0.56] | 0.1873 [0.85] | 0.1646 [0.75] | 0.1204 [0.55] | 0.1643 [0.76] | 0.1478 [0.67] |
| Years of schooling | -0.0202 [0.86] | -0.0144 [0.60] | -0.0174 [0.73] | -0.0193 [0.81] | -0.0192 [0.81] | -0.0132 [0.54] |
| Age | -0.0592 [1.65]* | -0.0567 [1.63] | -0.0554 [1.58] | -0.0593 [1.66]* | -0.0534 [1.51] | -0.0641 [1.73]* |
| Age squared | 0.0005 [1.42] | 0.0005 [1.46] | 0.0004 [1.39] | 0.0005 [1.44] | 0.0004 [1.32] | 0.0005 [1.54] |
| Marital status (1=married) | 0.3285 [1.29] | 0.3067 [1.20] | 0.3189 [1.26] | 0.3245 [1.28] | 0.3419 [1.35] | 0.2859 [1.11] |
| Constant | 1.4788 [1.48] | 1.3625 [1.40] | 1.3623 [1.38] | 1.4781 [1.48] | 1.3002 [1.31] | 1.5584 [1.52] |
| Observations | 253 | 253 | 253 | 253 | 253 | 253 |
| Log likelihood | -158.0 | -158.4 | -160.2 | -157.8 | -160.0 | -153.7 |
| Wald Chi2 (7) | 28.7*** | 29.17*** | 25.66*** | 30.01*** | 25.25*** | 39.94*** |

Robust *z* statistics in brackets; *significant at 10%; ** significant at 5%; *** significant at 1%. Level.

6.2.2 Impact of Instrumented Social Capital on Poverty Status

Table 6.7 presents the empirical results pertaining to the probability of being poor.

Table 6.7: Impact of Aggregate Social Capital on Poverty Status: Dependent Variable is Probability of being Poor (1=poor)

| | CFA Specification | | Instrumental Variables Specification | |
|------------------------------|----------------------|----------------------|--------------------------------------|-----------------------|
| | (1) | (2) | 1 nd Stage | 2 st Stage |
| Aggregate social capital | 0.2086 [2.34]** | 0.2438 [2.64]*** | | 0.2421 [2.15]** |
| Residual term | -0.1305 [1.37] | -0.1182 [1.23] | | |
| Interaction with residual | | 0.1565 [2.26]** | | |
| Wealth score | -0.1582 [3.37]*** | -0.1778 [3.60]*** | 0.0500 [0.95] | -0.1758 [4.27]*** |
| Gender (1= male) | 0.0137 [0.15] | 0.0768 [0.81] | 0.1614 [1.50] | 0.0067 [0.08] |
| Years of schooling | -0.0072 [0.77] | -0.009 [0.96] | -0.0061 [0.54] | -0.0074 [0.85] |
| Age | -0.0296 [2.01]** | -0.0331 [2.21]** | 0.0149 [0.92] | -0.0215 [1.78]* |
| Age squared | 0.0002 [1.72]* | 0.0003 [1.96]* | -0.0001 [0.48] | 0.0002 [1.43] |
| Marital status (1 = married) | 0.1431 [1.41] | 0.1157 [1.14] | -0.0745 [0.60] | 0.1283 [1.34] |
| Religion (1= Protestant) | | | -0.1923 [2.37]** | |
| Lobbying leaders (1 = yes) | | | 0.4771 [5.99]*** | |
| Proportion voted | | | -0.0118 [0.03] | |
| Constant | | | -0.4631 [0.96] | 1.0358 [3.19]*** |
| Observations | 253 | 253 | 253 | 253 |
| Log likelihood | -157.1 | -154.3 | | |
| Wald Chi2 (8) | 32.4*** | 33.1*** | | |
| F-statistic (7, 3; 243) | | | 14.18*** | 4.46*** |
| Partial R-squared | | | 0.15 | -0.1758 |

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

We estimate four models that ideally allow for correction of structural parameters for biases due to endogeneity of aggregate social capital and heterogeneity bias over livelihoods. Model (1) is a reduced form model with a social capital residual (a linear projection of the endogenous aggregate social capital variable). The residual is predicted from a reduced form aggregate social capital model.

The second model (2), includes the non-linear interactions between unobservable household characteristics and the endogenous aggregate social capital variable as well as the residual term. These two models constitute the control function approach. The control function approach provides control for the effects of unobservable factors that would otherwise contaminate the estimates of structural parameters of the households' livelihoods (Heckman and Robb, 1985; Mwabu, 2009). For example, the residual model provides a control for unobservable variables that are correlated with the endogenous variable allowing it to be treated as if it were exogenous during estimation. The interaction model controls for the effects of neglected non-linear interactions of unobservable variables with the endogenous aggregate social capital. The third and fourth models indicate the instrumental variable model that corrects for endogeneity of social capital. Model 3 is the social capital (1st stage) and model 4 is the instrumented poverty status (2nd stage) model.

The Wald (Chi 2) and the Chow (F) test estimates for social capital variables in Table 6.7 indicate that the model fits the data quite well. The null hypothesis that the joint impact of regressors is zero can be rejected at all levels of significance. The results show that aggregate social capital affects a household's probability of being poor. In particular, it is found that the probability of being poor is positively associated with aggregate social capital in all the three specifications. This result is consistent with the finding in the previous sections 6.1 and 6.2. As detailed in those sections, the implication of this finding is deeper than the simple interpretation that aggregate social capital reduces household welfare. Rather, the finding suggests that households with larger social capital endowments are able to meet their basic needs through non-cash transactions. Thus, aggregate social capital enables those households to reduce their probability of being poor.

The results further indicate that the coefficient of the residual variable in the interaction model is significant suggesting that endogeneity of aggregate social capital is of consequence in the livelihood outcomes of households.

The coefficient of the interaction term in model (2) is significant at 5 percent indicating existence of heterogeneity bias in the livelihood outcomes. Since we have 3 instruments and only one endogenous variable, it is possible that our structural model is over identified in that the extra instruments may be correlated with the disturbance term of the probability of being poor. This forms the null hypothesis of over-identifying restrictions that covariance of the disturbance term for the poverty equation with the instruments is zero. The first-stage results for the F-statistic ($F=14.18$) on excluded instruments show that, the over-identifying restrictions generally hold while the partial R-squared indicates that the predictive strength of the instruments in the reduced-form equation is about 15 percent.

The results also show that the coefficient for wealth score is negative and highly significant at 1 percent suggesting that wealth is an important factor in reducing probability of being poor. The human capital variable has a negative but insignificant coefficient. The coefficient for age variable is negative and significant at varying degrees. The coefficients for the male gender and marital status dummies are positive and insignificant. The results for the non-social capital variables recorded in Table 6.7 exhibit a similar pattern as in Table 6.6.

6.3 Summary

This chapter presents empirical results of the investigation of the impact of social capital on livelihoods of households in Kenya. Results of the descriptive analysis in the previous chapter are indicative that a higher level of social capital ownership among households brings about better livelihoods especially in crop production and access to higher levels of human capital. The results of the analysis also show that ownership of social capital is higher among the poorest households than among other socioeconomic groups. The empirical investigation process in this chapter entailed correcting structural parameters for endogeneity of aggregate social capital variable in the livelihood model. We used the Durbin Wu-Hausman specification tests for endogeneity. One major challenge was to identify valid instrumental variables that affect social capital but have no significant impact on livelihoods. Three instruments tested for validity were

religion of the household head, lobbying leaders for something benefiting the community, and democratic concerns in terms of voting rates in last general elections, using both the parameter restrictions and over-identifying restrictions approaches. 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 our sample 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 the households to participate in various welfare generating activities or a public good resulting in substitution and savings opportunities. In this chapter, an important innovation over all cited studies is that we control for both endogeneity of social capital and for possible heterogeneity bias that could arise from unobservable factors correlated with social capital. The results show that this lowers the estimated impact of social capital from -0.1325 to -0.5420. This suggests that failure to control for endogeneity and heterogeneity would overestimate the impact of aggregate social capital on livelihoods and therefore lead to misleading policy conclusions.

CHAPTER 7

SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

7.0 Introduction

This study investigates the role of social capital in the livelihoods of households in rural Kenya. The main motivation of the study is to contribute towards Kenya's rural sector development policies and programs. Available evidence indicates a declining trend in the performance of the rural sector for most of the periods since independence in spite of the country's concerted efforts in transforming the rural economy. One of the possible reasons for poor performance of the rural economy and rising poverty despite government efforts to combat it, as advanced by recent researchers on poverty in Kenya, is policy failure. Adopted policies have not adequately impacted development because of weaknesses in implementing institutions and mechanisms. Other reasons, highlighted in this study for policy failure in leading to anticipated higher levels of rural transformation, are gaps in policy formulation. The existence of policy gaps is explained in this study in two ways. One explanation is that the national policies have remained on a small enclave in the sense that, while focusing on major issues such as trade, privatization, labor, foreign investment, and so on, they have not favored indigenously-based local economies since they ignore societal values. Policy formulation process in Kenya does not embrace all the resources, with little attention paid, to the social capital resource. Social capital is important in shaping patterns of households' engagement with the community and the economy. Rural communities depend on social capital to manage risk. Rural households endowed with social capital would promote rural development and improve their livelihoods and welfare.

The other explanation for existence of gaps in policy formulation exercises is inadequate application of the rural diversification strategy. For many years, rural sector development in Kenya relied, as in many other developing countries, only on the 'growth alone' strategy that ignored the diverse dimension of rural livelihoods other than success at farming. Thus, the rural poor with sources of livelihoods other than farming did not receive much attention in the rural development mainstream. The rural diversification strategy is wider than the growth 'alone' strategy and embraces other processes such as the agro-industrialization and creation of rural entrepreneurial economies and communities. Emphasis on the agro-industrialization strategy in

Kenya is only recent as presented in the industrial transformation strategy in the second half of 1990s, whereas the strategy of the creation of rural entrepreneurial economies and communities is a new concept.

The study approach confined the investigation of the role of social capital in the rural livelihoods of households into three objectives. The first objective investigated the nature and dimensions of social capital in rural Kenya. The second objective investigated the sources and covariates (determinants) of social capital in rural Kenya. The third objective investigated the impact of social capital on the livelihoods of rural households in Kenya with reference to Nyeri district. This objective formed the basis for the key study hypothesis that, ‘social capital influences livelihoods of rural households in Kenya.’

The study used primary data for a sample of 340 households from wider Nyeri district. The data collected included social capital, household characteristics, and other socioeconomic variables. Various social capital indicators were constructed using PFA technique. Using descriptive and econometric methods, the study has analyzed the importance of social capital in the livelihoods of households, after controlling for endogeneity and heterogeneity bias. The rest of the chapter is structured as follows. Section 7.1 presents summary and conclusion. Section 7.2 focuses on policy implications while section 7.3 suggests areas for further research.

7.1 Summary and Conclusion

Nature and Dimensions of Social Capital

The findings of the study show that Nyeri district has a negative value (-0.252) of the overall social capital, suggesting that the level of aggregate social capital in the district is low. The largest contribution to the aggregate level of social capital is from the social cohesion and inclusion indicator, while the least contributing dimension is collective action and cooperation. The findings also show distinct differences in levels of social capital in the district across the rural-urban, gender, and religion divides. The ownership of social capital in the district is predominantly among the rural dwellers, men and Catholics. The finding that the level of social capital is significantly higher in rural than urban areas is as would be expected. This is because the main engagement among the rural households is farming and the social life is such that

people tend to have a lot to do in common and time for each other which is vital in building strong social relations. This is in contrast to the lifestyles of the urban households who have varied economic activities and people tend to have little time for each other. The results also indicate that endowment of social capital is strongest among the middle aged, the married, and the least educated people. This suggests that strong endowment of social capital for such groups is valuable for building intra-community relations, facilitating participation in community projects, creating and strengthening mutual support mechanisms and social unity.

Further study findings show that strong endowment in social capital is important for household engagement in main sources of livelihoods. On the one hand, households strongly endowed in all social capital types, except social cohesion and inclusion dimension, will be engaged in crop production activities as main sources of livelihoods. On the other hand, households' strong endowment in groups and networks, social cohesion and inclusion, as well as empowerment and political action social capital types, will facilitate their engagement in non-farm activities. This finding suggests that social capital can be an important factor in the livelihood diversification strategy of households. The results also indicate that the richest socioeconomic groups have lower levels of aggregate social capital in contrast to all other groups. The poorest and second poorest groups have the highest levels of aggregate social capital. This result is consistent with Grootaert (1999) and suggests that social capital is indeed capital of the poor.

Results of the descriptive analysis in Chapter 5 show strong overall pattern of co-variation between aggregate social capital, livelihood sources, household consumption, and asset endowment. The results suggest that livelihoods with higher levels of aggregate social capital endowment have better livelihoods especially from crop production, almost the same access level to assets including human capital, and wealth. The results further show that ownership of aggregate social capital is higher among the poorest households than among other socioeconomic groups, making such groups better off than comparable groups without social capital. This finding suggests the need to promote rural social networks as a strategy for raising standards of living of the rural households.

The analyses provide important insights about the nature of the strategy (in terms of assets and activities) pursued by the households in their livelihood diversification. This gives an indicative answer to the third research question regarding the composition of survival portfolio of rural households in Kenya. The results indicate that, social capital asset is an important component of a household's survival portfolio.

Sources and Covariates of Social Capital

This thesis investigates the sources and covariates of social capital in chapter 5. Results are obtained for individual dimensions of social capital and also for aggregate social capital. The OLS model results for social capital show that the wealth score variable has an inverse relationship with aggregate social capital. This suggests that economic well-being of a household as measured by the wealth score leads to a fall of aggregate social capital. This is not unexpected because poor households do not have access to most resources because they may form mutual support social networks that enable them pool resources together. The result for wealth score in various social capital dimensions is mixed being direct or positive in groups and networks, social cohesion and inclusion, and empowerment and political action; and indirect (negative) in trust and solidarity and collective action and cooperation. The male gender dummy variable has a positive and significant coefficient at 5 percent in the aggregate social capital model suggesting that relative to females a unit increase in male headed households would lead to an increase in endowment of aggregate social capital of the household by 0.252 units. The result for male gender dummy among social capital dimensions is mixed, though only one dimension (trust and solidarity indicator model) is significantly affected by this variable.

The coefficient for the human capital variable (years of schooling) is negative but insignificant in the aggregate social capital model and in all social capital dimensions except the groups and networks, for which there is a positive and insignificant coefficient. This indicates that level of social capital endowment tends to decline with level of education but the impact is not significant. The coefficient of the age variable is positive and significant at 1 percent in the aggregate social capital model but its effects in the models of social capital dimensions are mixed. The coefficient for age squared is negative and significant at 5 percent in both the aggregate social capital and collective action and cooperation models indicating an inverse U

shaped relationship between age and social capital suggesting that level of social capital endowment declines with age squared. The Protestant religion dummy variable has a negative and significant coefficient at 5 percent in the aggregate social capital model implying that relative to Catholicism, belonging to the Protestant faith reduces aggregate social capital endowment of the household by 0.177. The coefficient of the variable of lobbying leaders is positive and significant at for all the social capital models except the social cohesion and inclusion. The democratic rights variable has a positive significant impact on empowerment and political action. These results suggest that the level of social capital endowment increases with the level of lobbying leaders and proportion voting variables. This result is not surprising because the lobbying for support and voting for leadership activities tend to increase cohesiveness of communities in pursuing their rights.

Impact of Social Capital and other Factors on Rural Livelihoods

This section focuses on the third objective of the study which is to investigate the effects of social capital on the households' livelihoods. In the empirical investigation, we control for endogeneity of social capital and heterogeneity bias over livelihoods. The empirical results indicate that aggregate social capital significantly affects total household expenditure. In particular, total household expenditure is negatively associated with aggregate social capital, suggesting that households with large social capital endowments are able to meet their basic needs through non-cash exchanges. There is evidence from Nyeri district that social capital enables poor households to generate livelihood sources of basic needs that support non-monetary forms of transactions. This supports results of descriptive statistics which indicate that a higher level social capital endowment among households brings about better livelihoods especially in crop production and access to assets including human capital.

The empirical results suggest that households with large aggregate social capital do substitute their cash expenditure needs with social capital and save for future consumption. The results for the various social capital dimensions differ. For instance, the results for the collective action and cooperation and empowerment and political action dimensions show inverse relation with livelihoods. This suggests a public goods role of social capital. The two social capital types empower the community to lobby leaders for provision of goods and services, which households

consume without engaging in cash-exchanges. On the other hand, groups and networks, trust and solidarity, and social cohesion and inclusion dimensions show direct relation with livelihoods suggesting a private goods role of social capital. Households are thus facilitated to participate in welfare generating activities such as access to different forms of credit.

The empirical results further show that the livelihoods of households are positively and significantly influenced by human capital and age variables. The Instrumental Variable and Control Function Approach results suggest the importance of controlling for endogeneity and heterogeneity in social capital-livelihoods nexus. Failure to take into account these problems, tend to overestimate the impact of social capital on livelihoods.

7.2 Policy Implications

Evidence from available literature suggests that one of the main causes for continued poor performance of Kenya's rural sector is policy failure. This is attributed to two reasons: First is the weaknesses in institutions and mechanisms in implementing the adopted policies. This aspect of the policy failure is beyond the scope of this study. Second is the narrowness of the policy focus due to gaps in policy formulation process. The study has identified the policy gap as two-fold. One, the policy formulation process has not been favorable to indigenously-based local economies since it ignores societal values. The policy formulation process in Kenya has not embraced some key resources such as social capital on which rural communities can depend on to manage risk as well as for livelihoods. Two, the policy gap in terms of inadequate application of the rural diversification strategy as the main emphasis was, for several years, placed on farming with consequent result that rural households with sources of livelihoods other than farming did not receive much attention in the rural development mainstream. Rural households endowed with social capital can promote rural development and improve their livelihoods and welfare. One of the key findings of this study is that rural households in Kenya are endowed with social capital. This thesis addresses these policy gaps by investigating the sources and covariates of social capital and also investigating the impact of social capital on rural livelihoods in Kenya. The results of this thesis have implications for Kenya's rural sector development policies and programs.

The results from the descriptive analysis provide important insights about the nature of the strategy (in terms of assets and activities) pursued by the households in their livelihood diversification endeavors. Strong endowment in social capital is important for households' engagement in main sources of livelihoods. On the one hand, households strongly endowed in all social capital types, except social cohesion and inclusion dimension, seem to be engaged in crop production activities as main sources of livelihoods. On the other hand, households' strong endowment in groups and networks, social cohesion and inclusion, as well as empowerment and political action social capital types, will facilitate their participation in non-farm activities. The results of this thesis also indicate that social capital asset is an important component of a household's survival portfolio and that social capital enables poor households to generate livelihoods sources that support non-monetary forms of transactions. These findings suggest the need to promote rural social networks as a strategy for raising standards of living of the poor.

Drawing from the study findings, the following can be considered as important policy initiatives for possible role of social capital as a resource and a process in facilitating the improvement of livelihoods of rural households in Kenya.

The government can institutionalize the measurement of social capital. This would require creating a data base of social capital formation for Kenya. Measures of social capital will provide additional social indicators of standard of living and well-being that the current range of socioeconomic and demographic indicators do not fully or adequately explain. Institutionalizing the measurement of social capital translates into incorporating a social capital perspective into public policy. It would therefore be important to incorporate social capital dimensions in national surveys. Another important policy initiative is promoting rural social networks and interactions, cooperation and bonding activities among households as well as community empowerment. This policy aims at enhancing development of social capital since social capital asset is an important component of a household's survival portfolio that enhances its engagement in various sources of livelihoods. One of the ways of enhancing development of social capital is increasing the households' cohesiveness to be able to lobby leaders for the provision of services as well as increasing the women's' participation in social capital activities. 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. As grassroots institutions, NGOs and CBOs should be encouraged to increase their role in mobilizing societies to invest in social capital.

Another important policy is the need to take into account endogeneity and heterogeneity in estimating the impact of social capital on livelihoods. For example, our empirical results show that the impact of aggregate social capital on livelihoods (-0.5420) is unbiased and consistent compared to the value under endogeneity (-0.1325). Failure in controlling for endogeneity of social capital and the heterogeneity bias therefore would lead to misleading policy conclusions. Another important policy is improving government budget allocations. Government budget is 'always' too small to cover all the costs and needs of the people. The government has to decide where and how to allocate the resources. The integration of social capital into policies will, in the long run, lead to a more efficient allocation of the budget. This does not necessarily imply more capital investment but more precise and effective use of existing resources, taking into account the substitution and savings behavior of households as facilitated by social capital. Another important policy is increasing asset generating activities for the rural households. The aim of this policy is to enable the households to create the necessary wealth for survival. The results also imply that improving access to schooling is another important policy aspect for improving livelihoods of the rural households.

7.3 Proposed Areas for Further Research

This thesis makes an important contribution to the literature on social capital in Kenya. However, there are a number of issues that the reader needs to bear in mind. First the study was limited by the nature of data available. Though we collected data on all possible forms of social capital and livelihoods, the scope of the study was limited by time and financial constraints, thus restricting the study to only one out of 210 districts. For this reason, the results are only suggestive of the impact of social capital in rural Kenya and should be generalized with caution given the heterogeneity of households in the country. There is need for a national study to document the actual impact of social capital on household livelihoods in Kenya. Findings of this study suggest

that social capital may affect cash and non-cash consumption differently. To fully understand these differential impacts, future studies will need to disentangle the impacts on own consumption, purchased consumption and also credit sourced (both cash and in-kind) consumption. This would help to fully uncover the substitution impact of social capital.

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ANNEXES

Annex I: Selected Sample Statistics

Table A1: Summary Statistics of Selected Model Variables in Estimated Models

| | <i>Rural</i> | | <i>Urban</i> | | <i>All</i> | |
|--|--------------|----------|--------------|----------|------------|----------|
| | Mean | Std dev | Mean | Std dev | Mean | Std dev |
| Aggregate social capital | 0.27032 | 0.676714 | -0.99117 | 0.906316 | -1.25E-09 | 0.895702 |
| groups & networks | -0.01014 | 0.755211 | -0.00013 | 0.801758 | -0.00799 | 0.764157 |
| Trust & solidarity | 0.149162 | 0.55918 | -0.54121 | 0.661274 | 0.001225 | 0.646992 |
| Collective action & cooperation | 0.167336 | 0.547626 | -0.62533 | 0.771861 | -0.00252 | 0.683928 |
| Social cohesion & inclusion | -0.14374 | 0.527735 | 0.560604 | 0.543129 | 0.007191 | 0.604083 |
| Empowerment & political action | 0.059865 | 0.666543 | -0.22052 | 0.677799 | -0.00022 | 0.677775 |
| Wealth score | -0.30318 | 0.798668 | 1.12174 | 0.770549 | 0.002163 | 0.984607 |
| Gender (1=male) | 0.664032 | 0.473264 | 0.666667 | 0.474858 | 0.664596 | 0.472866 |
| Years of schooling | 7.822134 | 4.575208 | 12.44928 | 3.155463 | 8.813665 | 4.707262 |
| Age | 51.3913 | 15.55383 | 35.21739 | 8.744527 | 47.92547 | 15.82086 |
| Age squared | 2882.032 | 1693.401 | 1315.623 | 670.5518 | 2546.373 | 1661.582 |
| Marital status (1= married) | 0.770751 | 0.421183 | 0.985507 | 0.120386 | 0.81677 | 0.387457 |
| Religion (1= protestant) | 0.616601 | 0.487178 | 0.666667 | 0.474858 | 0.627329 | 0.484268 |
| Petitioning leaders (1= yes) | 0.462451 | 0.499576 | 0.202899 | 0.405104 | 0.406832 | 0.492008 |
| Proportion voting in general elections | 0.928854 | 0.10616 | 0.826087 | 0.381812 | 0.906832 | 0.131201 |
| Observations | 253 | | 69 | | 322 | |

Annex II: Survey Questionnaire

Household Questionnaire

| Identification | | | |
|---|--|--------------------------------|---|
| HH01. Cluster (EA) Name..... | | HH02.Cluster Number: | |
| _ _ _ _ _ _ _ | | _ _ _ _ | |
| HH03.Household Number: _ _ _ _ _ | | | |
| HH04. District..... | | _ _ _ _ _ | |
| HH05. Residence(Rural =1,Urban=2) _ _ _ | | | |
| HH06. Interviewer's Name: _____ | | HH07. Supervisor's Name: _____ | |
| Interviewer's Number: _ _ _ _ | | Supervisor's Number: _ _ _ | |
| Interview visits | | | |
| Visit1 | Visit2 | Final Visit | Supervisor's Check |
| Day..... _ _ _ | Day..... _ _ | Day..... _ _ | Day..... |
| Month..... _ _ | Month..... _ _ | Month..... _ _ | Month..... _ _ |
| _ | _ | _ | _ |
| ¹ Result..... _ | ¹ Result | ¹ Result | ² Finding |
| _ | _ _ | _ _ | _ _ |
| Next Visit Date ____/____ dd mm | Next Visit Date: ____/____ dd mm | Total No. of Visits: _ _ | 2 Finding Codes 1= interview acceptable 2= interview to be further completed 3= interview to be rejected |
| Time: ____: ____ am/pm | Time: ____: ____ am/pm | | |
| HH08. ¹ Result of HH interview | | 2= not at home | |
| 6= incapacitated | | 3= postponed | |
| 7= vacant / unoccupied | | 4=refused | |
| 1= completed | | 5=partly completed | |
| 8= other (specify): | | | |
| The following section will be filled in office during data editing and entry: | | | |
| Office Editor/Coder: _ _ _ _ | | Data keyed by: _ _ _ _ | |
| ____/____/____ dd mm yy | | ____/____/____ dd mm yy | |

- | | | | |
|------------------------|--------------------------|--|--------------------------|
| 1. Access to services | <input type="checkbox"/> | 4. Recreation | <input type="checkbox"/> |
| 2. Emergence in future | <input type="checkbox"/> | 5. Spiritual/social status/self-esteem | <input type="checkbox"/> |
| 3. Community benefit | <input type="checkbox"/> | 6. Other (specify) | <input type="checkbox"/> |

GN4. Are most members of this group of the same [...]?

- | | | | |
|-----------|--------------------------|---------------|--------------------------|
| 1. Age | <input type="checkbox"/> | 3. Religion | <input type="checkbox"/> |
| 2. Gender | <input type="checkbox"/> | 4. Clan/tribe | <input type="checkbox"/> |

GN5. How are the decisions usually made in the group?

- | | | | |
|---|--------------------------|--|--------------------------|
| 1. Imposed from outside | <input type="checkbox"/> | 4. Members discuss and decide together | <input type="checkbox"/> |
| 2. Leader decides and informs members | <input type="checkbox"/> | 5. Other (Specify) | <input type="checkbox"/> |
| 3. Leader consults members then decides | <input type="checkbox"/> | | |

GN6. What is most important source of funding for the group?

- | | |
|------------------------------|--------------------------|
| 1. Members' dues | <input type="checkbox"/> |
| 2. Other sources | <input type="checkbox"/> |
| 3. Sources outside community | <input type="checkbox"/> |

GN7. If you suddenly needed a small amount of money (enough to pay for your household needs for a week) how many people beyond your immediate household could you turn to, who would be willing to provide this money?

- | | | | |
|-------------------------|--------------------------|---------------------------------------|--------------------------|
| 1. No one | <input type="checkbox"/> | 4. Five or more people | <input type="checkbox"/> |
| 2. One or two people | <input type="checkbox"/> | 5. Not applicable (no household head) | <input type="checkbox"/> |
| 3. Three or four people | <input type="checkbox"/> | | |

GN8. If you suddenly faced a long term emergency such as the death of the bread winner or harvest failure, how many people beyond your household could you turn to who would be willing to assist you?

- | | | | |
|-------------------------|--------------------------|---------------------------------|--------------------------|
| 1. No one | <input type="checkbox"/> | 4. Five or more people | <input type="checkbox"/> |
| 2. One or two people | <input type="checkbox"/> | 5. Not applicable (no children) | <input type="checkbox"/> |
| 3. Three or four people | <input type="checkbox"/> | | |

Trust and Solidarity [TS]

TS1. In general, do you agree or disagree with the following statement?

TS1.1 Most people who live in this village/neighborhood can be trusted and are will to help if you need it

- | | | | |
|-------------------------------|--------------------------|----------------------|--------------------------|
| 1. Agree strongly | <input type="checkbox"/> | 4. Disagree somewhat | <input type="checkbox"/> |
| 2. Agree somewhat | <input type="checkbox"/> | 5. Disagree strongly | <input type="checkbox"/> |
| 3. Neither agree nor disagree | <input type="checkbox"/> | | |

TS2. How much do you trust different types of people? On a 1-5 point scale, where 1 means very small extent and 5 means very great extent, how much do you trust people in these categories?

TS2.1 People from other ethnic groups or tribes?

- | | | | |
|----------------------------|--------------------------|----------------------|--------------------------|
| 1. Very small extent | <input type="checkbox"/> | 4. Great extent | <input type="checkbox"/> |
| 2. Small extent | <input type="checkbox"/> | 5. Very great extent | <input type="checkbox"/> |
| 3. Neither small nor great | <input type="checkbox"/> | | |

TS2.2 Police?

- | | | | |
|----------------------------|--------------------------|----------------------|--------------------------|
| 1. Very small extent | <input type="checkbox"/> | 4. Great extent | <input type="checkbox"/> |
| 2. Small extent | <input type="checkbox"/> | 5. Very great extent | <input type="checkbox"/> |
| 3. Neither small nor great | <input type="checkbox"/> | | |

TS2.3 Doctors and nurses?

- | | | | |
|----------------------------|--------------------------|----------------------|--------------------------|
| 1. Very small extent | <input type="checkbox"/> | 4. Great extent | <input type="checkbox"/> |
| 2. Small extent | <input type="checkbox"/> | 5. Very great extent | <input type="checkbox"/> |
| 3. Neither small nor great | <input type="checkbox"/> | | |

TS2.4 Strangers?

- | | | | |
|----------------------------|--------------------------|----------------------|--------------------------|
| 1. Very small extent | <input type="checkbox"/> | 4. Great extent | <input type="checkbox"/> |
| 2. Small extent | <input type="checkbox"/> | 5. Very great extent | <input type="checkbox"/> |
| 3. Neither small nor great | <input type="checkbox"/> | | |

TS3. How well do people in your village/neighborhood help each other these days? [use a 1-5 point scale, where 1 means always helping and 5 means never helping]

- | | | | |
|-----------------------------|--------------------------|-------------------|--------------------------|
| 1. Always helping | <input type="checkbox"/> | 4. Rarely helping | <input type="checkbox"/> |
| 2. Helping most of the time | <input type="checkbox"/> | 5. Never helping | <input type="checkbox"/> |
| 3. Helping sometimes | <input type="checkbox"/> | | |

TS4. If a community project does not directly benefit you but has benefits for many others in the village/neighborhood, would you contribute time and money to the project?

- | | Time | Money |
|------------------------|--------------------------|--------------------------|
| 1. Will contribute | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Will not contribute | <input type="checkbox"/> | <input type="checkbox"/> |

Collective Action and Cooperation [CA]

CA1. In the past 12 months, have you worked with others in your village/neighborhood to do something for the benefit of the community? 1. Yes 2. No If No, move to CA5

CA2. Was the participation voluntary or required? 1. Voluntary 2. Required

CA3. What were the three main such activities you participated in?
 Activity 1 Activity 2 Activity3

CA4. How many days in the past 12 months did you participate in the community activities?

CA5. What proportion of people in this village/neighborhood that contribute time or money toward common development goals, such as repairing a road?

- | | | | |
|-------------------|--------------------------|-------------------|--------------------------|
| 1. Everyone | <input type="checkbox"/> | 4. Less than half | <input type="checkbox"/> |
| 2. More than half | <input type="checkbox"/> | 5. No one | <input type="checkbox"/> |
| 3. About half | <input type="checkbox"/> | | |

CA6. If there was a water supply problem in this community, how likely is it that people will cooperate to try to solve the problem?

- | | | | |
|--------------------------------|--------------------------|----------------------|--------------------------|
| 1. Very likely | <input type="checkbox"/> | 4. Somewhat unlikely | <input type="checkbox"/> |
| 2. Somewhat likely | <input type="checkbox"/> | 5. Very unlikely | <input type="checkbox"/> |
| 3. Neither likely nor unlikely | <input type="checkbox"/> | | |

Information and Communication [IC]

IC1. How long does it take you to reach the nearest post office?

- | | | | |
|-------------------------|--------------------------|---------------------|--------------------------|
| 1. Less than 15 minutes | <input type="checkbox"/> | 3. 31-60 minutes | <input type="checkbox"/> |
| 2. 15-30 minutes | <input type="checkbox"/> | 4. More than 1 hour | <input type="checkbox"/> |

IC2. How many times in the last month did you read a newspaper?

IC3. How often do you listen to the radio?

- | | | | |
|-----------------------|--------------------------|--------------------------|--------------------------|
| 1. Everyday | <input type="checkbox"/> | 4. Less than once a week | <input type="checkbox"/> |
| 2. A few times a week | <input type="checkbox"/> | 5. Never | <input type="checkbox"/> |
| 3. Once a week | <input type="checkbox"/> | | |

IC4. How often do watch television?

- | | | | |
|-----------------------|--------------------------|--------------------------|--------------------------|
| 1. Everyday | <input type="checkbox"/> | 4. Less than once a week | <input type="checkbox"/> |
| 2. A few times a week | <input type="checkbox"/> | 5. Never | <input type="checkbox"/> |
| 3. Once a week | <input type="checkbox"/> | | |

IC5. Do you have a mobile telephone? 1 Yes 2. No

IC6. What are the three most important sources of information about what the Government is doing [such agricultural extension, workforce, etc] list of information sources: 01=relatives, friends and neighbors, 02= local market, 03=national newspaper, 04=radio, 05=groups or associations, 06=political associations, 07=community leaders, 08=an agent of government, 09=NGOs

- | | | |
|---------------------|---------------------|-----------------------|
| 1. Source one -- -- | 2. Source two -- -- | 3. Source three -- -- |
|---------------------|---------------------|-----------------------|

IC7. What are the three most important sources of market information such as prices of goods or crops [see list of information sources in IC6] 1. Source one -- -- 2. Source two -- -- 3. Source three -- --

IC8. What part of the year is your house easily accessible by road? 1. All the year long 2. Only during certain seasons 3. Never easily accessible

Social Cohesion and Inclusion [SC]

SC1. How strong is the feeling of togetherness or closeness in your village/neighborhood? Use a 5-point scale where 1 means feeling very distant and 5 means feeling very close.

- | | | | |
|------------------------------|--------------------------|-------------------|--------------------------|
| 1. Very distant | <input type="checkbox"/> | 4. Somewhat close | <input type="checkbox"/> |
| 2. Somewhat distant | <input type="checkbox"/> | 5. Very close | <input type="checkbox"/> |
| 3. Neither distant nor close | <input type="checkbox"/> | | |

SC2. There are often differences in characteristics between people living in the same village/neighborhood such as differences in 02=education, 02=landholding, 03=wealth and material possessions, 04=social status, 05=between men and women, 06=longer term and recent residents, 07=political party affiliation, 08=religious beliefs, 09=ethnic background, 10=other (Specify)

SC2.1 To what extent do any such differences characterize your village/neighborhood?

- | | | | |
|-----------------------------------|--------------------------|------------------------|--------------------------|
| 1. A very great extent | <input type="checkbox"/> | 4. A small extent | <input type="checkbox"/> |
| 2. A great extent | <input type="checkbox"/> | 5. A very small extent | <input type="checkbox"/> |
| 3. Neither great nor small extent | <input type="checkbox"/> | | |

SC2.2 Which two differences most often cause problems?

- | | |
|-------------------------|-------------------------|
| 1. Difference one -- -- | 2. Difference two -- -- |
|-------------------------|-------------------------|

SC2.3 Have these problems ever led to violence? 1. Yes 2. No

SC3. Are there any community activities in which you are not allowed to participate? 1. Yes 2.No

SC3.1 In which activities are you not allowed to participate in ?

1. Activity one----- 2. Activity two ----- 3. Activity three -----

SC3.2 List two reasons why you are not allowed to participate [01=poverity, 02=occupation, 03=lack of education, 04=gender, 05=age, 06=religion, 07=political affiliation, 08=ethnicity/tribe, 09=other]

SC4. I am now going to ask you a few questions about your everyday social interactions.

SC4.1 How many times in the last 12 months did you participate in a family/village/neighborhood festival, e.g., wedding, funeral, religious festival? Record number of times -----

SC4.2 In the last 12 months, have you or anybody in your household been a victim of a violent crime such as assault or mugging?

1. Yes 2. No

SC4.3 In the past 12 months, has your house been burglarized or vandalized? 1. Yes
2. No

Empowerment and Political Action [EP]

EP1. How much control do think you have in making decisions that affect your daily activities?

1. No control 4. Control over most decisions
2. Control over very few decisions 5. Control over all decisions
3. Control over some few decisions

EP2. In the past 12 months how often did residents in this village/neighborhood get together to jointly petition Government or political leaders for something benefiting the community?

1. Never 3. A few times=5
2. One 4. Many times=more than 5

EP2.1 Were any of these petitions successful?

1. All were successful 4. Most were unsuccessful
2. Most were successful 5. None were successful

EP3. A lot of people find it difficult to get out and vote. Did you vote in the last general election?

1. Yes 2. No

EP4. To what extent do local Government/leaders take into account concerns voiced by you and people like you when they make decisions that affect you?

1. A lot 2. A little 3. Not at all

EP5. In general, compared to 5 years ago, has the honesty of local Government improved, deteriorated or remained the same?

1. Improved 2. Deteriorated 3. Remained the same

EP6. In the past 12 months, did any member of your household pay some additional money to Government officials to get things done? 1. Often 2. Occasionally 3. No

EP6.1 Are such payments effective in getting a service delivered or getting a problem solved?

1. Yes [Usually] 2. Yes [Occasionally] 3. No

Rural Livelihoods [RL]

RL1 How many hectares of land does the household own?

1. None 4. 4-10 hectares
 2. Less than one hectare 5. More than 10 hectares
 3. 1-3 hectares

RL2a Farm Capital Inventory of the household

| Asset [Farm equipment] RL2a.1 | Number RL2a.2 | Estimated value /purchase price (Kshs) RL2a.3 |
|---|------------------|---|
| Panga | | |
| Jembe | | |
| Animal drawn carts | | |
| Wheelbarrows | | |
| Ploughs/motorized | | |
| Spray pumps | | |
| Maize cutters | | |
| Tractors | | |
| Milk separators | | |
| Axes | | |
| Sickles | | |
| Folk jembes | | |
| Buckets | | |
| Shovels | | |
| Water tank | | |
| Grass cutters | | |
| Other buildings (i.e., milk shed/store) | | |
| Feeder for concentrates and forage | | |
| Milk equipment | | |
| Other (Specify) | | |

RL2b. Other Household Assets - How many rooms is the main living house? Number of rooms -----

| Material of floor RL2b1 | RL2b2 Yes 1 No 2 | Does household have RL2b3 | RL2b4 Yes 1 No 2 |
|----------------------------|---------------------|------------------------------|---------------------|
| Mud/dung/sand | | Electricity | |
| Cemented floor | | Radio | |
| Tiled/polished floor | | Telephone | |
| Other (specify) | | Television | |
| | | Motorcycle | |
| Material of roof | | Car | |
| Grass thatched | | Other (specify) | |
| Tinned roof | | | |
| Corrugated iron | | | |
| Tiles | | | |
| Other (specify) | | | |
| | | | |
| Toilet facility | | | |
| Flush toilet | | | |
| Traditional pit latrine | | | |

| | | | |
|------------------------|--|--|--|
| Ventilated pit latrine | | | |
| No toilet | | | |
| Other (specify) | | | |

RL3 Crop production by the Household over the last season

| Crop Name | Total area under crop (in acres) | Quantity harvested (indicate unit) | Quantity consumed (indicate unit) | Quantity given to labor and others (indicate unit) | Quantity used for seeds (indicate unit) | Quantity sold (indicate unit) | Total crop sales (Kshs) | Selling price per unit (Kshs) |
|------------------|----------------------------------|------------------------------------|-----------------------------------|--|---|-------------------------------|-------------------------|-------------------------------|
| RL3.1 | RL3.2 | RL3.3 | RL3.4 | RL3.5 | RL3.6 | RL3.7 | RL3.8 | RL3.9 |
| Maize | | | | | | | | |
| Beans | | | | | | | | |
| Potatoes | | | | | | | | |
| Banana | | | | | | | | |
| Cassava | | | | | | | | |
| Cabbage | | | | | | | | |
| Kale/sukuma wiki | | | | | | | | |
| Spinach | | | | | | | | |
| Carrots | | | | | | | | |
| Peas | | | | | | | | |
| Tomatoes | | | | | | | | |
| Millet | | | | | | | | |
| Sorghum | | | | | | | | |
| Wheat | | | | | | | | |
| Other (Specify) | | | | | | | | |

Unit codes

0=none 2=bag 4=debe 6=other (specify)
1=kilo 3=basket 5=number

RL4 Livestock production by the Household in the last 12 months

| Livestock type | Method of grazing (see code) | Number | Number slaughtered for consumption in last 12months | Number sold over last 12 months | Total sales (Kshs) |
|----------------|------------------------------|--------|---|---------------------------------|--------------------|
| RL4.1 | RL4.2 | RL4.3 | RL4.4 | RL4.5 | RL4.6 |
| Grade cow | | | | | |
| Grade bull | | | | | |
| Mixed cow | | | | | |
| Mixed bulls | | | | | |
| Local cow | | | | | |
| Local bull | | | | | |
| Calves | | | | | |
| Ox | | | | | |
| Goats | | | | | |
| Sheep | | | | | |
| Donkey | | | | | |

| | | | | | |
|-----------------|--|--|--|--|--|
| Camels | | | | | |
| Pigs | | | | | |
| Poultry | | | | | |
| Other (Specify) | | | | | |

Codes

Column RL2.2

Note: Ox = castrated bull

1=paddock grazing

2=open grazing

3=zero grazing

4=paddock + open grazing

5=other (specify)

RL4a Livestock products [output and value] in last one month

| Livestock type | Milk Quantity Value(Kshs) RL4a.2 | Hides and Skins Quantity Value(Kshs) RL4a.3 | Manure Quantity Value(Kshs) RL4a.4 | Other (Specify) Quantity Value(Kshs) RL4a.5 |
|-----------------|---|--|---|--|
| RL4a.1 | | | | |
| Cattle | | | | |
| Goats | | | | |
| Sheep | | | | |
| Camel | | | | |
| Other (Specify) | | | | |

RL5 Local Market Prices [prices of crops, livestock and livestock products]

| Product name RL5.1 | Farm gate price (Kshs per unit)* RL5.2 | Local market price (Kshs per unit)** RL5.3 |
|--|---|---|
| Crops Maize Beans Wheat Vegetables Fruits | | |
| Livestock Grade cow Grade bull Mixed bull Local cow Local bull Calf (indicate type) Ox Goat Sheep Donkey Camel | | |
| Livestock products Milk Hides & skins Manure Eggs Other (Specify) | | |

*Farm gate price is the price prevailing at home

**Price at local market centre

RL6 Household food consumption and expenditure (last 7 days) – probe whether this is the general trend for the last one month

| Food Item RL6.1 | If own production Qty Value RL6.2 | | If purchased Qty Value RL6.3 | | If gift Qty Value RL6.4 | | If payment in kind Qty Value RL6.5 | | Transfers from relatives Qty Value RL6.6 | | Other (specify) Qty Value RL6.7 |
|--------------------|---|--|------------------------------------|--|-------------------------------|--|--|--|--|--|---------------------------------------|
| | | | | | | | | | | | |
| Maize grain | | | | | | | | | | | |
| Maize floor | | | | | | | | | | | |
| Bread | | | | | | | | | | | |
| Other grains | | | | | | | | | | | |
| Other floors | | | | | | | | | | | |
| Beans | | | | | | | | | | | |
| Other pulses | | | | | | | | | | | |
| Roots & tubers | | | | | | | | | | | |
| Fruits | | | | | | | | | | | |
| Vegetables | | | | | | | | | | | |
| Meats | | | | | | | | | | | |
| Milk | | | | | | | | | | | |
| Eggs | | | | | | | | | | | |
| Sugar | | | | | | | | | | | |
| Oils & fats | | | | | | | | | | | |
| Tea & coffee | | | | | | | | | | | |
| Beer/alcohol | | | | | | | | | | | |
| Other (specify) | | | | | | | | | | | |

RL6a Non- Food expenditures

| Expenditure Item RL6a1 | Value (Kshs) RL6a2 |
|--|-----------------------|
| RL6a1.1 Health – Last month RL6a1.11 Consultation RL6a1.12 Drugs RL6a1.13 Transport RL6a1.14 Other health-related expenditures | |
| RL6a1.2 Education – Last term RL6a1.21 Transportation RL6a1.22 Books & Supplies RL6a1.23 Tuition Fees RL6a1.24 Uniforms RL6a1.25 Other (Specify) | |
| RL6a1.3 Non-health & non-education RL6a1.31 Bridal payments RL6a1.32 Household durables (e.g., TVs, radio) RL6a1.33 Salaries to household help RL6a1.34 Contributions/donations RL6a1.35 Clothing and Footwear RL6a1.36 Fuels (Lighting/Coking) RL6a1.37 Soaps & detergents RL6a1.38 Gifts & Transfers to those outside the home RL6a1.39 Other (Specify) | |

RL6b Non-Farm Income Last Month

| Income source RL6b1 | Value (Kshs) RL6b2 |
|--|-----------------------|
| RL6b1.1 Transfers/remittances in cash/kind (last 6 months) RL6b1.2 Gifts from others – cash/kind RL6b1.3 Wages RL6b1.4 Rent income (last 12 months) | |

RL6c Other Sources of Income [please provide the following information for all household members who usually live here]

| Source of Income RL6c1 | Number of household members involved (last one month, probe for usual case) | | Estimated monthly earnings (Kshs) | |
|---------------------------|---|----------------------------------|-----------------------------------|----------------------------------|
| | RL6c2a Men <14yrs >14yrs | RL6c2b Women <14yrs >14yrs | RL6c3a Men <14yrs >14yrs | RL6c3b Women <14yrs >14yrs |
| Employment | | | | |
| Casual | | | | |
| Permanent | | | | |
| Other | | | | |
| Household enterprise | | | | |
| Other (specify) | | | | |

RL7 Farming and Livestock Inputs [indicate the type and value of inputs used over the last 6 months]

| Input types RL7.1 | Value (Kshs) RL7.2 |
|---|-----------------------|
| Farming Seeds Fertilizer Chemicals Other Sub-total | |
| Livestock Purchased fodder Dipping & spraying vet. Services & artificial insemination drugs and medicines salt lick other sub-total overall total | |

RL8 Infrastructural Facilities

| Facility | Distance from home (Kms) RL8.2 | Used by self RL8.3 | Used by family RL8.4 | Impact of facility on economic activities RL8.5 |
|--|-----------------------------------|-----------------------|-------------------------|--|
| RL8.1 Schools Pre-primary Primary | | | | |

| | | | | |
|---|--|--|--|--|
| Secondary Village polytechnics Others (Specify) | | | | |
| Church (specify) | | | | |
| Mosque | | | | |
| Health facilities (Specify) | | | | |
| Shopping centre | | | | |
| Market | | | | |
| Roads: Murrum Tarmac Earth road Other (Specify) | | | | |
| Water points | | | | |
| Livestock auction yards | | | | |
| Slaughter houses | | | | |
| Salt lick | | | | |
| | | | | |

RL9 Community Questionnaire

Part V1: General Information

Date of Interview _____

Name of Interviewer _____

District _____

Division _____

Location _____

Sub-location _____

Village _____

Name of Respondent _____

Position of Respondent _____

Part V2: Prices of Main Crops

What was the average local market selling price of [...] during the last year?

| Crop/Item V2.1 | Short Rains 2006 (Kshs) V2.2 | Long Rains 2007 (Kshs) V2.3 | Quantity Unit V2.4 |
|-------------------|---------------------------------|--------------------------------|-----------------------|
| 1.Maize | | | |
| 2.Beans | | | |
| 3.Potatoes | | | |
| 4.Banana | | | |

| | | | |
|--------------------|--|--|--|
| 5.Cassava | | | |
| 6.Cabbage | | | |
| 7.Kale/Sukuma Wiki | | | |
| 8.Spinach | | | |
| 9.Carrots | | | |
| 10.Peas | | | |
| 11.Tomatoes | | | |
| 12.Millet | | | |
| 13.Sorghum | | | |
| 14.Wheat | | | |

Part V3: Local Wage Rates for Labour

What was the average local wage rate per laborer during the last year?

| Type of Activity V3.1 | Adult Male V3.2 | Adult Female V3.3 | Child (5-14 years) V3.4 |
|--------------------------|--------------------|----------------------|----------------------------|
| 1.Farming activities | | | |
| 2.Livestock management | | | |
| 3.Other (specify) | | | |

Part V4: Village prices of Livestock and Livestock Products

| V4.1 Animal | V4.2 What was the local selling price of mature [...] during the last year? (Kshs) | V4.3 What was the local selling price of an offspring of a [...] during the last year? (Kshs) | V4.4 What was the average selling price of livestock products per unit during the last year? Product Kshs Qty Unit |
|-------------------|---|--|---|
| 1.Cattle | | | 1.Milk |
| 2.Bulls | | | 2.Bef |
| 3.Goat | | | 3Goat. |
| 4.Sheep | | | 4.Chicken |
| 5.Pigs | | | 5.Drought Power |
| 6.Oxen | | | 6.Hides/skins |
| 7.Donkey | | | 7.Wool |
| 8.Chicken | | | 8.Eggs |
| 9.Other (specify) | | | 9.Other (specify) |

Part V5: Distance to nearest Facility

| V5.1 Facility | V5.2 What is the average distance between the centre of the village and the [...]? | V5.3 What is the typical means of transport between the centre of the village and the [...]? 1=foot 2=matatu 3=bicycle | V5.4 How much time does it normally take to travel one-way by this typical means of transportation between the centre of the village and the [...]? | V5.5 What is the average monetary charge for a one-way trip on this typical means of transportation between the centre of the village and the | V5.6 Where is the facility located? |
|------------------|---|--|--|--|--|
| | | | | | |

| | | 4=other (specify) | Hours Minutes | [...] during the last year? Kshs | |
|-----------------------------|--|----------------------|------------------|--|--|
| 1.Market | | | | | |
| 2.Primary school | | | | | |
| 3.Secondary school | | | | | |
| 4.Health centre/hospital | | | | | |
| 5.Dispensary | | | | | |
| 6.All-weather road | | | | | |
| 7.Public transport stage | | | | | |

SOCIAL CAPITAL AS A STRATEGY FOR PROMOTING RURAL LIVELIHOODS: CASE FOR KENYA

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