

Smallholder Rural Youth Farming in Kiambu County, Kenya

Abigael Asiko Kutwa¹ Wilkins Ndege Muhingi² Donald Kokonya³

The Catholic University of Eastern Africa, P.O. Box 62157-00200, Nairobi. Kenya

St. Paul's University, Kenya, P.O. Box Private Bag, Limuru - 00217, Limuru. Kenya

Masinde Muliro University of Science and technology, P.O Box 190, 50100 Kakamega, Kenya

Abstract

Investment on agriculture by countries is essential because it is core to every nation's development. In Kenya, people particularly youth are involved in agriculture yet it attracts limited investment. This study which was aimed at highlighting age, gender participation and the role of literacy in small scale farming among the trained youth in Kiambu County, Kenya. This was mixed methods descriptive and cross sectional study that also employed triangulation to enhance confidence in the findings. This design underscored the current socio-demographic benefits to rural youth small scale farmers in Kabete constituency, Kiambu County, Kenya. Kabete Constituency, was non-probabilistic and purposively selected due to limited time and resources, its cosmopolitan, high agricultural potential comprising both subsistence and commercial farmers and easily accessible to the Nairobi city which is a high potential market for agricultural produce. The study was conducted over a five-month period from September 2015 to January 2016. The study population comprised trained agri-business young rural farmers aged 21 to 35 years who farmed on no more than 0.75 acres of land resident in Kabete Constituency. The key informants who were old farmers and a sample of 111 youths who had practiced farming for more than five years were sampled purposively and using simple random design, respectively. Parents were conveniently sampled for the interviews and focus group discussions (FGD) were conducted in two selected locations. The relevant data was solicited through the use of questionnaire, focus group discussions and observation on youth smallholder trends and farm management practices especially during the data collection period. The instruments were pretested and scrutinized for validity and reliability. Quantitative data was analyzed on descriptive statistics using Statistical Package for Social Sciences (SPSS) version 21.0 while qualitative data was analyzed thematically using content analysis. This study showed that a large majority (53%) of the trained youthful rural farmers had attained at least form four level of education compared to 40% of them who had college or University levels of education. Only (15%) had primary school level of education and only 4% of the youthful farmers had no formal education. These findings confirmed that guaranteed literacy among trained rural youthful famers in Kiambu County, Kenya was high (93%), an indicator for the likelihood of effective and successful farming. Over two-thirds (67.4%) of the rural youthful small-scale farmers in Kabete Constituency in Kiambu County, Kenya, has access to financial credit services compared 26.7% who did not have access and 5.9% who had not made up their mind about access to credit services. The rural youthful farmers had above average access to credit services in the study area, further the study established that slightly less than half (46.5%) of the farmers accessed their capital from their families through inheritance, 36% made savings and 17.5% accessed loans. Post-harvest challenge was the most prone challenge among youth framers and smallholder farming in Kabete constituency had improved lives of youths. To concluded, smallholder farming was offering a wide potential for rural youths by creating employment, encouraging savings, reducing food expenses and encouraged self-reliance among the youth. The study recommended review of agricultural policies that will accommodate the youth's representation and protection of environment that supports farm. Also recommended is adoption of ICT in agricultural practice in Kenya.

Keywords: Agriculture, youth, participation, stakeholders, environment.

1. Introduction

Agriculture was found to be an important consideration in poverty reduction and economic growth in the 21st century, given that 75% of the world's poor live in rural settings and they practice small scale farming (World Bank, 2008). Youth aged 10 and 24 years constitutes 27% of the world's population and 33% of the population is in Africa (Nugent, 2006). The general definition of a youth for statistical purposes according to UNDP without prejudice to other definitions by member states is a person between 15 and 24 years old (UNDP, 2014). However, Kenya raised its cut off age to 35 years. It was acknowledged and understood that the global youth population was a heterogeneous group and that the issues and challenges addressed in this paper had been known to plague the subset youth populations differently (Bennell, 2010 & UNESCO, 2015). The heterogeneity of the

global youth population has mainstreamed their perspectives, knowledge and voice into programmes, practice and policy development to successfully and efficiently address their diverse needs (UNDP, 2014).

Agriculture remains be the highest contributor to the countries' Gross Domestic Products (GDPs) as exemplified by Ghana that created employment for the majority (80%) of the Youth (Neumark, 2004 pp.223-248). Youth and farming were important themes in the global development agenda in the world quest for decent youth livelihoods through self-employment and entrepreneurship (Naamwintome & Bagson, 2013 pp.60-68). Youth populations of most nations are increasing and food insecurity is also an issue (Antoniades, 1998 p.371). Youth involvement in agriculture was a very much explored field of study globally (Neumark, 2004 p.223-248). For a long time, policy makers and industry leaders had lamented the apparent lack of interest in the agricultural sector by young people (Emmanuel, 2016). Concern had been expressed about the escalating average age of farmers and the implications for the survival and sustainability of agricultural production, particularly in the poor and developing countries (Mangal, 2009 pp.1-37). Largely, the youth populations were unemployed vulnerable to severe poverty. Prakash-Mani (2013) estimated that 25% of the global food supplied in the world came from smallholder farmers in Africa, Asia and Latin America. It was estimated that 80% of all farms in Sub-Saharan Africa contributed up to 90% of the production in some of these countries (Livingston *et al.*, 2011). Youth unemployment and underemployment in the developing world were major issues (Chinguta, 2016 p.48). Small-scale agriculture had been the leading source of employment, yet youth had been disinterested in agriculture as a way of life, despite lacking alternative opportunities, leading to "youth crisis" (Bennell, 2010, FAO, IFAD and CTA, 2014, FAO and MIJARC, 2014). The growing disinterest in agriculture related careers had serious implications for both global youth populations and the future of global agriculture production (Emmanuel, 2016). Bihanirwa *et al.*, (2012) highlighted that in East Africa, small holder farming accounted for more than 75% of the total employment and 75% of agricultural output, the average age of a farmer being 55 years (Bihanirwa *et al.*, 2012). To support the argument on viability of smallholder farming, smallholder farming was found to be technically more efficient than large scale because it was manageable especially for the rural youth (Simonyan, Umoren, and Okoye, 2011 pp. 17-23).

African smallholder farming sector was dominated by aging farmers who were not only less productive but also, could not guarantee sustainable development for the future (Visser and van Marle-Köster, 2016). While this was the case, the youth still find farming an unattractive source of livelihood (Haggblade S. et al, 2015). Few youths who were engaged in farming had a bleak future as they faced many challenges, which made them either give up or remain underdeveloped (Rice, et al., 2015)). Gella (2014) observed that rural youth in Ethiopia, Nigeria, Uganda and Kenya practiced smallholder farming as the last resort (Gella, 2014). The current state of many nations such as high youth population, unemployment and reducing employment opportunities in formal sector left many youths with no option but to eke living from the informal sector (Banks, 2016). Rural areas present livelihood strategies like smallholder farming, motorbike, handicraft, barber and salon businesses (Chinguta, 2016 p.48).

Recently youth have been engaging in smallholder farming as a source of livelihood despite their high level of education (Emmanuela, 2016). While this is the case, the question that needs to be answered is whether smallholder farming offers the rural youth a viable source of income and livelihood (FAO, 2012). As a bedrock of rural areas; smallholder farming has been captured in the Millennium Development Goal (MDG) 2015 as a driver for poverty eradication with a target of 70% before 2030. This drive was evident in land scarce Asian countries such as India, Vietnam, and South Korea where smallholder farming had crucial roles on poverty reduction, food security and economic growth (Salami *et al.*, 2010). Rural youth in Africa had limited opportunities to attain sustainable livelihood because they were unemployed, lacked competitiveness, had limited access to opportunities for self-employment, they lacked professional qualification and initial capital for engaging in agricultural activities (White, 2014). Further observation by Paisley (2012) revealed that rural youths had limited access to infrastructure, services and opportunities for self-actualization and they did not link their fate to farming. According to Tadele (2014), rural youth in Ethiopia considered farming their last resort while those in Kenya practiced farming as they awaited formal employment (Tadele, 2014). The challenge of youth sustainable development started with the misunderstood concepts of who was a youth (Bray, McMahan, Siegle and Mobley, 2016). Because of the confusion facing the definition of a youth (Bennel, 2000) revealed that most policies formulated in Africa bore a vision that did not address the livelihood needs, expectations and aspiration of young people and they lacked coherent strategy to support youth in agriculture. More than 70% of the rural youth are unemployed and live below the poverty line (Afande, 2015). While this is the case, few participated in farming because youth find it unattractive source of livelihood (Emmanuela, 2016). The many challenges farmers experienced, especially poor yields and low prices of agricultural products make farming a challenge to youths, hence, they shunned it (Adesugba, 2016).

Many studies have delved at the reasons for low youth involvement in agriculture but few have concentrated on youth already engaged in the activity (Joshi, 2016). Therefore, this paper finds it imperative to explore the challenges faced by the youth practicing smallholder farming for a better understanding of how to make farming a sustainable career for the youth (Yadav, 2016 pp.44-49). The youths' negative perceptions of agriculture and agriculture-related occupations stemmed from stereotypes reinforced by cultural beliefs and/or the media (Kusis, Miltovica and Feldmane, 2014). Lithuanian and Latvian youth based their perceptions of agriculture on reinforced stereotypes of "old" ways of farming, including back-breaking hours in the field, low skills requirement and low wages. The researchers concluded that the youth "did not appreciate the large potential that agriculture could bring" (Kusis *et al.*, 2014). Chinsinga and Chasukwa (2012) found out that Malawian youth perceived the agricultural sector as "dirty and demeaning work," to which the viable alternatives were to migrate to urban areas in search of formal employment, engage in business or migrate to South Africa whose GDP and standards of living were much higher in their search for "good life". Youth viewed agriculture's relatively small profit margins difficult to reconcile with the high labor requirements (Chinsinga & Chasukwa, 2012, Kusis *et al.*, 2014, Man, 2012, Webster and Ganpat, 2014). Additionally, youth in the Caribbean Islands reported that the negative stigma tied to agriculture was due to its close association with the region's history of slavery (Mangal, 2009 pp1-37, Webster and Ganpat, 2014). A study on youth in the Caribbean viewed agriculture as an area "for failures and persons who were punished for not doing well in the pure sciences and other more prestigious academic fields" (Mangal, 2009 pp.1-37). The differences reported in the findings of the studies conducted across various regions and localities demonstrated the heterogeneity of the global youth population in their perceptions, experiences, attitudes and needs (Emmanuela, 2016). It was imperative that all programming actively solicited and integrated their target populations' perceptions, attitudes and needs into the development process (Yankson and Owusu, 2016 p.94).

Additionally, there must be revitalization in efforts and initiatives to interest and reengage youth in the agricultural sector (Onyango and Nyaberi, 2016). Rural youth across regions reported seasonal migration within their own countries or abroad as a way of avoiding the challenging rural unemployment situation (FAO, IFAD and MIJARC, 2014). Due to internal migration, there existed a disproportionate representation of youth in rural versus urban areas and the youth who were engaged in agriculture or agriculture-related activities relied on multiple sources of income outside of agriculture ((Department of Economic and Social Affairs, New York City, USA, 2008). They indicated that this pluri-activity was a means to build resilience against inconsistent employment or wage security in the agricultural sector (FAO, IFAD and MIJARC, 2014). Despite the need for labor within the agricultural sector and lack of opportunities in urban areas, youth migrated to urban areas and away from rural and agricultural livelihoods (Mbah *et al.*, 2016 pp.14-20). Echoing Smith and Leavy (2010), Eissler and Brennan (2015) asserted that there was a "fundamental tension between MDGs, universal primary schooling and the desire to see young people maintain an engagement in farming"(Eissler, Brennan, and Pennsylvania, 2015).

Agriculture and agriculture-related activities were not included in the formal education settings and they were also not encouraged, driving the youth (particularly rural) away from these careers (Amadi, 2012, Biriwasha, 2012 & Lieten *et al.*, 2007). Thus when the youth left formal education, they had no agricultural skills; however, due to lack of formal employment and other opportunities, they could not acquire jobs elsewhere (FAO, IFAD and CTA, 2014). The deskilling of youth exacerbated the issue of youth unemployment and inability or disinterest for seeking employment in the agricultural sector (Gough, 2016).

In the advent of lack of agricultural education incorporated in primary and secondary schools, formal education played a considerable role in "deskilling" youth populations in skills, knowledge and experience in agriculture and agriculture-related occupations (Crawford, 2011, Katz, 2004 and Lieten *et al.*, 2007). Some low-income countries' policy makers did not target their youth as vulnerable populations, thereby marginalizing them from receiving government support and programming; an example being Malawi's Poverty Alleviation Program, Poverty Reduction Strategy and the Growth Development Strategy, which had been "almost silent on the role and involvement of young people in the sector" (Chinsinga and Chasukwa, 2012). Subsequently, a policy vacuum was directed towards young people, exacerbating the problem of youth reengagement and access to resources to facilitate such engagement (Ahaibwe, 2013). This should have been addressed to encourage, enable or help the youth facilitate their integration into the agricultural sector (Amadi, 2012, Bennell, 2010, Chinsinga and Chasukwa, 2012, Naamwintome & Bagson, 2013 pp.60-68). Bennell (2010) observed that Poverty Reduction Strategy Papers rarely, if at all any, mentioned the youth. The global youth populations also faced limited or no access to essential resources that would have enabled their participation in agriculture or agriculture related occupations (Amadi, 2012, Bahaman *et al.* 2010, Bennell, 2010, Chinsinga and Chasukwa,

2012, FAO, IFAD and CTA, 2014, FAO, IFAD and MIJARC, 2014, Lyocks, *et al.*, 2013, Man, 2012; Naamwintome and Bagson, 2013 and Sharma, 2007).

Moreover, rural youth populations lacked the capacity and skills training opportunities, especially due to higher rates of unemployment than their urban youth counterparts (Amadi, 2012, Bennell, 2010, Chinsinga & Chasukwa, 2012, FAO, IFAD and MIJARC, 2014). Among other inadequacies, rural areas had challenges such as poor infrastructure, service provision, less mechanization and social facilities (Zeng and Zhong, 2016). This stripped the rural youth the opportunities to capitalize on such support for integration into the agricultural sector (Dirven 2010, FAO, IFAD and MIJARC, 2014 and World Bank, 2009b). This also assisted in spurring the rural exodus of young rural people into the cities in search of employment and opportunities (FAO, IFAD and MIJARC, 2014).

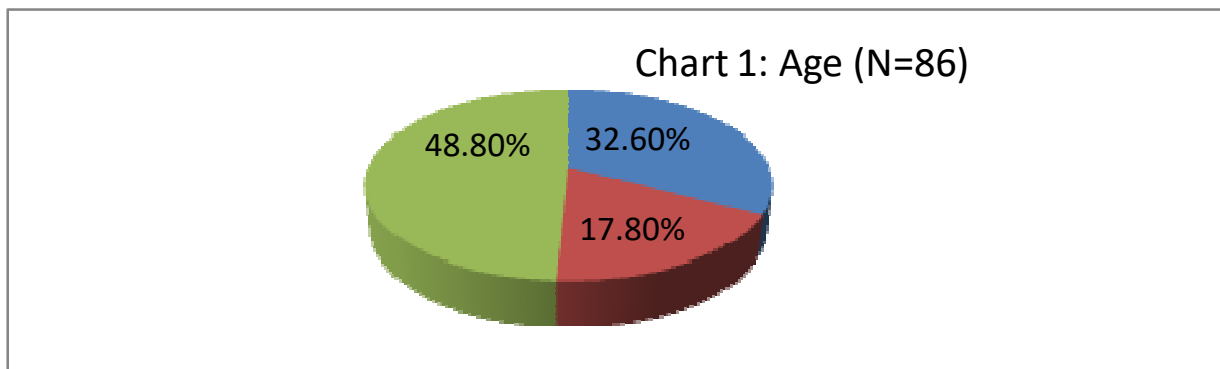
Women and particularly the youth, received less support, had less access to resources and they were more likely to be marginalized than their male counterparts across all sectors including agriculture (Agarwal, 2011, Deere, 2005, Dolan and Sorby, 2003 ,FAO, IFAD and CTA, 2014, Lastarria-Cornhiel, 2006; Leavy and Smith, 2010 and Rao, 2009). Paradoxically, women workers were more dependent on agriculture than their male counterparts for survival due to their lesser access to non-farm jobs (Agarwal, 2011). While increased levels of livelihood diversification and development had yielded a trend away from agriculture and agriculture-related occupations, it had been shown to increase women's responsibilities for taking up previously non-traditional roles in the agricultural production (Deere, 2005, Dolan and Sorby, 2003, Leavy and Smith, 2010). The number of women in the global agricultural workforce had increased as men were increasingly taking off-farm employment (Agarwal, 2011). It was evident that women played a vital role in food production and security, as they were increasingly responsible for agricultural production and securing access to available quality food for their households, particularly the children's well-being (Eissler *et al.*, 2015).

1.1 Methodology

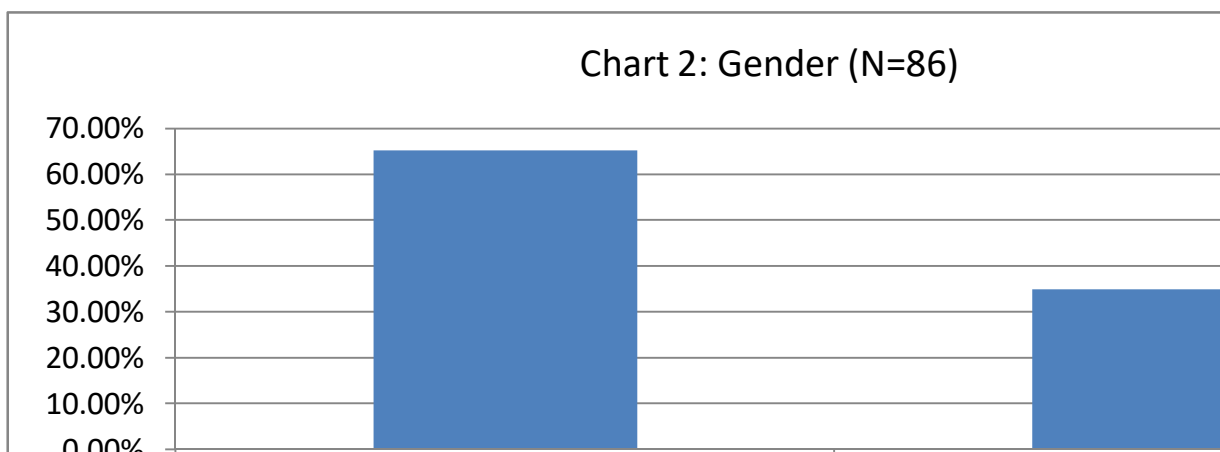
This was mixed methods descriptive and cross sectional study that also employed triangulation to enhance reliability and confidence in the findings. This design was adopted for this study to underscore the current socio-demographic benefits to rural youth small-scale farmers in Kabete constituency, Kiambu County, Kenya. The study site, Kabete Constituency, was non-probabilistically and purposively selected due to limited time and resources, its cosmopolitan nature, high agricultural potential comprising both subsistence and commercial farmers and easy accessibility to the Nairobi city which is a high potential market for agricultural produce. This study was conducted over a five-month period from September 2015 to January 2016. The study population comprised trained agri-business young rural farmers aged 21 to 35 years who farmed on no more than 0.75 acres of land and resident in Kabete Constituency in Kiambu County, Kenya. They were sampled by simple random sampling. The key informants who were old farmers and youths who had practiced farming for more than five years were sampled purposively. Parents of the youthful farmers were conveniently sampled for the interviews and focus group discussions (FGD) were conducted in two selected administrative units (locations). The relevant data was solicited through the use of questionnaires at individual levels, focus group discussions in addition to observation on youth smallholder trends and farm management practices especially during the data collection period. The instruments were pretested and scrutinized for validity and reliability. Quantitative data was analyzed on descriptive statistics using Statistical Package for Social Sciences (SPSS) version 21.0 while qualitative data was analyzed thematically using content analysis.

1.2 Findings

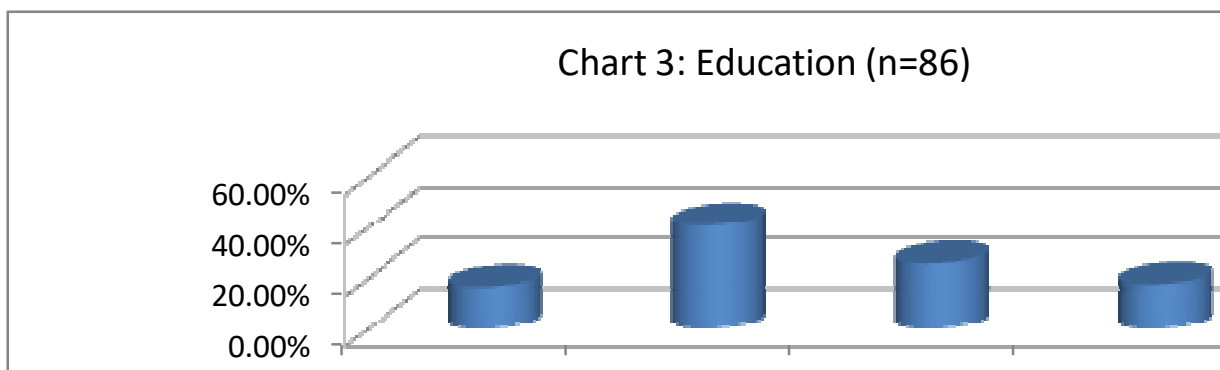
Out of a total of 111 questionnaires administered to the farmers in this study, a return rate of 77.5% was achieved. The sociodemographic characteristics of interest in this study were age, gender and the highest level of education attained at the time this study was undertaken because the study objective aimed at highlighting age, gender participation and the role of literacy in small scale farming among the trained youth in Kiambu County, Kenya.



The majority of the youthful rural farmers in Kiambu County, Kenya who participated in this study were aged 31-35 years among whom almost half (48.8%) while those aged 26-30 years constituted 17.8% compared to the most youthful at 21-25 (32.6%) years of age. The distribution of the rural youthful small-scale farmers was a reflection of their stages of careers, professional, occupational and social developmental stages. Early to mid ages were mainly at higher educational levels compared to the late ages most of whom were in or out of employment, pursuing late university education and they appreciated agriculture more by virtue of their higher levels of social responsibilities in their societies (Chart 1).



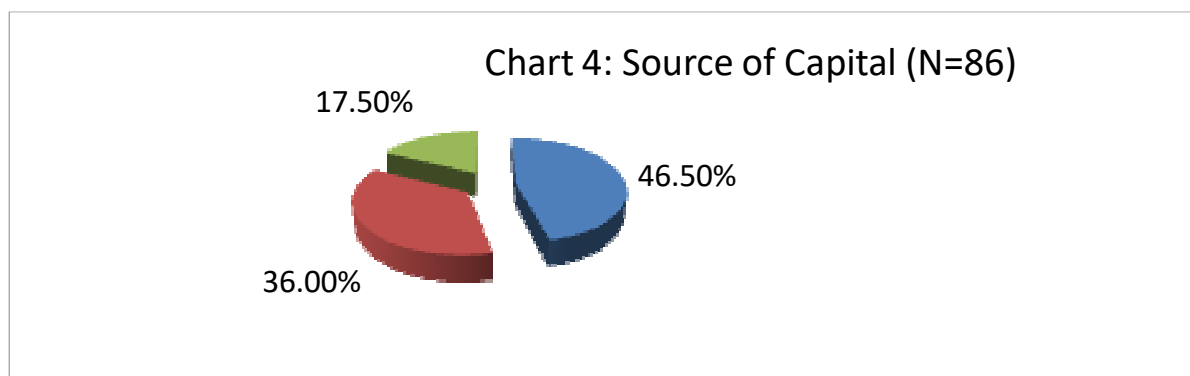
This study showed that there was more interest and participation in small scale farming by trained rural young males (65.1%) than females (34.9%) in Kiambu County, Kenya. This finding demonstrated a disparity in gender participation in small scale farming among the youth that had to do with the efficiency of males courtesy of their high energy levels and the divergent interest of females towards other vocational jobs such as sewing cloths, food vending and hairdressing (Chart 2).



This study showed that a large majority (53%) of the trained youthful rural farmers had attained at least form four level of education compared to 40% of them who had college or University levels of education. A small proportion (15%) had primary school level of education and only 4% of the youthful farmers had no formal education. These findings confirmed that guaranteed literacy level among the trained rural youthful famers in Kiambu County, Kenya, was high (93%), an indicator for the likelihood of effective and successful farming. However, the progressive increase in literacy rates towards university level found out in this study may turn out to be a disadvantage for farming in the long run because of the likelihood for increased demand compared to supply for white collar jobs (Chart 3).

1.2.1 Sources of capital

Capital for farming was identified by the youthful rural farmers in Kiambu County, Kenya, as the main determining factor for any business or entrepreneurial activity to succeed including agriculture.



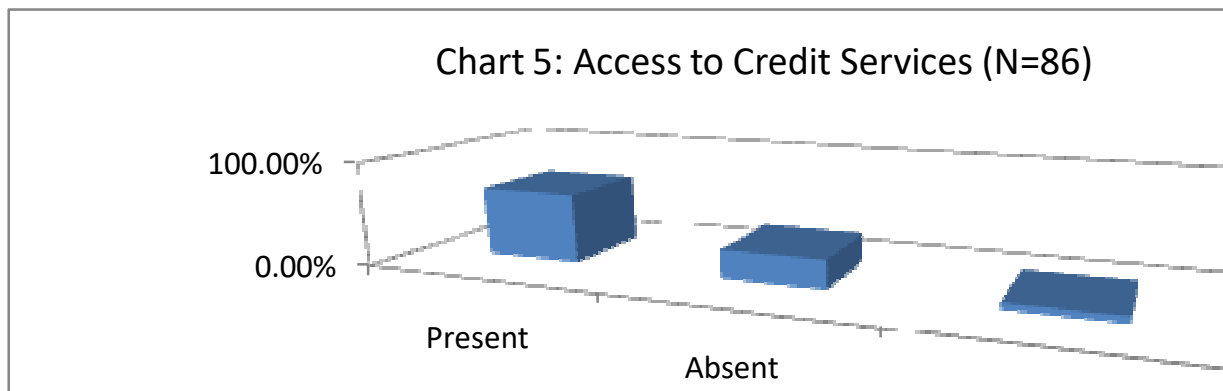
The findings of this study with regard to the requirement for agricultural capital showed that most (46.5%) of the rural youthful farmers' sources of income in Kiambu County, Kenya came from their families or inheritance followed by their own savings at 36% while only 17.5% of the rural youth took loans from lenders. This finding also indicated that parents supported their children in their venture to earn a livelihood from rural smallholder farming. Among sections of the study population, it was noted that some mothers gave their girls calves once they got married so that they could raise livestock and use the milk to feed their children. The findings further revealed that bank loans were the least sources of capital, implying that the youth were not taking out loans to invest in farming. This was attributed to the high risks and uncertainties involved in farming, low rate of employment or due to lack information on where they could get information on agro-loans (Chart 4).

2.1.2 Technology

Irrigation was found out to be the main technology utilized by most of the rural youthful farmers in Nyathuna and Kahuho parts of Kabete Constituency, Kiambu County, Kenya. Technology enabled the Nyathuna and Kahuho youth to yield agricultural produce throughout the year unlike those in Gitaru who were found not to have used technology as a new and effective means of production, thereby being limited in the production of their crops throughout the year. Youthful farmers practicing livestock production were found not to have adopted technology, therefore, most of their production relied on manual labour.

2.1.3 Access to credit

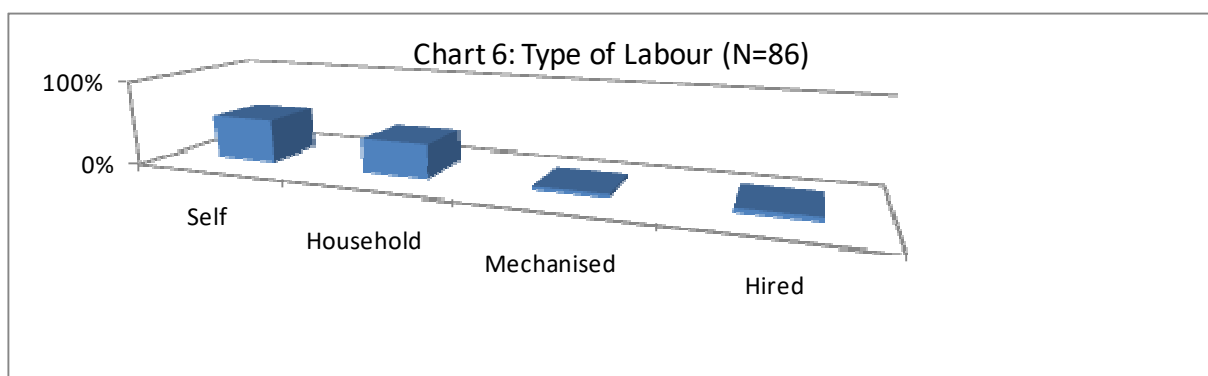
Youths and women rural smallholder farmers were limited in their access to credit services which hinders their performance in their agricultural production.



Slightly over two-thirds (67.4%) of the rural youthful small-scale farmers in Kabete Constituency in Kiambu County, Kenya, has access to financial credit services compared 26.7% who did not have access and 5.9% who had not made up their mind about access to credit services. The rural youthful farmers, therefore, had above average access to credit services in the study area (Chart 5).

2.1.4 Sources of labour

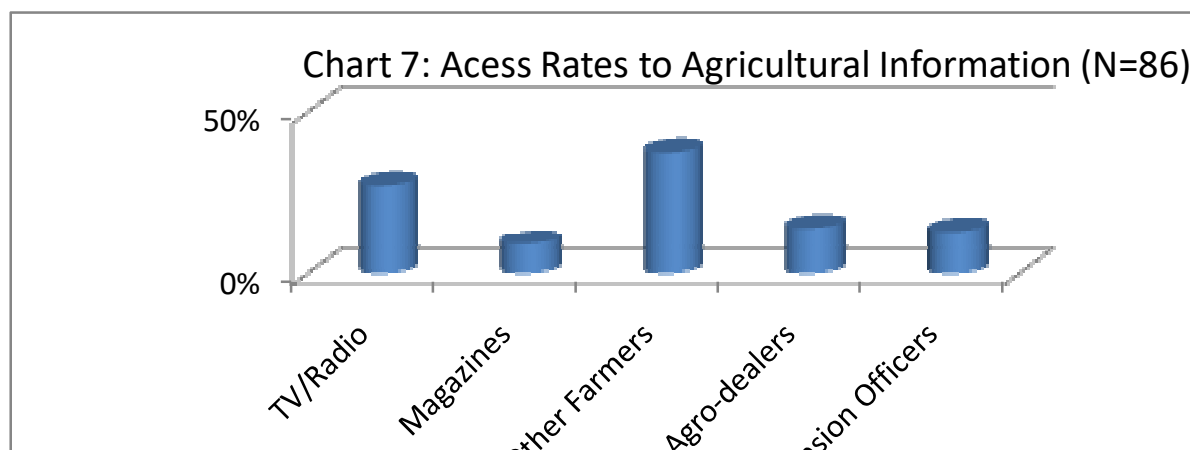
Labour as found to be an important component that enhanced performance in the rural youthful smallholder farming in Kabete Constituency of Kiambu County, Kenya.



Slightly over half (52%) of the farm labour in Kikuyu Constituency of Kiambu county, Kenya provided labour to their farms by themselves while their households accounted for approximately 39% of the farm labour. The rural youthful farmers and their households accounted for approximately 91% of their total farm labour requirements. Hired labour catered for approximately 5% of the total farm labour requirements while mechanization provided approximately 4% of the total farm labour (Chart 6).

2.1.5 Information

Information for rural youthful small scale farmers was found to be valuable in enhancing agricultural activity and productivity through information communication technology (ICT).



This study identified four sources of information for the farmers, ICT contributing a paltry 27.0% compared to the highest source of information, other farmers at 37.0%. agro-dealers (14%) and extension officers (13.0%) had almost equal impact in the provision of agricultural information to the rural youthful farmers in Kiambu County, Kenya while magazines contributed 9.0% of agricultural information to the farmers. The low impact of ICT in the agricultural sector denied the farmers real time information necessary for decision-making. This could mean youth are not aware or do not know how to use ICT to access reliable agricultural information. The findings also showed that farmers in the study area farmers did little reading about agriculture but instead, they heavily depended on word of mouth thereby lowering the level of agricultural knowledge among the farmers. The farmers however, found information provided by other farmers to be reliable and they least trusted information from radio and TV. Though most farmers android and ios cell phones, they did not use them for their agricultural needs (Chart 7).

i) Type of information

The types of information sought by farmers was about seeds and improved breeds (27.9), use of fertilizer (23.3%), pesticide and herbicide control (31.4%), information about markets for their produce and financial advice (7% each) and success stories (3.5%) in agriculture and financial advisory services.

Table 1: Types of Agro-information

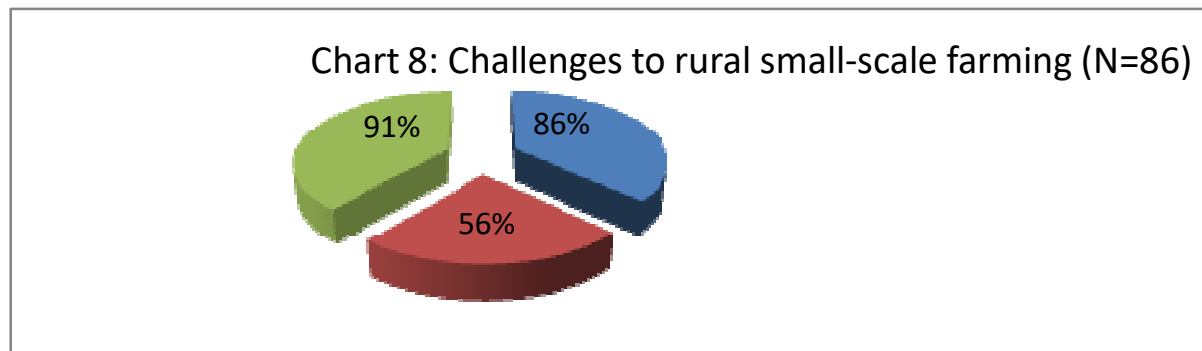
Types of information	%
Seeds and improved breeds	27.9
Use of fertilizer	23.3
Pesticide & herbicide control	31.4
Markets	7.0
Success story	3.5
Financial advice	7.0

All the information sought after by the rural youthful farmers was of agricultural relevance. The farmers sought information about pesticide and herbicide control most (31.4%), followed by seeds and improvement of breeds (27.9%) and use of fertilizer (23.3%). There was some interest in information about markets for their produce and financial advisory services, both at 7.0% and information about success stories (3.5%). These findings were

indicative of threats to the farmers' produce by pests and herbs as the single largest type of threat to the agricultural activities followed use of fertilizer and seeds and improved breeds (Table 1).

Chart 8: Challenges (N=86)

Three challenges to rural youthful farming in Kiambu County, Kenya, were identified in this study, namely, agronomical, harvesting and post harvesting.



The leading challenges (91%) experienced by the farmers in Kiambu were found in the post-harvesting period. The identified activities in the period included storage, cleaning, sorting and transportation, labor, processing the vegetables and value addition, perishability, distance to market, access to markets, consumption patterns and packing. The second challenge was agronomical (86%) in which the farmers experienced handicaps in plant health sciences including genetic studies, plant physiology, meteorology, use of technology, plant husbandry, land preservation, reclamation and use among others. Other agronomical challenges included access to finances and other farm inputs, inadequate agricultural skills, low prices of farm produce, inaccessibility to information, communication technology (ICT), animal breeds, fertilizers, animal feeds, drugs for animals, lack of land and poor quality seeds. Some of the techniques the youth used to keep their produce were found less effective (Chart 8).

1.3 Discussion

The findings of in this study showed that the trained small scale youthful rural farmers (65.1% males and females 34.9%) on 0.75 acres of agricultural land in Kabete Constituency, Kiambu County, Kenya, a high potential area on the periphery of Nairobi city, Kenya were mainly 31 years and above (48.8%). Similar findings and patterns were also documented by Chigunta & Mwanza (2016) and Chikezie (2012) Oladele et al., (2012) showed that males were often more energetic and could readily be available for energy demanding jobs like agriculture production, a finding that was confirmed in this study. The older farmers (30-35 years old) and those aged 26-30 years (17.8%) both of whom constituted 68.6% of the study participants were considered to be either in gainful employment and or in late university education who found agriculture necessary to supplement their incomes compared to the most youthful at 21-25 (32.6%) years of age. The gender disparities had to do with male preference for the high energy input agricultural activities compared to the female gender who leant towards vocational job-like engagements such as sewing cloths, food vending and hairdressing among the farmers who participated in this study as revealed by Chikezie (2012) that the low percentage of the female youth participation in agriculture production could attribute to the fact that female usually involved in several other activities outside farming like food vending, tailoring, petty trading and hair dressing. In another study Oladele *et al.* (2012) also revealed that males are often more energetic and could readily be available for energy demanding jobs like agriculture production. An interview with one parentrevealed that women youth do not like farming as a source of livelihood (Odladele *et al.* 2012). Agwu, agodi, Onwukwe, & Iroh (2015) in their study case study on determinants of agribusiness entrepreneurs' participation in innovations in Nigeria got similar results which they attributed to time and resource constraints that women often face. High literacy rate (93%) was noted in this study with over half (54%) of the trained youthful rural farmers having attained at least form four level of education compared to 43% of them who had college or University levels of education This finding was in agreement with that of Agwu *et al* (2012) who predicted a reduced number of youth participation in smallholder farming due to increased education attainment. This differences in the findings could be explained by the high unemployment rate in the formal sector and increase in life economic demand that pressed the youth to adapt to any available strategy of livelihood as reported by the Ministry of Foreign Affairs (MoFA, 2011) that increased educational levels made it easy for the youth to easily adapt to modern technology for high

productivity within smallholder farming. Whether high literacy rate could sustain small-scale farming or not in preference to white collar jobs could not be established in this study. In a study by Naamwintome, & Bagson (2013) on Youth in agriculture particularly Prospects and challenges in the Sissala area of Ghana, they found that majority of the respondents (77.84%) had no formal education (Naamwintome, & Bagson 2013). The study, further established that slightly less than half (46.5%) of the farmers accessed their capital from their families through inheritance, 36% made savings and 17.5% accessed loans. The same finding was observed by Mburu *et al.* (2010) & Anietal 2009) who cited lack of access to credit facilities as an impediment to youth venturing into farming. According to sustainable livelihood framework of the Department for International Development (DFID 2000) of the United Kingdom, for a livelihood to be sustainable the participants needed to have accessed to structures and processes such as bank loans. To explain the low credit intake for the youth framers, according revelation of the Food and Agricultural Organization (FAO 2010), the youth often lacked knowledge on how to draft business plans and thus they had difficulties in selling their business ideas to financial institutions for loans. The findings of this study confirmed those of the FAO and DFID, making the Kenyan findings comparable globally. Furthermore, in this study, mothers offered livestock to their newly wed daughters when they got married as part of economic stability among the newly married. These findings were consistent with those of Mburu *et al.* (2010) and the International fund for Agricultural Development (IFAD 2009) when it was observed that smallholder farmers depended on borrowings from friends and relatives as capital at start for farming with minimal use of loans from financial institutions. Contributing factors to the low uptake of loans included risks and uncertain outcomes in farming including climate change, low access to agricultural and agro-business information (Njoroge, 2012). This implied that the youth acknowledged the difficulties that existed for them to get capital to start venturing into agricultural activities. This finding was supported by that of Muranda, Frank, & Saruchera (2014). Quoting Dalla Valle (2012), he observed that there was still much to be done to improve the availability of such services to young people in the agricultural and rural enterprises (Muranda *et al.* 2014). Over half (52%) of the farmers provided labour by themselves on their farms, their households contributed 39% of the labour, 5% was hired labour and mechanization accounted for 4% of the labour. Cumulatively, the farmers and their households accounted for 91% of their labour requirements. This resonates with findings in a study in Malawi by Peters (1998) and data collected suggested that, in some years, ganyu and other coping strategies would be used by the majority of farmers for around four months (Peters, 1998). This was similar to a study by other studies where youth cited lack of access to the necessary resources as a major hindrance for pursuing agriculture or an agriculture related career (Amadi 2012; Chinsinga & Chasukwa 2012; FAO, IFAD, & CTA, 2014; FAO, IFAD & MIJARC 2014; Lyocks, et al. 2013; Man 2012; Naamwintome & Bagson 2013; Swarts & Aliber 2013; Webster & Ganpat 2014). While not an exhaustive list, these resources for youth included having access to trainings and education, governmental support, human resource in the form of labour and land. Most of the farmers (73%) had minimal access to information and communication technology (ICT) for the education on agriculture and their main source of information and education on agriculture (37%) was a word of mouth among themselves, meaning that the word of mouth played the biggest role in access to agro-information and education. The Kenyan farmers did not seek much information from agro-dealers (14%), extension officers (13%) and reading magazines on small scale farming (9%), implying that there was little contact with experts in the field and or a weak technical support programme in Kiambu County, Kenya. Real time access to agro-information in this study was limited due to low level of access to ICT facilities in the county in spite of the high access of the farmers to internet using their android and iOS phones and easy access to internet cyber cafes (Lwoga *et al.* 2011pp. 383-395). Shaffril *et al.* (2009) found out that Malaysian youth relied heavily on their mobile phones which were readily available to youth globally and thus, it was suggested that the agricultural sector harness the potential of mobile phones to disseminate information to exchange knowledge and increase interest in the agricultural sector. Use of technology such as mobile phones, led to greater social cohesion, information exchange (Goodman 2005; Ilahiane 2007; Kwaku, Kewku & LeMaire, 2006 & Shaffril *et al.* 2009). The farmers mainly sought agro-information and education about seeds and improved breeds (27.9), use of fertilizer (23.3%), pesticide and herbicide control (31.4%), information about markets for their produce and financial advice (7% each) and success stories (3.5%) in agriculture and financial advisory services. Njenga *et al.* (2012) observed that youth had modern phones but were not using them for agricultural information such as the “Mkulima champion initiative”. In addition, Irungu *et al.* (2015) noted that the youth needed to incorporate ICT in their farming to enable them access markets and agricultural information and access by youth farmers. This implied that the youth were not aware or they did not know how to use ICT to access reliable agricultural information.

1.4 Conclusion

This study concluded that there was huge potential for the rural small scale youthful farmers in Kenya which could reduce shortage of food and that the increasing national population was unlikely to give chance to large scale farming. The small scale youthful farmers had a chance of self sufficiency in food production, self

employment and support to their families if they accessed loans, mechanized their industry, used technology to access agro-information in real time and got technical support from extension services. The study further concluded that farming was likely to be effectively driven by males than females and it further concluded that positive changes had taken place among the farmers following trainings on agro-business imparted on them. Furthermore, no mention was made of insuring the farmers to cushion them from losses or compensation as well as strengthening the technical support to the young farmers. This argument was reinforced by the fact that supporting the youth in agriculture was a sustainability strategy for food security in Kenya due to the likelihood of trans-generational transfer of know-how. However, there was for abandonment of this successful project if the farmers continued pursuing education up to university level, which would increase interest of the youth in white-collar jobs at the expense of food security, which in turn would lower morbidities and mortalities associated with food insecurity. It is therefore, recommended that the government gets more interested and involved in this pilot project to spur interest in farming among the youth in Kenya.

1.5 References

- Adesugba, M. A. and Mavrotas, G., 2016. *Delving deeper into the agricultural transformation and youth employment nexus: The Nigerian case* (Vol. 31). Intl Food Policy Res Inst.
- Agwu, E. and Kayode-Adedeji, T.K., 2015. Application of ICT to Agriculture as a Panacea to Unemployment in Nigeria. *International Journal of Advanced Multidisciplinary Research and Review*, 3(4).
- Ahaibwe, G., Mbowa, S. and Lwanga, M. M., 2013. *Youth Engagement in Agriculture in Uganda: Challenges and Prospects*. Unpublished Thesis, Makerere University, Kampala.
- Antoniades, M., and Tarasuk, V., 1998. A survey of food problems experienced by Toronto street youth. *Canadian Journal of Public Health*, 89(6), 371.
- Banks, N., 2016. Youth poverty, employment and livelihoods: social and economic implications of living with insecurity in Arusha, Tanzania. *Environment and Urbanization*, 0956247816651201.
- Chigunta, F., 2016. Entrepreneurship as a Possible Solution to Youth Unemployment in Africa. *People*, 10, 1.
- Chigunta, F., and Mwanza, V., 2016. Measuring and promoting youth entrepreneurship in Zambia. *Young Entrepreneurs in Sub-Saharan Africa*, 48.
- Chiguta, F., 2012. *The Socio Economic Situation of Youths in Africa: Problems Prospects and Opinions*. London.
- Chikezie, N. P., Omokore, D. F., Akpoko, J. G., and Chikaire, J., 2012. Factors Influencing Rural Youth Adoption of Cassava Recommended Production Practices in Onu-Imo Local Government Area of Imo State, Nigeria. *Greener Journal of Agricultural Sciences*, 2(6), pp. 259-268.
- Crocker, J., Shields, K. F., Venkataramanan, V., Saywell, D., and Bartram, J., 2016. Building capacity for water, sanitation, and hygiene programming: Training evaluation theory applied to CLTS management training in Kenya. *Social Science & Medicine*, 166, pp. 66-76.
- Eissler, S., Brennan, M., and Pennsylvania, T. 2015. Review of Research and Practice for Youth Engagement in Agricultural Education and Training Systems Award Number : AID-OAA-L-12-00002, (December).
- Emmanuel, F. O., and Olaseinde, A. T., 2016. Assessing The Future of Agriculture in the Hands of Rural Youth in Oriade Local Government Area Of Osun State, Nigeria. *International Journal of Agricultural Extension*, 4(2).
- Gough, K. V., 2016. Youth and jobs.
- Joshi, V. N., 2016. Agriculture in India: A Perspective from 1st Principles.
- Jost, C., Kyazze, F., Naab, J., Neelormi, S., Kinyangi, J., Zougmore, R. and Nelson, S., 2016. Understanding gender dimensions of agriculture and climate change in smallholder farming communities. *Climate and Development*, 8(2), 133-144.
- Kobe, M. J., 2014. *The Effect of ICT on Youth Participation in the Production of Pigeon Pea: The case of Muka sub county, Makueni County, Kenya* Doctoral dissertation, University of Nairobi.
- Lwoga E. T., Stilwell C., and Ngulube P., 2011 Access and use of agricultural information and knowledge in Tanzania. *Libr Rev* 60: 383-395.
- Mangal, H., 2009. Final Report, (September), pp. 1-37.
- Mbah, E. N., Ezeano, C. I., and Agada, M. O., 2016. Effects of rural-urban youth migration on farm families in Benue state, Nigeria. *International Journal of Agricultural Research, Innovation and Technology*, 6(1), pp. 14-20.
- Mercy, W., 2014. *Factors Influencing Performance of Youth Enterprise Development Projects in Kiaamba sub county Kenya*. University of Nairobi. University press.

- Mtega, W. P., Ngoepe, M., and Dube, L., 2016. Factors influencing access to agricultural knowledge: The case of smallholder rice farmers in the Kilombero district of Tanzania. *SA Journal of Information Management*, 18(1), 8-pages.
- Muranda, Z., Frank, R., and Saruchera, F. 2014. Land as the nexus in youth, female unemployment and poverty reduction.
- Naamwintome, B. A., and Bagson, E., 2013. Youth in agriculture : Prospects and challenges in the Sissala area of Ghana, *Net Journal of Agricultural Science*, 1(2), (May), pp. 60–68.
- Neumark, D., and Wascher, W., 2004. Minimum wages, labor market institutions, and youth employment: a cross-national analysis. *Industrial & labor relations review*, 57(2), 223-248.
- Njoroge, I. M., 2012. *Factors influencing the uptake of Youth Enterprise Development Fund loans in Kieni East district, Nyeri County* (Doctoral dissertation, University of Nairobi, Kenya).
- Noorani, M., 2015. *To Farm or Not to Farm? Rural Youth Perceptions of Farming and their Decision of Whether or Not to Work as a Farmer: A Case Study of Rural Youth in Kiambu County, Kenya*. Doctoral dissertation, University of Ottawa.
- Simonyan, J.B., Umoren, B.D. and Okoye, B.C., 2011. Gender differentials in technical efficiency among maize farmers in Essien Udim local government area, Nigeria. *International Journal of Economics and Management Sciences*, 1(2), pp.17-23.
- Sumberg, J., Anyidoho, N. A., Chasukwa, M., Chinsinga, B., Leavy, J., Tadele, G., and Yaro, J., 2014. Young people, agriculture, and employment in rural Africa.
- Tadele G., and Gella A. A., 2012. A last resort and often not an option at all;familyandyoung people in Ethiopia.*IDS Bulletin*.
- White, B. 2012. *Agriculture and the generation problem. Youth employment and the future of farming*.
- Yadav, B. S., Khan, I. M., and Kumar, M., 2016. Utilization Pattern of Different Sources and Channels of Agriculture Information used by the Fenugreek Growers. *Indian Research Journal of Extension Education*, 11(21), pp. 44-49.
- Yankson, P. W., and Owusu, G., 2016. 7 Prospects and challenges of youth entrepreneurship in Nima-Maamobi, a low-income neighbourhood of Accra. *Young Entrepreneurs in Sub-Saharan Africa*, 94.