



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

INTERNATIONAL JOURNAL
OF CURRENT RESEARCH

International Journal of Current Research
Vol. 12, Issue, 08, pp.13038-13048, August, 2020

DOI: <https://doi.org/10.24941/ijcr.39297.08.2020>

RESEARCH ARTICLE

RETURNS TO LEVELS OF EDUCATION BY THE URBAN SELF EMPLOYED IN KENYA

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ARTICLE INFO

Article History:

Received 15th May, 2020
Received in revised form
21st June, 2020
Accepted 24th July, 2020
Published online 30th August, 2020

Key Words:

Human Capital, Return to education,
Investment and Earnings.

ABSTRACT

The self-employment sector provides an avenue for workers to earn a living. The returns to the self-employed remains unexplained. In Kenya studies indicate the increasing entry of school graduates of all levels of education entering the self-employment whose returns remains unpredictable. The study objectives were to; analyze the returns to levels of education of the self-employed in computer industry, analyze the returns to education of levels of education of the self-employed in spare parts industry. The study used descriptive and correlation design. The study used human capital theory as advanced by Becker which states that earnings rise with additional years of schooling. The population of the study was 11,240. That is in computer service industry 6,400 and spare parts 4840 workers. The study used Glen model to derive a sample of 384 respondents with 218 computer services and 166 spare parts self-employed workers. Questionnaire and interview schedules were used to collect data for the study. Validation of the instruments was done by consultation with supervisors of this study and other researchers to ensure they complied with universal standard of proposal and research finding reporting. Reliability of instruments was established at 0.7. Quantitative data was analyzed using descriptive statistics and inferential statistics. Qualitative data was transcribed and analyzed in emergent themes and sub-themes and reported verbatim. The study found out that; on average in computer service industry self-employed respondents with KCPE, K.C.S.E and diploma had similar amount of returns while bachelor's degree and masters earnings were higher with certificate recording lower earnings. The combined levels of education explained 22.6% of the returns in education. The result therefore indicated that education levels marginally explain the returns to education in computer service industry. In spare parts the results showed that on average; respondents with KCPE, KCSE and certificate earned nearly similar amount of money. Diploma graduates earnings bachelor's degree and masters graduates recorded higher earnings. The combined effects of all levels of education explained 31.8% while 68.2% remained unexplained. Education levels therefore significantly explained the returns to education. Government intervention were not effective in the provision of: market stalls, loans and market for finished products, but effective in provision of: security, electricity and infrastructure. The study conclude that K.C.P.E level of education had positive returns and other levels of education could not be relied upon to explain the returns to education. The study recommended curriculum review in other levels of education apart from K.C.P.E to make them relevant to the needs of the self-employed in computer and motor spare part. The study is important in formulation of education programmes relevant to the self-employed and government intervention in support of the self-employed.

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Citation: Eliud Nyakundi 2020. "Returns To Levels Of Education By The Urban Self Employed In Kenya", *International Journal of Current Research*, 12, (08), 13038-13048.

INTRODUCTION

Investment in human capital is considered a crucial factor that contributes to economic growth (Idrus & Cameron, 2000). Returns to education have a significant impact in individual earnings. Returns to education in the formal sector can be measured from earnings accruing from monthly wages (Psacharopoulos, 2004, & Soon, 1987). Results from the relationship between education and earnings in self-employment have contradictory findings. The contradictory findings arise from the nature of self-employment activities which have no wage structure and are subject to different

earnings dependent on varied working variables (You & Giseung, 2008; Donald, 2002). The returns to the self-employed have attracted studies because of the critical role of the sector in employment creation (Samir & Barry, 2013). The relationship between educational background on the one hand and entry to and success in self-employment on the other hand is complex and contradictory. Returns within levels of education even within same self-employment activity can hardly be predicted. Stephan, David and Anil (2012) in their findings on the state of self-employment in U.S.A observed that contrary to the perception of self-employment declining

the sector was growing and likely to stay, and it behooves policymakers to pay attention to this new work force reality. Results suggested that policy and educational programs should be directed at improving the productivity and earnings of the self-employed so as to have high payoffs in terms of local economic growth and employment opportunity. The self-employment sector in the U.S.A is mainly computer driven in contrast with the developing countries where the sector is manually driven. Paul and George (2005) in their study on self-employment in garages Accra Ghana noted that unemployment is a major challenge in Ghana worsened by rapid urbanization experienced by the country but without substantial expansion of job opportunities. The youth are the hardest hit by the unemployment challenge and yet the cities continue to be a major attraction for migrants, especially the youth in search of employment there. Most of the youth end up operating within the informal economy either working for others or setting up and operating their own enterprises. The results of the analysis of the data showed that there are positive signs for youth entrepreneurship in the motor garage sector of the urban economy and these positive signs ought to be enhanced and translated into action for supporting youth entrepreneurship by addressing the challenges confronting operators in the sector. In Kenya the motor spare parts sector is a major employer of young people in urban centres.

Namirembe (2014) on Private returns to Education for the Wage-employees and Self-employed in Uganda found that; for both sectors an individual's extra year of schooling is associated with an increase in earnings of 15 percent. Kingdon and Söderbom (2007) found similar returns to education for the agricultural workers, wage-earner and the self-employed among the older cohort in Pakistan. However this results contrast with findings for Ghana (Kingdon & Söderbom, 2007) where the returns to education for wage employment are higher than self employment. Samir and Barry (2013) found little evidence of human capital effects in the earnings determination process in the self-employment sector in Tanzania. The study is a contradiction of the human capital theory which associates education with increased returns (Samir, 2013). The Small and Micro Enterprises (SMEs) play an important role in the Kenyan Economy. According to the Economic Survey (2006), the sector contributed over 50 percent of new jobs created in the year 2005. Despite their significance, past statistics indicate that three out of five businesses fail within the first few months of operation (Kenya National Bureau of Statistics, 2007). According to Amyx (2005), one of the most significant challenges is the negative perception towards SMEs. Potential clients perceive small businesses as lacking the ability to provide quality services and are unable to satisfy more than one critical project simultaneously. Often larger companies are selected and given business for their clout in the industry and name recognition alone.

Wanjohi and Mugure, (2008) examined the factors affecting the growth of SMSEs in rural areas of Kenya a case of ICT firms in Kiserian Township, Kajiado District of Kenya. The study analyzed the growth and factors affecting the firms in Kajiado Township. The findings were that; the youths with various levels of education were gainfully getting into computer service Self-employment activities, there was frequent electricity blackout and financial constraints faced those in I.C.T self-employment activity. The study did not analyze the returns to the various levels of education

Mogambo and Omwenga (2015) sought to find out challenges affecting growth and performance of the SMEs with particular reference to the Jua Kali Motor Garages in Shauri Moyo, Nairobi, and City County. The study identified the role played by small and medium size enterprises due to their ability to create employment at low cost, contribute to Gross domestic Product, alleviation of poverty, equitable distribution of income, utilization and conservation of local resources, earning and conserving foreign exchange, provision of goods and services at reasonable cost. The motor spare parts self-employed continue applying inadequate and inappropriate technology which according to Wanjohi and Mugure (2008) pose a great challenge to small business by slowing their work and offering poor quality service which leads to them losing and not attracting more clients. They continue struggling to acquire and retain new clients due to the slow and low quality service that they offer to their clients. Momanyi (2008) on benefits of non-formal education to jua kali artisans found that jua kali artisan with training exhibited higher levels of performance than those with less or no training. Barasa and Kabwe (2001) on fallacies in policy and strategies of skills training for the informal sector concluded that the sector was attracting high qualification and 70% of the respondents had passed well in school subjects such as mathematics, science and English. Ombati (2006) in a study conducted among rural farmers found out that they were willing to embrace modern communication but the farmers were hindered by poor infrastructure, lack of government initiative and bureaucracy. Ondieki (2006) found that artisans with secondary education produced a higher product quality than those with primary education. Mogambo and Omwenga (2015) on challenges faced by garages in Shauri Moyo in Nairobi found out finances was the biggest challenges. The available literature reviewed in Kenya relating levels of education in self-employment is inadequate and many of the studies cited were focusing on the challenges facing the self-employed and few have related levels of education and returns to education in computer and motor spare industries. The study focused on the computer services and motor spare parts self-employment sector. These are predominant self-employment activities in the areas targeted in the study. Out of about 15,000 workers in the urban centre about 11,000 were in computer and spare parts industries according to the trade licensing office in Kisii County. There is evidence that returns to education are rewarded differently across occupations Baum and Payea (2004). The study examined returns to education on the two self-employment activities.

The issue for this study: Studies in returns to education in the self-employment sector have posted contradictory findings. In the developing world studies indicate the critical role of the self-employment in employment creation. However the returns to education posted mixed findings as some studies indicate a positive relationship between levels of education and returns in the self-employment sector. In Ghana the self-employed sector in motor garages had higher returns while in others as in Tanzania and Nigeria there was a negative relationship between returns to education and levels of education. Studies in Kenya on computer and motor spare service have not been conclusive on the returns to education in the self-employment sector. The study examined the computer and motor spare parts service industry self-employment activities in urban in urban Kisii County. Kisii County is heavily populated according to Kenya's last population census. The region has few industries to absorb many of the graduates coming out educational

institutions in the region. It is for this reason that the study analyzed the returns to education of the self-employed in computer and motor spare parts service industry.

Objectives that guided of the Study

The objectives of the study were to:

- Analyze the returns to levels of education of the self-employed in computer service industry.
- Analyze the returns to levels of education of the self-employed in motor spare part service industry.

Research Questions

The study was guided by the following questions

- What are the returns to levels of education of the self-employed in computer services industry?
- What are the returns to levels education of the self-employed in motor spare parts industry?

Scope of the Study: The study was conducted in three urban centres in Kisii County namely; Kisii, Suneka and Keroka. The self-employed in computer and motor spare service industries were the target of the study. The study was narrowed to levels of education and returns of the self-employed in computer and motor service industries from 2012-2016.

Limitation of the Study

The study was limited in the following ways.

- This study recognized the sample size and research sites to be a limitation. A relatively small sample population and a restricted research sites narrowed the participation of the target demography. The sample and sites may have narrowed the interpretations and conclusions concerning the returns to the self-employed in computer and motor spare parts industry
- The study is focus-specific, and therefore, attributing findings to other self-employment activities or other phenomenon, and other targeted demographics is not appropriate.

Theoretical Framework: The contemporary theory of human capital has its origins in the work of Schultz (1960) and Denison (1962) who postulate that the positive correlation between education and economic growth due to productivity enhancing effect of education. Better trained workers are considered to be more skilled and productive than less trained workers justifying their higher wages. The theory of human capital was used to establish whether levels of education determine the returns of those in self-employment in computer and motor spare parts service industries. In self-employment the role of human capital in terms of educational attainment and earnings is less clear-cut. In formal sector attainment of higher education and training may translate to higher earnings. The earning of the self-employed can be influenced by entrepreneurial skill or other abilities not captured in formal education. Therefore the returns to education among the self-employed with same or similar level of education could be lower or higher.

Literature review and study gaps: The theory of human capital has been used to explain income differential (Nyakundi, 2008). You and Giseung (2009) observed that; the returns of investment in education can be calculated from the earnings of the recipients of education. Psacharopoulos and Patrinos (2004) found out that the returns to schooling in developing countries are higher than in developed countries. Schultz (2004), Kingdon, Sandefur and Teal (2005), show that in general the return to an extra year of education increases with the level of education; while returns do not increase monotonically with level of education in some countries.

Education is also associated with other benefits. Gavan and Pietro (2011) in a report prepared by London school of economics observed that there are a number of other benefits associated with higher education qualification attainment; such as improved health outcomes and the reduced likelihood of requiring public sector assistance in relation to healthcare or the negative relationship between qualification attainment and criminal activity. There is also some economic literature on the existence of education-related spillovers, whereby the labour market outcomes of those with lower levels of qualification attainment is augmented by the presence of a greater proportion of more highly qualified workers. Psacharopoulos (2009) on returns to investment in higher education in European countries found out that; returns varied between countries. The returns were higher in newly established countries such as Czech Republic, Poland, Hungary and Turkey and lowest in Scandinavian countries such as Denmark and Sweden. On average university graduates had 61% advantage over secondary school leavers. Higher education investment for individuals and society was found to be profitable. However Carlo and Herman (2011) observed that there is no productivity argument involved, education is just legitimizes means for social closure and exclusion. Similarly Bowles and Gintis (2001) viewed education as a tool determining where an employer places an employee to perform certain tasks.

Gary (2008) report on Australian occupation of earnings of young Australians examined the occupational status of jobs and weekly earnings by type of post-school education and training. Occupational status provides a convenient summary measure of occupations based on job status or prestige, while earnings measure the financial reward from work. The report examined the occupational status of jobs and weekly earnings by type of post-school education and training. The workers in computer industry were the main respondents. Occupational status provides a convenient summary measure of occupations based on job status or prestige, while earnings measure the financial reward from work. The main results of the multivariate analyses were as follows: A bachelor degree qualification had the largest impact, increasing earnings by about 30 per cent. The effects of bachelor degrees were slightly stronger among women than among men. Apprenticeships also had a major impact on earnings, and on average increased weekly earnings by about 20 per cent. This effect was stronger among young men than among young women, diploma qualification increased earnings by about 14 per cent; and a university diploma by nearly 20 per cent. Boothby and Drewes (2006) examined the diploma earnings in Canada. The report findings were that the college earnings premium increased between 1980 and 2000. Ferrer and Riddell (2002) also identify a small earnings premium to non-university post-secondary education (compared to those with a high school education).

While college graduates enjoy a more modest earnings premium than university graduates, they still benefit from a substantial rate of return for two reasons. First, college is typically cheaper than university in Canada. Also, college programs tend to be shorter. George (2007) discusses the significant difference between different countries when it comes to quality of education in certain areas. Borjas states that a higher percentage of Indian students study computer science than American students; therefore, using specific human capital theory, this would suggest that Indians would be more successful in starting a business in the technology field compared to Americans, simply because they have more related educational attainment. Computer service self-employment activities are among the growing self-employment activities in urban centers of Kenya.

Albert and Xiaobo (2013) analyses the nature of informal employment and estimate the returns to education in the formal and informal labour markets in China. It is estimated that 25.4 per cent of the urban workers are informally employed and 22.2 per cent of them work in the informal sector. The results show that the returns to education are lower for those working informally as compared to formal workers and that the gap in returns is even larger for those working in the informal and formal sectors (4.2 percent versus 11.1 percent per year of schooling according to a switching regression model). The quartile regression results reveal that the returns to education increase at higher quintiles for informal employment but not for formal employment. The results suggest that the formal and informal sectors are characterized by labour market segmentation. Patrick et al (2012) examined the effectiveness of entrepreneur training on performance of university graduates in Tunisia. The training was found to have created in the graduate's optimism for the future. The entrepreneurship training enabled the graduates create their own jobs, as well as align their skill with the needs of the market. In a country where youth unemployment is high self-employment will be productive to many university graduates without jobs. The present study seeks to determine the returns to education of the self-employed. Chad (2009) argues that it is essential to harness the greatest talent, ensuring that sufficient human capital exists to raise productivity, output and incomes of the people. There is a link between new enterprises and increased living standards of people. Higher training ensures that workers are able to utilize the highest level of training for increased productivity. Bosire (1999) had found a strong correlation between possession of business skills and success of the self-employed. Possession of relevant skills in type of self-employment activity engaged in is vital for the success of the activity. However there exist no regulations over the self-employment activity and level of education resulting into workers entering into self-employment activities in areas that they may not have necessary training

The focus of the present study was on the urban self-employed as an alternative to formal employment. The sector is known in Kenya as *jua-kali*. This are enterprises operating outside the industrial sector, employ an average of up to 10 people and concern themselves with activities such as; woodwork tailoring and dress making, metal work, blacksmith, basket making, hotel, eateries, fruits, computer, cybercafés, transport and taxi. The study will focus on computer service and spare parts sectors. The two activities are predominant in the urban centers.

Demographic studies indicate that much of the population of developing countries will be living in urban areas.

Returns to Various Levels Education of the Self-employed in Motor Spare Parts Industry: Studies by Lin (2001) focused on education, technical progress and economic growth of Taiwan 1965-2000 periods. The study revealed that education had a positive and significant effect on economic growth. There was also no markedly significant relationship existing between capital and education or between education and technical progress. Ayodo (1990) focused on vocational rehabilitation programs in Kenya. The study examined the economic viability of training and resettling disabled persons in self-employment. The study (Ayodo, 1990) found out that; it was remunerating both economically and society for Kenya government to train the disabled in self-employment skills. The self-employment sector requires skills for increased productivity (Yaz, 2006).

Michael (2011) estimated the on-farm and off-farm (labour market) returns to education and qualifications for a sample of farm operators in Northern Ireland. The modeling analysis examined years of schooling to estimate the marginal gain in earnings associated with additional schooling. The analysis also explored the returns to specific qualifications for example degree level and agricultural qualification. The results were that; investment in education pays substantial dividends in terms of higher wage rates. Mohammad (2005) in a study on returns to education of the self-employed in Bangladesh found that substantial non-linearity in returns to education in Bangladesh: returns increased across levels of education. Primary education had the lowest returns. The finding that primary education had the lowest return does not imply that investment in primary schooling is necessarily inefficient. The suggestion was to equip graduates of primary education with skills necessary for the world of work. Duraisamy (2000) on returns to education in India across all levels of education in urban and rural areas found that the private rate of return per year of education increases as the level of education increases up to the secondary level. The returns to primary education were rather low while in general, returns per year at the secondary level are the highest. The wage premium for technical diploma is notably high. Second, male-female comparison of returns reveals that the returns to women's education exceed that to men at the middle, secondary and higher secondary levels. Third, the younger age cohorts (15-29 and 30-44) receive higher returns to additional year of education at the primary, middle and secondary levels, while those in the 45-85 age cohorts receive higher returns to college education than the younger age groups. Fourth, on the variation in returns by rural-urban residence is the higher returns to education in rural than in urban areas for primary and secondary levels and also for technical diploma. The rewards for higher secondary and college education were higher for the urban compared to the rural residents. Last, there is evidence of considerable change in the reward for education, especially for women, between 1983 and 1993/4. The returns to women's education for primary and middle levels had declined while those for secondary and college levels have increased during the decade 1983-94. This was whoever a general study focusing on urban and rural workers in both formal and informal sectors. The current study focused on two self-employment areas in urban centers.

Paul and George (2015) examined auto spare self-employment in Ghana. The results of the analysis of the data showed that there are positive signs for youth entrepreneurship in the auto sector of the urban economy and these positive signs ought to be enhanced and translated into action for supporting youth entrepreneurship by addressing the challenges confronting operators in the sector. It is also recommended that further studies need to be carried out on each of the areas of key challenges identified in this study paper for the formulation and implementation of appropriate policies and programmes to support youth entrepreneurship in the auto and related economic sectors of Ghana. Jerome (2014) was a comparative study, conducted in the capital cities, Nairobi, Kenya and Kampala, Uganda, and focusing on youths' informal learning, transiting to adulthood, and seeking employment. The research explored Jua Kali youths with informal skills accessing employment opportunities in the informal economic sector. In the conceptual framework, youths exit school early before acquiring skills, and consequently become involved in informal work or in activities that are not official or regulated by government. While engaging in these activities, youth attain life skills. The study notes: First, the youth lacked skills for their work. Secondly, lack of guiding rules and inadequate experience prior to employment. Third, accessing employment in Jua Kali by the youthful population reveals desired impact on their wellbeing: Youths feel fulfilled, happy and economically empowered. The study concluded that jua kali was giving gainful employment to the youth. Momanyi (2008) examined the benefits of non-formal education to jua kali artisans. The study investigated to what extent non formal education provided by the informal sector institute (I.S.B.I) benefited the jua kali artisans in business development services. The study found that jua kali artisan with training exhibited higher levels of performance than those with less or no training. The study recommended inclusion of entrepreneurial skills in formal training. Entrepreneurial skills are critical in the success of those in the jua kali industry.

Barasa and Kabwe (2001) researched on fallacies in policy and strategies of skills training for the informal sector. They concluded that the sector was attracting high qualification and 70% of the respondents had passed well in school subjects such as mathematics, science and English. In the study; 62% of respondents had primary education, 36% secondary and 2% formal college education. However the study did not look at earning differentials between various self-employment activities. Ombati (2006) in a study conducted among rural farmers were willing to embrace modern communication. The farmers were hindered by poor infrastructure, lack of government initiative and bureaucracy. Ondieki (2006) found that artisans with secondary education produced a higher product quality than those with primary education. The study concluded that higher education had more returns than lower education attainment.

RESEARCH METHODOLOGY

Research Design: The study used correlation research design (Gall & Borg, 1996; Kisilu, Kombo & Tromp, 2006). Correlation coefficient (r) was used to show the magnitude of relationship while multiple regression coefficients (R) allowed the prediction of earnings according to various levels of education. The study also used descriptive survey. Descriptive is designed to depict the participants in accurate way (Mugenda & Mugenda, 2009). Descriptive allows the

researcher to have a brief interview or discussion with an individual about a specific topic. A descriptive survey allowed the researcher to gather information, summarize, present and interpret for purpose of clarification (Orodho, 2003). The information obtained was analyzed using means, averages, frequencies and percentage.

Study Population: The study focused on the self-employed in key urban centers: Kisii town, Suneka, and Ogembo. The centers selected are key commercial hubs in Kisii county with increasing number of people getting into self-employment activities. The target population in these centers was estimated to be 11,240 with computer service industry having 6400 and motor spare parts 4840 respondents respectively. They were identified by the type of self-employment activities they are engaged in and levels of education. Records from the trade office estimate the self-employed in spare part and computer services in Kisii town as 10020, Suneka 650 and Ogembo 570. The urban centers selected for the study have high population due to rural urban migration (Government of Kenya, 2009).

The population of the study is represented in Table 3.1.

Sample and Sampling Techniques: The sample size in this study was obtained using Fishers formulae (Glenn Israel, 1992).

$$n = \frac{Z^2 pq}{d^2}$$

$$= \frac{(1.96)^2 (0.5)(0.5)}{(0.05)^2}$$

$$= 384$$

n = desired sample size when the desired sample size is greater than 10000

Z = the standard normal deviate at the required confidence level (in our case 95%).

p = the proportion in the target population estimated to have characteristics being measured (in our case 0.5)

$q = 1 - p$.

d = the level of statistical significance set (in our case 0.05 since the confidence level is 95%).

Snowball was used to identify the respondents by levels of education and self-employment activity. Stratified sampling was used to get the number of respondents per urban centre to ensure equitable distribution. In computer service industry the sample collected was 218 and motor spare service industry was 166 respondents. Further the sample for each urban centre was: In computer, Kisii was 197, Suneka 10 and Ogembo 11. In spare parts the sample for each urban centre was; Kisii town 145, Suneka and Ogembo 9.

Data Collection Instruments: This study used questionnaires, interview schedules and observation schedule as data collection research instruments.

Questionnaires: A questionnaire is a set of questions for respondents to complete on their own. It is precise, detailed and ordered leaving little discretion for the respondent (Kothari, 1990). Questionnaires are preferable where data is not directly observable (Gall & Borg, 1996).

The questionnaires that were used in this research consisted of structured questions which are easier to analyze, easier to administer because each item is followed by alternative answers.

Interview Schedules: The study used interview schedules to collect data. Interview schedule is among the best methods in that it involves direct verbal interaction between individuals. It allows for greater depth than the case of other methods of data collection. The researcher interacts with the respondents face to face and can observe nonverbal expressions, which would not be observed in other techniques (Cohen & Manion, 1995). The interview schedules permits the researcher to obtain greater clarity of the information being sought.

Observation guide: Observation is direct in data collection whereby the researcher watches and listens to what the respondents do and say respectively (Mugenda & Mugenda, 1999). It was used to observe how the self-employed in computer and motor spares carried out their activities.

Validity and Reliability

Validity: This is the degree to which the results obtained are a true reflection of the correct picture of the data collected from the field (Mugenda, 1999). Validity of the instruments was done by consultation with supervisors of this study and other researchers to ensure they complied with universal standard of proposal and research finding reporting. Their advice and counsel was incorporated in the final research instruments for this study. A pilot study involving 20 self-employed respondents was carried to ascertain validity. The respondents in the pilot study were not included in the final sample for the study.

Reliability: Reliability is a measure of the degree to which a research instrument yields consistent results after repeated trials (Mugenda & Mugenda, 2003). Test-retest was used to confirm the reliability of research instruments. The questionnaires were administered to the same respondents twice within an interval of 2 weeks. The scores from the respondents were computed using Cronbach's Coefficient Alpha. The K-R 20 formula is as follows.

$$KR_{20} = \frac{(K)(S^2 - \sum s^2)}{(s^2)(K - 1)}$$

Where:

- KR₂₀ = Reliability coefficient of internal consistency
- K = Number of items used to measure the concept
- S² = Variance of all scores
- s² = Variance of individual items

The instruments were piloted, data analyzed using SPSS software and the Cronbach's Coefficient Alpha obtained from the questionnaire on Government Intervention and Challenges facing self-employment were 0.774 and .943 respectively. This was well above 0.7 on a scale of -1 to +1, indicating a positive correlation. Hence, the items in the questionnaires were highly correlated amongst themselves.

Data Analysis Procedures: Data collected from the field was first coded into research questions and objectives. Qualitative data was reported verbatim. Quantitative data was analyzed

using inferential statistics. The study sought to determine how various levels of education determine the returns of those in self-employment activities. The study used Pearson r and r² to determine the magnitude of the effects of levels of education on the returns of the self-employed in computer and motor spare parts industry. ANOVA analysis was used to determine the significance of relationship between levels of education and returns of the self-employed.

RESULTS AND DISCUSSION

Returns to Various Levels of Education of the Self-Employed in Computer Service Industry: In order to determine the returns to various levels of education of the self-employed in computer service industry the levels of education and respective earnings were computed as shown in Table 4.6. The results showed that on average; respondents with K.C.P.E earned an average Ksh15, 571, KCE earned an average 14,857. Certificate earned 9,364 and diploma earned an average of 15,335 amount of money. Those with a bachelor's degree earned 30, 293 which were higher than their counterparts with K.C.P.E, K.C.S.E and diploma qualifications. Master's degree earned Ksh 37,250 which was higher than all levels of education. Diploma graduates earned less than K.C.P.E, K.C.S.E and certificate levels of education. Master's graduates who earned 37,250 seemed to earn more than the rest in this industry. Through the interview schedule respondent reported that 'the returns did not match the levels of education.' It was noted that holders of K.C.P.E graduates earned more than other higher levels of education. It was difficult to understand why higher education was not translating into higher earnings but there were indications that K.C.P.E school leavers were committed to their work and spent more hours and time in their work.

Namirembe (2014) found returns are high in Uganda self-employment but compared with returns in other African countries, for example Girma and Kedir (2005) document an average return to education of 15 percent in Ethiopia and Leyaro (2010) estimate the average return to education at 13 percent in Tanzania. In developing countries as noted by Psacharopoulos (1995) the priority was to invest in primary education. This was evidenced by the fact that the rate of return for primary education graduates was higher than other levels of education. Therefore, and according to the study, everything else being the same, an increase in the supply of education had led to a slight decrease in the returns to schooling. Generally, the standard deviations of earnings for all the respondents were noted to be high. This means that there were high discrepancies in the average earnings across all categories of the respondents. This finding indicates the unpredictable nature of the self-employment sector. Coefficient of Determination Pearson's r Correlation between Average Earnings and Levels of Education in Computer Service Industry. The study further sought to establish the relationship between the levels of education and returns using Pearson's product moment correlation, coefficient of determination and ANOVA. The results were as shown in Table 4.7. The analysis in Table 4.7 for K.C.P.E showed a Pearson correlation coefficient of 0.643. This indicated moderate relationship between KCPE level of education and average earnings and that the relationship was significant (r=.643, N=17 and P=.005).

Table 1.1: Population of the Study

Activities	Kisi	SunekaOgembo	Totals	
Computer services	5780	300	320	6400
Motor spare parts	4240	350	250	4840
Total	10,020	650	570	11,240

Table 1.2: Sample Frame

Activities	TargetPopulation	Sample
Computer services	5780	218
Motor spare parts	4240	166
Total	11240	384

Source : Records from Kisii and Licensing Trade Office

Table 1.3: Cronbach Alpha for Reliability

Scale	No. of Items	Cronbach alpha	Standardized Cronbach Alpha
Government Intervention	7	.774	.755
Challenges facing self-employment	6	.943	.967

This means that the returns to education at K.C.P. Elevel were moderate. The returns were commensurate to the level of education and can be a motivating factor for KCPE graduates to enter into computer service industry. This is more so in view of the cost of education for K.C.P. Egraduates. The interview finding indicated that the respondents were acceptable to the returns they received. The curriculum for K.C.P.E examination should be enhanced computer skills to allow increased returns. This findings do not concur with Appleton (2001) in a study done in Uganda for primary level of education found conflicting results; for the 1992 data he found returns at secondary higher than at primary and the reverse for the 1999/2000. The influence of K.C.P.E on returns of the self-employed determined using coefficient of determination and the (adjusted R squared =0.373). This means K.C.P.E accounted for 37.3% of the earnings and 63.7% were due to other factors which were not the subject of this study. The returns of 37.3% are not sufficient for K.C.P.E graduates to optimize their earnings. ANOVA was computed to determine as to whether K.C.P.E level of education was significant predictor of earnings in computer industry. The result indicate KCPE was a significant predictor of the returns in computer industry $F(1, 15) = 10.572, P = 0.005$. This means K.C.P.E can be relied in estimating the earning of the self-employed in computer earning. The findings indicate that the K.C.P.E level of education can be enhanced by equipping the recipients with skills necessary for work. The quality of primary school education can be improved. Further he found an increase in returns to education over time, though it was only the returns to primary that were statistically significant. For the case of K.C.S.E, the Pearson correlation coefficient was 0.104. This indicated a weak relationship between K.C.S.E level of education and average earnings and the data was not significant. For the case of certificate, the Pearson correlation coefficient was 0.128. This also indicated a very weak relationship between certificate level of education and average earnings and that the data was not significant. The findings imply that in computer service industry only K.C.P.E level of education had significant impact to the returns of the self-employment. These findings agree with earlier findings which had found returns to primary level of education with higher returns than all other higher levels of education (Psacharopoulos, 1988, 1994 and 2002.

For the case of diploma, the Pearson correlation coefficient was 0.195. This indicated a weak relationship between diploma level of education and average earnings and that the data was not significant. For the case of bachelor, the Pearson correlation coefficient was 0.045. This still indicated a negative relationship between undergraduate level of education and average earnings and that the data was not significant. These findings indicate it is not profitable for bachelor's degree graduates to venture into computer service industry. Alternatively curriculum for bachelor's degree should include practical courses in computer service industry. Through the interview schedules the respondents reported minimal relationship between the computer service self-employment activity and their levels of education. The Pearson's r results were: KCPE 0.643, KCSE 0.104, certificate 0.128, diploma 0.195 and bachelors degree 0.045. The study calculated r^2 the returns to education. The results were: KCPE category the r^2 was 0.0413, KCSE was 0.011, certificate 0.016, and diploma was 0.038, bachelors. Except KCPE all other levels of education recorded weak relationship between education and returns.

Emphasis therefore should be more in primary education by making I more it more relevant to the needs of the self-employed. The ANOVA results were computed as: KCPE $(F(1,15) = 10.572, P = 0.005)$, KCSE was $(F(1,70) = 0.761, P = 0.386)$, certificate was $(F(1,52) = 0.868, P = 0.356)$, diploma was $(F(1,28) = 1.031, P = 0.319)$ and bachelor results were $(F(1,13) = 0.006, P = 0.874)$. The findings indicate K.C.P.E had a positive relationship with the returns of the self-employed in computer while the other levels of education recorded moderate results. The other levels of education had minimal effects on returns to the self-employed in computer service industry. To test the goodness of fit of the model coefficient of multiple regressions was used and the results are shown in Table 4.8. The results indicate that a multiple coefficient of determination of 0.320 was obtained. This indicated that the independent variables (KCPE, KCSE, and Certificate, diploma and bachelor's degree levels of education) explained up to 32.0% of the variation of average earnings. 68.0% remained unexplained. Combined levels of education cannot explain the returns to education in the spare part industry. The existence of substantial returns to education in self-employment is a welcome idea to graduates leaving school at all levels of learning because it suggests employment alternatives from dwindling formal education sector (Geeta et al, 2008). Psacharopoulos (2009) found higher education in Europe a profitable investment opportunity both privately and social returns.

The returns to education examined by Olivier, Sumon, Manisha and Zhong (2007) had indicated that returns increased with education level. The current study indicated that primary education had positive return to education while other levels had mixed results. The conclusion is that those in self-employment with lower qualification are likely to have less return to education. This contradicts other studies that had shown the returns to education being higher in primary education (Psacharopoulos, 1985 and Psachapoulos and Patrinos, 2002, Bennel, 1996). Psacharopoulos (2002) had found in Ghana returns to education higher in primary school (37.6%) as compared to 24.6% for secondary and 27.8% for higher education in both formal and informal sector. However a similar study (Robert, 2009) found return to primary education lower than all other levels.

Table 1.4 Analysis of the returns to levels of education and average returns per month in computer industry from 2012 to 2016 (n=190)

Level of Education	Respondents	Minimum Returns in kshs	Maximum Returns	Mean Returns	Std. Deviation
K.C.P.E/C.P.E	17	4,500	29,400	15,571	7,149
K.C.S.E/K.C.E	72	4,000	29,900	14,857	7,249
Certificate	54	4,300	19,800	9,364	4,405
Diploma	28	3,000	9,600	15,335	17,034
Bachelors degree	15	22,000	39,800	30,293	5,822
Masters degree	4	35,000	38,000	37,250	1,500

Table 1.5: Average Returns and levels of Education

Level of education	R	R ²	Adjusted R squared	ANOVA test
KCPE/C.P.E	0.643	0.413	0.373	(F(1,15)=10.572,P=0.005)
KCSE/K.C.E	0.104	0.011	0.002	(F(1,70)=0.761,P=0.386)
Certificate	0.128	0.016	0.002	(F(1,52)=0.868,P=0.356)
Diploma	0.195	0.038	0.001	(F(1,28)=1.031,P=0.319)
Degree	0.045	0.002	0.075	(F(1,13)=0.006,P=0.874)

Table 4.8: Model Summary- Regressed analysis of all levels of education and returns

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.566 ^a	.320	105	7440.34726

a. Predictors: (Constant), BACHELOR'S, CERTIFICATE, KCPE, DIPLOMA, KCSE

Table 4.10: Average earnings and levels of education in motor spare parts industry

Level of education	R	R ²	R adjusted	ANOVA test
KCPE	0.617	0.380	0.349	(F(1,20)12.282,P=0.002)
KCSE	0.009	0.000	0.012	(F(1,84)0.007,P=0.935)
Cert	0.130	0.017	0.022	(F(1,25,)0.428,P=0.519)
Diploma	0.129	0.017	0.041	(F(1,17)1.290,P=0.597)
Degree	0.297	0.088	0.003	(F(1,10)0.964,P=0.349)

Table 4.11: Model Summary. Regressed Analysis of all levels of Education

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.475 ^a	.226	-.419	27534.51828

a. Predictors: (Constant), Grade bachelor, Grade certificate, Grade Diploma, Grade KCPE, Grade KCSE

Primary education had 0.0074 returns as compared to 0.1311 for post-secondary. However World Bank evaluation of basic education in Ghana (World Bank, 2004) noted that positive returns to primary education no longer was evident and was negative. The weakness of primary education is pointed to declining quality of basic education which in turn led to decreased benefit to lower levels of education (Robert, 2009). The solution to lower returns in primary education is to increase funding to basic education and equip instructors at lower level of education (Psacharopoulos, 1994). Another suggestion is to increase funding at tertiary levels where returns are high (Kingdon et al, 2005). However Glewe (1996) argues that low rates of return to certain types of education do not necessarily imply that future investments should be directed toward other types rather it could be an indication that investments are most desperately needed there. Therefore, the suggestion is to redirect investments to lower level of education to make it more profitable. The implication of lower returns in secondary education may not imply that lower education shouldn't be invested in (Kingdon et al, 2005). There is evidence that shows that there are non-income benefits of secondary education. Furthermore secondary education forms the basis of further learning and since basic education feeds higher levels of schooling, a good quality basic education is essential to maintain quality outcome of higher levels (Palmer, 2006).

However focus of investments should target all levels of education. Effect of the Level of Education on Average Earnings of the Self-Employed in the Motor Spare Parts Industry A cross tabulation of the analysis is given in Table 4.9 The results showed that on average; respondents with KC.P.E earned Ksh16,786, K.C.S.E earned Ksh16, 855; certificate earned Ksh16,445 qualifications earned nearly similar amount of money. Diploma graduates earnings were Ksh 22,584 and bachelor's degree earned 29,150. Those with diploma and bachelors earned more than their counterparts with KCPE, KCSE and certificate qualifications. Earnings in the self-employment sector isn't regulated by clearly stated salary scale though this findings indicate that the higher the level of education, the higher the returns Through the interview schedule respondent reported that 'there was no relationship between returns and levels of education'. The K.C.P.E level of education posted higher returns than other levels of education. There was no plausible examination as to why levels of education had no positive relationship with returns. The Khatete (2002) found average income varying with the level of schooling among the self-employed in informal sector. Psacharopoulos (2009) provides evidence that the returns to higher education have been rising while other countries that the returns had been falling. Such trend means that the returns to education may vary even between countries.

The self-employment sector had mainly attracted primary school and drop outs from secondary school in the 1960's and 1970's (Owano, 1987). However, this has changed in the recent years with more graduates of secondary school and tertiary institutions joining the sector making it an avenue for employment. Yaz (2006) avers that there has been an increased number of college educated self-employed households in United States getting into self-employment. This study indicates that respondents with primary school certificate were 20.1% while over 79.9 were of secondary school training and above. Policy interest in education should be linked with potential to raise earnings and reduce poverty (Geeta *et al.*, 2008). With 47% of respondents of the study having post-secondary training in self-employment there is need to tailor education with skills necessary for self-employment. Generally, the standard deviations of earnings for all the respondents were noted to be high. This means that there were high discrepancies in the average earnings across most of the categories of the respondents. This finding indicates the unpredictable nature of the self-employment sector. However a study by Idrus and Cameron (2000) had found that there were no significant differences in returns between the self-employment and the formal employment sector in Malaysia. The finding differs with the current findings.

Pearson's Correlation between Average Earnings and Levels of Education in Motor Spare Parts Industry:

To determine the nature and strength of the association between the average earnings and levels of education, the Pearson's correlation coefficients were used and the results are shown in Table 4.10. The analysis on Table 4.10 showed a Pearson correlation coefficient of 0.617 for KCPE. This indicated moderate relationship between KCPE level of education and average earnings and that the data was not significant. For the case of KCSE, the Pearson correlation coefficient was 0.009. This indicated a weak relationship between KCSE level of education and average earnings and the data was significant. Similarly palmer (2010) had found returns to in Ghana for primary at 24.5%, secondary at 17.0% and higher education at 37.0%. The factors making secondary education have less return remain unexplained. The plausible explanation could be the large number of graduates leaving at secondary school graduation not matched with available jobs in the market and declining quality of secondary school education (Palmer, 2010). For the case of certificate, the Pearson correlation coefficient was 0.130. This also indicated a weak relationship between certificate level of education and average earnings and that the data was not significant. For the case of diploma, the Pearson correlation coefficient was 0.129. This indicated a weak relationship between diploma level of education and average earnings and that the data was significant. For the case of bachelors, the Pearson correlation coefficient was 0.297. This still indicated a weak relationship between undergraduate level of education and average earnings and that the data was highly significant. Through the interview schedules it was observed that 43. % of respondents entered self-employment because of lack of employment in the formal sector. This means that self-employment wasn't the first choice for the graduates coming from school. The study found out that 23.8% of respondent entered self-employment as passion. This significant because passion makes persons pursue careers, they like most 14% of respondents entered into family business where they were working. The self-employment has continued to attract graduates unable to get work in formal sector (2007). In Ghana, the informal sector has done a remarkable part in

absorbing the rapid growth in the labour force. In Kenya with declining absorptive capacity of the formal sector, 43% of the respondents joined self-employment because of lack of jobs in the formal sector. The Pearson's r^2 results were: KCPE was 0.380, KCSE 0.000, certificate 0.017, diploma 0.0017 and bachelor's degree 0.088. The r adjusted results were: KCPE 0.349, KCSE 0.012, certificate 0.022, diploma 0.041 and degree 0.003. The ANOVA results were: for KCPE ($F(1,20)=12.282, P=0.002$), KCSE ($F(1,84)=0.007, P=0.935$), certificate was ($F(1,25)=0.428, P=0.519$), diploma was ($F(1,17)=1.290, P=0.597$) and bachelors degree was ($F(1,10)=0.964, P=0.349$). Through the interview schedules respondents were asked to provide information on their views as whether education had influence on return of their income. An analysis done indicated that 20% of respondents believed that education had influence over returns to their earnings, while 59% of respondent said there was no relationship between their earnings and education and another 20% said in part education influenced return from their self-employment activity. The percentage of respondents (59%) who said that there was no relationship between education and returns means the education system in Kenya has minimal relationship with the returns of those in self-employment. To determine the amount of variation in average earnings explained by the independent variables, the coefficient of multiple regressions was used and the result is shown in Table 4.11. The results in Table 4.11 indicated that a multiple coefficient of determination of 0.226 was obtained. This indicated that the independent variables (KCPE, K.C.S.E, Certificate, Diploma and Undergraduate levels of education) explained up to 22.6% of the variation of average earnings 77.4% remained unexplained. There the combined levels of education are weak to determine the returns of the self-employed, other factors other than education account for 77.4% of the returns to the self-employed. These findings agree with earlier findings which had found returns to primary level of education with higher returns than all other higher levels of education (Psacharopoulos 1988, 1994 and 2002). Similar Palmer (2010) had found returns to primary school graduates in sub-Saharan Africa at 37.6 higher than secondary at 24.6 and 27.5 for higher education. Investment should be directed more to primary education for it forms the basis of further learning and feeds higher levels of schooling (Kingdon, 2005).

Summary, Conclusion and Recommendations

Summary of Findings

The summary were according to the research objectives
Returns to Various Levels of Education of the Self-employed in Computer Service

The study established that:

On average; respondents with KCPE, KCSE and diploma qualifications earned nearly similar amounts of money. Those with certificate and bachelors earned lower incomes. However, Masters graduates seemed to earn more income than the rest in this industry. Whereas the relationship between levels of education and average earnings was found to be significant for K.C.P.E; it was generally weak for all the other levels of education. The average earnings had a positive relationship with the independent variables of KCPE, KCSE diploma and bachelors level of education while this relationship was negative for certificate level of education. The negative

relationship between average earnings and the certificate level of education was statistically insignificant. Certificate level of education had the least significant effect on average earnings. This indicated that the independent variables KCPE, K.C.S.E, Certificate, Diploma and Undergraduate levels of education explained up to 22.6% of the variation of average earnings 77.4% remained unexplained. The Pearson's r results were KCPE 0.643, KCSE 0.104, certificate 0.128, diploma 0.195 and bachelors degree 0.045.

The Pearson's r^2 results were: KCPE was 0.413, KCSE 0.011, certificate 0.016, diploma 0.038 and degree 0.002. The r adjusted results were: KCPE 0.373, K.C.S.E 0.002, certificate 0.002, diploma 0.001 and degree 0.075. The ANOVA results were computed as: For KCPE ($F(1,15)10.572, P=0.005$), KCSE was ($F(1,70)0.761, P=0.386$), certificate was ($F(1,52)0.868, P=0.356$), diploma was ($F(1,28)1.031, P=0.319$) and bachelor results were ($F(1,13)0.006, P=0.874$). The model summary indicated that the independent variables (KCPE, K.C.S.E, Certificate, Diploma and Undergraduate levels of education) explained up to 22.6% of the variation of average earnings 77.4% remained unexplained. Returns to Various Levels of Education of the Self-employed in Spare Parts Industry

The study established that:

On average; respondents with KCPE, KCSE and certificate qualifications earned nearly similar amounts of money. Those with diploma, undergraduate and graduate earned more incomes with graduates earning the highest in this industry. Whereas the relationship between levels of education and average earnings was found to be significant for KCPE, it was generally weak for all the other levels of education.

The Pearson's correlation analysis (r) for KCPE showed a Pearson correlation coefficient of 0.617. This indicated moderate relationship between KCPE level of education and average earnings and that the data was not significant. For the case of KCSE, the Pearson correlation coefficient was 0.009. This indicated a weak relationship between KCSE level of education and average earnings and the data was significant. For the case of certificate, the Pearson correlation coefficient was 0.585 with a corresponding p-value of 0.130. Excluding the graduate level of education, the rest of the independent variables accounted for 30.8% of the variation in the dependent variable with 68.2% of the variation in the average earnings remaining unexplained.

Analysis for persons (r) indicated that: for KCPE showed a Pearson correlation coefficient of 0.617 with corresponding p-value of 0.002. KCSE was 0.009 with a corresponding p-value of 0.935, certificate was 0.009 with a corresponding p-value of 0.925, bachelors, the Pearson correlation coefficient was -0.297 with a corresponding p-value of 0.349, masters was 0.277 with a corresponding p-value of 0.821. For the case of diploma, the Pearson correlation coefficient was 0.303. For the case of bachelors, the Pearson correlation coefficient was 0.129. The Pearson's r^2 results were: KCPE was 0.413, KCSE 0.011, certificate 0.016, diploma 0.038 and degree 0.002. The r adjusted results were: KCPE 0.373, K.C.S.E 0.002, certificate 0.002, diploma 0.001 and degree 0.075. The ANOVA results were: KCPE ($F(1,20)12.282, P=0.002$), KCSE ($F(1,84)0.007, P=0.935$), certificate was ($F(1,25)0.428, P=0.519$), diploma was ($F(1,17)1.290, P=0.597$) and bachelors degree was ($F(1,10)0.964, P=0.349$). Excluding master's level of education the study found out that other levels of

education explain 22.6% of the returns of the self-employed. 77.4% remained unexplained.

Conclusion

Based on the findings of the study, the following conclusions were made:

- There were return differential among self-employed in computer and spare parts industry.
- Basic education yield higher returns than higher education
- Change in level of education does not translate to higher returns
- K.C.P.E level of education had the most positive significance impact on the returns of the self-employed in computer and motor spare parts service industries.

Recommendations

From the findings and conclusion the study made the following recommendations

- Tailor education particularly post primary level to meet the needs of the self-employed to enhance their earnings
- Those in self-employment needed refresher courses to equip them with skills necessary for self-employment.

Suggestions for Further Research

The study suggested the following areas for further study

- An investigation into the skills necessary for self-employment sector.
- A study as to why post primary education had minimal positive effects on returns to education.

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