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Use of skills and knowledge effect of rural electrification on the household well-being of proprietors of micro and small enterprises in Kenya

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Abstract
In Kenya, poverty rates in rural areas have continuously remained high indicating that household well-being has equally remained low. Given this scenario, an explanation requires studying the use of skills and knowledge effect of rural electrification on the household well-being of proprietors of micro and small enterprises in Kenya. The study adopted descriptive survey design, which ensured ease in understanding the insight about the problem under study. The target population for this study comprised of 914,243 proprietors of micro and small enterprises registered in Kenya by 2015. Primary data from proprietors of rural micro and small enterprises in eight counties namely; Kakamega, Bungoma, Nakuru, Busia, Bomet, Siaya, Kericho and Kirinyaga forming a sample size of 418 and a response rate of 73.4% (307 respondents) was used. A self-administered questionnaire was used for data collection. The data collection instrument (questionnaire) was pilot tested on 5% of the sample size to ensure that it was manageable, relevant and effective. Combined multiple regression analysis revealed that there was a significant positive relationship between use of skills and knowledge effects of rural electrification and household well-being of proprietors of micro and small enterprises in Kenya. It was concluded that use of skills and knowledge effect of rural electrification has an influence on household well-being of proprietors of micro and small enterprises in Kenya. It was therefore recommended that the Kenyan government should come up with clear policies and review legislations to ensure Rural Electrification Authority is given a clear mandate, authority and resources to fulfil the mandate, and ensure accountability for achieving that mandate.

Keywords: use of skills and knowledge, household well-being, rural electrification, proprietors of MSEs

1. Introduction

1.1 Background to the Study

Well-being is a state of satisfaction of basic human needs and rights as well as being a crucial pre-requisite before people can flourish and live well (Tinkler & Hicks, 2013) [51]. Between 2000 and 2014, there were advances in electrification, with the global electricity shortfall decreasing from about 1.3 billion to 1.06 billion - and the global electrification rate increasing from about 78 percent to 86 percent. Improvement with rural electrification is manifest, with the global rural electrification proportion increasing from 63 percent in 2000 to 73 percent in 2014 (World Bank, 2017) [57]. The electricity access shortfall is overwhelmingly concentrated in sub-Saharan Africa (62.5 percent). In sub-Saharan Africa, 6 out of 10 people lack access to electricity (World Bank, 2017) [57]. Grounded on this valuation, the United Nations targets worldwide access to electricity by 2030 through their initiative dubbed 'Sustainable Energy for All' (United Nations, 2010) [54]. The miserable energy access picture in sub-Saharan Africa is sadly highlighted in Table 1 which presents the regional totals of global electricity access proportions in 2014.

Table 1: Global Electricity Access Rates in 2014

Region	Pop. without electricity (millions)	Electrification rate (%)	Urban electrification rate (%)	Rural electrification rate (%)
Africa	634	45	71	28
North Africa	1	99	100	99
Sub-Saharan Africa	632	35	63	19
Developing Asia	512	86	96	79
China	0	100	100	100
India	244	81	96	74
Latin America	22	95	98	85
World	1,186	84	95	71

Source: (IEA, 2016).

The skills and knowledge of business proprietors mainly achieved through use of electricity can impact the path to business success, and aid the process of building absorptive capacity of enterprise owners such as confidence, psychology, knowledge and skills. Educated people are creative and innovative and are always looking for something unique to fulfil a need or want (Chowdhury, Alam & Arif, 2013) [10]. It is widely recognized that necessary skills and knowledge positively influence managerial decisions that enhance business development

opportunities. This shows that additional business owners and employees using internet and watching relevant television programs have the essential skills, discipline, inspiration, information and self-assurance to attain greater growth rates in their workplace; hence more likely to perceive and seize business opportunities to improve performance (Ucbasaran *et al*., 2008) [52].

Maheran and Khairu (2009) asserted that highly-skilled and competent persons are required to enable the supply of high value-added goods and services as well as the capabilities to build consumers' confidence and trust. Chang, Gong and Shum (2011) [9] avers that both hiring and training multi-skilled core customer-contact employees have significant and positive effects on incremental and radical innovation among hotel and restaurant businesses. Rural electrification may herald purchase of technology equipment such as computers, television, mobile phones among others that enhance people's skills and knowledge which may contribute to enhanced household well-being. Education is essential to reducing poverty and enhancing household well-being, and a lack of electricity access can create considerable obstacles towards escaping poverty and correlates with many factors that contribute directly towards it (UNDESA, 2014).

According to World Bank (2017) [57], Kenya is leading the way in the East African region on how to balance a rapidly growing electrification program with consumer affordability in a financially sustainable manner. There is a substantial decrease in the connection fee charged to household customers - from KES 35,000 ($343) to KES 15,000 ($147) to be paid in instalments (World Bank, 2017) [57]. However, it has been estimated that the burden of power outages on the economy is as high as two percent of GDP and that the country needs a further 1,000 megawatts of generating capacity over the next decade (AICD, 2010).

Government of Kenya (2004a) confers that Micro and Small Enterprises (MSE) sector accounted for 30% of the GDP and for over 90% (about 500,000) of new jobs created outside agriculture in 2003. Rural areas remain to be home to the bulk of Kenya's population and similarly the hub of micro and small enterprises. To seize this opportunity, Kenya has developed a national policy aimed at building the capacities of micro and small enterprises through the rural electrification projects (Abdullah & Markandyab, 2012) [1]. According to Khandker, Hussain, Rubaba and Douglas (2012) [21], the role and intent of electrification programs is not only to provide access to electricity but also to improve the overall well-being of people.

1.2 Statement of the Problem

The average annual electricity consumption in 2014 for Kenya and United States was 167 and 12,987 kWh per capita respectively which translates to about 1.3% of U.S. per capita consumption (IEA, 2014). In Kenya, households are willing and able to pay, on average, about Ksh. 37 per kWh (US$0.53 per kWh) for improved energy services based on renewable energy resources including biomass (Kirubi *et al.*, 2009) [22]. Many of the previous studies on household well-being particularly focused on individual household members such as children (Di Tommaso, 2007) [13] or women (Mudi & Waswa, 2018; Mudi, Waswa & Nabwayo) [31, 32, 33] or on the macro-level (Krishnakumar, 2007) [24]. Other studies on household well-being concentrated on health (Keese & Schmitz, 2014) [18], electricity access (Khandker *et al*., 2009; Kirubi *et al*., 2009) [22]. Despite these studies and their recommendations, household well-being remains a challenge, indicating that there is still more that needs to be done. Relatively, there is limited research on the use of skills and knowledge effect of rural electrification on household well-being of proprietors of micro and small enterprises in Kenya. This study seeks to fill this knowledge gap.

1.3 Objective of the Study

The specific objectives of this study was to investigate use of skills and knowledge effect of rural electrification on the household well-being of proprietors of micro and small enterprises in Kenya.

1.4 Research Hypothesis

This study was guided by the hypothesis that there is no significant relationship between use of skills and knowledge effect of rural electrification and the household well-being of proprietors of micro and small enterprises in Kenya.

2. Capability Theory

Sen (1985) defines capabilities as what people are able to do or able to be - the opportunity they have to achieve various lifestyles and as a result, the ability to live a good life. Central to the capability approach is the concept of 'functionings'. This encompasses various states of human beings and activities that a person can undertake for instance having obtained specific education and skills (Sen, 1979) [44].

Anand and Sen (1997) [5] argues that economic inequality is not necessarily similar to income inequality. The reason for this is that knowledge about people's income in itself does not tell us about other things that matter for their well-being. People may be restricted in their choices as a result of discrimination, customs, moral codes, political regime, climate, infrastructure, transport, organization of health care, etc. This study focusses on rural areas that seem discriminated against in terms of use of knowledge and skills compared to urban areas.

Sugden (1993) [50] asserts that although Sen is not entirely clear in some of his writings, a reasonable interpretation might be that a normative evaluation of well-being should depend upon both the individual's achieved "functionings' and his or her 'capability sets', where the 'capability set' represents the extent of freedom, whereas the achieved 'functionings' measure aspects of welfare other than freedom. The concept of freedom emphasizes the importance of empowering people to help themselves (e.g. use of skills and knowledge), and of focusing on individuals as the actors of their own development (Stiglitz, Sen & Fitoussi, 2009) [49].

'Capability' refers to the real opportunity that we have to accomplish what we value. Capability is, thus, a set of vectors of 'functionings', reflecting the person's freedom to lead one type of life or another (Sen, 1992) [46]. Sen's capability approach is widely regarded to be at once novel and of substantive importance for the conceptualization of multidimensional poverty and well-being (Anand & Sen, 2008). The capability approach appreciates all changes in a person's quality of life: from skills and knowledge to relationships to employment opportunities and inner peace, to self-confidence and the various valued activities. Use of skills and knowledge effects of rural electrification may

bring about some of the above mentioned changes that are paramount to an improved household well-being. Nussbaum *et al*. (2012) argues that the central capabilities are the ones that a minimally just society will endeavor to nurture and support such as skills and knowledge. By evaluating how people are actually able to live, what they can actually do and be, and capabilities develops an objectivist account (Sayer, 2011) [43].

2.1 Conceptual Framework

A conceptual framework is a thinking schema through which different aspects of research project are organized and their presumed relationships are constructed with the aim of guiding a researcher throughout the process and position him in relationship to the research in terms of theoretical and ideological inclination (Holliday, 2007) [17]. For this study, effect of rural electrification is confined to use of skills and knowledge (Kulkarni & Barnes, 2017) [25]. The conceptual framework for this study is shown in Figure 2.1.

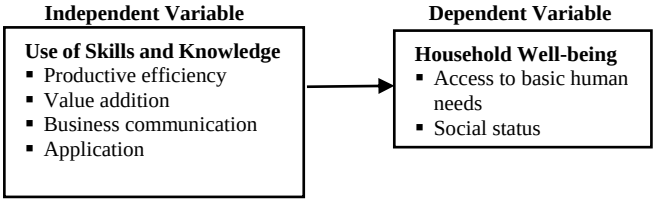

Fig 1: *Conceptual Framework*

2.2 Literature Review

The skills and knowledge of business proprietors mainly achieved through interaction with electronic equipment due to electrification can impact the path to business success, it aids the process of building absorptive capacity of enterprise owners such as confidence, psychology, knowledge and skills. Educated people are creative and innovative and they are always looking for something unique to fulfil a need or want (Chowdhury *et al*., 2013) [10]. It is widely recognized that necessary skills and knowledge (which may be achieved through use of computers and machines) positively influences managerial decisions that enhances business development opportunities. This implies that additional business owners and employees using internet and computers have the prerequisite skills, self-restraint, enthusiasm, information and confidence to attain optimum growth rates in their businesses; and are more likely to perceive and seize business opportunities to enhance performance (Ucbasaran *et al*., 2008) [52].

As Maheran and Khairu (2009) [28] observe, there is no doubt that successful businesses seem to be those that persistently put prominence on skills and knowledge of employees, instead of assets, such as machinery. They further asserted that highly-experienced and skilled individuals are required to expedite delivery of high value-added goods and services together with the competences to build consumers' trust and confidence.

One of the success factors in small business is the knowledge level of the owner, which can assist the business to survive and manage a complex environment and maintain the profitability of the business (Radipere & Dhliwayo, 2014) [35]. The World Bank distinguishes three channels through which electrification may affect education: time allocation at home, with increased study time; by improving the quality of schools, either through the provision of electricity-dependent equipment, or increasing teacher quantity and quality; and through the availability of television which may have educational and informative benefits (IEG, 2008). Human capital obtained based on knowledge and skills has been shown to be one of the strongest drivers of business performance (Unger, Rauch, Frese & Rosenbusch, 2011). Furthermore, a more highly educated working population increases the supply of human capital that is associated with more productivity and innovation (Gennaioli, La Porta, Lopez-de-Silanes & Shleifer, 2013) [15]. Firms that are young or even new and using electricity dependent appliances (Van Praag & Versloot, 2008) [56], benefit from the presence of an educated workforce and/or educated consumers.

Amesi (2011) [4] sees attainment of knowledge and skills as that characteristic which makes successful entrepreneurs professional learners and successful in business. Acquired knowledge plays a critical role in business performance, integration and accumulation of new knowledge as well as the adaptation to new situations (Van Praag & Versloot, 2008) [56]. Moreover, Gennaioli *et al*. (2013) [15] assert that a more skilled and knowledgeable workforce is associated with a more productive and innovative economy. Likewise, Amesi (2011) [4] perceived that educated entrepreneurs have usually started businesses in areas related to their attained knowledge and skills.

Chaieb and Ahmed (2011) [8] conducted a study seeking to identify whether community perceptions affects rural electrification in parts of Tunisia. The study was conducted using participatory rural appraisals (community interviews and investigations) to discover the perceived benefits of introduced access to electricity in Tunisian communities. Linkages were discovered between rural electrification and the areas of education, basic health, family planning, and women's reproductive health. Many families had purchased (and now consistently watch) televisions, which prompted intellectual expansion, expose women to political happenings, and introduce families to messages concerning personal hygiene and health. Findings revealed that communities' perception increased economic opportunities for women, who were choosing to sew or open hair-salons at home rather than travel to cities in search of employment.

Van De Walle *et al*. (2013) [55] scrutinize long-run effects at both regional and household level for the Indian grid roll-out program. Using data from 1982 to 1999 on a study population in which the connection status increased significantly between the two surveys, they found long-term effects on both connected households and positive spillover effects on non-connected households in connected areas. Increase in electricity consumption, school enrolment rates and years of schooling improve for girls. A related study by Lipscomb *et al*. (2013) [27] investigated the long-run effects of the expansion of electricity network in Brazil on economic development at the County level during 1960 – 2000 period. Similar to Van De Walle *et al*. (2013) [55], the study found significant effects on the Counties' Human Development Index and average housing value as a proxy for enhancements in living and working conditions. They identified positive effects of electricity access on employment and income as well as literacy and school enrolment.

Khandker *et al*. (2013) study a World Bank rural electrification program in Vietnam implemented during

2000 to 2005 period. Using a two-period household panel data with an electrification intervention that affected some of the sample in between the two surveys, they investigated income-related and educational outcomes with a fixed effects model. They found out that various income measures were positively affected: but most importantly, for both boys and girls, school enrolment and total years of schooling improved. Similarly, Khandker *et al*. (2012) [21] used a large cross-sectional household survey in Bangladesh to study effects of electricity access on income, expenditures and investments into education. They observed the study time of school children at home, which is often mentioned as an early sign for investments into education caused by electrification. The transmission channel is the facilitation of reading at night through quality lighting. In fact, they find that school boys study around 22 minutes more and girls around 12minutes more per day as a result of electrification.

3. Research Methodology

Descriptive survey design was used in this study. According to Creswell (2003) [12], descriptive survey designs are used to allow researchers to gather information, summarize, present data, and interpret it for the purpose of clarification. Descriptive survey studies are those studies which are concerned with describing the characteristics of a particular individual or groups for instance households (Kothari & Garg, 2014) [23]. This design is appropriate for this study since Zikmund (2003) [58] note that descriptive survey research is intended to produce statistical information about the aspects of the research issue (in this case use of skills and knowledge effect of rural electrification) that may interest policy makers and MSE entrepreneurs.

The target population for this study was 914,243 rural registered micro and small enterprises in Kenya. According to Kenya National Statistics Survey Report 2016, there are 1,549,576 micro and small enterprises registered in Kenya out of which 59 percent are located in rural areas (Republic of Kenya, 2016). The sampling frame of this study consisted of 162,496 Micro Enterprises (proportionate to 94% of the total MSEs) and 10,058 Small Enterprises (equivalent to 6% of the total MSEs) registered in Kakamega, Bungoma, Nakuru, Busia, Bomet, Siaya, Kericho and Kirinyaga Counties by 2015 (Republic of Kenya, 2016) [42] making a total of 172,554 in number as shown in Table 2.

Table 2: Population Sampling Frame

County	Total Reg. MEs.	Total Reg. SEs.	Total Reg. MEs. (rural)	Total Reg. SEs. (rural)
Kakamega	49,078	3,392	28,956	2,001
Bungoma	15,962	1,187	9,418	700
Nakuru	109,453	7,801	64,577	4,603
Busia	27,328	420	16,123	248
Bomet	13,426	574	7,921	339
Siaya	13,802	312	8,143	184
Kericho	17,008	2,514	10,035	1,483
Kirinyaga	29,361	848	17,323	500
Total	275,418	17,048	162,496	10,058

***Source*:** Republic of Kenya (2016) [42].

Systematic sampling was used to arrive at the choice of the above counties based on the Contribution to National Poverty and County Ranking as shown in Table 3. In such a design the selection process starts by picking some random point in the list and then every n^{th} element is selected until the desired number is secured (Kothari & Garg, 2014) [23]. Marsabit and Tana River counties ranked position 35 and 40 respectively were deliberately avoided due to perceived insecurity in the counties.

Table 3: Contribution to National Poverty by County

County	Total Population	Contribution (%)	Rank (Highest to lowest)
Kakamega	1,644,328	4.77	1
Bungoma	1,359,983	3.79	5
Nakuru	1,562,625	3.08	10
Busia	735,294	2.61	15
Bomet	721,873	2.18	20
Siaya	833,230	1.87	25
Kericho	737,942	1.71	30
Kirinyaga	520,585	0.79	45

Source: Republic of Kenya (2014).

Since the target population (914,243) is more than 10,000, Mason, Lind and Marchal (1999) [29] explains that the sample size may be computed by the following formula;

$$N = \frac{z^2pq}{d^2}$$

Mason *et al*. (1999) [29] explain that if an estimate of the proportion that possess the particular characteristic under study is known, whether from a pilot study or any other source, then this may be utilized to compute the sample size. A proportion of 0.5 is used to compute the sample size, which according to Mason *et al*. (1999) [29] gives the largest sample size at a given confidence level. At 95% level of confidence, z = 1.96. Substituting these in the formula above gives a sample size of 384. The proportionate sample sizes for each stratum are computed on the basis of the size of the stratum and the target population. In view of the above explanation concerning the sample size, it is ensured that the sample size for each stratum (for our case each County) is the larger value as proportionately computed from the formula above or 30, being the minimum sample size as per the Central Limit Theorem or the total of the particular stratum for a population size below 30. The sample for each County is then divided by the number of rural Wards in the County. This study used a sample population of 418 respondents for data collection. Questionnaires were administered in various counties based on the proportionate number of registered rural micro and small enterprises as shown in Table 4.

Table 4: Sample Population per County

County	Total Reg. MEs. (rural)	Total Reg. SEs. (rural)	Sample of MEs.	Sample of SEs.	Total
Kakamega	28,956	2,001	64	5	69
Bungoma	9,418	700	27	3	30
Nakuru	64,577	4,603	143	10	153
Busia	16,123	248	36	1	37
Bomet	7,921	339	28	2	30
Siaya	8,143	184	28	2	30
Kericho	10,035	1,483	26	4	30
Kirinyaga	17,323	500	38	1	39
Total	162,496	10,058	390	28	418

Data collection was through a self-administered questionnaire. The choice to use questionnaires was informed by the fact that they can be send to a large number of people and thus save the researcher time and money.

According to Leedy and Ormrod (2010) [26] people are also more truthful while responding to the questionnaires due to the fact that their responses are anonymous. Qualitative data was converted to quantifiable forms by coding using SPSS text editor (Mugenda & Mugenda, 2003).

Descriptive statistics was calculated and tabulated using frequency distribution tables. Factor analysis was used to reduce the set of study items to a smaller number which can easily be interpreted. To test for the strength of the model and the relationship between use of skills and knowledge and household well-being, the researcher conducted an Analysis of Variance (ANOVA). The study was tested at 95% confidence level and 5% significance levels. In order to test the relationship between the variables the inferential tests including the regression analysis was used. The regression equation was:

$$Y = \beta 0 + \beta_1 X_1 + \varepsilon$$

Where:
Y= Household well-being
β_0 = Constant term
β_1 = Beta coefficient
X_1= Use of skills and knowledge

4. Reliability Test Results

The reliability for multi-item opinion items were computed separately for all the six subscales in the MSEs proprietors questionnaires, as shown in Table 5.

Table 5: Internal Consistency: Cronbach's Alpha Results for the Questionnaire

Scale	No. Items	Cronbach's alpha	Conclusion (Reliable/Unreliable)
Use of Skills and Knowledge	12	.841	Reliable
Household Well-Being	8	.865	Reliable

Source: Author (2018)

4.1 Validity Test Results

Although pilot study was done to improve external validity of the instruments, internal validity of the constructs was tested by subjecting the survey data to suitability tests using the Kaiser-Meyer-Oklin measure of sampling adequacy (KMO Index) and the Bartlett's Test of Sphericity. This is a prerequisite condition for a factor analysis. Before the extraction of factors, the suitability of the questionnaire data set for factor analysis was assessed and the results was summarized as in Table 6.

Table 6: KMO and Bartlett's Test

Subscale	Kaiser-Meyer-Olkin (KMO index)	Bartlett's Test for Sphericity		
		Approx. Chi-Square	df	Sig.
Use of Skills and Knowledge	.944	25551.633	66	.000
Household Wellbeing	.899	910.693	28	.000

Source: Survey data (2018), SPSS Analysis

Kaiser (1974) asserts that the Kaiser-Meyer-Oklin measure of sampling adequacy index ranging > 0.6 is of adequate internal validity and is considered suitable for factor analysis. The Bartlett's Test for Sphericity on the other hand relates to the significance of the study and indicates the validity of responses obtained in relation to the problem that the study seeks to address. Creswell (2014) [11] observes that Bartlett's Test of Sphericity test statistic should be less than 0.05. Creswell (2014) [11] asserts that if the Bartlett's test for Sphericity is significant, and if the Kaiser-Meyer-Olkin measure is greater than 0.6, then factorability is assumed and hence use of factor analysis is attainable. Thus, based on the results, it was appropriate to proceed with Factor Analysis on assumption of adequate internal validity, which is an indication that all the subscales had suitable data.

4.2 Normality Test Results

Normality of the data were tested through the use of formal test using Kolmogorov-Smirnov and Shapiro-Wilk tests, as shown in Table 7.

Table 7: Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Use of Skills and Knowledge	.292	307	.230*	.775	307	.252
Household Wellbeing	.271	307	.134	.841	307	.116

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Although Normality test by SPSS concurrently indicate both Kolmogorov-Smirnov (K-S) and Shapiro-Wilk test results, this study used the S-W to interpret the normality of the variables. Garson (2012) [14] recommends that Shapiro-Wilk's test should be used for small and medium samples up to n = 2000. Shapiro-Wilk is comparable to the correlation between a given data and its corresponding normal scores, with S-W = 1 when their correlation is perfectly normal. This means that a significantly ($p<.05$) smaller S-W than 1 imply that the normality is not met. Hence, the data is normal when Shapiro-Wilk (S-W) >.05. It is evident from Table 9 that all the variables follow normal distribution given that there were no statistical significant differences noted in any of the variables with their corresponding normal scores.

4.3 Findings and Discussions

The study sought to determine use of skills and knowledge effect of rural electrification on household well-being among proprietors of micro and small enterprises in Kenya. The dependent variable in this study was household well-being. To attain this objective, use of skills and knowledge effect was assessed through four main measures namely productive efficiency, value addition, business communication and application. Twelve constructs that underlie the four measures were subjected to factor analysis. Largely, use of skills and knowledge effects on household well-being was analyzed through descriptive statistics, factor analysis, correlation analysis and regression analysis.

Factor Analysis was used to investigate items with greater significance to Use of Skills and Knowledge, and to establish their dimensionality on the variable. This was done by use of Principal Components Method (PCM) as a technique of Factor Analysis which enabled the researcher to identify and retain the factors with high statistical significance influence, as held by Oso and Onen (2009) [34]. Kennedy (2010) [19] points out that analysis of Principle Components describes interdependencies among the items

of a variable with an aim of identifying few factors which explains most of the information on the variable construct. The extraction of the factors follows the Kaiser Criterion where an Eigenvalue of 1 or more indicates a unique factor.

All the 10 items describing Use of Skills and Knowledge were put on factor analysis, whose results were presented on Table 8.

Table 8: Total Variance Explained for Use of Skills and Knowledge

Component.	Initial Eigenvalues.			Extraction Sums of Squared Loadings.		
	Total.	Variance. (%)	Cumulative. (%)	Total	Variance. (%)	Cumulative (%)
Item 1	7.303	60.860	60.860	7.303	60.860	60.860
Item 2	.921	7.675	68.535			
Item 3	.682	5.682	74.217			
Item 4	.549	4.572	78.789			
Item 5	.440	3.669	82.458			
Item 6	.376	3.134	85.592			
Item 7	.373	3.105	88.697			
Item 8	.324	2.697	91.394			
Item 9	.311	2.591	93.985			
Item 10	.274	2.285	96.270			
Item 11	.259	2.160	98.430			
Item 12	.188	1.570	100.000			

Extraction Method: Principal Component Analysis.

Table indicates the eigenvalues associated with each linear component (factor) before extraction, after extraction and after rotation. Before extraction, SPSS identified 12 linear components within the data set. The eigenvalues associated with each factor represents the variance explained by that particular linear component and it is presented in terms of percentage of variance explained. The twelve measures of use of skills and knowledge were subjected to factor analysis and five (5) factors attracted coefficients of more than 0.4. Therefore, the five (5) statements were retained for analysis. According to Rahn (2010) a factor loading equal to or greater than 0.4 is considered adequate. Using factor analysis, only one factor was identified to have the significant influence on explaining characteristics of use of skills and knowledge with cumulative variance of 60.86%. Only this item had an eigenvalue greater than one (1) and had the significant influence on use of skills and knowledge characteristics, explaining 60.86% of variance on the variable as shown in Table. Hence, the component was identified to have the highest influence on use of skills and knowledge construct.

To investigate whether there was any statistical significant relationship between use of skills and knowledge effect of rural electrification on the household well-being of proprietors of micro and small enterprises in Kenya, the null hypothesis that *"there is no significant relationship between use of skills and knowledge effects of rural electrification and the household well-being of proprietors of micro and small enterprises in Kenya."* was tested. A Pearson Product Moment Correlation Coefficient was used, with scores on use of skills and knowledge effects of rural electrification as independent variable and household well-being of proprietors of micro and small enterprises as dependent variable. The correlation analysis result was shown in SPSS output, as indicated in Table 9.

Table 9: Relationship between Use of Skills and Knowledge Effects of Rural electrification and Household Well-being

		Household Well-being
Use of skills and knowledge	Pearson Correlation	.265**
	Sig. (2-tailed)	.000
	N	307

**. Correlation is significant at the 0.01 level (2-tailed).

It is evident that there was positive (r=.265, n=307, p<.05) but weak correlation between use of skills and knowledge effects of rural electrification and household well-being of proprietors of micro and small enterprises. The relationship was statistically significant; therefore, the hypothesis that, "*There is no significant relationship between the use of skills and knowledge effects of rural electrification and household well-being of proprietors of micro and small enterprises*" was rejected. It was therefore concluded that there is statistical significant relationship between the use of skills and knowledge effects of rural electrification and household well-being of proprietors of micro and small enterprises, with increase in use of skills and knowledge effects of rural electrification causing an improvement in household well-being of proprietors of micro and small enterprises and vice-versa.

To estimate the level of influence of use of skills and knowledge effects of rural electrification on household well-being of proprietors of micro and small enterprises, a coefficient of determination (R Square) was computed. This was done using regression analysis and the results were as shown in Table 10.

Table 10: Model Summary on Regression Analysis of Influence of Use of Skills and Knowledge on Household Well-being of Proprietors of Micro and Small Enterprises

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.265[a]	.070	.067	.54362

a. Predictors: (Constant), Use of Skills and Knowledge

The model shows that use of skills and knowledge effects of rural electrification only accounted for 7.0% (R^2 =.070) of the variation in overall household well-being of proprietors of micro and small enterprises, which was a small effect. However, to determine whether use of skills and knowledge effects of rural electrification was a significant predictor of household well-being of proprietors of micro and small enterprises, Analysis of Variance (ANOVA) was computed as shown in Table 11.

Table 11: ANOVA - Influence of Use of Skills and Knowledge Effects of Rural Electrification on Household Well-being of Proprietors of Micro and Small Enterprises

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.830	1	6.830	23.111	.000[b]
	Residual	90.134	305	.296		
	Total	96.964	306			

a. Dependent Variable: Household Well-being
b. Predictors: (Constant), Use of Skills and Knowledge

From Table 11, it can be seen that although use of skills and knowledge effects of rural electrification has a small effect on household well-being of proprietors of micro and small enterprises, but it is a significant predictor of [F (1, 305) = 23.111, p <.05)].

Analysis of the regression model coefficients is shown in Table 12. From the table there is a positive beta co-efficient of 0.235 as indicated by the co-efficient matrix with a P-value = 0.000 < 0.05 and a constant of 1.453 with a p-value = 0.000 < 0.05. Therefore, both the constant and use of skills and knowledge contribute significantly to the model. Consequently, the model can provide the information needed to predict household well-being from use of skills and knowledge effects. The regression equation is presented as follows: $Y = 1.453 + 0.235X_1 + \varepsilon$; Where Y = Household well-being, X_1 is use of skills and knowledge effects and ε is the error term

Table 12: Regression Coefficients of Use of Skills and Knowledge and Household Well-being

Coefficients					t	Sig.
Model		Unstandardized Coefficients		Standardized Coefficients		
1		B	Std. Error	Beta		
	(Constant)	1.453	.098		14.811	.000
	Access to healthcare	.235	.042	.304	5.577	.000

a. Dependent Variable: household well-being
Model: $Y = 1.453 + 0.235X_1$

5. Discussion of Key Findings

The study sought to evaluate the influence of use of skills and knowledge on the household well-being of Proprietors of MSEs. The influence of use of skills and knowledge on the household well-being was tested using regression analysis. The results showed that use of skills and knowledge had a significant positive relationship with household well-being of Proprietors of MSEs.

This is consistent with the observation of Maheran and Khairu (2009) [28] that successful businesses seem to be those that persistently put prominence on skills and knowledge of employees and that highly-experienced and skilled individuals are required to expedite delivery of high value-added goods and services together with the competences to build consumers' trust and confidence. The finding is also in line with Radipere and Dhliwayo (2014) [35] who reiterated that one of the success factors in small business is the knowledge level of the owner, which can assist the business to survive and manage a complex environment and maintain the profitability of the business.

6. Conclusion

Pearson correlation analysis showed that there was positive but weak correlation between use of skills and knowledge effects of rural electrification and household well-being of proprietors of micro and small enterprises. It was therefore concluded that there is statistical significant relationship between the use of skills and knowledge effects of rural electrification and household well-being of proprietors of micro and small enterprises, with increase in use of skills and knowledge effects of rural electrification causing an improvement in household well-being of proprietors of micro and small enterprises. Regression analysis revealed that although use of skills and knowledge effects of rural electrification has a small effect on household well-being of proprietors of micro and small enterprises, it is a significant predictor of household well-being of proprietors of micro and small enterprises.

6.1 Recommendations

The government should provide a policy framework that requires mandatory online application for business licenses and other legal payments. There is also need to provide a policy on e-business including e-procurement in the private sector to include micro and small enterprises.

Proprietors of micro and small enterprises need to embrace use of ICT in their operations including e-sourcing for raw materials, online advertisement, e-banking, electronic information management and record keeping among others. Computer literacy skills are some of the basic skills for the success of micro and small enterprises in rural areas.

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