

# Assessing the Effects of M-Shwari on Financial Inclusion among Muhoroni Factory Sugarcane out - Growers' Households in Muhoroni Sub-County, Kenya

MR. OKUMU Lawi Olela<sup>1\*</sup> DR. PAUL Muoki Nzioki<sup>2</sup>

1. MBA Scholar: School of Business, Laikipia University, PO box 1100-20300, Nyahururu, Kenya

2. Lecturer: School of Business, Laikipia University, PO box 1100-20300, Nyahururu, Kenya

## Abstract

In Kenya today the decline in cane production per given unit area has led to a domestic sugar consumption deficit that averages 200,000 tonnes of sugar annually. An aggressive financial inclusion strategy in the sugar sub-sector can seal this deficit and create employment for up to 6 million Kenyans, whilst saving foreign exchange annually. The study was guided by the following specific objectives; to assess the effect of access to *M-Shwari* transactions on financial inclusion among cane out-growers' households in Muhoroni sub-county, Kenya. to assess the effect of suitability of *M-Shwari* on financial inclusion amongst cane out-growers' households in Muhoroni Sub-County, Kenya. to assess the effects of procedural formality of *M-Shwari* on financial inclusion amongst cane out-growers' households in Muhoroni sub-county, Kenya, to assess the effects of moderating variable; poverty level, cane income, fiscal and monetary mix on financial inclusion among cane out-growers' households in Muhoroni Sub-County, Kenya. Based on comprehensive literature review on same area of study, a suitable conceptual framework which dramatically depicts the key areas of study was developed. This conceptual framework outlines the independent variables (access to transactions, suitability of m-shwari, procedural formalities and moderating variables) and dependent variables (financial inclusion among Muhoroni sugar factory out-growers'; households). The study population was all the 5,000 Muhoroni Sugar factory Out-Growers' Households within Muhoroni sub-county, Kisumu county. The study adopted Stratified proportionate random sampling technique that allowed construction of error estimates. A total of 366 questionnaires were completed successfully. This is a 98.9% response rate. The study collected data from the respondent using open-ended and closed questionnaires. Data was collected, cleaned, coded and analysed with the aid of statistical package for social sciences (SPSS) package. The gathered data was analysed using descriptive statistics.

**Keywords:** Financial Inclusion, sugar cane out-growers' households, *M-Shwari* effects.

## 1. Introduction

In Kenya today the decline in cane production per given unit area has led to a domestic sugar consumption deficit that averages 200,000 tonnes of sugar annually, ((Hamisi, 2015); Kenya Sugar Board, 2011). An aggressive financial inclusion strategy in the sugar sub-sector can seal this deficit and create employment for up to 6 million Kenyans, whilst saving foreign exchange annually, KSB (2011). Furthermore financial inclusion reach as earmarked in policies should be assessed, Yojana, (2016).

Financial inclusion or banking sector outreach is the process of availing a range of required financial services, at a fair price, at the right place, form and time, through formal means and without any form of discrimination to the populace, Parada and Gretabull, (2014). Access to a sustainable tailor made rural agricultural financial system has a potential to enhance resource poor smallholders to operate at capacity and increase agricultural productivity, food security and poverty reduction, (Nyikal, 2000; Kalunda, 2014).

A research conducted by Mol, (2014), on extent of financial inclusion among rural households in Kerala, India established that Income and savings habit of rural Kerala households are related, wealth leads to increase in the savings habit of the rural households. While most of the respondents' access to formal credit indicated that low income households are dependents on formal financial system for credit.

A research conducted by Matoke, (2012), established that agent banking has had a significant impact in including the low income households in the financial mainstream: There was no significant effect of agent banking on the savings of the low income households; Mere opening of a bank account does not have an automatic effect on the access to micro-credit among the low income households: Access to bank deposits and withdrawals for low income households was not sufficient to positively impact the finances of the low income households.

A research conducted by Afande, (2015), established that the use of specific credit sources, either formal or informal, depends on access. In both formal and informal markets, personal savings is the dominant source of finance, especially for initial capital due to an inadequate credit market as a result of supply-side constraints. The credit gap captures those enterprises too big for the informal market, confined to specific activities and at lower levels of income, but not served by the formal market. While research conducted by Kalunda, (2014), established that on financial inclusion initiatives in terms of access and usage, established that

the relationship between gender and age on the demand and use of financial services is high and usage in terms of credit access is also high but are statistically insignificant.

A research conducted by Hoopes (2013), established that, *M-Pesa* financial service, Vodacom is the leader in the money market services since it is 100% accessible at the village centres and small sub-centres. Vodacom's transaction costs as compared to other non-mobile services is lower, is user friendly as compared to other microfinance services. Digital means is the most effective way to significantly expand poor people's access to formal financial services. In addition to cost savings, digital financial services offer a wide array of benefits: They connect poor people to the formal financial sector and enable them to become customers and suppliers within the wider economy, allowing financial flows to be accurately tracked, resulting in safer and speedier transactions and less corruption and theft.

A research conducted by Lundqvist (2014), established that since the absolute incomes at the bottom of the pyramid in many of the world's poorest countries policy promotions and regulations should be targeted towards further utilization of the great potential for inclusive growth that higher mobile phone penetration reveals. While Kimani (2013), established that the higher the banks' reserve requirement is set means less funds will be loaned out by commercial banks in Kenya.

According to Thorsten, Demirgüç-Kunt and Honohan (2008), in many developing countries less than half the population have access to formal financial services, and in most of Africa less than one in five households do. Lack of access to finance is often the critical mechanism for generating persistent income inequality, as well as slower growth. Ideally financial reforms and free market should spur the adoption of innovations that improve efficiency and provide a healthy balance between lending and deposit rates, (CBK, 2014).

According to Calice, Chando and Sekioua (2012), the main findings of a survey of SME financing in four East African countries, namely Kenya, Tanzania, Uganda and Zambia described the SME segment as; a strategic priority for the banks in the region, a profitable business prospect, and an important opportunity for cross-selling. However SME-related factors hinder the further involvement of banks with SMEs. The banks perceives solutions through; innovation and differentiation, reforms to soften the negative impact of a number of obstacles, constraining banks' further engagement with the SME segment including; macroeconomic factors, business regulation, the legal and contractual environment, the lack of a more proactive government attitude towards the segment, some areas of prudential regulation and some bank-specific factors.

The launching of a number of value-added services through its M-PESA product in Kenya, SafariCom has moved to expand its customer base. *M-Shwari*, a savings and loan product launched in November 2012.

But as at 10 April 2014, disparities exist with up to 72 percent, an aggregate of KSh24 billion (US\$278 million), depositing money into *M-Shwari* accounts compared to 45 percent, an aggregate of KSh7.8 billion (US\$92 million), has been loaned out, SafariCom (2014). As a fundamental branch of management in agribusiness, financial reporting will never fall behind the times, Prathap (2011). While copious data are available on many aspects of the financial sector, systematic indicators of the inclusiveness of the financial sector are not, (Thorsten, *et al.*, 2008). The best data would be generated by a census or survey of users, which would allow researchers to measure financial access across sub-groups, (Thorsten, *et al.*, 2008).

Three main approaches to measuring, formal financial sector, access and usage have produced promising results, (Thorsten, *et al.*, 2008). One seeks to count the number of users of basic financial services; the second relies on the subjective assessments of firms as to the quality of the financial services that they obtain and the third looks at physical and cost barriers to access, (Thorsten, *et al.*, 2008). Therefore, it is worth an attempt to incorporate a hierarchical regression, on a baseline survey of the sugar sub-sector, cane out-growers' households in Muhoroni sub-county in Kenya.

Kenya has 4 sugar belts serviced by more than 10 sugar factories, the Nyando Sugar belt is the oldest and has 5 Sugar factories out of which two, Chemelil and Muhoroni are state owned factories. Given that cane out-growers supply 90% of the total sugar cane to the Kenyan sugar factories. Currently despite the wide and established branch network of commercial banks in Kenya, their lending terms and conditions don't favour significantly out-growers' accessibility to credit and would not consider extending credit to individual farmers unless they went through cooperative societies that kept financial records.

More so the banking crises of between; 1986 - 1989, 1993/1994 and 1998 most mainstream commercial banks closed down some rural branches in order to cut costs and improve profits. The non-traditional financial institutions, extension agencies such as Muhoroni Sugarcane Out-growers Company and Chemelil Out-growers Company, that emerged have locked out low income and irregular earners. In supplying up to 82.6% of cane out-growers credit facility, extension agencies have monopolized the sugar subsector.

Licensing of financial institutions in Kenya is done by the cabinet secretary of finance through the central bank of Kenya. The Companies Act, The Banking Act 2009, The Guideline on Agent Banking and CBK govern the banking industry, Republic of Kenya (2014). Agency banking allows banks to use various outlets like mobile Telco agents and other CBK approved business. Banking agency is an effort to expand financial

access to low income households on fair and equitable terms. This allows both customers and non-customers to transact even without locating the bank's branches, CBK, (2014). The CBK has licensed three credit reference bureaus to date allowing changes in the collateral technology so as to reduce cost of doing business by building information capital, (Central Bank of Kenya, 2014).

The study area focused on Muhoroni sugar factory's cane out-growers' households among the four administrative wards in Muhoroni sub-county in Kenya. Muhoroni sugar factory was selected purposely being the oldest and closest to the lands records registry. In the first stage the sub-county was divided into four strata based on administrative boundaries. Samples were selected based on the proportion of numbers of the factory's out-growers' households.

Specifically, the research aims to fulfil the following specific objectives;

- I. To assess the effect of access to *M-Shwari* transactions on financial inclusion among cane out-growers' households in Muhoroni sub-county, Kenya.
- II. To assess the effect of suitability of *M-Shwari* on financial inclusion amongst cane out-growers' households in Muhoroni Sub-County, Kenya.
- III. To assess the effects of procedural formality of *M-Shwari* on financial inclusion amongst cane out-growers' households in Muhoroni sub-county, Kenya.
- IV. To assess the effects of moderating variable; poverty level, cane income, fiscal and monetary mix on financial inclusion among cane out-growers' households in Muhoroni Sub-County, Kenya.

## 2. Theoretical Review

The theoretical framework introduces and describes the theory which explains why research problem under study exists. Measurements of concepts, together with their definitions, and existing theory/theories set out principles for effective government policy on broadening formal financial sector access, drawing on the available evidence, (Thorsten, *et al.*, 2008).

### Financial Intermediation Theory

Fama, (1980), developed the financial intermediation theory based on the premise that Banks are financial intermediaries that issue deposits and use the proceeds to purchase securities. When banking is competitive, these portfolio management activities in principle fall under the Modigliani-Miller theorem on the irrelevance of pure financing decisions. It follows that there is no need to control the deposit creation or security purchasing activities of banks to obtain a stable general equilibrium with respect to prices and real activity. In practice, however, banks are forcibly involved in the process by which a pure nominal commodity or unit of account is made to play the role of numeraire in a monetary system. This theory guides in assessing the suitability of such a nominal commodity and whether by hedging appropriately such intermediary have created products that are particularly valuable to some intermediaries' customers.

King, (1993), developed a finance growth theory on the premise that financial systems evaluate prospective entrepreneurs, mobilize savings to finance the most promising productivity-enhancing activities, diversify the risks associated with these innovative activities, and reveal the expected profits from engaging in innovation rather than the production of existing goods using existing methods. Better financial systems improve the probability of successful innovation and thereby accelerate economic growth. Similarly, financial sector distortions reduce the rate of economic growth by reducing the rate of innovation. This theory guides in assessing whether access to safe, easy and affordable finance is a pre-condition for enabling economically and socially excluded people to integrate better into the economy and protects themselves against economic shocks.

### Modern development theory

Merton, (1977), developed the modern development theory on the observation that it was common to include as part of the financial package a guarantee of the loan by a third party, in the arrangement of a loan. The theory states that "The issuing of a guarantee imposes a liability or cost on the guarantor." It guides in assessing whether provision of basic services through more efficient product to those who are completely excluded is a means to improve access and the importance of effects on financial development.

### 3. Conceptual Framework

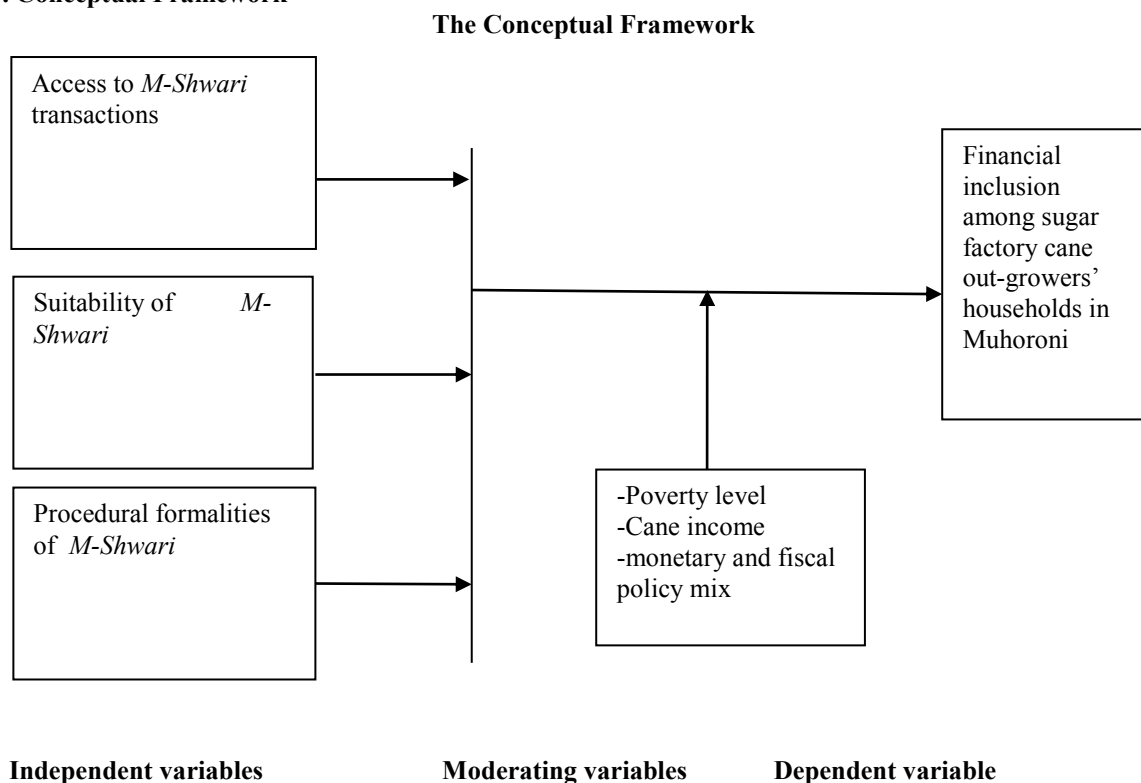


Figure 1  
 Source; Author 2016

### 4. Research Gaps

Research primarily focuses on perspectives of formal lenders and is equivocal on perspectives of borrowers crucial in exploring and measuring supply and demand constraints needed to establish variances so as to seal financial inclusion implementation initiatives' among SMEs' in Kenya. Measurements of concepts for effective government policy on broadening formal financial sector access, drawing from the available evidence.

### 5. Research Methodology

This study adopted descriptive survey design; appropriate for a study that seeks to describe the characteristics of certain groups, estimate the proportion of people who have certain characteristics and make predictions, Churchill, (1991). The study with aid of extension offices collected information Muhoroni Sugar company factory out-growers households' within the four administrative zones; Chemelil ward, Fort Tenan ward, Koru ward and Muhoroni ward. Extension systems facilitates access to knowledge and information by the farmers, their organizations and other market actors, Christopolos (2010). Agricultural extension are a set of organizations that support and facilitate farmers to solve problems by obtaining information, skills and technologies to improve their livelihoods, Anderson (2008).

The purpose of descriptive research is to determine and report the current status of population under study for two or more variables, Mugenda and Mugenda, (1999). Orodho and Oyugi, (2003), asserted that surveys are self-reports study that requires the collection of quantifiable information from the sample. The questionnaire, the primary level of estimation of H/Hs, enables timely coverage of large samples and allows respondents adequate time to provide well thought responses, Punch, (2003).

#### Target Population

Target population is the collection of elements that possess the information sought for by a researcher to support the study, Oso and Onen, (2009), (see Table 2).

Table 2: Muhoroni Sugar company factory Out-Growers Households'

Administrative Division	Residential Distribution Out-Growers Households'
	Households (5000)
Chemelil Ward	1550
Fort Tenan Ward	1450
Koru Ward	730
Muhoroni Ward	1270

Source: Osieko, (2013).

The study was carried out in Muhoroni Sub-County in Kisumu amongst Muhoroni sugar company factory's cane out-growers' households. Stratified proportionate random sampling technique was used to determine strata sample size of households, guided by figure 2; without probability sampling error estimates could not be constructed Glenn, (1992).

The sample size of respondents (370) was determined at 5% margin of error (degree of confidence) using 95% confidence level of a target population of 5000 out-growers households, an optimal sample size that fulfils the requirements of efficiency, representativeness, reliability and flexibility, Kothari, (2007). Simple random sampling allowed the population as a whole to have an equal probability chance of being selected, (Kothari, 2004).

The study relied on primary data collected through administering a structured questionnaire comprising closed and open-ended questions. The objectives of the study were the bases on which items on the questionnaire were developed. The researcher obtained an introductory letter from Laikipia University; the researcher proceeded and obtained all necessary authorization documents as evidenced in the appendices below. The researcher throughout liaised with the agricultural extension agents from administrative divisions; Chemelil, Fort Tenan, Koru and Muhoroni wards.

A tenth of the total sample size with homogeneous characteristics is appropriate for a pilot study, (Mugenda et al., 1999). The reliability of the questionnaire will be measured statistically using Cronbach's Alpha. A pre-test was done by providing the questionnaires to 37 respondents of Chemelil sugar out-growers' company H/Hs in Chemelil ward twice as pilot test. The population involved in the pilot study was not included in the sample. Any correction or adjustment to the questionnaire was carried out where it was deemed necessary based on the results from the pilot study.

Descriptive statistics are common interpretation of raw scores by reference to norms and are conversion into some relative reference or "standard" score such as mean and standard deviation, Brock, (2000), will be used. Tables, pie-charts, and graphs were used to present responses and facilitate comparison. In order to establish the effect of *M-Shwari* of financial inclusion among Muhoroni sugar factory out-growers' households.

## 6. Results and Discussion

### 6.1 Access to M-Shwari transaction

The study found that the majority (59.8%) of Muhoroni sugar factory out growers' households had used *M-Shwari*. Access to transactions had a statistical significant effect on usage. This is corroborated by SafariCom company reports, up to 70% on average used *M-Shwari*, an aggregate of KSh24 billion (US\$278 million) were deposited into *M-Shwari* accounts, while a much smaller, 70%, an aggregate of KSh7.8 billion (US\$92 million) had been loaned out through *M-Shwari*, Kaffenberger, (2014). In agreement to, (Hoope, 2013) who revealed that Vodacom's M-Pesa service menu (*M-Shwari*) is 100% accessible at the village centres and small sub-centres. Agent banking has had a significant impact in including the low income households of Kibera slums in the financial mainstream, (Matoke, 2012).

### 6.2 Suitability of M-Shwari

The *M-Shwari* suitability had the greatest statistical significant effect on usage by outgrowers' H/Hs. However the product did not significantly impact the members of outgrowers institutions to use the product. The fact that contracted out-growers were higher users than the members of OGIs meant that it did not serve the lower quartile equally. This concurs with (Mol, 2014) that wealth leads to increase in the savings habit of the rural households. More so a study by (Afande, 2015) revealed that the loan terms and conditions is as a result of supply-side constraints, meaning that the type of loans they require do not exist.

### 6.3 Procedural formalities of M-Shwari

Procedural formalities had a statistical significant effect on usage, H/Hs found proximity to the product and its terms and condition. This concurs with earlier findings of (Lundqvist, 2014) that technologies needed to deepen financial inclusion among these rural poor are claimed to be in place. Addressing financial market imperfections that expand individual opportunities creates positive incentive effects, Conditionality for loan and loan product features were preferred from semi-formal and informal sources not from formal sources in rural Karala

households, (Prathap, 2011).

#### **6.4 Socio-Economic, Fiscal and Monetary Aspect of *M-Shwari***

The findings further revealed that the relationship between poverty level, cane income and perception of policies (fiscal/monetary) had a high effect on the use of *M-Shwari*. These variables factors did not add to the model,  $\Delta R^2 = 0$  there was no significant relationship with outcome variable. An efficient financial system supported by a strong contractual and information infrastructure faces limitations, Hooppe, (2013). However between poverty level, cane income and perception of policies (fiscal/monetary) on the use of *M-Shwari* using hierarchical regression yielded inconclusive results. Most of the respondents' access to formal credit indicated that low income households are dependents on formal financial system for credit.

Socio-Economic assessment showed that; educational and parental status had an effect on H/Hs use of the product. However they didn't have significant relationship with the outcome variable. The poor perception could be due to the existence of digital divide among sugarcane farmers, (Hamisi, 2015), which has a significant effect on accessibility to agricultural information. The sugar cane farmers prefer the use; of mobile phones, (26%), followed by combination of mobile phones and internet at 12%, radio at 10%, internet through computers at 7% and lastly Television programmes and adverts at 6%, (Hamisi, 2015).

### **7. Inferential Test**

#### **Correlation analysis**

Inferential statistics namely Pearson's product moment correlation analysis was chosen for the study variables because a rating scale was used in the questionnaire. Pearson's product moment correlation tests were used to assess whether there is a relationship between the study variables. From the correlation analysis, the study found that there is a strong positive relationship between financial inclusion and Access to *M-Shwari* transaction where the correlation coefficients was .390\*\*. Similarly it found a strong positive relationship between financial inclusion and Suitability of *M-Shwari* where the correlation coefficients was .910\*\*. Thirdly it found a strong positive relationship between Financial inclusion and Procedural formalities of *M-Shwari* where the correlation coefficients was .770\*\*. Lastly it found a strong positive relationship between financial inclusion Socio-Economic, Fiscal and Monetary Aspect of *M-Shwari* where the correlation coefficients was .586\*\* all at a p-value less than 0.00.

### **8. Regression Analysis**

The researcher conducted a multiple linear regression analysis so as to determine the relationship between the financial inclusion and the four independent variables. The regression model took the following form:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where:

Y: Dependent variable; the percentage of household heads having used an *M-Shwari* account.

$\alpha$ : Constant, the intercept of the model.

$\beta_1$ : Coefficient of the  $X_1$ ,  $\beta_2$ :  $X_2$ ,  $\beta_3$ :  $X_3$  independent variables and  $\beta_4$ :  $X_4$  moderating variable.

**Table 1 Correlation of the study variables**

		Financial inclusion	Access to M-Shwari transaction	Suitability of M-Shwari	Procedural formalities of M-Shwari	Socio-Economic, Fiscal and Monetary Aspect of M-Shwari	
Financial inclusion	Pearson Correlation		1				
	Sig. (2-tailed)						
	N		366				
Access to M-Shwari transaction	Pearson Correlation	.390**		1			
	Sig. (2-tailed)	.000					
	N	366	366				
Suitability of M-Shwari	Pearson Correlation	.910**	.497**		1		
	Sig. (2-tailed)	.000	.000				
	N	366	366	366			
Procedural formalities of M-Shwari	Pearson Correlation	.770**	.608**	.815**		1	
	Sig. (2-tailed)	.000	.000	.000			
	N	366	366	366	366		
Socio-Economic, Fiscal and Monetary Aspect of M-Shwari	Pearson Correlation	.586**	.443**	.609**	.642**		1
	Sig. (2-tailed)	.000	.000	.000	.000		
	N	366	366	366	366	366	

Source author: 2016

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

X<sub>1</sub>: Independent variable, the percentage assessment of H/H<sub>S</sub> of M-Shwari's access to transactions.

X<sub>2</sub>: Independent variable, the percentage assessment of H/H<sub>S</sub> preference of the product M-shwari.

X<sub>3</sub>: Independent variable, the percentage assessment of H/H<sub>S</sub> of M-Shwari procedural formalities preferable.

X<sub>4</sub>: moderating variable, the percentage assessment of lower quartile level of H/H<sub>S</sub> cane turnover, fiscal and monetary perceptions.

ε: Error term

The researcher using statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study to determine the coefficient of determination. The four independent variables that were studied, explain 82.7% of the financial inclusion among Out-growers' households in Muhoroni sub-county in Kenya as represented by adjusted R square. This therefore means that other variables not studied in this research contribute 17.3% of the financial inclusion on among Out-growers' households in Muhoroni sub-county in Kenya. Therefore, further research should be conducted to investigate the other variables and factors (217.3%) influence of use of m-shwari among the sugar sub-sector sector in Kenya.

**Table 2: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.910 <sup>a</sup>	.827	.827	.204	.827	1744.725	1	364	.000
2	.912 <sup>b</sup>	.833	.832	.201	.005	11.317	1	363	.001
3	.917 <sup>c</sup>	.840	.839	.197	.007	16.844	1	362	.000

**Table 3: Hierarchical Regression on Key Variables**

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	$\Delta R^2$
(Constant)	.242	.030		8.128**	.827
Suitability of <i>M-Shwari</i>	.816	.020	.910		
(Constant)	.329	.039		8.404**	.005
Suitability of <i>M-Shwari</i>	.854	.022	.951		
Access to Transactions	-.066	.020	-.083		
(Constant)	.394	.041		9.501**	.007
Suitability of <i>M-Shwari</i>	.754	.033	.840		
Access to Transactions	-.101	.021	-.127		
Procedural Formalities	.082	.020	.163		

Source author: 2016

\*\* . Correlation is significant at the 0.01 level (1-tailed).

### 9. Conclusion

Access to *M-Shwari* transaction is overcoming barrier to inclusive financial systems through increased accessibility to transaction, a safe proximal source to an inclusive financial system. It has particularly been very effective for rural geographically remote MUSCO's Out-growers' households in Muhoroni sub-county. An effect of *M-Shwari* is access to safe, easy and affordable finance.

In addition suitability of *M-Shwari* is delivering convenience to customers through its price and non-price features overcoming, financial market frictions, through its preferable terms and conditions enabling occupational choices, which implies that an effect of *M-Shwari* is redistribution of wealth among MUSCO's Out-growers' households.

Procedural formalities of *M-Shwari*, transactions costs, financial market imperfection, would limit MUSCO's Out-growers' households in Muhoroni sub-county such as irregular and lower quartile H/Hs to their own savings and earnings. With lack of collateral, credit histories and connections, an inclusive financial systems, *M-Shwari* has an effect of creating opportunities among Out-growers' households in Muhoroni sub-county.

Finally, the poor perception of monetary and fiscal policy measures due to information asymmetries, financial market imperfection, has constrained human capital accumulation among Out-growers' households in Muhoroni sub-county. This implies that perception of *M-Shwari* has a delimiting effect on redistribution of wealth among MUSCO's Out-growers' households in Muhoroni sub-county.

### 10. Recommendations

The study has examined the effects of microfinance (*M-Shwari*) on financial inclusion in the sugar sub sector among H/Hs, through human capital accumulation and occupational choices. However, financial market imperfections limit access to finance. The study recommends that microfinance institutions should improve access to transactions in order to overcome access barriers to inclusive financial systems through safer, proximal sources financial system.

Though, selectively increased access is risky according to the theory; as capable of worsening inequality, data results suggest that a more inclusive financial system is associated with lower inequality in the sugar subsector. The study therefore recommends that to enhance delivery of financial products to customers, affordable price and non-price terms and conditions to enable capital accumulation and occupational choices to customers.

The study recommends that inclusive financial products should design convenient procedural with minimal information asymmetries, improve risk insurance mechanisms. This can be achieved by a considering consumer preferences to information media. The study recommends that fiscal and monetary policies that promote broader access to financial services should be at the core of building inclusive financial systems that focuses on equalizing opportunities.

### REFERENCES

- Afande, F. (2015). The Factors that Affect Accessibility to Credit Services by Small Scale Sugarcane Farmers in Kenya: A Case of Bungoma County, Kenya. *Developing Country Studies vol. 5*, 1-17.
- Amin M. (2005). *Social Science Research: Conception, Methodology and Analysis*. London: Amin.
- Anastasi and Urbina. (2002). *psychological Testing*. Singapore: Peason Education Ltd.
- Anderson. (2008). *Agricultural Advisory Services: A Background paper for Innovating thorough Science and Technology*. In W. Banl: World Development Report. Washington DC: World Bank.
- Beck T, Kunt A and Honohan P. (2008). *Access to Financial Services: Measurement, Impact and Policies*. The



- World Bank.
- Beck, Thorsten, and Levine, R. (2002). Industry Growth and Capital Allocation: Does Having a Market- or Bank-based System Matter? *Journal of Financial Economics* 64, no. 2, 147–80.
- Borg and Gall. (1996). *Research Methodology in The Behavioural Sciences*. Lagos: Longman.
- Brock S. (2009). *Descriptive Statistics and Psychological Testing*. Sacramento: California State University.
- Browner W, S. and Newman T, B. (1987). *Are All Significant P-Values Created Equal? The Analogy Between Diagnostic Tests and Clinical Research*. Jama.
- Calice P, Chando V and Sekioua S. (2012, No 146- March 2012 30). *Bank Financing to Small and Medium Enterprises in East Africa: Findings of a Survey in Kenya, Tanzania, Uganda and Zambia*. Retrieved from African Development Bank Group Web site: <http://www.afdb.org/>
- Calice P, Chanda M. and Sekioua S. (2012). *Banking Financing To SMEs In East Africa: Findings of a Survey In Kenya Uganda, Tanzania and Zambia*. Tunis: African Development Bank.
- Casaburiy, L, Kremer, M and Mullainathan, S. (2012). *Contract Farming and Agricultural Productivity in Western Kenya*. Harvard: Harvard University.
- Chakma J. (2014). Financial Inclusion in India: A Brief Focus on Northeast India. *International Journal of Application or Innovation in Engineering and Management* , 1-6.
- Christopolos I. (2010). *Mobilizing the potential of Rural and Agricultural Extension*. Bombai: Neuchatel Group.
- Churchill, W. (1991). *Your Research Project: A Step-by-Step Guide for the First-time Researcher*. London: Sage Publications Inc.
- Cook, T and McKay, C. (2015). *How M-Shwari Works: The Story So Far*. Washington DC: CGAP and Its Partners.
- Diamond D. (1984). Financial intermediation and delegated monitoring. *Review of Economic Studies* 51, 393–414.
- Dindi .E.A. (2013). *The Managerial Factors Influencing Sugarcane Production by Farmers of Mayoni Division, Mumias Sugar Company in Kenya*. Nairobi: Kenyatta University.
- Djankov Simeon McLiesh Caralee Shleifer and Andrei . (2007). Private credit in 129 countries. *Journal of finance and economics* 84(2), 299–329.
- Fama E. (1980). Banking in the Theory of Finance. *Journal of monetary economics*, 6(1), 39-57.
- Field A. (2009). *Research Method in psychology*. Washington.
- FSD-Kenya. (2012). *Strategy Brief 2011 - 2015*. <http://fsdkenya.org/publications/index.php>.
- Ghani E. (1992). *How Financial Markets Affect Long-run Growth: A Cross-Country Study*. New York: The World Bank.
- Ghate, Prabhu, Das-Gupta, Arindam, Lamberte, Mario, Poapongsakorn, Nipon, Prabowo, Dibyo, Rahman, Atiq, and Srinivasan. (1992). Dibyo, Rahman, Atiq, Srinivasan, T.N., 1992. Informal Finance. Some Findings From Asia. Oxford University Press, Manila, Philippines. *Journal of Economics*.
- Glenn D. (1992, October 5). Sampling the Evidence of Extension Program Impact. *Program Evaluation and Organizational Development, IFAS, University of Florida*.
- Global Standard Setting Bodies and Financial Inclusion. (2015, November 15). *cgap.smugmug*. Retrieved from cgap.smugmug web site: <https://cgap.smugmug.com>
- Guilford H. (1956). *Fundamentals of statistics in Psychology and Education*. New York: Mc Craul H all Book Company.
- Gurley, J. and Shaw, E. (1960). *Money in a Theory of Finance*. Washington D.C: Brookings Institution.
- Hamisi M. W. (2015). *The Effect of Digital Divide on Accessibility of Agricultural Information among Sugarcane Farmers in Migori County, Kenya*. Nairobi: University of Nairobi.
- Hoope.s. (2013). *The Role of Mobile Money Services in Improving Microfinance Services in Rural Areas: A Case of M-Pesa in Kilosa, Morogoro*. Mzumbe: Mzumbe University.
- International Accounting Standards Board and International Financial Reporting StandardS. (2015). *Basis For Conclusions Exposure Draft ED/2015/3*. London: IFRS Foundation Publications Department.
- Kaffenberger M. (2014). *M-Shwari in Kenya: How is it Really Being used?* InterMedia.
- Kalunda E. (2014). Financial Inclusion Impact on Small-Scale Tea Farmers in Nyeri County, Kenya. *World Journal of Social Sciences: Vol. 4. No. 1.*, 130 – 139.
- Kenya Sugar Board. (2011). *Kenya Sugar Board Yearbook of 2008*. Nairobi: Government printing press.
- Kenya Sugar Industry. (2010). *Strategic Plan, 2010–2014*. Nairobi: Government Printing Press.
- Kibaara, B. (2006). *Rural Financial Services in Kenya: What is Working and Why?* Nairobi: Tegemeo.
- Kimani J. (2013). *Assessment of Effects of Monetary Policies on Lending Behaviour of Commercial Banks in Kenya*. Nairobi: Kenyatta University.
- King, Robert G and Levine, R. (1993). Finance, Entrepreneurship, and Growth: Theory and Evidence. *Journal of Monetary Economics* 32(3), 513-42.
- Kish and Leslie. (1965). *Survey Sampling*. New York: John Wiley and sons.

- Kothari C. (2007). *Research Methodology: Methods and Techniques*. New Dheli: New Age publications.
- Lundqvist M and Erlandsson F. (2014). *The Diffusion of Mobile Phones and its Impact on Financial Inclusion and Economic Growth in Africa*. Oslo: Lunds University School of Economics.
- M'Amanja D.M. (2015). Financial Inclusion, Regulatory and Stability: Kenya Experience and Perspective. *United Nations Conference on Trade and Development* (pp. 11-13). Geneva: Central Bank of Kenya.
- Matoke, S. (2012). *An Assessment of the Effect of Agent Banking on Financial Inclusion of Low Income Households in Kenya's Case Study of Kibera Slums*. Nairobi: Strathmore University.
- Mburu, S, Njuki, J and Kariuki, J. (2012). Intra-household access to livestock information and financial services in Kenya. *Livestock Research for Rural Development* vol 24, 2-10.
- Merton, R. (1977). An analytic derivation of the cost of deposit insurance and loan guarantees an application of modern option pricing theory. *Journal of Banking and Finance* 1(1), 3-11.
- Milu M and Jayne T. (2006). *Agricultural Extension in Kenya: Practice and Policy Lessons*. Nakuru: Tegemeo Institute of Agricultural Policy and Development, Egerton University.
- Mol S. (2014). *A Study of Extent of Financial Inclusion among Rural Households in Kerala*. Kerala: Department of Commerce and Centre of Research Psmo College.
- Mugenda and Mugenda . (1999). *Research Methods: Qualitative and Quantitative Approaches*. Nairobi.: African Centre for Technology Studies.
- Mugenda, M. and Mugenda, G. (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: Acts Press.
- Munyanyi W. (2014). Women Financial Inclusion in Zimbabwe: A Descriptive Comparison. *International Journal of Education and Research* Vol. 2 No. 6, 258=269.
- Mutua and Oyugi. (2007). *Poverty Reduction Through Enhanced Rural Access to Financial Services in Kenya*. <http://www.seapren.org>.
- Mwaura. (2003). *Environment as a Moderator of the Relationship Between Business Strategy and Performance. A case of SMEs in Kenya*. Nairobi.: University of Nairobi.
- Mwindi. (2002). *The Relationship Between Interest Rates Charged by MFIs and Performance of Micro and Small Enterprises in Nairobi*. Nairobi.: University of Nairobi.
- Ndungu C.G. and Njeru A,. (2013). *Assessment of Factors Influencing Adoption of Agency Banking in Kenya*:. Nairobi: Jomo Kenyatta University of Agriculture and Techno.
- Nyikal, R. (2000). *Financing Agricultural Production in Kenya: an Economic Analysis of the Credit Market*. Nairobi: The University of Nairobi.
- Oldfield and Santomero A. (1997). *The Place of Risk Management in Financial Institutions*. Sloan: Sloan.
- Orodho and Oyugi. (2003). *Essential for Education and Social Sciences Research Method*. Nairobi : Musola publishers.
- Osieko O. (2013). *Effects of Muhoroni Sugar Company's Practices on Livelihood of Sugarcane Out-Growers in Muhoroni District, Kenya*. Nairobi: University of Nairobi.
- Oso and Onen. (2009). *A General Guide to Writing a Research Proposal and Report*,. Nairobi, Kenya: Jomo Kenyatta Foundation.
- Parada M. and Gretabull. (2014). *In the Fast Lane: Innovations in Digital Finance*. New York: IFC.
- Pradhan Mantri Jan Dhan Yojana. (2016, January 1). *National portal: Pradhan Mantri Jan Dhan Yojana*. Retrieved from Pradhan Mantri Jan Dhan Yojana website: <http://india.govin/>
- Prathap S. k. (2011). *Financial Inclusion of Fisher Households in Coastly Kerala-The Role of Microfinance*. Kochi: Cochin University of Science and Technology.
- Punch K. (2003). *Survey Research: The Basics*. London: Sage Publications Ltd.
- Raman A. (2012). Financial Inclusion and Growth of Indian Banking System. *IOSR Journal of Business and Management* Vol.1 Issue 3, 25-29.
- Republic of Kenya. (2014). *Bank Supervision Annual Report*. Nairobi: Central Bank of Kenya.
- Robert Grooves. (2004). *Survey Errors and Survey Costs*. John Wiley and Sons, Inc.
- Robinson J. (1952). *The Generalization of the General Theory, in The Rate of Interest and Other Essays*. London: MacMillan Publishing Co.
- safaricom. (2014, april 31). *safaricom*. Retrieved from safaricom web site : <https://www.saf.or.org>
- Saropa .J.W. (2013). *Adoption of Agency Banking by Equity Bank Kenya Limited in its Iinternational Business Operations*. Nairobi: University of Nairobi.
- Shetty and Naveen K. (2012, December 31). *The Microfinance Promise in Financial Inclusion and Welfare of the Poor: Evidence from India*. Bangalore, State of Karnataka., India.
- Sinclair S, Mchard F. Dobbie I. Cooper, and Donald R. (2008). *Business Research Method*. Columbus: McGraw-Hill Companies.
- Singh A. and Masuku M. (2014). Sampling Techniques and Determination of Sample Size in Applied Statistics Research : An Overview. *International Journal of Economics, Commerce and Management* Vol. II, 4-

12.

- SoftKenya. (2015, December Tuesday). *Farming in Kenya*. Retrieved from [softkenya.com/farming/sugarcane-farming/](http://softkenya.com/farming/sugarcane-farming/): <http://softkenya.com/>
- The Central Bank of Kenya. (2014). *The Annual Economic Report*. Nairobi: <http://goo.gl/BXWKG>.
- The Konrad Adenauer Stiftung and The Institute for International Monetary Affairs. (2013, August 23). *iima.or.jp*. Retrieved from [iima.or.jp](http://www.iima.or.jp) web site: <http://www.iima.or.jp>
- The United Nations Department of Economic and Social Affairs. (2016, January 6). *The United Nations Department of Economic and Social Affairs*. Retrieved from The United Nations Department of Economic and Social Affairs website: <https://sustainabledevelopment.un.org/>
- Thorsten Beck Asli Demirgüç-Kunt Patrick Honohan. (2008). *Access to Financial Services: Measurement, Impact and Policies*.
- Wanyungu. (2001). *Financial Management Practices of Micro and Small Enterprises in Kenya. The case of Kibera*. Nairobi.: University of Nairobi.

## **DECLARATION AND RECOMMENDATION**

### **Declaration:**

This Project Report is my original work and has not been presented before for an award or conferment of a certificate or degree in any University or College.

LAWI OLELA OKUMU

MB24/2072/13

### **Recommendation:**

This Project Report has been submitted for examination with our recommendation as University supervisors.

DR. PAUL MUOKI NZIOKI

SCHOOL OF BUSINESS

LAIKIPIA UNIVERSITY

DR. FREDRICK NDEDE

SCHOOL OF BUSINESS

KENYATTA UNIVERSITY