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RELATIONSHIP BETWEEN PERFORMANCE MEASUREMENT SYSTEM ASPECTS AMONG AGRICULTURAL MARKETING CO-OPERATIVE SOCIETIES IN ROMBO DISTRICT, TANZANIA

Victor Shirima
Department of Banking, Accounting and Finance
Moshi Co-operative University - Tanzania

Henry Chalu
Department of Accounting,
University of Dar es Salaam Business School, Dar es Salaam - Tanzania

Benson Ndiege
Tanzania Co-operative Development Commission (TCDC), Dodoma-Tanzania
Email: ndiegebenson@gmail.com; ndiegebenson@yahoo.com

Abstract
Co-operative like any other institution has various performance measurement aspects that can be grouped into financial aspect and non-financial aspect. The non-financial aspect can be also subdivided into learning and growth, internal business process and members/customers. There has been a lot of theoretical claims on the causal relationship between performance measurement aspects. However, the empirical evidence on causal effect relationship between these aspects in co-operative sector has not got much attention. This paper, empirically, examined the causal relationships among performance measurement system aspects in Agricultural Marketing Co-operative Societies (AMCOS). Specifically, the paper examined the relationship between learning, business process, member and financial aspects. The study adopted a cross sectional design, where 334 respondents were involved. Structural Equation Model (SEM) was conducted to test the hypothesis. The findings revealed that: learning has a positive significant relationship with internal business process, internal business process with member aspect and member aspect with financial aspect. It also established a positive significant relationship between the learning aspect and financial aspect. The study concludes that, there is an empirical evidence on the presence significant relationship among co-operative performance aspects. The study recommends that, so long as learning and growth appear to influence all the other aspects, policy makers should put much efforts in developing human capital. Furthermore, it is recommended to those in charged with internal business processes to use the expertise and skills they have to come up with innovative ideas to provide quality services to members.
Key word: *Co-operative, Performance, Evaluation, Balanced Scorecard, Structural Equation Model*
Paper type*: Research paper*
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1. INTRODUCTION

Co-operative institutions are the popular economic institutions that have spread all over the world (Ezekiel, 2014), to meet multiple goals of economic, social and cultural needs. Presence of multiple goals

makes difficult and complex to evaluate the performance of these types of institutions. Given the nature of the co-operatives, the performance should consider financial and non-financial aspects. Non-financial aspect can also be subdivided into member aspect, internal business process aspect, learning aspect and social aspect (Dhamayantie, 2018; Duguid, 2017; Shirima, Chalu, & Ndiege, 2019). The assumption according to performance measurement system is the presence of causal effect relationship (Kaplan and Norton, 1996, 2001). Causal relationship is very important in order to understand what to manage and the priorities to be given during planning in various aspects. Knowing the causal relationship assists to express how the indicators are linked together, hence then, can give a direction on what is supposed to start with, during planning and the effect they have whenever the decision is made and therefore, used as a strategic tool. Performance aspects and indicators have been discussed by a number of scholars in co-operative (Dhamayantie, 2018; Masuku, Masuku, & Mutangira, 2016; Mayo, 2011), yet, the identification of variables and their empirical causal effect relationship is not yet established.

Co-operative institutions are operating under a very competitive environment which needs a sound understanding of what drives the performance. Resource Based View Theory assumes that organisation can attain competitiveness by acquiring and possessing resources in their domains that are firm specific and not available to competitors. These resources are human resources, technology, social relation (Bloodgood, 2019; Campbell & Park, 2017). Nevertheless, a causal relationship assessment is very vital within the performance measurement aspects. Cause-effect relations are also emphasised, by model like Balanced Scorecard (BSC) system (Kaplan and Norton, 1996, 2001).

BSC was introduced by Kaplan and Norton in 1990s, and has been a framework for organisations to translate their missions and strategies into a comprehensive set of key performance indicators. It is composed of four perspectives in the following order: Learning and Growth, Internal Business Processes, Customers (for the case of co-operatives members will be used), and Financial. Given the importance of this model, the current study has also adopted the same to assess the causal relationship among various aspects in AMCOS. The study used learning (competency, staff satisfaction, training and education, number of employees, staff retention, employee skills); internal business process (quality of service and quick service delivery, sufficient facilities, use of technology, new product development); member aspect (member retention, member increase, member satisfaction, market share increase, member profitability); and financial aspect (profitability, cost reduction, price, revenue growth, ROI, share increase). Although some of the co-operatives might not know BSC (Cardemil & Shadbolt, 2006), still their organization's performance aspects fit well in the BSC framework. Cardemil and Shadbolt (2006) argued that, co-operatives use all the BSC building blocks like objectives, measures and targets in four areas, namely financial, customer, internal business process and learning and growth irrespectively of their relatively small size and business field. The mentioned aspects form a holistic view of the institutional performance system.

2. THEORETICAL PERSPECTIVE OF THE STUDY

Ability, Motivation and Opportunity to participate (AMO) theory argue that, for organisations to achieve superior performance they need to ensure, they have human capital with appropriate skills, abilities, motivated, and that they are given chance to execute their skills, knowledge and experience (Marcoux, Guihur, & Leclerc, 2018; Moraes *et al.,* 2018; Rajiani, Musa, & Hardjono, 2016). BSC model insists the organisations to ensure learning and growth, internal business process, customers and financial are monitored and assessed (Kaplan and Norton, 1996, 2001). The same applies to the AMCOS which are required to struggle in order to increase AMCOS performance. In co-operatives members are the ones who also approve the annual budget in the Annual General Meetings. Although they are not the ones who perform the day to day activities, but their decisions for example cost reductions, might have

some impacts on the financial performance of the co-operative. Therefore, having members with skills, experience and knowledge (learning aspect) on the co-operative issues can influence the financial Aspect. Institutional performance system of the co-operative society considers four aspects, learning and growth, internal business process, member and financial aspect. Learning and growth calls the continuous improvement in organisation. Learning and growth is taken as a pillar for organisation's success (Daniel, 2017) because, it tries to look on employee and members capabilities, information system capabilities and on motivation, empowerment and alignment (Sainaghi, Phillips, & Corti, 2013). Therefore, learning aspect when improved, it will lead to high-quality governance which is the most important factor to the co-operative success. Human capital affects innovation and improves business operations. Therefore, it affects the internal business process aspect (Chahal & Bakshi, 2015; Han & Li, 2015; Othman, Mansor, & Kari, 2014). From the discussion above, two hypotheses were developed:

H1*: Learning and growth aspect is positively associated with internal business process aspects*
H2: *Learning and growth aspect is positively associated with financial aspects*

The internal business processes perspective is concerned with the operations of the organisations (Coe & Letza, 2014; Hoque, 2014). Results from empirical studies show that intellectual capital elements (human, innovation, process and customer aspect), directly affect business performance (Kalkan, Bozkurt, & Arman, 2014; Wang & Chang, 2005). The study conducted by (Hejazi, Ghanbari, & Alipour, 2016) on the profit-making organisations found that innovation capital affects process capital, which in turn influences customer aspect which for this case is members. Therefore, the following hypothesis was developed:

H3*: Internal business process aspect is positively associated with members' aspect*

Customer/member perspective identifies future wants and creating value in terms of time, quality and service. It can be measured by market share, customer retention, acquisition, satisfaction and profitability (Coe & Letza, 2014). Innovation capital affects process capital, which in turn influences customer capital. Finally, customer capital contributes to financial performance (Hejazi *et al.*, 2016). However, co-operatives are as good as members make them (Borda & Vicari, 2014). It means the more you have good members the more you have the good co-operative society. The following hypothesis is then developed:

H4*: Members aspect is positively associated with financial aspects*

The financial perspective examines whether the organisation's strategy will contribute to the bottom-line improvement of the organisation (Amaratunga & Baldry, 2002; Kaplan & Norton, 1996). The common financial measures used in the financial perspective are revenue growth, costs, profit margins, cash flow, net operating income assuming that AMCOS focus on the maximization of profit and net price (Royer, 2004).

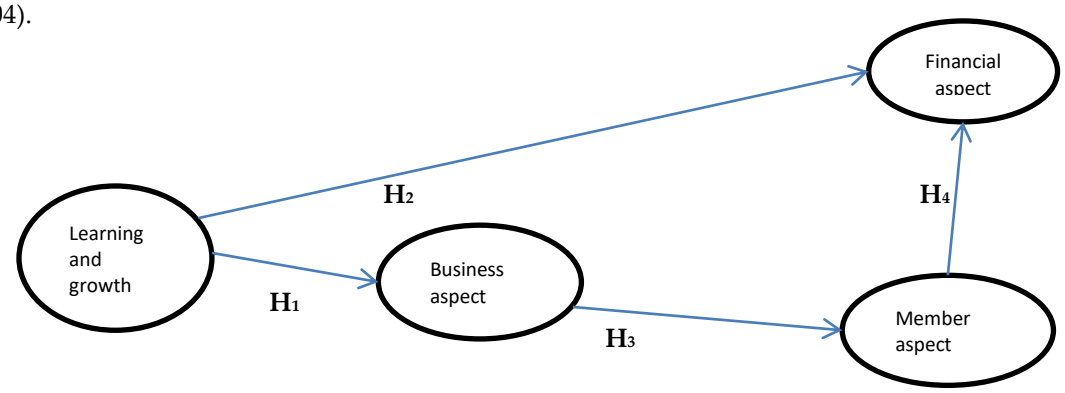

Figure 1: **Co-operative performance measurement framework**

3. METHODOLOGY

The study was conducted in Kilimanjaro where Rombo District was selected purposively because 100 percent (16 AMCOS) of the primary Agricultural Marketing Co-operatives Societies were active and were doing business on their own with little dependency on the secondary co-operative which is Kilimanjaro Native Co-operative Union (KNCU). Having being active and doing business by their own, it was possible to have reliable information rather than using the co-operatives which are still using traditional models by depending on KNCU in doing their business. The co-operative societies were also purposively selected. The study design was a cross sectional design where survey approach was employed.

The sample size used in this study was 334 respondents obtained by using rule-of-thumb. The rule of thumb technique was used because were no reliable statistics of the active members by using the criteria of those selecting members who sold coffee through their co-operative for the last three years consecutively. Therefore, neither finite population formula nor infinite population formula for sample size could logically fit for these circumstances. Some researchers such as Hair *et al*, and Tatham, 1998, Williams, Onsman, and Brown, 2010 suggest a rule of 10 variables per observation to be applied which for this case is 10 times 22 indicators (220) or a rule of thumb of 100 participants and above. Generally, for factor analysis a rule of thumb suggests having at least 300 sample size as adequate (Tabachnick, Fidell, & Ullman, 2007; Van & Morgan, 2007).

A questionnaire was developed ensuring that no ambiguity in concepts and items by pre-testing and respondents were informed about the anonymity as well as the confidentiality of the responses, in order to emphasize honest answers. A total of 22 items: financial 6, member 5, internal 5, learning 6, were assessed. Likert scale statements were developed ranging from 1 to 5 (ranging from 1→ strongly disagree; 2→ disagree; 3→ agree nor disagree; 4→ agree; 5→ strongly agree) to assess respondents' perceptions on how they agree the selected items to be used in their AMCOS as the important items for measuring their performance. The study used members of the co-operative society as a unit of inquiry since scholars recommend that, to understand the performance of the co-operative, ask members (Mayo, 2011). The emphasis in co-operative society is on members' value because these institutions are owned by members. Active members depending on the criteria that, they have sold coffee through their co-operatives for the past three years were chosen. Systematic sampling was involved where the first member was picked randomly and then the others were picked using K^{th} formula depending on the list of members available in a specific AMCOS.

Data were analysed through descriptive statistics for preliminary analysis, as well as, inferential statistics for detailed analysis. Reliability using Cronbach Alpha was tested before proceeding with further steps. The overall reliability of 0.939 which is above minimum required of 0.7 was achieved. Inferential statistics was done stepwise: 1. Factor analysis using Principle Component Analysis (PCA) was conducted to reduce redundant items and to increase the reliability of each aspect. According to Hair (2010), the exploratory analysis procedure is a powerful tool that can address a wide range of theoretical questions, hence allows the multivariate relationship. At this stage, the study was able to assess the convergent and discriminant validity. 2. Thereafter, the Partial Least Square Structural Equation (PLS-SEM) by using SMART-PLS 3.0 software was used in order to test the hypothesis in the model.

SEM was chosen because it tests multiple regression models in a single analysis at once and has become popular technique to the researchers in social sciences (Hooper, Coughlan, & Mullen, 2008). PLS-SEM is flexible to permit examination of complex associations and can handle various types of data (Wolf *et al*, 2013) and also combines factor analysis and linear regression (Hair *et al*, 2016). It also addresses the problem of measurement error by removing it and therefore having a good estimation of relationship.

The PLS-SEM method was further used because it is designed as a prediction-oriented approach to SEM. PLS-SEM path modelling using SMARTPLS is appropriate to carry on the confirmatory factor analysis which is more reliable and valid (Afthanorhan, 2013) by combining principal components analysis with regression-based path analysis. In avoiding the inherently problem of empirical social science data which are characterised by non-normal data, PLS-SEM was suitable to solve this problem (Hair *et al*, 2014). When using PLS-SEM analysis the researcher should pass through two stages (Chin, 2010) (1) the assessment of the measurement model which includes the individual item reliability, internal consistency, and discriminate validity of the measures, and (2) the assessment of the structural model.

3.1 Multicollinearity, Reliability and Validity Test

To assess the multicollinearity problem, variance inflation factor (VIF) was inspected. Table 1 indicates that all VIF are below 10 as suggested by Chin (2010) meaning that multicollinearity problem does not exist. Cronbach's Alpha (Cronbach, 1951) is one of the widely used measures of reliability in the social sciences (Bonett & Wright, 2015; Cronbach, 1951; Diedenhofen & Musch, 2016; Loewenthal & Lewis, 2018). Reliability of data was conducted in order to assess the internal consistency of the aspects through Cronbach's Alpha and was significant at an Alpha of 0.939 (see Table 1). Then, the aspects tested scored the reliability above 0.7 which indicates a very strong consistency among aspects (Prajogo & Sohal, 2003). The results gave a support to use factor analysis to determine whether some items could be removed and to capture the meaning of the framework accurately. Bartlett's test of sphericity and Kaiser- Meyer- Olkin (KMO) measure of sampling adequacy were tested in order to evaluate the appropriateness of the data for factor analysis. Bartlett's test was significant at $p < 0.001$ level, indicating that there is association among variables since the matrix is not identity matrix. Besides, the KMOs in Table 1 are higher than the threshold of 0.5 (Darko *et al*., 2017; Williams, Onsman, & Brown, 2010), indicating that sample is acceptable for factor analysis.

Factor Analysis was performed through principle component for the perspectives with a total of 22 items/indicators by using a principle component extraction and Varimax rotation. The eigen value for each aspect was above 1.00. Financial aspect gave six indicators explaining a 54.584% of total variance whereas member aspect has five indicators explaining a 60.911% of total variance. For the internal business there are five indicators explaining a 52.262 % total variance whereas learning has six indicators explaining 50.554% total variance. The total variance explained is within acceptable range of 50% for social sciences. The entire factor loadings were above 0.50 which is acceptable (Hair *et al*, 2010), hence no item was deleted at this stage.

Table 1: **Testing for Multicollinearity and Reliability of data.**

Aspect	Cumulative variance	Cronbach's Alpha	VIF	KMO	Bartlett's Test
Financial	54.584%	0.861	1.499	0.894	P<0.001
Member	60.911%	0.839	1.750	0.854	P<0.001
Internal business	52.262%	0.847	1.655	0.875	P<0.001
Learning	50.554%	0.859	1.774	0.870	P<0.001
Overall reliability		0.939			

NB: Determinants for the correlation matrices was >0.00001 indicating absence Multicolinearity.

Construct validity was measured in two aspects that are, convergent and discriminant validity. These examine the extent to which measures of a latent variable shared their variance and how they are different from others (Alarcón, Sánchez, & De Olavide, 2015). The Composite Reliability (CR) was used in order to overcome some traditional CA's deficiencies. The CRs in this study are in an acceptable range of

above 0.80. The last measure was a convergent validity to measure the degree to which individual items reflects a perspective convergent in comparison to items measuring different aspects. Convergent validity was achieved since the factor loadings were above 0.6 (see Table 2). This is a good threshold for convergent validity (Park & Gagnon, 2006). The Average Variance Extracted (AVE) from this study as recommended by Fornell and Larcker (1981), is above 0.5 indicating that convergent validity was adhered.

Table 2: Factor loadings, Average Variance Extracted and Composite reliability

Construct	Indicators	Factor loadings	VIF	AVE	Cronbach's alpha	Composite Reliability
MA/CA	CU1	0.781	1.747	0.611	0.841	0.841
	CU2	0.795	1.851			
	CU3	0.815	1.942			
	CU4	0.732	1.539			
	CU5	0.783	1.673			
FA	F1	0.721	1.627	0.573	0.851	0.890
	F2	0.767	1.773			
	F3	0.781	1.957			
	F4	0.758	1.709			
	F5	0.727	1.549			
	F7	0.786	1.879			
IBPA	I1	0.723	1.396	0.577	0.817	0.872
	I2	0.710	1.543			
	I3	0.766	1.701			
	I4	0.774	1.758			
	I5	0.819	1.879			
LGA	L1	0.723	1.633	0.560	0.842	0.884
	L2	0.812	2.127			
	L3	0.710	1.553			
	L4	0.774	1.860			
	L5	0.712	1.667			
	L6	0.754	1.802			

MA: member aspect; FA: Financial Aspect: IBPA: internal business Aspect; LGA: learning Aspect: F1: profitability; F2:price; F3: revenue growth; F4: return on investment; F5: share increase; F7: cost reduction; L1: competency; L2: employee satisfaction; L3: employee retention; L4: training and education; L5: employee skills; L6: number of employees; I1: quality of service; I2: Sufficient facilities; I3: use of information technology: I4: new product development; I5: quick service delivery; CU1: member satisfaction; CU2: member retention; CU3: market share increase; CU4: member profitability; CU5: members increase

Discriminant Validity was tested according to Fornel and Larker (1981) criteria, that requires the square root of AVE to be greater than the correlations among the constructs. All square root of AVE in Table 3 that appear in the diagonal for the model's constructs are greater than the inter-construct correlations, hence indicate that there is no problem with discriminant validity.

Table 3: Discriminant validity test for measurement model in PLS

	FP	IBP	LG	MP
FP	**0.757**			
IBP	0.684	**0.759**		
LG	0.556	0.721	**0.748**	
MP	0.679	0.586	0.544	**0.782**

MA: member aspect; FA: Financial Aspect: IBA: internal business Aspect; LGA: learning Aspect:

4. FINDINGS

To assess the structural model, two measures namely: statistical significance (t- test) of the estimated path coefficient- β, and the coefficient of determination - R^2 (which explain the ability of the model to explain the variance in the dependent variable. The hypothesis model was tested by using PLS method to confirm the relationship between the constructs within the model. The paths in the model were tested to determine their significance. Therefore, in order to assess the model, the squared multiple correlation (R^2) were examined in each construct. Then the significance of the paths was also evaluated.

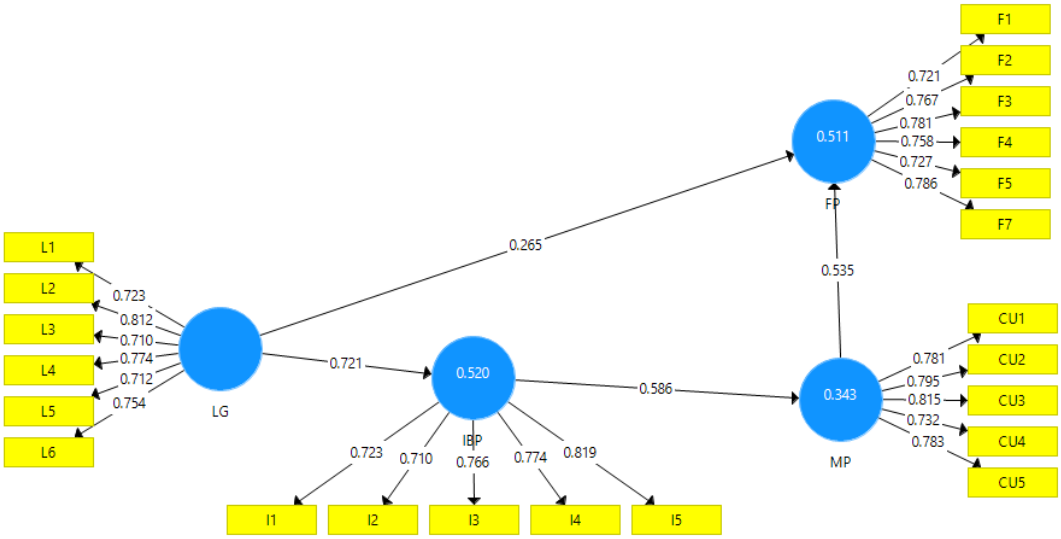

Figure 2: The PLS-SEM results

R^2 was assessed according to Chin (2010) who suggested that, values of approximately to 0.190 are weak, values of 0.333 are moderate and 0.35 are substantial. Figure 2 shows that, 52.0% (R^2) of the variance in internal business is explained by learning aspect. 34.3% in member aspect is explained by internal business while 51.1% of the financial aspect is explained by member aspect. All the R^2 are substantial according to Chin (2010).

Table 4: Partial least square results for model testing

Construct	*β*	*T-value*	*P*	Remarks
H_3: IBP -> MP	0.588	12.669	0.000	Supported
H_2: LG -> FP	0.267	5.591	0.000	Supported
H_1: LG -> IBP	0.723	21.022	0.000	Supported
H_4: MP -> FP	0.536	9.711	0.000	Supported

The significance test of the hypotheses, the t-value > 1.65 is significant at 0.05 level, and t-value >2 is significant at 0.01 level (Teo *et al*, 2015; Sarstedt *et al*, 2014; Martinez & Aluja, 2009). Table 4 shows the results of the structural model test where, all the hypotheses were supported at $p < 0.01$ significant level.

Therefore, it indicates that learning and growth aspect ($\beta = 0.723$, $p < 0.01$) has positive effect on internal business operations; learning and growth aspect ($\beta = 0.267$, $p < 0.01$) on financial aspect; internal business aspect ($\beta = 0.588$, $p < 0.01$) on member aspect; and, member aspect ($\beta = 0.536$, $p < 0.01$) on financial aspect. Given the results from the hypotheses testing in Table 4, it shows that learning and growth in terms of competence, satisfied employees, training and sufficient staff has a positive relationship with internal business operations in terms of quality of services offered and quick service delivery. H_2 was also supported because results indicate that internal business aspect has a positive relationship with members' aspect in terms of members' satisfaction, members' retention, market share increase and membership increase. More over results show that member aspect has a positive relationship with financial aspect in terms of co-operative profit, good price and cost reduction. However, it was found that learning has a direct positive relationship with financial performance.

5. DISCUSSION

The findings show that when co-operatives have invested in learning and growth especially in terms of competence, satisfied employees, training and sufficient staff there is a positive relationship with internal business operations in terms of quality of services offered and quick service delivery. These will help the co-operatives to achieve their visions, in order to sustain their abilities to change and improve over the period. Learning and growth improves the efficiency in governance within the co-operative through participation in economic and decision making. The result is supported by the study conducted by Cardemil and Shadbolt (2006a) which found to have a causal linkage between attracting and retaining quality staff resulting to good performance.

Competence in co-operatives should be in both members and employees. Members are the decision makers during the AGM therefore, their full participation is vital for the co-operative performance (Mahazril'Aini, Hafizah, & Zuraini, 2012). However, participation without competence, knowledge and skills is as good as not participating. Also, it is from members where the Board members are elected for a period of three years. Therefore, having weak members can results to poor leaders. Furthermore, competent employees will advise the board and do the day to day activities. Satisfied employees will work hard while ensuring they offer quality services, hence good business process. Training is of important through all levels from members, board members and employees. This leads to common understanding in running the co-operative since by nature of this institutions, each level interacts in running the institutions. However, staff should be sufficient depending on the size and functions of the co-operative in order to perform the business operations and other activities within the co-operative. The study is supported by Chareonwongsak (2017) who augmented that knowledge and skills influence good operational performance.

The study also shows that internal business aspect is linked to members aspect. This is supported by Hejaz *et al*. (2016) who found that innovation capital affects process capital, which in turn influences customer capital. In business aspect the very important thing is the kind of business, the co-operative shall excel so as to satisfy members (Vola, Broccardo, & Truant, 2009). Members want to get quality and quick services. It is by having these services they will be satisfied and retained in their co-operative as active members. Therefore, there is also a high possibility of continuing to sell the products through their co-operative meaning that they are retained. Similarly, so long as there will be active participation due to their satisfaction and continuing to sell products through their co-operatives, other prospective members will be attracted to join the co-operative hence the possibility to increase market share within a certain geographic area. Furthermore, members tend to increase when the services provided by the co-operative society, meet the needs of the members.

Besides, when members aspect is performing properly as found in the study, there is statistical significance relationship with financial aspect. Member aspect try to look on the way co-operative present itself in front of members as the customers (Mahazril'Aini *et al*, 2012; George and George, 2013; Vola, 2009). The same view has shown the causal linkage with the financial aspect which look on how the co-operative will present itself to the members as the owner. The findings show that having the satisfied members who are actively selling their products to their co-operatives can have a positive relationship with financial aspect in terms of co-operative profit, good price and cost reduction. George and George (2013) support the findings by arguing that, members trust and satisfaction influence the financial performance of the co-operative. Good profit is because the turnover can increase due to increase of members hence increase of volume to be sold. Also, can be the retention effect, meaning that the members will channel all the products through the co-operative without selling to other buyers. But also, high price can be obtained through bargaining power resulted from their large number due to increase and participation. Cost reduction can be achieved due to members be loyal and doing some of the activities voluntarily hence decreasing some unnecessary costs. However, it was found that investing in learning aspect has a direct relationship with financial performance. This is due to some of the achievement in the financial aspect requires competent and skilled people to deal with. Having those kinds of people will support good bargaining power as well as dealing with financial management issues to reduce loss within the co-operative.

6. CONCLUSION AND RECOMMENDATIONS

This study has provided an empirical evidence of the causal relationship between the co-operative performance measurement aspects by adopting the BSC model which insists the causal relationship within the aspects. The study found that learning and growth aspect (in terms of competency, employee/staff satisfaction, retention, training and education, skills and number of employees), is the base of the AMCOS and has a significance influence on both internal business process and financial performance. It further found the significance influence of the internal business process (quality of service, sufficient facilities, use of information technology, new product development, quick service delivery) and the members aspects. Then it was also found that there is a significant influence of member aspect (member satisfaction, member retention, market share increase, member profitability, members increase) to the financial aspect. However, there were a direct causal linkage between the learning and growth and the financial performance.

Since the findings shows the linkages in these aspects, the study recommends that so long as learning and growth appear to influence all the other aspects, policy makers should put much efforts in developing human capital through emphasizing trainings and employing skilled and competent staff. The priority given in this aspect should not suppress the other aspects rather, others should be considered while looking the capacity available in the learning and growth. The study is also recommending that members should make sure, the training fund which is set aside according to the Co-operative Act and regulations, should be utilised to all levels i.e. members, board members and staff so as to have competent persons in all levels. Given that members need to receive services which meet their expectations, it is recommended to those in charged with internal business processes to use the expertise and skills they have to come up with innovative ideas to foster quality services to members. Also, since there is a significant association between members and financial aspect, it is recommended to the members that each member should make sure that he/she participate fully economically by selling the products through co-operative and contribute to build capital.

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