IJISET - International Journal of Innovative Science, Engineering & Technology, Vol. 2 Issue 1, January 2015.
www.ijiset.com
ISSN 2348 – 7968

Determinants of Adopter and Non Adopter of Computerizing Accounting System(CAS) Among Small and Medium Enterprises(SMEs) in Tanzania

Alberto Gabriel Ndekwa

PhD Candidate, The Open University of Tanzania
Assistant Lecturer, Faculty of Business and Management Science (FBMS)
Ruaha Catholic University (RUCU)
Box 774 Iringa-Tanzania

Abstract-*The increasing competition and the highly demands of globalization, Tanzania government attempts to support SMEs for the development of innovative, competitive with high technology. Computerized Accounting system (CAS) adoption may be a decisive factor for an organization to be a success and also to survive in dynamic and competitive business environment. Despite of this benefit offered by CAS, very little is known on the determinant of adopter and non adopter of CAS. This paper aims at filling the gap by examining the determinant of adopter and non adopter of computerized accounting system in Tanzania. Questionnaire was used to collect data from 364 SMEs owners and employee in Mwanza city and Shinyanga region where geographical stratified sampling were used to draw a sample followed by systematic sampling technique. Data were analyzed using One way ANOVA and binary logistic regression. Findings using one way ANOVA revealed that there were significant difference ($p<0.05$) with regard to employee competence and computer facilities (p-value=0.001,F=10.993;p-value=0.025;F=5.043) for both adopter and non adopter of computerized accounting system. Moreover, findings using binary logistic regression on determinant of CAS adoption revealed that five out of ten predictor variables, namely Security, Relative advantage, compatibility, Trading partners and computer facilities were found to be significantly associated with computerized accounting adoption among adopter and non adopter SMEs by yielding a p-value< 0.05.While complexity, owners/manager, enforcement authority, organization readiness and employee competency were found to be non significantly associated with adopter and non adopter of computerizing accounting system This paper conclude that . Security, Relative advantage, compatibility, Trading partners and computer facilities are the determinants of CAS in Tanzania. The study recommended that the government of Tanzania has to make sure it puts better computer facilities and business environment to encourage SMEs to adopt computerized accounting system.*

Key Words: Computerizing Accounting System, Accounting information system, Adoption of CAS,SMEs, Ruaha Catholic University, Tanzania.

1.Background of the study

In a dynamic world, the availability and adoption of Information and Communication Technologies (ICTs) across the globe has altered the norm of the game and expectations of the new mode of economic activities. The norm of inter and transnational trading changed dramatically to admit the increasing number of financial transactions and trade-related activities

that take place via the Internet and technologically assisted tools. As it is widely recognized by Tanzania National trade policy of 2003 that the key to better performance in the services industry lies in the adoption and popularisation of ICT in enhancing performance in services delivery(URT,2003). According to Edison(2012)argued that, in this new era of technological advancement, the role of computerised accounting information systems (AISs) such as Sage, Tally, Pastel, SAP, Smart stream, Great planes is of paramount importance in managing an organisation and implementing internal control systems. Ebimobowei, et al.(2013) pointed out that, with computerized accounting the company has greater visibility into the day-to-day business operations and greater access to vital information; adapting to the specific business needs is possible; and all documents and reports can be generated automatically. In the same perspective, Wang and Huynh(2013)advocate that, for the purpose of decision facilitation, computerized-accounting system plays an important role in providing timely, accurate, and relevant accounting information to managers and other decision-makers. With the increasing competition and the highly demands of globalization, Sam, et al.(2012) argued that computerized accounting system (CAS) adoption may be a decisive factor for an organization to be successful and also to survive in completion and dynamic environment. Considering the benefits mentioned above, it is easy to see why computerized accounting system is accepted to be one of the most significant developments in the world and also the most accepted standard business software.

However despite all the benefits associated with the use of Computerized accounting system, SMEs in both developed and developing countries are still disinclined to adopt this technology (Pulakanam,2010; Tijani and Mohammed,2013).Similarly Ismail and Zin(2009) on their study of Usage of Accounting Information among Malaysian Small and Medium Non-Manufacturing Firms, findings from this study suggest that uses of accounting information among the firms are varied, while uses of computerized accounting information system is minimal. Only a very small percentage of firms that prepared accounting information internally use computerized system.

The development of SMEs has never gained so much attention in Tanzania before. Presently, the challenges and difficulties of adopting information technology become the bottleneck of the development of SMEs in Tanzania. As it was recognized by the Ministry of Industry and Trade through Tanzania National Small and Medium Enterprise Development Policy of 2002 that in Tanzania, the full potential of the SME sector has yet to be tapped due to the existence of a number of constraints hampering the development of the sector. They include: unfavorable legal and regulatory framework, undeveloped infrastructure, poor business development services, limited access of SMEs to finance, ineffective and poorly coordinated institutional support framework etc(URT,2002). Similarly it has been recognized in the current study by Ndekwa(2014) that SMEs in Tanzania are slow to adopt ICT. This is due to the fact that most information system available on the market are beyond the reach of many SMEs in Tanzania, this is due to resource scarcity caused by lack of financial assistance (Msanjila and Kamuzora, 2012).

With respect to this view, both developed and emerging economies of the world both recognize the enormous contribution to growth and development by SME's. Studies have shown that SMEs

provide the keystone on which most economies place reliance (Hu,2010;Pandya,2012; Asare,2014). Without doubt, SMEs represents the flag-sheep of any economic growth in the world. Hence, the fusion of IT in the strategic success of SMEs in contemporary economies makes the application of computerized accounting systems inevitable as it determines their ultimate survival. Thus this study has attempted to examine the determinant of Adopter and Non Adopter of Computerizing Accounting System(CAS) Among Small and Medium Enterprises(SMEs) in Tanzania

2. Literature Review

2.1Theoretical Literature Review

Information and communication technology (ICT) is universally regarded as an essential tool in enhancing the competitiveness of the economy of any country in the world. There is consensus that computerized accounting which is a product of ICT has significant effects on the productivity of firms. These effects will only be realized if, and when, computerized accounting system are widely spread and used. It is essential to understand the determinants of computerized accounting adoption. Consequently, in this study, theories are reviewed for adoption models at the firm level used in information systems literature and discuss three prominent models: technology, organization, and environment (TOE) framework, diffusion on innovation (DOI) and institution theory. According to Tornatzky and Fleischer, (1990) the TOE framework identifies three aspects of an enterprise's context that influence the process by which it adopts and implements a technological innovation: technological context, organizational context, and environmental context. Thus this theory helped the researcher to provide a framework and to understand technology factors, organization factors and environmental factors influencing the adoption of computerized accounting system among SMEs. The framework is strengthened by Diffusion of Innovation (DOI) theory (Rogers 2003) and Institutional theory (DiMaggio and Powell 1983) to better explain the technological and environmental context influence on computerized accounting adoption among SMEs.

According to Rogers (2003) Diffusion of Innovation theory states that an individual's technology adoption behavior is determined by his or her perceptions regarding the relative advantage, compatibility, complexity, trial ability, and observability of the innovation. In the technology adoption context, DiMaggio and Powell(1983) institutional theory posit that the decision making in organizations in relation to the adoption of technology is influenced by various pressures arising from the external environment. It is argued that TOE framework only provides a general technological and environmental aspect influencing technology adoption without specifically address the characteristics of the technology and environmental (Rosli, *et al.*,2013).The gap of the technological aspect could be supported by the characteristics explained in DOI theory. Besides, with the unique environmental aspect of computerizing accounting, the environmental factors in TOE framework could be best described through Institutional theory. Therefore, by combining these three theories, it could provide a comprehensive framework on the adoption of computerizing accounting system. The justification of combining TOE-framework with Diffusion of innovation and institution theory as been evidenced in a number of prior studies(Ismail and Ali,2013; Oliveira and Martins,2011; Rosli, et al.,2013) which are focus on adoption of computerized accounting system. Thus this study used three theories namely T-O-E

Framwork, DOI and Institution theory to examine determinant of adoption of computerized accounting among SMEs in Tanzania.

2.2 Empirical Literature Review

Many factors have been analyzed in varieties of literature. This study has focused on empirical studies that are relating to the T-O-E Framework. TOE aim to offer a concrete model describing taxonomy for classifying factors in their respective context. Wang and Huynh(2013)use factor analysis, path analysis, and regression model to examine the effects of environmental uncertainty on the relationship between computerized-accounting system adoption and firm performance. The results reveal that the adoption level of computerized accounting system is positively associated with organizational characteristics, perceived benefit of computerized accounting system, and environmental uncertainty. The details of these factors are described in the empirical study below:

Technology factors

Technology characteristics is concerned on factors associated by technology itself in influencing adoption of computerized accounting system, among these characteristics, the most frequently adopted factors are relative advantage, compatibility and complexity. Ali, et al.(2012) on their study of Predicting Continuance Intention to Use Accounting Information Systems using 146 Small and Medium Enterprises in Terengganu, Malaysia, results demonstrate that relative advantage is the strongest antecedent of attitude towards accounting information system. Rosli, et al.(2013)on their study of Adoption of Audit Technology in Audit Firms indicated that . technology compatibility and technology complexity are significant factors in adoption of audit technology. Similar finding was also observed by Ebimobowei, et al.(2013)On their empirical study of examining use of computer assisted audit tool and techniques in audit practice in the Niger Delta of Nigeria ,Findings using UTUAT revealed that performance expectancy and effort expectancy are significant factors in adoption of computer assisted audit. Tan and Eze (2008) on an Empirical Study of Internet-Based ICT Adoption among Malaysian SMEs using Technology-organization-environmental framework finding using Inferential analyses reveal that relative advantage, compatibility, complexity, observability and security are significant factors that influence Internet-based ICT adoption. Following these findings, the researcher posited the following research hypothesis:

H1: Relative advantage of CAS technology strongly influences adoption of computerized accounting System among SMEs adopter and non adopter.

H2: Security of CAS technology strongly influences adoption of computerized accounting System among SMEs adopter and non adopter.

H3: Compatibility of CAS technology strongly influences adoption of computerized accounting System among SMEs adopter and non adopter.

H4: Complexity of CAS technology strongly influences adoption of computerized accounting System among SMEs adopter and non adopter.

Organization factors

Rosli, et al.(2013)on their study of Adoption of Audit Technology in Audit Firms, findings revealed that organization readiness, employee's competency, and firm size influenced the adoption level. Contrary Edison, *et al.(*2012) revealed that Accounting Information System was not associated with company size. Ebimobowei,et al.(2013)on their empirical study of examining use of computer assisted audit tool and techniques in audit practice in the Niger Delta of Nigeria, result from this study revealed that facilitating conditions is positively associated at (0.05) to the usage of computer assisted audit tools and techniques by accounting firms.

H5: organization readiness strongly influences adoption of computerized accounting System among SMEs adopter and non adopter.

H6:Employee competence strongly influences adoption of computerized accounting System among SMEs adopter and non adopter.

H7: Computer facilities strongly influences adoption of computerized accounting System among SMEs adopter and non adopter.

Environmental factors

Al-Dmour and Al-Surkhi(2012) pointed out that top management support and external factors(pressure from trading partners, types of industry and enforcement authorities) were found to positively affect the adoption of internet. Ebimobowei, et al.(2013)on their empirical study of examining use of computer assisted audit tool and techniques in audit practice in the Niger Delta of Nigeria and findings using UTUAT revealed that social influence(competitors pressure, customers pressure, employee pressure) are significant factors in adoption of computer assisted audit. Rosli, et al.(2013)on their study of Adoption of Audit Technology in Audit Firms revealed that competitive pressure, vendors' and professional accounting bodies' influences adoption of Audit Technology. According to Mgijima and Flowerday(2012)on their study of Internet success for the small and medium hospitality enterprise, findings revealed that the influential role of the owner or manager has a considerable impact on whether SMEs make the initial investment in ICT or the continued investment in Internet technologies that are relevant to the tourism sector. Following these findings, researcher posit a research hypothesis that:

H8: Owners/Manager are strongly influencing adoption of computerized accounting System among SMEs adopter and non adopter

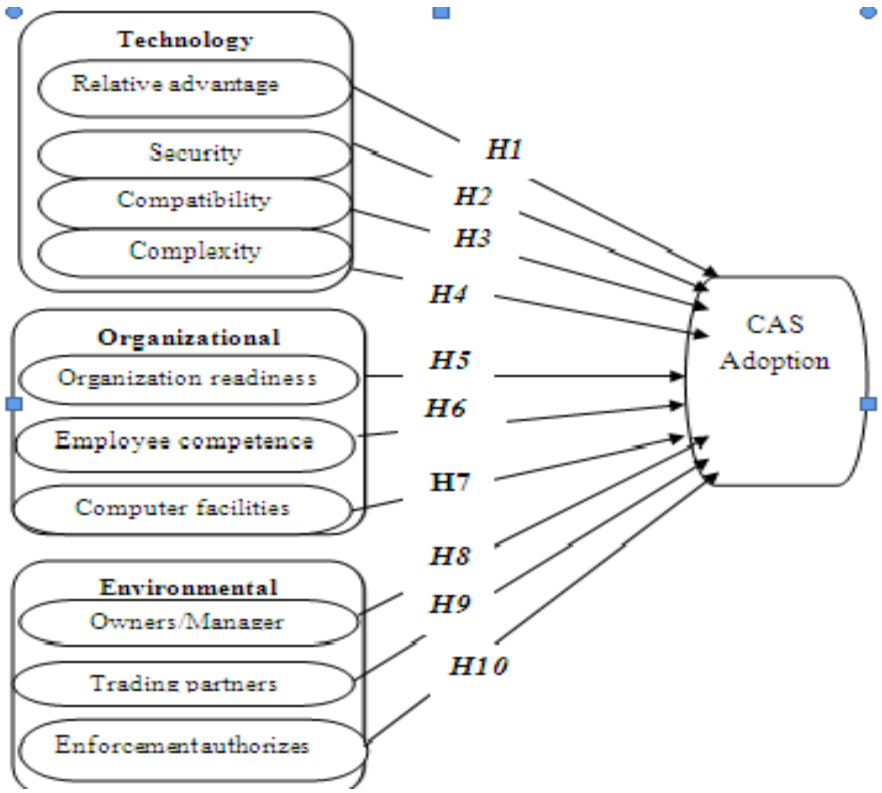
H9: Trading partners are strongly influencing adoption of computerized accounting System among SMEs adopter and non adopter

H10: Enforcement authorities are strongly influencing adoption of computerized accounting System among SMEs adopter and non adopter

ISSN 2348 – 7968

2.3 Conceptual Frame work

Independent Variables **Dependent Variables**



Source: developed by author based on literature review

3. Research Methodology

This study adopted quantitative research approach, quantitative research approach was used in order to test hypothesis of determinant of CAS adoption among SMEs in Tanzania. Primary data was collected using questionnaire in Mwanza City and Shinyanga region. This area was selected because of high concentration of various SMEs business activities in Tanzania Lake zone. Data was collected using questionnaires to a sample of 364 respondents which was drawn using geographic stratified sampling technique followed by systematic sampling technique with 2 as an nth term of picking the sample. Pilot study was done prior the main survey in order to check the suitability of the data collection instrument. Furthermore the questionnaire was converted to swahili language, this was done in order to insure that the respondents are able to understand the questions and to provide reliable information in testing reliability of the study, Cronbach's Alpha was used to test for the suitability of data collection instrument in terms of reliability. One way analysis of variance (ANOVA) was computed to establish whether there were any significant differences in terms of the variability between innovation characteristics as a determinant of adopter and non adopter of computerized accounting. The binary logistic regression analysis was performed to identify factors which were associated with adopter and non adopters of computerized accounting system.

4.Data analysis and interpretation

4.1 Respondent and Firm Characteristics

Table 1 Respondent and Firm Characteristics.

Variables	Scale Item	Frequency	Percent
Gender	Male	201	55.2
	Female	163	44.8
Education Level	None	40	11
	Primary school education	124	34.1
	Secondary school education	125	34.3
	College education	75	20.6
Firm Size	1-4 Employees	167	45.9
	5-49 Employees	111	30.5
	50-99Employees	86	23.6
Age of the business	Less than 5 Years	130	35.7
	5 to 10 Years	185	50.8
	Above 10 Years	49	13.5
Business Location	Mwanza Region	178	48.9
	Shinyanga Region	186	81.1
Adoption	Adopter	263	72.3
	Non Adopter	101	27.3

Source: Field Data(2014)

Table 1 above shows the proportional of the percent of the general proportional of representation of respondents and firm characteristics in this study in terms of gender, Education Level, Firm size, age of the business, business Location and Adoption group. Results in Table 1 indicated that respondents and firm characteristics were well presented in this study which increased the validity of the findings in this study.

4.2 Reliability of the study

In this study, to analyze whether one construct as calculated separately from other construct is independent of other constructs, the Cronbach's Alpha method are used as described below.

Table 2 Reliability of Scale

Variables	Items	Number of Items	P-Value
Technology Characteristics	Relative advantage Compatibility Complexity Security	4	.820
Environmental Characteristics	Owners/Manager Trading partners Enforcement authority	3	.779
Organization Characteristics	Organization readiness Employee competence Computer facilities	3	.711

Source: Field Data(2014)

In table 2 above the ten items were grouped into three characteristics where Cronbach's alpha p-value was Computed based on those characteristics in order to test the degree of reliability in this study. Cronbach's alpha results presented in Table 2 above indicate that there were significant high degree of reliability (0.6<P) with regard to both items which suggest that the measure was accepted. Hence the results of this study are acceptable in terms of reliability scale as it is recommended base on Cronbach's alpha p-value above 0.6.

4.3 Analysis of the determinant of adopter and non adopter of computerized accounting system.

4.3.1 One way analysis of variance (ANOVA)

One way analysis of variance (ANOVA) was computed to establish whether there were any significant differences in terms of the variability between determinants of adoption of computerized accounting system and the adoption(adopter and non adopter) as it is described below:

Table 3 ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Compatibility	Between Groups	.320	1	.320	.394	.531
	Within Groups	294.581	362	.814		
	Total	294.901	363			
Security	Between Groups	.234	1	.234	.324	.570
	Within Groups	261.203	362	.722		

ISSN 2348 – 7968

	Total	261.437	363			
Relative advantage	Between Groups	.722	1	.722	1.017	.314
	Within Groups	257.025	362	.710		
	Total	257.747	363			
Complexity	Between Groups	.241	1	.241	.401	.527
	Within Groups	217.375	362	.600		
	Total	217.615	363			
Organization readness	Between Groups	1.137	1	1.137	1.402	.237
	Within Groups	293.399	362	.810		
	Total	294.536	363			
Computer facilities	Between Groups	4.543	1	4.543	5.043	.025
	Within Groups	326.138	362	.901		
	Total	330.681	363			
Employee competency	Between Groups	12.853	1	12.853	10.993	.001
	Within Groups	423.279	362	1.169		
	Total	436.132	363			
Trading partners	Between Groups	.638	1	.638	.513	.474
	Within Groups	450.184	362	1.244		
	Total	450.821	363			
employee pressure	Between Groups	.057	1	.057	.065	.799
	Within Groups	318.632	362	.880		
	Total	318.690	363			
Owners/Manager	Between Groups	.398	1	.398	.376	.540
	Within Groups	382.534	362	1.057		
	Total	382.931	363			
enforcement authority	Between Groups	2.537	1	2.537	3.304	.070
	Within Groups	277.998	362	.768		
	Total	280.536	363			

The ANOVA results in Table 3 above indicate that out of ten predictor variables there were significant difference ($p<0.05$) with only two predictors namely employee competence and computer facilities (p-value=0.001,F=10.993;p-value=0.025;F=5.043) for both adopter and non adopter of computerized accounting system. The other eight predictor' variables namely Security, Relative advantage, compatibility, Trading partners, complexity, owners/manager, enforcement authority, and organization readiness were found to be non significantly differences with adopter and non adopter of computerizing accounting system. Based on these findings Hypothesis H6 and H7 are accepted.

4.3.2 Binary Logistic regression Analysis

After ANOVA analysis, further analysis was done using the binary logistic regression analysis in order to determine the determinants associated with adoption of computerized accounting system among adopter and non adopters as it is described in the following tables below.

Table 4 Model Summary below shows that Nagelkerke R square value of 0.179 for the overall model. The results in table 4 indicate the model could explain approximately 18% of the variance in the dependents variables.

Table 4 Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	283.516[a]	.133	.179

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

In additional, the wald statistic is used to evaluate the statistical significance of each predictor variable in explaining the dependent variable, and Wald statistic indicates whether the β-coefficient for a predictor is significantly different from zero. If so, then the predictor variable is assumed to make a significant contribution to the prediction of the outcome of the dependent variable.

Table 5 Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Complexity	-.427	.225	3.620	1	.057	.652
	Security	.547	.265	4.251	1	.039	1.728
	Relative advantage	-.510	.222	5.290	1	.021	.600
	Compatibility	.660	.232	8.101	1	.004	1.934
	Owners /Manager	-.251	.177	2.003	1	.157	.778
	Trading Partners	-.470	.194	5.850	1	.016	.625
	Enforcement authority	-.064	.066	.944	1	.331	.938
	Organization readiness	.258	.138	3.527	1	.060	1.295
	Employee competences	-.065	.063	1.044	1	.307	.937
	Computer facilities	.335	.162	4.291	1	.038	1.398
	Constant	-.207	.935	.049	1	.825	.813

a. Variable(s) entered on step 1: Complexity, Security, Relative advantage, Compatibility, Owners/Manager, Trading Partners, Enforcement authority, Organization readiness, Employee competences, Computer facilities.

Table 5 above shows the summary of the results from the binary logistics regressions. Five out of ten predictor variables, namely Security, Relative advantage, compatibility, Trading partners and computer facilities were found to be significantly associated with computerized accounting adoption among adopter and non adopter SMEs by yielding a p-value< 0.05.While complexity, owners/manager, enforcement authority, organization readiness and employee competency were found to be non significantly associated with adopter and non adopter of computerizing accounting system. Base on this findings hypothesis H1,H2,H3,H7 and H9 accepted as determinants of computerized accounting system among SMEs adopter and non adopter.

5. Conclusion and recommendation

This study concluded that relative advantage, security, compatibility, computer facilities and trading partners are the main driver of computerized accounting system adoption for both adopter and non adopter of computerized accounting system adoption in Tanzania. This study recommend that Both prospective SMEs adopter and current SMEs adopter need to have basic computerized accounting skills to address the problems of unsound accounting management system adoption. The government of Tanzania has to make sure it puts better business environment to encourage SMEs to adopt computerized accounting system. This study is purely quantitative study, future research may be conducted using qualitative approach in order to explore in-depth understanding of adoption of computerized accounting system among SMEs

6. Reference

Al-Dmour,H. & Al-Surkhi,M.M.(2012). Factors Affecting Smes Adoption Of Internet-Based Information Systems In Business-To-Business (B2b) And The Value-Added On Organization`S Performance.JordanJournal of Applied Sceince.14(1)

Asare,A.O.(2014)Challenges Affecting SME's Growth in Ghana. OIDA International Journal of Sustainable Development.7(6).pp. 23-28

Ebimobowei,A. Ogbonna, G.N.& Enebraye,Z.P.(2013) Auditors' Usage of Computer Assisted Audit Tools and Techniques: Empirical Evidence from Nigeria .Research Journal of Applied Sciences, Engineering and Technology 6(2).pp 187-195,

Hu,M.(2010)SMES and Economic Growth: Entrepreneurship or Employment . ICIC International.4(6) pp. 2275-2280

Ismail,N.A. & Zi,R.M(2009)Usage of Accounting Information among Malaysian Bumiputra Small and Medium Non-Manufacturing Firms. Journal of Enterprise Resource Planning Studies.pp 1-7

Ismail,W.N.S& Ali,A. (2013)Conceptual Model For Examining The Factors That Influence The Likelihood Of Computerised Accounting Information System (CAIS) Adoption Among Malaysian SMES. International Journal of Information Technology and Business Management.15 (1).pp 122-151

Msanjila, S.S. &Kamuzora,F.R(2012)Collaborative Networks as a Mechanism for Strengthening Competitiveness: Small and Medium Enterprises and Non-state Actors in Tanzania. Journal of Language, Technology & Entrepreneurship in Africa.3(2).pp 68-81

Ndekwa,A.G(2014)Factors Influencing Adoption of Internet Services among Small and Medium Enterprises (SMEs) in Tanzania. The International Journal Of Science & Technoledge.2(12).pp261-268

Oliveira, T and Martins, M, F.(2011)Literature Review of Information Technology Adoption Models at Firm Level.The Electronic Journal Information Systems Evaluation..14(1)20.pp110-121, available online at www.ejise.com

Pandya,V.M. (2012)Comparative analysis of development of SMEs in developed and developing countries The 2012 International Conference on Business and Management 6 –7 September 2012, Phuket –Thailand.pp 426-433

Rosli,K.,Yeow,P.H.&Eu-Gene,S.(2013) Adoption of Audit Technology in Audit Firms. 24th Australasian Conference on Information Systems. Melbourne

Sam,M.F.M.,Hoshino,Y. & Tahir,T.H.N(2012)The Adoption of Computerized Accounting System in Small Medium Enterprises in Melaka, Malaysia. International Journal of Business and Management;7(18).pp 12-25

Tan,S.K&Eze,U.C.(2008).An Empirical Study of Internet-Based ICT Adoption Among Malaysian SMEs.Communications of the IBIMA.1.pp 1-12

Tijani,,O.M.& Mohammed,A.K(2013)Computer-Based Accounting Systems in Small and Medium Enterprises: Empirical Evidence from a Randomized Trial in Nigeria. Universal Journal of Management.1(1),pp 13-21

United Republic of Tanzania(2003)National Trade Policy

United Republic of Tanzania(2002)SMEs National Development Policy

Wang,D.H & Huynh,Q.L (2013) Effects of Environmental Uncertainty on Computerized Accounting System Adoption and Firm Performance International Journal of Humanities and Applied Sciences (IJHAS).2(1).pp 13-27