



Exploration on the Use of Computerized Accounting Systems by Micro and Small Enterprises (MSEs) in China

Zhang Lanlan*¹, Aidi Ahmi²

¹ Haojing College of Shaanxi University of Science and Technology, Xi'an, China

² Tunku Puteri Intan Safinaz School of Accountancy, Universiti Utara Malaysia

*Corresponding Author Email: lanlan0956@gmail.com

Abstract

The main purpose of this study is to investigate the use of Computerized Accounting Systems (CAS) in micro and small enterprises (MSEs) in Xi'an, Shaan Xi of China. The researcher examines the current state of the CAS usage and the software commonly used in China. An online survey has been used to obtain the feedback from 201 respondents. This research finds that 74% of the respondents have used CAS and U8 is the most popular accounting software used by the MSEs in China. While there are a lot of advantages using a survey as data collection tools, there are a few limitations of the method that cannot be avoided. Further research should consider a field study to examine the real issue regarding the CAS implementation in MSEs in China.

Keywords: Computerized Accounting Systems, Micro and Small Enterprises (MSEs), China, Accounting Information Systems

1. Introduction

Information is the key of the development of today's enterprises and through computerization or establishing the information technology (IT), that information can be generated. Computerization is an important strategy for establishing a modern enterprise system and improving the quality of accounting transactions and outputs. Accounting information can help management, stakeholders and other decision makers to strengthen the business, improve efficiency and make suitable decision [1]. In other words, businesses are encouraged to implement the Computerized Accounting Systems (CAS). CAS is designed to automate and integrate all the business operations, such as sales, finance, purchase, inventory and manufacturing and helps the businesses to handle all the business transactions easily and cost-effectively [13]. This study will explore how the business especially the micro and small enterprises (MSEs) have integrate the CAS in their daily activities.

According to JianPing [2], China's MSEs have reached 56 million of total businesses in 2014. As a major component of China's economy, MSEs play a significant role and represent 90% of all registered companies in China. In terms of gross national product, nearly 40% of profits and taxes have been increased where 80% of them are from small micro-enterprises. In terms of foreign trade, it was accounted for 70% of China's entire import and export. Thus, it is necessary to carry out the relevant research on China's MSEs. For the purpose of this study, Xi'an as the provincial capital of Shaan Xi province, has been chosen for data collection.

In terms of the economic growth in Xi'an, according to Xi'an Evening News in October-13-2015 [3], the number of MSEs in the city has increased by 15% annually. According to the data of the third economic census, by the end of 2013, there were 63,400 MSEs

in Xi'an, with 959,400 employees representing 41.1% of the total business in this region. In term of the operating income, MSEs generate a total of 413.543 billion yuan representing 24.63% of total corporate income.

In term of IT, according to Fang, Lederer & Benamati [4], IT has changes rapidly, and modern business face complex challenges in developing, implementing, and supporting IT. The role of MSEs to incorporate in this area is increasingly important. They need to understand how to face the advanced of IT, how to learn them, how to adopt them and how to develop the IT strategies [5]. In order for these businesses to rapidly grow, they need to use IT and for the purpose of this study, we focus on the use of computerized accounting systems or accounting software by MSEs. According to Wen et al. [6], CAS has become an integral part of most business processes. Thus, it is necessary for them to invest in the IT, and therefore, this study tends to investigate the use of CAS from the perspective of MSEs especially in Xi'an, Shaan Xi of China.

2. Literature Review

2.1. Definition of micro and small enterprises (mSES) in china

There is no universally fixed definition of small and medium enterprises (SMEs) [7]. The similar issue also has been faced by MSEs. It is difficult to find a unified definition, because the classification of enterprises into small and large scale is a subjective judgment [8]. The definition of MSEs is also vary between countries as well as between continents and researchers [8, 9].

In China however, the SMEs are classified based on the nature of operations of the respective companies [10]. According to National

Bureau of Statistics (NBS) of China, SMEs are allocated into SMEs, medium business, small business and micro enterprise. These types of business are categories based on business sector, number of

workers and operation income in Chinese Yuan Renminbi (RMB) (see Table 1). This study however will collect the data from the businesses that have been categorized as MSEs.

Table 1: Definition of SMEs in China

Sector	SMEs		Medium Business		Small Business		Micro Enterprises	
	No of Workers	Operating Income (RMB)	No of Workers	Operating Income (RMB)	No of Workers	Operating Income (RMB)	No of Workers	Operating Income (RMB)
Agriculture, Forestry, Animal husbandry and Fishery	..	200m or less	..	5m or more	..	500k or more	..	500k or less
Manufacturing Industry	Less than 1000	400m or less	300 or more	20m or more	20 or more	3m or more	Less than 20	3m or less
Construction Industry	..	800m or less	..	60m or more	..	50m or more	Less than 10	50m or less
Wholesale Businesses	Less than 200	400m or less	20 or more	50m or more	5 or more	10m or more	Less than 5	10m or less
Retail Industry	Less than 300	200m or less	50 or more	5m or more	10 or more	1m or more	Less than 10	1m or less
Transportation Industry	Less than 1000	300m or less	300 or more	30m or more	20 or more	2m or more	Less than 20	2m or less
Warehousing Industry	Less than 200	300m or less	100 or more	10m or more	20 or more	1m or more	Less than 20	1m or less
Postal Industry	Less than 1000	300m or less	100 or more	10m or more	20 or more	1m or more	Less than 20	1m or less
Hotel Service Industry, Catering Industry	Less than 300	100m or less	100 or more	20m or more	10 or more	1m or more	Less than 10	1m or less
Information Transmission Industry	Less than 2000	1b or less	100 or more	10m or more	10 or more	1m or more	Less than 10	1m or less
Software and Information Service Industry	Less than 300	100m or less	100 or more	10m or more	10 or more	500k or more	Less than 10	500k or less
Real Estate Industry	..	1b or less	..	10m or more	..	1m or more	..	1m or less
Estate Management	Less than 1000	500m or less	300 or more	10m or more	100 or more	5m or more	Less than 100	5m or less
Leasing and Business Service Industry	Less than 300	1.2b or less	100 or more	80m or more	10 or more	1m or more	Less than 10	1m or less

Source: National Bureau of Statistic (NBS) of China

2.2. The use and the factors that influence the use of cas

There are some previous studies on the implementation and adoption of CAS in various sectors and countries. For example, Rogers [11] employ a survey posted to 347 small enterprises holders in Central Ohio, United States which produced a sample size of 71 respondents. The study found that there is a progressive association between perceived usefulness, perceived ease of use, and intent to use of CAS.

When studying the usage of CAS in financial institution in Bangladesh, Fowzia and Nasrin [12] found that the effort expectancy, performance expectancy, social conditions as well as social influence also have a significant influence in adopting CAS. Wang and Huynh [13] investigated that the influence of environmental uncertainty on the connection between CAS adoption and firm performance. The researcher use electronic data interchange (EDI) adoption model to study the adoption of CAS. They found that there is a positively connection amongst the organizational characteristic, perceived benefits of CAS, environmental uncertainty as well as the adoption level of CAS. The environmental uncertainty has tempering influence on the relationship between CAS and firm performance.

Tijani and Mohammed [14] conduct a study in Nigeria and collected 181 copies of questionnaire in the city of Lagos. They found that the use of Computer-Based Accounting System (CABS) is highly prominent in Nigerian SMEs. Chen and Hamdan [7] revealed that about 65% of firms used basic software package (Excel) to assistance with their accounting needs in Brunei Darussalam SMEs. However, in other part in the Africa, a study conducted by

Nyang'au, Okibo, and Nyanga'u [15] in Kenya found that CAS is not fully adopted in Nyeri county due to the cost, infrastructures and human resources constrains. They also found that the user's perception on CAS is insignificant in the adoption of CAS.

Sam, Hoshino and Tahir [16], disclose that approximately eighty percent of the SMEs have implemented CAS at different steps of application. They also found that recognize simplicity of use, CEO innovativeness as well as enterprise effectiveness negatively associated to the usage of CAS while recognize helpfulness have a significant effect on the usage of CAS.

Diatmika, Irianto, and Baridwan [17] recognized that there are seven main features determine the adoption of CAS, namely perceived usefulness, perceived ease of use, perceived conduct control, task technology fit; individual innovativeness in IT as well as individual norm. A study conducted in Sri Lanka found that there is no significance between demographic variables and the adoption of CAS whereas the business size, cost and external environment can affect the usage of CAS.

Munasinghe and Munasinghe [18] identified that business size, business cost and external environment are significant factors that influence the use of CAS in SMEs in Sri Lanka. Alfredy Shirima [19] found that administration performance and cost affect the usage of the CAS in government hospitals in Arusha district in Nigeria.

While there are many studies on the use of CAS and the factors that influences its usage, there are limited study on the similar topic in China. Based on the literature search, there is one study by Wen et al. [6] that focuses on the factors that influence the usage on accounting software. Their study revealed that there is low rate of accounting software adoption among business managers and accountants in these enterprises. They found that the factors that

influence the usage are accountant's educations, numbers of accountant employed by the enterprises, software timeliness and software adequacy. However, their focus is more on the usage by agro based enterprises. There are also other studies such as Gao and Wang [20], Tao [21] Xu and Li [22], Wen, Kobayashi and Matsumura [23], and Wen [24]. Although, their studies are related with CAS and the development of accounting software, however, their objectives are different compared to this study.

2.3. Accounting software in china

Currently, there are many accounting software available in the market. The features offered by the software vendors varies based on the complexity i.e. from the basic book keeping to the Enterprise Resource Planning (ERP). To some extent, the solutions offered by the software vendors might include customer relationship management (CRM), office automation systems (OA) and business intelligence (BI). Depends on the needs of the business, the price of the software also varies which not only include the price of the software itself but also the installation fee, maintenance and training. There are two popular accounting software in China namely UFIDA U8 and Kingdee K/3 that currently conquered the accounting software market [24, 25]. According to the software provider UFIDA, U8 Enterprise Application Suite is an integrated solution for small and medium-sized enterprises, covering ERP, human resource, customer relationship management, office automation systems and business intelligence. It is a fully functional management solution and one of the most widely used business systems in the market [26]. The software was designed to capture the management flow of SMEs.

Kingdee K/3 is another popular software that offers finance, supply chain and manufacturing management in their systems. Like UFIDA, Kingdee also offers ERP Solutions for their clients. Another popular software that also used by most of the business in China include SAP and Oracle.

3. Methods

This study used the online survey to gather the data from the respondents. The total 400 respondents were invited to participate in this survey. After two months of the invitation with two reminders, 221 questionnaires were returned representing 55.25% of the response rate [27]. However, from all the returned questionnaire, 20 of them were incomplete and cannot be used for analysis. Therefore, only 201 questionnaires are usable and will be used for further analysis. For the purpose for this paper, the questionnaire consists of two sections which are the respondent's profile and CAS usage.

4. Results

4.1. Respondent's profile

The researcher analyzed about the respondent's profile such as the gender, age of the respondent as well as the age of the company, the number of employees, company's annual return and the IT skills of the respondents and the feedback [28] was documented in the Table 2.

Table 2: Respondent's Profile

Profile	Frequency	%	
Gender	Male	64	31.8
	Female	137	68.2
	Total	201	100

Age of Respondent	Less than 26 years	109	54.2
	Between 26 and 30 years	52	25.9
	Between 31 and 35 years	18	9
	Between 36 and 40 years	9	4.5
	Between 41 and 45 years	4	2
	Between 46 and 50 years	4	2
	Above 50 years	5	2.5
Total	201	100	
Company Age	Less than 1 year	31	15.4
	Between 1 to 3 years	55	27.4
	Between 3 to 5 years	38	18.9
	Over 5 years	77	38.3
Total	201	100	
Number of Employees	Below 5	18	9
	Between 5-10	41	20.4
	Between 10-20	39	19.4
	Over 20	103	51.2
Total	201	100	
Company's Annual Revenue	Under ¥500,000	59	29.4
	¥500,001 to ¥5,000,000	77	38.3
	¥5,000,001 to ¥10,000,000	27	13.4
	Over ¥10,000,000	38	18.9
Total	201	100	
IT Skills	Low	90	44.8
	Medium	97	48.3
	Advanced	14	7
	Total	201	100

4.2. Use of cas

Table 3 shows that 73.6% of respondents indicated their company already implemented CAS while the rest are still not implementing it.

Table 3: Use of CAS

Use of CAS	Frequency	%
Yes	148	73.6
No	53	26.4
Total	201	100.0

When asking about the number of years applying CAS, almost 37% of those who are using CAS have implementing it between 1 to 3 years. Table 4 summarize the findings.

Table 4: Number of Years Implementing CAS

Number of Years Implementing CAS	Frequency	%
Less than one year	34	16.9
More than one year but less than 3 years	74	36.8
More than 3 years but less than 5 years	18	9.0
Over five years	22	10.9
Total	148	73.6

About the type of accounting software used in MSEs in China, as illustrated in the Table 5, UFIDA - U8 is the most popular type of accounting software [28], representing 32.8% of the respondents. Then the next type of accounting software used by MSEs is Kingdee K/3 which represent 22.9% of company who use CAS. DCNS and New Grand account for a same percentage approximately 3.5%. Six percent of the respondent choose other software. Gold Abacus, SAP and Oracle just account for a small part about 2.5%, 1.0%, 1.5% respectively.

As expected, UFIDA - U8 and Kingdee K3 dominate a large part of China's accounting software market. Instead of offering the complex accounting system [29], both software also offered the basic needs of accounting for MSEs. It is also has been claimed by the respondents that the software vendors provide a good after sales service. While other brands although it is not as popular as UFIDA - U8 and Kingdee K/3, they also have some demand from the market

[30,31].

Table 5: Type of CAS

Type of Accounting Software	Frequency	%
UFIDA - U8	66	32.8
Kingdee K/3	46	22.9
DCNS	7	3.5
New Grand	7	3.5
Gold Abacus	5	2.5
SAP	2	1.0
Oracle	3	1.5
Other	12	6.0
Total	148	73.6

5. Conclusions

This research is significant in the context that there are very limited studies in China highlighting the issues of the CAS usage especially in MSEs in Xi'an, Shaan Xi of China. This study investigated the current state of the usage of CAS in China, thus to some extent, the overview and the implementation of CAS also has been revealed. As the IT becomes one of the important factor in business success, the output from this study would provide the meaningful insights not just for the academicians and researcher, but also to the business owners, stakeholders, governments and software providers. Through information provided in this research, accountant, business owners, government, software provider and other related parties could acquire a better understanding of the benefits of CAS and to encourage them to use the accounting software.

The first recommendation for this research can be improved by conducting the factors that have effect on the adoption of CAS. These factors to some extent can provide better understanding on the usage of CAS among MSEs. Secondly, a larger sample should also be covered not just focus on the selected city of China. This selected city to some extent cannot totally reflect on the whole pictures of China. In the future studies, it should probably cover the other areas in China. Thirdly, this study just use online survey to collect data. Another research approach should also be explored. Such as the case study research. This approach can give us a more detailed explanation on the usage of CAS in MSEs.

References

- E. Brynjolfsson and L. M. Hitt, "Beyond Computation: Information Technology, Organizational Transformation and Business Performance," *J. Econ. Perspect.*, vol. 14, no. 4, pp. 23–48, 2000.
- S. JianPing, "China MSME Finance Report 2015," 2015.
- X. Wei, "Small micro-enterprise annual income or over 700 million," *Xi'an Evening News*, 2015. (Chinese)
- P. Mohamed Shakeel; Tarek E. El. Tobely; Haytham Al-Feel; Gunasekaran Manogaran; S. Baskar., "Neural Network Based Brain Tumor Detection Using Wireless Infrared Imaging Sensor", IEEE Access, 2019, Page(s): 1
- L. Wang, X. Bi, Y. Cao, and M. Gu, "Factors Affecting Small and Medium-Sized Enterprise's Information Technology Absorptive Capability: An Empirical Study of Jilin Province in China," in *Proceedings - 2013 International Conference on Information Science and Cloud Computing Companion, ISCC-C 2013*, 2014, pp. 174–180.
- J. Wen, H. Kobayashi, I. Matsumura, E. Mohamed, and J. Huang, "Adoption of Accounting Software by Agro Based Enterprises in China - The Case of Medium and Small Scale Privately Owned Enterprises, State-Owned Farms and Agricultural Cooperatives," *Int. J. Res. Eng. IT Soc. Sci.*, vol. 2, no. 2, pp. 82–99, 2012.
- C. K. Chen and M. Hamdan, "An Exploratory Study of Information Technology Adoption by SMEs in Brunei Darussalam," *World J. Soc. Sci.*, vol. 4, no. 2, pp. 186–196, 2014.
- M. Oppong, A. Owiredo, and R. Q. Churchill, "Micro and Small Scale Enterprises Development in Ghana," *Eur. J. Account. Audit. Financ. Res.*, vol. 2, no. 6, pp. 84–97, 2014.
- J. Donner and M. X. Escobari, "A review of evidence on mobile use by micro and small enterprises in developing countries," *J. Int. Dev.*, vol. 22, no. 5, pp. 641–658, Jun. 2010.
- L. Xiangfeng, "SME Development in China: A Policy Perspective on SME Industrial Clustering," in *SME in Asia and Globalization*, no. March, 2008, pp. 37–68.
- A. D. Rogers, "Examining Small Business Adoption of Computerized Accounting Systems Using the Technology Acceptance Model," Walden University, 2016.
- Preeth, S.K.S.L., Dhanalakshmi, R., Kumar, R., Shakeel PM. An adaptive fuzzy rule based energy efficient clustering and immune-inspired routing protocol for WSN-assisted IoT system. *Journal of Ambient Intelligence and Humanized Computing*. 2018:1–13. <https://doi.org/10.1007/s12652-018-1154-z>
- D. H. Wang and Q. L. Huynh, "Effects of Environmental Uncertainty on Computerized Accounting System Adoption and Firm Performance," *Int. J. Humanit. Appl. Sci.*, vol. 2, no. 1, pp. 13–21, 2013.
- O. M. Tijani and A. K. Mohammed, "Computer-Based Accounting Systems in Small and Medium Enterprises: Empirical Evidence from a Randomized Trial in Nigeria," *Univers. J. Manag.*, vol. 1, no. 1, pp. 13–21, 2013.
- R. N. Nyang'au, B. W. Okibo, and A. Nyanga'u, "Constraints Affecting Adoption of Computerized Accounting Systems in Nyeri County, Kenya," *Int. J. Econ. Commer. Manag.*, vol. III, no. 5, pp. 1536–1554, 2015.
- M. F. M. Sam, Y. Hoshino, and M. N. H. Tahir, "The Adoption of Computerized Accounting System in Small Medium Enterprises in Melaka, Malaysia," *Int. J. Bus. Manag.*, vol. 7, no. 18, 2012.
- I. W. B. Diatmika, G. Irianto, and Z. Baridwan, "Determinants of Behavior Intention of Accounting Information Systems Based Information Technology Acceptance," *Imp. J. Interdiscip. Res.*, vol. 2, no. 8, pp. 125–138, 2016.
- P. G. Munasinghe and D. S. Munasinghe, "Factors Influence on Usage of Computerized Accounting System on Small and Medium Scale Enterprises Factors Influence on Usage of Computerized," in *International Conference on Contemporary Management, Faculty of Management Studies and Commerce*, 2016, no. June 2015.
- F. Alfredy Shirima, "A Study on the Factors Determining Adoption of Computerized Accounting System in Public Hospital: The Case Study of Three District Hospitals Inarusha Region," Mzumbe University, 2013.
- H. Y. Gao, and J. R. Wang, "Current situation and development trend of accounting software in China," *Chinese J. of Finance and Accounting Monthly*, vol. 5, pp. 73-74, 2006
- Shakeel PM, Baskar S, Dhulipala VS, Jaber MM., "Cloud based framework for diagnosis of diabetes mellitus using K-means clustering", Health information science and systems, 2018 Dec 1:6(1):16. <https://doi.org/10.1007/s13755-018-0054-0>
- J. Wen, H. Kobayashi, and I. Matsumura, "A study on development of business analysis software for Chinese agricultural enterprise-Applied to financial statement analysis and break even analysis," *Japanese J. of Farm Manag.*, vol. 49, no. 2, pp. 117-122, 2011
- J. Wen, "Development of Accounting System for Chinese Agricultural Enterprise: Financial Accounting Software and Business Analysis Software," Tottori University, 2012.
- J. Wen, H. Kobayashi, and I. Matsumura, "A Study on Development of Financial Accounting Software for Chinese Agricultural Enterprise," *Agric. Inf. Res.*, vol. 19, no. 2, pp. 52–63, 2010.
- MuhammedShafi. P, Selvakumar.S*, Mohamed Shakeel.P, "An Efficient Optimal Fuzzy C Means (OFCM) Algorithm with Particle Swarm Optimization (PSO) To Analyze and Predict Crime Data", *Journal of Advanced Research in Dynamic and Control Systems*, Issue: 06.2018, Pages: 699-707
- X. Fang, A. L. Lederer, and J. S. Benamati, "The influence of national culture on information technology development, implementation, and support challenges in China and the United States," *J. Glob. Inf. Technol. Manag.*, vol. 19, no. 1, pp. 26–43, 2016.
- Shakeel PM, Baskar S, Dhulipala VS, Mishra S, Jaber MM., "Maintaining security and privacy in health care system using learning

- based Deep-Q-Networks”, *Journal of medical systems*, 2018 Oct 1;42(10):186.<https://doi.org/10.1007/s10916-018-1045-z>
- [28] H. Tao, “The problems and measures of accounting software in SME,” *Chinese J. of Manag. and Technol. of SME* vol. 27, pp. 81-82, 2009
- [29] Y. Q. Xu, and Y. F. Li, “Problems in accounting computerization and measures,” *Chinese J. of China Manag. Inf.*, vol. 12, no. 12, pp. 12-13, 2009
- [30] "UFIDA - U8 - Ufida Software Co. Ltd. - China", *Softwaresolutions.fibre2fashion.com*, 2017. [Online]. Available: <http://softwaresolutions.fibre2fashion.com/company/ufida-software/productDetail.aspx?refno=3477>. [Accessed: 20- Oct- 2017].
- [31] R. Fowzia and M. Nasrin, “Appreciation of Computerized Accounting System in Financial Institutions in Bangladesh,” *World Rev. Bus. Res.*, vol. 1, no. 2, pp. 1–9, 2011.