

Impact of B2C e-Commerce on small retailers in Thailand: An investigation into Profitability, Operating efficiency, and Employment generation.

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Abstract

The purpose of the present study is to investigate the economic and social impacts of business-to-consumer (B2C) e-commerce in the small retail sector of certain commodities in Thailand. A primary sample survey was conducted for the collection of data from the north, northeast, central and southern regions of the country during the months of January to March 2018. The data were collected from small retail outlets of books and magazines, cosmetics, mobile, and laptop who have adopted online sales with physical shop, and doing exclusively offline sales. The total sample size of the study was 1462 units. The results revealed that adoption of online sales in retailing by small retailers could raise their profitability in the short-term, medium-term, and long-term periods. However, the operating efficiency of the firms measured in terms of operating expenses and their social impact calculated by new employment generation and increased employee compensation were not laudable in Thailand on their transformation from brick-and-mortar to click-and-mortar stores. Another important observation of the study is that the non-adoption of online sales is highly prevalent in the small enterprise segment of retailing in Thailand.

Keywords: *B2C e-commerce, impact, profitability, retailer, Thailand*

Introduction

‘E-commerce is one of the most visible examples of the way in which Information and Communication Technologies (ICT) can contribute to economic growth. It helps countries improve trade efficiencies and facilitates the integration of developing countries into the global economy. It allows business and entrepreneurs to become more competitive. And it provides jobs, thereby creating wealth’ (United Nations Conference on Trade and Development [UNCTAD], 2002, p. iii). Business-to-consumer (B2C) e-commerce in Thailand encompasses varied categories of goods and services such as apparel, health and beauty products, books and magazines, computers and peripherals, vehicles, software, consumer electronics, household appliances, audio / video entertainment goods, gift articles, real estate and services, business opportunities, employment, travel tickets, matrimony, pets, and many more.

The small and medium enterprises (SMEs) sector constitutes a major economic activity in Thailand where small enterprises in the country provide 9.5 million employment which is 72.8 percent of the total employment of all the enterprises taken together and the GDP contribution of SMEs is THB 5,210 billion which is 39.62 percent of the total GDP (Office of Small and Medium and Enterprises Promotion [OSMEP], 2015). The definition of SME is very broad and it includes manufacturing, services, wholesale and retail trade (OSMEP, 2015). This study focused only on the ‘small retail trade’ (employees 15 or less as defined by OSMEP) sector in Thailand and it being a wide area, only four commodities are considered- books and magazines, cosmetics, mobile, and laptop- for detailed investigation. The objective of the study was to measure the impact of B2C e-commerce to the retail outlets of these products and how best the small retailers in Thailand could adopt online sales so as to reap the benefits of technology to the firms in particular and to the society in general.

Literature Review

‘Innovation is a key driver for economic growth. E-commerce is an example of innovation so that it is an important determinant to raise economic growth’ (Baytar, 2016, p. 1). ‘One of the technologies which really brought information revolution in the society is Internet Technology and is rightly regarded as the third

wave of revolution after agricultural and industrial revolution' (Gangeshwer, 2013, p. 187).

Lertwongsatien and Wongpinunwatana (2003) recommended that SMEs in Thailand should cultivate and develop their own IT skills and knowledge to be readily in place so that they can adopt and implement e-commerce to respond to competition in a timely manner. The study identified three set of predictors for e-commerce adoption- organizational factors, technology factors, and environmental factors- where the technology factors do have an influence on attitude towards e-commerce, but have no influence on a relative earliness of adoption of e-commerce in Thailand. Sehora, Lee, and Sukasame (2009) have found that the founder entrepreneurial characteristics such as achievement orientation, and locus of control, and e-business service factors such as reliability, and ease-of-use were significant for the success of e-commerce in Thailand.

The innovation processes in Thai SMEs were found to be obstructed by four cultural factors, out of the five dimensions in Hofstede's model, such as power distance, individualism, masculinity, and uncertainty/avoidance index (Rujirawanich, Addison, & Smallman, 2011). These findings were previously established in the study of Laosethakul and Boulton (2007). According to Vongsraluang and Bhatiasavi (2016) Thai organizational users have considered social commerce as an easy and user-friendly platform. Chooprayoon and Fung (2010) have developed a Technology Adoption Model based on integration with E-commerce Technology Acceptance for its adoption by Thai SMEs and related stakeholders.

E-commerce adoption rate by Thai SMEs has been investigated through Roger's Innovation Diffusion Theory (DOI) and found that compatibility and relative advantage are the factors that primarily influence e-commerce adoption whereas complexity and trialability were not useful predictors of adoption by SMEs in Thailand (Limthongchai & Speece, 2003). Later on the same findings were supported in a study among managers of small businesses in Iran (Ghobakhloo & Tang, 2013).

A study among SMEs in Malaysia regarding e-business alignment across various business functions revealed that higher alignment is found in sales,

information searching, and in-house functions, whereas, relatively lower level alignment with respect to procurement and accounting/financial functions (Mohammad & Ismail, 2011).

In a European Commission working paper on the macro-economic impact of e-commerce in the EU digital single market, it was used a multi-country multi-sector Computable General Equilibrium (CGE) model to compute the overall economic impact of a change in retail technology and a shift from offline to online consumption. They found that the impact is generally positive and has increased the efficiency of trade, nevertheless, the brick-and-mortar retailer seems to be the main losers of this change in retail technology (Cardona, Duch-Brown, Francois, Martens, & Yang, 2015). A study among the small retailers in a rural area of the US proved that retailers perceive business websites as useful to their marketing efforts, however, they are not reaping information benefits from internet as an integrated component of their overall business strategy (Mhango, Marcketti, & Niehm, 2005). In a study of Bangladesh, it was identified that B2C segment of e-commerce is growing so quickly due to its costs associated with inventories, sales execution, procurement, and distribution costs (Hoq, Kamal, & Chowdhury, 2005).

Methods

Population and Sample

The size of the population is unknown and is distributed all over the Kingdom of Thailand where the units of analysis are the small retailers (online and offline) on books and magazines, cosmetics, mobile, and laptop. Stratified sampling method was used in the first stage, by dividing the whole country into four regions- North, Northeast, Central, and South- and then the most populated provinces in each region were selected, and finally the sample units were collected by convenience sampling method, and thus, the entire sample constitutes 1462 units (North–379, Northeast–311, Central–396, and South–376) and obtained an almost equal proportion of online and offline retailers (Online $n = 736$ and Offline $n = 726$) in the four types of retail shops. Among these shops 94.5 percent were unregistered SMEs and, hence, belongs to the informal sector. The questionnaires used in the survey were validated by a pilot study, and the field survey was carried out by trained surveyors during the period of January to March, 2018.

Variables and Summary statistics

The economic impact of a business unit could be measured by its two components, namely, profitability and operating efficiency. Further, the economic impact has been identified as a trend for short-term, medium-term, and long-term periods, where, short-term is defined as a period of less than one year, 1 to 3 years as medium-term, and 3 to 5 years as long-term. In several studies profitability is taken as an indicator to measure the efficiency or growth of a firm due to change in technology or change in working capital or change in accumulated profit (Keramidou, Mimis, Fotinopoulou, & Tassis, 2013; Afrifa & Padachi, 2016; Yazdanfar & Öhman, 2015). Here, profitability is defined as the sum of the effect of sales volume, profit earnings, and additional investment into the business. These items are measured in a 5 point interval scale ranging from ‘high decline (1) to high increase (5). The percentage frequency distributions of the response of both online and offline shops are plotted in Figure 1 for comparison.

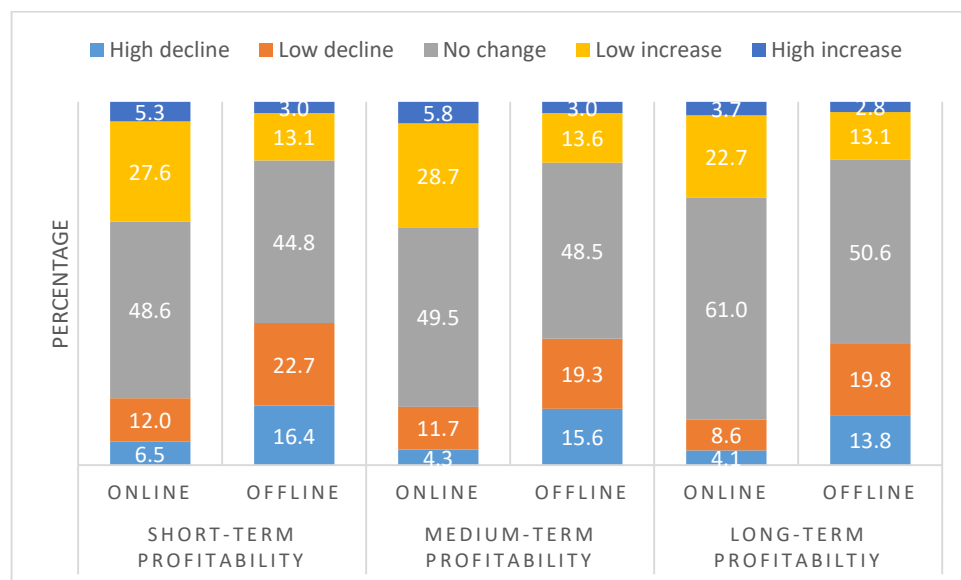


Figure 1: Percentage frequency distribution of profitability

It is evident from Figure 1 that majority of both online and offline retailers have the opinion that the profitability of their business has neither changed in short-term or medium-term or long-term, nevertheless, the online retailers have showed a higher degree of positive attitude towards profitability due the adoption of online sales, who have responded for an increase in profitability by 32.9 percent, 34.5 percent, and 26.4 percent for short-term, medium-term, and long-term respectively. On the other hand, the offline retailers have showed a higher degree of negative attitude towards

profitability while remaining in their brick-and-mortar mode of retailing, who have responded to a decline in profitability by 39.1 percent, 34.9 percent, and 33.6 percent for short-term, medium-term, and long-term respectively. Hence, it could be interpreted *prima facie* that the click-and-mortar shops have a higher profitability than that of brick-and-mortar shops due to the adoption of online sales by the former. Moreover, the mean value of opinion on profitability as explained in Table 1 connotes that online retailers have a higher value (average 3.1) of positive agreement towards profitability than that of offline retailers (average 2.7) also supports the interpretation from Figure 1. The standard deviation is lower in the case of online shops for all the time periods when compared to offline shops. The extent of asymmetry is acceptable since the coefficients of skewness are less than 1 and almost near to zero.

Table 1- Summary statistic of Profitability

Summary statistic	Short-term		Medium-term		Long-term	
	Online	Offline	Online	Offline	Online	Offline
N	736	726	736	726	736	726
Mean	3.14	2.69	3.16	2.75	3.1	2.72
SD	0.77	0.85	0.72	0.84	0.68	0.82
Skewness	-0.59	-0.13	-0.32	-0.20	-0.07	-0.14

Source: Developed by Researchers

It could be further inferred from the distribution of profitability that among offline shops 71 percent of the cases in the short-term, 70 percent in the medium-term, and 66 percent in the long-term are less than or equal to the modal value of 3, whereas, the corresponding figures for the online shops are 67 percent, 52 percent, and 66 percent respectively.

Operating efficiency is defined as operating cost efficiency which in turn relates to operating expenses of the business, like salary, rent, advertisement, and other expenses. It has been generally accepted that the lower the operating expenses on sales volume the better is the operating cost efficiency. The trend of cost decreases over time due to technological improvements in retailing (Barros, & Sellers-Rubio, 2008). Examining expenses relative to revenue would be a better indicator of efficiency changes (Rhoades, 1998). These items are also measured in a 5 point interval scale ranging from 'high decline (1) to high increase (5). The percentage frequency distributions of the response of both online and offline shops are plotted in Figure 2 for comparison.

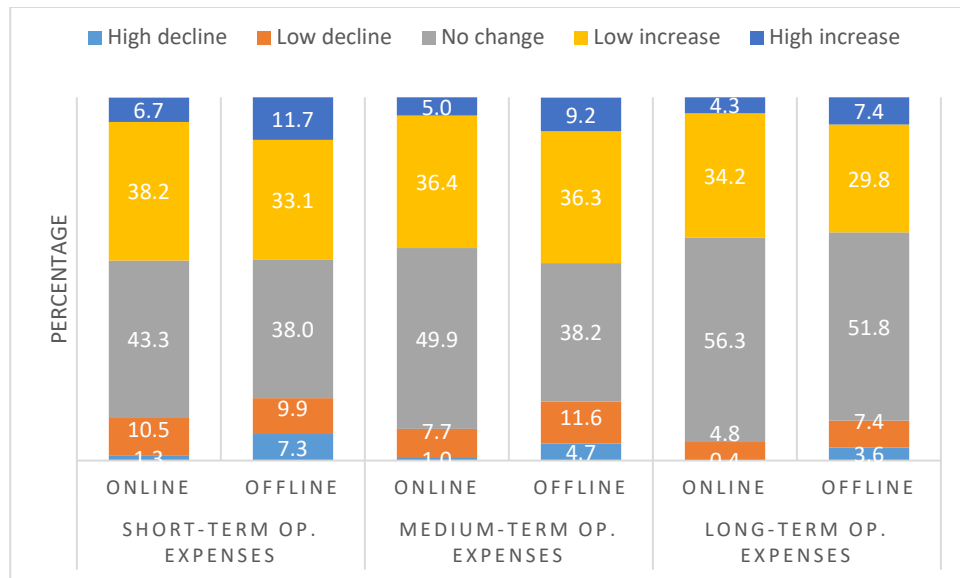


Figure 2: Percentage frequency distribution of Operating expenses

The majority of the online and offline retailers have the opinion that the operating expenses in relation to sales do not have changed over the short-term or medium-term or long-term periods. But it is highly concentrated towards the upper end (Figure 2) in the case of both offline and online retailers where the former have responded to increase by 44.8 percent, 45.5 percent, and 37.2 percent for short-term, medium-term, and long-term respectively and the latter have a response rate of 44.9 percent, 41.4 percent, and 38.5 percent for the same periods.

Table 2- Summary statistic of Operating expenses

Summary statistic	Short-term		Medium-term		Long-term	
	Online	Offline	Online	Offline	Online	Offline
n	736	726	736	726	736	726
Mean	3.38	3.32	3.37	3.34	3.37	3.3
SD	0.81	1.04	0.74	0.96	0.66	0.85
Skewness	-0.21	-0.43	-0.10	-0.41	0.22	-0.24

Source: Developed by Researchers

As indicated in Table 2 the mean value of operating expenses is almost equal (3.3 to 3.38) for both online and offline shops in short-term, medium-term, and long-term trend periods. However, the offline shops have lower mean value and a higher negative skewness, which indicates that more frequencies are on the higher end of the curve signifying majority opinion of no change or an increase in operating expenses.

The social impact of a firm's existence by its change in the mode of operation could be measured through the 'net employment effect' in the dynamic environment. Net employment effect is defined as the number of new employees joined the firm minus number of existing employees left the firm. The items of this variable are measured in a 5 point interval scale ranging from 'nil (1) to very large (5)'. As evident from Figure 3 that both online and offline retailers have almost the same opinion regarding the zero growth rate (75 to 80 percent) of employment in the three trend periods under consideration and a positive growth rate is reported only by 13 to 18 percent for the same periods.

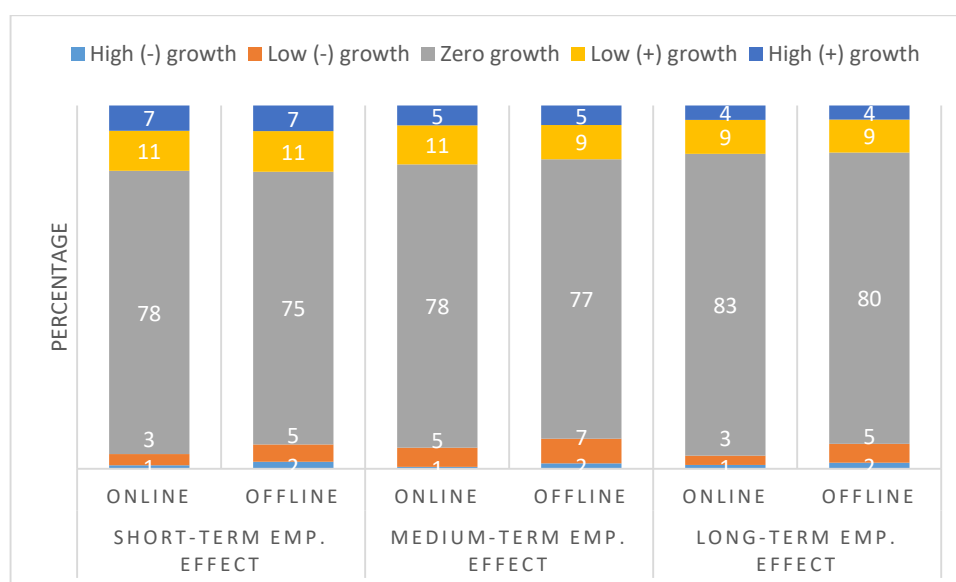


Figure 3: Percentage frequency distribution of Employment effect

Table 3 - Summary statistic of Employment effect

Summary statistic	Short-term		Medium-term		Long-term	
	Online	Offline	Online	Offline	Online	Offline
n	736	726	736	726	736	726
Mean	0.22	0.19	0.16	0.12	0.13	0.10
SD	0.74	0.80	0.66	0.74	0.58	0.68
Skewness	1.47	1.11	1.64	1.24	1.23	1.28

Source: Developed by Researchers

The mean values as given in Table 3 indicated as near to zero which is in the interpretation range of zero growth rate of employment in all the trend periods irrespective of the type of retail shop. All these distributions have positive skewness, denoting that vast majority are on the lower end of the curve elucidating either zero growth or negative growth of employment.

Hypotheses

H01: Adoption of B2C e-commerce in books and magazines, cosmetics, mobile, and laptop has no significant impact on the profitability of such retail shops.

H02: Adoption of B2C e-commerce in books and magazines, cosmetics, mobile, and laptop has no significant impact on the operating efficiency of such retail shops.

H03: Adoption of B2C e-commerce in books and magazines, cosmetics, mobile, and laptop has no significant effect on employment generation.

Results

The reliability (Cronbach's alpha) of all the items were pre-tested separately for 'online' and 'offline' shops and the scores were 0.7 or above for all variables. One way analysis of variance (One-way ANOVA) was used to compare the mean value of profitability of the two groups- online and offline. The Levene statistic indicates that null hypotheses of equality of variance could not be accepted for the two groups for short-term, medium-term, and long-term trends of profitability since the p values are less than .05 and hence the assumption of one-way ANOVA is met. The mean values of profitability in the case of online shops are 3.14, 3.16, and 3.1 for short-term, medium-term, and long-term respectively, whereas the corresponding figures for offline shops are 2.69, 2.75, and 2.72. The test results have proved that the short-term effect of profitability of online shops is significantly higher than that of offline shops, $F(1, 1460) = 109.33, p = .000$, the medium-term effect of profitability on online shops is significantly higher than that of offline shops, $F(1, 1460) = 100.32, p = .000$, and the long-term effect of profitability on online shops is significantly higher than that of offline shops, $F(1, 1460) = 92.42, p = .000$. Since the p values are less than .05 for all the trend periods the null hypothesis H01 has failed, and alternatively, the adoption of B2C e-commerce has significant impact on profitability of such retail shops has been accepted. Hence, it is inferred that the profitability of offline-shops is significantly lower than that of online shops, and conversely, the profitability of online shops has increased significantly by their adoption of B2C e-commerce.

Furthermore, the average profit of online shop is calculated as 11.56 percent on sales and 59 percent of online shops are earning a profit of 12 percent or more, whereas the corresponding value of offline shop is 8.84 percent and 65 percent of offline shops have a profit of 7 percent or less.

The mean values of operating expenses for online shops in short-term, medium-term, and long-term period are respectively 3.38, 3.37, and 3.37, while the corresponding figures for offline shops are 3.32, 3.34, and 3.3. The Levene statistic is significant at less than 5 percent level. The one-way ANOVA results proved that the short-term effect on operating expenses of online shops is not significantly different from that of offline shops, $F(1, 1460) = 1.69, p = .194$, the medium-term effect on operating expenses of online shops is not significantly different from that of offline shops, $F(1, 1460) = .43, p = .512$, and the long-term effect on operating expenses of online shops is not significantly different from that of offline shops, $F(1, 1460) = 3.38, p = .066$. Since the p values are more than 0.05 for all the trend periods, the null hypothesis (H02) is accepted, and hence, it is inferred that the operating expenses of both offline and online shops are not significantly different, or, in other words, the operating efficiency of online shops has not improved much due to the adoption of B2C e-commerce over a period of one to five 5 years.

The mean value of 'net employment effect' for online shops in short-term, medium-term, and long-term are respectively 0.22, 0.16, and 0.13, while the corresponding figures for offline shops are 0.19, 0.12, and 0.10. All these values stood in the interpretation range of 'zero employment growth'. The Levene statistic is not significant at less than 5 percent level. Furthermore, the one-way-ANOVA results show that short-term effect of employment on online shops is not significantly different from that of offline shops, $F(1, 1460) = .5, p = .478$, the medium-term effect is not significantly different, $F(1, 1460) = 1.23, p = .268$, and the long-term effect is not significantly different, $F(1, 1460) = .98, p = .322$. Since the p values are greater than .05 for all the periods, the null hypothesis (H03) that there is no significant employment generation effect by the adoption B2C e-commerce is accepted. Hence, it could be inferred that there is no employment growth by the adoption of online sales. The test results are further supported by the data collected on new jobs created in the 3 years prior to the date of survey and the average annual growth of compensation to employees during the last 3 years. It has

been computed that 67.3 percent of the online shops and 80 percent of the offline shops could not create any new job opportunities during the period of 2015–2017. Also, the annual average growth of compensation to employees was nil for 64.5 percent of online shops and 70.8 percent of the offline shops during the same period. Another finding is that the average employment per online shop is 3.14 persons and per offline shop is 2.48 persons which highlights that the employment potential for online shops are higher than that of offline shops.

Discussions

Economic impact

The adoption of innovation in the retail trade has improved the profitability of those firms and found to be inevitable for the transition of Thai economy from efficiency-driven to an innovative-driven economy. It supports the finding of a previous study that innovation is a key determinant of economic growth (Baytar, 2016). Furthermore, the profitability of offline shops have reduced due to increased competition with online shops in Thailand and it was recognized previously that the turnover and profit margin of retailers have considerably reduced for physical shop owners due to the entry of e-stores (Saha, 2015; Cardona et al., 2015). It is to be noted here the findings of Rujirawanich et al. (2011) that power distance, individualism, masculinity, and uncertainty/avoidance were the four cultural dimensions that obstruct the innovation process of SMEs in Thailand.

The operating efficiency of retailers in Thailand measured in terms of operating expenses has not changed significantly due to the adoption of B2C e-commerce. However, the perception of online shop owners is that their operating expenses would be reduced significantly due to the adoption of online sale into their business, on the other hand, the majority of offline shop owners have perceived that their operating expenses would be increased due to the non-adoption of online sales into their business, nevertheless, the technology factors do not influence them for earliness in adoption (Lertwongsatien & Wongpinunwatana, 2003). It is quite natural that when the sales volume increases the proportion of operating expenses would reduce, being period costs in nature, and this is the positive economic impact accumulated to online shops, and hence it has been supporting the finding that compatibility and relative advantages are the primary factors influencing e-

commerce adoption of SMEs in Thailand (Limthongchai & Speece, 2003). The findings also supports the views expressed by UNCTAD that e-commerce would lead to more competitiveness in doing business by the entrepreneurs (UNCTAD, 2002).

Social impact

The social impact is studied from the point of view of employment generation and surge in compensation to employees of both online and offline shops. When there is more employment more income will be created which will eventually lead to more happiness and harmony in the society. The B2C e-commerce adoption by brick-and-mortar shops in Thailand has resulted in zero employment generation and almost negligible surge in compensation to employees. Nevertheless, the current status of employment data from the survey revealed that online-shops (3.14 persons per shop) are better than offline-shops (2.48 persons per shop) in providing employment in Thailand. This supports the view in a previous study that e-commerce could create and destroy jobs (Terzi, 2011). This could be a reason for the sluggish growth rate of the Thai economy in general in the recent past. Nevertheless, the diffusion of innovation shall bring short-term survival, medium-term growth, and long-term harmony in the society.

Recommendations

There is severe competition in the retail market of Thailand, not only from the multinationals but from the large enterprises operating in the country who are dominating with a share of 61% of retailing in Thailand (Ninkitsaranont & Sathapongpakdee, 2017). The present study identified that the non-adoption of online sales is highly prevalent in the small enterprise segment of retailing in Thailand. The demographic feature of Thailand shows that there is a raising population in the urban areas due to migration and Thailand is a market of 69 million people and 52 percent of this population is living in urban areas and there is high potential for growth of B2C e-commerce in the country due to its development policies on internet and mobile connectivity by introducing 4G technology, and having secured internet servers of 33.37 per one million people in 2016 (The World Bank, 2016). Hence, it is recommended that it is the right time for the small retailers

to adopt online sales to transform the country from efficiency driven to an innovation driven economy.

The satisfaction of employees is a major factor for the success of any business. The employees' compensation must be adequate to meet the requirements of a higher standard of living. Hence, it is recommended that the employee satisfaction level must be raised with a higher level of pay and other amenities so as to rescue the country from its middle-income trap.

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