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Objective

The objectives of the Journal of ASEAN PLUS^{+} Studies are to promote research study and development in the area of government policy, business practice and cultural development, and to provide a platform for researchers and academics to exchange their views and publish the results of their studies. It was designed specifically to help produce clear and concise article, publish original and leading-edge academic research, and disseminate these research results to the global community.

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1. Scope of contents comprises the fields of government policy, business practice, cultural development, and other related fields in ASEAN and its partners such as countries in Asia Pacific.
2. Types of academic work comprise research article and academic article.
3. Languages of academic work: Articles written in English are accepted for publication.

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Foreword

Welcome to the inaugurating issue of the Journal of ASEAN PLUS^{+} Studies! It is a platform for publishing academic researches with a focus on government policy, business practice and cultural development in ASEAN and its partners such as countries in Asia Pacific.

The disruptive technologies in the digital economy, and the challenges to the international trade and the global capitalism system in the new normal of the post Covid-19 pandemic era attracted the attentions of the authors of this issue.

On the front of digital economy, Kachathan and Chaichotchuaung extend the Technology Acceptance Model (TAM) with variables such as digital inequality, personal affordability, infrastructure or digital policy to explain adoption of mobile payment in the cashless emerging markets.

On the challenges to the international trade and the global capitalism system, Rattana-amornpirom studies one important instrument to promote free trade in the region: ASEAN China Free Trade Area (ACFTA). With the empirical data on the utilization of ACFTA, she shows the benefits, opportunities as well as further barriers for the export of Thai agricultural products. Liao and Chen affirm export promotes R&D and innovation for Chinese enterprises with the method of Propensity Score Matching. In the most important area of trade in services for ASEAN countries, Chinprateep studies how attraction, facility and accessibility may impact tourism in the 10 members of ASEAN with indicators like tourist expenditure (for attraction), number of hotels (for facility) and investment in transportation (for accessibility). At a micro level for the domestic market, Thanabordeekij and Syers replicate the studies on customer loyalty, brand image and marketing mix in the setting of household liquefied gas in Thailand.

On the other side of the Pacific, Rosefielde scrutinizes the proposition of Stiglitz to transform America's "liberal capitalism" into "progressive capitalism" by including progressive stakeholders in corporate decision-making, but warns contradictions and moral hazards inherent in stakeholder-shareholder co-sovereignty could turn his dream into a nightmare in today's radical age.

Prof. Dr. Tang Zhimin

Editor-in-Chief

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สถาบันการจัดการปัญญาภิวัฒน์

Assessment of Prospect Towards Cashless Society: A Case of Mobile Payments in Emerging Markets

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Abstract

Due to the rapid rise of communication innovation technologies, mobile payments system can be considered as one of the fast-growing business opportunities by both academics and practitioners. A case in point, financial technology has contributed dramatically to an increase of mobile payments in many sectors, e.g., banking, commerce, retails, as well as in many countries (both advanced markets and emerging markets). However, each country has its own growth rate pattern in mobile payments. The puzzle is why there are different growth rate patterns when such financial technology is now available and affordable in emerging markets. And why there is less adoption of mobile technology in emerging markets. The literature on mobile payments is a shortcoming in many aspects. A case in point, the Technology Acceptance Model (TAM) and its extent are too parsimonious for explaining adoption in technology across markets, especially in some emerging markets. This paper, thus, examines the progress toward a cashless society by focusing on a different pattern of growth of mobile payments and an adoption of mobile technology in emerging markets. This study proposes a new integrated and comprehensive model to explain such different growth rate pattern to fill the literature gap and contribute to the existing literature. To better explain and predict such different growth rate, a model should include more variables such as macroeconomic and social factors. For instance, digital inequality, personal affordability, infrastructure or digital policy. Nonetheless, the limitation of the proposed model will be a case of data availability.

Keywords: Cashless Society, Mobile Payments, Mobile Technology, Emerging Market

Introduction

The rapid innovation in financial technology has significantly contributed to a transformation of the banking industry in many aspects, especially in electronic payment or digital payment. A financial technology has contributed to a dramatic increase in mobile payments. Statista.com reported that the total transaction value in the Digital Payment (Mobile POS Payments and Digital Commerce) segment amounts to US$ 3,168,158 million in 2017 and increased to US$ 4,137,523 million in 2019 (Statista.com, 2020). In the Global comparison, the top 5 of mobile payment are China, United States, United Kingdom, Japan and Germany respectively. Noteworthy, the Mobile POS Payment was only accounted for US$ 368,614 million out of the total in 2017 and US$ 745,796 million out of the total in 2019. For Thailand,

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the mobile payments (both banking institutions and non-banking institutions) increased from 801, 572 baht in 2010 to 3,110,467.69 baht in 2017 according to Bank of Thailand Report. However, cash still accounts for 85% of all consumer transactions throughout the world and cash accounts for 40% or more of all consumer transactions in many emerging markets in 2013 according to MasterCard.com. More importantly, the device like mobile phones becomes a choice of customer for banking, payments and shopping (Lin, 2011). As a result of combination factors of the availability of technology enable smartphone and the strategic of mobile-centric clients by banking industries, the mobile banking has able to offer from basic text message alerts to a sophisticated fully functional banking experience.

Furthermore, a rapid innovation by banking industry has made such advanced financial technology available in both advanced industrialized countries and developing countries. The data show that there is such different level of growth in using electronic payment. The puzzle is what inhibiting an individual not taking advantage of seemingly convenience and cost saving activities like mobile payment or mobile banking.

There is a few literature on mobile technology or mobile payments when compared to other related fields. Most studies illustrate the relationship between customers' behavioral intention to use mobile banking (Aboelmaged & Gebba, 2013; Hanafizadeh & Khedmatgozar, 2012; Laukkanen, 2016; Safeena, 2012; Zhou, 2011). To explain the relationship, the literature is mainly employed on a decision-making process of an individual to examine of adoption of information technology. For instance, a number of studies examine customer adoption for information technology (Alalwan, Dwivedi & Williams, 2016; Zhang, Jahromi & Kizildag, 2018). Furthermore, the literature review shows that majority of prior research has employed the Technology Acceptance Model (TAM) (Davis, 1989; Chan & Lu, 2004; Tavilla, 2015); and later Unified Theory of Acceptance and Use of Technology 2 (UTATUT2) Model (Brown & Venkatesh, 2005; Zhang, Jahromi & Kizildag, 2018). Those studies is able to explain on how and why an individual chooses to adopt such payment method. However, this paper asserts that a study should also focus on other essential matters that relate to a growth of adopting of mobile payment in other emerging markets. Previous studies do not shed the light on the pressing issue in both a policy making decision world and a business strategy world.

As a consequence, this paper proposes that we should 1) Take a different methodological approach and 2) Include a more variables with a different theoretical framework in order to understand and explain a different progress that being made. First, a unit of analysis should be an emerging market, not just an individual. Simply put, one should consider a macro view in a case where the same and similar technology is available to use. Second, a proposed theoretical framework in this study is called a push-pull theoretical framework. The framework will separate related factors into two groups. The first group is the pull factors which refer to variables from a business side sector e.g., TAM factors or UTATUT2 factors. The second group is the push factors that consider variables from a government sector (e.g., macroeconomic and social indicators). Thus, the model include more variables in order to better explain and predict the different growth rate.

This paper will proceed as follows. The first section briefly identifies and reviews the empirical and theoretical works from a literature on TAM and its extent on technology adoption. The second section discusses a more inclusive and comprehensive approach. And the final section discusses the implications of a proposed approach that can have for future research.

Determinant Factors: A Brief Literature Review

This section will identify related studies to illustrate the point that an individual approach adopted as a unit of analysis can be the majority found in the literature to explain the emergence of a cashless society. Most of studies focus on a pull factor. Factors build on customer satisfaction or increase incentive in order to influence customer loyalty. The problem is by not including other potential accelerated factors, which will lead to omitting variable bias in the model. In this section, the existing literature that employs traditional technology acceptance model (TAM) will be discussed first and then follows by a discussion of Unified Theory of Acceptance and Use of Technology 2 (UTATUT2) Model. In this paper, those mentioned factors are considered as pull factors, which come from a business side. Such factors consider to facilitate customers' electronic payments.

Furthermore, the literature on a vision of the emergence of "cashless/checkless society" can be traced as far back as in 1960s. The idea of transformation of business transaction, for instance, can be found in the study in titled "The Coming Cashless Society" (Reistad, 1967). Reistad (1967) has a vision that a society will become "checkless/cashless" in a sense of checks, credit cards, or perhaps cash being replaced by one bank ID card that would unlock one's bank account and because of an innovation develop in a banking industry. The use of mobile banking can be traced in 1990s. A prospect and a progress of becoming a cashless society have come so far long since then. To understand the process of becoming a cashless society, one cannot do without examining the adoption of mobile banking or mobile payments. The adoption of mobile payments can be considered as a first step of becoming a cashless society because there is an increase using of mobile devices by consumers' everyday lives, especially, banking, shopping, socializing and entertainment. Subsequently, the innovation and technology development has lead us to an era of electronic payment, especially a financial technology enables mobile banking. To explain determinant factors that lead to an adoption of technology, the traditional Technology Acceptance Model (TAM) seems to be a preference choice of the method for many studies since it was first introduced by Davis in 1989. TAM has played an important role in explaining who will adopt digital banking and why. The premise of the model is perceived usefulness, and perceived ease of use are considered as effective factors in influencing consumers to adopt mobile technology. Several authors conclude that TAM can affect an adoption of digital banking, and security also seems to play an important role in making decisions (Alalwan, Dwivedi & Williams, 2016; Zhang, Jahromi & Kizildag, 2018)

Unlike prior studies, the current literature is found an increase in the use of Unified Theory of Acceptance and UTATUT2 Model. To examine factors that influence customers to adopt mobile banking, several authors focus on several factors such as (e.g., mass media, security, self-efficacy, hendomic motivation, price value, habit, and trust) and in many countries (Brown & Venkatesh, 2005; Gupta, Dasgupta & Gupta, 2008).

To study predicting factor on mobile payments adoption in emerging markets, we need to consider the characteristic that differentiate emerging markets from those developed markets. Some factors differentiate emerging markets from those developed markets. This study, thus, suggests that we need to include additional variable such as digital inequality, internet usage and infrastructure which will be further discussed in the next section

This study asserts that by including additional variables, the model is expected to explain and predict a growth rate in mobile payments better.

The use of Information and Communication Technologies (ICTs) has become a vital factor for social and economic development. Consequently, the dependent variable of the availability of ICTs for people can be considered as a key factor for generating business growth, especially in mobile payments. In some cases, the accessing and using technology is becoming more or less privileged to many different groups of people. Such technology gap refers to as a digital divide. The Organization for Economic Co-operation and Development (OECD) defines the digital divide as the 'gap between individual, households, business, and geographical areas at different socioeconomic levels with regard both to their opportunities to access ICTs and their use of the Internet for a wide variety of activities (OECD 2001). The definition shows that digital divide can be considered as a complex and multidimensional process. To simplify, the variable digital inequality (DIGIIN), in this study, will be a measure of directly associated with users' characteristics like the mobile internet access and literacy skills. Especially, the mobile internet access for underprivileged groups, and for rural and low-income areas.

Because of the implication of digital capital that carrying over pre-existing differences in human capital into online setting, this digital inequality variable plays a key role in a range of outcomes, from academic performance to labor market success to entrepreneurship to health service uptake (Stiakakis, Kariotellis & Vlachopoulou, 2009). Thus, this study expects the digital inequality to play similar important role in explaining the adoption of mobile payments. Many studies consider network infrastructure to be the most determinant factor of ICT diffusion (Barclay & Evan, 2008; Selhofer & Husing, 2002; Stiakakis, Kariotellis & Vlachopoulou, 2009). This study also include a variable that measure of network infrastructure.

As for a AFFORD variable, the measurement of such variable is far more complex than other variables because this study will measure a level of income by establishing threshold for affordability. Most studies are based on a measurement of people living on less than $1 per day—the international standard for extreme poverty. This study will adopt such international standard as a guideline for measurement of an affordability variable which offered by the World Bank. Moreover, political and regulatory environment variable is a measurement of the national legal framework facilitates ICT penetration and a safe development of business activities which can be found in the World Bank's Doing Business 2020: Comparing Business Regulation in 190 Economies.

Furthermore, this study also asserts that those additional factors should be considered as significant factors to indicate how a country is moving toward a cashless society.

Methodology

Model

As this paper discusses in the previous section on how business side factors or pull factor explain the adoption of technology. The puzzle still remains unanswered. This study aims to emphasize the importance of push factors, which are macroeconomic and social indicators building on the past extension to the UTATUT2. As mentioned in a previous section, the mobile device has become part of everyday lives, for many in doing broad range activities. Thus, we cannot have a cashless society until we have a better understanding of why there are several people still prefer to use cash as a method for transactions when there are so many benefits and perks associate of going digital. One explanation is an affordability to own an internet-enabled smartphone and internet access. Another explanation is the lack of digital literacy. Thus, this study asserts that we need to include a push factors in the model to explain a different growth pattern of the use of digital banking in emerging markets.

This study proposes the economic model that estimated as a linear panel model (also known as longitudinal or cross-sectional time-series data) with random effects and shown below. By using this type of estimate model, the analysis can account for individual heterogeneity because it controls for variables that cannot observe or measure variables that change over time but no across entities. Moreover, such model can include variables at different levels of analysis for further advance analysis to employ multilevel or hierarchical model. Furthermore, there are some drawbacks with an issue of, for example, a correlation between countries. Nevertheless, the proposed estimated econometric model is considered to be more appropriated and comprehensive after considering all the advantage and disadvantage factors.

The baseline equation for random effects model is:

$$Y_{it} = \beta X_{it} + \alpha + \mu_{it} + \varepsilon_{it}$$

Where

Y_{it}	is the dependent variable (DV) where I = entity and t = time.
X_{it}	is independent variable (IV).
β	is the coefficient for that X_{it}.
μ_{it}	is the between-entity error term.
ε_{it}	is the within-entity error term.
α (i = 1…n)	is the unknown intercept for each entity.

The estimated model is using time and an emerging market effects because the heterogeneity and characteristics of each market consider to be significant. In other words, the estimated model is a cross-market model with market-specific characteristics. The model attempts to measure the magnitude relative emerging of the cashless society process by using the absolute magnitude of total mobile payments.

The expected model is:

$$MOPAY_{it} = B_0 + B_1x\ DIGIIN_{it} + B_2x\ INFRAS_{it} + B_3x\ AFFORD_{it} + B_4x\ POREG_{it} + \alpha + +\mu_{it} + \varepsilon_{it}$$

Where

$MOPAY_{it}$	is total mobile payments where subscript i = entity and t = year.
X_{it}	are
DIGIIN	is a measurement of digital inequality.
INFRAS	is a measurement of network infrastructure for mobile device.
AFFORD	is an affordability to ownership of an internet enabled Smartphone, internet access.
POREG	is Political and Regulatory.
environment*	

The purpose of model is to illustrate push factors provide the crucial link in understanding how each variable promotes the adoption of mobile payment. For example, to how the lesser level of digital inequality increase the probability of a mobile payment adoption. The dependent variable, labeled MOPAY, is the total mobile payment at country level by year.

This study expects all push variables (labeled DIGIIN, INFRAS, AFFORD) to be positively and statistically significant affected the level of mobile payments, especially the digital inequality variable. To ensure the robustness of any significant relation between the push factors and the adoption of mobile payment, this study adds series of control variables to the baseline regression model. This study considers to include variables (consumer behavior, digital disruption, or marketing campaign) to control for business conditions that might contribute to the adoption of mobile payment. This study also employs exploratory factor analysis (EFA) to detect and test structure in the relationship between variables, identify factors and classify variables. In addition, a number of methods will be employed to ensure robustness of the model.

Conclusion

In conclusion, a model should include variables from more than one discipline in order to close the gap in the literature in explaining differences of the growth rate of mobile payments in emerging markets. A study on such topic should not omit important variables from push side factors, for instance, digital inequality, personal affordability, infrastructure or digital policy. A study that investigates a reason for adoption of mobile technology cannot explain the topic by only focusing on Technology Acceptance Model (TAM) or the Unified Theory of Acceptance and Use of Technology 2 (UTATUT2).

Simply put, this study anticipates results of the proposed model will shed light on the factors that shape a country's response to its infrastructure needs and certain economic inequalities and offer policy implications for facilitating the removal of any inadequacies that prevents a country from accelerated in mobile payment rate. In other words, this study will help us understand the conditions when push factors to produce a mobile payment adoption.

Moreover, the world event can also, in some cases, consider a push factor that should not overlook, like a recent case of the COVID-19 pandemic. The fact that certainly will create a certain new norm for some but not matter for all. Whether the COVID-19 is going to be just another wave (a push factor) that temporary increases the volume of mobile payment transactions or is going to permanently define this period as a significant progress that moves us toward closer to a "cashless society". This discussion remains open.

Finally, the limitation of this proposed model is availability of data (e.g., panel data) at a country level. Thus, a predicted model of "cashless society" will currently yield inconclusive result.

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Does Export Promote R&D and Innovation in Enterprises? Empirical Evidence from Chinese Industrial Enterprises

Liao Wenlon[1] and Chen Xiaoyi[2]

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Abstract

In order to reveal the relationship between export and R&D innovation and improve the R&D innovation effect of Chinese enterprises' export. This paper used the method of Propensity Score Matching to study on the data of 20394 enterprises in database China's industrial enterprises from 2005 to 2007. The results show that export has significant R&D and innovation effects, such effects are the strongest in the year of export and gradually reduce over time. Large scale enterprises have stronger export R&D innovation effect. The effect of domestic enterprises is stronger than that of foreign enterprises. These results suggest that China should vigorously support enterprises to go abroad, encourage enterprises to take the path of independent innovation, so as to give full play to the R&D innovation effect of exports.

Keywords: Export R&D, Innovation Effect Propensity Score Matching

Introduction

After decades of "growth miracle", China's economy has entered a "new normal". It has attracted significant attention concerning how China will reshape its economic growth to achieve long-term stable and sustained growth. Although China has become the world's second-largest economy after years of fast economic growth, it still lags far behind the U.S., Japan, Germany, and other developed countries in terms of technological innovation. As Chinese President Xi Jinping (2017: 126) pointed out, "A large economy is not equal to the economic power. A country's long-term backwardness is ultimately due to its technological backwardness rather than the size of its economy". Economic theories and international experience also indicate that innovation is the source of economic growth. China's foreign trade witnessed rapid growth after it joined the WTO in 2001 and became the world's largest exporter in 2009. However, rapid growth in international trade doesn't help China achieve economic transformation, and upgradings like Japan and South Korea. Instead, it gradually makes China remain at the low-end of the international industrial chain. Does this mean that

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China, unlike most other countries, fails to enjoy the benefits of technology spillovers from international trade? Or do Chinese enterprises gain R&D and innovation effects from their exports? From the micro perspective, the study on the relationship between export and R&D and innovation is related to the sustainable development of an enterprise. On the other hand, from the macro perspective, it is associated with the sustainable growth of a country. Particularly, China is in the dilemma that it is losing its external export advantages while its internal domestic demands have not been fully fostered. The answer to this question will have significant reference value concerning whether China will continue to expand its exports in the short term. By analyzing the data of the Chinese Industrial Enterprises Database using the propensity score matching (PSM), this paper attempts to answer this question.

In this paper, there are two marginal contributions as follows. Firstly, based on the real data of Chinese industrial enterprises and the quasi-natural experiments by adopting the propensity score matching method, it helps to solve the prevailing problems of existing studies such as sample selection bias and endogeneity. Secondly, it creates indicators to measure the R&D and innovation of enterprises from four dimensions: innovation input decision-making, innovation input intensity, innovation output decision-making, and innovation output intensity.

Literature Review

1. Export enhances the R&D and innovation capacity of enterprises through the learning effect. Export enterprises continue to learn while maintaining constant exchanges and cooperation with foreign enterprises and manufacturers. These inspire enterprises to improve productivity such that it is an ultimate result of enterprise innovation. Therefore, export is a driving factor for R&D and innovation in enterprises. Salomon & Shaver (2010: 431-460) noted that exporters often have access to different knowledge that is lacking in the domestic market, and bringing such experience back to the country for learning will result in innovation effect. For this purpose, they made empirical studies on Spanish manufacturing enterprise data from 1990 to 1997 using the nonlinear generalized method of moments (GMM) to support their views. Jacques & Wu (2019: 123-138) found that exports create more jobs by stimulating innovation to achieve output growth while studying the employment-driven role of exports. Given the heterogeneity of Chinese enterprises, the study by Li, Yue & Chen (2016: 72-94) showed that the learning effect of export is significant only in medium and high-tech industries. Sang & Fan (2017: 39-49) examined the learning effect of export for enterprises from both product and market perspectives. Their results showed that the learning effect of export was not obvious for enterprises with diverse export markets in the year of export, and such a learning effect emerged in the second and third years after export. The learning effect became significantly noticeable for multi-product export enterprises, the third year after the export.

2. Export improves the R&D and innovation capacity of enterprises through scale development. Enormous international market demands help export enterprises achieve scale development. On the one hand, this reduces the cost of innovation. On the other hand, the reduced cost helps to improve the profitability of enterprises. It provides them with more resources to invest in research and development and thus enhances the innovation capacity of enterprises. Paula et al. (2011: 36-58) and Roberts & Vuong (2013: 185-205) constructed a model based on heterogeneous firm trade theory and stated that the channel for the scale effect of export-induced innovation and the scale development enables enterprises to benefit from product innovation input through reduced unit cost and improved product quality. This will encourage enterprises to invest more in research and development, and the export-induced innovation as the result of scale development will strengthen as the tariffs decrease. The study

by Aghion et al. (2018: 15-25) on French manufacturing showed that there is an interaction between export-induced innovation and scale development. Export-induced innovation will promote scale development through increased market share, and scale development will be more conducive to achieving innovation for export enterprises.

3. Export improves the R&D and innovation capacity of enterprises through competition. Export enterprises face increased competition from the international market. To survive in the competitions, export enterprises have to increase investment in R&D and improve independent innovation to make their products meet international demands to seize international market share. Gorodnichenko, Svejnar & Terrell (2014: 954-969) used individual enterprises survey data from 27 transition countries and concluded that the internationalization of export-oriented enterprise plays a significant role in promoting product innovation. Export provides many potential opportunities for enterprises in emerging market countries in terms of innovation and competitiveness. Imppullitti & Licandro (2018: 189-229) pointed out that trade liberalization stimulates competition by reducing variable markups and creating more stringent enterprise screening mechanisms, which helps to improve innovation in enterprises.

Methodology

1. Hypotheses

Export is likely to play a role in R&D and innovation in enterprises from three channels based on existing research literature. Therefore, this paper further proposes the following hypothesis:

H_1: Export can promote the R&D and innovation capacity of Chinese enterprises. That is to say, and export does show R&D and innovation effect in Chinese enterprises.

Given that enterprises are different in terms of production behaviors, export decision-making, and R&D and innovation activities due to the heterogeneity of enterprises. This paper further puts forward the following hypothesis:

H_2: The R&D and innovation effect are different among the enterprises of different sizes and ownership.

2. Propensity Score Matching

This paper aims to analyze the impact of export on R&D and innovation of enterprises. In other words, it attempts to investigate whether there is a causal relationship between enterprise export and its R&D and innovation. One issue that cannot be avoided in the actual analysis is that: It is not random concerning an export enterprise. They may have more substantial R&D and innovation capacity before export than other enterprises that do not export, so it is easier for them to go abroad. If the R&D and innovation capacities of export enterprises are higher than those of non-export enterprises, it may not be the result of export. Instead, export enterprises already show more substantial R&D and innovation capacities over non-export ones. Ignoring the endogenous problem caused by this sample selection bias, the direct estimation results by OLS will become biased. To solve this problem, this paper adopts the propensity score matching (PSM) method to eliminate the sample selection bias. Its basic idea is to compare the differences in R&D and innovation of the same enterprise under "export scenario" and "non-export scenario". Because it compares the difference of the same enterprise in two different scenarios, it is confirmed that such a difference is caused by export.

Where $innov^1$ and $innov^0$refer to the R&D and innovation variable under export and non-export scenarios respectively. *s* represents whether or not it is an enterprise export, with 1 set as export enterprise and 0 non-export one. *i* and *t* stand respectively for enterprise and year. Thus, the average treatment effect on treated (ATT) of export on R&D and innovation in the enterprise is as follows:

$$ATT = E(innov_{it}^{1} - innov_{it}^{0} | s_{it} = 1) = E(innov_{it}^{1} | s_{it} = 1) - E(innov_{it}^{0} | s_{it} = 1) \quad (1)$$
$$ATT = E(innov_{it}^{1} - innov_{it}^{0} | s_{it} = 1) = E(innov_{it}^{1} | s_{it} = 1) - E(innov_{it}^{0} | s_{it} = 0) \quad (2)$$

where $E(innov_{it}^{1} | s_{it} = 1)$ refers to the R&D and innovation of an enterprise after export. $E(innov_{it}^{0} | s_{it} = 1)$ represents the R&D and innovation of the enterprise without export. The challenge lies in that $E(innov_{it}^{0} | s_{it} = 1)$ is unobservablely non-factual, and the solution is to construct a "counter-factual" variable and find a non-export enterprise (control group) that is "similar" to the export enterprise (treatment group). Therefore, after the R&D and innovation of the enterprise in the control group $E(innov_{it}^{0} | s_{it} = 0)$ is used to replace that of the export enterprise (treatment group) $E(innov_{it}^{0} | s_{it} = 1)$ in the non-export scenario, then the calculation is as follows:

$$ATT = E(innov_{it}^{1} - innov_{it}^{0} | s_{it} = 1) = E(innov_{it}^{1} | s_{it} = 1) - E(innov_{it}^{0} | s_{it} = 0) \quad (3)$$

The key process to identify the non-export enterprises (control group) that are "similar" to the export enterprises (treatment group) is called matching. The matching process requires both the treatment group and the control group to be as close as possible in all dimensions. This paper uses the PSM method for matching on an annual basis and constructs a virtual variable of whether or not it is an export enterprise (export enterprise = 1, non-export enterprise = 0) as the explained variable. Several covariates are selected as explanatory variables to predict the probability values of enterprise export Pr using the Logit/Probit model (export decision-making model). If the tested results meet both the common support assumption and the balancing assumption, then the export enterprises (treatment group) and non-export enterprises (potential control groups) will be matched based on the similarity of Pr, and the final control group will be selected from the potential control groups. During the propensity matching process, the selection of covariates (matching variables) is related to the effect of matching. The matching variables of this paper include: labor productivity, size of the enterprise, fixed asset, financing constraint, enterprise profit, foreign investment, government subsidy, industrial added value, and government relationship. Innovation variable *innov* will be measured from two aspects: innovation input and innovation output. Each aspect will include two dimensions: innovation decision-making and innovation intensity. All the value indicators were reduced using the corresponding price index with 2005 as the baseline year. The definitions and measures of each matching variable and innovation variable are shown in Table 1.

Table 1 Definitions and Measures of Variables

Variables		Name	Type	Variable specification
Innovation variables	*dRAD*	Innovation input decision-making	Dummy variable	Set as 1 for R&D input and 0 for without R&D input
	innew	Innovation input intensity	General	R&D input/Main business revenue
	dnpdcvlu	Innovation output decision-making	Dummy variable	Set as 1 for new product and 0 for no new product

Table 1 Definitions and Measures of Variables (Cont.)

Variables		Name	Type	Variable specification
Innovation variables	*outnew*	Innovation output intensity	General	New product output value/Total industrial output value
Matching variables	*tfp*	Labor productivity	General	Total industrial output value/Average number of employees per year
	forien	Foreign investment	General	Foreign investment/Paid-in capital
	lyedemply	Size of enterprise	Logarithmic	Average number of employees per year
	lcpastyb	Fixed asset	Logarithmic	Average annual balance of net fixed assets
	rz	Financing constraint	General	Interest payments/Main operating costs
	dtotlpft	Enterprise profit	Dummy variable	Set as 1 for with profit and 0 without profit
	subsidy	Government subsidy	General	Subsidized income/Main business revenue
	lpdcvlue	Industrial added value	Logarithmic	Industrial added value
	sbjct	Government relationship	General	Ownership of enterprises: Central, provincial, municipal and county-level and other kinds of enterprises are assigned respectively as 5, 4, 3, 2 and 1. Their relationship with the government also declines from high to low.

3. Data Description

This paper uses the Chinese industrial enterprises data collected by the National Bureau of Statistics for 2005-2007[3]. We screened the samples based on consolidating data set to satisfy the research needs: (1) excluding the samples with key variables less than 0 or missing; (2) excluding the samples with fewer than 10 employees; and (3) excluding the samples with total assets less than net fixed assets, sales income less than export delivery value, paid-in capital less than or equal to 0 for their non-compliance with the accounting principles. After the treatment, 20, 394 out of 60, 136 effective sample data of enterprises were analyzed in this paper. The data were treated and analyzed by using Stata14.0 software.

[3]The Chinese industrial enterprises data cover the period 1998-2013. The reason why this paper chose 2005-2007 as the sample interval is that the data of enterprise R&D investment were not included until 2005, and the data of this interval is more consistent and are mostly used in similar studies.

Results

1. Basic Characteristic Facts

We divide the enterprises into export enterprises (treatment group) and non-export enterprises (potential control group) based on the value of enterprise export delivery in the Chinese Industrial Enterprises Database. Table 2 shows the characteristics of R&D and innovation in two kinds of enterprises before propensity score matching. For each year within the sample period, the number of export enterprises is significantly lower than that of non-export enterprises. However, the R&D and innovation of export enterprises are better than those of non-export enterprises in terms of innovation input decision-making, innovation input intensity, innovation output decision-making or innovation output intensity. To take innovation input decision-making as an example, the proportion of export enterprises with R&D input in the year of 2005, 2006 and 2007 accounted for 37.4%, 40.4% and 42.8% respectively, while the proportion of non-export enterprises was 12.7%, 13.5% and 13.9% respectively over the same period, showing an obvious difference. The analyses of simple characteristic facts reveal that export enterprises have higher R&D and innovation capacity, which provides a preliminary basis for our subsequent analysis. However, as mentioned above, this does not prove the causal relationship between export and the R&D and innovation capacity of enterprises. Because the difference in R&D and innovation between these two kinds of enterprises is probably the result of the reason that export enterprises already have relatively strong R&D and innovation capacity, or it may be indeed that export promotes the R&D and innovation capacity of the enterprises.

Table 2 Comparison of R&D and Innovation (Mean Value) between Export and Non-export Enterprises

Types of Companies	Year	Number of enterprises	Innovation input decision-making	Innovation input intensity	Innovation output decision-making	Innovation output intensity
Export Enterprises	2005	3235	37.40%	0.60%	42.40%	11.40%
	2006	3190	40.40%	0.70%	42.10%	11.90%
	2007	2907	42.80%	0.80%	36.80%	12.80%
Non-export Enterprises	2005	16828	12.70%	0.20%	7.30%	2.60%
	2006	16882	13.50%	0.20%	7.90%	2.70%
	2007	17094	13.90%	0.20%	7.80%	2.70%

2. Estimation of Export Decision-making Model

According to the requirement of propensity score matching, the probability value of export should be calculated for each enterprise. Therefore, we conducted Probit and logit regression to construct the export decision-making model, and the estimation are shown in Table 3. Whether it is in the Probit model or in the logit model, the covariates (matching variables) are relatively significant, indicating that the variable set in this paper is reasonable.

Based on the estimation results of the export decision-making model in Table 3, there are systematic differences in many characteristics between export enterprises and non-export enterprises. On the one hand, these differences help to identify which enterprises are more inclined to export. More importantly, the differences remind us to take into account the pre-export sample selection bias in analyzing the real impact of exports on the R&D and innovation of enterprises. Otherwise, it will confuse the existing R&D and innovation capacity of an enterprise and the innovation effect as the result of export. The following PSM analysis in this paper will be based on the estimation results of the Probit model.

Table 3 Estimation Results of Probit Model and logit Model (Explained Variable: whether or not the enterprise exports)

	Probit model		**Logit model**	
	Coefficient	**Z value**	**Coefficient**	**Z value**
Foreign investment	1.4183***	25.61	2.3986***	25.65
Size of enterprise	0.1802***	13.67	0.3186***	12.84
Fixed asset	0.0188**	2.28	0.0271*	1.80
Industrial added value	0.1060***	9.14	0.1967***	8.93
Government relationship	0.0374***	5.26	0.0670***	5.30
Labor productivity	-0.0001***	-5.91	-0.0002***	-5.60
Financing constraint	-1.0813***	-4.45	-0.4107***	-4.10
Enterprise profit	-0.0477**	-2.31	-0.0919**	-2.44
Government subsidy	-2.1328***	-6.11	-4.8006****	-6.24
Year	control		control	
Region	control		control	
Constant term	-3.4615***	-47.98	-6.0801***	-45.29
Log likelihood	-17104		-17102	
Pseudo R2	0.0964		0.0965	
N	60134		60134	

Notes: *, ** and *** means being significant under 10%, 5% and 1% scenario respectively.

3. Matching and Matching Quality Assessment

The traditional PSM model is based on sectional data, while this paper uses non-balanced panel data for three consecutive years. To avoid the same enterprise over different periods being regarded as different enterprises and thus being mutually matched. This paper conducts the matching according to the year. The accuracy of PSM testing depends to a large extent on whether the enterprises in the control group can well replace those in the treatment group that do not export. In other words, there should be no significant difference in covariates after matching between export enterprises and non-export enterprises. Therefore, a balance test is required.

As there are four innovation variables in this paper (innovation input decision-making, innovation input intensity, innovation output decision-making, and innovation output intensity), the balance test should be carried out separately from these four dimensions. Due to limited space, this paper only reports the balance test result of innovation input intensity (The balance test results of the other three dimensions are all consistent with this result).

The test results from Table 4 to 6 showed that export enterprises and non-export enterprises have significant differences in most covariates before matching, and there is a “self-selection effect” in enterprises for their export activities. After matching, there is no statistically significant difference in the covariates between the treatment group and the control group. Therefore, the matching of samples satisfies the balance requirements, and the selection of covariates and matching methods is appropriate in this paper.

Table 4 Balance Test (2005)

Variables	Before matching		t value	After matching		t value
	Treatment group	Potential control group		Treatment group	Potential control group	
Labor productivity	427.32	388.15	1.73*	427.32	413.39	0.76
Foreign investment	0.083	0.018	27.1***	0.083	0.079	0.64
Financing constraint	0.021	0.024	-1.94*	0.021	0.024	-1.61
Size of enterprise	5.888	5.196	33.36***	5.888	5.918	-0.94
Fixed asset	10.268	9.229	32.43***	10.268	10.32	-1.12
Enterprise profit	0.782	0.786	-0.54	0.782	0.791	-0.91
Government subsidy	0.006	0.007	-2.26**	0.006	0.007	-1.13
Industrial added value	11.358	10.541	31.65***	11.358	11.366	-0.21
Government relationship	2.212	1.799	18.78***	2.212	2.184	0.85

Notes: *, ** and *** stands for significant effect under 10%, 5% and 1% scenario respectively.

Table 5 Balance Test (2006)

Variables	Before matching		t value	After matching		t value
	Treatment group	Potential control group		Treatment group	Potential control group	
Labor productivity	487.69	462.92	0.81	487.69	474.32	0.63
Foreign investment	0.086	0.018	28.27***	0.086	0.087	-0.17
Financing constraint	0.022	0.023	-0.41	0.022	0.024	-0.66
Size of enterprise	5.887	5.174	34.07***	5.887	5.886	0.06
Fixed asset	10.308	9.261	32.18***	10.308	10.338	-0.64
Enterprise profit	0.795	0.792	0.35	0.795	0.795	-0.03
Government subsidy	0.004	0.007	-2.98***	0.004	0.005	-1.97
Industrial added value	11.479	10.651	31.14***	11.479	11.456	0.57
Government relationship	2.166	1.786	17.12***	2.166	2.177	-0.34

Notes: *, ** and *** stands for significant effect under 10%, 5% and 1% scenario respectively.

Table 6 Balance Test (2007)

Variables	Before matching			After matching		
	Treatment group	Potential control group	t value	Treatment group	Potential control group	t value
Labor productivity	560.98	534.45	0.97	560.98	528.26	1.48
Foreign investment	0.09	0.018	28.83***	0.09	0.087	0.56
Financing constraint	0.019	0.024	-1.26	0.019	0.02	-0.89
Size of enterprise	5.959	5.155	36.66***	5.959	5.996	-1.05
Fixed asset	10.43	9.295	33.1***	10.43	10.461	-0.62
Enterprise profit	0.819	0.801	2.23**	0.819	0.821	-0.2
Government subsidy	0.003	0.007	-4.48***	0.003	0.004	-1.66
Industrial added value	11.722	10.756	33.58***	11.722	11.707	0.34
Government relationship	2.174	1.79	16.63***	2.174	2.168	0.17

Notes: *, ** and *** stands for significant effect under 10%, 5% and 1% scenario respectively.

4. Innovation Effect of Export

Table 7 summarizes the test results of the R&D and innovation effect for export enterprises. It can be seen that the ATT of sample enterprises in each year is significantly greater than 0, whether being measured from innovation input or innovation output. This confirms that export has a positive incentive effect on the R&D and innovation in enterprises, and thus the hypothesis H_1 is verified. By taking the year 2005 as an example, if the enterprise innovation is measured by its investment in R&D (innovation input), export made its innovation decision-making increase by 17.87 percentage point. Also, if enterprise innovation is measured by the sale of new products (innovation output), export made its innovation decision-making increase by 31.787 percentage point. In addition, export also made the enterprise's R&D intensity and output intensity of its new product increase by 0.43 and 8.34 percentage points respectively. By comparing the ATT values, it is found that export has more obvious incentive effect on innovation output than innovation input for the enterprises.

Table 7 ATT Results of Different Years: R&D and Innovation Effect of Export

Year	Innovation input		Innovation output	
	Innovation decision-making	**Innovation intensity**	**Innovation decision-making**	**Innovation intensity**
2005	0.1787*** （0.01201）	0.0043*** （0.00058）	0.3178*** （0.01095）	0.0834*** （0.00482）
2006	0.1975*** （0.01256）	0.0044*** （0.00040）	0.3179*** （0.01120）	0.0864*** （0.00503）
2007	0.1875*** （0.01353）	0.0052*** （0.00056）	0.2542*** （0.01165）	0.0906*** （0.00557）

Notes: *** stands for significant effect under 1% scenario and the value in the bracket represents standard error.

The estimation results in Table 7 show that export can promote R&D and innovation in enterprises. However, does the R&D and innovation effect of export only appear in the year of the export or continue to sustain every year? To examine the lag effect and the cumulative effect of export on R&D and innovation, we tested the R&D and innovation effect in the year of export, the second and third years after export respectively, as shown in Table 8. The R&D and innovation effect of export is the strongest in the year of export and gradually decreases over time. This conclusion is consistent with the study results of Damijan, Kostevc & Polanec (2010: 374-398). After the analysis, the reasons may lie in: First, the enterprises have access to advanced technologies after entering the international market and decide immediately to imitate them to improve their own technologies. This is the immediate incentive effect of export on R&D and innovation. However, after absorbing these advanced technologies, the enterprises may encounter technological bottlenecks and difficulties in innovation. The marginal effect of innovation will decline over time, and what they could learn from it will also gradually decrease. Second, some enterprises need to do lots of preparatory work to overcome technological barriers in importing countries to enter international market, such as making the active investment in R&D, improving their ability to absorb advanced international technologies, improving the quality of products and launching new products to meet the needs of export markets. These preparations and adjustments indirectly improve the R&D and innovation capacity of the enterprises, which is reflected in the actual observation that the R&D and innovation effect is the strongest in the year of export. This also inspires us to distinguish different types of export enterprises to further to confirm whether or not the improvement in R&D and innovation capacity of enterprises is the result of incentive and sustained interaction of export markets.

Table 8 R&D and Innovation Effects of Different Years after Export

Time	Innovation input		Innovation output	
	Innovation decision-making	**Innovation intensity**	**Innovation decision-making**	**Innovation intensity**
Year of export	0.2185*** (0.00878)	0.0050*** (0.00040)	0.3917*** (0.00771)	0.1086*** (0.00361)
2nd year of export	0.2108*** (0.01045)	0.0049*** (0.00034)	0.3257*** (0.00929)	0.0949*** (0.00441)
3rd year of export	0.1953*** (0.01464)	0.0052*** (0.00067)	0.2550*** (0.01280)	0.0881*** (0.00617)

Notes: *** stands for significant effect under 1% scenario and the value in the bracket represents standard error.

Discussion and Conclusion

Based on the statistical data of Chinese industrial enterprises from 2005 to 2007, this paper makes an in-depth analysis of the impact of export on the R&D and innovation in enterprises. The innovation capacity of enterprises is measured by four dimensions such as innovation input decision-making, innovation input intensity, innovation output decision-making, and innovation output intensity. The propensity score matching method is used to address the problem of sample selection bias. The research results show that: First, export does have significant R&D and innovation effect in enterprises. The analyses on the full samples, or sub-samples categorized by the size and ownership of enterprises confirm that export has a significant positive effect on the innovation of enterprises in four different dimensions. Second, the impact of export on R&D and enterprises' innovation gradually decreased over time. The immediate effect of export on R&D and innovation is the largest in the year of export and gradually decreases in the next two or three years. Third, there are significant differences in the effects of export on R&D and innovation for different sizes of enterprises. Though export has obvious R&D and innovation effect for different sizes of enterprises, such effects are stronger for large scale enterprises. Fourth, in terms of ownership of enterprises, the effects of export on R&D and innovation are the strongest for state-owned enterprises, followed by private enterprises and the weakest for foreign enterprises. In other words, export has a stronger R&D and innovation effect for domestic enterprises than foreign-invested enterprises. Such a consequence no longer exists for foreign-invested enterprises in the third year after export. The conclusions of this paper show good stability among different sample selections and in different matching methods.

The findings of this paper not only continue and expand the existing research but also have important practical significance. Although China is a large exporting country, it still lags far behind developed countries in terms of technology development. Therefore, China should vigorously support its enterprises to go abroad to participate in international competitions, give full play to the effect of export on R&D and innovation, and encourage its enterprises for independent innovation to narrow the gap with other countries in terms of technological development. Specifically, China should make efforts in the following aspects: (1) It should create a favorable external environment for the R&D and innovation of enterprises. Only under a strong intellectual property protection system will enterprises be willing to disclose the information about their research and development. This will help to address the information asymmetry in the R&D for SMEs and private enterprises, and reduce the cost of innovation. (2) It needs to deepen the reform of production factor markets and promote the development of its financial markets. Based on the previous analysis, we believe that financing constraint restricts the effects of export on R&D and innovation for private enterprises. The fundamental reason lies in the unsound financial market in China, particularly during this transition period when the financial sector is distracted from their intended purpose, which makes it more difficult for private enterprises to have access to finance. Therefore, more favorable policies should be introduced to encourage private sectors and financial resources to engage in and support the real economy. In addition, it needs to reform its financial management system and provide flexible and innovative financial services for small and medium-sized enterprises to ease their financing constraints to have better access to the international market. (3) It needs to change the patterns of its export trade. China's export enterprises have remained at the low end of the global industrial chain and value chain for a long time, which is very unfavorable for them to foster innovation. Therefore, subsequent export enterprises should focus more on the "quality" of export products and appropriately reduce the proportion of the export products with low added value. It should encourage enterprises to invest in R&D and improve the international competitiveness of their products to create a positive interaction between export and innovation.

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Factors Influencing Travelling Behavior and Choice Among ASEAN Population

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Abstract

The purpose of this research is to investigate factors influencing travelling behavior and choices among ASEAN population which comprises Thailand, Malaysia, Indonesia, Myanmar, Lao PDR, Cambodia, Singapore, Vietnam, Brunei, and Philippine. This study has developed some theoretical part involving panel data analysis methodology. The factors being studies are the exchange rate, tourist's expenditure, investment on transportation, and number of hotel accommodations. The results of this research showed that all factors under study significantly and clearly affect the number of ASEAN travelers. These are, similarly, the same direction of influences of those other factors comprising of traveler spending, investment on public transportation and hotel availability. In fact, it would be illustrated that exchange rate, traveler expenses, government spending on public transportation as well as availability of hotels have also influenced on the advancement of tourism business in order to provide enough accessibility because of the expanded economic engagement towards ASEAN Economic Community, of which all government policies sharing the same objectives to prioritize and encourage it to be a future prosperity of this region. Therefore, the results of this research are like a recommendation that can be useful for the more clearly formulation of the state policy in order to achieve more effectiveness and efficiency of the development policy of the country in the future.

Keywords: Travel, Behavior, Choice, ASEAN

Introduction

Nowadays, there is an collaboration between regional intergovernmental organizations in Southeast Asian region comprising 10 countries since the year 2015, which promotes intergovernmental cooperation and facilitates economic, political, security, educational, and sociocultural integration among its members and other countries in Asia. Especially, in economic area, there is a development of value added in regional, and empowering competitiveness among each other. For instance, developed connectivity project between highways, rails and logistics. ASEAN tourism tends to grow continuously, making some changes in economic systems affecting all countries adapting themselves for this situation particularly, tourism dimension.

ASEAN Economic community (AEC), established in 2015, aims to allow the free flow of population, goods, services, investment and labor, making travelling in ASEAN countries a

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lot more convenient (ASEAN Secretariat, 2014). Therefore, this means that effectively tourism policy would be completely necessary for strengthening country's competitiveness. As can be seen clearly that tourism aspect has always played an important influence on national development in terms of economic and socio-cultural aspects. In fact, this research trying to understand how the factors behind tourism industry makes an effect on number of travelers in those 10 countries in ASEAN. There are perhaps advantages for supporting both tourism and economic in this region, and this research also studied dominant prerequisites on how ASEAN community works on number of tourism.

There are enormous variety of definitions on "Tourism". In 1963, there was United Nations Conference on International Travel and Tourism, Rome, which launched recommendations on international travel and tourism. This conference has given the definition towards tourism which was described the movement of people to a destination with various purposes; including, leisure, conference, and visiting relatives. Some also explains that this would be a joyful journey, and business administration related to tourism. Meanwhile, tourists mean person who is visiting a place for pleasure and interest, and then they will return to their accommodations consecutively. However, the word "tourism" has its own various definition not only the do they mean the act and process of spending time away from home in the pursuit of recreation, relaxation, and pleasure, but they are also included the mobilization making use of the commercial provision of services together with domestic and international tourism. As this means that it is a pleasingly collaborative process. Currently, tourism industries have been tremendous business sector as we can summarize their meaning in three different aspects, described in the following paragraph. First of all, tourism describes the temporary movement of people from their hometown to another. Second, it would be willingness of people without any compulsories. Lastly, the objective of this journey is not for earning rewards or interests (Tucker & Sundberg, 1988).

Visitors would be elaborated its definitions by identifying 2 primary categories.

1) Tourist is a person coming to the country for temporarily legitimate reason and who stays at least 24 hours.

2) Excursionist is any person visiting a country other than his residence and remaining less than 24 hours.

3)Thailand also adopted these core meanings and for statistical records for persons coming to the country for at least 24 hours and not more than 60 days, belonging with his objective to do some activities.

United Nations also classify the international tourist's statistics as, to conclude, the purposes of travelling, it would be categorized into 4 directions:

1) Travelling for vacation, visiting families, recuperation and etc.

2) Participating conference or being as cluster delegations, like religious and athlete representation.

3) Business contact, but it doesn't involve with seeking for profits.

4) Roaming in common with cruise ships which stop at the ports, although duration is over 1 night.

Factors manipulating travel habits are classified into 3 types as following

1) Attraction, contains a number of key elements that fascinate visitors and meet their needs upon arrival. Areas where number of traveler interested to approach necessarily provide one attractive sightseeing or further. If there are plenty of tourist spots, many of travelers will come to visit there. Subsequently, tourist attractions are exemplified into two distinctive groups; namely, natural attraction factors and historical and cultural attraction factors. Heritage site, created by civilization, is an official location where pieces of cultural, or social history

have been preserved due to their cultural heritage value. This persuaded individuals to explore once such as ancient city or longstanding palace.

2) Facility, something that makes an action, operation, or course of travelling becomes easier. Accommodation is one of the most important things; i.e. hotel, resort, bungalow as well as guest house. The second most significant is consuming, which requires accessibility to restaurants and tourist information available.

3) Accessibility, accessible tourism is the ongoing endeavor to ensure tourist destinations, products and services are accessible to all people.

Study discovered that one of the economic factors have an influence on tourism is numerous. Nonetheless, this study will consider national income, tourism expenditure per person, exchange rate among 10 ASEAN countries (unit: us dollars), and investing on public transportation in these 10 countries.

Literature Review

Study about the information of principal factors throughout tourism industry in ASEAN

ASEAN is the regional where tourism industry has given mainly benefits and economic growth. According to ASEAN GDP, Thailand has achieved the highest number of GDP earning by tourism, then Malaysia, Singapore and Philippine are reached a number of GDP consecutively with a record of 28.801, 23.318, 15.167 and 5.768 (World Travel and Tourism Council, 2013). This has strengthened business sectors to foster their competitiveness in international market, making those ASEAN countries have plentiful dynamic and become world producer (ASEAN Secretariat, 2014). Economic integration in several countries; including, bilateral, multilateral and regional cooperation, has a lot more advantage as mechanism for constructing economic negotiation power and reinforcing nation competitiveness. Particularly, the objective of establishing ASEAN is to reunite and to support adjacent collaboration among 10 nation countries in terms of security, economic and socio-culture, making these become closer relationship and step forward to be an effective ASEAN community. Most entrepreneurs, assumes that relevant factors for developing tourism industry are tourist attractions, tourist publiccations, public utilities, public transportations, development of tourist attractions (Suwanvijit, 2014).

Tourism industry is one of the service sectors, which have exhibited crucial dimensions to countries' economic system in many countries since it is the way to accumulate foreign currency and employment. Owing to information published by the World Tourism Organization – WTO, tourism comes together with employment rate both direct and indirect approach. For example, direct approach composes of guides, several occupations in hotel. Nowadays, there are 9.3 million employees in this industry, counted to be roughly 3.2% of entire employment. Apart from that, in ASEAN, there is also indirect approach; namely, taxi and etc. around 25 million (ASEAN Secretariat, 2014). It can be obviously seen that this tourism industry performs a significant role in ASEAN community, hence ASEAN country members signed the numerous agreements for developing tourism industry such as ASEAN Tourism Agreement (ATA), ASEAN Framework Agreement on Services (AFAS), ASEAN MRA on Tourism Professionals or ASEAN MRA on Tourism Professionals which is a latest progression regarding ASEAN service industry. The purpose of this is to advance the capability of ASEAN service provider to accept recognition from domestic international organization and other ASEAN members participating in this agreement. This collaboration concentrates on mobility of internal tourism workers under the same laws as well as regulations, and increase equality among these ASEAN countries. Likewise, this also focuse developing efficiency of tourism human resources by applying a core method of minimum competency.

Methodology

The given information which is secondary data involves with panel data analysis to examine essential factors effecting travel behavior and choices among ASEAN citizens and the model would be demonstrated as following.

$$Y_{it} = \alpha_i + \beta_{1i}EX_{it} + \beta_{2i}pdt_{it} + \beta_{3i}tra_{it} + \beta_{4i}hot_{it} + \varepsilon_{it}$$

Where Y_{it} is a number of people travelling to ASEAN in country *i* during *t*-time.
EX_{it} is an official exchange rate of country *i* during *t*-time.
pdt_{it} is tourist expenditure in country *i* during *t*-time.
tra_{it} is amount of transportation investment in country *i* during *t*-time.
hot_{it} is a number of hotels established in country *i* during *t*-time (I = 1, 2, 10).
t is time data in this research.
ε_{it} is a statistical disturbance during t-time.
β_i and α_i are parameters.

This research studies about factors influencing travel behavior and choice over ASEAN populations by using technical method of Panel Co-Integration Model, which can be divided here.

Part 1: study's result applying Panel unit root among those variables showed some distinctions, which are LLC Test, Breitung Test, Hadri Test, IPS test, and Fisher Type Test by using Fisher-ADF and Fisher-PP.

Part 2: the outcome of Panel equation testing is analyzed by Hausman Test and Redundant Fixed Effect Test.

Part 3: the outcome of estimated Panel model by using Ordinary Least Square (OLS), and Dynamic Ordinary Least Square (DOLS).

Results

Panel Unit Root Test

Due to the panel information used in this research was likely to be unbalanced panel data, there was analyzing panel unit root though lenient Fisher-type, without Balanced panel data. This is because it is not similar as LLC, Breitung and Hadari Lm test (Hsiao, 2017).

Table 1 Results of Panel Unit Root Test (Fisher Type Test by using Fisher-ADF)

Results of Panel Unit Root Test							
Methodology		**ADF**					
Variable		Level			1st Difference		
		None	Intercept	Trend & Intercept	None	Intercept	Trend & Intercept
int	ADF-Fisher Chi-square	-	-	-	51.8148 (0.0001)	52.4935 (0.0001)	66.1364 (0.0000)
ex	ADF-Fisher Chi-square	-	49.7263 (0.0002)		98.7731 (0.0000)	-	40.0375 (0.0049)

Table 1 Results of Panel Unit Root Test (Fisher Type Test by using Fisher-ADF) (Cont.)

Results of Panel Unit Root Test							
Methodology		**ADF**					
Variable		Level			1st Difference		
		None	Intercept	Trend & Intercept	None	Intercept	Trend & Intercept
pdt	ADF-Fisher Chi-square	-	-	-	92.2974 (0.0000)	111.252 (0.0000)	91.2473 (0.0000)
tra	ADF-Fisher Chi-square	-	-	-	87.82.54 (0.0000)	69.94.36 (0.0000)	58.0707 (0.0000)
hot	ADF-Fisher Chi-square	-	-	47.3903 (0.0005)	56.7081 (0.0000)	111.044 (0.0000)	-

Source: calculations

Table 2 Results of Panel Unit Root Test (Fisher Type Test by using Fisher-(In)ADF)

Results of Panel Unit Root Test							
Methodology		**(ln)ADF**					
Variable		Level			1st Difference		
		None	Intercept	Trend & Intercept	None	Intercept	Trend & Intercept
int	ADF-Fisher Chi-square	-	-	31.7600 (0.0459)	109.542 (0.0000)	105.211 (0.0000)	-
ex	ADF-Fisher Chi-square	-	41.3664 (0.0033)	40.4830 (0.0043)	99.8876 (0.0000)	-	-
pdt	ADF-Fisher Chi-square	-	-	31.9717 (0.0436)	117.470 (0.0000)	103.383 (0.0000)	-
tra	ADF-Fisher Chi-square	-	-	34.2898 (0.0242)	112.580 (0.0000)	73.4088 (0.0000)	-
hot	ADF-Fisher Chi-square	-	-	61.6536 (0.0000)	73.9800 (0.0000)	101.568 (0.0000)	-

Source: calculations

Table 3 Results of Panel Unit Root Test (Fisher Type Test by using Fisher-PP)

Results of Panel Unit Root Test							
Methodology		**PP**					
Variable		Level			1st Difference		
		None	Intercept	Trend & Intercept	None	Intercept	Trend & Intercept
int	PP-Fisher Chi-square	-	-	-	66.6352 (0.0000)	61.6139 (0.0000)	97.0008 (0.0000)
ex	PP-Fisher Chi-square	-	75.0949 (0.0000)	39.9451 (0.0051)	100.456 (0.0000)	-	-
pdt	PP-Fisher Chi-square	-	-	-	121.093 (0.0000)	108.448 (0.0000)	112.108 (0.0000)
tra	PP-Fisher Chi-square	-	-	-	102.548 (0.0000)	72.0417 (0.0000)	61.5495 (0.0000)

Table 3 Results of Panel Unit Root Test (Fisher Type Test by using Fisher-PP) (Cont.)

Results of Panel Unit Root Test							
Methodology		**PP**					
Variable		Level			1st Difference		
		None	Intercept	Trend& Intercept	None	Intercept	Trend& Intercept
hot	PP-Fisher Chi-square	-	-	44.1867 (0.0014)	96.3012 (0.0000)	113.481 (0.0000)	-

Source: calculations

Table 4 Results of Panel Unit Root Test (Fisher Type Test by using Fisher-(In)PP)

Results of Panel Unit Root Test							
Methodology		**(ln)PP**					
Variable		Level			1st Difference		
		None	Intercept	Trend & Intercept	None	Intercept	Trend & Intercept
int	PP-Fisher Chi-square	-	-	-	113.171 (0.0000)	109.873 (0.0000)	129.232 (0.0000)
ex	PP-Fisher Chi-square	-	114.760 (0.0000)	52.4016 (0.0001)	98.5001 (0.0000)	-	-
pdt	PP-Fisher Chi-square	-	-	-	130.783 (0.0000)	112.606 (0.0000)	103.245 (0.0000)
tra	PP-Fisher Chi-square	-	-	-	111.256 (0.0000)	81.4166 (0.0000)	81.3263 (0.0000)
hot	PP-Fisher Chi-square	-	45.0179 (0.0011)	58.6487 (0.0000)	101.488 (0.0000)	-	-

Source: calculations

Hausman Test

The objective was to compare Fixed effect model and Random effects by using statistics to test the hypothesis. The result was showed that Fixed effect is the most suitable for this research.

Table 5 Hausman test

	coefficients		(b-B)	Sqrt
	(b) Fixed	(B) random	Difference	(diag(V_b-V_B))
ln_ex	-0.2215842	-0.366342	-0.1849501	0.0633783
ln_pdt	0.3409325	0.3782436	-0.0373111	0.0144244
ln_tra	0.0474648	0.0634436	-0.0159788	0.0110127
ln_hot	0.3893918	0.2090848	0.180307	0.067127
b = consistent under Ho and Ha; obtained from xtreg				
B = inconsistent under Ha , efficient under Ho; obtained from xtreg				
Test : Ho: difference in coefficients not systematic Chi2(4) = (b-B)’ [(v_b-v_B)^(-1)] (b-B) = 15.13				
Prob>chi2 = 0.0044				

Source: calculations

According to panel information, there is combination between two groups of data. Consequently, after summarizing the suitable model, it was to investigate economic problems because perhaps it may lead to problem of serial-correlation; including, Heteroskedasticity in this model or not.

Problems solving, Serial-correlation and Heteroskedasticity

There are some equation problems on Serial-correlation and Heteroskedasticity with new model by applying feasible generalized least squares, and the new outcomes were shown here.

Table 6 Feasible Generalized Least Squares

Linear regression, correlated panels corrected standard errors (PCSEs)	
Number of gaps in sample: 9	Number of obs = 106
Group variable: country	Number of groups = 10
Time variable: year	Obs per group: min = 3
Panels: heteroskedastic (unbalanced)	Avg = 10.6
Autocorrelation: no autocorrelation	Max = 19
	R-squared = 0.7742
Estimated covariances = 10	Wald chi2(4) = 534.46
Estimated autocorrelations = 0	Prob > chi2 = 0.0000
Estimated coefficients = 5	

Ln inter	**Coef.**	**Het-corrected Std. Err**	**Z**	**P>|z|**	**[95% Conf. Interval]**
Ln ex	0.0775925	0.0162539	4.77	0.000	0.0457354
Ln pdt	0.2007071	0.06522	3.08	0.002	0.0728782
Ln tra	0.6131126	0.1612371	3.80	0.000	0.2970937
Ln hot	0.1710839	0.0548118	3.12	0.002	0.0636546
cons	8.177639	0.591881	13.82	0.000	7.017573

Source: calculations

Due to this study, latest experiment, which is the best experiment result, found that exchange rate (In ex), tourist expenditure (In pdt), number of established hotels and infrastructure investment (In tra) have a significantly dominant impact on 95% of confidence. Independent variables have positive coefficients, so it means that if this variable increase, number of tourist travelling to ASEAN will upsurge. While it can be explained that independent variable can describe the outcome of dependent variable.

Discussions and Conclusion

According to this study, exchange rate, tourist expenditure, including all costs of travelling in ASEAN, investment on transportation, and number of established hotels increased continuously each year. In this research, the information from 1998 to 2017 showed a similar tendency with number of travelers among 10 countries. In fact, if exchange rate in ASEAN is depreciated when compared to US dollar, a number of traveler in ASEAN will increase. Furthermore, it is more investment on infrastructure which means the comfortable method, making a lot more tourists will come for travelling. When tourist expenditure increased, tourism entrepreneur also gains more income individually. If this statement is relevant to the information clarifying above, there are a lot more tourists in this region and in Thailand. In other words, this represents the similar transformation movement. Study result discovered the variables, which are exchange rate, tourist expenditure, investment in infrastructure, have a positive impacted on tourist in 10 countries in ASEAN. These all factors have tremendous dominant to an alteration of number of travelers in ASEAN.

When exchange rate in ASEAN is depreciated when compared to US dollar, number of travelers in ASEAN will increase. Moreover, there is more investment on infrastructure, making travelers can access to transportation easily and this would be more attractive to tourists. Similarly, if numbers of tourists increase, tourism entrepreneur also gains more income per person. Obviously, there should be more supported policy in several sectors; for example, government, public and private sector, district office for local administration, as well as tourism organizations could develop more tourism facilities respect to many areas. There is administration on tourism resources which should advance the quality and standard of sustainable service divisions for increasing number of travelers constantly. Therefore, government should encourage investment in transportations to be more well-organized capability. Thailand has a chronical problem in public transportation for travelers. There is, recently, relevant policy which aims to expand connectivity among countries in ASEAN in order to appeal travelers in all over the regions.

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Progressive Capitalism in A Radical Age

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Abstract

Joseph Stiglitz's proposes transforming America's "liberal capitalism" into "progressive capitalism" by encouraging socially responsible corporations to include progressive stakeholders in corporate decision-making. He suggests that the time may be ripe because the Business Roundtable recently endorsed efforts to make American corporations more socially responsible. He predicts that if the Business Roundtable is sincere, progressive socially responsible, stakeholder and shareholder joint sovereign corporations will create a more dynamic economy, with greater shared prosperity and uplift the majority again to a middle-class life. However, Stiglitz fails to probe the contradictions and moral hazards inherent in stakeholder-shareholder co-sovereignty that could transform his dream into a nightmare.

This essay elaborates and critically evaluates Stiglitz's concept in the contemporary American political context. It shows that while progressive

Keywords: Progressive Capitalism, Radical Age

Introduction

The merit of economic systems partly depends on the degree to which corporate behavior facilitates the maximization of social welfare. Socially responsible corporations support this objective; socially irresponsible ones do not. There are good and bad societies. Opinions differ widely regarding their classification. Liberals emphasize the importance of maximizing the quality of individual existence. Socialists, progressives and others stress the maximization of the quality of existence of diverse groups, or specific ideals. This essay investigates the strengths and weaknesses of Joseph Stiglitz's case for creating "progressive capitalism" built on the foundation stone of "stakeholder" corporate sovereignty.

Progressive Capitalism

Joseph Stiglitz recently sparked a revival of interest in progressive capitalism with the publication of People, Power, and Profits: Progressive Capitalism for an Age of Discontent and an article (Is Stakeholder Capitalism Really Back?) heralding the notion that America's "Business Roundtable" may be forsaking Milton Friedman's shareholder in favor of stakeholder capitalism. Stiglitz (2019) wrote that society needs a better understanding about the true source of "the wealth of a nation" which lies in the creativity and productivity of the nation's people and their productive interactions with each other and their institutions. He explains how progressive improvements of capitalism, particularly the state institutional structuring of

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markets, Stiglitz (2017) would achieve a more dynamic economy, with greater shared prosperity and uplift the majority again to a middle-class life. He champions sustainable and inclusive economic growth (Stiglitz, 2016), environmental protection and income equality (Stiglitz, 2015).

Stiglitz's outlook is consistent with a strain of American progressive-liberal academic corporate governance theory that emphasizes socially responsible democratic competitive market systems, Aras & Crowther (2016) and more broadly with the ideas of Claude Henri de Rouvroy, comte de Saint-Simon (1760-1825) (Taylor, 1975), François Marie Charles Fourier (1772-1837) (Fourier, 1971), Richard Tawney (1880-1962) (Tawney, 2004), Oscar Lange (1904-1965) (Lange, 1936), Abba Lerner (1903-1982) (Lerner, 1938), James Mead (1907-1995) (Meade, 2013), and John Kenneth Galbraith (1908-2006) (Galbraith, 1967). His appeal to progressive corporate responsibility has always been an aspect of the liberal competitive theory (Palladino, 2019). Adam Smith insisted that market competition, guided by the invisible hand was only desirable if people were attentive to their moral duty (Smith, 1759).

The devil, however, is in the details of social responsibility. Who speaks for society? Marx, Stalin, Hitler, Obama, workers, minorities, radical feminists, socialists, progressives, liberals, conservatives?

Is the state the voice of the people? Are corporations agents of the state?

Governments of all sorts assert that they are responsive to the people's will, and therefore as the people's representatives have the right to establish property right regimes, complementary law, regulate, tax, transfer and mandate. They determine stakeholders' legitimacy and power, and delegate or share this authority with private companies. Governments can impose stakeholder rights; corporations can freely embrace them, or both.

Stakeholder Corporations

Stiglitz (2017) in the progressive-liberal rational choice tradition seeing "transparency" as the antidote for the danger of state capture, focuses on corporate rather than political governance, trying to persuade boards of directors to invest in human capital (shareholder and stakeholder capital alike) rather than short-term shareholder profit maximization which he ascribes to Milton Friedman. He admonishes capitalist (for-profit, market competitive) corporations to do right for everyone by doing right for shareholders and society. This win-win outlook works, if stakeholders play by Stiglitz's imperfectly competitive progressive-liberal Paretian rules (Clark, 1940); that is, everyone earns his or her "fair" marginal value product (Rosefielde, 2015), given a consensus Bergsonian social welfare function (Bergson, 1938).

Progressive-liberal rational choice theory teaches that corporations and governments should roughly behave as Stiglitz urges subject to his "fairness" constraint (Pareto, 2014). Stakeholder corporations should reflect on his progressive ethical guidance, and if they concur, profit maximizes accordingly.

Why then does Stiglitz contend that progressive-liberal stakeholder capitalism is a burning issue? The invisible hand and moral duty should have transformed theory into "fair" practice. Is it because corporate shareholders and corporate boards of directors disagree with Stiglitz's notion of progressive duty that implicitly makes stakeholders the dominant voice in "stakeholder capitalism" (Stiglitz, 2015) Do they object to his progressive-liberal Pareto rational axioms that shunt stakeholder power seeking, and moral hazard into the background, (Sawicky, 2020) or both?

Shareholders and corporate boards of directors appear to disagree with Stiglitz's notion of progressive duty. The spirit of the "Business Roundtable" endorsement of "stakeholder capitalism" that Stiglitz references does not put stakeholders in command as he desires. It is discordant with the progressive-liberal causes that he advocates, as well as the more radical demands of other stakeholder enthusiasts. The Business Roundtable statement, echoing prior declarations of purpose, expresses its members' desire to be good corporate citizens and neighbors, committing them to do right by their customers, suppliers, employees, and the communities where they work. It pledges members to train and education that helps develop new skills for a rapidly changing world, as well as fostering diversity and inclusion, dignity and respect. It embraces "fair" compensation, honest business practices, transparency and effective engagement with shareholders. There is no mention of employee inclusion on management boards (German codetermination) (McGaughey, 2016), Yugoslav style worker participation, (Estrin & Uvalić, 2008) or Japanese consensus building worker-management practices (Aoki, Jackson & Miyajima, 2008). There is no commitment to stakeholder consultation regarding entitlement, affirmative action, restorative justice, radical feminist, minority, sexuality, immigrant, transnational, global redistributionist and environmentalist causes. There is no discussion of stakeholder claims on corporate revenues, assets, product assortment, characteristics, workplace health and safety and projects. American progressives of various persuasions, including Stiglitz in his role as public intellectual urge Washington to adopt an expansive political economic agenda for the downtrodden, abused and needy, but the Business Roundtable is silent on all these matters (Ha-Jun, Joseph & the World Bank, 2002).

Shareholders also appear to disagree with Stiglitz's progressive-liberal rationality axioms that require them to shun rent seeking and disregard the perils of stakeholder moral hazard. The Business Roundtable shows no indication that its members' desire restricting executive pay and perks to Stiglitz's fair compensation standard, or that members are willing to accept the justice of stakeholders' claims for sharing wealth, income and control, including worker co-sovereignty (Weitzman, 1986). Accepting outside stakeholders' assurances that their demands are just and they are acting in good faith could easily lead to internecine power struggles that paralyze shareholder governance and destroy corporations. Outsiders have nothing to lose. Insiders risk everything by incautiously accepting the moral hazard that comes with stakeholders' rights to co-govern, or dominate as the term "stakeholder capitalism" implies.

The radical-progressive threat to shareholder sovereignty is apparent in its contemporary American political agenda. Radical-progressives, unlike traditional progressive-liberal welfare state advocates, vigorously attack the classical principle that individuals receive the value of their marginal products or a "fair" approximation, that people should be self-reliant, that markets should distribute goods, that financial responsibility is essential, and that economic growth and prosperity are fundamental to the quality of social existence (Rosefielde & Mills, 1959). Stiglitz as a progressive-liberal stresses the importance of economic growth, development and prudent debt management. Most of today's American radical-progressives, echoing Karl Marx's Economic and Philosophical Manuscripts of 1844 (Marx, 1959), want a guaranteed high standard of living for everyone regardless of employment, ability and effort. (Appiah, 2018). (They want a completely egalitarian distribution of income and wealth, except for supplementary transfers to those with special needs, and those deserving restorative justice reparations. The especially needy include the mentally, psychologically and physically handicapped, radical feminists, ethnic and racial minorities, Moslems, immigrants, and radical-progressive activists at home and across the globe. Radical-progressives pay no heed to financial prudence in accordance with the "new monetary theory" that sees no harm from printing money without limit to pay all current expenditures and debts (Modern Monetary Theory, 2015). This "infantile leftism" is a replay of Nikolai Bukharin and Evgeny Preobrazhensky's ABC's of Communism (1920), instrumental in the Bolshevik economic collapse during the period of "War Communism" (Lenin, 1920).

Business Roundtable members for obvious reasons are reluctant to adopt Stiglitz's progressive-liberalism and, of course, rightly fear that radical-progressives will transform shareholder corporations into stakeholder communes for the "deserving" subsidized by Washington's money printing press that confiscates shareholders' revenue and wealth. They are unlikely to acquiesce to progressive-liberal or radical-progressive efforts at persuasion, but a radical-progressive state might compel them to do so. Should this occur, everyone will suffer except social progressives benefiting from income and asset transfers. Stakeholder capitalism at the corporate level may appear attractive to some progressive-liberal competitive market theorists when imagined in terms of abstruse social responsibility, but the danger of adverse radical progressive capture is significant.

Conclusion

Joseph Stiglitz recently constructed a case for "progressive capitalism" built on the foundation stone of "stakeholder" corporate sovereignty. The notion of a socially responsible America is broadly appealing, but his proposal is flawed. Stakeholder capitalism is an oxymoron. If stakeholders are in command, the system cannot be capitalist. If capitalists are in control, stakeholders cannot be sovereign. The contradiction could be nominally reconciled by assuming that stakeholders and shareholders have identical preferences, but then stakeholder capitalism would be superfluous. The contradiction also is resolvable by assuming that shareholders and corporate boards of directors responsibly modify their preferences to maximize the quality of social existence, but this is only possible in the never-never-land case where everyone ultimately shares identical preferences. Stakeholder capitalism built on the foundation stone of "stakeholder" corporate sovereignty is a chimera.

Stiglitz's suggestion that it is reasonable to experiment with stakeholder capitalism on learning by doing basis is disingenuous, if as is the case there are sound grounds for concern that stakeholders will pillage assets and bankrupt their companies. The danger is apparent in American radical progressive agitation for jettisoning capitalism in a favor of an economic system that provides a guaranteed high standard of living for everyone regardless of employment, ability and effort, a completely egalitarian distribution of income and wealth, except for supplementary transfers to those with special needs, and those deserving restorative justice reparations. Stiglitz does not endorse radical progressivism. He himself favors progressive capitalism that is competitive enough to sustain efficient production, rapid economic growth and fiscal responsibility, but he needs to explain how to accomplish this in an America allergic to rational policy choice making.

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The Impacts of ACFTA on Export of Thai Agricultural Products to China

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Abstract

The ASEAN-China Free Trade Area (ACFTA) was the first FTA with external parties to be signed by ASEAN. This agreement included three components, namely, goods, services, and investment. Before the Trade in Goods Agreement was put into force in 2005, Thailand and China signed an agreement on Accelerated Tariff Elimination under the Early Harvest Programme (EHP), which focused on agricultural products and was implemented in October 2003. Since then, the bilateral trade between Thailand and China is steadily increasing. The agricultural products are the main export product between China and Thailand. For understanding the impacts of ACFTA on Export of Thai Agricultural Products to China, this article will describe the utilization of ACFTA preferences for export and how many tariff reductions under ACFTA. The scope of the agricultural products in this article covers 2091 tariff lines of both unprocessed and processed agricultural products. The content of this article consists of 3 parts: 1) The Benefits of ACFTA for Thailand; 2) The Opportunity of ACFTA for Thailand, and 3) Other trade barriers for Thailand. The benefits of the ACFTA are analyzed by comparing the tariff rate of China for ASEAN members in 2018 with the MFN tariff rate of China for WTO members. The opportunity for further improvement is presented in terms of the utilization of the FTA arrangement by Thai exporters and the top 10 categories (by HS 2 digits) of agricultural products exported from Thailand to China as well as an assessment of FTA impacts on major products in each category.

Keywords: ACFTA, Thai Agricultural Products, Export, China

Introduction

China is the world's leading economy, with a population of over 1.4 billion people. Also, China is the largest trading partner with Thailand since 2013 and the top three foreign investors since 2016. Thailand's exports to China is accounted for nearly 12% of the entire country's exports. Under the ASEAN-China Free Trade Area (ACFTA), Thailand gains from expansion in both trade and investment, significantly.

The Framework Agreement on Comprehensive Economic Cooperation between ASEAN and China was signed in November 2002, which provided the legal basis for ASEAN and China to negotiate further agreements leading to the creation of the ASEAN- China Free Trade Area

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(ACFTA) by 1 January 2010. The ACFTA was the first FTA with external parties to be signed by ASEAN.

Trade in Goods Agreement, Trade in Service Agreement and the Investment Agreement under the Framework Agreement of Comprehensive Economic Cooperation were concluded and signed on 29 November 2004, 14 January 2007 and 15 August 2009, respectively. In August 2014, ASEAN and China decided to upgrade the ACFTA.

The Agreement on Trade in Goods was implemented in July 2005 and has been revised twice in 2006 and 2010. Under this agreement, participating countries are committed to reduce and/or eliminate tariffs under five different schedules. These products are organized into five different lists:

1) Early Harvest Programme (EHP)

2) Normal Track, which is further subdivided into Normal Track 1 and Normal Track 2

3) Sensitive Track, which is further subdivided into Sensitive List and Highly Sensitive List

EHP allowed for the accelerated reduction of tariffs on certain products before the onset of the FTA. The program reduced tariffs on these products over three years to 10% by 2004, 5% by 2005, and zero tariffs by 2006.

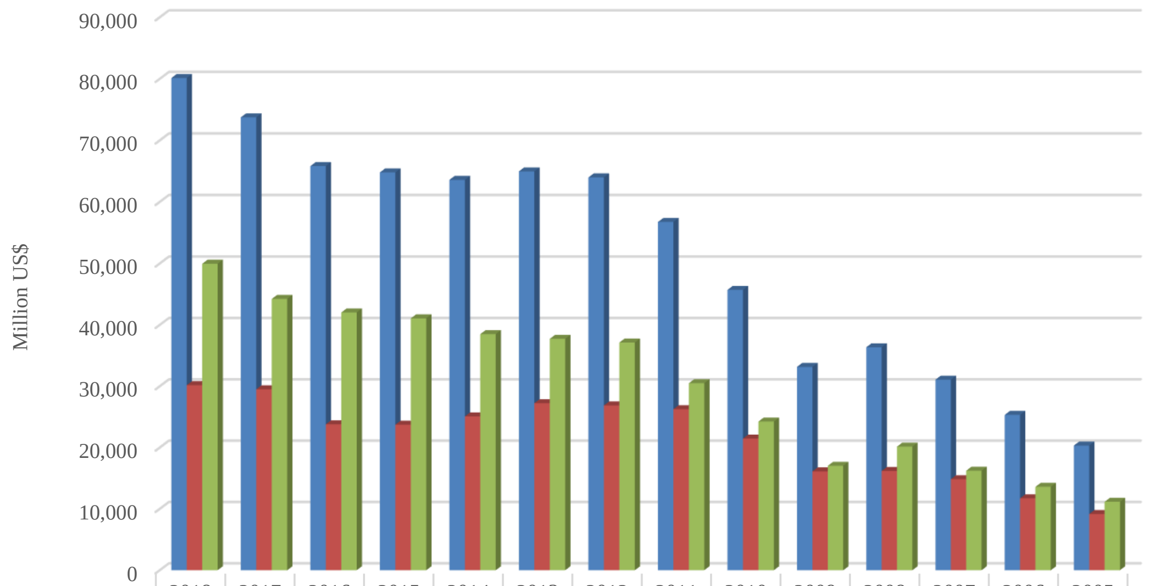
For the Normal Track, all tariff lines in this category have been eliminated by ASEAN-6 (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand) and China as of 1 January 2012. For Cambodia, Lao PDR, Myanmar, and Viet Nam, tariff elimination will have to be completed by 1 January 2015, with some flexibility afforded to eliminate tariffs on products not exceeding 250 tariff lines by 1 January 2018. (ASEAN, 2015)

In the past, agricultural products are the main export product between China and ASEAN, especially Thailand. (Praisakuldecha, 2017: 23) Hence, tariff reduction under the EHP covers agricultural goods in the customs tariff schedule Harmonized System (HS) codes 01 through 08 (live animals, meat and other edible animal parts, fish products, dairy products, fowl eggs, live trees, vegetables and fruit, and edible nuts).

Thailand and China anticipate the potential gain for trade in goods specifically under the customs tariff schedule codes 07 and 08 by embracing fruits and vegetable lines of products. On 18 June 2003, an "Agreement between the Government of the People's Republic of China and the Government of the Kingdom of Thailand on Accelerated Tariff Elimination under the Early Harvest Programme" has been concluded. Both parties were first among ASEAN countries to agree upon the elimination of the tariff on all items under tariff schedule codes 07 and 08 as of 1 October 2003. Singapore subsequently signed this agreement as well. (DTN, 2008)

Trade between Thailand-China

Since the ACFTA went into effect, while Thailand got the advantage form EHP especially for agricultural products, the bilateral trade between Thailand and China is steadily increasing. In 2018, the bilateral trade volume between Thailand and China was US$80.14 billion, up 8.7%. Among these, Thailand's exports to China were US$30.18 billion, up 2.3%; its imports from China were US$49.96 billion, up 12.9%. However, Thailand has always trade deficits with China. The deficit was US$19.79 billion in 2018, as shown in figure1.



	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Trade Value	80,136	73,745	65,830	64,798	63,582	64,960	63,990	56,752	45,711	33,149	36,347	31,072	25,332	20,326
Export	30,175	29,506	23,800	23,732	25,084	27,233	26,870	26,251	21,473	16,119	16,191	14,847	11,728	9,168
Import	49,961	44,239	42,030	41,065	38,498	37,727	37,121	30,501	24,238	17,029	20,156	16,225	13,604	11,158

Figure 1 Trade Value between Thailand and China

Source: Information and Communication Technology Center, Ministry of Commerce (2019)

In terms of export product structure, if grouping Agricultural products and Agro-industrial products together, there are nearly 25% or one-fourth of Thailand's product structure export to China. It has created economic value for the agricultural sector and farmers, which are the majority of the Thai population. Their increased income also helps to create value-added to the domestic demand chain and other manufacturing supply chains in the consumer and tourism sectors. Therefore, promoting exports of agricultural and processed agricultural products to China is important not only to the export sector, but also to the economic and social structure of Thailand.

In 2018, the main export product of Thailand which using ACFTA preferences was Mixtures of natural rubber latex with synthetic rubber latex (HS 400280), Durians (HS 081060), Manioc (HS 071410), p-Xylene (HS 290243), Polymers of ethylene (HS 390190), Manioc starch (HS 110814), Gearboxes and parts thereof (HS 870840), Guavas, mangoes, and mangosteens (HS 080450), Other aromatic hydrocarbon mixtures (HS 270750) and Polycarbonates (HS 390740), etc.

Benefit and Opportunities of Thai Agricultural Product in ACFTA

The scope of the agricultural products in this article covers both unprocessed and processed agricultural products. They correspond to code 01-24 (from live animals to prepared foodstuff), 40-46 (from rubber to wood), 50-53 (from silk to cotton), and 70 (pearls) in the HS system. The benefits of the ACFTA are analyzed by comparing the tariff rate of China for ASEAN members in 2018 with the MFN tariff rate of China for WTO members. Whereas, the opportunity is presented in terms of the utilization of the FTA arrangement by Thai exporters, the top 10 categories (by HS 2 digits) of agricultural products exported from Thailand to China, and an assessment of FTA impacts on major products in each category.

1. The Benefits of ACFTA for Thailand

There are 2,091 tariff lines at HS 8 digits level in the 36 categories of agricultural products (HS 2 digits) mentioned above in the Chinese tariff schedule. Under the ACFTA agreement, the zero percent tariff rate has been applied to 1,951 of those 2,091 tariff lines (93%) by 2018. In comparison, the average MFN rates in these categories for WTO members without FTA agreement with China still range from 4% to 30%, as presented in Table 1.

Table 1 Chinese Tariff Schedule for ACFTA members and MFN

HS	Description	Tariff Lines	0% Tariff by 2018	% of 0% Tariff	MFN Tariff	MFN Average
01	Live animals	70	70	100	0-10	5.71
02	Meat	79	79	100	10-25	18.38
03	Fish and crustaceans	257	257	100	2-17.5	10.47
04	Dairy produce; natural honey	39	39	100	0-25	14.59
05	Products of animal origin, nes	43	43	100	0-20	12.51
06	Live trees and other plants	31	31	100	0-23	8.65
07	Edible vegetables	122	122	100	0-13	10.90
08	Edible fruit and nuts	92	92	100	0-30	18.33
09	Coffee, tea, and spices	48	43	90	2-30	13.17
10	Cereals	36	21	58	0-65	28.47
11	Products of the milling	35	25	71	5-65	25.94
12	Oil seeds and oleaginous fruits	116	116	100	0-30	9.71
13	Lac, gums, resins	21	21	100	0-20	12.05
14	Vegetable plaiting materials	10	10	100	4-30	9.40
15	Animal or vegetable fats	96	85	89	8-30	13.01
16	Preparations of meat, of fish or of crustaceans, mollusks	61	61	100	5-23	10.64
17	Sugars and sugar confectionery	19	12	63	8-50	30.95
18	Cocoa and cocoa preparations	11	11	100	8-22	11.00
19	Preparations of cereals, flour, starch or milk	23	23	100	10-30	18.91
20	Preparations of vegetables, fruit, nuts	100	95	95	5-30	20.28
21	Miscellaneous edible preparations	23	22	96	3-35	21.35
22	Beverages, spirits and vinegar	27	27	100	0-65	21.59
23	Residues and waste from the food industries	30	30	100	2-15	5.35
24	Tobacco	12	4	33	10-57	29.42
40	Rubber and articles thereof	110	105	95	0-25	11.62
41	Raw hides and skins and leather	60	60	100	5-14	9.26
42	Articles of leather; articles of animal gut	26	26	100	8-20	15.27
43	Fur skins and artificial fur	20	20	100	10-23	17.60
44	Wood and articles of wood	176	116	66	0-20	3.73
45	Cork and articles of cork	8	8	100	0-10.5	5.11
46	Manufactures of straw, of esparto or of other plaiting materials	24	24	100	9-10	9.08
50	Silk	28	28	100	6-10	8.75
51	Wool, fine or coarse animal hair; horsehair yarn woven fabric	59	50	85	5-38	12.35

Table 1 Chinese Tariff Schedule for ACFTA members and MFN (Cont.)

HS	Description	Tariff Lines	0% Tariff by 2018	% of 0% Tariff	MFN Tariff	MFN Average
52	Cotton & fabrics	129	125	97	5-40	8.95
53	Other vegetable textile fibers; paper yarn and woven fabrics of paper yarn	43	43	100	3-12	7.30
71	Pearls	7	7	100	21	21.0
	Total	**2091**	**1951**	**93**		

Source: Department of Foreign Trade (2019)

As in the category of "Edible Fruits and Nuts" (HS 08), a Thai exporter can export all kinds of fruit (100% of the tariff lines) to China at a zero percent tariff rate. It gives Thai exporters with a competitive edge against exporters from other WTO member countries without FTA agreement with China, who would bear an average tariff rate of 18.33% (ranging from 0% to 30%).

In the case the tariff rate is higher than a zero percent, the rates for ACFTA is still lower than those of MFN for the same tariff line. In the example of "Cereals", the tariff rates for ACFTA ranges from 5% to 50% (out of quota), compared with 65% for MFN without FTA agreement with China (Table 2).

Table 2 Example of Cereals: ACFTA vs. MFN

HS	HS 8 Digits	Description	2018 Tariff (%)	MFN Tariff (%)
10 Cereals	10011100	Seed of durum wheat	5	65
	10011900	Durum wheat	5	65
	10019100	Wheat or marlin seed excl. durum wheat	5	65
	10019900	Other wheat or marlines	5	65
	10059000	Maize excl. Seed	50	65
	10061011	Long grain seed, in husk (paddy or rough)	50	65
	10061019	Other rice seed, in husk (paddy or rough)	5	65
	10061091	Long grain, in husk (paddy or rough)	50	65
	10061099	Other rice, in husk (paddy or rough)	5	65
	10062010	Husked (brown) long grain	50	65
	10062090	Other husked rice	5	65
	10063010	Semi-milled or wholly milled long grain	50	65
	10063090	Other semi-milled or wholly milled rice	5	65
	10064010	Broken long grain	5	65
	10064090	Other broken long grain	5	65

Source: Tariff Reduction Schedules: China, asean.org (2019)

2. The Opportunity of ACFTA for Thailand

Many Thai exporters took the opportunity offered by the ACFTA. The utilization of FTA arrangement may be measured by the proportion of exports with the "rule of origin" certificate, which is necessary for applying the FTA privilege. Thailand's FTA using is the highest proportion of ASEAN. In 2018, by using ACFTA preferences for export worth US$17.63 million, up 24.7%. Exercise ratio of 89% of the total export value, which increases by 14% from the previous year. (Table 3).

Table 3 Thailand's Utilization of ACFTA

Unit: billion US$

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Δ%
Total export of eligible product	11.5	11.1	14.0	15.6	15.3	14.4	15.1	18.6	19.9	6.8
Actual utilization	7.4	9.4	11.3	14.0	13.1	11.4	11.1	14.1	17.6	24.7
Ratio (%)	64	84	81	90	85	79	74	75	89	

Source: Department of Foreign Trade (2019)

In the categories of agricultural products, the opportunity of ACFTA is best utilized by Thai exporters in the cases of rubber, wood, fruit, vegetable, milling products, cereals, and fish & crustaceans, etc., as reflected by the value of export from Thailand to China (Table 4). Among these, the export products that are steadily increasing included Edible fruit & nuts (HS 08), Products of the milling industry; starches; inulin; wheat gluten (HS 11), fish and crustaceans, mollusks (HS 03).

Table 4 Top 10 Categories of Thai Agricultural Products Exported to China

Rank	HS	Short Description	Value in 2016 $1000	Value in 2017 $1000	Value in 2018 $1000	% of Thai Export to China	% of China's Import	% 0f Thai Export
		All products	23575031	29365124	29686491	100.00%	1.39%	11.89%
1	40	Rubber and articles thereof	3689780	5794902	4756055	16.02%	28.13%	30.70%
6	44	Wood and articles of wood	1355727	1651770	1349913	4.55%	5.42%	51.92%
9	08	Edible fruit & nuts	524737	659591	1007862	3.40%	11.61%	36.77%
11	07	Edible vegetables	1109139	1076666	903717	3.04%	44.35%	73.66%
12	11	Products of the milling industry; starches; inulin; wheat gluten	544718	543916	739482	2.49%	62.64%	47.11%
13	10	Cereals	475995	570733	548131	1.85%	9.46%	9.62%
15	03	Fish and crustaceans, mollusks	135079	160698	261174	0.88%	2.25%	13.33%
17	21	Miscellaneous edible preparations	184105	226191	228662	0.77%	7.03%	9.98%
23	17	Sugars & confectionery	154897	173716	147532	0.50%	10.37%	5.15%
26	23	Residues and waste food industries; prepared animal fodder	117526	82195	128834	0.43%	3.39%	7.12%

Source: WTO, trademap.org (2018)

The opportunity of ACFTA can also be assessed by examining the gap between the tariff rate of ACFTA with those of MFN for major products (HS 4 digits), which account for more than 50% of the product category (HS 2 digits). The mark of "S" is assigned to the products with "Significant" gap between the rate of ACFTA and the rate of MFN, the mark of "M" to indicate a "Medium Significant" gap, the mark of "N" to indicate "No Significant" gap (Table 5).

Table 5 The Impacts of ACFTA to Top 10 Thai Agricultural Products Exported to China

Rank	HS2	Short Description	Major Product HS4	Short Description	% Value 2018	ACFTA Tariff	MFN Tariff	Impacts^
1	40	Rubber and articles thereof	4002	Synthetic rubber	45	0	mostly 5.7	S
			4001	Natural rubber	41	*20	20	N
6	44	Wood and articles of wood	4407	Wood sawn	89	0	0	N
9	08	Edible fruit and nuts	0810	Durian etc.	57	0	30-14	S
11	07	Edible vegetables	0714	Cassava etc.	98	0	mostly 13-5	S
12	11	Products of the milling	1108	Starch	96	0	20-10	S
13	10	Cereals	1006	Rice	100	50-5	65	M
15	03	Fish and crustaceans	0306	Shrimp etc.	89	0	mostly 15-5	S
17	21	Miscellaneous edible preparations.	2106	Food preparations, n.e.s.	86	**0	mostly 20-10	S
23	17	Sugars and sugar confectionery	1701	Cane sugar	86	50	50	N
26	23	Residues and waste from the food industries	2301	Flours of fish	65	0	5-2	M
28	20	Preparations of vegetables, fruit, nuts	2208	Preparation fruits & nuts	55	***0	mostly 30-15	S
29	41	Raw hides and skins and leather.	4104	Hides and skins of bovine	53	0	8-5	S

Remarks: ^ S: Significant, M: Medium Significant, N: Not Significant
*0% for 40013000, **except 5% for coconut juice, ***except 5% for pineapple
Source: Compiled by researcher with data from WTO trademap.org; ACFTA Tariff Rates of China

For examples, the major products in the category of "Rubber and Articles" (HS 40), which ranked No. 1 in all export from Thailand to China, has two major products: "natural rubber" (HS 4001) and "synthetic rubber" (HS 4002), which account for 41% and 45% of the export value of this category (HS 40). The product "synthetic rubber" is assigned the sign of "S", indicating a significant impact of ACFTA because the zero percent tariff rate is significantly lower than the MFN rate of 7.5% in most cases.

The product "natural rubber", however, is assigned the sign of "N", indicating no significant impact of ACFTA because the 20% tariff rate in most cases is almost the same as the MFN rate.

The major products in the category of "Cereal" (HS 10), which ranked No. 13 in all export from Thailand to China, has only one major product: "rice" (HS 1006), which accounts for 100% of the export value of the category (HS 10). The product "rice" is assigned the sign of "M", indicating a medium impact of ACFTA, because the 5-50% tariff rate (out of quota rate) is lower than the MFN rate of 65%. Thai rice exporters, however, may enjoy a one percent tariff rate if they obtain the quota (5.32 million tons per year for a few countries in the world) from China.

Among the 39 major products (HS 4 digits) of all categories of agricultural products, 32 products are with significant impacts of the ACFTA, hence have high opportunities for Thai exporters in terms of the advantage of the low tariff. Two products, Cereals (HS 1006) and Residues of food Industries (HS 2301) received medium impacts. Meanwhile, five products received no significant impacts because both ACFTA Tariff and MFN Tariff was reduced to zero percent included Natural rubber (HS 4001); Wood sawn (HS 4407); Cane sugar (HS 1701); Cigarettes (HS 2402) and Agglomerated cork (HS 4504).

3. Another trade barrier for Thailand

Besides that, the tariff barrier still exists in some products mentioned above. There are still limitations or Non-Tariff Barriers (NTB) in the ACFTA, including quota and licenses, monopolistic measures for local products in China, and technical measures, which can be summarized as Table 6.

Table 6 NTB Existing under ACFTA

Category	NTB	Example of China
QUOTA & LICENSE	Import quota or tariff quota	Wheat, corn, rice, sugar, cotton, wool
	Import licenses	Pre-import licensing of Food
MONOPOLISTIC MEASURES	Channel for imports	Exporters and importers registration
	Compulsory national services	Role of COFCO
TECHNICAL MEASURES	Product characteristics requirements	CCC: China Compulsory Certificate
	Marking, Labelling & Packaging requirements	Pre-packaged food, GB7718-2011
	Testing, inspection and quarantine requirements	Sanitary & Phytosanitary Certification
	Special customs formalities	Customs clearance delays

Source: Author's Compilation

For example, quota restrictions in China for cereal products, such as wheat, allows import quotas of 9.63 million tons, which 90% are quota under Chinese enterprises. Corn has a quota of 7.20 million tons, which 60% are quota under Chinese enterprises. Long-grain rice has a quota of 2.66 million tons, which 50% is a quota under Chinese enterprises. Medium-short-grain rice provides import quota of 2.66 million tons, which 50% is a quota under Chinese enterprises.

Therefore, in the case of rice products, Thailand now still facing trade barriers in terms of tariff-rate quotas, which became a limitation for Thai rice export to China since it is restricted to importers with import quotas only. In addition, most of the quotas are under Chinese enterprises, resulting in the monopolization of import quotas and causing the small importer lacking opportunity or having to buy import quotas from the large Chinese enterprise, which raises the cost of exporting to China.

Currently, China has set quotas for agricultural and processed products (Table 7). Thai product export to China which are still affected by the import quotas such as cotton, rice, sugar, and wool.

Table 7 Quota Tariff of China 2019

Category	HS	Normal Tariff	MFN Tariff	Quota Tariff
Wheat	10011100	180	65	1
	10011900	180	65	1
	10019100	180	65	1
	10019900	180	65	1
	11010000	130	65	6
	11031100	130	65	9
	11032010	180	65	10
Corn	10051000	180	20	1
	10059000	180	65	1
	11022000	130	40	9
	11031300	130	65	9
	11042300	180	65	10
Cotton	52010000	125	40	1
	52030000	125	40	1
Rice	10061021	180	65	1
	10061081	180	65	1
	10061089	180	65	1
	10062020	180	65	1
	10062080	180	65	1
	10063020	180	65	1
	10063080	180	65	1
	10064020	180	10	1
	10064080	180	10	1
	11029021	130	40	9
	11029029	130	40	9
	11031931	70	10	9
	11031939	70	10	9
Chemical Fertilizer	31021000	150	50	4
	31052000	150	50	4
	31053000	150	50	4
Sugar	17011400	125	50	15
	17019100	125	50	15
	17019910	125	50	15
	17019920	125	50	15
	17019990	125	50	15
Wool*	51011100	50	38	1
	51011900	50	38	1
	51012100	50	38	1
	51012900	50	38	1
	51013000	50	38	1
	51031010	50	38	1
Wool Strip**	51051000	50	38	3
	51052100	50	38	3
	51052900	50	38	3

Remarks: *Quota tariff is 0% for Australia & New Zealand
**Quota tariff is 0% for New Zealand
Source: Customs Tariff Commission of State Council: Tariff Quota 2019

Furthermore, there are other FTA agreements between China and other countries (or regions). At the moment, China has 16 FTA agreements and seven special privilege agreements with LDC (Least Developed Countries) (Table 8). Thai exporters belong to No.2 ASEAN Region (AS) and may have the same tariff privilege as exporters from ASEAN countries under ACFTA. However, some Thai products may have tax privileges less than other LDC, which inevitably affects the advantage of Thai products in exporting such products to China.

Table 8 Chinese Arrangement of FTA (1-16) & Special Privilege for LDC (17-23)

No.	Code	Countries/Regions
1	AP	Bangladesh, India, Lao, South Korea, Sri Lanka
2	AS	ASEAN
3	SG	Singapore
4	PK	Pakistan
5	CL	Chile
6	NZ	New Zealand
7	PE	Peru
8	CR	Costa Rica
9	CH	Switzerland
10	IS	Iceland
11	KR	South Korea
12	AU	Australia
13	GE	Georgia
14	HK	Hong Kong
15	MO	Macao
16	TW	Taiwan
17	AP2	Bangladesh, Lao
18	LD	42 LDC: Ethiopia, etc.
19	LD1	41 LDC: Ethiopia, etc.
20	LD2	38 LDC: Ethiopia, etc.
21	KH	Cambodia
22	MM	Myanmar
23	LA	Lao

Source: Customs Tariff Commission of State Council: Tariff Schedule 2019

Conclusion

The impacts of ACFTA on Export of Thai Agricultural Products to China could be reflected by the utilization of ACFTA preferences for export and how many tariff reductions under ACFTA. Thailand's utilization of ACFTA is the highest proportion of ASEAN. In 2018, Thai exporter using ACFTA preferences for export worth US$17.63 million, up 24.7%. Exercise ratio of 89% of the total export value, which increases by 14%. from the previous year.

By examining both unprocessed and processed agricultural products, the Chinese tariff schedule under the ACFTA agreement, the zero percent tariff rate has already been applied in 1951 out of those 2091 tariff lines (93%) by 2018. In comparison, the average MFN rates in these categories for WTO members without FTA agreement with China still range from around 4% to 30%.

Among the 39 major products (HS 4 digits) of all categories of agricultural products, 32 products are with significant impacts of the ACFTA, hence have high opportunities for Thai exporters in terms of the advantage of the low tariff. Two products are with medium impacts, and five products are with no significant impacts.

However, the tariff barrier that still exists in some agricultural products. There are still limitations or Non-Tariff Barriers (NTB) in the ACFTA, including quota and licenses, monopolistic measures for local products in China, and technical measures. There is some Thai product export to China, which is still affected by import quotas such as cotton, rice, sugar, and wool.

Furthermore, China currently has 16 FTA agreements and seven special privileges agreements with LDC (Least Developed Countries). These might be the reason why some Thai products may have tax privileges less than other LDC, which inevitably affects the advantage of Thai products in exporting such products to China.

List of Abbreviations

ASEAN	Association of Southeast Asian Nations
ACFTA	ASEAN-China Free Trade Area
EHP	Early Harvest Programme
FTA	Free Trade Area
HS	Harmonized System Codes
LDC	Least Developed Countries
MFN	Most Favoured Nation
NTB	Non-Tariff Barriers
WTO	World Trade Organization

Reference

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The Effect of Marketing Mix Factors and Brand Image Toward Customer Satisfaction and Customer Loyalty of Liquefied Petroleum Gas for Household Use in Thailand

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Abstract

The purpose of this study is to examine the relationship between the marketing factors (Product, Price, Place, and Promotion), brand image and customer satisfaction towards customer loyalty on Liquefied Petroleum Gas (LPG) for household use in Thailand. The quantitative questionnaires were approached by using linear regression analysis to confirm the results. Survey data were collected from 400 customers who have experiences toward delivery and usage of LPG cooking container. The study results suggested that the product dimension of the marketing factors, brand image, and customer satisfaction had a positive influence on customer loyalty. The result of this study would enable businesses to identify marketing strategies in order to enhance customer satisfaction and loyalty in the LPG cooking gas industry in Thailand.

Keywords: Marketing Mix, Brand Image, Customer Satisfaction, Customer Loyalty, LPG Cooking Gas

Introduction

LPG, known as Liquefied Petroleum Gas, is a mixture of hydrocarbon gases. It produces during natural gas processing and oil refining. We cannot deny that LPG played a revolutionary role in changing the way domestic fuels such as firewood and charcoal are used for heating and cooking. The market of LPG has continuously been expanding. According to the ministry of energy Thailand, there are three main sources of supply of LPG in Thailand:

1. From an oil refinery
2. From Gas separation plants (GSP)
3. From the imported gas in the form of Propane gas and Butane gas

In 2014, LPG used in Thailand mainly was from GSP, 50 percent, follows by imported, 26 percent, and oil refinery, 24 percent. The LPG consumer record from Energy Policy and Planning Office (EPPO) indicated that the consumption of LPG and propane for cooking from 2005 to 2015 has been rising by 31 percent. Meanwhile, the consumption of LPG and propane for the industry in the same period has been rising by 29 percent. LPG has been proven to be cost-effective, convenient, and environmentally friendly.

In Thailand, there are four major LPG cooking gas suppliers which comprise of PTT PCL (held the largest market share of 48%), followed by WP Energy PCL (18.2%), Unique Gas and Petrochemical PCL (11.16%), and Siamgas and Petrochemical PCL (9.22%)

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(Bangkokbiznews, 2017). Also, the LPG in the cooking gas segment is under the government's price control, which led to slightly or indifference in LPG price among each supplier. Therefore, the suppliers need to develop marketing strategies to satisfy their consumers and uphold the brand image to gain customer satisfaction and customer loyalty in a competitive environment.

Research Objectives

This study investigates how the marketing mix (4Ps) and brand image influence customer loyalty on LPG cooking gas for household use in Bangkok, Thailand.

Literature Review

The marketing mix factors

The marketing mix factors (Kotler & Keller, 2016) consist of product, price, place, and promotion. The 4Ps of the marketing are briefly described as follows (Copley, 2004): Product dimension refers to the item or service being marketed, through its features, quality, benefits, functionality, after-sale services; Price dimension refers to the price of the item, discounts, payment methods; Place dimension refers to the location where the product or service is available to the customer, including distribution channels, logistics, order processing; Promotion dimension refers to advertising, direct marketing, public relation (PR), sales promotions. It is widely used by researchers to analyze the combination of tactics used by a business to achieve its objectives by marketing its products or services effectively to its target consumers (Chartered Institute of Marketing (CIM), 2004). Marketing mix also helps to define the marketing elements for successfully positioning market offer and helps to develop the satisfaction (Cengiz & Yayla, 2007; Shahhosseini & Ardahaey, 2011; Suprihanti, 2011).

Customer re-purchase behavior is estimated as a primary requisite for loyalty, followed by satisfaction (Punniyamoorthy & Raj, 2007; Chang & Tu, 2005). Pritchard, Havits & Howard (1999) claimed that understanding why customers become loyal is vital in business as it will become a development of a strategy for business providers to perform and deliver excellent services and products to the customers. Business providers, with a clear understanding of the marketing mix, can attract both potential and current customers to become loyal customers (Wahab et al., 2016).

Brand Image

Brand image is the perception of how a customer views the brand. Keller (1993) expressed that brand image is a sign that consists of all the information and expectation-related to product and service based on customer perception. The brand image is also defined as the ability of a potential customer to identify and remember a brand as a member of a specific product category (Aaker, 1997).

Porter & Clycomb (1997) stated that businesses could increase their competitive advantage with a positive brand image as well as encourage consumers to re-purchases and become loyal customers. Number of studies also indicated that brand image has a direct influence on customer satisfaction customer loyalty (Eakuru & Mat, 2008; Ogba & Tan, 2009; Tu et al., 2012).

Customer Satisfaction and Loyalty

Customer satisfaction is defined as a customer's feeling, such as enjoyment or disappointment that results from comparing a product's perceived performance to a particular expectation (Oliver, 1981; Brady & Robertson, 2001). Lee (2004) stated that customer satisfaction on a company's performance determines their retention. While customer loyalty is defined as "a feeling of attachment to or affection for a company's people, products, or services" (Jones & Sasser, 1995).

A satisfied customer is likely to be a loyal customer. Consequently, loyal customers are pleased to spend more with strong purchase intentions and hardly switching brands (Evanschitzky et al., 2012). Thus, businesses need to strengthen their relationship with the customers to sustain a competitive advantage in the competitive environment (Aksoy, 2013).

Previous researches and Findings

Vinayagamoorthy, Sankar & Sangeetha (2007) researched "Study on Service Quality Perception of Domestic LPG", stated that the service quality played an essential role in the competitive market. With well-established consumer service management, it is the key to succeeding in the competitive market. The study revealed that customers are not highly satisfied with the service provided by the Indane gas company. Therefore, the Indane gas company has to improve its service quality to stay competitive.

Vimal & Karthihaiselvi (2010) in their study, "Customers' opinion towards Indane gas dealers", found that customers are concerned about a delay in providing a cylinder. It is suggested that there should be one more dealer in Sivakasi to distribute the gas cylinder quickly. With the rising demand for the Indane gas because of convenience to use, cleanliness, cost, and time-saving, the dealer should provide better customer service to have repeated orders, increased sales, and eventually sustainable development.

Dhanabhakyam & Sumathi (2014) in their article entitled, "A Study on Customers Attitude and Satisfaction towards HP LPG in House Hold, Coimbatore", stated that the consumers have a positive attitude towards referring others to buy the HP LPG. However, the HP Gas Company is suggested to improve its service quality, such as the customer care area, proper communication while booking and delivery through short message service (SMS).

Research Framework

Figure 1 presents the conceptual framework for this study.

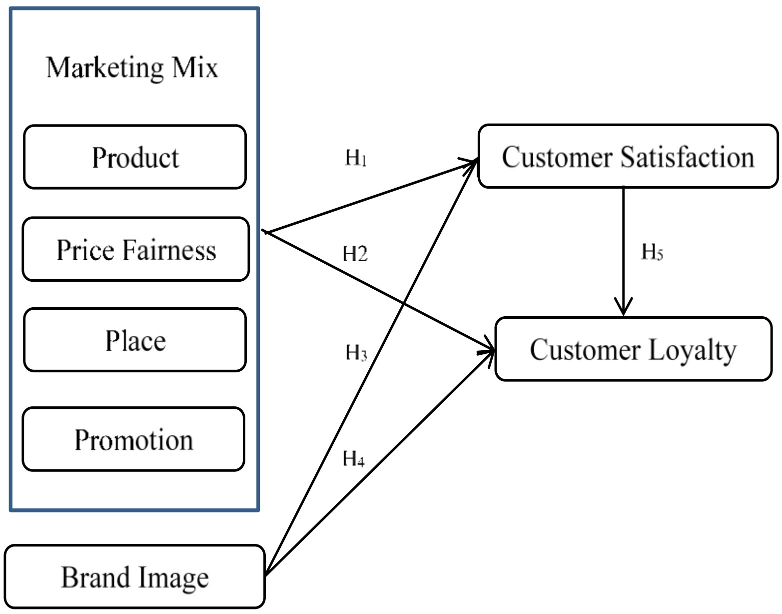

Figure 1 Research Framework

Hypotheses

Hypotheses are stated as follows:
H_1: The marketing mix 4P’s positively influences customer satisfaction.
H_2: The marketing mix 4P’s positively influences customer loyalty.
H_3: The brand image positively influences customer satisfaction.
H_4: The brand image positively influences customer loyalty.
H_5: Customer satisfaction positively influences customer loyalty.

Methodology

The quantitative approach was used in this research. The target population of this study was a household consumer in Bangkok who has experiences toward delivery and usage of LPG cooking container to a household in Sai Mia district. The Department of Provincial Administration reported that, in 2016, the Sai Mia district was the highest population in Bangkok; the total number of registered residents was around 200,000 people. Using Taro Yamane’s sample size calculation (Yamane, 1973) to determine the sample for this study, the calculated value was 400 respondents.

Elements in the questionnaire were derived from the available literature review. Necessary modifications were made to make it suitable for the Thailand context. Three items each for Marketing Mix factors were selected from previous marketing mix studies. Five items each for Brand Image, Customer Satisfaction, and Customer Loyalty were adapted from the available literature. Five-point Likert scales with the range of “strongly disagree” (1) and “strongly agree” (5) will be used to measure in this study based on the marketing mix, customer satisfaction, and loyalty. The survey was designed with screening questions about experiences toward delivery and usage of LPG cooking containers at the beginning of a survey to determine whether respondents are eligible to participate.

The reliability of questionnaires was tested by using the internal consistency method, which is known as Cronbach’s alpha. It was introduced by Kuder & Richardson (1937) for dichotomous data, then generalized by Cronbach (1951). In this study, Cronbach’s alpha was used to test internal consistency for all four Marketing Mix dimensions, Brand Image, Customer Satisfaction, and Customer Loyalty. Cronbach’s score range from 0 to 1, with values close to 1 indicating high consistency. George & Mallery (2003) provided the following rule of thumb: “≥ 0.9 – Excellent, ≥ 0.8 – Good, ≥ 0.7 - Acceptable, ≥ 0.6 – Questionable, ≥ 0.5 – Poor and ≤ 0.5 – Unacceptable”.

This study's questionnaires were accepted for internal consistency, as all the values were above 0.7 (Cronbach, 1951). Cronbach’s alpha value was from 0.871 to 0.947, as shown in Table 1.

Table 1 Mean, Standard Deviation, and Cronbach’s Alpha Scale Reliability

Variables	Mean	S.D.	α (n=400)
Product	3.66	0.875	0.871
- LPG cylinder is always in a condition	3.68	1.005	
- This supplier has various sizes of LPG cylinder	3.68	0.971	
- The certification of the Thai Industry Standard Institute is visible on the cylinder.	3.57	0.983	

Table 1 Mean, Standard Deviation, and Cronbach's Alpha Scale Reliability (Cont.)

Variables	Mean	S.D.	α (n=400)
Price	3.64	0.837	0.871
- The price offering by this supplier is reasonable.	3.56	0.899	
- The delivery fees are flexible and reasonable.	3.70	0.998	
- There is clear information for fees/charges.	3.70	0.953	
Place	3.65	0.901	0.892
- The location of the store is close to your home.	3.58	0.959	
- The supplier offers various channels to place an order.	3.67	0.990	
- The supplier offers a fast delivery service.	3.72	1.046	
Promotion	3.64	0.916	0.908
- The promotions are well informed.	3.63	0.970	
- The staffs have the knowledge to answer customer's quetions	3.67	1.003	
- The supplier offers various channels for making a payment i.e., cash, e-payment, credit card.	3.64	1.005	
Brand Image	3.50	0.896	0.917
- The design of this brand's ads is well done.	3.55	0.992	
- This brand always has what I'm looking for.	3.60	0.979	
- The store environment of this brand appeals to me.	3.31	1.075	
- This brand is responsible for me.	3.47	1.078	
- This brand is responsible for society.	3.60	1.043	
Customer satisfaction	3.63	0.809	0.866
- This supplier provided excellent quality of product and service.	3.61	0.859	
- I am happy about my decision to use LPG cooking gas from this supplier.	3.64	0.905	
- I am happy to recommend this supplier to others.	3.62	0.924	
- I believe I did the right thing when I use LPG cooking gas from this supplier.	3.61	0.922	
- Overall, I am satisfied with my decision to use LPG cooking gas from this supplier.	3.66	0.892	
Customer Loyalty	3.42	0.858	0.947
- I intend to continue using products and services from this supplier for a long time.	3.42	0.938	
- I am willing to say positive things about this supplier to other people.	3.34	0.957	
- I have bought from this supplier for several years because they offer satisfactory services.	3.33	0.967	
- To me, this supplier can provide the best service.	3.40	0.957	
- Overall, I will be a loyal customer.	3.59	0.937	

Source: Author's calculation

Results

Demographical profile of respondents

From the respondents' demographics were classified as gender, age, average monthly income level, number of family members, and occupation. Based on the results, the majority of the respondents were female, which consist of 56.50 % of the sample size. Respondents aged between 18-30 years old represented the largest age group, 38.50%, followed by aged between 31-40 years old, 26.50%. Besides that, 50% of respondents' average monthly income was between 15,001 Baht to 30,000 Baht, with the majority working for private organizations. Moreover, the majority of respondents had family members between 3 to 4 persons, 59%.

Relationship of relevant variables and research hypothesis

Table 2 Summary of Testing Hypothesis

No.	Hypothesis Path	β	t-value	p-value	Hypothesis Supported
H_{1a}	Product → Satisfaction	0.238**	5.203	0.000	Yes
H_{1b}	Price → Satisfaction	0.063	1.052	0.294	No
H_{1c}	Place → Satisfaction	0.159**	2.571	0.010	Yes
H_{1d}	Promotion → Satisfaction	0.198**	3.317	0.001	Yes
H_{2a}	Product → Loyalty	0.181**	3.574	0.000	Yes
H_{2b}	Price → Loyalty	0.078	1.170	0.243	No
H_{2c}	Place → Loyalty	0.127	1.856	0.064	No
H_{2d}	Promotion → Loyalty	0.110	1.654	0.099	No
H_3	Brand Image → Satisfaction	0.211**	3.317	0.001	Yes
H_4	Brand Image → Loyalty	0.290**	4.702	0.000	Yes
H_5	Satisfaction → Loyalty	0.789**	25.648	0.000	Yes

** significant at 0.01

Source: Author's calculation

Based on the finding of Table 2, the results showed that Product, Place, and Promotion dimensions had a positive impact on customer satisfaction of LPG for household use. Product dimension represented the most substantial influence on customer satisfaction (β = 0.238), followed by promotion (β = 0.198), and Place (β = 0.036), whereas Price Fairness dimension indicated positively affect but insignificant. Meanwhile, only the Product dimension (β = 0.181) had a positive influence on customer loyalty. The Brand image also showed a positive impact on customer satisfaction and loyalty.

Discussion and Conclusion

The main objective of the study was to investigate the marketing mix (4Ps), brand image, and customer satisfaction toward customer loyalty in the LPG cooking gas in Bangkok. It is undeniable that customer satisfaction plays an essential role in determining the success of the business. By assessing the marketing mix dimensions and brand image, the LPG cooking gas supplier can design effective marketing strategies to meet consumer voices and enhance their loyalty.

The findings indicate that the product dimension had the most substantial impact on customer satisfaction and loyalty. Customers are looking for different sizes of the cylinder that fit their lifestyle. By offering the product that fits customer need, it will encourage them to be a loyal customer. Additionally, management should focus on providing good quality LPG cylinder condition and conform to safety standard for household use. LPG cylinder without rusts, dents, or loose paint can enhance consumer's confidence in buying LPG cooking gas. The positive impact is not only on gaining consumer's confidence in buying but also on brand image. Chang & Tu (2005) identified that customer satisfaction directly impacted by brand image. Chitty, Ward & Chua (2007) concluded that the band image played a dominant role in predicting customer satisfaction. A good brand image can enhance customer experience and satisfaction, which led to customer royalty and commitment (Ike-Elechi & Zhenzhen, 2009).

The location also has an impact on customer satisfaction, which aligned with Marinez-Ruiz, Jiménez-Zarco & Yusta, 2010. The store should be located not too far from populated residential areas and conform to safety regulations. It also should be visible and easily accessible. Besides, all associated costs (transport costs and time spent on the road) with purchases will be reduced as well, which leads to increased customer satisfaction. Fox, Postrel & McLaughlin (2007) indicated that consumers who lived closer to a store spend more, vice versa. Also, by offering various channels to place an order and guarantee delivery within 30 minutes, these would be a plus to gain customer satisfaction.

Additionally, the communication between businesses and their customers indicates had a positive impact on customer satisfaction, which similar to the finding of Charles, Tino & Bill (2005) and Yue (2013). With the variety of communication channels both offline and online, customers can access to product safety information, short video clips on "how-to" instruction, make a payment through various methods, tracking the delivery, as well as leave feedback about service or product.

Hence, it is essential to pay attention to customer satisfaction so the business can be sustained in the competitive market. It is crucial for active businesses in expanding new customers and to maintain their loyalty.

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INSTRUCTIONS FOR MANUSCRIPT PREPARATION

The submitted manuscript must have the following specifications:

- It must be of 10-15 pages in length, printed on one side of A4 paper, with the margins (top, bottom, left, and right) of 1 inch (2.54 cm.). Set to single columns.
- Manuscript should be as concise and precise as possible.
- Abstract (left and right) of 1.5 inch (3.8 cm)
- All content must be printed in single columns with first line indent of 1 cm. (0.39 inch)
- Line spacing 1.5
- The simplified font is Times New Roman, with details as specified below:

Format requirements for each component of the manuscript	Font Size	Labeling
Title	18 (CT)	bold
Author's Name (Name/Surname)	12 (CT)	bold
Author's Affiliation / E-mail	10 (RJ)	First page footer
Abstract Title	14 (LJ)	bold
Abstract Content (Single column)	12 (LRJ)	regular
Keywords Title	14 (LJ)	bold
Keywords	12 (LRJ)	regular
Topics	14 (LJ)	bold
Contents	12 (LRJ)	regular
References Head	14 (LJ)	bold
References (Alphabetically (A – Z))	12 (LRJ)	regular

Format requirements for each component of the manuscript	Font Size	Labeling
Table Title (On top of the table)	12 (LJ)	bold
Table Content (On top of the table)	12 (LJ)	regular
Figure Title; Chart Title (Under the figure or chart)	12 (CT)	bold
Figure Content; Chart Content (Under the figure or chart,)	12 (CT)	regular
Source Head (Under the table)	10 (LJ)	bold
Source Content (Under the table)	10 (LRJ)	regular

CT = Centre Text , LJ = Left Justified, RJ = Right Justified, LRJ = Left & Right Justified

Composition of the Manuscript

1) Manuscript title (in both Chinese and English)

2) Names of all authors, with identification of affiliation and country

3) Abstract), abstracts of about 300 words should contain the purpose, method, results (main data) and conclusions of the article. The English abstract should be consistent with the Chinese abstract.

4) Keywords about 3-5 words

5) Contents of academic manuscript comprise the introduction, text or content, and conclusions.

6) Contents of research manuscript comprise the introduction, objectives, literature review, research methods, research results, discussion, and conclusions.

7) The graphics and charts used in the text shall be numbered and indicated the source, and shall not infringe the copyrights of others. The original image files and data analysis referred to in the text may be provided separately as attachments (to help the peers to understand the paper better, but they will not be part of publication).

References Format Requirement

1) For in-text citation (APA style) uses the author's last name and the year of publication, for example: (Field, 2005). For direct quotations, include the page number as well, for example: (Field, 2005, p. 14).

2) For referencing include more information such as the name of the author(s), the year the source was published, the full title of the source, and the URL or page range. At the end of the article, details of all referenced documents must be specified in the list of "References" at the end of the article and ordered according to the author's name.

APA Format Description

Book

Format: Author. (Year of publication). *Book Title*. Edition (if any). Place of publication: Publisher.

Example:

Ritcharoon, P. (2016). *Principles* of *measurement and evaluation*. Bangkok: House of Kermyst. [in Thai]

Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). New York: Harper and Row.

Journal or Magazine

Format: Author. (Year of publication). Title of Article. *Journal Title*, *Volume* (Issue), Page numbers.

Example:

Wattanakamolkul, P. (2018). Discussion on the Situation and Reflection of Chinese Vocabulary Teaching In Thai Universities. *Chinese Journal of Social Science and Management, 2*(2), 80-91. [in Chinese]

Rabbani, M., Aghabegloo, M. & Farrokhi-Asl, H. (2016). Solving a bi-objective mathematical programming model for bloodmobiles location routing problem. *International Journal of Industrial Engineering Computations, 8*(1), 19-32.

Dissertation or Thesis

Format: Author. (Year of publication). *Title of dissertation or thesis*. Doctoral dissertation or Master's thesis, University.

Example:

Darling, C. W. (1976). *Giver of Due Regard: The Poetry of Richard Wilbur*. Ph.D. Thesis, University of Connecticut.

Koufteros, X. A. (1995). *Time-Based Manufacturing: Developing a Nomological Network of Constructs and Instrument Development*. Doctoral Dissertation, University of Toledo.

Website/Electronic Documents

Format: Author. (Year of publication). *Title*. Retrieved Month Date, Year, from URL Address

Example:

Department of Land Transport. (2013). *Transport statistics report in 2013*. Retrieved May 20, 2015, from http://apps.dlt.go.th/statistics_web/brochure/statreport113.pdf

Shannon, C. E. & Weaver, W. (2010). *Communication Theory: Model of Communication*. Retrieved December 2, 2016, from http://communicationtheory.org/shannon-and-weaver-model-of-communication/

Conference Proceeding Article/Documents

Format: Author. (Year of publication). Title of Article. In Title of Editorial (Editorial). *Title of conference and seminar proceedings* (Pages.). Place of publication: Publisher.

Example:

Stiakakis, E., Kariotellis, P. & Vlachopoulou, M. (2009). From the digital divide to digital inequality: A secondary research in the European Union. In Sideridis, A. B. & Patrikakis, C. Z. (Eds.), *Third International Conference, e-Democracy 2009* (pp. 43-55). 23-25 September 2009. Athens, Greece: Springer Nature.

Nasution, H. N. & Mavondo, F. T. (2005). The impact of service quality on customer value in the hotel industry. *ANZMAC Conference 2005*, 5-7 December 2005. Fremantle, Western Australia: ANZMAC.

Newspaper Article

Format: Author. (Year, Month Date). Title of Article. *Title of Newspaper*, Pages.

Example:

Di Rado, A. (1995, March 15). Trekking through college: Classes explore modern society using the world of Star Trek. *Los Angeles Time*, p. A3.

Sriwattanachai, R. (2014, October 24). The Prefabricated Generation of Seasoning Sauce Market. *Post Today Newspaper*, p. 3-4. [in Thai]

Interview

Format: Author. (Year, Month Date). *Interview*. Position. Dept.

Example:

Chueathai, P. (2017, January 30). *Interview*. Vice President. Rajamangala University of Technology Lanna.

Saiwanich, S. (2017, January 31). *Interview*. Vice Governor. Tak province. [in Thai]

Submission of Manuscript

Authors can submit manuscript via the website https://so06.tci-thaijo.org/index.php/aseanplus

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