SMEs' Obstacles in Thailand: The analysis of the association between the Difference in Size, Sector, Region and the problems that occur in business operations

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อุปสรรคของ SMEs ในประเทศไทย: การวิเคราะห์ความสัมพันธ์ระหว่างความแตกต่างของขนาด ภาค ภูมิภาค กับปัญหาที่เกิดขึ้นในการดำเนินธุรกิจ

นายภูมิ ไตรไทยธีระ

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การวิจัยนี้มีวัตถุประสงค์เพื่อระบุอุปสรรคในการดำเนินธุรกิจ และพัฒนาแนวทางในการส่งเสริมและสนับสนุน SMEs ในประเทศไทย การเก็บข้อมูลจากแบบสอบถามมีกลุ่มตัวอย่างคือผู้ประกอบการที่เข้ารับบริการจากกรมส่งเสริมอุตสาหกรรมระหว่างปี 2559-2561 จำนวน 1,297 ราย การวิจัยนี้ใช้การทดสอบไคสแควร์ทดสอบความเป็นอิสระเพื่อหาความสัมพันธ์ที่สำคัญระหว่างสองตัวแปร ผลการวิจัยพบว่าอุตสาหกรรมการผลิตเครื่องดื่มขนาดเล็ก (C11) ต้องการการสนับสนุนด้านโลจิสติกส์และการจัดการองค์กรมากกว่าอุตสาหกรรมอื่น ๆ ในภาคการผลิตขนาดเล็กด้วยกัน อุตสาหกรรมการผลิตสิ่งทอขนาดกลาง (C13) ต้องการการสนับสนุนความรู้ด้านเทคโนโลยีและจำเป็นต้องเน้นพัฒนาในส่วนภูมิภาคด้านปัญหาการตลาดในองค์กรขนาดกลางให้มากขึ้น อุตสาหกรรมการพิมพ์และการผลิตซ้ำสื่อบันทึก (C18) ต้องการการสนับสนุนด้านเทคโนโลยีสารสนเทศและความรู้ด้านการตลาดโดยเฉพาะกับองค์กรขนาดกลาง อุตสาหกรรมการผลิตผลิตภัณฑ์ยางและพลาสติก (C22) ต้องการการสนับสนุนความรู้ด้านทรัพยากรมนุษย์และช่องทางในการเข้าถึงบริการของภาครัฐโดยเฉพาะกับองค์กรขนาดเล็ก อุตสาหกรรมการผลิตอุปกรณ์ไฟฟ้าขนาดกลาง (C27) ต้องการการสนับสนุนด้านเทคโนโลยีและความรู้ด้านการตลาดและจำเป็นต้องเน้นพัฒนาในส่วนภูมิภาคด้านปัญหาการตลาดในองค์กรขนาดกลางให้มากขึ้น อุตสาหกรรมการค้าส่ง (G46) ต้องการการสนับสนุนความรู้ด้านทรัพยากรมนุษย์ เครือข่ายธุรกิจโดยเฉพาะในองค์กรขนาดเล็ก และจำเป็นต้องเน้นพัฒนาในส่วนภูมิภาคด้านปัญหาการผลิตในองค์กรขนาดเล็กให้มากขึ้น อุตสาหกรรมการค้าปลีก (G47) ต้องการการสนับสนุนความรู้ด้านเทคโนโลยีและจำเป็นต้องเน้นพัฒนาในพื้นที่กรุงเทพฯ ด้านปัญหาการผลิตในองค์กรขนาดกลางให้มากขึ้น อุตสาหกรรมการค้าส่ง การค้าปลีก การซ่อมยานยนต์และจักรยานยนต์ (G45) และอุตสาหกรรมการค้าส่ง (G46) ต้องการการสนับสนุนด้านทรัพยากรมนุษย์ในองค์กรขนาดเล็กมากกว่าอุตสาหกรรมการค้าปลีก (G47) อุตสาหกรรมบริการด้านอาหารและเครื่องดื่มขนาดเล็ก (I56) ต้องการการสนับสนุนด้านความรู้เทคโนโลยีและเข้าถึงแหล่งเงินทุนของรัฐบาล และอุตสาหกรรมอสังหาริมทรัพย์ขนาดเล็ก (L68) ต้องการการสนับสนุนในความรู้ด้านการตลาด นอกจากนี้วิธีการวิเคราะห์ลำดับชั้น (AHP) แสดงกระบวนการที่เหมาะสมที่สุดที่ใช้ในการส่งเสริมและพัฒนาผู้ประกอบการคือการให้คำปรึกษาแนะนำเชิงลึก ผลการศึกษาคาดว่าจะถูกใช้เป็นแนวทางและข้อเสนอแนะในการส่งเสริมและพัฒนา SMEs ในประเทศไทย

สาขาวิชา วิศวกรรมอุตสาหการ ลายมือชื่อนิสิต .....

ปีการศึกษา 2562 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

6070955521 : MAJOR INDUSTRIAL ENGINEERING
KEYWORD: Association analysis, Entrepreneur, SMEs, Thailand

Phoom Traithaiteera : SMEs' Obstacles in Thailand: The analysis of the association between the Difference in Size, Sector, Region and the problems that occur in business operations. Advisor: Natt Leelawat, D.Eng.

The number of small and medium enterprises (SMEs) in Thailand has increased these years. The objectives of this research were to identify obstacles in business operations and develop a guideline to promote and support SMEs in Thailand. The data was collected in the questionnaire; the respondents of this research are entrepreneurs entering the government services by the Department of Industrial Promotion between the years 2016 - 2018 with a total of 1,297 enterprises. This research used a chi-square test for independence to determine whether there is a significant association between the two variables. The results showed that the small sized beverage production enterprises (C11) need support in logistics and organization management knowledge more than other industries in the small sized production sector; the medium sized textile production industry (C13) need support in technology knowledge and need to develop more in the area of marketing problems on medium sized enterprises in the region; the printing and reproduction of media industry (C18) need support in information technology and marketing knowledge that should focus on medium sized enterprises; the production of rubber and plastic products industry (C22) need support in human resources knowledge and channels to access the government services that should focus on small sized enterprises; the medium sized electrical equipment production industry (C27) need support in technology and marketing knowledge and need to develop more in the area of marketing problems on medium sized enterprises in the region; the wholesale trade industry (G46) need support in human resources knowledge, business networking that should focus on small sized enterprises and need to develop more in the area of production problems on small sized enterprises in the region; the retail trade industry (G47) need support in technology knowledge and need to develop more in Bangkok in the area of production problems on medium sized enterprises; the wholesale, retail, repair of motor vehicles and motorcycles (G45) and the wholesale trade (G46) need support in human resource on small sized enterprises more than the retail trade industry (G47); the small sized food and beverage service industry (I56) need support in technology knowledge and access government funding sources; and the small sized real estate industry (L68) need support in marketing knowledge. Also, the Analytic Hierarchy Approach (AHP) showed the most suitable process used in promotion and develop entrepreneurs is consulting. The research results are expected to provide a guideline and suggestion to promote and develop SMEs in Thailand.

Field of Study:	Industrial Engineering	Student's Signature .....
Academic Year:	2019	Advisor's Signature .....

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Chapter 1
Introduction

Small and medium enterprises are important to the overall economy and plays an important role in the foundation of sustainable development. It is also a major mechanism for recovery and strengthens economic progress as well as a mechanism for solving poverty problems. Small and medium enterprises plays an important role in the Thai economy in many ways, such as causing employment, increase the prices of raw materials in the country (because it is the industry that mainly uses resources in the country), causing a connection with large businesses or other related businesses, generate income for the country especially from the manufacturing sector and tourism sector, and also preventing monopolies in the economy because small and medium enterprises help to do to create competition in the business and fair competition will bring efficiency to the overall economy (The Office of SMEs Promotion, 2017a).

1.1 Definition and criteria for small and medium enterprises

Definition of small and medium enterprises "Small and Medium Enterprises" as shown in “Small and Medium Enterprises Promotion Act, B.E. 2543 (2000)” means product manufacturing business, service rendering business, wholesale trade, retail trade or any other businesses prescribed by the Minister.

The production sector means Production that is characteristic of the operation, all types of industries. The meaning of production is to transform the object into a new product with mechanical or chemicals witch regardless of whether the work is done by machine or by hand. The production sector also including the production of simple agricultural, Industrial production, the production that is a community enterprise and the household industry.

The service sector means education, health, entertainment, transportation, construction and real estate, hotel, dormitory, restaurant, food sales, beverage sales, restaurants, providing rental services for entertainment, personal services, household services, services for business, all types of repairs, tourism and business at related to tourism.

The trading sector means trade-related services which separated to

a. Wholesale trade means selling new and used products to retailers, industrial users, commercial work, institutional users, professional users, and including selling to other wholesalers (The Office of SMEs Promotion, 2017a).

b. Retail trade means selling without changing the product in both new products and consumer products or personal use in the household. This also means including being a broker or trading agent for gas stations and consumer cooperatives (The Office of SMEs Promotion, 2017a).

Criteria for small and medium enterprises

The Ministry of Industry defines SME as below by Ministerial regulation issued in 2002.

Table 1.1
Criteria for small and medium enterprises

Sector	Small Enterprise	Medium Enterprise
Production	Enterprise which corresponds to any of the following: with employees of up to 50 or with assets of up to 50 million Baht.	Enterprise which corresponds to any of the following: with 51-200 employees or with assets of no less than 50 million Baht and up to 200 million Baht.
Wholesale	Enterprise which corresponds to any of the following: with employees of up to 25or with assets of up to 50 million Baht.	Enterprise which corresponds to any of the following: with 26-200 employees or with assets of no less than 50 million Baht and up to 100 million Baht.
Retail	Enterprise which corresponds to any of the following: with employees of up to 15 or with assets of up to 30 million Baht.	Enterprise which corresponds to any of the following: with 16-150 employees or with assets of no less than 30 million Baht and up to 60 million Baht.
Service	Enterprise which corresponds to any of the following: with employees of up to 50 or with assets of up to 50 million Baht.	Enterprise which corresponds to any of the following: with 51 - 200 employees or with assets of no less than 50 million Baht and up to 200 million Baht.

Notes. Land cost is not included in assets; Source: (Office of the Council of State, 2002).

1.2 General information of SMEs in Thailand

In the year 2017, it was found that the small and medium enterprises (SME) totaled 3,046,793 enterprises. Considering the amount of SME registration in 2017 can be classified into 3 types are as follows, 1. The personal registration has the most amount with a total of 2,285,731 enterprises Representing 75.02 percent of the entire SMEs in the country. 2. The legal entity registration has the 2nd amount with a total of 675,633 enterprises Representing 22.18 percent of the entire SMEs in the country 3. The community enterprise registration has the least amount with a total of 85,429 enterprises Representing 2.80 percent of the entire SMEs in the country, which shown in Figure 1.1 (The Office of SMEs Promotion, 2018b).

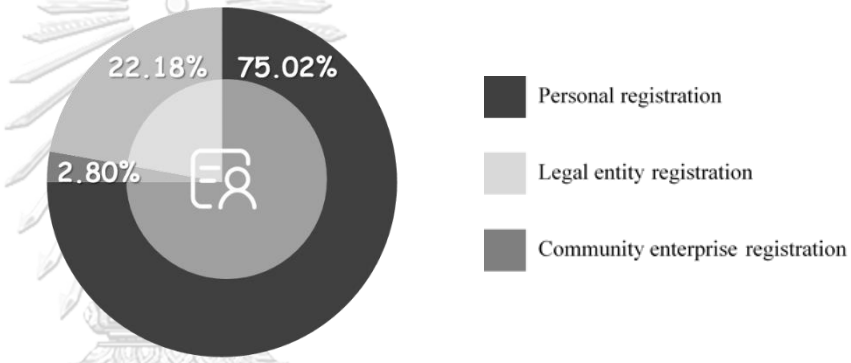


Figure 1.1 Type of Registration of SMEs
Note. Source: (The Office of SMEs Promotion, 2018b).

Considering the proportion of small and medium enterprises classified by sector, which is found that the trading sector has the most amount with a total of 1,268,202 enterprises representing 41.62 percent of the entire SMEs in the country. Following by the service sector with a total of 1,206,763 enterprises representing 39.61 percent of the entire SMEs in the country and the production sector with a total of 525,975 enterprises representing 17.26 percent of the entire SMEs in the country. And the least amount is the agricultural sector with a total of 45,853 enterprises Representing 1.50 percent of the entire SMEs in the country, which shown in Table 1.2 and Figure 1.2 (The Office of SMEs Promotion, 2018b).

Table 1.2
Number of all SMEs in Thailand (2017)

Sector	Small enterprises	Medium enterprises	Total
Production	520,177	5,798	525,975
Trading	1,263,567	4,635	1,268,202
Service	1,199,171	7,592	1,206,763
Agricultural	45,580	273	45,853
Total	3,028,495	18,298	3,046,793

Notes. Source: The Office of SMEs Promotion (2018b)

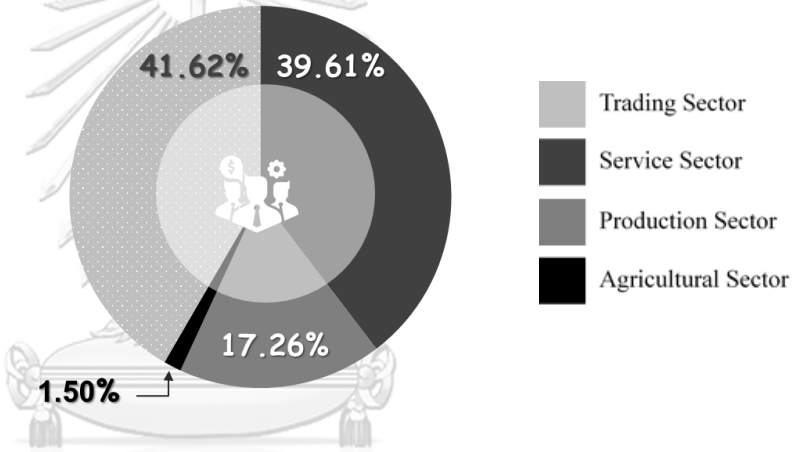


Figure 1.2 Sectors of SMEs in Thailand
Note. Source: (The Office of SMEs Promotion, 2018b).

Considering the overall number of SME by the region in 2017, it was found that there is the most amount SMEs in Bangkok with 552,606 enterprises (18.14 percent). Following by the northeast region 764,094 enterprises (25.08 percent), the central region 546,461 enterprises (17.94 percent), the northern region 520,821 enterprises (17.09 percent). the southern region 370,171 enterprises (12.15 percent) and the last is the East 292,636 enterprises (9.60 percent), which shown in Figure 1.3 (The Office of SMEs Promotion, 2018b).

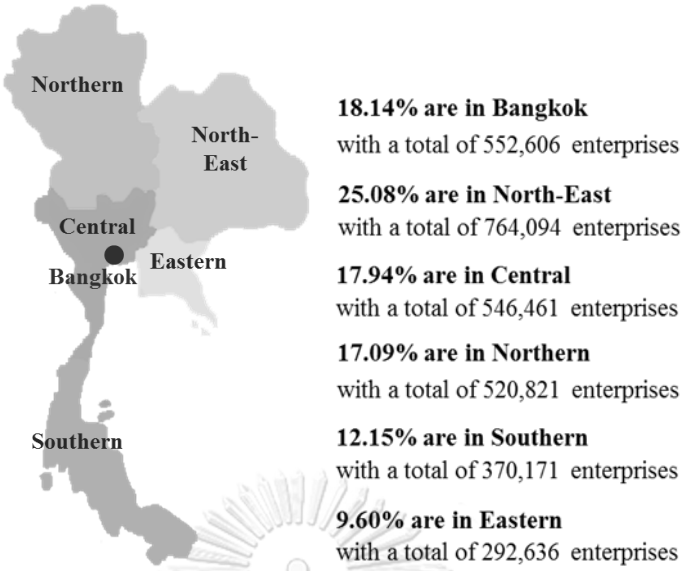


Figure 1.3 Distribution of SMEs by Region in Thailand in 2017
Note. Source: (The Office of SMEs Promotion, 2018b).

Small enterprises (SE) have the largest number in the trading sector, with the number as high as of 1,263,567 enterprises. The province with the largest number in this sector except for Bangkok are Nakhon Ratchasima, Chonburi, and Chiang Mai, respectively. Followed by the production sector with the number of 507,343 enterprises. The province with the largest number in this sector except for Bangkok are Surin, Phrae, and Si Sa Ket, respectively (The Office of SMEs Promotion, 2018b).

Medium enterprises (ME) have the largest number in the production sector, with the number as high as of 5,197 enterprises. The province with the largest number in this sector except for Bangkok are Samut Prakan, Chonburi and Samut Sakhon, respectively. Followed by the trading sector with the number of 4,635 enterprises. The province with the largest number in this sector except for Bangkok are Chonburi, Samut Prakan and Pathum Thani, respectively (The Office of SMEs Promotion, 2018b).

Promoting and developing small and medium enterprises is very essential because SMEs are an important part of national development as mentioned above. In the past, the government's SMEs promotion still failed to achieve the goal of the SME

promotion plan, due to various factors such as limitations on enterprises information and focus on promotion only in the production sector (The Office of SMEs Promotion, 2017b). Therefore, in order to enhance the capability of SME to have higher competitiveness, we need to know more about the enterprises' information and obstacles that the enterprises face in order to be able to solve the problems correctly. Thus, that is the origin of this study to identify the problems and analyze the association between the difference in size, sector, region and the problems that occur in business operations. The expected results of this study will be used as a guideline to promote and support SMEs in Thailand. In the case of the differences are associated with the problems that occur in business operations, the government needs to promote and support in different ways that suit each case, which can be used to solve problems correctly and used as a guide for policy determination to promote SMEs in the future.

1.3 Objectives

1. To identify obstacles in the business operations of SMEs in Thailand
2. To develop guideline to promote and support SMEs in Thailand

1.4 Scope

This study will find the association between the differences in size, sector, region of SMEs and the problems that occur in business operation by using a chi-square test for independence. The respondents of this study are entrepreneurs who entered the government services by the Department of Industrial Promotion between the years 2016 - 2018 (3 year). This study will use the sample size of 1,297 enterprises, which is more than minimum sample size of 400 enterprises (Yamane, 1967). Moreover, the sub-sector from Thailand Standard Industrial Classification : TSIC 2009 will be used to find the association between the differences and the problems, in order to get clearer information about SMEs in Thailand and deeper study than previous studies (Department of Business Development, 2009). This study focuses on the important industry of production sector according to National Industrial Development Master Plan (Year 2012-2031) in Sectoral industrial development plan had set a “Pilot Industry Strategy” to be an example of ways to develop in potential fields and in order to able to be further extended to other industrial development directions that is important for

Thailand, which consisting of industry of Food and beverage, Textile, Printing, Rubber, Gemstones, Electronic products and automotive parts (sub-sector: C10, C11, C13, C18, C22, C23, C26, C27 and C29) (Ministry of Industry, 2011).

After getting the Chi-Square test results, the empirical part of this study also utilizes 2 industry experts (Government officer, senior professional level or more) opinions in order to provide more advice about problems and development of entrepreneurs, and 20 successful enterprises, in order to gather and identify the factors that made enterprises successful and the policies that enterprises need by the interviews. Moreover, the Analytic Hierarchy Approach (AHP) will be used to select the most suitable process for promotion and develop entrepreneurs. After that, 1 industry expert (Government officer, senior professional level or more) will be interviewed for agreeing or disagreeing with the guideline.

Lastly, the expected results of this study will be used as a guideline to promote and support SMEs in Thailand. Furthermore, for further data collection and analysis that more comprehensive, various factors from this research will be gathered and use them as a suggestion for the development of the new questionnaire.

1.5 Research Schedule

8 steps of the research schedule are as follows:

1. Theories and related literature review
2. Factors exploration
3. Data collection
4. Data analysis and data interpretation
5. Expert interviews
6. Focus group interviews
7. Data summary
8. Reporting the findings

Table 1.3
Gantt chart of research schedule

Step / months	Nov-61	Dec-61	Jan-62	Feb-62	Mar-62	Apr-62	May-62	Jun-62	Jul-62	Aug-62	Sep-62	Oct-62	Nov-62	Dec-62
1. Theories and related literature review														
2. Factors exploration														
3. Data collection														
4. Data analysis and data interpretation														
5. Expert interviews														
6. Focus group interviews														
7. Data summary														
8. Reporting the findings														

Chapter 2
Literature Review

This literature review aims to cover previous research on small and medium enterprises while also outlining the theories on the obstacles of small and medium enterprises. So, the aim of the literature review is to provide an overview into the previous academic research conducted on the area of this study, and mainly uses the information as a reference in the empirical part of this research.

Moreover, as the main content of this study is to find the association between the differences in size, sector, region of SMEs and the problems that occur in business operation. This literature review are divided into four main themes. First, reviews on the characteristics of SMEs in Thailand. Second, this literature review will be described on the contribution of SMEs to economic development and growth. Third, reviewing about government support. Fourth, outlining the theories about the problems that are obstacles to the small and medium enterprises. And lastly, describing the reasons for this study and what will be able to be linked to the work in the future.

2.1 Characteristics of SMEs in Thailand

Osathanunkul (2010) concluded the characteristics of SMEs that the SMEs have unique characteristics, which differentiate them from large enterprises. The characteristics of SMEs in Thailand can be described such as SMEs can adapt themselves to meet the customers' requirements that are caused by the flexible in the production processes. In addition, SMEs can start a business with a lower investment than the large enterprises. Furthermore, SMEs also contribute to the development of the community by using the local resources and employment that will create knowledge for the community as well.

2.2 SMEs Contribution to Economic Development and Growth

The GDP of small and medium enterprises (SMEs) in 2017 is worth 6,551,718 million Baht, which is 42.4 percent of the whole GDP in the country. When considering the GDP according to the enterprise size, it was found that small-sized

enterprises (SE) had a GDP of 4,637,330 million Baht or 30 percent and medium-sized enterprises (ME) had a GDP of 1,914,388 million baht or 12.4 percent that has more growth rate from the previous year. The important factors that make SMEs GDP continue to grow come from the expansion of the trading sector and the service sector primarily (The Office of SMEs Promotion, 2018a).

Furthermore, from the previous study of Osathanunkul (2010) and The Office of SMEs Promotion (2018b) found that The contributions of SMEs in the Thai economy is indicated by the enormous share of SMEs in terms of causing employment, the value added in various sectors especially from the manufacturing sector for export and tourism sector. As a result, SMEs are very important to the Thai economy.

2.3 Government Support

Since the date of "The Small and Medium Enterprises Promotion Act, B.E. 2543 (2000)" was published in the Government Gazette, many government departments has continuously promote and development SMEs in Thailand until now. As of now, the promotion of SMEs will emphasize on the importance of upgrading competitiveness and be able to compete internationally through the concept of creating value added for products and services coupled with the potential building of entrepreneurs in various important areas such as technology and innovation, creativity, accessibility to capital sources. As a result that SMEs can step up to be the country's major economic driving force, which corresponds to National development plans and strategies such as The Twelfth National Economic and Social Development Plan (2017-2021), the government policies that made SMEs be a national agenda, and the strategies of relevant ministries (The Office of SMEs Promotion, 2017b).

Although the Thai economy has developed and continued to grow over the past several decades, still not enough to pull Thailand out of "Middle Income Trap". As a result of dependence on large businesses, foreign investment, and exports.

However, based on the advantage of Natural resources and the labor-capital that is capable and price is seen by the fact that Thailand is classified as a country that as Efficiency-Driven Economy. Consequently, the government must take advantage of what is available and accelerate the upgrading of capabilities for SMEs in various

fields, basic knowledge in doing business, the use of information technology, Strengthening international trade capabilities in which every sized and sector of SMEs (The Office of SMEs Promotion, 2018a).

Additionally, there are many previous research studies, which found that the government should support and develop for SMEs, including the study of Onukwuli, Akam, and Onwuka (2014) that examine the challenges of small scale industries in sustainable development and employment generation. The study calls for the financial regulatory system and government intervention and stimulus packages to small scale industries coupled improvement in infrastructure base. Tambunan (2008) concluded that SMEs are of overwhelming importance in ASEAN countries, especially for employment or income generation. However, they lack technical and managerial capabilities, access to greater markets, access to finance, skilled workers, and lack of access to information which is vital to business. Charoenrat and Harvie (2014) mentioned the government should made the easier access to financial services, access to skilled labor, addressing location and regional capacity inequities, encouraging foreign investment and export incentives for penetration in the world market.

2.4 Obstacles of SMEs

In the year 2016, The Department of Industrial Promotion, which is a government department that has mission in promotes and develops SMEs found the common problems in business operations for SMEs are as follows: Technology and Innovation problems, Production problems, Marketing problems, Financial problems, Human resource management problems, Logistic and Procurement problems, Organization and Strategy management problems (SME THAILAND CLUB, 2016).

Moreover, there are many previous research studies about problems or factors that are obstacles to business operations of SMEs as mentioned above, such as Getahun (2016) studied about the challenge and prospects of small scale enterprises and found that they inadequate managerial skill and should use more innovations in their operations. Charoenrat and Harvie (2014) examine the technical efficiency of Thai manufacturing SMEs. The results reveal that Thai SMEs have low average technical efficiency labors. Moreover, results also indicate that company size, government assistance, foreign investment, and export activity are important factors

contributing to the technical efficiency of SMEs. Gecse (2012) mentioned that about differences in logistics concept between small and medium enterprises. The larger enterprises can implement the theory more than smaller enterprises, which causes different logistics problems. Kortekaas (2007) studied in the term of "HRM, organizational performance and the role of company size" and found a difference in the impact of human resource management on organizational performance can occur as a result of company size. In addition, the high-performance work system seems to stimulate the operational performances of product quality and productivity as well. However, Soinsaari (2014) concluded that small and medium size companies face the problem of not having enough time and resources to write down their HR policies. Rattanapongpinyo (2016) aims to test factors relating to Credit Accessibility of SMEs in the Western Provinces of Thailand and suggest that the related persons should develop SMEs entrepreneur's knowledge and skills, facilitate sources of financing and support them to export opportunity. However, the source of funds for SME, even though there are many but difficult to access. The main source of funding for SME today is informal borrowing. So, the requesting loans from commercial banks and state-owned specialized financial institutions is important in a greater role in supporting SME growth, especially at the beginning of the business (Osathanunkul, 2010). In the same way as SMEs in other countries, Kambwale, Chisoro, and Karodia (2015) sought to analyses the factors that contribute to the failure of Small and/or Medium Enterprises (SMEs) in Windhoek, Namibia. The study indicated that a lack of management skills, a lack of financial support and a lack of business training are the major causes of SME failure. Ackah and Vuvor (2011) found that there are problems of SMEs in obtaining loan in Ghana. In addition, Krasauskaite (2011) studied about whether the size affects the capital structure of SMEs or not. The results of this study shown that the smaller sized has more indebted than larger sized enterprises. That made the question that the size of the enterprises will be related to other various problems that SMEs faced or not.

Besides above, there is also a study using the Chi-square method to determine the influence between various factors and SME success. Yu (2016) studied about Key Determinants for Thai SMEs' Success of Thai food enterprises in Bangkok metropolitan district and found that Production and Marketing have positive influence

SME Success. However, Technology, Financial Planning and Human Resource Management did not influence SME Success. The Summary of reviews on obstacles of SMEs shown in Table 2.1.

Table 2.1
Summary of reviews on obstacles of SMEs

Factors	Source	Issue(s)	Gap(s)
Innovation	Getahun (2016)	Found that SMEs should use more innovations in their operations.	The results are from Ethiopia's SMEs, which may be different from Thailand
HR / Size / Region / Sector	Charoenrat and Harvie (2014)	Thai SMEs have low average technical efficiency labors and company size is an important factor contributing to the technical efficiency of SMEs	This study focuses only on SMEs in the production sector.
Logistics / Size	Gecse (2012)	The larger enterprises can implement the theory more than smaller enterprises, which causes different logistics problems.	This study focuses on logistics and size factors and the results are from Hungarian's SMEs, which may be different from Thailand
HR / Size	Kortekaas (2007)	Human resource management on organizational performance can occur as a result of company size	This study focuses on HR and size factors and the results are from Netherlands' SMEs, which may be different from Thailand
HR	Soinsaari (2014)	SMEs not having enough time and resources to write down their HR policies	This study focuses on HR factors and the results are from Finland's SMEs, which may be different from Thailand
Finance	Rattanapongpinyo (2016)	Should develop entrepreneur's knowledge and skills, facilitate sources of financing	This study focuses on financial factors and study only in Western Provinces of Thailand

Table 2.1 - Continued

Finance	Osathanunkul (2010)	The source of funds for SME, even though there are many but difficult to access.	This study focuses on financial factors and the sample size just only 30 enterprises
Management / Finance	Kambwale et al. (2015)	A lack of management skills and a lack of financial support are the major causes of SME failure.	The results are from Namibia's SMEs, which may be different from Thailand
Finance	Ackah and Vuvor (2011)	there are problems of SMEs in obtaining loan	This study focuses only on financial factors and the results are from Ghana's SMEs, which may be different from Thailand
Finance / Size	Krasauskaite (2011)	The results of this study shown that the smaller sized has more indebted than larger sized enterprises.	This study focuses on financial and size factors and the results are from Baltic countries' SMEs, which may be different from Thailand
Production / Marketing / Technology / Finance / HR	Yu (2016)	Production and Marketing have positive influence SME Success. However, Technology, Financial Planning and Human Resource Management did not influence SME Success. By using the *Chi-square* method	This study use many factors However, it focuses only in Bangkok.

From the review found that there is a lack in the research on SMEs in the scale of country overview (Thailand), which is specified on the association between the differences in size, sector, region of SMEs and the problems that occur in business operation. Thus, this study will find the association between these differences and the problems by using a chi-square test for independence. Furthermore, the results of this study will be used as a guideline to promote and support SMEs in Thailand (such as using by the policymaking, government departments). Moreover, this study uses a sample size that is greater than the previous study (1,297 enterprises) and also delve deeper to find the association between differences and problems that occur at the sub-sector level.

Chapter 3
Research Design and Methodology

The study process starts from the review of literature, followed by identifying problems, data collection, data analysis, expert interviews, focus group interviews and summary of the result of this research respectively, which shown in Figure 3.1.

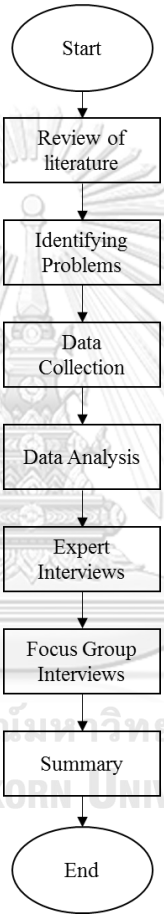


Figure 3.1 Study process

3.1 Identifying problems

As the literature review in Chapter 2 in the topic of "Obstacles of SMEs", which can identify the common problems in business operations for SMEs are as follows: 1. Technology and Innovation problems (Getahun, 2016) 2. Production problems (Yu, 2016) 3. Marketing problems (Yu, 2016) 4. Financial problems (Rattanapongpinyo, 2016); (Osathanunkul, 2010); (Kambwale et al., 2015); (Ackah & Vuvor, 2011);

(Krasauskaite, 2011) 5. Human resource management problems (Kortekaas, 2007); (Soinsaari, 2014); (Yu, 2016) 6. Logistic and Procurement problems (Gecse, 2012) 7. Organization and Strategy management problems (Kambwale et al., 2015).

3.2 Explanatory variables

1. Technology and Innovation problems are a lack of innovation/technology to develop and produce new products, new production process or new service. As a result of unable to meet the needs of the market.
2. Production problems mean the problems that occur in the production process such as cost of production higher than necessary, there are too many waste products, use too much time in process, etc.
3. Marketing problems are marketing factors that can impede, disrupt or hinder the growth, development and expansion of the enterprise (Ebitu & Ufot, 2015) such as branding, the problems in the market survey, market expansion, public relations, responding to customer needs, sales, etc.
4. Financial problems are a lack of proper financial and accounting management skills as well as access to funding sources such as finance planning, budget/capital, debts management, accounting, etc.
5. Human resource management problems are the problems related to human resource in the organization such as turnover rate, human resource management system, employee obligations, training, etc.
6. Logistic problems are the problems related to logistics management including order management system, product delivery, the movement and preparation of raw material and inventory management.
7. Organization and Strategy management problems are the problems related to the overview of organization management (Executive level), which caused by organizations rarely giving importance to benchmarking performance and standards that caused the inability to create strategies to determine the direction, goals and timing in improving efficiency and effectiveness in the operation.

Notes. Source: The interview of the Director-General of the Department of Industrial Promotion (Department of Industrial Promotion, 2016b) and Department of Industrial Promotion Website (Department of Industrial Promotion, 2016a).

3.3 Data Collection

Target respondents and Methods to reach

The questionnaire is a paper base questionnaire. It has 14 questions with close form and open-ended questions, which takes 15-20 minutes to answer.

The respondents of this study are entrepreneurs who entering the government services of the Department of Industrial Promotion between the year 2016 – 2018 (3 year). The respondents will receive a questionnaire (Hard copy) to answer before entering the services (Secondary Data).

Yamane's Formula

Systematic sampling was done after using the Yamane's formula to calculate a sample of this study. A minimum sample with 0.05 margin of error is 400 enterprises (Yamane, 1967), which can be seen from equation 1.

$$n = \frac{N}{1 + N(e)^2} \quad \text{---------- (1)}$$

3.4 Descriptive Analysis

The methods of data analysis used in this section including frequency distribution in order to determine the most critical problems that occur in business operations.

Frequency Distribution

The data collected answered the problems that occur in business operations. The analysis of the data can be performed through descriptive statistics. One of the initial steps is to perform frequency distribution, which summarizes the data and displays the number of observations into categories for each distribution. For the purpose of this study, graphical and data analysis techniques were used (Nuzul Azam, 2012).

Pareto Analysis

Pareto analysis is a simple method of analysis and yet powerful in determining the most important factors (80-20) that will be used to select the variables before the calculation by chi-square method.

3.5 Chi-Square Method

The advantages of the Chi-square are included it can be used with any distribution of the data, easy to calculate and understand, The calculation process is not complicated, and suitable for data from both two groups and multiple groups. However, it has the limitations include sample size requirements, the difficulty of interpretation when there are large numbers of categories (20 or more) in the independent or dependent variables (McHugh, 2013).

This study using a chi-square test for independence (also called Pearson's chi-square test or the chi-square test of association) in order to test the association between two variables (Bewick, Cheek, & Ball, 2004). However, this method requires large sample sizes to be accurate by the often-quoted rule of thumb regarding sample size is that none of the expected cell values should be less than five. Thus, if the result from Pearson's chi-square test is not accurate that may be caused by small sample size and have cells in the table with zero counts, data will be grouped to 2x2 tables and using Fisher's Exact Test to find the results (NCSS, 2018).

Moreover, the sub-sector from Thailand Standard Industrial Classification : TSIC 2009 will be used to find the association between the differences and the problems, in order to get clearer information about SMEs in Thailand and deeper study than previous studies (Department of Business Development, 2009).

Sub-Sector Explanatory

The sample size of 1,297 enterprises can be grouped into 3 sectors, which have sub-sectors are as follows:

Production Sector

1. **Food product production (C10)** including the production process of agricultural products, Forestry, and fishery for human or animal's food. Including various products obtained from the production of food which is

not a direct food product. The activity produces related products, which may be more or less valuable, such as animal skin from slaughtering animals or waste from oil production.

2. **Beverage production (C11)** including the production of various types of beverages (excluding vegetable and milk is considered C10).
3. **Textile production (C13)** including preparation spinning of textile fibers and weaving, finishing of textiles and fabrics for cutting clothing, manufacture of ready-made textiles (except apparel e.g. bed sheets, blankets, thick carpets, ropes, etc.)
4. **Clothing production (C14)** including sewing all types of fabric (Finished or made to order) using all kinds of materials (such as leather, fabric, knit fabric and crochet fabric, etc.) in all types of clothing (such as outer coats for men, women, and children, formal, casual, etc.) and accessories. Also includes the wool clothing manufacturing industry.
5. **Leather production and related products (C15)** including leather and fur production, also products made of leather and fur.
6. **Wood production, wooden products, and cork (C16)** including the production of wood products such as logs, plywood, veneer, containers made of wood, wood pillars, products used in building. The production process consists of sawing, shaping, decorating, shaping and the assembly of wood products (except furniture, production of things from a straw and other plaiting materials).
7. **Paper production and paper products (C17)** including pulp production, paper processed products and related production processes.
8. **Printing and reproduction of media (C18)** including the printing of products such as newspapers, books, magazines, business documents, greeting cards, other publications, and supporting processes such as binding, plate services, and image data. This process is an important component of the printing industry and products.
9. **Chemicals production and chemical products (C20)** including the processes of organic and inorganic raw materials with chemicals into products.

10. **Production of basic pharmaceutical products and the production of pharmaceutical formulas (C21)** including the production of important substances that have pharmacological properties. To be used in the production of medicines, antibiotics, vitamins, salicylic acid, and o-salicylic acid, etc. Processes related to the blood, production of drugs for the prevention of various diseases.
11. **Production of rubber and plastic products (C22)** including almost all rubber and plastic products. However, it does not mean that the production of all products using these materials is also classified in this sub-sector (must check from economic activities).
12. **Production of other products made from non-metallic mineral (C23)** including production of glass and glass products such as glass, glass sheets, glass packaging, etc. Ceramic products, terracotta products, cement, and plaster. By producing from raw materials to finished products. In addition, including decoration and production of finished products, stone products, gemstones and other mineral products.
13. **Basic metal production (C24)** including smelting and / or metal and non-ferrous metals, purification from metal ores, smelting from bars or from scrap metal. By electrical metallurgy process or other metallurgical processes.
14. **Manufacture of fabricated metal products (C25)** including the production of pure metal products such as parts, containers, and structures with installation features that stationary and unable to move. In addition, includes the production of weapons, bullets, and explosives (Except machinery and equipment).
15. **Production of computer, electronic products, and optical instrument (C26)** including the production of computer products, computer peripherals, telecommunication equipment, parts and other electronic products. In addition, also includes the production of electrical appliances, measurement tool, navigation tools, control equipment, medical electronics and therapeutic electronic devices, etc.

16. **Electrical equipment production (C27)** including the production of various products that related the use of electricity, such as the production of lighting, electrical equipment, electrical signal amplifiers, and household electrical appliances.
17. **Production of machinery and tools, which is not classified elsewhere (C28)** including the production of machinery and equipment that operate independently on various materials. Whether mechanically, the use of heat, operations on other materials such as moving, spraying, weighing, including components of the machinery that is manufactured and used in the production of key parts. Also includes the installation of installed tools.
18. **Production of trailers and semi-trailers (C29)** including the production of vehicles for transportation of passengers or cargo, the production of automobile parts and other parts, the production of trailers and semi-trailers, and also maintenance and repair of motor vehicles.
19. **Production of other transportation equipment (C30)** such as large shipbuilding and small shipbuilding, production of rail transportation for both passenger and cargo, locomotives, aircraft and space vehicles, also parts production of those vehicles.
20. **Furniture production (C31)** including related products from any material (except stone, concrete and ceramics).
21. **Production of other types of products that are not classified in other categories (C32).**
22. **Repair and installation of machinery and equipment (C33)** including maintenance by experts with the objective of maintaining equipment and other products in good condition and always ready for use.

Trading Sector

23. **Wholesale, retail, repair of motor vehicles and motorcycles (G45)** including all activities (except production and rental) related to motor vehicles, motorcycles, trailers and trucks, such as wholesale and retail sales of new and used cars, vehicle repair and maintenance, wholesale and

retail sales parts and accessories of motor vehicles and motorcycles, and also the washing and automotive polishing.

24. **Wholesale Trade (G46)** including local and international wholesale (export and import of goods) and also resell (without deformation) new and used products to retailers (except for motor vehicles and motorcycles).
25. **Retail Trade (G47)** new and used products to customer, department stores, stalls etc. (except for motor vehicles and motorcycles).

Service Sector

26. **Land transport and pipeline transportation (H49)** including the transportation of passengers and goods by road and rail, as well as the transportation of goods via pipelines.
27. **Warehouse-related activities and transportation support activities (H52)** including operations on transportation infrastructure.
28. **Accommodation (I55)** including the provision of accommodation for short-term services for visitors and other travelers, long-term accommodation for students, employees and guests. Some may provide only accommodation while some provide accommodation with food and recreation facilities.
29. **Food and beverage service (I56)** including providing food and beverages that are ready-to-eat in a restaurant, self-service or take-home, whether permanent or temporary shop with or without seats
30. **Real estate (L68)** including the landlord, agent or broker for buying, sales, rental and other services about real estate.
31. **Other personal service activities (S96)** in this sub-sector including both service activities which are not classified elsewhere. These include activities such as laundry, cleaning textiles and fur products, hairdressing services and other beauty treatments, funerals and related activities.

State the Hypotheses

H_0: “Difference in Size” is not associated with “Problems”
H_1: “Difference in Size” is associated with “Problems”

H_0: “Difference in Sector” is not associated with “Problems”
H_1: “Difference in Sector” is associated with “Problems”

H_0: “Difference in Region” is not associated with “Problems”
H_1: “Difference in Region” is associated with “Problems”

The Statistical Package for the Social Sciences (SPSS) will be used for data analysis in this study. The advantages of SPSS are user-friendly software package for the manipulation and statistical analysis of data and useful for students and researchers (Landau & Everitt, 2004), which the research model shown in Figure 3.2.

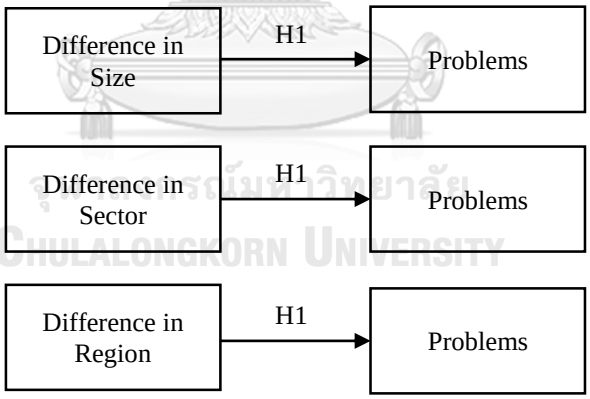


Figure 3.2 Proposed Model and Hypotheses

3.6 Expert Interviews

The goal of the interviews was to gain a deeper understanding of the obstacles that entrepreneurs encountered. The aim of the industry expert interviews was then to reflect these opinions and collect insight on the topics at hand from a different perspective (Rauhala, 2017).

After getting the Chi-Square test results, the empirical part of this study also utilizes 2 industry experts (Government officer, senior professional level or more) opinions in order to provide more advice about problems and development of entrepreneurs by the interviews that questions based on test results. The interviews were necessary due to the lack of data available. These experts have highly experienced and insider knowledge of these important areas of the analysis, consequently increasing reliability (Fierro, 2012). In addition, 1 more industry expert (Government officer, senior professional level or more) was interviewed for agreeing or disagreeing with the guideline. This research uses a structured interview to ensure consistency between interviews (Mathers, Fox, & Hunn, 2000).

3.7 Focus group interviews

For further data collection and analysis that more comprehensive, the new questionnaire development will be necessary. This method is valuable tools for collecting qualitative data that yield efficiently valid and reliable qualitative data (Dilshad & Latif, 2013). By focusing group interview 20 successful enterprises, in order to gather and identify the factors that made enterprises successful and the policies that enterprises need. After the interviews, various factors from the interview will be gathered and use them as a suggestion for the development of the new questionnaire and a part of a guideline.

3.8 Analytic Hierarchy Approach (AHP)

The Analytic Hierarchy Approach (AHP) is a technique that is used in the decision-making process by dividing the components of various factors into parts and weight values for each factor, in which the results will lead to the most suitable option (Whitaker, 1987). This research uses the Analytic Hierarchy Approach (AHP) to select the most suitable process for promotion and develop entrepreneurs.

Chapter 4
Data Analysis and Results

4.1 Data Selection for Analysis

Problems selection

The data collection found that there are 6 problems representing more than 85 percent of all problems (from Pareto analysis) include Production problems, Marketing problems, Financial problems, Human resource management problems, Logistics problems and Organization management problems. Therefore, these 6 problems are used to analyze obstacles in the business operation of Thai SMEs

Sub-Sector selection of Production Sector

This study focuses on the important industry of production sector according to National Industrial Development Master Plan (Year 2012-2031) in Sectoral industrial development plan had set a "Pilot Industry Strategy" to be an example of ways to develop in potential fields and in order to able to be further extended to other industrial development directions that is important for Thailand, which consisting of industry of Food and beverage, Textile, Printing, Rubber, Gemstones, Electronic products and automotive parts (sub-sectors: C10, C11, C13, C18, C22, C23, C26, C27 and C29) (Ministry of Industry, 2011).

4.2 Descriptive Analysis

4.2.1 Demographic profiles

Demographic profiles of respondents (SMEs in each sector)

This is all respondents that can be separated to the production sector 760 enterprises (58.60%), trading sector 453 enterprises (34.93%) and service sector 84 enterprises (6.48%) with a total of 1,297 enterprises as shown in Figure 4.1.

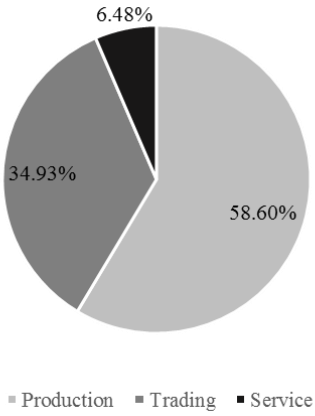


Figure 4.1 Proportion of respondents (SMEs in each sector)

The respondents that can be separated to the small sized enterprises with the production sector 525 enterprises (56.09%), trading sector 339 enterprises (36.22%) and service sector 74 enterprises (7.69%) as shown in Figure 4.2, and the medium sized enterprises with the production sector 235 enterprises (65.10%), trading sector 114 enterprises (31.58%) and service sector 12 enterprises (3.32%) as shown in Figure 4.3.

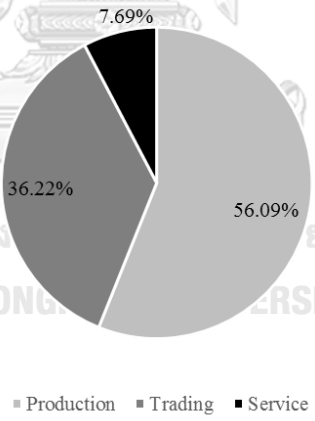


Figure 4.2 Proportion of respondents (Small sized enterprises in each sector)

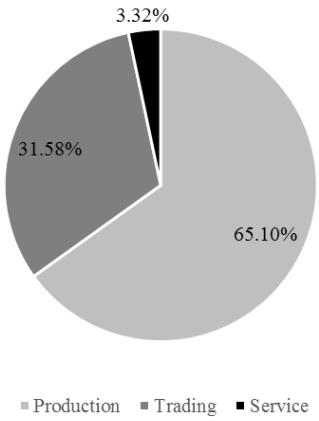


Figure 4.3 Proportion of respondents (Medium sized enterprises in each sector)

Demographic profiles of respondents (SMEs in production sector)

The respondents in this category separated to the small sized production sector 525 enterprises (69.08%) and the medium sized production sector 235 enterprises (30.92%) as shown in Figure 4.4.

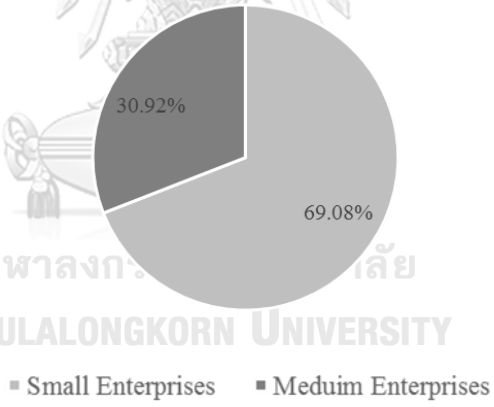


Figure 4.4 Proportion of respondents (SMEs in production sector)

Demographic profiles of respondents (SMEs in trading sector)

The respondents in this category separated to the small sized trading sector 339 enterprises (74.83%) and the medium sized trading sector 114 enterprises (25.17%) as shown in Figure 4.5.

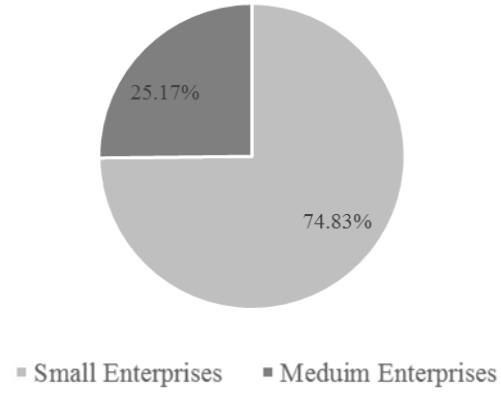


Figure 4.5 Proportion of respondents (SMEs in trading sector)

Demographic profiles of respondents (SMEs in service sector)

The respondents in this category separated to the small sized service sector 72 enterprises (85.71%) and the medium sized service sector 12 enterprises (14.29%) as shown in Figure 4.6.

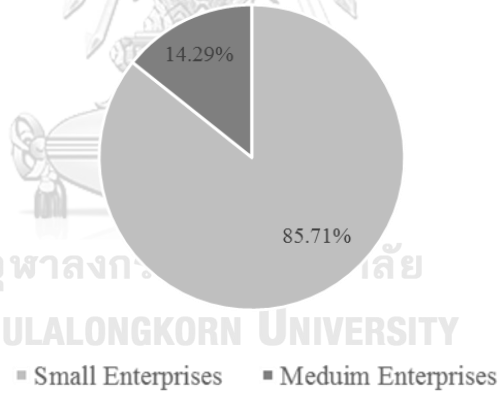


Figure 4.6 Proportion of respondents (SMEs in service sector)

4.2.2 Frequency Distribution

The data collected answered the problems that occur in business operations. The analysis of the data can be performed through descriptive statistics. One of the initial steps is to perform frequency distribution, which summarizes the data and displays the number of observations into categories for each distribution.

Production Sector

Food product production (C10)

The food product production has samples of 144 small sized enterprises and 62 medium sized enterprises, this sub-sector encountered production problems with the highest number, followed by marketing problems, organization management problems, financial problems, HR problems and logistics problems respectively as shown in Figure 4.7. The proportion of problems between small and medium sized enterprises is almost similar. However, the medium sized enterprises seem to encounter fewer marketing problems and logistics problems, but more organization management problems.

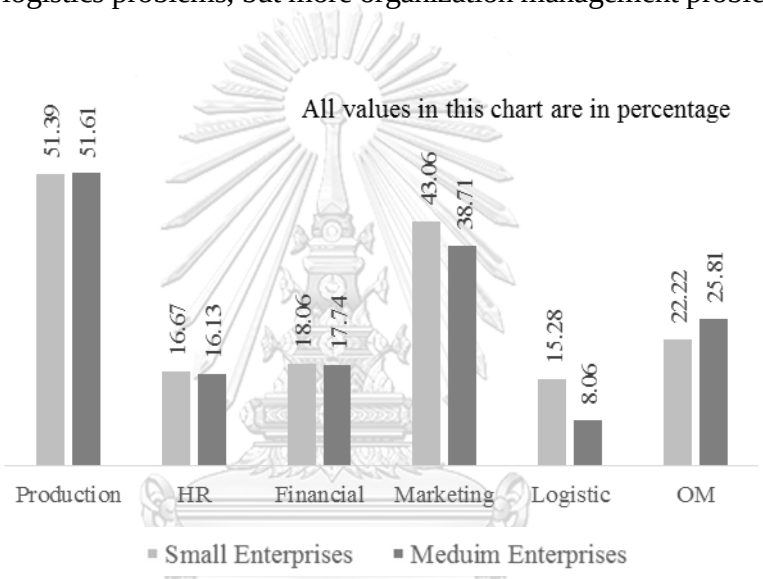


Figure 4.7 Problems in food product production

Beverage production (C11)

The beverage production has samples of 19 small sized enterprises, this sub-sector encountered production problems with the highest number, followed by logistics problems, marketing problems, HR problems, financial problems and organization management problems respectively as shown in Figure 4.8. (This sub-sector has no sample of medium-sized enterprises).

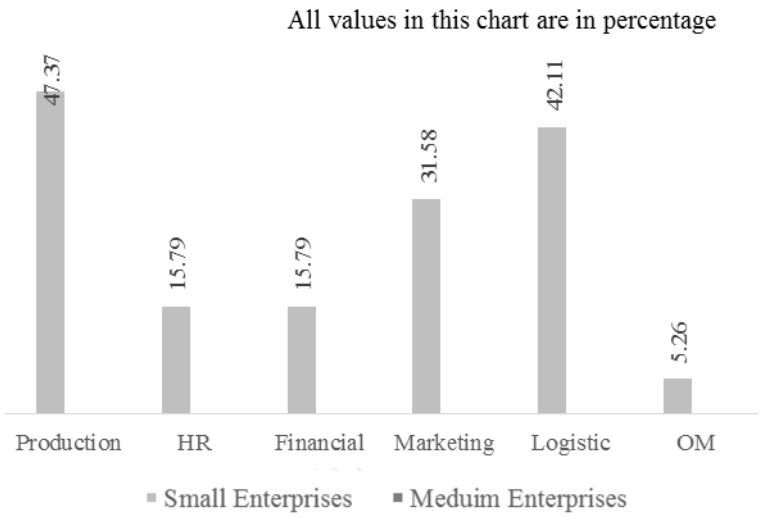


Figure 4.8 Problems in beverage production

Textile production (C13)

The textile product production has samples of 20 small sized enterprises and 11 medium sized enterprises. The small sized enterprises encountered production problems with the highest number, followed by marketing problems, organization management problems, logistics problems, HR problems and financial problems respectively. The medium sized enterprises encountered production problems with the highest number, followed by marketing problems, organization management problems, HR problems and financial problems and logistics problems respectively as shown in Figure 4.9. The proportion of production problems between small and medium sized enterprises is almost similar. The medium sized enterprises seem to encounter fewer logistics problems and organization management problems, but more HR problems, financial problems and marketing problems.

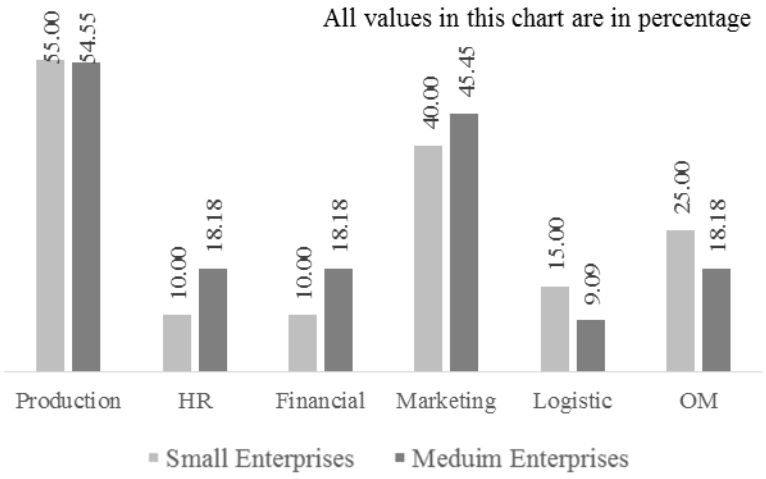


Figure 4.9 Problems in textile production

Printing and reproduction of media (C18)

The printing and reproduction of media has samples of 18 small sized enterprises and 3 medium sized enterprises. The small sized enterprises encountered production problems with the highest number, followed by marketing problems, organization management problems, HR problems, financial problems and logistics problems respectively. However, with the small number of samples of medium sized enterprises, the data shown only 2 problems, which are marketing problems and financial problems as shown in Figure 4.10.

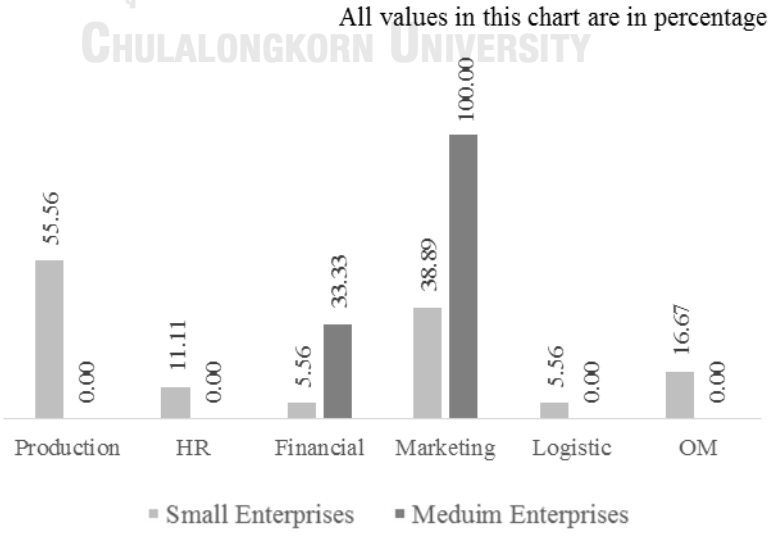


Figure 4.10 Problems in printing and reproduction of media

Production of rubber and plastic products (C22).

The production of rubber and plastic products has samples of 24 small sized enterprises and 42 medium sized enterprises. The small sized enterprises encountered production problems with the highest number, followed by marketing problems, organization management problems, HR problems, financial problems and logistics problems respectively. The medium sized enterprises encountered production problems with the highest number, followed by marketing problems, organization management problems, financial problems, logistics problems and HR problems respectively as shown in Figure 4.11. The medium sized enterprises seem to encounter fewer almost all problems, especially in HR problems, but except the production problems that the medium sized enterprises encountered a little more.

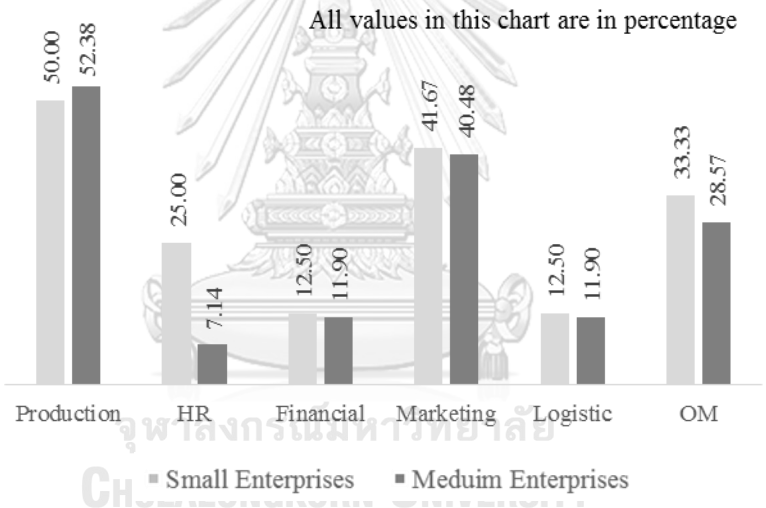


Figure 4.11 Problems in production of rubber and plastic products

Production of other products made from non-metallic mineral (C23)

The production of other products made from non-metallic mineral has samples of 19 small sized enterprises and 9 medium sized enterprises. The small sized enterprises encountered production problems with the highest number, followed by marketing problems, organization management problems, financial problems, HR problems and logistics problem respectively. The medium sized enterprises encountered organization management problems with the highest number, followed by production problems, marketing problems, financial problems, HR problems and logistics problem respectively as shown in Figure 4.12. The medium sized enterprises seem to encounter fewer

production problems, HR problems, financial problems and marketing problems, but more logistics problems and organization management problems.

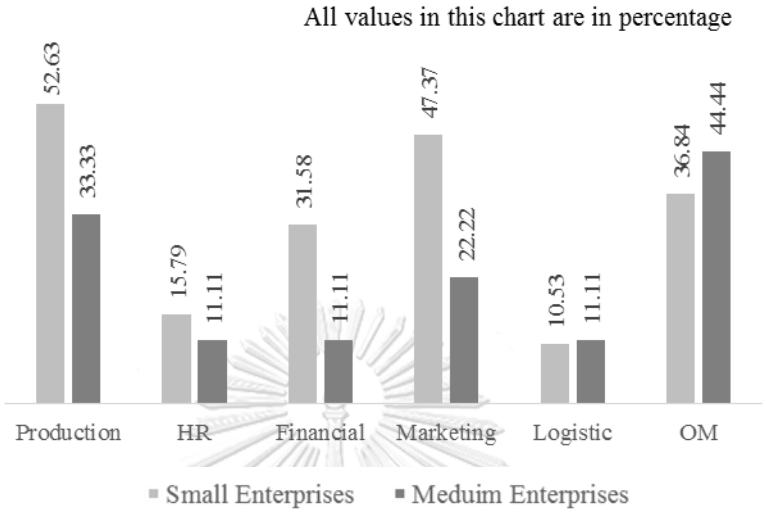


Figure 4.12 Problems in production of other products made from non-metallic mineral

Production of computer, electronic products, and optical instrument (C26)

The production of computer, electronic products, and optical instrument has samples of 5 small sized enterprises and 3 medium sized enterprises. Due to there are a small number of samples of this sub-sector, it may be caused some problems are not shown. The small sized enterprises encountered production problems with the highest number, followed by organization management problems in the second, and lastly by financial problems and marketing problems. The medium sized enterprises shown only 3 problems, which are marketing problems with the highest number, followed by production problems and HR problems as shown in Figure 4.13. The medium sized enterprises seem to encounter fewer production problems, financial problems and organization management problems, but more HR problems and marketing problems.

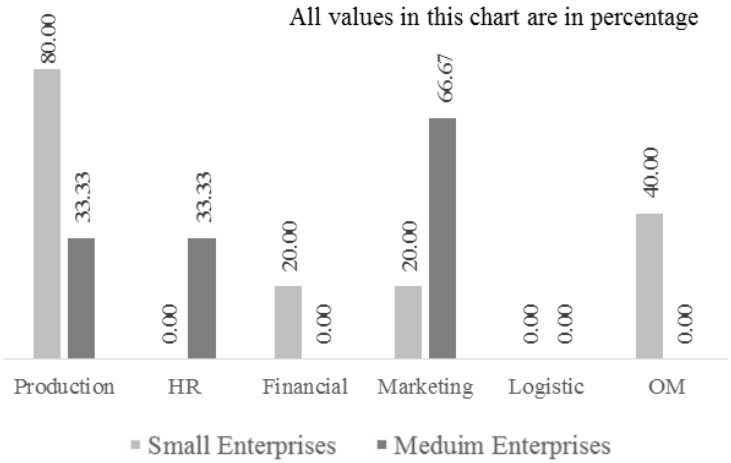


Figure 4.13 Problems in production of computer, electronic products, and optical instrument

Electrical equipment production (C27)

The electrical equipment production has samples of 7 small sized enterprises and 6 medium sized enterprises. Due to there are a small number of samples of this sub-sector, it may be caused some problems are not shown. The small sized enterprises encountered production problems with the highest number, followed by HR problems in the second, and lastly by financial problems, marketing problems and organization management problems with the same number. The medium sized enterprises encountered the same highest number of production problems and marketing problems, followed by HR problems, and lastly by financial problems as shown in Figure 4.14.

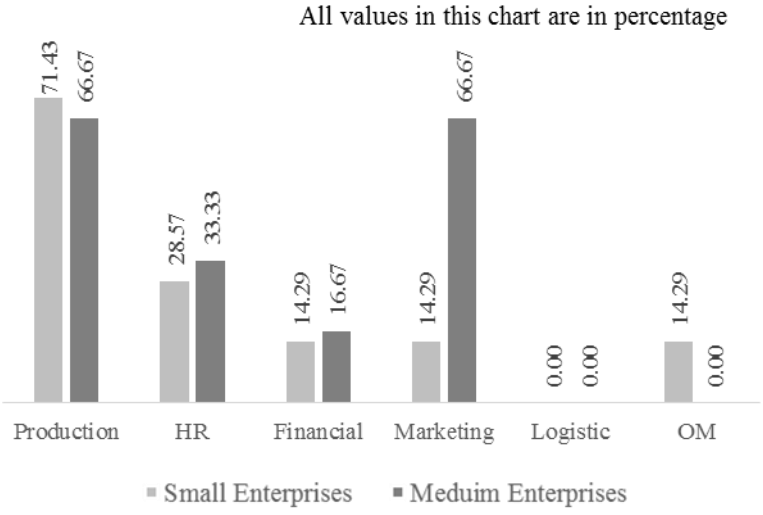


Figure 4.14 Problems in electrical equipment production

Production of trailers and semi-trailers (C29)

The production of trailers and semi-trailers has samples of 6 small sized enterprises and 7 medium sized enterprises. Due to there are a small number of samples of this sub-sector, it may be caused some problems are not shown. The small sized enterprises encountered production problems and marketing problems with the highest number, followed by organization management problems in the second, and lastly by HR problems, financial problems and logistics problems with the same number. The medium sized enterprises shown only 3 problems, which are production problems with the highest number, followed by marketing problems, and lastly by organization management problems as shown in Figure 4.15.

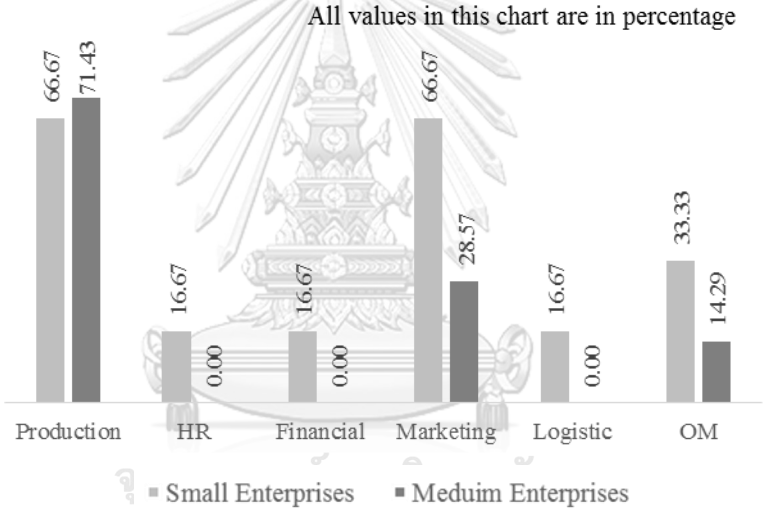


Figure 4.15 Problems in production of trailers and semi-trailers

Trading Sector

Wholesale, retail, repair of motor vehicles and motorcycles (G45)

The wholesale, retail, repair of motor vehicles and motorcycles has samples of 16 small sized enterprises and 5 medium sized enterprises. The small sized enterprises encountered production problems and marketing problems with the highest number, followed by HR problems, financial problems, logistics problems and organization management problems respectively. The medium sized enterprises encountered production problems and marketing problems with the highest number, followed by HR problems, financial problems and organization management problems, and lastly by

logistics problems as shown in Figure 4.16. The medium sized enterprises seem to encounter more problems for almost all problems, but except the logistics problems that the medium sized enterprises encountered fewer.

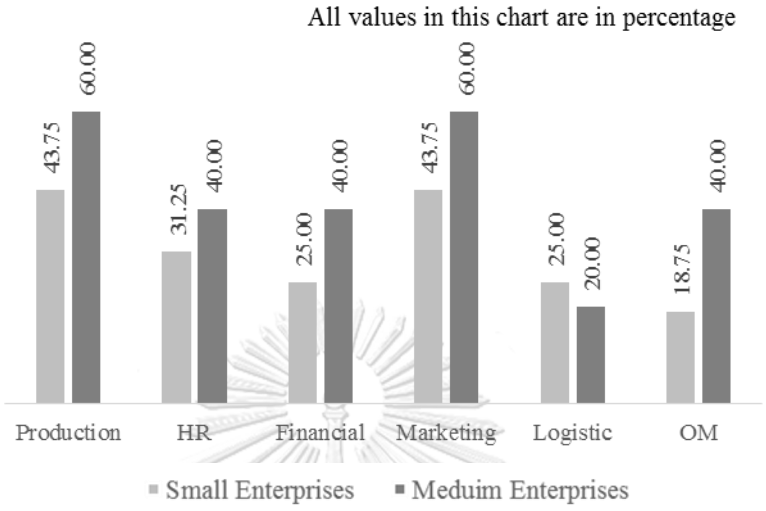


Figure 4.16 Problems in production of wholesale, retail, repair of motor vehicles and motorcycles

Wholesale Trade (G46)

The wholesale trade has samples of 206 small sized enterprises and 54 medium sized enterprises. The small sized enterprises encountered production problems with the highest number, followed by marketing problems, organization management problems, HR problems, financial problems and logistics problem respectively. The medium sized enterprises encountered production problems with the highest number, followed by marketing problems, organization management problems, financial problems, logistics problems and HR problem respectively as shown in Figure 4.17. The medium sized enterprises seem to encounter fewer production problems, HR problems, marketing problems and organization management problems, but more financial problems and logistics problems.

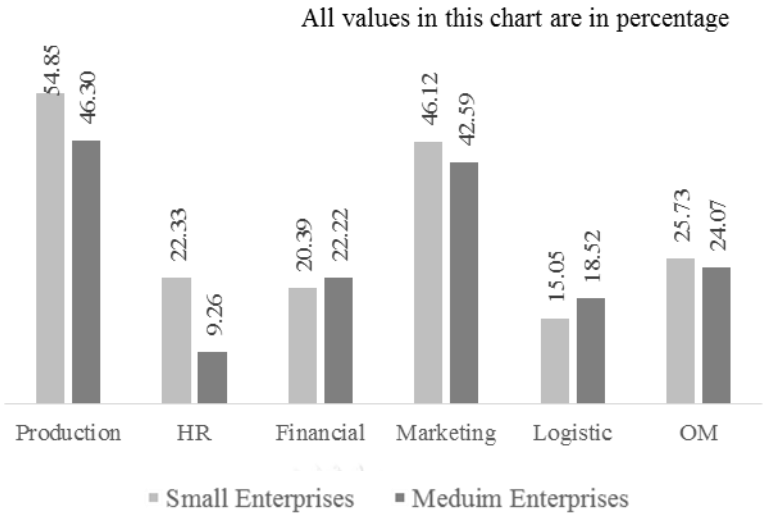


Figure 4.17 Problems in production of wholesale trade

Retail Trade (G47)

The retail trade has samples of 117 small sized enterprises and 55 medium sized enterprises. The small sized enterprises encountered production problems with the highest number, followed by marketing problems, organization management problems, financial problems, logistics problem and HR problems respectively. The medium sized enterprises encountered production problems with the highest number, followed by marketing problems, organization management problems, logistics problems, HR problem and financial problems respectively as shown in Figure 4.18. The medium sized enterprises seem to encounter more problems for almost all problems, but except the production problems and organization management problems that the medium sized enterprises encountered fewer.

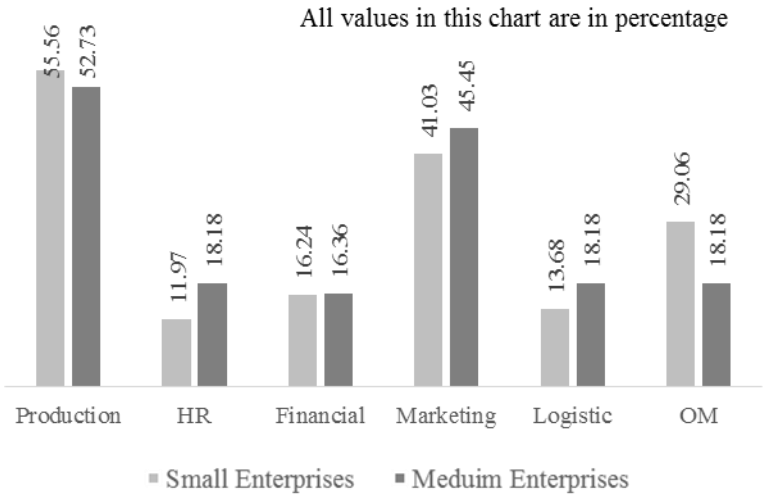


Figure 4.18 Problems in production of retail trade

Service Sector

Land transport and pipeline transportation (H49)

The land transport and pipeline transportation has samples of 17 small sized enterprises and 4 medium sized enterprises. Due to there are a small number of samples of this sub-sector, it may be caused some problems are not shown. The small sized enterprises encountered marketing problems with the highest number, followed by production problems, organization management problems and HR problems respectively. The medium sized enterprises encountered the same highest number of production problems, marketing and organization management problems, followed by HR problems as shown in Figure 4.19. The medium sized enterprises seem to encounter more almost all problems, especially in organization management problems, but except the marketing problems that the medium sized enterprises encountered fewer.

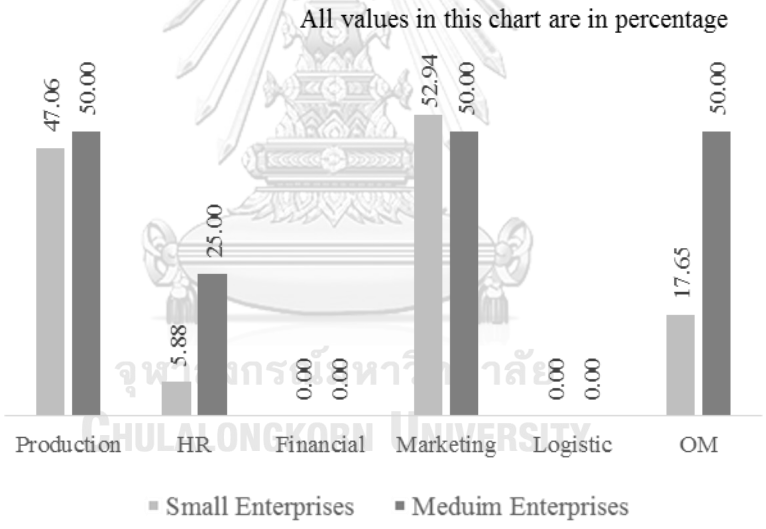


Figure 4.19 Problems in production of land transport and pipeline transportation

Warehouse-related activities and transportation support activities (H52)

The warehouse-related activities and transportation support activities has samples of 9 small sized enterprises, this sub-sector encountered production problems with the highest number, followed by marketing problems, organization management problems, HR problems, financial problems and logistics problems respectively as shown in Figure 4.20. (This sub-sector has no sample of medium-sized enterprises).

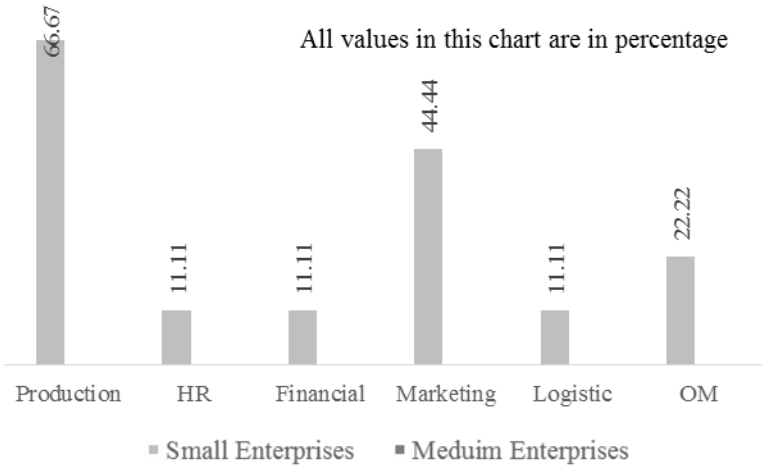


Figure 4.20 Problems in production of warehouse-related activities and transportation support activities

Accommodation (I55)

The accommodation has samples of 9 small sized enterprises and 4 medium sized enterprises. Due to there are a small number of samples of this sub-sector, it may be caused some problems are not shown. The small sized enterprises encountered production problems with the highest number, followed by marketing problems in the second, HR problems, financial problems and organization management problems with the same number in the third, and lastly by logistics problems. The medium sized enterprises encountered HR problems with the highest number, followed by marketing problems in the second, and lastly production problems, logistics problems and organization management problems with the same number (no financial problems) as shown in Figure 4.21. The medium sized enterprises seem to encounter fewer production problems, financial problems and organization management problems, but more HR problems, marketing problems and logistics problems.

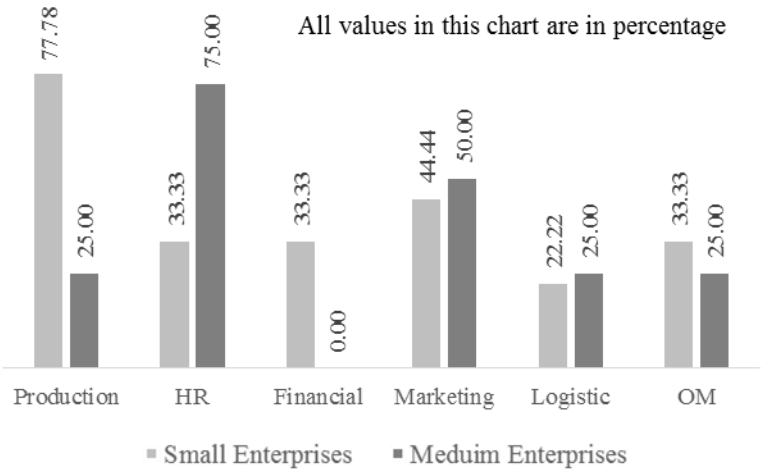


Figure 4.21 Problems in production of accommodation

Food and beverage services (I56)

The food and beverage services has samples of 8 small sized enterprises and 3 medium sized enterprises. The small sized enterprises encountered production problems with the highest number, followed by marketing problems and organization management problems in the second, HR problems and financial problems in the third, and lastly by logistics problems. The medium sized enterprises encountered marketing problems and organization management problems with the highest number, followed by production problems and logistics problems in the second, and lastly HR problems and financial problems as shown in Figure 4.22. The medium sized enterprises seem to encounter fewer production problems, HR problems and financial problems, but more marketing problems, logistics problems and organization management problems.

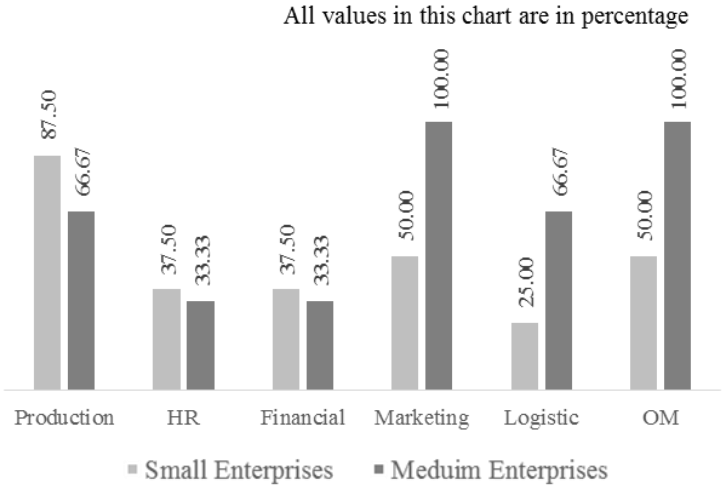


Figure 4.22 Problems in production of food and beverage services

Real estate (L68)

The real estate has samples of 20 small sized enterprises, this sub-sector encountered the same highest number of production problems and organization management problems, followed by HR problems, marketing problems, financial problems and logistics problems respectively as shown in Figure 4.23. (This sub-sector has no sample of medium-sized enterprises).

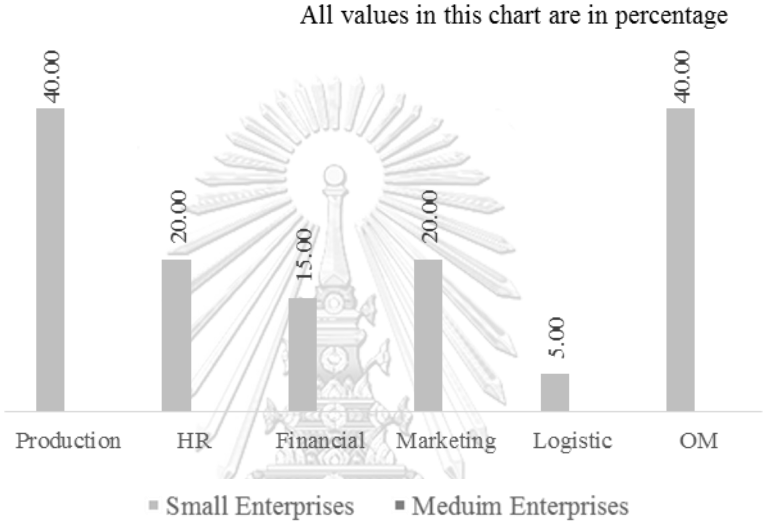


Figure 4.23 Problems in production of real estate

Other personal services activities (S96)

The other personal services activities has samples of 9 small sized enterprises and 1 medium sized enterprises. Due to a small number of samples of this sub-sector, it may be caused some problems are not shown. The small sized enterprises encountered marketing problems with the highest number, followed by production problems in the second, organization management in the third, and lastly by HR problems and logistics problems. Due to there are a small number of samples of the medium sized enterprises, the samples shown only encountered production problems as shown in Figure 4.24. The medium sized enterprises seem to encounter fewer problems for almost all problems, but except the production problems that the medium sized enterprises encountered more.

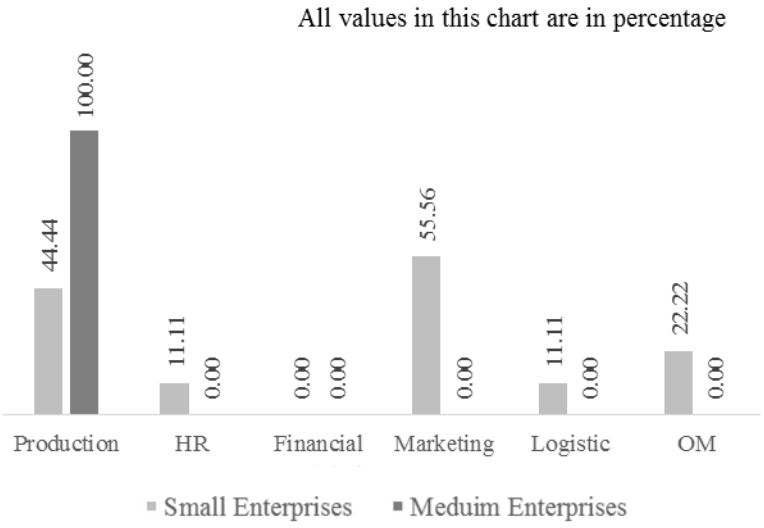


Figure 4.24 Problems in production of other personal services activities

4.3 Chi-Square Method

This study used a chi-square test for independence (also called Pearson's chi-square test or the chi-square test of association) in order to test the association between two variables (Bewick, Cheek, & Ball, 2004). However, this method requires large sample sizes to be accurate by the often-quoted rule of thumb regarding sample size is that none of the expected cell values should be less than five. Thus, if the result from Pearson's chi-square test is not accurate that may be caused by small sample size and have cells in the table with zero counts, Fisher's Exact Test will be used to find the results (data will be grouped to 2x2 tables) (NCSS, 2018). In addition, due to the small sample size leads to higher *p*-value and low power to detect an effect. So .100 significance level will be used to report the results (Hirpara, Jain, Gupta, & Dubey, 2015).

4.3.1 Chi-Square Method: Test between Size and Problems

This section used a chi-square test to determine whether there is a significant association between size and problems, by each problem in the same sub-sector. SPSS is used in the analysis of these hypothesis.

State the Hypothesis:

H_0: "Size" is not associated with "Problems"

H_1: "Size" is associated with "Problems"

Production Sector

The results showed the Chi-Square value of 3.850 and *p*-value of .050 (the 2-sided Fisher's Exact test gave a *p*-value of .090) for marketing problems of sub-sector C18 that show a significant association between size and problems at a .100 significance level, the Chi-Square value of 4.135 and *p*-value of .042 (the 2-sided Fisher's Exact test gave a *p*-value of .063) for HR problems of sub-sector C22 that show a significant association between size and problems at a .100 significance level, while the other results show no significant association between size and problems at a .100 significance level as shown in Table 4.1.

Table 4.1
Chi-Square Method: Test between size and problems in production sector

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
C10	.001	.009	.003	.337	1.980	.312
C11	N/A	N/A	N/A	N/A	N/A	N/A
C13	.001 i(-)	.423 i(-)	.423 i(-)	.087 i(-)	.220 i(-)	.189 i(-)
C18	3.182 *i(-)	.368 i(-)	2.303 i(-)	**3.850 **i(*)**	.175 i(-)	.583 i(-)
C22	.035	**4.135 **i(*)**	.005 i(-)	.009	.005 i(-)	.164
C23	.914 i(-)	.109 i(-)	1.365 i(-)	1.619 i(-)	.002 i(-)	.148 i(-)
C26	1.742 i(-)	1.905 i(-)	.686 i(-)	1.742 i(-)	N/A	1.600 i(-)
C27	.034 i(-)	.034 i(-)	.014 i(-)	3.745 *i(-)	N/A	.929 i(-)
C29	.034 i(-)	1.264 i(-)	1.264 i(-)	1.887 i(-)	1.264 i(-)	.660 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Trading Sector

The results showed the Chi-Square value of 4.636 and *p*-value of .031 for HR problems of sub-sector G46 that show a significant association between size and

problems at a .050 significance level, while the other results show no significant association between size and problems at a .100 significance level as shown in Table 4.2.

Table 4.2
Chi-Square Method: Test between size and problems in trading sector

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
G45	.403 i(-)	.131 i(-)	.420 i(-)	.403 i(-)	.053 i(-)	.948 i(-)
G46	1.258	**4.636****	.087	.214	.388	.062
G47	.121	1.204	.000	.300	.592	2.325

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Service Sector

The results show no significant association between size and problems at a .100 significance level as shown in Table 4.3.

Table 4.3
Chi-Square Method: Test between size and problems in service sector

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
H49	.011 i(-)	1.373 i(-)	N/A	.011 i(-)	N/A	1.868 i(-)
H52	N/A	N/A	N/A	N/A	N/A	N/A
I55	3.259 *i(-)	1.935 i(-)	1.733 i(-)	.034 i(-)	.012 i(-)	.090 i(-)
I56	.637 i(-)	.016 i(-)	2.357 i(-)	1.637 i(-)	2.357 i(-)	1.637 i(-)
L68	N/A	N/A	N/A	N/A	N/A	N/A
S96	1.111 i(-)	.123 i(-)	N/A	1.111 i(-)	.123 i(-)	.278 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.

4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

4.3.2 Chi-Square Method: Test between Sub-Sector and Problems

This section used a chi-square test to determine whether there is a significant association between sub-sector and problems, by different sub-sector in the same size. SPSS is used in the analysis of these hypothesis.

State the Hypothesis:

H_0: "Sub-Sector" is not associated with "Problems"

H_1: "Sub-Sector" is associated with "Problems"

The Small Sized Production Sector

Production Problems

The results show no significant association between sub-sector and production problems at a .100 significance level as shown in Table 4.4.

Table 4.4
Chi-Square Method: Test between small sized production sub-sector and production problems

Sub-Sector	C11	C13	C18	C22	C23	C26	C27	C29
C10	.109	.092	.111	.016	.010	1.586 i(-)	1.075 i(-)	.539 i(-)
C11		.227	.248	.029	.105	1.698 i(-)	1.192 i(-)	.680 i(-)
C13			.001	.109	.022	1.042 i(-)	.580 i(-)	.257 i(-)
C18				.127	.032	.982 i(-)	.529 i(-)	.229 i(-)
C22					.029	1.506 i(-)	1.005 i(-)	.536 i(-)
C23						1.220 i(-)	.740 i(-)	.365 i(-)
C26							.114 i(-)	.244 i(-)
C27								.034 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

HR Problems

The results show no significant association between sub-sector and HR problems at a .100 significance level as shown in Table 4.5.

Table 4.5
Chi-Square Method: Test between small sized production sub-sector and HR problems

Sub-Sector	C11	C13	C18	C22	C23	C26	C27	C29
C10	.009 i(-)	.585 i(-)	.367 i(-)	.974 i(-)	.009 i(-)	.993 i(-)	.664 i(-)	.000 i(-)
C11		.292 i(-)	.173 i(-)	.544 i(-)	.000 i(-)	.902 i(-)	.538 i(-)	.003 i(-)
C13			.012 i(-)	1.650 i(-)	.292 i(-)	.543 i(-)	1.417 i(-)	.201 i(-)
C18				1.287 i(-)	.173 i(-)	.608 i(-)	1.143 i(-)	.127 i(-)
C22					.544 i(-)	1.576 i(-)	.036 i(-)	.186 i(-)
C23						.902 i(-)	.538 i(-)	.003 i(-)
C26							1.714 i(-)	.917 i(-)
C27								.258 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Financial Problems

The results showed the Chi-Square value of 4.081 and *p*-value of .043 (the 2-sided Fisher's Exact test gave a *p*-value of .090) that show a significant association between sub-sector of C18 with C23, and financial problems at a .100 significance level, while the other results show no significant association between sub-sector and financial problems at a .100 significance level as shown in Table 4.6.

Table 4.6
Chi-Square Method: Test between small sized production sub-sector and financial problems

Sub-Sector	C11	C13	C18	C22	C23	C26	C27	C29
C10	.059 i(-)	.805 i(-)	1.800 i(-)	.445 i(-)	1.946 i(-)	.012 i(-)	.065 i(-)	.008 i(-)
C11		.292 i(-)	1.004 i(-)	.096 i(-)	1.310 i(-)	.051 i(-)	.009 i(-)	.003 i(-)
C13			.257 i(-)	.068 i(-)	2.783 *i(-)	.379 i(-)	.096 i(-)	.201 i(-)
C18				.576 i(-)	**4.081 **i(*)**	1.028 i(-)	.522 i(-)	.727 i(-)
C22					2.332 i(-)	.196 i(-)	.015 i(-)	.072 i(-)
C23						.257 i(-)	.778 i(-)	.503 i(-)
C26							.069 i(-)	.020 i(-)
C27								.014 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Marketing Problems

The results show no significant association between sub-sector and marketing problems at a .100 significance level as shown in Table 4.7.

Table 4.7
Chi-Square Method: Test between small sized production sub-sector and HR problems

Sub-Sector	C11	C13	C18	C22	C23	C26	C27	C29
C10	.909	.067	.114	.016	.127	1.053 i(-)	2.272 i(-)	1.303 i(-)
C11		.300	.217	.462	.991	.257 i(-)	.778 i(-)	2.339 i(-)
C13			.005	.013	.215	.694 i(-)	1.543 i(-)	1.321 i(-)
C18				.033	.271	.615 i(-)	1.402 i(-)	1.399 i(-)
C22					.140	.825 i(-)	1.775 i(-)	1.205 i(-)
C23						1.220 i(-)	2.365 i(-)	.680 i(-)
C26							.069 i(-)	2.396 i(-)
C27								3.745 *i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Logistics Problems

The results showed the Chi-Square value of 8.044 and *p*-value of .005 (the 2-sided Fisher's Exact test gave a *p*-value of .009) that show a significant association between sub-sector of C10 with C11, and logistics problems at a .010 significance level; the Chi-Square value of 3.535 and *p*-value of .060 that show a significant association between sub-sector of C11 with C13, and logistics problems at a .100 significance level; the Chi-Square value of 6.708 and *p*-value of .010 (the 2-sided Fisher's Exact test gave a *p*-value of .019) that show a significant association between sub-sector of C11 with C18, and logistics problems at a .050 significance level; the Chi-Square value of 4.882 and *p*-value of .027 (the 2-sided Fisher's Exact test gave a *p*-value of .038) that show a significant association between sub-sector of C11 with C22, and logistics problems at a .050 significance level; the Chi-Square value of 4.886 and *p*-value of .027 (the 2-sided Fisher's Exact test gave a *p*-value of .062) that show a significant association between sub-sector of C11 with C23, and logistics problems at a .100 significance level; the Chi-Square value of 4.257 and *p*-value of .039 (the 2-sided Fisher's Exact test gave a *p*-value of .062) that show a significant association between sub-sector of C11 with C27, and logistics problems at a .100 significance level; while the other results show no significant association between sub-sector and logistics problems at a .100 significance level as shown in Table 4.8.

Table 4.8
Chi-Square Method: Test between small sized production sub-sector and logistics problems

Sub-Sector	C11	C13	C18	C22	C23	C26	C27	C29
C10	**8.044** ***i(***)**	.001 i(-)	1.241 i(-)	.125 i(-)	.302 i(-)	.896 i(-)	1.252 i(-)	.009 i(-)
C11		**3.535***	**6.708** ***i(**)**	**4.882** **i(**)**	**4.886** **i(*)**	3.158 *i(-)	**4.257** **i(*)**	1.281 i(-)
C13			.897 i(-)	.058 i(-)	.174 i(-)	.852 i(-)	1.181 i(-)	.010 i(-)
C18				.576 i(-)	.307 i(-)	.290 i(-)	.402 i(-)	.727 i(-)
C22					.040 i(-)	.697 i(-)	.969 i(-)	.072 i(-)
C23						.574 i(-)	.798 i(-)	.163 i(-)
C26							N/A	.917 i(-)
C27								1.264 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.

4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Organization Management Problems

The results showed the Chi-Square value of 5.049 and *p*-value of .025 (the 2-sided Fisher's Exact test gave a *p*-value of .055) that show a significant association between sub-sector of C11 with C22, and organization management problems at a .100 significance level; the Chi-Square value of 5.700 and *p*-value of .017 (the 2-sided Fisher's Exact test gave a *p*-value of .042) that show a significant association between sub-sector of C11 with C23, and organization management problems at a .050 significance level; the Chi-Square value of 4.367 and *p*-value of .037 (the 2-sided Fisher's Exact test gave a *p*-value of .099) that show a significant association between sub-sector of C11 with C26, and organization management problems at a .100 significance level; while the other results show no significant association between sub-sector and organization management problems at a .100 significance level as shown in Table 4.9.

Table 4.9
Chi-Square Method: Test between small sized production sub-sector and logistics problems

Sub-Sector	C11	C13	C18	C22	C23	C26	C27	C29
C10	2.990 i(-)	.078 i(-)	.292 i(-)	1.400	1.971 i(-)	.867 i(-)	.246 i(-)	.406 i(-)
C11		2.916 i(-)	1.247 i(-)	**5.049 **i(**)**	**5.700 **i(**)**	**4.367 **i(*)**	.586 i(-)	3.402 *i(-)
C13			.396 i(-)	.364	.641	.446 i(-)	.344 i(-)	.163 i(-)
C18				1.478 i(-)	1.908 i(-)	1.252 i(-)	.021 i(-)	.758 i(-)
C22					.057	.081 i(-)	.954 i(-)	.000 i(-)
C23						.017 i(-)	1.222 i(-)	.024 i(-)
C26							1.029 i(-)	.052 i(-)
C27								.660 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Medium Sized Production Sector

Production Problems

The results show no significant association between sub-sector and production problems at a .100 significance level as shown in Table 4.10.

Table 4.10
Chi-Square Method: Test between medium sized production sub-sector and production problems

Sub-Sector	C13	C18	C22	C23	C26	C27	C29
C10	.032	3.050 *i(-)	.006	1.051 i(-)	.383 i(-)	.498 i(-)	.993 i(-)
C13		2.864 *i(-)	.016	.900 i(-)	.424 i(-)	.235 i(-)	.513 i(-)
C18			3.075 *i(-)	1.333 i(-)	1.200 i(-)	3.600 *i(-)	4.286 **i(-)
C22				1.076 i(-)	.407 i(-)	.432 i(-)	.880 i(-)
C23					.000 i(-)	1.607 i(-)	2.286 i(-)
C26						.900 i(-)	1.270 i(-)
C27							.034 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

HR Problems

The results show no significant association between sub-sector and HR problems at a .100 significance level as shown in Table 4.11.

Table 4.11
Chi-Square Method: Test between medium sized production sub-sector and HR problems

Sub-Sector	C13	C18	C22	C23	C26	C27	C29
C10	.029 i(-)	.572 i(-)	1.849	.151 i(-)	.602 i(-)	1.114 i(-)	1.320 i(-)
C13		.636 i(-)	1.243 i(-)	.194 i(-)	.321 i(-)	.495 i(-)	1.432 i(-)
C18			.230 i(-)	.364 i(-)	1.200 i(-)	1.286 i(-)	N/A
C22				.161 i(-)	2.372 i(-)	3.859 **i(-)	.533 i(-)
C23					.800 i(-)	1.111 i(-)	.830 i(-)
C26						.000 i(-)	2.593 i(-)
C27							2.758 *i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$

2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Financial Problems

The results show no significant association between sub-sector and financial problems at a .100 significance level as shown in Table 4.12.

Table 4.12
Chi-Square Method: Test between medium sized production sub-sector and financial problems

Sub-Sector	C13	C18	C22	C23	C26	C27	C29
C10	.001 i(-)	.462 i(-)	.655	.246 i(-)	.641 i(-)	.004 i(-)	1.477 i(-)
C13		.321 i(-)	.300 i(-)	.194 i(-)	.636 i(-)	.006 i(-)	1.432 i(-)
C18			1.113 i(-)	.800 i(-)	1.200 i(-)	.321 i(-)	2.593 i(-)
C22				.004 i(-)	.402 i(-)	.109 i(-)	.928 i(-)
C23					.364 i(-)	.096 i(-)	.830 i(-)
C26						.563 i(-)	N/A
C27							1.264 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Marketing Problems

The results showed the Chi-Square value of 4.427 and *p*-value of .035 (the 2-sided Fisher's Exact test gave a *p*-value of .067) that show a significant association between sub-sector of C10 with C18, and marketing problems at a .100 significance level; the Chi-Square value of 4.018 and *p*-value of .045 (the 2-sided Fisher's Exact test gave a *p*-value of .080) that show a significant association between sub-sector of C18 with C22, and marketing problems at a .100 significance level; the Chi-Square value of 5.600 and *p*-

value of .018 (the 2-sided Fisher's Exact test gave a *p*-value of .045) that show a significant association between sub-sector of C18 with C23, and marketing problems at a .050 significance level; while the other results show no significant association between sub-sector and marketing problems at a .100 significance level as shown in Table 4.13.

Table 4.13
Chi-Square Method: Test between medium sized production sub-sector and marketing problems

Sub-Sector	C13	C18	C22	C23	C26	C27	C29
C10	.178 i(-)	**4.427 **i(*)**	.033	.920 i(-)	.932 i(-)	1.765 i(-)	.275 i(-)
C13		2.864 *i(-)	.089 i(-)	1.174 i(-)	.424 i(-)	.701 i(-)	.513 i(-)
C18			**4.018 **i(*)**	**5.600 **i(**)**	1.200 i(-)	1.286 i(-)	4.286 **i(-)
C22				1.057 i(-)	.787 i(-)	1.463 i(-)	.358 i(-)
C23					2.000 i(-)	2.963 *i(-)	.085 i(-)
C26						.000 i(-)	1.270 i(-)
C27							1.887 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Logistics Problems

The results show no significant association between sub-sector and logistics problems at a .100 significance level as shown in Table 4.14.

Table 4.14
Chi-Square Method: Test between medium sized production sub-sector and logistics problems

Sub-Sector	C13	C18	C22	C23	C26	C27	C29
C10	.013 i(-)	.262 i(-)	.425 i(-)	.094 i(-)	.262 i(-)	.522 i(-)	.609 i(-)
C13		.294 i(-)	.069 i(-)	.022 i(-)	.294 i(-)	.580 i(-)	.674 i(-)
C18			.402 i(-)	.364 i(-)	N/A	N/A	N/A
C22				.004 i(-)	.402 i(-)	.797 i(-)	.928 i(-)
C23					.364 i(-)	.714 i(-)	.830 i(-)
C26						N/A	N/A
C27							N/A

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$

2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Organization Management Problems

The results show no significant association between sub-sector and organization management problems at a .100 significance level as shown in Table 4.15.

Table 4.15
Chi-Square Method: Test between medium sized production sub-sector and organization management problems

Sub-Sector	C13	C18	C22	C23	C26	C27	C29
C10	.292 i(-)	1.027 i(-)	.097	1.349 i(-)	1.027 i(-)	2.025 i(-)	.450 i(-)
C13		.636 i(-)	.484 i(-)	1.626 i(-)	.636 i(-)	1.236 i(-)	.047 i(-)
C18			1.169 i(-)	2.000 i(-)	N/A	N/A	.476 i(-)
C22				.867 i(-)	1.169 i(-)	2.286 i(-)	.628 i(-)
C23					2.000 i(-)	3.636 *i(-)	1.667 i(-)
C26						N/A	.476 i(-)
C27							.929 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Small Sized Trading Sector

Production Problems

The results show no significant association between sub-sector and production problems at a .100 significance level as shown in Table 4.16.

Table 4.16
Chi-Square Method: Test between small sized trading sub-sector and production problems

Sub-Sector	G46	G47
G45	.737	.790
G46		.015

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

HR Problems

The results showed the Chi-Square value of 4.275 and *p*-value of .039 (the 2-sided Fisher's Exact test gave a *p*-value of .054) that show a significant association between sub-sector of G45 with G47, and HR problems at a .100 significance level; the Chi-Square value of 5.299 and *p*-value of .021 that show a significant association between sub-sector of G46 with G47, and HR problems at a .050 significance level; while the other results show no significant association between sub-sector and HR problems at a .100 significance level as shown in Table 4.17.

Table 4.17
Chi-Square Method: Test between small sized trading sub-sector and HR problems

Sub-Sector	G46	G47
G45	.668 i(-)	**4.275** **i(*)**
G46		**5.299****

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Financial Problems

The results show no significant association between sub-sector and financial problems at a .100 significance level as shown in Table 4.18.

Table 4.18
Chi-Square Method: Test between small sized trading sub-sector and financial problems

Sub-Sector	G46	G47
G45	.192 i(-)	.755 i(-)
G46		.839

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Marketing Problems

The results show no significant association between sub-sector and marketing problems at a .100 significance level as shown in Table 4.19.

Table 4.19
Chi-Square Method: Test between small sized trading sub-sector and marketing problems

Sub-Sector	G46	G47
G45	.033	.043
G46		.784

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Logistics Problems

The results show no significant association between sub-sector and logistics problems at a .100 significance level as shown in Table 4.20.

Table 4.20
Chi-Square Method: Test between small sized trading sub-sector and logistics problems

Sub-Sector	G46	G47
G45	1.107 i(-)	1.413 i(-)
G46		.113

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Organization Management Problems

The results show no significant association between sub-sector and organization management Problems at a .100 significance level as shown in Table 4.21.

Table 4.21
Chi-Square Method: Test between small sized trading sub-sector and organization management problems

Sub-Sector	G46	G47
G45	.383 i(-)	.745 i(-)
G46		.421

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Medium Sized Trading Sector

Production Problems

The results show no significant association between sub-sector and production problems at a .100 significance level as shown in Table 4.22.

Table 4.22
Chi-Square Method: Test between medium sized trading sub-sector and production problems

Sub-Sector	G46	G47
G45	.345 i(-)	.097 i(-)
G46		.451

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

HR Problems

The results show no significant association between sub-sector and HR problems at a .100 significance level as shown in Table 4.23.

Table 4.23
Chi-Square Method: Test between medium sized trading sub-sector and HR problems

Sub-Sector	G46	G47
G45	4.136 **i(-)	1.364 i(-)
G46		1.828

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Financial Problems

The results show no significant association between sub-sector and financial problems at a .100 significance level as shown in Table 4.24.

Table 4.24
Chi-Square Method: Test between medium sized trading sub-sector and financial problems

Sub-Sector	G46	G47
G45	.799 [i(-)]	1.710 [i(-)]
G46		.601

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Marketing Problems

The results show no significant association between sub-sector and marketing problems at a .100 significance level as shown in Table 4.25.

Table 4.25
Chi-Square Method: Test between medium sized trading sub-sector and marketing problems

Sub-Sector	G46	G47
G45	.563 [i(-)]	.390 [i(-)]
G46		.091

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Logistics Problems

The results show no significant association between sub-sector and logistics problems at a .100 significance level as shown in Table 4.26.

Table 4.26
Chi-Square Method: Test between medium sized trading sub-sector and logistics problems

Sub-Sector	G46	G47
G45	.007 i(-)	.010 i(-)
G46		.002

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Organization Management Problems

The results show no significant association between sub-sector and organization management problems at a .100 significance level as shown in Table 4.27.

Table 4.27
Chi-Square Method: Test between medium sized trading sub-sector and organization management problems

Sub-Sector	G46	G47
G45	.612 i(-)	1.364 i(-)
G46		.568

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Small Sized Service Sector

Production Problems

The results showed the Chi-Square value of 3.707 and *p*-value of .054 (the 2-sided Fisher's Exact test gave a *p*-value of .088) that show a significant association between sub-sector of H49 with I56, and production problems at a .100 significance level; the Chi-Square value of 5.184 and *p*-value of .023 (the 2-sided Fisher's Exact test gave a *p*-value of .038) that show a significant association between sub-sector of I56 with L68, and production problems at a .050 significance level; while the other results show no significant association between sub-sector and production problems at a .100 significance level as shown in Table 4.28.

Table 4.28
Chi-Square Method: Test between small sized service sub-sector and production problems

Sub-Sector	H52	I55	I56	L68	S96
H49	.910 [i(-)]	2.275 [i(-)]	**3.707 [*i(*)]**	.187	0.16 [i(-)]
H52		.277 [i(-)]	1.022 [i(-)]	1.768 [i(-)]	.900 [i(-)]
I55			.275 [i(-)]	3.548 [*i(-)]	2.104 [i(-)]
I56				**5.184 [**i(**)]**	3.438 [*i(-)]
L68					.051 [i(-)]

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

HR Problems

The results showed the Chi-Square value of 4.046 and *p*-value of .044 (the 2-sided Fisher's Exact test gave a *p*-value of .081) that show a significant association between sub-sector of H49 with I56, and HR problems at a .100 significance level; while the other results show no significant association between sub-sector and HR problems at a .100 significance level as shown in Table 4.29.

Table 4.29
Chi-Square Method: Test between small sized service sub-sector and HR problems

Sub-Sector	H52	I55	I56	L68	S96
H49	.227 [i(-)]	3.406 [*i(-)]	**4.046 [**i(*)]**	1.567 [i(-)]	.227 [i(-)]
H52		1.286 [i(-)]	1.639 [i(-)]	.344 [i(-)]	.000 [i(-)]
I55			.032 [i(-)]	.603 [i(-)]	1.286 [i(-)]
I56				.933 [i(-)]	1.639 [i(-)]
L68					.344 [i(-)]

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Financial Problems

The results showed the Chi-Square value of 6.406 and *p*-value of .011 (the 2-sided Fisher's Exact test gave a *p*-value of .032) that show a significant association between sub-sector of H49 with I55, and financial problems at a .050 significance level; the Chi-Square value of 7.244 and *p*-value of .007 (the 2-sided Fisher's Exact test gave a *p*-value of .024) that show a significant association between sub-sector of H49 with I56, and financial problems at a .050 significance level; the Chi-Square value of 4.098 and *p*-value of .043 (the 2-sided Fisher's Exact test gave a *p*-value of .082) that show a significant association between sub-sector of I56 with S96, and financial problems at a .100 significance level; while the other results show no significant association between sub-sector and financial problems at a .100 significance level as shown in Table 4.30.

Table 4.30
Chi-Square Method: Test between small sized service sub-sector and financial problems

Sub-Sector	H52	I55	I56	L68	S96
H49	1.964 [i(-)]	**6.406 [**i(**)]**	**7.244 [***i(**)]**	2.775 [i(-)]	N/A
H52		1.286 [i(-)]	1.639 [i(-)]	.079 [i(-)]	1.059 [i(-)]
I55			.032 [i(-)]	1.271 [i(-)]	3.600 [*i(-)]
I56				1.718 [i(-)]	**4.098 [**i(*)]**
L68					1.506 [i(-)]

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$

2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Marketing Problems

The results showed the Chi-Square value of 4.375 and *p*-value of .036 that show a significant association between sub-sector of H49 with L68, and marketing problems at a .050 significance level; the Chi-Square value of 3.666 and *p*-value of .056 (the 2-sided Fisher's Exact test gave a *p*-value of .088) that show a significant association between sub-sector of L68 with S96, and marketing problems at a .100 significance level; while the other results show no significant association between sub-sector and marketing problems at a .100 significance level as shown in Table 4.31.

Table 4.31
Chi-Square Method: Test between small sized service sub-sector and marketing problems

Sub-Sector	H52	I55	I56	L68	S96
H49	.170 i(-)	.170 i(-)	.019 i(-)	**4.375****	.016 i(-)
H52		.000 i(-)	.052 i(-)	1.857 i(-)	.222 i(-)
I55			.052 i(-)	1.857 i(-)	.222 i(-)
I56				2.520 i(-)	.052 i(-)
L68					**3.666 *i(*)**

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Logistics Problems

The results showed the Chi-Square value of 4.620 and *p*-value of .032 (the 2-sided Fisher's Exact test gave a *p*-value of .093) that show a significant association between sub-sector of H49 with I56, and logistics problems at a .100 significance level;

while the other results show no significant association between sub-sector and logistics problems at a .100 significance level as shown in Table 4.32.

Table 4.32
Chi-Square Method: Test between small sized service sub-sector and logistics problems

Sub-Sector	H52	I55	I56	L68	S96
H49	1.964 i(-)	4.093 i(-)	**4.620 **i(*)**	.874 i(-)	1.964 i(-)
H52		.400 i(-)	.562 i(-)	.361 i(-)	.000 i(-)
I55			.018 i(-)	1.985 i(-)	.400 i(-)
I56				2.389 i(-)	.562 i(-)
L68					.361 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Organization Management Problems

The results show no significant association between sub-sector and organization management problems at a .100 significance level as shown in Table 4.33.

Table 4.33
Chi-Square Method: Test between small sized service sub-sector and organization management problems

Sub-Sector	H52	I55	I56	L68	S96
H49	.079 i(-)	.816 i(-)	2.824 *i(-)	2.198 i(-)	.079 i(-)
H52		.277 i(-)	1.431 i(-)	.868 i(-)	.000 i(-)
I55			.486 i(-)	.117 i(-)	.277 i(-)
I56				.233 i(-)	1.431 i(-)
L68					.868 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Medium Sized Service Sector

Production Problems

The results show no significant association between sub-sector and production problems at a .100 significance level as shown in Table 4.34.

Table 4.34
Chi-Square Method: Test between medium sized service sub-sector and production problems

Sub-Sector	I55	I56	S96
H49	.533 i(-)	.194 i(-)	.833 i(-)
I55		1.215 i(-)	1.875 i(-)
I56			.444 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

HR Problems

The results show no significant association between sub-sector and HR problems at a .100 significance level as shown in Table 4.35.

Table 4.35
Chi-Square Method: Test between medium sized service sub-sector and HR problems

Sub-Sector	I55	I56	S96
H49	2.000 i(-)	.058 i(-)	.313 i(-)
I55		1.215 i(-)	1.875 i(-)
I56			.444 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Financial Problems

The results show no significant association between sub-sector and financial problems at a .100 significance level as shown in Table 4.36.

Table 4.36
Chi-Square Method: Test between medium sized service sub-sector and financial problems

Sub-Sector	I55	I56	S96
H49	N/A	1.556 i(-)	N/A
I55		1.556 i(-)	N/A
I56			.444 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Marketing Problems

The results show no significant association between sub-sector and marketing problems at a .100 significance level as shown in Table 4.37.

Table 4.37
Chi-Square Method: Test between medium sized service sub-sector and marketing problems

Sub-Sector	I55	I56	S96
H49	.000 i(-)	2.100 i(-)	.833 i(-)
I55		2.100 i(-)	.833 i(-)
I56			4.000 **i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Logistics Problems

The results show no significant association between sub-sector and logistics problems at a .100 significance level as shown in Table 4.38.

Table 4.38
Chi-Square Method: Test between medium sized service sub-sector and logistics problems

Sub-Sector	I55	I56	S96
H49	1.143 i(-)	3.733 *i(-)	N/A
I55		1.215 i(-)	.576 i(-)
I56			1.333 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

Organization Management Problems

The results show no significant association between sub-sector and organization management problems at a .100 significance level as shown in Table 4.39.

Table 4.39
Chi-Square Method: Test between medium sized service sub-sector and organization management problems

Sub-Sector	I55	I56	S96
H49	.533 i(-)	2.100 i(-)	.833 i(-)
I55		3.938 **i(-)	.576 i(-)
I56			4.000 **i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

4.3.3 Chi-Square Method: Test between Regions and Problems

This section used a chi-square test to determine whether there is a significant association between regions and problems, each sub-sector in the same size. SPSS is used in the analysis of these hypothesis.

State the Hypothesis:

H_0: "Regions" is not associated with "Problems"

H_1: "Regions" is associated with "Problems"

The Small Sized Production Sector

The results showed the Chi-Square value of 9.514 and *p*-value of .090 for production problems of sub-sector C18, the Chi-Square value of 9.825 and *p*-value of .080 for organization management problems of sub-sector C22, the Chi-Square value of 6.000 and *p*-value of .050 for HR problems of sub-sector C29 and the Chi-Square value of 6.000 and *p*-value of .050 for financial problems of sub-sector C29. However, the observed significance level based on the chi-square distribution for almost all results are not accurate as shown in Table 4.40.

Table 4.40
Chi-Square Method: Test between regions of small sized production sub-sector and problems

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
C10	8.788	3.553 [i]	4.882 [i]	5.252 [i]	4.624 [i]	6.900 [i]
C11	1.953 [i]	3.332 [i]	3.332 [i]	4.730 [i]	2.249 [i]	3.958 [i]
C13	4.040 [i]	3.333 [i]	3.333 [i]	1.979 [i]	.980 [i]	1.600 [i]
C18	9.514 [*i]	1.728 [i]	1.664 [i]	9.134 [i]	1.664 [i]	2.914 [i]
C22	9.000 [i]	7.467 [i]	2.819 [i]	4.869 [i]	6.629 [i]	9.825 [*i]
C23	4.794 [i]	2.705 [i]	3.765 [i]	4.293 [i]	2.631 [i]	4.316 [i]
C26	.833 [i(-)]	N/A	1.875 [i(-)]	.833 [i(-)]	N/A	2.222 [i(-)]
C27	.058 [i(-)]	.058 [i(-)]	1.556 [i(-)]	.875 [i(-)]	N/A	.875 [i(-)]
C29	2.625 [i]	6.000 [**i]	6.000 [**i]	1.500 [i]	.600 [i]	2.625 [i]

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.

3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Small Sized Trading Sector

The results showed the Chi-Square value of 12.287 and *p*-value of .031 for marketing problems of sub-sector G47. However, the observed significance level based on the chi-square distribution for almost all results are not accurate as shown in Table 4.41.

Table 4.41
Chi-Square Method: Test between regions of small sized trading sub-sector and problems

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
G45	2.184 [i]	3.572 [i]	2.229 [i]	3.810 [i]	2.250 [i]	2.548 [i]
G46	4.642	2.921 [i]	3.109 [i]	1.946	5.294 [i]	6.626
G47	6.866	3.742 [i]	3.579 [i]	12.287 [**i]	5.373 [i]	2.399 [i]

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Small Sized Service Sector

The results showed the Chi-Square value of 9.000 and *p*-value of .029 for HR problems of sub-sector S96. However, the observed significance level based on the chi-square distribution for all results are not accurate as shown in Table 4.42.

Table 4.42
Chi-Square Method: Test between regions of small sized service sub-sector and problems

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
H49	2.760 [i]	1.518 [i]	N/A	2.760 [i]	N/A	3.074 [i]
H52	1.125 [i]	1.406 [i]	1.406 [i]	.900 [i]	1.406 [i]	.321 [i]
I55	6.429 [i]	6.825 [i]	3.254 [i]	5.312 [i]	5.312 [i]	6.825 [i]
I56	3.429 [i]	.225 [i]	.225 [i]	.000 [i]	.375 [i]	3.000 [i]
L68	5.714 [i]	1.696 [i]	3.473 [i]	1.696 [i]	4.211 [i]	6.756 [i]
S96	2.925 [i]	9.000 [**i]	N/A	4.950 [i]	3.938 [i]	1.768 [i]

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Medium Sized Production Sector

The results showed the Chi-Square value of 11.677 and *p*-value of .039 for financial problems of sub-sector C10, the Chi-Square value of 4.614 and *p*-value of .100 for marketing problems of sub-sector C13, the Chi-Square value of 6.000 and *p*-value of .050 for marketing problems of sub-sector C27 and the Chi-Square value of 7.000 and *p*-value of .030 for organization management problems of sub-sector C29. However, the observed significance level based on the chi-square distribution for all results are not accurate as shown in Table 4.43.

Table 4.43
Chi-Square Method: Test between regions of medium sized production sub-sector and problems

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
C10	3.181 [i]	2.498 [i]	11.677 [**i]	2.915 [i]	1.508 [i]	8.814 [i]
C11	N/A	N/A	N/A	N/A	N/A	N/A
C13	.917 [i]	.356 [i]	2.037 [i]	4.614 [*i]	.917 [i]	2.037 [i]
C18	N/A	N/A	.750 [i(-)]	N/A	N/A	N/A
C22	4.350 [i]	2.178 [i]	15.725 [i]	5.129 [i]	6.644 [i]	5.689 [i]
C23	3.000 [i]	.563 [i]	.563 [i]	4.179 [i]	9.000 [i]	3.600 [i]
C26	.750 [i(-)]	3.000 [i(-)]	N/A	3.000 [i(-)]	N/A	N/A
C27	3.000 [i]	.750 [i]	1.200 [i]	6.000 [**i]	N/A	N/A
C29	3.733 [i]	N/A	N/A	3.733 [i]	N/A	7.000 [**i]

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Medium Sized Trading Sector

The results showed the Chi-Square value of 11.154 and *p*-value of .048 for financial problems of sub-sector G46. However, the observed significance level based on the chi-square distribution for all results are not accurate as shown in Table 4.44.

Table 4.44
Chi-Square Method: Test between regions of medium sized trading sub-sector and problems

Sub-Sector	Problems ((Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
G45	2.917 [i]	2.917 [i]	2.917 [i]	2.917 [i]	5.000 [i]	5.000 [i]
G46	4.971 [i]	1.994 [i]	11.154 [**i]	1.212 [i]	3.077 [i]	2.199 [i]
G47	6.213 [i]	1.167 [i]	3.357 [i]	2.121 [i]	7.048 [i]	2.087 [i]

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.

3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Medium Sized Service Sector

The results show no significant association between regions and problems. However, the observed significance level based on the chi-square distribution for all results are not accurate as shown in Table 4.45.

Table 4.45
Chi-Square Method: Test between regions of medium sized service sub-sector and problems

Sub-Sector	Problems ((Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
H49	1.333 i(-)	4.000 i(-)	N/A	1.333 i(-)	N/A	1.333 i(-)
H52	N/A	N/A	N/A	N/A	N/A	N/A
I55	.444 i(-)	.444 i(-)	N/A	1.333 i(-)	.444 i(-)	.444 i(-)
I56	N/A	N/A	N/A	N/A	N/A	N/A
L68	N/A	N/A	N/A	N/A	N/A	N/A
S96	N/A	N/A	N/A	N/A	N/A	N/A

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

4.3.4 Chi-Square Method: Test between Regions and Problems Part 2

According to section 4.3.3, the observed significance level based on the chi-square distribution for almost all results are not accurate. Thus, data are grouped to 2x2 tables and Fisher's Exact Test is used to find the results.

In the case of Thailand, development mainly concentrated in Bangkok that is grown more than other provinces (Strategy and Evaluation Department, 2018). However, the proportion of Bangkok economy has been reduced dramatically in the

past 10 years, due to the distribution of activities to other provinces especially manufacturing in agriculture and industry (Kasikorn Research Center, 2013). Thus, the data are grouped into 2 groups, which are Bangkok and the rest provinces and used a chi-square test to determine whether there is a significant association between regions and problems (the difference between Bangkok with the rest provinces and problems that occur in business operations), each sub-sector in the same size. SPSS is used in the analysis of these hypothesis.

State the Hypothesis:

H_0: "Regions" is not associated with "Problems"

H_1: "Regions" is associated with "Problems"

The Small Sized Production Sector

The results show no significant association between regions and problems at a .100 significance level as shown in Table 4.46.

Table 4.46
Chi-Square Method: Test between regions of small sized production sub-sector and problems

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
C10	.010	2.509 i(-)	.898 i(-)	.209	.270 i(-)	.573 i(-)
C11	.014 i(-)	.323 i(-)	.323 i(-)	.101 i(-)	.130 i(-)	3.958 **i(-)
C13	.808 i(-)	.556 i(-)	.556 i(-)	.469 i(-)	.392 i(-)	.000 i(-)
C18	1.169 i(-)	.117 i(-)	1.664 i(-)	2.918 *i(-)	1.664 i(-)	1.169 i(-)
C22	3.429 *i(-)	1.143 i(-)	1.361 i(-)	2.449 i(-)	.490 i(-)	1.714 i(-)
C23	2.012 i(-)	.419 i(-)	1.032 i(-)	2.012 i(-)	.263 i(-)	1.304 i(-)
C26	.833 i(-)	N/A	1.875 i(-)	.833 i(-)	N/A	2.222 i(-)
C27	.058 i(-)	.058 i(-)	1.556 i(-)	.875 i(-)	N/A	.875 i(-)
C29	2.400 i(-)	.240 i(-)	.240 i(-)	.600 i(-)	.240 i(-)	2.400 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.

4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Small Sized Trading Sector

The results showed the Chi-Square value of 3.473 and *p*-value of .062 that show a significant association between regions and production problems of sub-sector G46 at a .100 significance level, while the other results show no significant association between regions and problems at a .100 significance level as shown in Table 4.47.

Table 4.47
Chi-Square Method: Test between regions of small sized trading sub-sector and problems

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
G45	.036 i(-)	1.039 i(-)	.762 i(-)	2.939 *i(-)	.762 i(-)	.527 i(-)
G46	**3.473***	1.453	.106	.421	.994	.044
G47	.882	.024	.006	2.347	1.255	.260

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Small Sized Service Sector

The results show no significant association between regions and problems at a .100 significance level as shown in Table 4.48.

Table 4.48
Chi-Square Method: Test between regions of small sized service sub-sector and problems

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
H49	.084 i(-)	1.518 i(-)	N/A	.084 i(-)	N/A	.093 i(-)
H52	.900 i(-)	.900 i(-)	.900 i(-)	.090 i(-)	.900 i(-)	.032 i(-)
I55	.476 i(-)	2.593 i(-)	2.593 i(-)	4.444 *i(-)	4.444 *i(-)	2.593 i(-)
I56	3.429 *i(-)	1.600 i(-)	1.600 i(-)	.000 i(-)	.889 i(-)	.000 i(-)
L68	.208 i(-)	.078 i(-)	.882 i(-)	.078 i(-)	.263 i(-)	.469 i(-)
S96	.090 i(-)	.900 i(-)	N/A	.090 i(-)	.900 i(-)	.032 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Medium Sized Production Sector

The results showed the Chi-Square value of 4.412 and *p*-value of .036 (the 2-sided Fisher's Exact test gave a *p*-value of .080) that show a significant association between regions and marketing problems of sub-sector C13 at a .100 significance level and the Chi-Square value of 6.000 and *p*-value of .014 (the 2-sided Fisher's Exact test gave a *p*-value of .067) that show a significant association between regions and marketing problems of sub-sector C27 at a .100 significance level, while the other results show no significant association between regions and problems at a .100 significance level as shown in Table 4.49.

Table 4.49
Chi-Square Method: Test between regions of medium sized production sub-sector and problems

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
C10	.733 i(-)	.089 i(-)	.173 i(-)	.006 i(-)	.244 i(-)	.003 i(-)
C11	N/A	N/A	N/A	N/A	N/A	N/A
C13	.110 i(-)	.020 i(-)	2.037 i(-)	**4.412 **i(*)**	.917 i(-)	2.037 i(-)
C18	N/A	N/A	.750 i(-)	N/A	N/A	N/A
C22	.907 i(-)	.340 i(-)	.597 i(-)	.440 i(-)	.597 i(-)	.028 i(-)
C23	N/A	N/A	N/A	N/A	N/A	N/A
C26	N/A	N/A	N/A	N/A	N/A	N/A
C27	1.500 i(-)	.375 i(-)	.600 i(-)	**6.000 **i(*)**	N/A	N/A
C29	N/A	N/A	N/A	N/A	N/A	N/A

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Medium Sized Trading Sector

The results showed the Chi-Square value of 3.149 and *p*-value of .076 that show a significant association between regions and production problems of sub-sector G47 at a .100 significance level, while the other results show no significant association between regions and problems at a .100 significance level as shown in Table 4.50.

Table 4.50
Chi-Square Method: Test between regions of medium sized trading sub-sector and problems

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
G45	1.875 i(-)	.833 i(-)	.833 i(-)	.833 i(-)	.313 i(-)	1.875 i(-)
G46	.024	1.033 i(-)	.200 i(-)	.355	2.302 i(-)	.380 i(-)
G47	**3.149***	.005 i(-)	.030 i(-)	1.025	.005 i(-)	.005 i(-)

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$

2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

The Medium Sized Service Sector

The results show no significant association between regions and problems at a .100 significance level as shown in Table 4.51.

Table 4.51
Chi-Square Method: Test between regions of medium sized service sub-sector and problems

Sub-Sector	Problems (Chi-Square value)					
	Production	HR	Finance	Marketing	Logistics	OM
H49	1.333 i(-)	4.000 i(-)	N/A	1.333 i(-)	N/A	1.333 i(-)
H52	N/A	N/A	N/A	N/A	N/A	N/A
I55	.444 i(-)	.444 i(-)	N/A	1.333 i(-)	.444 i(-)	.444 i(-)
I56	N/A	N/A	N/A	N/A	N/A	N/A
L68	N/A	N/A	N/A	N/A	N/A	N/A
S96	N/A	N/A	N/A	N/A	N/A	N/A

Notes. 1. *** $p < .010$, ** $p < .050$, * $p < .100$
2. i = more than 20% of the cells have expected values less than 5, or if the minimum expected frequency is less than 1. The observed significance level based on the chi-square distribution is not accurate.
3. In parentheses are Fisher's Exact Test results, which tested after the results from Pearson's chi-square test are not accurate.
4. N/A = Not applicable, which caused by zero counts in both variables or no samples in another variable that used in calculations.

4.4 Expert Interviews

After getting the Chi-Square test results, the empirical part of this study also utilizes 2 industry experts (Government officer, senior professional level or more) opinions in order to provide more advice about problems and development of entrepreneurs by the interviews that questions based on test results, which can be summarized are as follows (See the full interviews in Appendix C).

1. The small sized beverage production enterprises (C11) need support in logistics and organization management knowledge more than other industries in the small sized production sector. Caused by this sub-sector has higher logistics costs than other industries as the country's logistics system has developed only in a large city but most raw materials are all over the country. In addition, small sized enterprises also lack the logistics supply chain knowledge.
2. The medium sized textile production industry (C13) need support in technology knowledge and develop more in regional in the area of marketing problems on medium sized enterprises. Caused by location that the medium sized enterprises located in regional encountered more marketing problems than medium sized enterprises located in Bangkok due to the technology disruption, different consumer behavior, different cost of operations (wage, transportation, other utility) and lack of skilled labors.
3. The printing and reproduction of media industry (C18) need channels to access information technology, marketing and trend knowledge, matching business with customers that should focus on medium sized enterprises. Caused by 2 key differences, which are size that medium enterprises has more market problems, and encountered different marketing problems from the other industry in production sector due to the highly competitive, fast change and lack of funds.
4. The production of rubber and plastic products industry (C22) need support in human resources knowledge and channels to access the government services that should focus on small sized enterprises. Caused by the small enterprises lack skilled human resources.
5. The medium sized electrical equipment production industry (C27) need support in technology and marketing knowledge and need to develop more in regional in the area of marketing problems on medium sized enterprises. Caused by location that the medium sized enterprises located in regional encountered more marketing problems than medium sized enterprises located in Bangkok due to the technology disruption, different consumer behavior,

different cost of operations (wage, transportation, other utility) and lack of skilled labors.

6. The wholesale trade industry (G46) need support in human resources knowledge, business networking that should focus on small sized enterprises and need to develop more in regional in the area of production problems on small sized enterprises. Caused by 2 key differences, which are size that small sized enterprises has more HR problems, and location that the small sized enterprises located in regional encountered more production problems than small sized enterprises located in Bangkok due to the technology disruption, different consumer behavior, different cost of operations (wage, transportation, other utility) and lack of skilled labors.
7. The retail trade industry (G47) need support in technology knowledge and need to develop more in Bangkok in the area of production problems on medium sized enterprises. Caused by High competition in production and higher production costs.
8. The wholesale, retail, repair of motor vehicles and motorcycles (G45) and the wholesale trade (G46) need support in human resource on small sized enterprises more than the retail trade industry (G47). Caused by a lack of skilled labors and does not support the development of human resources.
9. The small sized food and beverage service industry (I56) need support in technology knowledge and access government funding sources. Caused by the production process of this sub-sector must have standards involved, an expiration date directly related to the logistics problems. In addition, there is a problem accessing the funding source due to no collateral.
10. The small sized real estate industry (L68) need support in marketing knowledge. In addition, issuing laws or regulations to that support small enterprises will increase competitive opportunities in the markets. Caused by this sub-sector are directly related to marketing more obviously than other industries because marketing is very important (design, size, location, PR) that will directly affect business operations.

4.5 Focus group interviews

This section interview 20 successful enterprises, in order to gather and identify the factors that made enterprises successful and the policies/support that enterprises need. The successful enterprises in this study are selected from the "Success Cases" of the Department of Industrial Promotion in the years 2019 (successful enterprises that entering the government services by the Department of Industrial Promotion from a total of about 50 enterprises), which can be summarized are as follows (See the full interviews in Appendix D).

Production Sector

The interviews of 8 successful enterprises in the production sector found that the most important factor that made enterprises successful is marketing, which found in 7 of 8 successful enterprises. In addition, there are other important factors as shown in Table 4.52.

Table 4.52
The important factors that made enterprises successful in the production sector

Sector	Success factors								
	Marketing	Product R&D	Technology	HR	Reliability	Heedfulness	Cost	CSR	Difference
Production	7	4	2	2	1	1	1	1	1

The policies/support that enterprises in the production sector need most are finance and technology with the same number of 4 of 8 enterprises, followed by marketing and entrepreneurship as shown in Table 4.53.

Table 4.53
The policies/support that enterprises in the production sector need

Sector	Policies/support			
	Technology	Financial	Marketing	Entrepreneurship
Production	4	4	2	2

Trading Sector

The interviews of 8 successful enterprises in the trading sector found that the most important factor that made enterprises successful is marketing, which found in 7 of 8 successful enterprises. In addition, there are other important factors as shown in Table 4.54.

Table 4.54
The important factors that made enterprises successful in the trading sector

Sector	Success factors									
	Marketing	Product R&D	Standard	Services	Partners	HR	Cost	CSR	Technology	Never give up
Trading	7	2	2	2	2	2	1	1	1	1

The policies/support that enterprises in the trading sector need most is marketing, followed by technology and product development as shown in Table 4.55.

Table 4.55
The policies/support that enterprises in the trading sector need

Sector	Policies/support		
	Marketing	Technology	Product Development
Trading	6	3	1

Service Sector

The interviews of 4 successful enterprises in the service sector found that the most important factor that made enterprises successful are technology and determination/love in work, followed by good partners and marketing as shown in Table 4.46.

Table 4.56
The important factors that made enterprises successful in the service sector

Sector	Success factors			
	Technology	Determination/love in work	Partners	Marketing
Service	2	2	1	1

The policies/support that enterprises in the service sector need most are finance, followed by business operations knowledge as shown in Table 4.57.

Table 4.57
The policies/support that enterprises in the service sector need

Sector	Policies/support	
	Financial	Business operations knowledge
Service	2	1

4.6 Analytic Hierarchy Approach (AHP)

This research will use the Analytic Hierarchy Approach (AHP) to select the most suitable process for promotion and develop entrepreneurs. The steps of the AHP are as follows:

1. Identification of promotion and develop criteria alternatives

The assessment criteria and alternatives were performed by the industry expert (the Plan and Policy Analyst, Expert level) and compared the relative importance between the two factors.

Criteria of process for promotion and develop entrepreneurs are as follows:

1. Effectiveness
2. Expense
3. Policies
4. Need of entrepreneurs

Alternatives of process for promotion and develop entrepreneurs are as follows:

1. Training
2. Workshop
3. Consulting

The hierarchy of process for promotion and develop entrepreneurs shown in Figure 4.25.

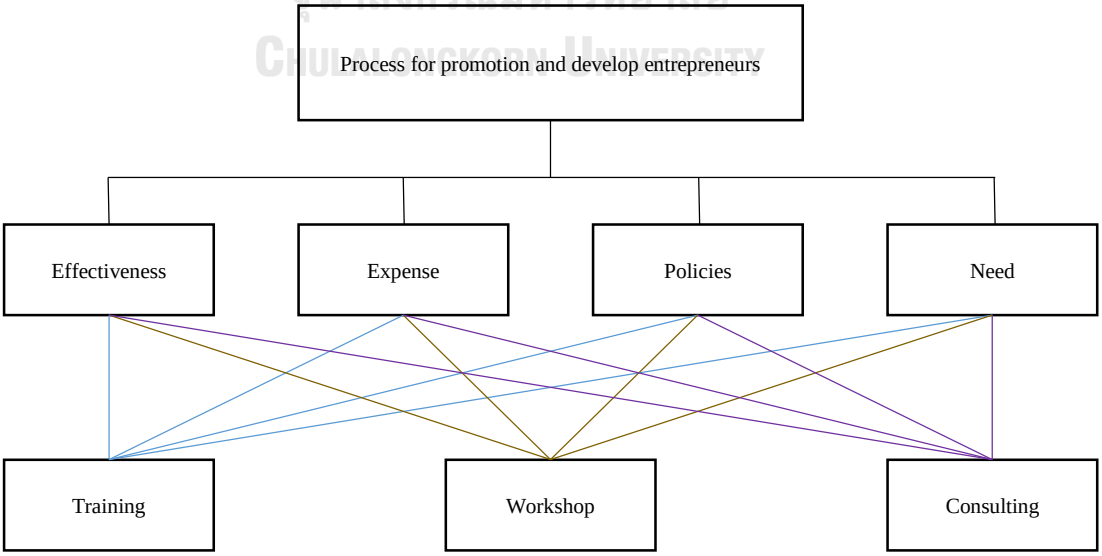


Figure 4.25 Hierarchy of process for promotion and develop entrepreneurs

2. Assessment pairwise comparisons

Assessment pairwise comparisons factors for criteria and alternatives of the hierarchy based on expert judgment. The values and opinions definition of scale comparison is shown in Table 4.58.

Table 4.58
The fundamental scale of Pairwise Comparison Assessment

Intensity of importance	Definition	Explanation
1	equal	importance two activities contribute equally to the objective
3	moderate	importance experience and judgment slightly favor one activity over another
5	strong	importance experience and judgment strongly favor one activity over another
7	very strong or demonstrated importance	an activity is favored very strongly over another, its dominance demonstrated in practice
9	extreme importance	the evidence favoring one activity over another is of the highest possible order of affirmation
2, 4, 6, 8	for interpolation between the above values intermediary values	sometimes one needs to interpolate a compromise judgment numerically because there is no good word to describe it

Weighting Criteria and Alternatives

Start with compiled a matrix of pairwise comparisons following matrix A that is shown as equation 2.

$$A=\begin{pmatrix} a_{11} & a_{12} & \dots & a_{1j} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2j} & \dots & a_{2n} \\ \dots & \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & a_{ij} & \dots & \dots \\ a_{m1} & a_{m2} & \dots & a_{mj} & \dots & a_{mn} \end{pmatrix} \quad \text{---------- (2)}$$

After that, normalization the matrix A and calculate the average of the horizontal totals to get the Eigenvector. Calculate λ_{max} of each criteria and alternatives

by summing the multiplication of the number of weights in each column with the principal eigenvector of the matrix.

Calculating the value of the "consistency index" for each matrix of order n using the equation 3.

$$C.I. = (\lambda_{max} - n) / (n - 1) \quad \text{---------- (3)}$$

Calculating the value of the "Consistency ratio" for each criteria and alternatives using the equation 4.

$$C.R. = C.I. / R.I. \quad \text{---------- (4)}$$

R.I. = random index (random index) for a matrix of order n shown in Table 4.59.

Table 4.59
Random Consistency Index (R.I.)

N	1, 2	3	4	5	6	7	8	9	10	11	12	13	14	15
R.I.	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49	1.51	1.48	1.56	1.57	1.59

If the value of the consistency ratio (C.R.) < 0.1, the comparison matrix is acceptable. After that, apply all eigenvector to calculate the decision-making of alternatives.

The results of weighting and Eigenvector of criteria and each alternative are shown in Table 4.60 - 4.69.

Table 4.60
Weighting Criteria

Criteria	Effectiveness	Expense	Policies	Need
Effectiveness	1	5	1/2	1/5
Expense	1/5	1	1/5	1/9
Policies	2	5	1	1/5
Need	5	9	5	1
Total	8.200	20.000	6.700	1.511

Table 4.61
Calculation of Eigenvector values of Criteria

Criteria	Effectiveness	Expense	Policies	Need	Total	Eigenvector
Effectiveness	0.122	0.250	0.075	0.132	0.58	0.145
Expense	0.024	0.050	0.030	0.074	0.18	0.044
Policies	0.244	0.250	0.149	0.132	0.78	0.194
Need	0.610	0.450	0.746	0.662	2.47	0.617
Total	1.00	1.00	1.00	1.00	4.00	1.000

Table 4.62
Weighting Alternative (Effectiveness)

Alternatives	Training	Workshop	Consulting
Training	1	1/3	1/9
Workshop	3	1	1/7
Consulting	9	7	1
Total	13.000	8.333	1.254

Table 4.63
Calculation of Eigenvector values of Alternative (Effectiveness)

Alternatives	Training	Workshop	Consulting	Total	Eigenvector
Training	0.08	0.040	0.089	0.21	0.069
Workshop	0.23	0.120	0.114	0.46	0.155
Consulting	0.69	0.840	0.797	2.33	0.777
Total	1.00	1.00	1.00	3.00	1.00

Table 4.64
Weighting Alternative (Expense)

Alternatives	Training	Workshop	Consulting
Training	1	3	9
Workshop	1/3	1	5
Consulting	1/9	1/5	1
Total	1.444	4.200	15.000

Table 4.65
Calculation of Eigenvector values of Alternative (Expense)

Alternatives	Training	Workshop	Consulting	Total	Eigenvector
Training	0.69	0.714	0.600	2.01	0.669
Workshop	0.23	0.238	0.333	0.80	0.267
Consulting	0.08	0.048	0.067	0.19	0.064
Total	1.00	1.00	1.00	3.00	1.00

Table 4.66
Weighting Alternative (Policies)

Alternatives	Training	Workshop	Consulting
Training	1	2	3
Workshop	1/2	1	2
Consulting	1/3	1/2	1
Total	1.833	3.500	6.000

Table 4.67
Calculation of Eigenvector values of Alternative (Policies)

Alternatives	Training	Workshop	Consulting	Total	Eigenvector
Training	0.55	0.571	0.500	1.62	0.539
Workshop	0.27	0.286	0.333	0.89	0.297
Consulting	0.18	0.143	0.167	0.49	0.164
Total	1.00	1.00	1.00	3.00	1.00

Table 4.68
Weighting Alternative (Need)

Alternatives	Training	Workshop	Consulting
Training	1	1/3	1/7
Workshop	3	1	1/5
Consulting	7	5	1
Total	11.000	6.333	1.343

Table 4.69
Calculation of Eigenvector values of Alternative (Need)

Alternatives	Training	Workshop	Consulting	Total	Eigenvector
Training	0.09	0.053	0.106	0.25	0.083
Workshop	0.27	0.158	0.149	0.58	0.193
Consulting	0.64	0.789	0.745	2.17	0.724
Total	1.00	1.00	1.00	3.00	1.00

Table 4.70
Calculation summary of λ_{max} C.I. and C.R.

Criteria and Alternatives	n	λ_{max}	C.I.	R.I.	C.R.	Results
Criteria	4	4.198	0.066	0.900	0.073	Acceptable
Alternative (Effectiveness)	3	3.082	0.041	0.580	0.071	Acceptable
Alternative (Expense)	3	3.029	0.015	0.580	0.025	Acceptable
Alternative (Policies)	3	3.009	0.005	0.580	0.008	Acceptable
Alternative (Need)	3	3.066	0.033	0.580	0.057	Acceptable

From Table 4.70, it is found that C.R. values are all acceptable. Thus, the eigenvectors of criteria and alternatives are used to calculate the decision-making of the most suitable process for promotion and develop entrepreneurs as shown in Table 4.71.

Table 4.71
Composite Score of Alternatives

Criteria / Alternatives	Effectiveness 0.1447	Expense 0.0444	Policies 0.1939	Need 0.6169	Composite Score	Rank
Training	0.069	0.669	0.539	0.083	0.196	3
Workshop	0.155	0.267	0.297	0.193	0.211	2
Consulting	0.777	0.064	0.164	0.724	0.593	1

The results of the Analytic Hierarchy Approach (AHP) found that "consulting" is the most suitable process for promotion and develop entrepreneurs, followed by "workshop" and "training".

Chapter 5
Discussions and Conclusions

Throughout the study process from the literature reviews, descriptive analysis, chi-square method, expert interviews, focus group interviews and Analytic Hierarchy Approach (AHP) can be summarized are as follows:

The most common problems

From Chapter 4, the frequency distribution shown that the most common problems that SMEs encountered are production problems and marketing problems for almost industries as shown in Table 5.1. These problems are major obstacles in the business operations of SMEs in Thailand.

Table 5.1
The most common problem that SMEs encountered

Sub-Sector	Size	The most common problems	
C10	Small	Production	Marketing
	Medium	Production	Marketing
C11	Small	Production	Logistics
	Medium	N/A	N/A
C13	Small	Production	Marketing
	Medium	Production	Marketing
C18	Small	Production	Organization Management
	Medium	Marketing	Financial
C22	Small	Production	Marketing
	Medium	Production	Marketing
C23	Small	Production	Marketing
	Medium	Organization Management	Production
C26	Small	Production	Organization Management
	Medium	Marketing	Production/HR
C27	Small	Production	HR
	Medium	Production/Marketing	-
C29	Small	Production/Marketing	-
	Medium	Production	Marketing
G45	Small	Production/Marketing	-
	Medium	Production/Marketing	-

Table 5.1 - Continued

G46	Small	Production	Marketing
	Medium	Production	Marketing
G47	Small	Production	Marketing
	Medium	Production	Marketing
H49	Small	Marketing	Production
	Medium	Production/Marketing/OM	-
H52	Small	Production	Marketing
	Medium	N/A	N/A
I55	Small	Production	Marketing
	Medium	HR	Marketing
I56	Small	Production	Marketing/OM
	Medium	Marketing/OM	-
L68	Small	Production/OM	-
	Medium	N/A	N/A
S96	Small	Marketing	Production
	Medium	Production	N/A

The different promotion and development

From the Chi-Square results and expert interviews, found the differences are associated with problems that occur in business operations, which differ in each sub-sector. Therefore, it is necessary to promote and support according to the key differences as shown in Table 5.2.

Table 5.2
The Promotion and Development according to the key differences

Sub-Sector	Key differences	Promotion and Development
C11 (Small)	Sector	Logistics and organization management knowledge.
C13 (Medium)	Regions (Bangkok-Others)	Technology and marketing knowledge and promoting to develop more in regional in the area of marketing problems.
C18 (Small/Medium)	Size	Access information technology, marketing and trend, matching business with customers (focus on medium sized enterprises).
C18 (Medium)	Sector	Digital technology knowledge and marketing.
C22 (Small/Medium)	Size	Human resources to be able to apply technical knowledge and innovation to improve the organization, and expand access to government services (focus on small sized enterprises).
C27 (Medium)	Regions (Bangkok-Others)	Technology and marketing knowledge and promoting to develop more in regional in the area of marketing problems.

Table 5.2 - Continued

G46 (Small/Medium)	Size	Human resources, business networking (focus on small sized enterprises).
G46 (Small)	Regions (Bangkok-Others)	Technology knowledge and promoting to develop more in regional in the area of production problems.
G45 and G46 (Small)	Sector	Human resource.
G47 (Medium)	Regions (Bangkok-Others)	Technology knowledge and promoting to develop more in Bangkok in the area of production problems.
I56 (Small)	Sector	Technology knowledge, Access government funding sources, Logistics knowledge.
L68 (Small)	Sector	Online marketing knowledge, Issuing laws or regulations to support small enterprises and increase competitive opportunities.

Promotion and Development guideline

From the results of this research, can be summarized as "3 main points" in promoting and developing SMEs are as follows:

1. Key differences

As mentioned above, it can summarize the promotion and development that according to the key differences as shown in Table 5.2.

2. Key success factors

From the interview of successful enterprises, it was found that the most important factor that makes a business successful is marketing and technology. Therefore, if SMEs want to be successful in their business operations, they need to focus on these factors. In addition, the government should be focusing to promote SMEs more in marketing and technology, which can be used to solve production and marketing problems that are found to be a top problems in every industries.

3. Process

The results of the Analytic Hierarchy Approach (AHP) found that "consulting" is the most suitable process for promotion and develop entrepreneurs, followed by "workshop" and "training".

Steps of guideline

1. Key differences: To develop SMEs have to look at the sub-sector that is there any differences that was associated with problems?

2. Promotion and Development: If any, it requires different development as shown in Table 5.2.

3. Key success factors: To increase business success with success factors "marketing and technology" is the important thing that the government should additionally promote SMEs.

4. Process: The results of the Analytic Hierarchy Approach (AHP) found that “consulting” is the most suitable process for promotion and develop entrepreneurs, followed by “workshop” and “training”.

The guideline model shown in Figure 5.1.

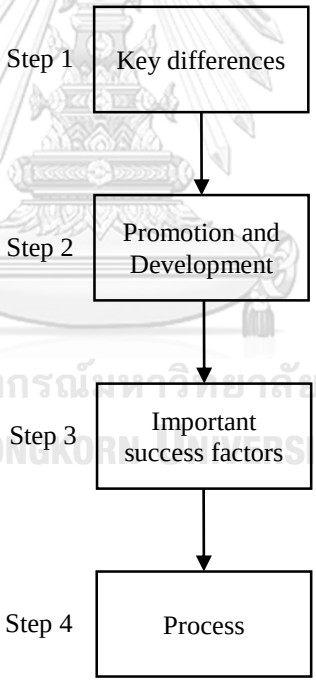


Figure 5.1 Guideline model

Example Scenario

For example, if the government wants to promote the small sized beverage production enterprises (C11), the government needs to focus support on logistics and organization management knowledge more than other industries in the production

sector. In addition, the government should provide support in marketing and technology that suitable for these enterprises to increase the opportunity to make the enterprises successful by consulting.

Reliability of the guideline

Expert Opinion

The industry expert (senior professional level) interviewed for agreeing or disagreeing with the guideline. This interview uses the five-point Likert scale from "Strongly Agree" to "Strongly Disagree". It has 11 questions, which takes about 10 minutes to answer (See the full interview questionnaire in Appendix E). The results of the interview found that the industry expert agrees and approve on the guidelines as shown in Table 5.3.

Table 5.3
The expert opinion on the guideline

Number of questions	Strongly Agree	Agree
12	8	4

Additional supporting information

Technology is transforming global production systems and competition among producers, they affect every step of the production process. For enterprises, the speed of the transformation is the key to being successful. If enterprises cannot adapt, they will fall behind. Now a day, some countries have already launched significant transformation and policy initiatives that made a change in the industrial competition. Thus, the transformation in technology can create higher value and competitiveness (World Economic Forum, 2017). Moreover, Supporting SMEs to access markets can enhance their contributions to economic development, creating opportunities for expansion, accelerating the growth of business and improving productivity. Hence, marketing knowledge is an important factor that can increase competitiveness for SMEs (OECD, 2017). In addition, from previous research such as the researches of Charoenrat and Harvie (2014), Rattanapongpinyo (2016), Osathanunkul (2010) and Yu (2016) suggest that technology and marketing are the key success factor that makes a business successful.

Comparing the results

Table 5.4 shown comparing the results between this research and previous researches.

Table 5.4
Comparing the results

Previous researches		Comparing with results of this research
Source	Results	
Charoenrat and Harvie (2014)	This study grouped production sector SMEs by SITC categories. Efficiency labors are important factor in contributing to the efficiency of SMEs. Small enterprises and enterprises located outside Bangkok are less efficient. Moreover, Thailand must move away from production based on low labor cost to that based on innovation and technology knowledge.	- The industrial classification is different (SITC and TSIC). - Smaller sizes of enterprises encountered more HR problems as same as the results of this study (in sub-sector C22 and G46). - The results of this study found that there are no differences between enterprises located in Bangkok and regional in HR problems, which is different from previous study. - The important success factor that the previous study suggests is technology, which is the same as this study.
Kortekaas (2007)	Human resource management on organizational performance can occur as a result of company size.	- Smaller sizes of enterprises encountered more HR problems as same as the results of this study (in sub-sector C22 and G46).
Gecse (2012)	The larger enterprises can implement the theory more than smaller enterprises, which causes different logistics problems.	- The results of this study found that there are no differences between the sizes of enterprises in logistics problems, which is different from the previous study.
Rattanapongpinyo (2016)	Financial is the factor that SMEs encountered. Moreover, this study suggests that the government should develop entrepreneurs' knowledge and skills in technology and marketing.	- The important success factor that the previous study suggests are technology and marketing, which is the same as this study.

Table 5.4 - Continued

Osathanunkul (2010)	Financial and marketing problems are the factor that Thai and Chinese SMEs encountered.	- The important success factor that the previous study suggests are technology and marketing, which are the same as this study.
Krasauskaite (2011)	The results of this study shown that the smaller sized encountered financial problems than larger sized enterprises.	- The results of this study found that there are no differences between the sizes of enterprises in financial problems, which is different from the previous study.
Yu (2016)	Production and Marketing have positive influence SME Success. However, Technology, Financial Planning and Human Resource Management did not influence SME Success.	- The important success factor that the previous study suggests is marketing, which is the same as this study. However, The results of this study found that technology is another factor that makes SMEs successful, which is different from previous studies.

Limitation

Due to the requirement of a large sample size for each analysis of the association between the regions and the problems causing the results may be not accurate and difficult to find significant relationships from the data.

Suggestion for the development of the new questionnaire

1. Entrepreneurs should specify their own enterprise's sub-sector.
2. Should identify problems that occur in business operations in detail by divided into categories.
3. Should link (or be used as reference) the member database to the business database of the Department of Business Development, as the company may change the type of business operations and to be updated.
4. Should add 5s to standard and certified options.
5. The questionnaire should collect current situation information, such as staff (number of IT, engineers, etc.), production situation, and product development, in order to analyze and find the insight needs of enterprises. Moreover, the questionnaire should be a scale that is able to find the level of factors.

Further study

Further study can continue to collect more data and test the data with more statistical methods, in order to make sure that the results are correct and reliable, because some tests showed the indecisive results. In addition, further studies should focus on in-depth study on each sub-sector and problems to understand the situations and find exact solutions. Moreover, the problems of living with community are another obstacle in business operations that should be studied because the community can generate an impact on an environment that affects the success of the enterprises.

Appendix A

Questionnaire of government services of the Department of Industrial Promotion

1. Service recipients

1.1 Name_____ ID card number _____

Date of birth_____ Address (ID card) _____

_____

_____

Address (Current) _____

_____

_____

Tel _____ Email _____

1.2 Education level (Please check ✓)

[___] Lower than junior high school [___] Lower Secondary school

[___] High School [___] Diploma or Vocational Certificate

[___] Bachelor's Degree [___] Master's degree or higher

1.3 Current career (Please check ✓ and/or fill in the blank)

[___] SMEs entrepreneurs [___] SMEs descendant

[___] Employees [___] Consultant

[___] Community Enterprise Entrepreneurs

[___] Members of the community enterprise group

[___] Community enterprise descendant [___] OTOP Entrepreneurs

[___] People [___] Product designer

[___] Students [___] Just graduated

[___] Unemployed [___] Other _____

1.4 The purpose of the service (Problems) (Please check ✓ and/or fill in the blank)

[___] Technology and Innovation [___] Production

[___] Marketing [___] Financial

[___] Human resource management [___] Logistic and Procurement

[___] Organization and Strategy management [___] others _____

1.5 Which source do you know about this activity?

[___] By yourself

[___] Invited by Department Staff (meeting)

[___] Invited by Department Staff (telephone)

[___] Invited by Department Staff (letter)

[___] Invited by Department Staff (E-mail)

[___] Public relations via billboards

[___] Public relations via the website

[___] Public relations via newspapers

[___] Public relations via television

[___] Public relations via radio

[___] Public relations via associations/clubs (please specify) _____

[___] Other _____

2. Business Information

2.1 Business name _____

Owner name _____

Corporate registration number (if any) _____

Or ID card number (Owner) _____

[___] Head Office / [___] Branch: Branch name (if any) _____

Factory registration number (if any) _____

Business Address _____

_____

Tel _____ Fax _____ Website _____

2.2 Business Sector (Please check ✓)

[___] Production

[___] Trading

[___] Service

Main products / services _____

2.3 Business type (Please check ✓)

[___] Personal [___] Company Limited

[___] Ordinary Partnership [___] Limited Partnership

[___] other _____

For SMEs and entrepreneurs, please complete 3 - 7

3. Asset value / Investment

Fixed asset value registered* _____ Baht

Shareholding: Thai _____% Foreign_____%

Investment in the past 1 year (excluding land), approximately _____ Baht per year

4. Employees / Workers

Number of employees in the office _____ People

Number of workers _____ People

5. Manufacturing

Current percentage of actual production capacity _____

Value of waste _____baht/year

Percentage of waste _____%

About your manufacturing (Please check ✓ and fill in the blank)

[___] Percentage of the own manufacturing _____%

[___] Percentage of hiring manufacturing _____%

[___] Percentage of OEM _____%

6. Sales

Current sales value _____ Baht per year

Market (Please check ✓ and fill in the blank)

[___] Percentage of domestic sales _____%

[___] Percentage of export sales _____%

Export value _____ Baht per year

7. At present, your business has been certified of:

[___] Not received

[___] Certified (Please check ✓ can choose more than one answer)

[___] TISI [___] ISO _____

[___] Standards Good Manufacturing Practice (GMP)

[___] Good Agricultures Practice (GAP)

[___] Community product standards

[___] HACCP [___] FDA [___] Halal

[___] Clean Food Good Taste

[___] Others _____

8. Information about the developing products

(Please check ✓ and/or fill in the blank)

[___] To improve the existing product: Product name _____

[___] Average product sales value per month _____ Bath

[___] Cost of product per unit_____ Bath

[___] Selling price of the product per unit_____ Bath

[___] Average sales volume per month _____Units

Appendix B

แบบสอบถามการเข้ารับบริการ กรมส่งเสริมอุตสาหกรม

1. ผู้เข้ารับบริการ

1.1 ชื่อ-สกุล_____ หมายเลขบัตรประชาชน _____

วัน/เดือน/ปี เกิด_____ ที่อยู่ตามบัตรประชาชน _____

_____

_____

ที่อยู่ปัจจุบัน _____

_____

_____

โทรศัพท์ _____ อีเมล์ _____

1.2 ระดับการศึกษา (โปรดทำเครื่องหมาย ✓)

[___] ต่ำกว่ามัธยมต้น [___] มัธยมต้น

[___] มัธยมปลาย [___] ปวช./ปวส.

[___] ป.ตรี [___] ป.โท หรือสูงกว่า

1.3 อาชีพปัจจุบัน (โปรดทำเครื่องหมาย ✓ และ/หรือเติมในช่องว่าง)

[___] ผู้ประกอบการ SMEs [___] ทายาทผู้ประกอบการ SMEs

[___] พนักงาน [___] ที่ปรึกษา

[___] ผู้ประกอบการวิสาหกิจชุมชน

[___] สมาชิกกลุ่มวิสาหกิจชุมชน

[___] ทายาทผู้ประกอบการวิสาหกิจชุมชน [___] ผู้ประกอบการ OTOP

[___] บุคคลทั่วไป [___] นักออกแบบผลิตภัณฑ์

[___] นักศึกษา [___] ผู้ที่เพิ่งจบการศึกษา

[___] ว่างงาน [___] อื่นๆ _____

1.4 วัตถุประสงค์การเข้ารับบริการฯ (ประสบปัญหาด้าน) (โปรดทำเครื่องหมาย ✓ และ/หรือเติมในช่องว่าง)

[___] เทคโนโลยี นวัตกรรม [___] การผลิต

[___] การตลาด [___] การเงิน

[___] ทรัพยากรบุคคล [___] โลจิสติกส์ การจัดซื้อ

[___] การบริหารองค์กร [___] อื่นๆ _____

1.5 ทราบกิจกรรมนี้จากแหล่งใด?

[___] ทราบด้วยตนเอง

[___] ได้รับการเชิญชวนจาก จนท. (ต่อหน้า)

[___] ได้รับการเชิญชวนจาก จนท. (โทรศัพท์)

[___] ได้รับการเชิญชวนจาก จนท. (จดหมาย)

[___] ได้รับการเชิญชวนจาก จนท. (E-mail)

[___] การประชาสัมพันธ์ผ่านป้ายโฆษณา

[___] การประชาสัมพันธ์ผ่าน website

[___] การประชาสัมพันธ์ผ่านหนังสือพิมพ์

[___] การประชาสัมพันธ์ผ่านโทรทัศน์

[___] การประชาสัมพันธ์ผ่านวิทยุ

[___] การประชาสัมพันธ์ผ่านสมาคมฯ (โปรดระบุ) _____

[___] อื่นๆ _____

2. ข้อมูลสถานประกอบการ

2.1 ชื่อสถานประกอบการ _____

ชื่อ-สกุลเจ้าของสถานประกอบการ _____

เลขทะเบียนนิติบุคคล (ถ้ามี) _____

หรือหมายเลขบัตรประชาชน (เจ้าของฯ) _____

[___] สำนักงานใหญ่ / [___] สาขา: ชื่อสาขา (ถ้ามี) _____

เลขทะเบียนโรงงาน (ถ้ามี) _____

ที่อยู่ของสถานประกอบการ_____

โทรศัพท์ _____ โทรสาร _____ Website _____

2.2 ประเภทธุรกิจ (โปรดทำเครื่องหมาย ✓)

[___] ภาคการผลิต [___] ภาคการค้า

[___] ภาคบริการ สินค้า / บริการ _____

2.3 รูปแบบธุรกิจ (โปรดทำเครื่องหมาย ✓)

[___] บุคคลธรรมดา [___] บริษัทจำกัด

[___] ห้างหุ้นส่วนสามัญ [___] ห้างหุ้นส่วนจำกัด

[___] อื่นๆ _____

สำหรับผู้รับบริการ SMEs และผู้ประกอบการ กรุณากรอก ข้อ 3 - 7 ด้วย

3. มูลค่าสินทรัพย์ถาวร / การลงทุน

มูลค่าสินทรัพย์ถาวรจดทะเบียน _____ บาท

สัดส่วนการถือหุ้น: ไทย _____% ต่างชาติ_____%

เงินลงทุนในเวลา 1 ปี ที่ผ่านมา (ไม่รวมที่ดิน) ประมาณ _____ บาทต่อปี

4. บุคลากร

จำนวนพนักงานในสำนักงาน _____ คน

จำนวนคนงาน _____ คน

5. การผลิต

สถานการณ์ผลิตจริงในปัจจุบันคิดเป็นร้อยละ _____

มูลค่าของเสีย_____บาทต่อปี คิดเป็น _____%

สำหรับการผลิต (โปรดทำเครื่องหมาย ✓ และ/หรือเติมในช่องว่าง)

[___] ดำเนินการผลิตเอง _____%

[___] จ้างผู้อื่นผลิต _____%

[___] รับจ้างผู้อื่นผลิต _____%

6. ยอดขาย

มูลค่ายอดขาย _____ บาทต่อปี

แหล่งตลาด (โปรดทำเครื่องหมาย ✓ และเติมในช่องว่าง)

[___] การขายในประเทศ _____%

[___] การส่งออก _____%

มูลค่าการส่งออก _____ บาทต่อปี

7. ปัจจุบันกิจการของท่านได้รับการรับรองมาตรฐาน/ระบบคุณภาพของกิจการ/สินค้า/ผลิตภัณฑ์ หรือไม่

[___] ไม่ได้รับ

[___] ได้รับการรับรองมาตรฐาน (โปรดทำเครื่องหมาย ✓ เลือกได้มากกว่าหนึ่งคำตอบ)

[___] มาตรฐานผลิตภัณฑ์อุตสาหกรรม (มอก.)

[___] ISO _____

[___] Standards Good Manufacturing Practice (GMP)

[___] Good Agricultures Practice (GAP)

[___] มาตรฐานผลิตภัณฑ์ชุมชน (มผช.)

[___] HACCP [___] อย. [___] ฮาลาล

[___] Clean Food Good Taste

[___] อื่นๆ _____

8. ข้อมูลเกี่ยวกับผลิตภัณฑ์ที่นำมาพัฒนา

(โปรดทำเครื่องหมาย ✓ และ/หรือเติมในช่องว่าง)

[___] ปรับปรุงผลิตภัณฑ์เดิม ระบุชื่อผลิตภัณฑ์ _____

[___] มูลค่ายอดขายผลิตภัณฑ์เดิมเฉลี่ยต่อเดือน _____ บาท

[___] ต้นทุนผลิตภัณฑ์เดิมต่อหน่วย _____ บาท

[___] ราคาขายของผลิตภัณฑ์เดิมต่อหน่วย_____ บาท

[___] ปริมาณการขายรวมของผลิตภัณฑ์เดิมโดยเฉลี่ยต่อเดือน_____หน่วย

Appendix C

Expert Interviews

Expert Interview: Mrs. Ketsaraporn Kovitlavakul

Job description: Plan and Policy Analyst, Expert Level (K4)

Date: 22th October 2019 Place: Department of Industrial Promotion building.

Q1.1 What do you think caused the “size” of the enterprise in the “printing and reproducing media industry” affects the “marketing problems”?

A1.1 When the enterprises in this sub-sector become bigger, the market problems will more be pronounced due to highly competitive, fast change, lack of funds.

Q1.2 From this result above, what do you think should be done to improve or promote?

A1.2 Supporting to access information technology, Promote marketing and make the difference, matching business with customers.

Q2.1 What do you think caused the “size” of the enterprise in the “production of rubber and plastic products industry” affects the “HR problems”?

A2.1 Small enterprises lack skilled human resources.

Q2.2 From this result above, what do you think should be done to improve or promote?

A2.2 Supporting to development of human resources to be able to apply technical knowledge and innovation to improve the organization, and expand access to government services.

Q3.1 What do you think caused the “size” of the enterprise in the “wholesale trade industry” affects the “HR problems”?

A3.1 Small enterprises lack skilled human resources.

Q3.2 From this result above, what do you think should be done to improve or promote?

A3.2 Supporting to development of human resources and create the business networking.

Q4.1 What do you think caused the “small sized beverage production industry” encountered “logistics problems and organizational management problems” different from almost other industries in the production sector?

A4.1 This sub-sector has higher logistics costs than other industries as the country's logistics system has developed only in a large city but most raw materials are all over the country. In addition, small sized enterprises also lack of the logistics supply chain and organizational management knowledge.

Q4.2 From this result above, what do you think should be done to improve or promote?

A4.2 Supporting logistics and organizational management knowledge.

Q5.1 What do you think caused the “medium sized printing and reproducing media industry” encountered “marketing problems” different from almost other industries in the production sector?

A5.1 There is a rapid change in the marketing of this sub-sector (Online/PR)

Q5.2 From this result above, what do you think should be done to improve or promote?

A5.2 Supporting digital technology knowledge to improve the production processes to meet the market need.

Q6.1 What do you think caused the “small sized retail trade industry” encountered “HR problems” different from (less than) all other industries in the trading sector?

A6.1 Has skilled human resources because employee does many jobs.

Q6.2 From this result above, what do you think should be done to improve or promote?

A6.2 Supporting to develop human resource in many ways for other industries in the trading sector.

Q7.1 What do you think caused the “small sized food and beverage service industry” encountered “production problems, financial problems and logistics problems” different from almost other industries in the service sector?

A7.1 The production of this sub-sector must have standards involved.
An expiration date directly related to the logistics problems.
There is a problem accessing the funding source due to no collateral.

Q7.2 From this result above, what do you think should be done to improve or promote?

A7.2 Supporting technology knowledge.
Supporting to access government funding sources.

Q8.1 What do you think caused the “small sized real estate industry” encountered “marketing problems” different from almost other industries in the service sector?

A8.1 Enterprises in this sub-sector are directly related to marketing more obviously than other industries because marketing is very important (design, size, location, PR) that will directly affect business operations.

Q8.2 From this result above, what do you think should be done to improve or promote?

A8.2 Supporting online marketing knowledge, Issuing laws or regulations to support small enterprises and increase competitive opportunities.

Q9.1 What do you think caused the “difference in locations” (Bangkok and the rest of the country) of the enterprise in the “small sized wholesale industry” affecting “production problems”?

A9.1 Technology disruption that results in a different adaptation for survival.
Different consumer behavior.
Different cost of operations (wage, transportation, other utility).
Lack of skilled labors.

Q9.2 From this result above, what do you think should be done to improve or promote?

A9.2 Supporting technology knowledge.

Promoting to develop more in regional in the area of problems.

Q10.1 What do you think caused the “difference in locations” (Bangkok and the rest of the country) of the enterprise in the “medium sized textile production industry” affecting “marketing problems”?

A10.1 Same as 9.1

Q10.2 From this result above, what do you think should be done to improve or promote?

A10.2 Same as 9.2

Q11.1 What do you think caused the “difference in locations” (Bangkok and the rest of the country) of the enterprise in the “medium sized electrical equipment production industry” affecting “marketing problems”?

A11.1 Same as 9.1

Q11.2 From this result above, what do you think should be done to improve or promote?

A11.2 Same as 9.2

Q12.1 What do you think caused the “difference in locations” (Bangkok and the rest of the country) of the enterprise in the “medium sized retail trade industry” affecting “production problems”?

A12.1 Same as 9.1

Q12.2 From this result above, what do you think should be done to improve or promote?

A12.2 Same as 9.2

Expert Interview: Miss Ariyaporn Amnucksoradej

Job description: Plan and Policy Analyst, Expert Level (K4)

Date: 25th October 2019 Place: Department of Industrial Promotion building.

Q1.1 What do you think caused the “size” of the enterprise in the “printing and reproducing media industry” affects the “marketing problems”?

A1.1 Trend changed to online media/Digital.

Q1.2 From this result above, what do you think should be done to improve or promote?

A1.2 Keep up with the trend.

Q2.1 What do you think caused the “size” of the enterprise in the “production of rubber and plastic products industry” affects the “HR problems”?

A2.1 Lack of skilled labor.

Q2.2 From this result above, what do you think should be done to improve or promote?

A2.2 Supporting to development of human resources to have knowledge that can cope the future trends.

Q3.1 What do you think caused the “size” of the enterprise in the “wholesale trade industry” affects the “HR problems”?

A3.1 Lack of skilled labor and Trend changed (Small sized enterprises are able to adapt more slowly).

Q3.2 From this result above, what do you think should be done to improve or promote?

A3.2 Supporting to development of human resources.

Q4.1 What do you think caused the “small sized beverage production industry” encountered “logistics problems and organizational management problems” different from almost other industries in the production sector?

A4.1 Lack of in-depth logistics and organizational management knowledge.

Q4.2 From this result above, what do you think should be done to improve or promote?

A4.2 Supporting logistics and organizational management knowledge and switch to use Distribution Center services instead.

Q5.1 What do you think caused the “medium sized printing and reproducing media industry” encountered “marketing problems” different from almost other industries in the production sector?

A5.1 Same as 1.1

Q5.2 From this result above, what do you think should be done to improve or promote?

A5.2 Same as 1.2

Q6.1 What do you think caused the “small sized retail trade industry” encountered “HR problems” different from (less than) all other industries in the trading sector?

A6.1 Other industries in the trading sector have higher turnover rate.

Q6.2 From this result above, what do you think should be done to improve or promote?

A6.2 Supporting to development of human resources knowledge for other industries in the trading sector.

Q7.1 What do you think caused the “small sized food and beverage service industry” encountered “production problems, financial problems and logistics problems” different from almost other industries in the service sector?

A7.1 Lack of financial liquidity, lack of funds, lack of production equipment, lack of knowledge in logistics.

Q7.2 From this result above, what do you think should be done to improve or promote?

A7.2 Providing production knowledge, supporting to access to various funding sources, finding a distribution agent.

Q8.1 What do you think caused the “small sized real estate industry” encountered “marketing problems” different from almost other industries in the service sector?

A8.1 Lack of reliability such as construction, after-sales service, warranty.

Q8.2 From this result above, what do you think should be done to improve or promote?

A8.2 Create a good image or joint venture with large companies.

Q9.1 What do you think caused the “difference in locations” (Bangkok and the rest of the country) of the enterprise in the “small sized wholesale industry” affecting “production problems”?

A9.1 Different consumer behavior and lack of skilled labors.

Q9.2 From this result above, what do you think should be done to improve or promote?

A9.2 Supporting technology knowledge. Promoting to develop more in regional in the area of problems.

Q10.1 What do you think caused the “difference in locations” (Bangkok and the rest of the country) of the enterprise in the “medium sized textile production industry” affecting “marketing problems”?

A10.1 Same as 9.1

Q10.2 From this result above, what do you think should be done to improve or promote?

A10.2 Same as 9.2

Q11.1 What do you think caused the “difference in locations” (Bangkok and the rest of the country) of the enterprise in the “medium sized electrical equipment production industry” affecting “marketing problems”?

A11.1 Same as 9.1

Q11.2 From this result above, what do you think should be done to improve or promote?

A11.2 Same as 9.2

Q12.1 What do you think caused the “difference in locations” (Bangkok and the rest of the country) of the enterprise in the “medium sized retail trade industry” affecting “production problems”?

A12.1 Same as 9.1

Q12.2 From this result above, what do you think should be done to improve or promote?

A12.2 Same as 9.2

Appendix D

Focus Group Interviews

Focus Group Interview #1

Sector: Production / Sub-Sector: C10

Operations Years: More than 20 years

Registered capital: More than 250 million baht

Date: 8th October 2019

Q1: What is the factors that made your enterprise success?

A1: Technology, Marketing (Exporting), and Product R&D.

Q2: What policy/supporting that your enterprises need from the government?

A2: Production Technology knowledge and financial support.

Focus Group Interview #2

Sector: Production / Sub-Sector: C10

Operations Years: More than 15 years

Registered capital: More than 50 million baht

Date: 8th October 2019

Q1: What is the factors that made your enterprise success?

A1: Product R&D, Using technology in manufacturing process, Marketing (Branding).

Q2: What policy/supporting that your enterprises need from the government?

A2: Production Technology knowledge and financial support.

Focus Group Interview #3

Sector: Production / Sub-Sector: C10

Operations Years: More than 2 years

Registered capital: More than 1 million baht

Date: 8th October 2019

Q1: What is the factors that made your enterprise success?

A1: Reliability, heedfulness, Marketing (Know the customer's needs and Branding), and cost of production (Economies of scale).

Q2: What policy/supporting that your enterprises need from the government?

A2: Production Technology knowledge and financial support.

Focus Group Interview #4

Sector: Production / Sub-Sector: C10

Operations Years: More than 6 years

Registered capital: More than 1 million baht

Date: 8th October 2019

Q1: What is the factors that made your enterprise success?

A1: Marketing (Transform to e-commerce), product R&D

Q2: What policy/supporting that your enterprises need from the government?

A2: Financial and marketing support, Knowledge of being an entrepreneur.

Focus Group Interview #5

Sector: Production / Sub-Sector: C10

Operations Years: More than 7 years

Registered capital: More than 1 million baht

Date: 8th October 2019

Q1: What is the factors that made your enterprise success?

A1: Product R&D.

Q2: What policy/supporting that your enterprises need from the government?

A2: Incubator for entrepreneur program.

Focus Group Interview #6

Sector: Production / Sub-Sector: C10

Operations Years: N/A

Registered capital: N/A

Date: 9th October 2019

Q1: What is the factors that made your enterprise success?

A1: Continuous organization development (Human resource/Manufacturing), Marketing and Ecosystem (CSR/Social enterprise/Sustainable development).

Q2: What policy/supporting that your enterprises need from the government?

A2: Increasing production efficiency and reducing costs.

Focus Group Interview #7

Sector: Production / Sub-Sector: C27

Operations Years: More than 48 years

Registered capital: More than 100 million baht

Date: 9th October 2019

Q1: What is the factors that made your enterprise success?

A1: Marketing (Branding), OEM (20%), Human resource (Knowledge sharing in organization).

Q2: What policy/supporting that your enterprises need from the government?

A2: Financial support, Marketing

Focus Group Interview #8

Sector: Trading / Sub-Sector: G46

Operations Years: More than 3 years

Registered capital: More than 2 million baht

Date: 9th October 2019

Q1: What is the factors that made your enterprise success?

A1: Marketing (niece market/reasonable price/Chinese customer/PR), Cost.

Q2: What policy/supporting that your enterprises need from the government?

A2: Business matching.

Focus Group Interview #9

Sector: Trading / Sub-Sector: G46

Operations Years: More than 28 years

Registered capital: More than 100 million baht

Date: 14th October 2019

Q1: What is the factors that made your enterprise success?

A1: Marketing (Partners PR/c-commerce), CSR.

Q2: What policy/supporting that your enterprises need from the government?

A2: Marketing.

Focus Group Interview #10

Sector: Trading / Sub-Sector: G47

Operations Years: More than 16 years

Registered capital: More than 20 million baht

Date: 14th October 2019

Q1: What is the factors that made your enterprise success?

A1: Product development, Know the customer's needs, Standard, Services, Brand awareness.

Q2: What policy/supporting that your enterprises need from the government?

A2: Product development.

Focus Group Interview #11

Sector: Trading / Sub-Sector: G47

Operations Years: More than 3 years

Registered capital: More than 1 million baht

Date: 14th October 2019

Q1: What is the factors that made your enterprise success?

A1: Product development, Services, Brand Identity, Partners, and PR.

Q2: What policy/supporting that your enterprises need from the government?

A2: Marketing.

Focus Group Interview #12

Sector: Trading / Sub-Sector: G47

Operations Years: More than 9 years

Registered capital: More than 3 million baht

Date: 14th October 2019

Q1: What is the factors that made your enterprise success?

A1: Technology, production systems, and human resource.

Q2: What policy/supporting that your enterprises need from the government?

A2: Technology knowledge.

Focus Group Interview #13

Sector: Trading / Sub-Sector: G47

Operations Years: More than 2 years

Registered capital: More than 1 million baht

Date: 14th October 2019

Q1: What is the factors that made your enterprise success?

A1: Marketing (branding/difference from the others/e-commerce), Standard (GMP, FDA, etc.).

Q2: What policy/supporting that your enterprises need from the government?

A2: Online Marketing.

Focus Group Interview #14

Sector: Service / Sub-Sector: H49 (Startup)

Operations Years: More than 4 years

Registered capital: More than 4 million baht

Date: 15th October 2019

Q1: What is the factors that made your enterprise success?

A1: Using digital technology in business operations, and have good business partners.

Q2: What policy/supporting that your enterprises need from the government?

A2: Financial support.

Focus Group Interview #15

Sector: Service / Sub-Sector: H52 (Startup)

Operations Years: More than 4 years

Registered capital: More than 1 million baht

Date: 18th October 2019

Q1: What is the factors that made your enterprise success?

A1: Using AI technology and Big Data in business operations, and Know the customer's needs.

Q2: What policy/supporting that your enterprises need from the government?

A2: Financial support and providing knowledge in various business operations.

Focus Group Interview #16

Sector: Production / Sub-Sector: C18

Operations Years: More than 3 years

Registered capital: N/A

Date: 18th October 2019

Q1: What is the factors that made your enterprise success?

A1: Marketing (Know the customer's needs), and the difference from the others.

Q2: What policy/supporting that your enterprises need from the government?

A2: N/A

Focus Group Interview #17

Sector: Trading / Sub-Sector: G46

Operations Years: More than 3 years

Registered capital: More than 1 million baht

Date: 18th October 2019

Q1: What is the factors that made your enterprise success?

A1: Marketing (Know the customer's needs)

Q2: What policy/supporting that your enterprises need from the government?

A2: Support for marketing and technology knowledge.

Focus Group Interview #18

Sector: Service / Sub-Sector: H52

Operations Years: N/A

Registered capital: N/A

Date: 18th October 2019

Q1: What is the factors that made your enterprise success?

A1: Determination in your work (Buddha's teachings).

Q2: What policy/supporting that your enterprises need from the government?

A2: N/A

Focus Group Interview #19

Sector: Service / Sub-Sector: I56

Operations Years: More than 5 years

Registered capital: N/A

Date: 18th October 2019

Q1: What is the factors that made your enterprise success?

A1: Love in work (He is a CEO and chef).

Q2: What policy/supporting that your enterprises need from the government?

A2: N/A

Focus Group Interview #20

Sector: Trading / Sub-Sector: G47

Operations Years: More than 15 years

Registered capital: More than 20 million baht

Date: 18th October 2019

Q1: What is the factors that made your enterprise success?

A1: Never give up!!, human resource management, and digital marketing.

Q2: What policy/supporting that your enterprises need from the government?

A2: Support for marketing and technology knowledge.

Appendix E

Questionnaire interview for agreeing or disagreeing with the guideline

Expert Interview: Miss Jarupa Ounjangwang

Job description: Industrial Technical Officer, Senior Professional Level (K3)

Date: 7th December 2019 Place: Department of Industrial Promotion building.

This questionnaire uses the five-point scale from “Strongly Agree” to “Strongly Disagree” with the results of this study. (Please check ✓)

5 Strongly Agree 4 Agree 3 Neutral 2 Disagree 1 Strongly Disagree

Part 1 Do you agree with the promotion and development for SMEs in accordance with these guidelines?

No.	Supporting and Development	Scale				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	The small sized beverage production enterprises (C11) **Obstacles** This sub-sector has higher logistics costs than other industries as the country's logistics system has developed only in a large city but most raw materials are all over the country. In addition, small sized enterprises also lack the logistics supply chain knowledge. **Supporting** Support in logistics and organization management knowledge more than other industries in the small sized production sector					
2	The medium sized textile production industry (C13) **Obstacles** Location that the medium sized enterprises located in regional encountered more marketing problems than medium sized enterprises located in Bangkok due to the technology disruption, different consumer behavior, different cost of operations (wage, transportation, other utility) and lack of skilled labors. **Supporting** Support in technology knowledge and develop more in regional in the area of marketing problems on medium sized enterprises					

3	The printing and reproduction of media industry (C18) **Obstacles** The medium enterprises has more market problems, and encountered different marketing problems from the other industry in production sector due to the highly competitive, fast change and lack of funds. **Supporting** Channels to access information technology, marketing and trend knowledge, matching business with customers that should focus on medium sized enterprises					
4	The production of rubber and plastic products industry (C22) **Obstacles** The small enterprises lack skilled human resources **Supporting** Support in human resources knowledge and channels to access the government services that should focus on small sized enterprises					
5	The medium sized electrical equipment production industry (C27) **Obstacles** Location that the medium sized enterprises located in regional encountered more marketing problems than medium sized enterprises located in Bangkok due to the technology disruption, different consumer behavior, different cost of operations (wage, transportation, other utility) and lack of skilled labors. **Supporting** Support in technology and marketing knowledge and need to develop more in regional in the area of marketing problems on medium sized enterprises					
6	The wholesale trade industry (G46) **Obstacles** The small sized enterprises has more HR problems, and location that the small sized enterprises located in regional encountered more production problems than small sized enterprises located in Bangkok due to the technology disruption, different consumer behavior, different cost of operations (wage, transportation, other utility) and lack of skilled labors. **Supporting** Support in human resources knowledge, business networking that should focus on small sized enterprises and need to develop more in regional in the area of production problems on small sized enterprises.					

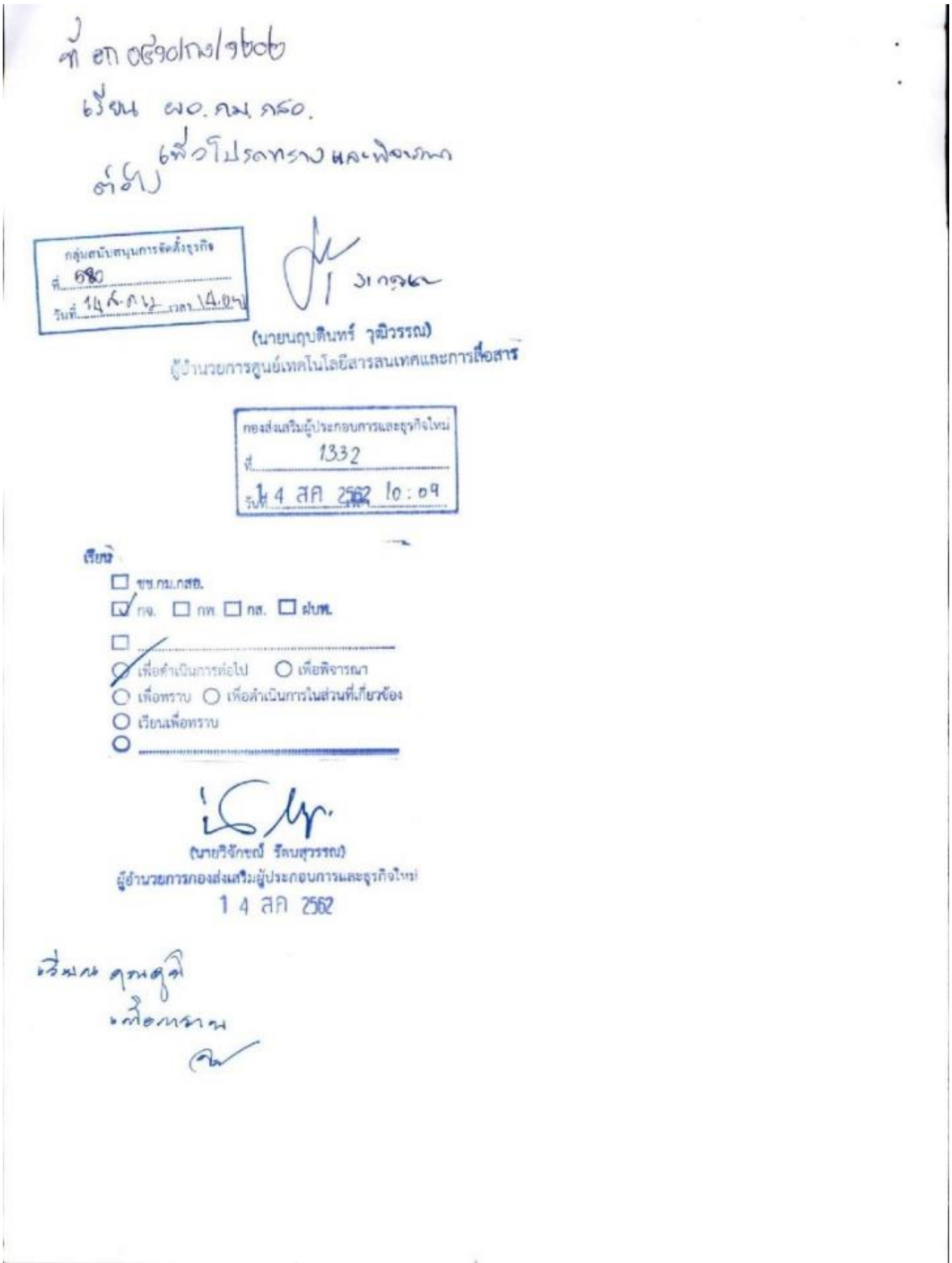
7	The retail trade industry (G47) **Obstacles** High competition in production and higher production costs. **Supporting** Support in technology knowledge and need to develop more in Bangkok in the area of production problems on medium sized enterprises.					
8	The wholesale, retail, repair of motor vehicles and motorcycles (G45) and the wholesale trade (G46) **Obstacles** A lack of skilled labors and does not support the development of human resources. **Supporting** Support in human resource on small sized enterprises more than the retail trade industry (G47)					
9	The small sized food and beverage service industry (I56) **Obstacles** The production process of this sub-sector must have standards involved, an expiration date directly related to the logistics problems. In addition, there is a problem accessing the funding source due to no collateral. **Supporting** Support in technology knowledge and access government funding sources					
10	The small sized real estate industry (L68) **Obstacles** This sub-sector are directly related to marketing more obviously than other industries because marketing is very important (design, size, location, PR) that will directly affect business operations. **Supporting** Support in marketing knowledge. In addition, issuing laws or regulations to that support small enterprises will increase competitive opportunities in the markets.					

Part 2 Do you agree with the process used in Supporting and Development?

No.	Supporting and Development	Scale				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	From the interview of successful enterprises, it was found that the most important factor that makes a business successful is marketing and technology. Thus, the government should be focusing to promote SMEs more in marketing and technology.					
2	The results of the Analytic Hierarchy Approach (AHP) found that “consulting” is the most suitable process for promotion and develop entrepreneurs, followed by “workshop” and “training”.					

Appendix F

Memorandum for allowing to use data



กลุ่มสนับสนุนการจัดตั้งธุรกิจ
ที่ 680
วันที่ 14 ส.ค. 62 เวลา 14.04

(นายนฤบดินทร์ วุฒิวรรณ)
ผู้อำนวยการศูนย์เทคโนโลยีสารสนเทศและการสื่อสาร

กองส่งเสริมผู้ประกอบการและธุรกิจใหม่
ที่ 1332
วันที่ 14 สค 2562 10:09

เรียน
☐ ขข.กม.กสอ.
☑ กจ. ☐ กพ. ☐ กส. ☐ ฝบท.
☐ ....
◯ เพื่อดำเนินการต่อไป ◯ เพื่อพิจารณา
◯ เพื่อทราบ ◯ เพื่อดำเนินการในส่วนที่เกี่ยวข้อง
◯ เวียนเพื่อทราบ
◯ ....

(นายวิจักษณ์ รัตนสุวรรณ)
ผู้อำนวยการกองส่งเสริมผู้ประกอบการและธุรกิจใหม่
14 สค 2562

บันทึกข้อความ

ส่วนราชการ ศส.กสอ. (กท.) โทรศัพท์ ๐ ๒๒๐๒ ๔๕๑๔ โทรสาร ๐ ๒๒๐๒ ๔๔๙๑

ที่ อก ๐๔๐๗/๑๖๓๑ **วันที่** ๓๑ กรกฎาคม ๒๕๖๒

เรื่อง ข้อมูลในการทำวิทยานิพนธ์ ของนายภูมิ ไตรไทยธีระ

เรียน ผอ.ศส.กสอ.

ตามบันทึก กม.กสอ. ที่ อก ๐๔๐๗/ ๑๒๒๖ ลงวันที่ ๒๕ มิถุนายน ๒๕๖๒ เรื่อง ขออนุญาตใช้ข้อมูลในการทำวิทยานิพนธ์ ของนายภูมิ ไตรไทยธีระ นวอ.บก. ได้ศึกษาต่อระดับปริญญาโท สาขาวิศวกรรมอุตสาหการ คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย และอยู่ระหว่างทำวิทยานิพนธ์ ในหัวข้อ "อุปสรรคของ SMEs ในประเทศไทย : การวิเคราะห์ความสัมพันธ์ระหว่างความแตกต่างของ ขนาด ภาค ภูมิภาค กับปัญหาที่เกิดขึ้นในการดำเนินธุรกิจ" ซึ่งในหัวข้อดังกล่าวจำเป็นต้องใช้ข้อมูลสถานประกอบการที่เข้ารับบริการจาก กสอ. ระหว่างปี พ.ศ.๒๕๕๙-๒๕๖๑ เป็นฐานข้อมูล นั้น

ในการนี้ กท.ศส. พิจารณาแล้ว เห็นว่า การจัดเก็บข้อมูลผู้ประกอบการของกสอ. ในส่วนของผู้ดูแลฐานข้อมูลของผู้รับบริการ ไม่สามารถนำข้อมูลไปเปิดเผยหรือส่งต่อให้ผู้อื่นได้ ตามพระราชบัญญัติคุ้มครองข้อมูลส่วนบุคคล พ.ศ.๒๕๖๒ การใช้หรือเปิดเผยข้อมูลส่วนบุคคลและข้อมูลผู้ประกอบการเพื่อวัตถุประสงค์ในการศึกษาวิจัย ผู้เก็บรวบรวมข้อมูลสามารถเปิดเผยข้อมูลในลักษณะภาพรวมได้ ซึ่งหมายถึงข้อมูลดังกล่าวต้องไม่ละเมิดสิทธิ เสรีภาพ ซึ่ง กท.ศส. จะดำเนินการรวบรวมข้อมูลที่ในภาพรวมเบื้องต้นไว้ดังนี้

๑. จังหวัดของสถานที่ตั้งสถานประกอบการแต่ละธุรกิจ
๒. จำนวนสถานประกอบการ โดยแยกเป็นหมวดธุรกิจ (การผลิต,การค้า,การบริการ)
๓. จำนวนการจ้างงาน โดยแยกเป็นหมวดธุรกิจ (การผลิต,การค้า,การบริการ)

จึงเรียนมาเพื่อโปรดพิจารณา

(นางสุวรรณา วัฒนรัตน์)
นักวิชาการอุตสาหกรรมชำนาญการพิเศษ

๓๑ ก.ค.

1. เห็นชอบตามที่ กท.ศส. นำเสนอ
2. แจ้ง กม. กสอ. เพื่อทราบและดำเนินการต่อไป

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