ปัจจัยที่มีผลกระทบต่อผลประกอบการของวิสาหกิจขนาดกลางและขนาดย่อมภาคอุตสาหกรรมในประเทศไทย

The Factors Affecting the Performance of Small and Medium Manufacturing Enterprises in Thailand

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บทคัดย่อ

วิสาหกิจขนาดกลางและขนาดย่อม (SMEs) นั้นมีบทบาทสำคัญกับการขับเคลื่อนเศรษฐกิจของประเทศไทย โดยเฉพาะภาคอุตสาหกรรมซึ่งมีส่วนสำคัญในการพัฒนาประเทศในระยะยาว ซึ่งจะมีส่วนช่วยให้เศรษฐกิจของประเทศเติบโตอย่างยั่งยืนมากขึ้นโดยลดการพึ่งพาการลงทุนจากต่างประเทศ อย่างไรก็ตาม SMEs ภาคอุตสาหกรรมยังคงประสบปัญหาในการเสริมสร้างความเจริญเติบโตในธุรกิจเมื่อเปรียบเทียบกับความเจริญเติบโตของผลประกอบการในภาคการค้าและภาคบริการซึ่งมีแนวโน้มการเติบโตที่ดีกว่า ดังนั้น งานวิจัยฉบับนี้จึงมุ่งเน้นการศึกษาปัจจัยที่ส่งผลต่อผลประกอบการของ SMEs ภาคภาคอุตสาหกรรมโดยใช้กรอบทฤษฎีด้านทรัพยากรองค์การและทฤษฎีนิเวศประชากรองค์การ งานวิจัยนี้ใช้การวิจัยแบบผสานวิธี โดยใช้หลักสถิติวิเคราะห์การถดถอยเชิงเส้นพหุซึ่งใช้ข้อมูลทุติยภูมิเพื่อหาปัจจัยที่ส่งผลกระทบต่อผลประกอบการของ SMEs ภาคอุตสาหกรรมและวิเคราะห์สาเหตุของปัจจัยนั้นๆ โดยใช้การสัมภาษณ์เชิงลึกร่วมด้วย รวมถึงอภิปรายผลลัพธ์ของข้อค้นพบทั้งจากวิธีการวิจัยเชิงปริมาณและการวิจัยเชิงคุณภาพ

ตลอดจนเสนอแนะแนวทางสำหรับกำหนดนโยบายเพื่อสนับสนุนให้ SMEs ภาคภาคอุตสาหกรรมในประเทศไทยสามารถพัฒนาต่อไปได้

คำสำคัญ: วิสาหกิจขนาดกลางและขนาดย่อม, ภาคอุตสาหกรรม, ทฤษฎีด้านทรัพยากรองค์การ, ทฤษฎีนิเวศประชากรองค์การ

Abstract

SMEs have an essential role in driving the economy of Thailand, especially the manufacturing sector. Manufacturing SMEs are regarded as a significant sector for long-term development because they can play an important role in sustainable economic development, which can reduce the dependency on foreign investment. However, manufacturing SMEs suffer from low performance compared to SMEs in the service and trade sector. Therefore, this research aimed to study the factors affecting the performance of manufacturing SMEs based on organizational resource theory, such as the resource-based view and population ecology theory. The research design was mix-method, composed of multiple linear regression and in-depth interviews. The quantitative method used identified the factors affecting the performance of manufacturing SMEs, and the qualitative method aimed to confirm, expand, and explain the reasons why these factors have an influence on firm performance. In the last section, the findings from the two methodologies will be discussed and recommendations for government agencies will be presented.

Keywords: SMEs, Manufacturing, Resource-based view, Population ecology

Introduction

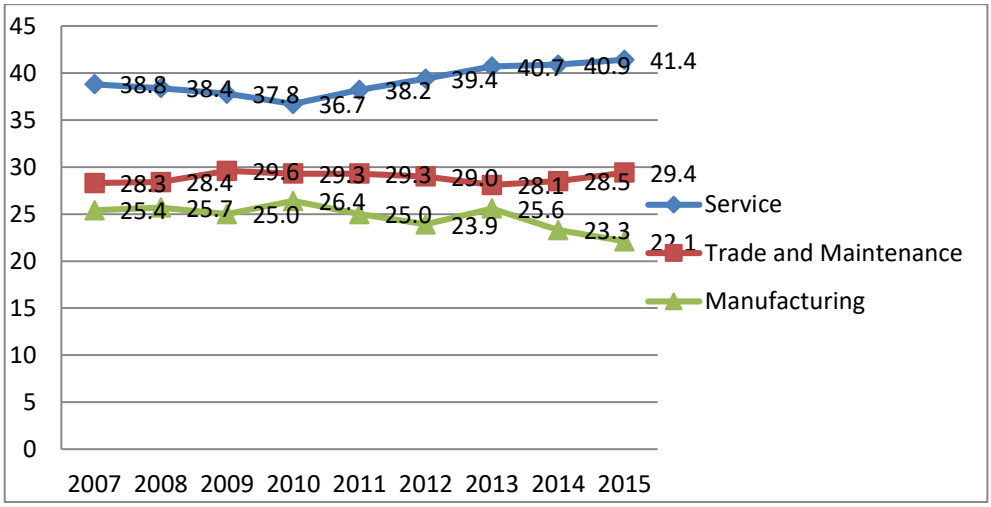
Small and medium enterprises (SMEs) play a significant role in most countries and are the sector that is the most important in the economy because they account for the majority of employment and generate almost half of the GDP. Moreover, they are an important factor for long-run economic development (Sevilla and Soonthorndhad, 2009). At the same time, manufacturing plays a vital role in boosting nations' achievement of economic growth. The manufacturing sector provides large numbers of above-average paying jobs, driving innovation, ensuring economic stability, and playing indispensable roles in sustaining healthy ecosystem value chains in almost all manufacturing industries as they account for over 98 percent of manufacturing establishments in most countries.

Before the Thailand economic crisis in 1997, the promotion of the SME sector was ignored and the government focused on large industries and foreign direct investment. However, Thailand's industrial structure highly depended on imports and the collapse of large industries was the reason why attention turned to SMEs. In order to improve their potential, the government launched the "Dual Track Development Strategy" to support both large firms and SMEs in 1999. In 2002, the government introduced the First Master Plan for the Promotion of Thailand's Small and Medium-sized Enterprises (2002-2006) and adopted the SME Bank Act. Although the results were not able to reach the goals, the government was still concerned with SMEs as one of the important sectors.

In 2015, the Office of Small and Medium Enterprises Promotion (OSMEP) reported that there were 2,765,986 SMEs that accounted for 99.72 percent of total enterprises contributing 41.1 percent of overall GDP while the target was 51 percent. In the other words, SMEs could not meet the target. Additionally, the manufacturing sector showed the most disappointing performance while the SMEs in the service and trade sectors succeeded in improving their GDP proportion. Figure 1 indicates that the proportion of the GDP of manufacturing SMEs still gradually decreased from

26.4 percent in 2010 to 22.1 percent in 2015. However, the GDP proportion of trade and maintenance SMEs steadily increased from 28.3 percent in 2007 to 29.4 percent in 2015. Although the GDP proportion of service SMEs dropped to 36.7 percent in 2010, it gradually increased to 41.4 percent in 2015.

Figure 1 Proportion of GDP Value Classified by Major Economic Activity 2007-2015



Source: Office of Small and Medium Enterprises Promotion, White Paper 2015

Objectives

The main research objective of the present study is to identify the factors that affect manufacturing SMEs in Thailand. Additionally, the reasons why these factors influence the performance of manufacturing SMEs will be explored. The researcher expected that the findings could yield recommendations for the government to develop manufacturing SMEs in Thailand.

Theoretical Background

In order to improve the performance of manufacturing SMEs in Thailand, it is essential to understand the factors that affect manufacturing SMEs' performance and

why. In this research, organizational theory, such as population ecology organizational theory and the resource-based view, are focused on in order to examine the linkage between each factor and organizational performance.

Performance

The performance of SMEs has been debated as to what the appropriate definitions of such performance are. There are a variety of perspectives concerning the development of a conceptual framework for SME performance measurements. Marri et al. (2000) for example defined performance measurement as important, as it is established to monitor, guide, and improve business functions. Neely (1994) defined performance measurement as the set of metrics used to quantify efficiency and effective action. Financial indicators are widely used as performance measurements for SMEs, and these indicators include income, profit, sales, cost, and cash flow. Hudson et al. (2001) and Laitinen (1996 and 2002) regarded income as a significant indicator of SME performance. Davig et al. (2004), Chong (2008), and Chalmeta et al. (2012) focused on both revenue growth and profit. In Thailand, most SMEs measure their performance growth according to sales value and revenue. Moreover, most statistical data also record revenue as a firm indicator. Therefore, this research paper will use revenue or annual income as the performance indicator.

Organizational Theory: Population Ecology

The concept of population ecology proposes that the growth of the firm's age and size leads to a structured, formalized, and routinized organization because a mature organization collects experiences and adjusts its routine activities to survive in the market (Blau and Schoenherr, 1971). Therefore, the factors such as size and age are regarded as significant in terms of the understanding of a firm's performance. Firms that survive have the ability to learn from the environment and to change their structure to be more effective. One of the important assumptions of population ecology is structural inertia, which suggests that inertia forces will not allow firms to

create ineffective routines. That is, the environment favors the selection of organizations that have a high level of inertia and adaptation (Hannan and Freeman, 1984).

Population ecology also proposes that the ability of reproducibility increases with age because of internal learning, coordination, and more routine activities (Singh and Lumsden, 1990) and for this reason the liability of newness can cause higher failure rates for new firms (Stinchcombe, 1965). Additionally, some scholars have found that firm age also reflects the strength to survive market competition—the more mature companies have greater competency to execute routine business activities (Fichman and Kemerer, 1993; Kalyanaram and Wittink, 1994).

Hypothesis 1: Older firms have a positive relationship with the revenue of manufacturing SMEs.

Another related area of population ecology has been research concerning the liability of smallness. Aldrich and Auster (1986) for example explained that smaller organizations struggle with fund raising, governmental regulations, and instability, while larger organizations can provide better resources: the larger firms enjoy the benefits of having a better reputation, which provides financial resources, qualified managerial employees, and attracts potential customers (Baum, 1996; Dean et al.; Fackler et al., 2013). Moreover, newer organizations have to spend more time developing internal routines, skills, and relationships with stakeholders that already exist in older firms (Stinchcombe, 1965; Thornhill and Amit, 2003).

Hypothesis 2: Larger firms have a positive relationship with the revenue of manufacturing SMEs.

Organizational Resource Theory: Resource-Based View

Organizational resources are tangible and intangible assets, for example, financial resources, physical capital resources, human capital resources, and organizational capital resources, which are controlled by the organization in order to increase its competitive advantage (Barney, 1991). In order to achieve superior

performance, resources should be valuable, rare, inimitable, and non-substitutable (Barney, 1991), and if the inimitable resources belong to the organization, the competitive advantage will be maintained in the firm.

Human Capital Resources

Among the numerous types of resources, human capital resources are regarded as one of the most important because they are difficult to imitate compared to other resources (Adner et al., 2003; Datta et al., 2005). Thus, organizations exhibit different performances because they have different human capital (Hitt et al., 2001). Basically there are two ways in which to enhance the capability of people: through formal education (explicit knowledge) and through learning-by-doing on the job (tacit knowledge). Therefore, training is one of the tools that can improve the skills, knowledge, and experience of the employee. Swanson (2001) found that investment in training and education improves the learning capability of employees and results in better firm productivity, and Garcia and Puente (2012) have reported that fast-growing firms that spend more time and resources on staff training improve the quality of their staff. Further, Turcut (2016) found that labor productivity and the quality of production have a positive relationship with training.

Hypothesis 3: Training in production capability has a positive relationship with the revenue of manufacturing SMEs.

Marketing capability has been seen as one of the significant factors in terms of increasing the firm's competitive advantage and performance (Moorman and Rust, 1999)—marketing knowledge, skills, and resources enable the business to meet market demands, take advantage of market opportunities, and meet competitive threats (Vorhies and Harker, 2000). In order to acquire satisfactory income or sales value, according to Weerawardena (2003), there are two main components: promotional activities and the quality of the sales people. Therefore, it is important to enhance the capability of employees in sales and marketing departments.

Hypothesis 4: Training in marketing capability has a positive relationship with the revenue of manufacturing SMEs.

The retention of employees in SMEs should be examined because the ability of SMEs to recruit and train new employees is not the same as in large firms, as the procedure of sourcing, hiring, replacing, and training may cause money and time. The retention of employees has become one of the important goals of human resource management practice. Rappaport et al. (2003), for example, found that the firm's competitive advantage will drop if it cannot maintain its workforce. Additionally, a high rate of turnover could impact a variety of dimensions, such as productivity and financial performance (Shaw et al., 2009; Sun et al., 2007).

Hypothesis 5: Employee retention has a positive relationship with the revenue of manufacturing SMEs.

Managerial capability can be understood as a process of management's interaction with resources (Wensley, 1999). Therefore, managerial capability has a direct relationship with firm resources and firm performance. Managerial capability is widely known as the innate and learned ability, and expertise and knowledge, of managers in organizations (Castanias and Helfat, 2001). It has been classified into three categories: general skills, industry-specific skills, and firm-specific skills. General skills are mostly used across generic business and personal interactions. Firm-specific skills are those related to corporate values in a particular company such as firm history, culture, and firm strength and weakness (Puffer and Weintrop, 1991). Industry-specific skills are special skills for each industry. Zaridis (2013) explained that most SME's failures are caused by a lack of managerial skill and knowledge in managing the firm.

Hypothesis 6: Low managerial capability has a negative relationship with the revenue of manufacturing SMEs.

Financial Resources

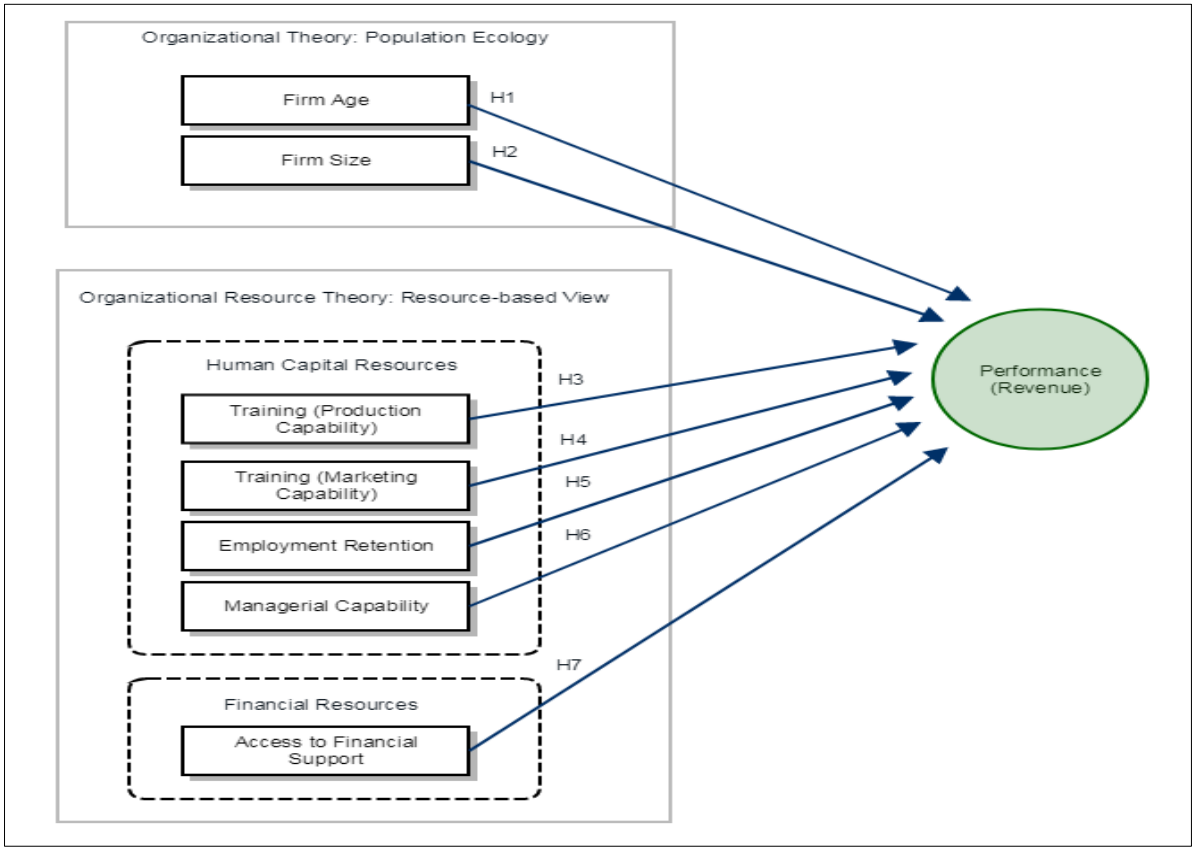
Financial resources are important in terms of their contribution to firm performance (Barney, 2002) and can be3 regarded as cash reserves, loans, bonds, and financial instruments (Hooley et al., 1998). The various internal and external sources of funds help firms invest in organizations, for example in product research, training, attracting partners, and necessary resources (Peppard et al., 2006). However, SMEs use less external financing than large firms and rely more on bank credit than large firms because they are unable to access public capital markets. Beck et al. (2008) studied 48 countries and found that small firms are limited in terms of expanding their external financing as they are more financially constrained than large firms. Additionally, Kira and He (2012) found that the accessibility of finance for SMEs can positively influence the ownership and control of production factors, such as land, labor, and capital, and access to finance enables SMEs to acquire productive assets that can be used to increase their performance and growth.

Hypothesis 7: Access to financial support has a positive relationship with the revenue of manufacturing SMEs.

Based on the above literature review, the conceptual framework proposes the following, as seen in the figure.

Conceptual Framework

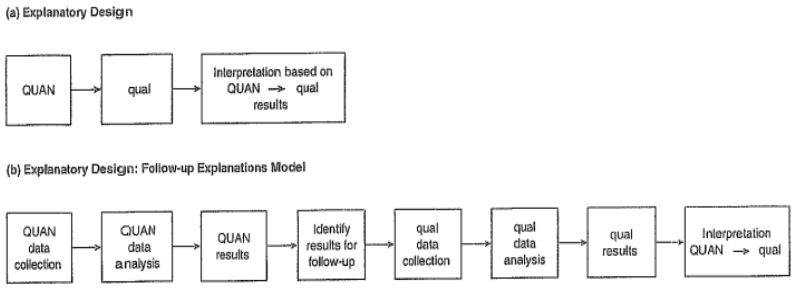
Figure 2: Conceptual Framework



Research Methodology

This research used a mixed method-explanatory design as seen in Figure 3.

Figure 3: Research Design



Source: Cresswell, 2006

First Phase Methodology: Quantitative Method

The statistical tool used in this research was multiple linear regression analysis, which was applied in order to identify the factors and the direction of the relationships between the dependent and independent variables. The independent variables and the dependent variables are shown in Table 1. The equations, which show the relations between the independent variables and the dependent variables, are derived from the conceptual framework in Figure 2. Revenue was regarded as performance or the dependent variable.

This research obtained the secondary data from the OSMEP database from 2008 to 2010, and in order to obtain these data, the OSMEP uses a questionnaire survey of the SMEs in each province in Thailand. Moreover, the researcher applied a reliability test, a normality test, a linearity test, a homoscedasticity test, and multicollinearity to check the validity of the multiple linear regression method. According to the conceptual framework, the multiple linear regression equation was estimated as follows:

$$REVENUE = \beta_1 + \beta_2 AGE + \beta_3 SIZE + \beta_4 TRAINPRD + \beta_5 TRAINMKT + \beta_6 EMRETENT + \beta_7 ENTREP + \beta_8 FUNDS$$

Table 1 Operational Definitions

Name	Independent/Dependent Variable	Level of Variable	Description	Unit
REVENUE	Dependent	Ratio	Mean of sales of manufacturing SMEs in each province during year t	Baht
AGE	Independent	Ratio	Mean of age of manufacturing SMEs in each province during year t	Year
SIZE	Independent	Ratio	Mean of employee numbers of manufacturing SMEs in each province during year t	Number of employees

Name	Independent/Dependent Variable	Level of Variable	Description	Unit
TRAINPRD	Independent	Ratio	Proportion of manufacturing SMEs that have training in manufacturing activities for employees in each province during year t	Percentage
TRAINMKT	Independent	Ratio	Proportion of manufacturing SMEs that have training in marketing for employees in each province during year t	Percentage
EMRETENT	Independent	Ratio	Mean of employment existence in each province	Percentage
ENTREP	Independent	Ratio	Number of entrepreneurs that feel a lack of entrepreneur/managerial knowledge in each province during year t	Number of entrepreneurs
FUNDS	Independent	Ratio	Proportion of manufacturing SMEs in each province that lack funds in each province during year t	Percentage

Second Phase Methodology: Qualitative Method

In the second phase, the qualitative method was applied to assist with the explanation and interpretation of why certain factors identified in the first phase were significant predictors. The qualitative method activities allow us to look deeply into the details and provide a more informed exploration (Holliday, 2002). In this research the researcher focused on semi-structured interviews because such interviews are more flexible and provide a discussion between the researcher and the informants in order to explore their opinions on relevant topics (Fowler and Mangione, 1990).

Primary data were collected from 10 key persons that were related to manufacturing SMEs. Face-to-face interviews were the method to collect the data.

Research Results: First Phase

The focus of this research was to investigate the factors affecting the performance of manufacturing SMEs. This model was used to answer the first research question: What are the factors that affect the performance of manufacturing SMEs? The results of the regression equation are shown in Table 2.

Table 2 Multiple Linear Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.11155	1.054274	12.43657	0.0000
SIZE	0.109853	0.016548	6.638621	0.0000**
AGE	0.041670	0.084025	0.495919	0.6216
TRAINPRD	1.513974	0.382779	3.955217	0.0002**
TRAINMKT	-0.493032	0.626555	-0.786893	0.4341
EMRETENT	0.797590	0.285025	2.798315	0.0067**
ENTREP	-0.016433	0.006841	-2.402303	0.0191*
FUNDS	0.108756	0.478332	0.227365	0.8208

R-squared	0.526986	Mean dependent var	16.30599
Adjusted R-squared	0.477566	S.D. dependent var	1.279735
S.E. of regression	0.924987	Akaike info criterion	2.782464
Sum squared resid	57.32529	Schwarz criterion	3.029663
Log likelihood	-96.34241	Hannan-Quinn criter.	2.881168
F-statistic	10.66354	Durbin-Watson stat	2.006192
Prob(F-statistic)	0.000000		

** Significance of $p < 0.01$, * Significance of $p < 0.05$

In Table 2, the results of the coefficient analysis can be seen. There were seven independent variables in the model consisting of SIZE, AGE, TRAINPRD, TRAINMKT, EMRETENT, ENTREP, and FUNDS. The coefficients of these seven variables were statistically 0.109, 0.041, 1.513, -0.493, 0.797, -0.016, and 0.108 respectively. The result indicated that a predictor was meaningful because it was related to the changes in the dependent variables. The variables that were significant in terms of

P-value < 0.05 were SIZE, TRAINPRD, ENRETENT, and ENTREP with the value of 0.0000, 0.0002, 0.00067, and 0.0191 respectively. Moreover, SIZE, TRAINPRD, ENRETENT were the three predictor variables that had a high significant level with a significant p-value < 0.01.

Conversely, the results indicated that there are three variables not related to changes in the response variable. The variables where the p-value was greater than 0.05 were AGE, TRAINMKT, and FUNDs. The R2 was 0.526, which means that 53 percent of the variance in the factors affecting the SMEs' performance could be explained by the combined influence of the seven independent variables. Nonetheless, this research attempted to detect multicollinearity using the variance inflation factor (VIF). The maximum VIF value was 3.3985 while most VIF values in this regressor were below 1.5. Kennedy (2008) suggested that VIF>10 indicates harmful collinearity for standardized data. Thus, this repressor had no harmful collinearity. Moreover, the assumption of normal distribution in this research was checked by quantile-quantile plot. Additionally, this research conducted the white test and any heteroskedasticity was not found.

Research Results: Second Phase

This section is the analysis of the seven factors affecting the performance of manufacturing SMEs in Thailand. The core of this section answers the second research question: Why do these factors influence the performance of manufacturing SMEs? Most interviewees regarded revenue as the main performance indicator. However, the manufacturing SMEs that had a unique product were concerned about profit. Moreover, product delivery, product quality, customer satisfaction, and employee satisfaction were mentioned as the second indicators. The results of the semi-structured interviews for each factor are showed in Table 3.

Table 3 Conclusion of the Results

Factor	1st Phase Result	2nd Phase Result	2nd Phase Reason
Firm age	Not Significant	Confirmed 1st phase's results	- Depend on firm resources rather than years of existence
Firm size	Significant/Positive Correlation	Confirmed 1st phase's results	- Rely on labor rather than machines - Advantage of larger qualified workforce
Training in production capability	Significant/Positive Correlation	Confirmed 1st phase's results	- Require specific-industry knowledge and skills - Mismatch between education level and labor market - Affect directly production efficiency and effectiveness
Training in marketing capability	Not significant	Confirmed 1st phase's results	- Depend on personality rather than knowledge level - Availability of various marketing tools - Maintain negotiation power of owner - Less effective than incentives
Employee retention	Significant/Positive Correlation	Confirmed 1st phase's results	- Recruiting is time and cost consuming - New employee training is time and cost consuming - Less attractive than large firms for market labor
Low Managerial capability	Significant/Negative Correlation	Confirmed 1st phase's results	- General skills allow owner/manager to plan direction of firm, market strategy, and financial management. - Industry-specific skills allow owner/manager to develop his/her product.
Access to financial support	Not significant	Confirmed 1st phase's results	- Inflexible financial institution regulations - Lack financial collateral - Owner/manager lacks financial management skills

Discussion

The number of employees, employee retention, training on production capability, and the managerial capability of entrepreneurs were seen to be the factors that affect the performance of manufacturing SMEs in this study, and it was also seen that the factors that significantly affected manufacturing SMEs were related to human resources. The success of the small business is often related to the employees, who have the knowledge and skills to enhance the capacity of the business and to retain the firm's competitiveness (Barrett and Mayson, 2005). Haar and White (2013) proposed that the resource-based view highlights the idea that firms should invest in the internal development of various resources that differentiate the firm from its competitor in order to achieve an advantage. The quality of human resources in Thailand indicates that the development of human resources has not been in the right path, and the mismatch between education and the labor market has impacted human resources in manufacturing SMEs. Moreover, the specific knowledge in each industry is not easy to access, and therefore it is difficult for manufacturing SMEs to develop their products and to innovate. A majority of them still lack sophisticated networks that could assist them in overcoming obstacles, such as lack of knowledge regarding financial and entrepreneurial management, the specific skills required in each industry, and the lack of quality manpower.

Nonetheless, population ecology seemed to not be able to explain the effect of firm age because age was not a significant factor that affected the performance of manufacturing SMEs in Thailand. Although, size was significantly relate with firm performance, it could be better described by resource based view which insisted that human capital resources which could not be imitated by others bring the advantage for firms.

Recommendations

The growth of SME revenue would provide better income for entrepreneurs and employees. Although the government has launched policy to build the capacity of SMEs, entrepreneurs should have an attitude to improve themselves as well. Most SMEs regard human resource management as an additional cost; however, it is very important to retain quality employees in the firm and the effectiveness of recruitment will reduce time and money for SMEs. Therefore, human resource management is beneficial for firms and firms should pay attention to human resource planning and recruitment and retain and reward employees. Additionally, the findings presented that manufacturing SMEs lack sufficient knowledge of their own industry and cannot find advisors. Therefore, academic institutions should be one of the key partners. The government should allocate supportive roles for universities and research institutions to assist in sharing knowledge, technology, innovation, and other resources continuously. At the same time, the government should focus on developing vocational education programs by stimulating motivation for learning, with a concentration on practical tasks and concern about one's own career to reduce mismatch between education level and labor market.

Recommendations for further study

As this article focused on the broad picture of manufacturing SMEs in Thailand, further study should include the factors affecting manufacturing SMEs in each industry. The industrial context in each field may have both similarities and differences, and therefore further recommendations for each industry may yield benefits for enterprises and for the government.

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