IMPACT OF LOGISTICS SERVICE PROVIDER ON AGING PRODUCT FIRMS: A CONCEPTUAL FRAMEWORK

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Abstract

Purpose: Aging crisis can be seemed as a worldwide concern. This particular phenomenon has led the world to realize the importance of such market sector and need to increase the value of choice and logistics services. This study proposed a conceptual framework of causal diagram and impact of variables on aging product firms with logistics service provider. In additionally, the indicators and definitions for each latent variable in the proposed structural equation model (SEM) will also be revealed.

Design/methodology/approach: The literature review of logistics service, customer satisfaction, business performance and SEM are conducted then use linkage among latent variables to set the hypothesis and form conceptual framework of SEM.

Findings: The indicators, interaction and also causal diagram among Logistics Service Quality, Flexibility Capability, Customer Satisfaction, Customer Loyalty and Business Performance will be focused.

Research limitations/implications: The study aims to use the perspective of potentially aging product firms in Thailand. The tendency of the result may be debatable due to the time conducted is before the actual aging crisis.

Practical implications: The proposed model will allowed the potential aging product firms to investigate and identify the impact of logistics service provider to their business performance throughout Flexibility Capability of provider to Customer Satisfaction and Loyalty.

Originality/value: This conceptual framework shows the interaction of Flexibility Capability on logistics service provider in order to be able to change to the market aged sector.

Keywords: Logistics Service Quality, Customer Satisfaction, Flexibility Capability, Business Performance, Structural Equation Modeling

Introduction

According to the report by World Health Organization (WHO), between 2015 and 2050, the proportion of the world's population over 60 years will nearly double due to the rise of “Baby Boomer” group. Painstakingly, Thailand also has to face this crisis and will become a complete aged society in 2020, which estimated over 20% of the national population will be citizens of 60 years or older and this phenomenon will be exponentially increased. This brings to survey of Nielsen in 2016 who predicts that Fast Moving Consumer Goods such (FMCG) as Milk, Pet Food, Pre Packed Rice and etc. will have their sale increased.

In order to prepare for this crisis, it is important for the mentioned firms to be aware and starts to prepare their business performance related operations to compete with others. The profit of company can be obtained from many sources, but the certain thing is that they need to have a strong customer base. That means the loyalty of customer or customer retention will guarantee to extend the breathe for the organization but it is common that dissatisfied customers will not likely to keep in touch with the same seller. That is why customer satisfaction is the crucial topic in business world.

For today business world, manufacturer may not be the most powerful character among the supply chain anymore due to the ability to directly contact with the customer of retailer that hold all the powers. This

forced the firm to deal with the retailer through logistics activities which the better the quality, the better the retailer's satisfaction. To cope with the uncertainty of FMCG that rely on the forecasting, the flexibility of the firm's logistics has become more and more important in order to satisfy the customer needs that can be vary.

This paper provides the definition and attributes for each variable measurement. Then, the causal diagram among variables will be formed from the hypothesis that conducts from the literature review for the future research.

Literature Review

This section, the definition and related researches on Logistics Service Quality (LSQ), Logistics Flexibility Capability (LFC), Customer Satisfaction, Customer Loyalty (LAT) and Business Performance (BP) will be mentioned to form hypothesizes base on each characters.

Logistics Flexibility Capability (LFC)

In order to deal with the business environment uncertainty, firms have to create the flexible in many elements to gain competitive advantages by adapting to meet customer needs (Reactive) or changing to survive (Proactive). The term flexibility itself is a very vague concept, it can be divided into 2 categories which are Flexibility Capability and Flexibility Competence (Zhang et al., 2002). These 2 elements are crucial to logistics flexibility but the customer will be able to notice the only just the Capability while Competence is something hidden inside the form that customer cannot be noticed or feel (De Toni and Tonchia, 1998). Zhang et al. (2005) has discussed that the firm can be able to achieve more customer satisfaction by LFC improvement. Dave et al. (2014) also said that LFC can enhances the firm's customer satisfaction. The term does not only affect the customer satisfaction but also related to logistics service quality as well (Yu et al., 2017)

These researches can be used to form 2 hypothesis on LFC, LSQ and CS which are:

H1 : LFC has positive impact on LSQ.
H2 : LFC has positive impact on CS.

Logistics Service Quality (LSQ)

Logistics Service Quality (LSQ) can be defined as a degree of quality in logistics related activities among the firms. It has been realized around the globe and ahs become the core source of powerful business success creation, nonetheless, it can also be considered as a heart pulse of business itself due to logistics activities that drive the processes of product or process. Mentzer et al. (2001) has pointed out that logistics service quality can affects firm's customer satisfaction in all business type but the result in each elements can be variance due to the firm's segment. Thai (2013) also mentioned the link between LSQ and customer satisfaction that it is critical and related to each other.

These researches can be used to form a hypothesis on LSQ and CS which is:

H3 : LSQ has positive impact on firm's CS.

Customer Satisfaction (CS)

Customer satisfaction might be an ultimate goal for some businesses to make clearly that the firm can maintain the market share. Measuring customer satisfaction can be used to spectate the gap actual perceived performance and the ideal performance customers would like to get from the business (Parasuraman et al., 1998). Many people may be confused with the concept of CS and loyalty, while they are not the same (Mägi, 2003). Customer can be satisfied without having to be loyalty with the firm (eg. Many choices to be chosen) and vise versa. Huang et al. (2009) has done the Structural Equation Modeling (SEM) that proposed the point that CS has positive impact on loyalty on retailing service. The research from Juga et al. (2010) also concluded that logistics service provider loyalty could be influenced through overall satisfaction. The CS does not only has an impact on LAT but also the BP. It has been

confirmed that CS has an impact on firm's financial performance such as total revenue, net income and earning per share (Williams and Naumann, 2011)
These researches can be used to form 2 hypothesis on CS, LAT and BP which are:

H4 : CS has positive impact on LAT.
H5 : CS has positive impact on BP.

Customer Loyalty (LAT)
Customer Loyalty usually means the behavior of customer that repeatedly purchases the product or service over and over again. It is normal that the customer will be easily be lured to the firm who offers a better deal (Bhardwaj, 2007). Thus, the loyalty of customer is very valuable that can be considered as the assets of the company. It is found that the cost of firms successfully getting new customers is approximately 6 times more expensive than the cost of maintaining the old customers to stick with the company (Rosenberg and Czeoiel, 1984). It has been clarified that customer relationship improving will lead to more in LAT then increases the grow in sales and BP (Akroush et al., 2011).

This research can be used to form a hypothesis on LAT and BP as:

H6 : LAT has positive impact on BP

Business Performance (BP)
BP usually refers to the responsibilities of the firm and their shareholders (Rappaport, 1987), it can be divided into 2 dimensions which are Market Performance that often refers to the side of the seller (Somani and Tesfatsion, 2008) and Financial Performance that refers to the money related metrics (Chi et. al., 2009).

Research Methodology
This paper aims to find the attributes for each variable by conducting 5 literature researches that has high number of citations for each one excluding CS whose measurement is likely to be the average scores to create a table showing the attribute that has been mentioned then check the frequency for each time the attribute has been used on those particular papers then select the attributes with at least 3 mentions. The table will also provide the name of the author and the year that the paper has been published in order to inform the readers for future research purpose.

The found information will be used to form a causal diagram of Impact of logistics service provider on firms with aging products. The hypothesis on literature review section will be used to set the relationship among each latent variable, which are LFC, LSQ, CS, LAT and BP while the attributes from the result of findings will be used to explored the observed variables for each latent variable.

Result
Logistics Flexibility Capability (LFC)
It can clearly be seen from all the literature review that LFC can be divided into 2 dimensions, which are Physical Distribution Flexibility that refers to the ability of the Logistics Service Providers to adjust the movement or reaction to customer needs of tangible goods that has show in Table 1.

Dimension	**Attribute**	**Reference**					
		Zhang et al., 2002	Zhang et al., 2005	Hua et al., 2009	Dave et al., 2014	Tosun and Uysal, 2016	**Total**
Physical Distribution Flexibility	Adjust inventory	✓	✓	✓	✓	✓	5

	Adjust packaging	✓	✓		✓	✓	4
	Adjust warehousing	✓	✓		✓	✓	4
	Adjust transportation	✓	✓	✓	✓	✓	5
	Adjust quality			✓			1
Demand Management Flexibility	Response to customer service	✓	✓	✓	✓	✓	5
	Response to delivery time	✓	✓	✓	✓	✓	5
	Response to price	✓	✓	✓	✓	✓	5

Table 1: LFC Attributes

Logistics Service Quality (LSQ)

The attributes gathered as in Table 2 has shown the range of activities that will refer to the quality of logistics between the focal firm's logistics service provider and focal firm's customers. There are many variations in term of dimension but the frequency of the attribute can be pointed out that there are dimensions that are less likely to be considered, which are Order Release Quantities, Order Accuracy, Technical Service and Image.

Dimension	**Attribute**	**Reference**					
		Mentzer et al., 2001	Gil Saura et al., 2008	Huang et al., 2009	Juga et al., 2010	Thai, 2013	**Total**
Timeliness (Time)	Time between placing and receiving	✓	✓	✓	✓	✓	5
	On time delivery	✓	✓	✓	✓	✓	5
	Orders not delivered in time are subsequently sent quickly	✓	✓	✓		✓	4
	Reverse efficiently		✓				1
Personnel Quality (PQ)	The contact person appointed makes an effort to understand my position	✓	✓			✓	3
	The product knowledge/experience of the firm's personnel is adequate	✓	✓		✓	✓	4
	Help to resolve their problem	✓			✓	✓	3
	Accessibility of personnel				✓		1
	Staff's attitude and behavior					✓	1
Order Release Quantities	Requisition quantities are not challenged Difficulties never occur due to max/min release quantities	✓					1
	Requisition quantities are not challenged	✓			✓		2
Information Quality (IQ)	The information about the order is available and appropriate for its purpose	✓	✓			✓	3
	Provided timely information on delivery			✓		✓	2
	Provided accurate information on delivery			✓		✓	2
	Application of IT and electronic data interchange (EDI) in customer service					✓	1
	Introduction of IT innovation in customer service					✓	1
	Shipment tracing capability					✓	1
Order Accuracy	Rarely contain substituted items	✓				✓	2
	Rarely contain an incorrect quantity	✓				✓	2

	Shipments rarely contain the wrong items	✓				✓	2
Order Condition (OC)	Damage rarely occurs as a result of the transport mode or carrier	✓		✓		✓	3
	Material received is undamaged	✓		✓		✓	3
Order Quality (OQ)	Ordering procedures are effective and easy to use	✓	✓	✓	✓	✓	5
	Products ordered from the firm meet technical requirements	✓	✓				2
	Problem is solved in a satisfactory form		✓				1
	Products are rarely non conforming	✓					1
	Loosening restriction on the size of goods			✓			1
	Substituted items work fine	✓					1
	Total order cycling time					✓	1
Order Discrepancy Handling (ODH)	Correction of delivered quality discrepancies is satisfactory.	✓		✓		✓	3
	Discrepancy process report is adequate	✓				✓	2
	Response to quality discrepancy report is satisfactory	✓		✓		✓	3
	Consistency in order handling					✓	1
Technical Service	Technical quality of physical resources				✓		1
	Technical quality of information systems				✓		1
	Problem-free electronic communication				✓		1
Image	Handling of customer feedbacks					✓	1
	Reputation for reliability in the market					✓	1
	Record of professionalism and consistency in satisfying customers					✓	1
	Reputation for matching words with action					✓	1
	Company's ethical image					✓	1

Table 2 : LSQ Attributes

Customer Loyalty (LAT)

From the finding, there are many theories explaining about the attributes in Customer Loyalty. The attributes came from the way or the behavior of the customers would react to the firm. The result from 5 literatures shows that the most considered attributes as in Table 3, which are Consider the provider to be the first choice, Would repurchase even if the deal is similar to others, Would say good things about this provider and Would recommend this provider to other.

Attribute	**Reference**					
	Gil Saura et al., 2008	Chen and Lee, 2008	Huang et al., 2009	Wallenburg, 2009	Chou et al., 2014	**Total**
Consider to be the first choice (LAT1)	✓	✓			✓	3
Would buy again even if everything is	✓	✓		✓	✓	4

similar to others (LAT2)						
Classified myself as a loyal customer		✓	✓			2
Would say good things about this provider (LAT3)		✓	✓	✓	✓	4
Would recommend (LAT4)		✓	✓	✓	✓	4
Would do additional purchases				✓		1
Encourage other people to use					✓	1

Table 3 : LAT attributes

Business Performance (BP)

Many researches have discussed the attributes of BP in the same way and concluded market and financial side in their paper. Basically, most attributes refer to the measurement on what firm will get after operationalize their business.

Attribute	**Reference**					
	Yang et al., 2010	Chao, 2011	Qi et al., 2011	Agus and Hajinoor, 2012	Zhao et al., 2015	**Total**
Profitability		✓		✓	✓	3
Sales	✓	✓			✓	3
Market Share	✓	✓	✓	✓	✓	5
Return on sales (ROS)	✓	✓		✓	✓	4
Return on asset (ROA)			✓	✓		2
Return on investment (ROI)	✓	✓	✓		✓	4

Table 4 : BP attributes

Conceptual framework of Structural Equation Model

Combining the Hypothesis and highly mentioned observed variables (attribute) for each latent variable will be able to form a conceptual for structural equation model as illustrate in Figure 1. Note that this conceptual framework does not include sub-attribute for each observed variable.

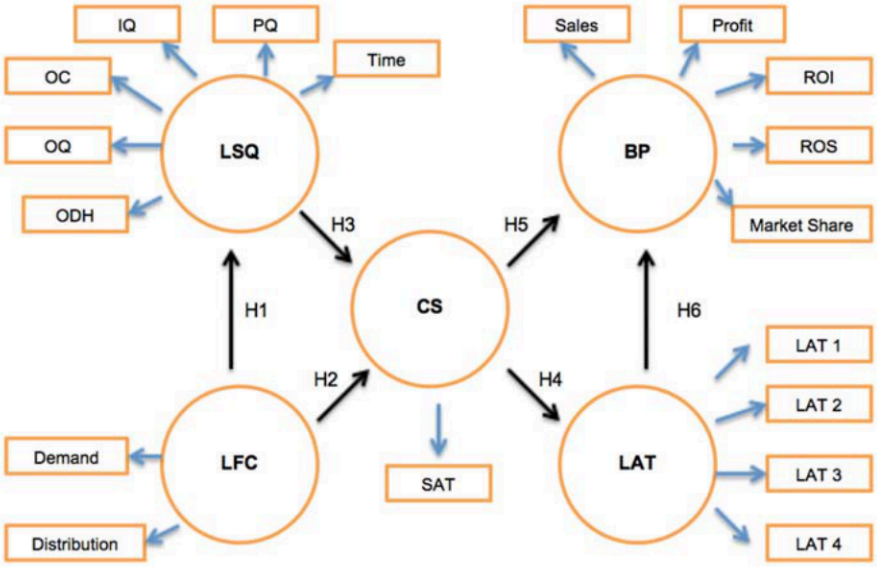

Figure 1 : Conceptual framework of Structural Equation Model

Discussions and Conclusion

Discussion

The linkage and relationship for hypothesis of each latent variable can be extended due to some researches that simplified other latent variables apart from the proposed conceptual framework that proposes only the highest possible relationship impact from the literature review. The relationship of LFC can also be connected with BP and LAT while LSQ can be connected with BP and LAT as well.

Be reminded that this framework is a conceptual framework of SEM, it can also uses Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) in Factor Analysis method to gain a better reliability and validity of each attributes in the proposed model. The future work should also use more literature reviews in order to identify the attributes.

Conclusion

This paper has been done by gathering all informations on the related literature review. It can be used to set 6 hypotheses of relationship as mentioned in section 2 of this paper then use again to identify attributes for each latent variable with frequency checking that most papers have discussed in the same manner. The conceptual framework has proposed the structure for SEM with symbols showing the type of its relationship.

The latent variable in the model consists of 5 variables which are Logistics Flexibility Capability (LFC), Logistics Service Quality (LSQ), Customer Satisfaction (CS), Customer Loyalty (LAT) and Business Performance (BP). For the observed variable, LFC attributes consist of Demand management flexibility and Physical distribution flexibility, LSQ attributes consist of Timeliness, Personnel Quality, Information Quality, Order Condition, Order Quality and Order Discrepancy Handling, LAT attributes consist of Consider the provider to be the first choice, Would repurchase even if the deal is similar to others, Would say good things about this provider and Would recommend this provider to other and BP attributes consist of Sales, Profitability, Market Share, Return on investment and Return on sales. The attribute in CS is an exception because it is most likely to be the average score from the customer and measurement that might be complicated for this model due to the concept that has similarity with LSQ. The future research can combine this model with Factor Analysis first in order to gain the validity and reliability to form the Structural Equation Modeling (SEM).

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