**Evaluating the impact of the Manufacturer’s logistics service**

**quality toward Distributor’s satisfaction and loyalty in Vietnam**

**Textile Industry**

*Thanh Le Thi Phuong and Hun-Koo Ha*

**Abstract** - *While textile industry plays a critical role in the economy of many developing countries. Service quality is one of the significant measurement tools for manufacturer to understand distributor’ needs and analyzing the distributors’ satisfaction on the services provided. However, what constitutes service quality in textile supply chain and its influence on the distributors satisfaction and loyalty has not been well investigated in the literature. So in this study examines the role played by service quality at manufacturer-distributors dyad in textile supply chain, and presents a model to establish that contribution of both the manufacturer and the distributors towards service quality could lead to satisfaction followed by loyalty. Following a literature review, a conceptual model of service quality in textile supply chain its influence on distributors satisfaction and loyalty is proposed. Structural equation model (SEM) was conducted to confirm the service quality dimension and to show linkages of manufacturer service quality with distributors leading to their satisfaction and loyalty is also developed. The result of study has provided important insights into service quality and customer satisfaction in the textile industry.*

**Key words: Service quality, Customer satisfaction, Loyalty, Structural equation modeling (SEM).**

INTRODUCTION

## *The role of logistics service quality in supply chain*

Better service quality is a main success factor in this era of intense competition. Thus many researchers dedicated attention to research service quality (Abdullah, 2006). Mentzer et al (1999) believed that the relationship of service quality and supply chain performance is widely through the satisfaction of each member in the supply chain.

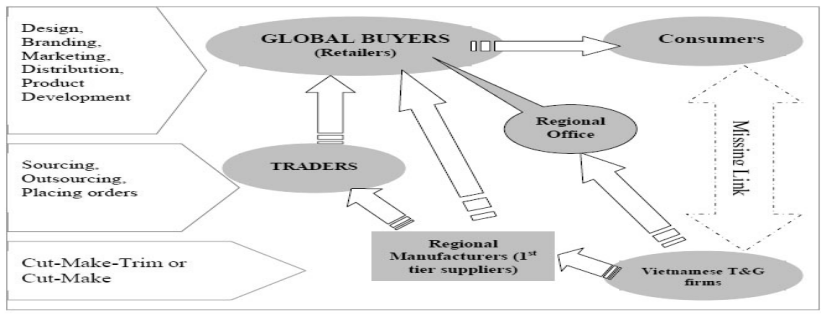
The rationale of this research is to continue this expansion of service quality scale implementation studies into the scope of industrial supply chains as this study establishes a service quality assessment scale for the manufacturers-distributors interface of industrial supply chain.

In the supply chain, logistics service quality also plays an important role to identify the satisfaction of the customer. This is a way in which customer feedback with a favorable attitude toward the service they receive (Jain, R., Sahney, S. and Sinha, G., 2013). There is no denying that supplying quality service which becomes a necessary strategy to develop in a competitive environment. Firms can achieve higher growth in the market and increase profits by means of offering superior service.

This thesis approaches the supply chain from the distributors’ perspective and manufacture’ perspective, and seeks to address the following purpose: Firstly, to measure logistics service quality from Distributor’s perspective in the Vietnam textile industry and the role of logistics service quality in supply chain management. Secondly, to examine the contribution made by each dimension of service quality in predicting distributor’s efficiency and conceptualize logistics service quality at the manufacturers – distributors’ dyad of the supply chain. Finally, to identify the best performers and set benchmarking goals and the logistics service quality in supply chain related to satisfaction and loyalty at manufacturer–distributor dyad.

## *Textile supply chain in Vietnam*

In Vietnam, garments and textile industries are having heterogonous nature; some factories solely do “cutting and sewing”, whereas others are “composite woven and/or knit textile” having own materials offer produced on their own. Again, some are massive factories having a complete vary of textile and clothing supply chain. However, once production forward linkages are the same for pretty much all of the textile industries. Though massive factories are having a full vary of offer chain, however, this variety isn't big. There are growing numbers of backward linkage and support industries in Vietnam and that they supply accessories to the export directed garment industries, however solely around a half-hour of the desired accessories in Vietnam. Of the entire gross sales from sales of a garment at the retailers, typically out of each 5 greenbacks, 3 can accrue at the retail finish, one to the producer, and one for freight, import duties, insurance, and transportation. The supply chain in Vietnam textile industry is longer than Kingdom of Cambodia because of the presence of native yarn, materials and accessories industries, Vietnamese clothes business will work on FOB basis. All parties involved in the value chain of textile industries in Vietnam can be illustrated in fig 1.



*Source: Report of VITAS in 2019*

Figure 1. Supply Chain in Vietnamese Textile and Garment Industry

**The purpose of research**

The first study is from the perspective of the distributors. For the purpose of this thesis, the distributors-focal organization dyad involves the service quality. The central finding of this research is that service quality-driven initiatives in the supply chain lead to competitive advantage and an enhanced level of performance for an organization. It is also possible to obtain the single measure in different ways, such as a simple sum or average, a weighted sum, or a weighted average, with weights allocated to each dimension or element. One of the main reasons for providing a single measure of overall service quality through dimensions is to allow comparison benchmarking. SERVPERF identify industry standards by comparing overall quality scores of service units and then to improving the performance of units that are falling behind (Kettinger, W. J., & Lee, C. C., 1997). However, there is the limit when using the benchmarking based on a simple aggregated measure that there is little guidance to whom to benchmark and to what degree service quality should be improved. To address this limitation, this paper applied a data envelopment analysis (DEA) approach to the calculating of a single measure of overall service quality and optimizing in assessment service quality with the five dimensions of SERVPERF.

The second study, after measuring service quality in the supply chain from Distributor perspecitve and understand the importance of logistics service quality in the supply chain. SEM model is used to develop a suitable model for establishing the link between Logistics service quality, satisfaction, and loyalty at manufacturer-distributor dyad.

BACKGROUND

## *Concept of service quality*

Service quality originates in the services marketing literature. Service quality has been differently conceptualized and operationalized. Service quality described as a multidimensional concept (Gro¨nroos, 1990) (Parasuraman, 1985).

Firstly, Service quality was divided into three dimensions, namely, the “what”, the “how” and the image attributed by potential and current customers (Gro¨nroos, C, 1988) (Gro¨nroos, 1990) (Gro¨nroos, 1984, 1990; Lehtinen and Lehtinen, 1991).

Secondly, through the measuring expectations and perceptions of the service, the result is the outcome of service quality (Gro¨nroos, 1984; Parasuraman et al., 1985, 1988, 1991).

The last, Zeithaml, 1988 gave that service quality include evaluation of the overall service and measuring three-dimension (process quality, service environment and technical quality (Rust, R.T. and Oliver, R.L, 1994) and represents the total of a customer’s perception of a service (Gummesson, E, 1991).

## *Logistics service quality*

Generally, the logistics role of an organization was only regarded as a cost driver without differentiating capabilities (Saura, 2008). The point of view was stems from the outlook of Logistics which has traditionally been thought of as necessary for linking production and consumption (Saura, 2008). Logistics studies based on the marketing principles in the mid-1990s was the first modification. To begin with investigating the capacity of logistics to supply quality and then create bigger customer satisfaction and loyalty (Mentzer J. F., 2001) (Mentzer J. M., 2004). Logistics service quality has been divided into two different perspectives including subjective and objective quality. (Chin, 2013) (Saura, 2008).

The determination of objective variables evaluated and measured the customers’ perception in relation to customer expectations as the major components of Logistics Service Quality which mentioned by Bienstock, Mentzer and Bird (1997). More recent study of Mentzer et al., (2001), contributes to this line by considering supply service quality as the distinction between the expected and therefore the perceived service. supply specific measuring models are being developed on the basis of the on top of models, that are tailored to the special features/attributes of supply service (Saura et al., 2008). According to Chin et al. (2013), these views of supply service offer the building blocks to make a customer-based foundation for higher definitions and measures of LSQ.

## *Conceptualization of logistics service quality in the supply chain*

There is no denying that service quality in the supply chain plays an important role, however it is little researched (Nix, 2001). In major previous research focused on the consumer (Faulds and Mangold, 1995; Perry and Sohal, 1999). A number of the studies within the field of service quality in supply chain are examined, but they may possibly be concentrated on purchase or distribution activities and keeping one-directional vision. A bi-directional study that evaluates two sides including manufacturer or distributor and the organization provides win-win situation and fill in the gaps of the supply chain.

In service literature, many of service quality dimensions were found which bear some relevance to the supply chain content. Seth et al. (2006) identified 36 dimensions which have their applicability at various dyads of the supply chain. At these dyads, service quality involves forward and reverse flows of service, evaluation of which is assessed by calculating the gap between perception and expectation of each service (Seth, 2006).

## *Concept of customer satisfaction*

On one side, amount of research supposed that the difference between the expected value and perceived value from product or service which causes satisfaction in consumer relationship (Wangenheim, 2003). According to this point of view, Oliver (1993) explained that transactional satisfaction stands for the perceptions of a firm’s performance on the foremost recent transactions, or an instantaneous post-purchase analysis. From perspective, there is an argument between the customer transactional and cumulative.

On the other hand, the researchers followed the cumulative opinion supposed that customer satisfaction springs from evaluative judgment on the accumulative experiences on purchasing any product or service. They outlined that client satisfaction is an analysis seeable of the purchase and consumption experiences with a product or service with the passage of your time (Johnson MD, 1991) and client satisfaction is recognized as affiliation between processes culminating purchase and consumption with post-purchase phenomena like angle amendment, repeat eight purchase, and complete loyalty (Churchill, 1982)

The satisfaction of manufacturer and distributor will be comprised in two variables named: desired value for price, and general satisfaction with service.

## *Concept of customer loyalty.*

There are various ideas elaborated by different researchers and organizations in several educational fields and different industries. Jazz musician (1999) outlined that client loyalty may be a deeply control commitment to repurchase or re-patronize most well-liked products, services, or brands systematically, which might cause repetitive ten buying within the same brands, despite situational influences and selling efforts having the potential to cause switch behavior. Ganesh, Arnold, Associate in Nursing Reynolds (2000) explained loyalty as integration of each commitment to the connection and alternative explicit loyalty behaviors. Some other researchers additionally provide loyalty in several definitions. Elizabeth R. Davis (2006) summarizes that loyalty will be outlined in terms of repeat buying, a positive angle, long-run commitment, intention to continue the connection, expressing positive word-of-mouth, probability of not switch, or any combination of those.

The loyalty of manufacturer and distributor will be comprised in three variables named: re-purchase/re-order intent, resistance to switching, and recommendation of services to others

1. **Research design**

This thesis deals with service quality, satisfaction and loyalty. When following a mixed qualitative and quantitative approach, however, it is predicted that by gathering different types of data related to the same phenomenon, decision accuracy can increase. Therefore, qualitative and quantitative methods were included in this study.

In order to determine the relationship among three components mentioned, the study concentrates on **analysis on the Role of Manufacturer’s Service Quality for Distributor’s Satisfaction and Loyalty in Supply Chain.**

1. **Methodology: *Structural Equation Modeling Technique (SEM) - Analysis on the relationship among logistics service quality, satisfaction and loyalty between manufacturer and distributor in supply chain***

Structural equation modeling was chosen as the tool to evaluate and test the proposed relationships of logistics service quality between satisfaction and loyalty at manufacturer-distributor dyad by following the two-step approach suggested by Anderson and Gerbing (1988). The two-step approach in structural equation modeling includes the measurement model and the structural model (Gerbing & Anderson, 1988). This approach suggests that reliability and validity of measurements could be a necessity of theory testing.

Structural equation modeling has become one in every of the foremost helpful and common types of analysis and is employed to deal with several substantive issues within the social sciences, particularly in selling (Baumgarther &amp; lid 1996).

There is variety of benefits of victimization structural equation modeling to check a theoretical model. Firstly, structural equation modeling permits researchers to expressly accommodate measuring errors and incorporate abstract and imperceptible constructs. Additionally, structural equation modeling not solely combines theory and knowledge, however additionally confronts theory with knowledge (Fornell 1982).

Structural equation modeling may also be wont to assess the most effective fitting model so as to enhance the theoretical model with information. Moreover, structural equation modeling will accommodate and take a look at multiple reticular dependence relationships in a very single model that can't be done by alternative multivariable techniques (Hair et al. 1995).

Unlike the primary generation applied mathematics tools like regression, structural equation modeling permits researchers to spot reticulated relationships in an exceedingly single, systematic and comprehensive analysis by modeling relationships among multiple freelance and dependent constructs at the same time (Anderson &amp; Gerbing, 1988). Additionally, researchers will investigate the mensuration model and therefore the structural model singly (two-step modeling) or at the same time (one-step modeling) (Anderson and Gerbing 1998).

1. **Data and survey design**

With the aid of examining multi relationship at a time, the technique of structural equation modeling (SEM) is highly proposed instead of other multivariate techniques. In this study, the questionnaire for distributor’ logistics service quality is offered to manufacturer.

In this study, the questionnaire of manufacturer service quality was combined the questionnaire of distributor service quality. The data for the five dimensions of SERVPERF for 144 service units (SMEs in textile industry) were randomly generated for perceptions. A uniform distribution from 1 to 5 was assumed to produce ratings with 5-point Likert scale. Five point Likert scale from “Strongly Disagree (1)” to “Strongly Agree (5)” can be used for measurement. SERVPERF is a multiple-item scale composed of five dimensions and 22 items for measuring manufacturer perceptions of distributor’ logistics service quality.

1. **Results *and discussion***

In order to using the items scale with sub-factors to measure Manufacture’ logistics service quality (MSQ) and Distributor’ logistics service quality (DSQ) which are originated from the literature review. Therefore, EFA, CFA and reliability analysis have been performed.

## *Factor analysis*

After Bartlett test is conducted to verify suitability of factor analysis with the use of data of correlation matrix, EFA is applied (Hair, 2010).

Table 1 KMO and Bartlett’s test of sphericity for MSQ scales

|  |  |  |  |
| --- | --- | --- | --- |
|  | | **MSQ scale** | **Dependent group** |
| **DSAC,DLOY** |
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | 0.913 | 0.717 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 2540.056 | 469.086 |
| df | 406 | 10 |
| Sig. | 0.000 | 0.000 |

Instantaneously, assessment of sampling adequacy (n=144, in this case) is estimated by Kaiser-Meyer-Olkin (KMO) statistics which ranges from 0 to 1. The KMO value of above 0.6 is considered significant and indicates appropriateness of factor analysis. The score of Bartlett test and the KMO value is showed in Table 1.

Table 2 Result of EFA for Manufacturer’ logistics service quality scale

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Factors and associated items** | **Factor structure and loadings** | | | | |
| **1**  **EMP** | **2**  **ASS** | **3**  **TANG** | **4**  **RES** | **5**  **REL** |
| **Empathy (EMP)**  MSQ\_EMP5 | 0.846 |  |  |  |  |
| MSQ\_EMP4 | 0.825 |  |  |  |  |
| MSQ\_EMP7 | 0.814 |  |  |  |  |
| MSQ\_EMP8 | 0.773 |  |  |  |  |
| MSQ\_EMP5 | 0.765 |  |  |  |  |
| MSQ\_EMP3 | 0.759 |  |  |  |  |
| MSQ\_EMP2 | 0.710 |  |  |  |  |
| MSQ\_EMP1  **Assurance (ASS)** | 0.508 |  |  |  |  |
| MSQ\_ASS3 |  | 0.900 |  |  |  |
| MSQ\_ASS4 |  | 0.828 |  |  |  |
| MSQ\_ASS5 |  | 0.813 |  |  |  |
| MSQ\_ASS6 |  | 0.707 |  |  |  |
| MSQ\_ASS2 |  | 0.703 |  |  |  |
| MSQ\_ASS1  **Tangible (TANG)** |  | 0.645 |  |  |  |
| MSQ\_TANG4 |  |  | 0.878 |  |  |
| MSQ\_TANG6 |  |  | 0.865 |  |  |
| MSQ\_TANG5 |  |  | 0.856 |  |  |
| MSQ\_TANG3 |  |  | 0.704 |  |  |
| MSQ\_TANG1 |  |  | 0.682 |  |  |
| MSQ\_TANG2  **Responsiveness (RES)** |  |  | 0.639 |  |  |
| MSQ\_RES5 |  |  |  | 0.817 |  |
| MSQ\_RES2 |  |  |  | 0.748 |  |
| MSQ\_RES3 |  |  |  | 0.742 |  |
| MSQ\_RES4  **Reliability (REL)** |  |  |  | 0.672 |  |
| MSQ\_REL5 |  |  |  |  | 0.869 |
| MSQ\_REL4 |  |  |  |  | 0.720 |
| MSQ\_REL2 |  |  |  |  | 0.628 |
| MSQ\_REL3 |  |  |  |  | 0.576 |
| MSQ\_REL1 |  |  |  |  | 0.570 |
| *Extraction Method: Principal Axis Factoring.*  *Rotation Method: Promax with Kaiser Normalization.* | | | | | |
| *a. Rotation converged in 6 iterations.* | | | | | |

EFA is conducted using the Principal Axis Factoring (PAF) with Kaiser Normalization and promax rotation procedure. The objective is to summarize information asked in the questions into a smaller set of new attributes that attempt to bring out the constructs for measurement of logistics service quality.

The results of EFA analysis stopped at the third time after eliminating two variables in MSQ scale (ASS7 and RES1).

## *Confirmatory factor analysis (CFA) - Frist Order CFA*

CFA method in analyzing linear structure model is used because it has many advantages compared to traditional methods such as correlation coefficient method, exploratory factor analysis (EFA), multiple methods-multiple concepts. Specifically, the CFA method allows testing the theoretical structure of measurement scales, such as the relationship between a research concept and other concepts without being biased by measurement errors (Steenkamp & Van Trijp, 1991). Moreover, CFA allows testing the convergent and discriminant value of the scale without using as many studies as the traditional method.

### *Construct validity*

To measure the suitability of the model with market information, this study uses the following criteria: Chi-squared (required: p> 5%); Chi-square adjusted according to degrees of freedom (CMIN / DF <3); GFI (Goodness-of-fit index ≈ 1); the appropriate index compares CFI (comparative fit index> 0.9); TLI (Tucker & Lewis index> 0.9) and RMSEA (root mean square error approximation <0.08), (Browne and Cudek, 1992).

Table 3 The result of first order CFA

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Items sacles** | **CFA** | | | | |
| **CMIN/DF** | **GFI** | **TLI** | **CFI** | **RMSEA** |
| Dependent group of MSQ (MSAC, MLOY)  Dependent group of DSQ (DSAC, DLOY) | 1.461  1.311 | 0.984  0.982 | 0.990  0.984 | 0.996  0.986 | 0.057  0.053 |
|

The first CFA analysis results for the scales in Table 3 showing that all two scales of manufacturer service quality (MSQ), and dependent group have indicators to confirm that the model is suitable (compatible) with market data. With distributor service quality scale: CMIN / DF = 1.170 (<3), GFI = 0.894 (≈ 1), TLI = 0.982 (> 0.9), CFI = 0.985 (> 0.9) and RMSEA = 0.034 (<0.08). When it comes to the dependent group also give the data which are accepted. Therefore, it can be concluded that all three models after adjustment are suitable (compatible) with market data.

### ***Convergent validity***

The scale is considered to reach the convergence value when the standardized weights of the scales are greater than 0.5 and statistically significant P – value < 0.05 (Gerbring & Anderson, 1988; Hair et al., 1992). In addition, there is another criterion to check the convergence value that is the total extracted variance (AVE) of the concepts. For the concept to reach convergence, the minimum AVE must be 0.5 (Fornell and Larcker, 1981) <Table 4-17>

According to the analysis in Table 4, all the standardized and non-standardized coefficients of 49 observed variables, under 10 concepts are greater than 0.5. At the same time, the value of total extracted variance (AVE) of 12 concepts is greater than 0.5. So it can be concluded that the concepts of the three scales all converge in each group of scales

Table 4 The result of measurement scales of first order CFA

|  |  |  |  |
| --- | --- | --- | --- |
| **Logistics service quality measurement** | | **CR** | **AVE** |
| **MSQ** | MSQ\_EMP (n=8) | 0.912 | **MSQ** |
| MSQ\_ASS (n=6) | 0.896 | 0.673 |
| MSQ\_RES (n=4) | 0.851 | 0.632 |
| MSQ\_TANG (n=6) | 0.891 | 0.723 |
| MSQ\_REL(n=5) | 0.812 | 0.609 |
| **Dependent Group** | |  |  |
| **DLOY** | DLOY1 | 0.900 | 0.800 |
| DLOY2 |
| DLOY3 |
| **DSAC** | DSAC1 | 0.904 | 0.823 |
| DSAC2 |

*Notes: CR (Composite Reliability)[[1]](#footnote-1)AVE (Average variance extracted)[[2]](#footnote-2)*

## *Second Order CFA*

After performing the confirmatory factor analysis of the first order construct models above to ensure that 12 concepts (potential variables) meet the convergence and the level of distinction. The study used Second Order CFA method to re-examine and confirm the above measurement models are still stable in the form of second order construct. The results as follows:

### *Construct validity*

The results in Table 4 show that the evaluation indicators in each analysis quadratic structural model are satisfactory, with CMIN/df <3, GFI~1, CFI~1, TLI~1 and RMSEA <0.08. Therefore, the models fit the market data.

Table 5 The index used to test construct validity of second order CFA

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **CMIN/DF** | **GFI** | **TLI** | **CFI** | **RMSEA** |
| Distributor Service Quality (DSQ) | 1.209 | 0.888 | 0.978 | 0.981 | 0.038 |

### ***Reliability and Convergent Validity***

All the standardized and non-standardized coefficients of 10 observed variables are greater than 0.5. At the same time, the value of total extracted variance (AVE) of concepts is greater than 0.5. So it can be concluded that the concepts of the three scales all converge in each group of scales.

Table 6 Summary of results of analysis and measurement of second-order structural models

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Construct** | **Item** | **Factor loading** | **CR** | **AVE** |
| Manufacturer Service Quality (MSQ) | MSQ\_EMP | 0.686 | 0.869 | 0.570 |
| MSQ\_ASS | 0.748 |
| MSQ\_RES | 0.809 |
| MSQ\_REL | 0.790 |
| MSQ\_TANG | 0.736 |

The findings of SEM models show that the reliability of the distributor’ logistics service quality directly affects the manufacturer's satisfaction and loyalty. Distributors therefore need to rely on satisfaction and loyalty to determine their quality of service, while taking into consideration factors that affect the quality of service.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 7 The average level of agreement with the criteria to evaluate the satisfaction and loyalty of the manufacturer | | | | |
| **Factors** | **Size** | **Mean** | | **Std. Deviation** |
| Statistic | Statistic | Std. Error | Statistic |
| Getting desired value for the price (MSAC1) | 144 | 4.08 | 0.070 | 0.840 |
| General satisfaction with services (MSAC2) | 144 | 4.04 | 0.068 | 0.818 |
| Re-purchase/re-order intent (MLOY1) | 144 | 3.44 | 0.058 | 0.697 |
| Resistance to switching  (MLOY2) | 144 | 3.39 | 0.057 | 0.681 |
| Recommendation of services to others (MLOY3) | 144 | 3.50 | 0.058 | 0.700 |

When considering the unique assessment of the scales of variables that represent manufacturer’ satisfaction, the general statistical findings show that most parameters are on the normal classified only as normal (as similar to agree as possible) and agree.

Through the figure 2 shows that manufacturer’ satisfaction with the logistics services quality of distributors represents the highest percent of the respondents’ consent: 87/144 of enterprises replied “agree” and 42/144 “strongly agree” on the sub-factor “*Getting desired value for the price”.* Beside, 93/144 responded “agree” and 36/144 “strongly agree” on “General satisfaction with services”. However, fifteen enterprises did not agree with both sub-factors.

Figure 2 The level of agreement with the criteria to evaluate the satisfaction and loyalty of the manufacturer

Survey respondents met with an agreement rate of 86/144, 72/144, 77/144 respectively in terms of the three loyalty criteria *“Re-purchase/re-order intent”, “Resistance to switching” and “Recommendation of services to others”.* Nonetheless, it is important to note that three sub-factor is the “Normal” level, which indicates that the standard of logistics service offered by manufacturers remains unclear. This impacts the manufacturer loyalty of the distributor.

When it comes to assessing on the factors of distributor’ logistics service which impact on the manufactures’ satisfaction and loyalty, the result of factor scores showed in the table 4-30.

Firstly, through the figure 3, out of 5 dimensions, the "Empathy” has the greatest impact on logistics service of distributors and manufacturer’ satisfaction and loyalty with β = 0.81.All the sub-factors for “Empathy” are only above level “normal”, according to the statistical result.

The highest average is *"Supply fully information"* and the lowest is "Understand the requirements. The enterprises of manufacturer showed the satisfaction in the information which they received from distributor.

Therefore, the proportion of the levels “agree” and “strongly agree” with 56.3% and 23.6% is quite high. The distributors are paying close attention to how the manufacturer still underestimates its understanding of the requirements. The level “normal” percentage rated 59.7% and the level “disagree” 12.5 %, respectively.

Figure 3 The level of agreement with the sub-factors in empathy dimension of distributor’ logistics service quality

Secondly, the “Assurance” dimension of DSQ reflect that manufacturer units are highly satisfied in distributor’ logistic services.

Figure 4The level of agreement with the sub-factors in assurance dimension of distributor’ logistics service quality

The fact that 3 sub-factors were measured at 4 reflects that. In particular*, “Flexibility to change as per requirements, relevant information/feedback”* has the highest average agreement level of 4,667 including that 45.1% at “agree” level and 41% “strongly agree” level. It indicates that the distribution units are very versatile concerning manufacturer unit specifications. This is a consideration in order to improve the logistics services quality which needs to be maintained and improved. In assessment of reputation and financial strength, understanding of the manufacturer units, both sub-factors are also highly satisfied.

Thirdly, the statistical results in figure 5 indicate that the “Responsiveness” factor will be evaluated by manufacturer units above “normal” level where the "Be willing to provide solutions " factor reaches level 4 and the "Willingness to work" factor only reaches level 3, which is the lowest of four factor factors.

Figure 5 The level of agreement with the sub-factors in responsiveness dimension of distributor’ logistics service quality

This indicates that the manufacturers are always ready to offer solutions to the problems faced by production units. *“Be willing to provide solutions to manufacturer problem”* sub-factor is approved at 40.3%, and the very strong level of agreement is 31.3%. It must be noted, however, that *“Willingness to work”* factor is not recognized by manufacturing units, the normal level is 27.8%, and disagreements are 9.7%

Fourthly, the “Tangible” factor has a major impact on satisfaction and loyalty of manufacturer units based on the results of the SEM model, ranking as second between the 5 factors with β= 0.77.

Figure 6 The level of agreement with the sub-factors in tangible dimension of distributor’ logistics service quality

When 3 out of 4 factors achieved the level above “agree” level, the distribution units were satisfactory with their manufacturer units. Only the mean of *"Easy approachable location"* was 3.9, of which 15.3% was “normal” level and 11.1% of “disagree” level. The experiment showed that, although it has done an excellent job of providing the necessary equipment, physical facilities and appealing facilities, it is still difficult to access the site of the distributor by the manufacturing units.

Reliability dimension with parameter β= 0.72 has a third most strong influence. Generally speaking, the satisfaction of this group was quite high which evaluated by manufacturer units (> 3.5 level). From the figure 4-18 *“Maintains confidentiality in transaction”* factor has an average approval of 4.2. This indicates “agree” level and “strongly agree” with 37.5% and 50.7% respectively.

Figure 7 The level of agreement with the sub-factors in Reliability dimension of distributor’ logistics service quality

The other considerations were also relatively strong but still approximately 11.8 percent were not satisfied in “Correct quantity in right time”, “Charges minimum margins”, “Honest and trustworthy in operations”.

CONCLUSION

Manufacturer's logistics service quality greatest effect on Distributor’s logistics service quality is evident from Model. Yet Distributor’s logistics service quality greatly impacts the manufacturer's loyalty. As a consequence, the quality of service offered by the distributors is high, meaning that the services provided by the distributor are good quality positive effects on manufacturers’ satisfaction and loyalty.

Based on these findings, distributors can build on factors and sub-factors that are needed to achieve better logistics service quality, increasing manufacturer’s satisfaction and loyalty.

Firstly, the Empathy Dimension analysis shows that distributors must recognize that this is the most important factor in the satisfaction and loyalty of manufacturers. Nonetheless, this variable is only satisfied in the range of levels 3 and 4. The distributors should retain and improve this element to provide data for the smooth flow of the supply chain. The manufacturer's comprehension of the requirements has not yet been met. Managers of distributor units therefore have to pay attention and give reasonable prices and to be particularly flexible in changing manufacturer’ demands in order to catch changes in requirements.

Secondly, the distributors have generated manufacturer’ satisfaction for this Tangible dimension. Managers need solutions to find the right place. In general, it is how manufacturers can easily access the positions of partners. This is one of the strategies to be addressed because distributors will minimize both the costs of warehousing as well as transport costs for the company until their place is secured. This can provide partners with a reasonable price plan, build satisfaction and improve the capacity to maintain the product.

Thirdly, for the Reliability dimension, the distributors also need to develop strategies in order to increase efficiency for the logistics service providers. Managers must formulate their internal supply chain management policies. This is the basis to ensure that each action with the vendor is taken at a fixed time and that the transactions remain confident in simple and precise terms.

Fourthly, Assurance dimension also significantly impacts the satisfaction of the manufacturers. Although the results are quite good and hit level 4, the management of the distribution units must also improve their capacity for long-term cooperation. Combined with building a long-term relationship, manufacturers need to guarantee finance from the distributors to improve their image on the market. The timely response of manufacturer’ reactions are another factor.

Lastly, Base on Responsiveness dimension, manufacturers gain satisfaction and distributors must have a professional staff to address all manufacturers’ issues quickly and promptly. The distributors must be mindful of what their manufacturers’ demands and of how the deal with problems such as fee, shipping and freight... When dealing with problems, effective and flexible policies are required.

**References**

Abdullah, F. (2006). Measuring service quality in higher education: HEdPERF versus SERVPERF. *Marketing Intelligence & Planning*, Vol. 24 No. 1, pp. 31-47.

Banker, R. D., Charnes, A., & Cooper, W. W. (1984). Some models for estimating technical and scale inefficiencies in data envelopment analysis. *Management Sciences*, 30(9), 1078–1092.

Belton, V., & Vickers, S. P. . (1993). Demystifying DEA: A visual interactive approach based on multi criteria analysis. *Journal of the Operational Research Society*, 44(9), 883–896.

Carman, J. M. (1990). Consumer perceptions of service quality: An assessment of the SERVQUAL

Chinonye Ugboma, I. C. (2007). “Service quality and satisfaction measurements in Nigerian ports: an exploration”. *MARIT. POL. MGMT*, VOL. 34, NO. 4, 331–346.

Churchill, G. A. (1982). An Investigation into t he Determinants of Customer Satisfaction. *Journal of Marketing Research*, 19 (November), 33-55.

Donthu, N. H. (2005). Benchmarking marketing productivity using data envelopment analysis. *Journal of*

Garland, R. a. (2004). Testing Dick and Basu’ s customer loyalty model. . *Australasian Marketing Journal*, 12(3), 81-87.

Gerson, Richard F. (1993). *Measuring Customer Satisfaction: A Guide to Managing Quality Service.* Menlo Park, CA,USA: Course Technology / Cengage Learning.

Gi Tae YEO, V. V. (2015). “An Analysis of Port Service Quality and Customer Satisfaction: The Case of Korean Container Ports” . *The Asian Journal of Shipping and Logistics*, 31(4) (2015) 437-447.

Hair, F. J. (2014). “Partial least squares structural equation modeling (PLS-SEM): an emerging tool in business research”. *European Business Review*, Vol. 26 No. 2, pp. 106-121.

Hair, J. J. (2010). *Multivariate Data Analysis, 6th ed.* New Delhi: Pearson Eudcation.

Jafae Sayareh, S. I. (2016). “Service Quality Evaluation and Ranking of Container Terminal Operations”. *The Asian Journal of Shipping and Logistics*, 32(4) 2016, 203-212.

Jain, R., Sahney, S. and Sinha, G. (2013). Developing a scale to measure students’ perception of service. *The TQM Journal*, Vol. 25 No. 3, pp. 276-294.

Johnson MD, F. C. (1991). A framework for comparing customer satisfaction across individuals and product categories. *Journal of Economics Psychology*, 12: 267–286.

Kamakoty, J. a. (2016). “Measurement of service quality of upstream and downstream supply chain”. *International Journal of Services and Operations Management*, Vol. 25 No. 1,pp. 99-119.

Kassim, N. a. (2010). “The effect of perceived service quality dimensions on customer satisfaction, trust, and loyalty in e-commerce settings: a cross cultural analysis”. *Asia Pacific Journal of Marketing and Logistics*, Vol. 22 No. 3, pp. 351-371.

Kettinger, W. J., & Lee, C. C. (1997). Pragmatic perspectives on the measurement of information systems service quality. *MIS Quarterly*, 21(2), 223–240.

Kureshi, N. M. (2009). “Quality management practices of SME in developing countries: a survey of manufacturing SME in Pakistan”. *Journal of Quality and Technology Management*, Vol. 5 No. 2, pp. 63-89.

Ling Li, J. B. (2011). “Relational benefits and manufacturer satisfaction: an empirical study of logistics service in supply chain”. *International Journal of Production Research* , Vol. 50, No. 19, 1 October 2012, 5445–5459.

Mentzer, J. F. (2001). Logistics service quality as a segmentcustomized process. *Journal of Marketing*, 65(4), 82-104.

Mentzer, J. M. (2004). Global market segmentation for logistics services. . *Industrial Marketing Management*, 33, 15-20.

Nix, N. (2001). “Customer service in supply chain management context”. New York: Chain Management, Sage,.

Oliver, R. A. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, Vol. 27, No. 2, pp. 460-469.

Oliver, R. A. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, Vol. 27, No. 2, pp. 460-469.

Pelloni, G. P. (2004). The Impact Of Interpersonal Relationships On Customer Satisfaction And Loyalty To The Service Provider. *International Journal of Service Industry Management*, Vol. 15, No. 4, pp. 365-384.

Pollack, B. L. (2008). The nature of the service quality and satisfaction relationship Empirical evidence for the existence of satisfiers and dissatisfiers. *Managing Service Quality*, Vol. 18 No. 6, pp. 537-558.

Prakash, G. (2011). “Service quality in supply chain: empirical evidence from Indian automotive industry”. *Supply Chain Management: An International Journal* , 16/5 (2011) 362–378. .

Sakun Boon-itt, C. Y. (2017). “Service supply chain management process capabilities: Measurement development". *International Journal of Production Economics*, 193 (2017) 1–11.

Salegna, G. J. (2005). Consumer Loyalty to Service Provider: An Integrated Conceptual Model. . *Journal of Consumer Sat isfaction Dissatisfaction and Complaining Behaviour*, 18(1), 51-67.

Saura, I. G. (2008). Logistics service quality: a new way to loyalty. *Industrial Management and Data System*, 108(5), 650-668.

Stanley, L., & Wisner, J. (2001). “Service quality along the supply chain: implications for purchasing”. *Journal of Operations Management* , 19 (2001) 287–306.

Stewart, T. J. (1996). Relationships between data envelopment analysis and multicriteria decision analysis. *The Journal of the Operational Research Society*, 47(5), 654–665.

Sureshchander, G. R. (2002). The relationship between ervice quality and customer satisfaction: a factor-specific approach. *Journal of Services Marketing*, Vol. 16 No. 4, pp. 363-79.

Taylor, S. A. (1994). An Assessment of the Relationship Between Service Quality and Customer Satisfaction in the Formation of Consumers’Purchase Intentions. *Journal of Retailing*, Vol. 70, No. 2, pp. 163-178.

Tejpal, G., Garg, R.K. and Sachdeva, A. (2013). Trust among supply chain partners: a review. *Measuring Business Excellence*, Vol. 17 No. 1, pp. 51-71.

Tse, D.K. and Wilton, P.C. (1988). “Models of Consumer Satisfaction Formulation: An Extension,”. *Journal of Marketing Research*, 24 (August), 204-212.

V, W. F. (2003). Situational Characteristics As Moderators Of The Satisfaction-Loyalty Link: An Investigation In A Business -To-Business Context. *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behaviour*, Vol. 16, pp. 145-156.

Wangenheim. (2003). Situational Characteristics As Moderators Of The Satisfaction-Loyalty Link: An Investigation In A Business -To-Business Context. *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behaviour*, Vol. 16, pp. 145-156.

Woodside, A. G. (1989). Linking Service Quality, Customer Satisfaction, and Behavioral Intention. *Journal of Healthcare Marketing, .* , Vol. 9, No. 4, pp.

Woodside, A. G. (1989). Linking Service Quality, Customer Satisfaction, and Behavioral Intention. *Journal of Healthcare Marketing*, Vol. 9, No. 4, pp 5-17.

1. *CR is calculated based on the formula of Joreskeg, 1971* [↑](#footnote-ref-1)
2. *AVE is calculated based on the formula of Fornell & David, 1981; AVE* reflects the general variance of observed variables calculated for the latent variable [↑](#footnote-ref-2)