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## **Multiple linear regression modelling of parcels' distribution design factors and online shopping customer satisfaction**

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Siti Norida Wahab\* and Wei Lun Khong

Department of Logistics Management,  
Faculty of Business and Information Science,  
UCSI University,  
56000, Kuala Lumpur, Malaysia  
Email: sitinorida@ucsiuniversity.edu.my  
Email: weilunkhong@hotmail.com  
\*Corresponding author

**Abstract:** In this era of technology, online shopping for goods and services has become more common and user-friendly due to the majority of the population owning gadgets that enable them to connect to the internet. Thus, parcels deliveries exist when the online shoppers purchase goods from online shops. The purpose of this paper is to examine the relationship between parcels' distribution design factors and online shopping customer satisfaction. A questionnaire survey was carried out among 384 respondents from Cheras, Kuala Lumpur. Based on the survey, response time and returnability have an impact on online shopping customer's satisfaction. Meanwhile, service variety, service availability and order visibility has no significant impact on the customer's satisfaction. This paper emphasise the importance of current and future courier service's to focus on the response time and returnability in order to meet the online shopper's satisfaction. Recommendations and limitations of this study are also discussed.

**Keywords:** multiple linear regression modelling; parcel distribution; online shopping; customer satisfaction and Malaysia.

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**Biographical notes:** Siti Norida Wahab is an Assistant Professor and the Head of Logistics Management Department at UCSI University, Malaysia. Her previous leadership positions include roles at managerial level in multinational logistics companies. She is a dedicated educator with more than 10 years' of experiences in both industrial and education fields. She was also delegated with the full responsibility in designing the overall logistics and supply chain program for diploma, degree and masters level. Her research interest includes green and sustainable adoption in logistics and supply chain management.

Wei Lun Khong is a Master of Science in Logistics Management student at UCSI University, Malaysia with six years of experiences in the area of Human Resource Department. He switched his career pathway to the logistics industry upon his completion of the master program. In the coming future, he will

continue his research interest in e-commerce from every perspective. His final goal is to gain higher proficiency in the area of e-commerce both practicality and academically.

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## 1 Introduction

Parcel distribution refers to the parcel services delivery from national and international courier companies involved in the so-called as last-mile delivery (Chopra and Meindl, 2003). Parcel distribution companies serves as hubs to consolidate multiple smaller shipments. This includes collecting and distributing the parcel from origin to the desired customer destination.

The invention of the internet and smartphone contributes to the growth of the parcel distribution business. The internet has become a platform that is highly used for the service providers and businesses for transferring information and selling goods and services to the customers (San et al., 2015). Although Malaysia is considered a late starter in the use of internet in the market, Malaysia is currently seriously looking into these fastest-growing parcel distributions towards increasing customer satisfaction (Paynter and Lim, 2001).

Since internet usage is becoming prominent in Malaysia, people are starting to share their ideas and promote new ways of operating the business. Approximately 15.3 million of the Malaysian population are considered as active online shoppers. This situation results in very encouraging parcel movement volume and express delivery will become a norm. Thus, in order to deliver a required parcel to a customers, the online retailers have to use the courier service operator in Malaysia to manage and deliver it to the customer (Nor and Amin, 2016).

As highlighted by Momtaz et al. (2011), every purchase of goods or services by customers will eventually involve positive or negative emotions. These emotions will determine the level of customer's satisfaction. Customers will conclude their satisfaction level by the quality of the goods or services offered, the atmosphere of the online stores and the price of the goods or services (Momtaz et al., 2011). However, there are other factors which may affect the customer satisfaction. Rejal Arbee mentioned a few issues in the New Straits Times (2010) which includes trivial factors such as the courier dispatch worker being always in a hurry to leave the notification note after ringing the doorbell for less than a minute.

Thus, the purpose of this study is

- to investigate the current practices of parcels' distribution design factors in Malaysia
- to determine the relationship between parcels' distribution design factors and online shopping customer satisfaction.

The main purpose of this study is to provide a good understanding on the determinant of the distribution design factors that affects online shopping customer satisfaction as highlighted by Chua, Khatibi, and Ismail (2006). In this study, the finding of the determinant of distribution design factors is important for the courier service company to understand how to achieve the online shopping customer satisfaction (Dudhewala, 2014).

This is because, a number of the empirical research showed that customer satisfaction was positively relevant to profitability (Zhang and Pan, 2009).

In addition, this study can act as a reference or guideline for the new courier service company to the factors that influence to the customer satisfaction the most as mentioned in Lim et al. (2015). Based on the findings, the courier service company might enhance or improve the particular sections in order to increase the customer satisfaction and build up a customer's loyalty. Distribution design factors representing a part of after sale service and sometimes it can influence the customers; whether to use the same courier service provider again or not (John and Jackie, 2001). According to Bonsal and Gupta (2001), the organisation needs to understand the customer demand and being responsive to win over the competitor. Hence, the courier services involvement will play a vital role in the successful online shopping in the future. The contribution of courier services to customer satisfaction is very important to increase the business scale (Paynter and Lim, 2001).

## **2 Theoretical background and research framework**

### *2.1 Current practices of courier services in Malaysia*

A positive trend of the internet and smartphone usage is influencing markets around the world. Due to that, the growth of online shopping for goods and services across all countries has significantly increased (Kenneth et al., 2015). According to International Data Corporation (IDC) Asia-Pacific cited by Chua et al. (2006), Malaysia courier services have to first gain a better understanding of the marketplace in order to target their customers before engaging in online retailing. Nevertheless, there is a very limited choice in the Malaysia courier services in current practices. This is because, a high service variety will lead to a high inventory costs, occupy larger space, difficult to keep track and higher insurance coverage (Castro and Matarrollo, 2010).

Additionally, service availability of a courier service in Malaysia is still at the early stage where customer still have to wait for the transportation availability. Service availability is one of the important elements because there is a chance of customer's needs fulfilled by another courier service (Castro and Matarrollo, 2010). In addition, the current practice for order visibility is still at a poor level whereby customers still face unsatisfactory experience in keeping their parcels track. Moreover, there is no proper channel for customers to highlight their issue for lost items during the delivery (Giese and Cote, 2000).

Nowadays, most of the customers are seeking for many ways to perform an online shopping because they tend to get the items in a very short time without or just ignoring the price (Momtaz et al., 2011). However, the current Malaysia courier services practices are still lacking in many aspects. For example, items purchased have not been delivered on time even though an online message shown it will deliver within a response time to the customers' doorsteps (Momtaz et al., 2011). According to Rahmat and Faisol (2016), delivery delays still negotiable and there is a proof shown that courier services have prepared an extra time and efforts just to cater for the slow speed and 'relax' working attitude among Malaysia courier service providers. On recent practices, the returns activities is always used by the courier service companies to deal with the wrong items sent and the damaged items received as one kind of the marketing strategy (Castro and Matarrollo, 2010). Sometimes, the receiver will call and make appointment for second

delivery with the courier service provider, however, a courier dispatch worker still not punctual (Rahmat and Faisol, 2016). Therefore, it is a common practice for the Malaysian dispatch worker to delay the appointment due to the non-official or official matter (Rahmat and Faisol, 2016).

## *2.2 Online shopping customer satisfaction*

Online shopping is an action where customers purchase goods or services from sellers via the internet (Clayton, 2016). Usually, after the online purchase transaction, the goods or services will be sent to the customers' doorstep using the courier service providers (Stäblein et al., 2011). Customer satisfaction is a response or feedback to an evaluation process on the purchase and delivery of goods or services (Giese and Cote, 2000). Customer satisfaction is definitely influenced by the customer's evaluation of the received goods or services (Sharmin, 2012). Nowadays, customer satisfaction becomes an essential issue to the most of the business organisation (Sharmin, 2012).

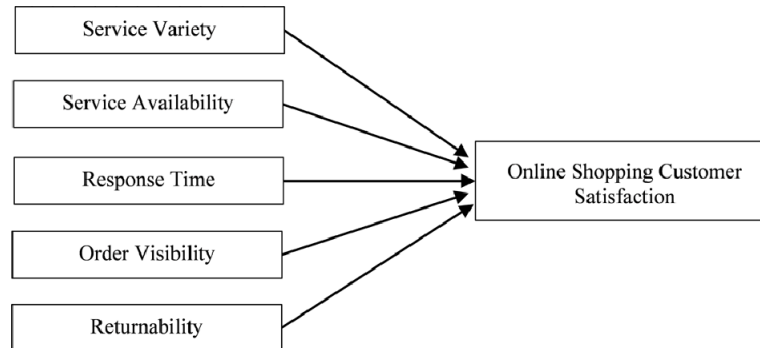
According to Theodore Levitt (1983) cited by Clayton (2016), one of the main important survival skill for business is to create and keep the customers. Hence, measuring and analysing customer satisfaction is vital to gain new customers while keeping the existing customers as part of business strategy to grow (Rana, 2006). Undoubtedly, online shopping has become a global trend and organisation must use this opportunity to serve the people better (Lim et al., 2015). Moreover, goods and service quality are directly related to customer satisfaction (Rana, 2006). According to Hokinson (1993) cited by Sharmin (2012), an organisation must offer the best services to the customer and explore the possible ways that can increase the customer satisfaction level.

## *2.3 Factors impacting online shopping customer satisfaction*

With the evolution of the internet and portable electronic gadgets, an online shopping customer satisfaction is imperative. There are many factors and roles of the distribution within a supply chain should be measured during the creation of the parcels' distribution network towards customer satisfaction. However, Chopra and Meindl (2003) in their study suggested on several factors that most suitable for logistics distribution network. As demonstrated in Figure 1, some of the important factors are service variety, service availability, response time, order visibility and returnability. These factors are commonly used and suitable to measure Malaysia's logistics distribution network. Therefore, Chopra and Meindl's research framework has been chosen for this study.

## *2.4 The rationale to improve Malaysia couriers' service*

In 22nd March 2017, Jack Ma, the founder of Alibaba Group launch of the world's first Digital Free Trade Zone (DFTZ) at the Global Transformation Forum in Kuala Lumpur (Bernama, 2017). In that forum, Jack Ma mentioned the set-up of DFTZ as the e-hub centre in Malaysia that will allow the customers to order through the internet at any corner of the world and receive the parcels within 72 hours. Hence, the finding of the determinant of distribution design factors is essential for courier service providers in Malaysia as a preparation to serve the world as the e-hub centre of parcel distribution in the near future (Zhang and Pan, 2009).

**Figure 1** Research framework

### 3 Literature review and hypotheses development

#### 3.1 Service variety

Service variety is the types of different services that customers require from the courier service companies (Chopra and Meindl, 2003). According to Ambe (2014), service variety is a series of service choices provided by a company that can attract customers from other providers. It also can be defined as the number of different types of services provided by a company in one period of time (Stäblein et al., 2011). According to Gunasekaran et al. (2004), service variety is considered as one of the strategic ways in distribution planning since it affects the outcome of the overall supply chain management. This is because, service variety offered by the courier service companies is one of the leading factors that inspire online customers to buy goods via the internet (Chua et al., 2006).

Service variety can be measured as the number of service choices within a service provider (Stäblein et al., 2011). When there is more service variety offered, customers will have more flexibility during the moment of purchasing (Li and Suomi, 2009). Thus, there are many companies will extend their service choices to satisfy their customers' needs (Ambe, 2014). With that, customers will be satisfied when the service variety meets or exceeds their expectations (Montaz et al., 2011). According to Stäblein et al. (2011), the 'variety' in the marketplace for products or services should not be measured by the provider, it is actually demanded by the customers. Hence, the customers' demand will be different from the geographical regions and market segments. Hence, appropriate choices of service can offer different market value and increase the profit gain. Increasing in service or product variety in many industries have become a trend. This includes the practices made by Pil and Holweg (2004) in the automotive industry and Fisher et al. (1994) in the fashion industry. However, the service operations will be more complex with an increase in service choices (Ambe, 2014; Stäblein et al., 2011).

*H1: There is a positive and significant relationship between service variety and online shopping customer satisfaction.*

### 3.2 Service availability

Service availability is the possibility of readiness to serve the customer when orders are received (Chopra and Meindl, 2014). Likewise, service availability has the capability to offer the products or services to fulfil the customers' demand (Gunasekaran et al., 2004). A reliable courier service provider is important to create customers confidence towards the service accuracy and availability (Li and Suomi, 2009). According to Momtaz et al. (2011), service availability plays a vital role in determining the customers' satisfaction level.

Li and Suomi (2009) emphasised on the accuracy of the information given to the customer since it is one of the important aspects of e-commerce. Service availability will also reflect the customer satisfaction in this competitive marketplace (Momtaz et al., 2011). However, availability of services will lead to the transportation costs as well. Different services require different types of transport depending on the volume requested by the customer and the urgency of the goods or services required (Castro and Matarrollo, 2010). Moreover, the service availability will lead to operational cost increases and reduces in productivity said MacDuffie et al. (1996) and Ramdas (2003), cited by Stäblein et al. (2011). Good service availability is crucial since not only it will increase customer satisfaction level, it is also can improve online retailer reputation.

*H2: There is a positive and significant relationship between service availability and online shopping customer satisfaction.*

### 3.3 Response time

Response time is the total time taken when a customer places an order until he/she receive the item (Chopra and Meindl, 2014; Tilokavichai et al., 2012; Gunasekaran et al., 2004; Chopra, 2003). Response time also defined as the period of time for a logistics organisation to feedback to the customers' requests (Hardigan et al., 2016; Gunasekaran et al., 2004). According to Castro and Matarrollo (2010), cited by Ambe (2014), response time is the number of days needed to deliver the products or services to the customers from the moment order being placed by the customers.

It is an essential measurement which directly connected with the customer satisfaction (Gunasekaran et al., 2004). According to Chopra (2003), retailers can apply the centralised concept to the customer who can compromise with longer response time while decentralised concept needs to be applied to the customer who requires shorter time. This defines that customer who can tolerate with the longer response time, usually the firm which located far from the customer. On the other hand, customers who pay more attention towards shorter response time, the firm has to locate the firms near to the customer (Castro and Matarrollo, 2010). For example, Borders in US has 400 stores to sell 1000 units. However, Amazon takes a week to deliver 1000 units with only 5 places to store books (Chopra, 2003).

Aronovich et al. (2010) mentioned response time can be indicated specifically by on-time delivery and order processing time. Additionally, Gunasekaran (2004) highlighted the on-time delivery shows the perfection of the delivery as the important aspect of the customer service level. On-time delivery is also the indicators that measure the delivery fulfilment within the promised period of time (Aronovich et al., 2010). For example, the customer will check the estimated time delivery before they proceed to

purchase. Hence, the assigned courier service company has to deliver the item within the promised time delivery.

Response time is used as indicators to measure the total time used during the delivery of an item. It means some sellers will not keep inventory stock unless there is an order from the buyer. For example, a customer wishes to order a Dell laptop. The customer has to select the specific requirements and proceed to the payment through Dell website. Dell will order its subsidiary company, namely Alienware to assemble according to the customers' order specifications. After the final product is completely assembled, Alienware will directly deliver the final product to the customer's doorstep for the customer to duly sign acceptance of the product (Aronovich et al., 2010; Gunasekaran, 2004).

According to Gunasekaran et al. (2004), the supply chain performance will directly affect the response time because it reflects the overall lead time for any product requested by the customer. Thus, response time plays a key role in maintaining the customer satisfaction. Fast response time is the result of well-planned distribution scheduling. Moreover, a quick and exact response time is important in maintaining the customer satisfaction (Gunasekaran et al., 2004). Additionally, Li and Suomi (2009) pointed out the courier service website should indicate an accurate response time and no delay upon the promised response time.

*H3: There is a positive and significant relationship between response time and online shopping customer satisfaction.*

### 3.4 Order visibility

Order visibility is the services that allow the customer to keep track of their ordered items are on the right pathway and it is a crucial element in the entire supply chain management (Chopra, 2003). Order visibility means knowing where the parcels are while in transit (Chopra and Meindl, 2014; Heaney, 2013). The initial stage of setup the tracking system is challenging because it requires coordination between manufacturer, retailer and carrier (Chopra, 2003). Eventually, it is indispensable to execute accurately and adapt the drastic changes in demand and supply amongst a competitive society (Heaney, 2013). In order to attract customer to shop online, a standardised and consistent navigation system for tracking plays a vital role to gain customer satisfaction (Li and Suomi, 2009). Moreover, order visibility becomes easier since every single order involved in the tracking system from the warehouse to the customer (Chopra, 2003). Usually, all companies will have a scanning and barcode capability to trace and track the goods in and out activities (Heaney, 2013). Order visibility has not solely focused on the on time delivery nevertheless, it also involved the handling of the undelivered and incomplete orders (Chopra, 2003).

Up-to-date and real time information about the goods or goods in-transit is required to make shipment reallocations. Order visibility requires more collaborative technology. It is an important strategy to reduce the overall cost while improving the operational performance. Once the order has arrived, the customer must be informed and has to be easily identified. Order visibility is difficult to implement, but it is also part of after sale service's important elements. On the other hand, order visibility is the top priority for the courier service company. It is very essential so that the customer able to trace and track the parcels certainly (Heaney, 2013; Chopra, 2003).

*H4: There is a positive and significant relationship between order visibility and online shopping customer satisfaction.*

### 3.5 Returnability

Returnability is where the customer is allowed to return the unsatisfactory item received and the courier service company is able to handle it. It is the capability of the courier service companies to provide returns of the wrong items sent (unsatisfactory items) services (Chopra, 2003). Additionally, returnability is the process involved returned mechanism due to items was damaged or does not match customers' demand. From the logistical point of view, is the ability of the distribution organisation to handle the return of goods upon customers requested which involved planning, implementing and controlling costs from the point of destination to the point of origin (Castro and Matarrollo, 2010). The purpose of the return activity is to recover the damaged of goods during in-transit and wrongly sent goods to the customers.

According to Castro and Matarrollo (2010), sensitive products such as electronic gadgets required specific and professional cares. The capability of the courier service company to return such unsatisfactory gadgets is essential. Moreover, reliable courier service companies should provide a complete service including return delivery (Li and Suomi, 2009). Castillejo and Stensson (2011) defined that the returnability is an expensive and difficult function to implement by a logistics company. Returnable activity requires a system to allow reverse logistics activities and extra space for storing the collected goods. An organisation which performed returnability will increases its operation cost when a customer send back their goods (Chopra, 2003). Sometimes, returnability can be performed with last mile delivery because while the trucks performing a delivery, they can also pick up the returns from customers (Karla, 2011).

Returnability relates to customer satisfaction. There are two ways of handling returns. The first method is where the customers return the goods to the retailers themselves. While on the other hand, retailers employ carriers to pick up the goods from the customers (Karla, 2011). The first approach will incur transportation costs to the customer whereas the second approach will incur transportation costs to the retailer (Chopra, 2003). It is a complicated activates and full commitment is required.

*H5: There is a positive and significant relationship between returnability and online shopping customer satisfaction.*

## 4 Research methodology

Quantitative method has been chosen to conduct this research to determine the relationship between service variety, service availability, response time, order visibility and returnability towards online shopping customer satisfaction. A quantitative research required to perform the statistical analysis of a series of numerical data.

The simple random sampling method was being used to collect the required data. Cheras area in Kuala Lumpur was chosen to distribute questionnaires to random respondents due to several reasons. Firstly, there are a few units of courier parcel self-collect points in this area operated by the national and private entities. Hence, respondents from this area who are experienced in an online shopping are able to provide



a reliable data for this research. Secondly, due to the time constraint, Cheras area seen as a suitable and convenient place for data collection since the researcher more familiar with the selected. Additionally, previous research did not focus on this area. Thirdly, there are high school and university located at this area where students are the targeted respondents for this research.

The data was collected by distributing a questionnaire to the target 384 respondents in Cheras. According to Department of Statistics Malaysia (2017), the population of Kuala Lumpur has an estimated of 1.79 million. A table retrieved from Krejcie and Morjan (1970) showing the population above 1 million, a survey of 384 surveys has to be done. The sample size is focusing on the respondents which are in the age range of 18–25 years old because the population of teen aged 18–25 years old were described as the 'richest generation' owning tremendous spending power to purchase online (Shin et al., 2013). According to Valentine and Powers (2013) and cited by Cheng and Yee (2014), university students are relying strongly on online shopping. Hence, the data collected from these current online shopping users are more reliable.

The questionnaire is divided into three parts, Section A, Section B and Section C. Section A consisted of demographic factors. Section B consisted of measurement of independent variable (service variety, service availability, response time, order visibility and returnability). Meanwhile, Section C consisted of the feedback on the online shopping customer satisfaction (dependent variable) and general customer opinion. Five-point Likert scale is used where 1 is 'strongly disagree', and 5 is 'strongly agree' in Section C.

The data were analysed using descriptive analysis, reliability analysis, normality analysis, Pearson's correlation analysis and multi linear regression analysis. The descriptive analysis is a foundation for any further statistical analysis. This analysis included the count, ranges and frequencies and relationships among variables. Frequency distribution was drawn to describe the demographic profiles of the respondents.

The Pearson Correlation analysis is a method used to measure the relationship between the five independent variables and a dependent variable. Pearson correlation coefficient changed from the value positive one (+1) through zero (0) to negative one (−1) and the prefix (+, −) showed the direction of the relationship meanwhile the number indicated the strength of the relationship (Cooper, 2003). The value of −1 showed a strong negative correlation, while a value of +1 showed a strong positive correlation yet then the value 0 showed no correlation.

Multiple regression is performed to test the unknown value of a variable from the known value of two or more variables, which called the mediator. By using multiple regression, it is a model with just one dependent and two or more independent (exploratory) variables. The variable which value was to be predicted was known as the dependent variable and the one which value was to be predicted was known as the independent (exploratory) variables. The multiple regression equation could be described as a successive multiple regression analysis, which will able to express the relationship in an equation as below:

$$Y_i = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_nX_n + e_i.$$

According to (Sekaran and Bougie, 2013), it could be stated that the parameters of the equation,  $b_1, b_2, b_3, \dots, b_n$ , is named as regression coefficient which will used to create prediction of dependent variable. Dependent variable will be represented by  $Y_i$  and

independent variables could be represented by  $X_1, X_2, X_3, \dots, X_n$ , whereas  $e$  represented the error.

## 5 Data analysis and discussion

### 5.1 Demographic profile of respondents

The demographic profile consisted of the following characteristics: gender, age, education level, monthly income and online shopping experience. The demographic information is to show the number of respondents performing an online shopping. It has also provided a respondents personal background and information. There were 183 male respondents accounted for 47.7% with the age group between 18 to 25 years old. A majority of 217 respondents were Chinese and most of them ( $n = 200$ ) holding a bachelor degree. 93.8% were students with a single status ( $n = 254$ ) with a monthly income below RM 1500 (87.3%) (Table 1).

**Table 1** Demographic profile of respondents

<i>Item</i>		<i>Frequency</i>	<i>Percentage (%)</i>
Gender	Male	183	47.7
	Female	201	52.3
Age	18–25 years old	347	90.4
	26–30 years old	16	4.2
	31–35 years old	1	0.3
	36–40 years old	3	0.8
	Above 40 years old	17	4.4
Education level	Secondary school	22	5.7
	Diploma	51	13.3
	Bachelor degree	273	71.1
	Others	38	9.9
Monthly income	Below RM 2000	328	85.4
	RM 2001–RM 2500	12	3.1
	RM 2501–RM 3000	11	2.9
	RM 3001–RM 3500	10	2.6
	Above RM 3501	23	6.0
Online shopping experience	Yes	303	78.9
	No	81	21.1

### 5.2 Pearson's correlation analysis

In order to investigate the degree of the relationship in the whole mathematical data variables, the Pearson's correlation analysis is used (Pallant, 2011). This method is used to test the relationship between independent variables (service variety, service availability, response time, order visibility and returnability) and dependent variables

(customer satisfaction). The strength of the relationship between the variables (as shown in Table 2) would be categorised into weak, moderate or strong (Pallant, 2011). Pearson correlation coefficient changed from the value positive one (+1) through zero (0) to negative one (−1) and the prefix (+, −) showed the direction of the relationship meanwhile the number indicated the strength of the relationship (Cooper 2003). The value of −1 showed a strong negative correlation, while a value of + 1 showed a strong positive correlation yet then the value 0 showed no correlation. Correlation is only suitable to determine the relationship between meaningful quantifiable data.

**Table 2** Rule of thumb

<i>R</i>	<i>Strength of relationship</i>
0.1–0.3	Weak
0.3–0.5	Moderate
0.5–1.0	Strong

The correlation matrix in Table 3 indicated that four parcels' distribution design factors were positively and strongly correlated with online shopping customer satisfaction level. There was a significant positive relationship between returnability and online shopping customer satisfaction ( $r = 0.958$ ,  $r > 0.9$ ), service variety and online shopping customer satisfaction ( $r = 0.845$ ,  $r > 0.8$ ), response time and online shopping customer satisfaction ( $r = 0.773$ ,  $r > 0.7$ ) and order visibility and online shopping customer satisfaction ( $r = 0.156$ ,  $r > 0.1$ ). However, service variety were weakly correlated with online shopping customer satisfaction ( $r = 0.066$ ,  $r < 0.1$ )

From Table 4, it can be concluded that service variety, response time and returnability have a stronger relationship with online shopping customer satisfaction. Meanwhile, order visibility shows a weak relationship with online shopping customer satisfaction, whereas there is no significant relationship between service availability and online shopping customer satisfaction.

### 5.3 Multiple regression analysis

Multiple regression analysis also being tested in this study to forecast the unknown value of a variable from the known value of at least two variables. It also named as predictors (Sekaran and Bougie, 2013). The simple correlation was represented by the *R* value, which was 0.963. This value showed a high degree of correlation. Besides, the  $R^2$  value would help to examine how much of the total variation in the independent variables (service variety, service availability, order visibility, response time and returnability) can illustrate the dependent variable (online shopping customer satisfaction). In this study, 92.7% showed as quite large value. The results of regression analysis supported hypotheses H4 ( $p = 0.001$ ) and H5 ( $p = 0$ ) but not supported hypotheses H1 ( $p = 0.313$ ), H2 ( $p = 0.991$ ) and H3 ( $p = 0.572$ ).

Result from Figure 2 shown a strong relationship between response time and online shopping customer satisfaction. It meant if the courier service company can perform higher response time, the customer would be more satisfying to use their service. Hence, there was a positive relationship between response time and online shopping customer satisfaction. According to Gunasekaran et al. (2004), response time is a determinant for

customer satisfaction. A quick and exact response time is important in maintaining the customer satisfaction. Late response time from a courier service companies will lead to a customers' dissatisfaction (Tilokavichai et al., 2012).

**Table 3** Relationships between independent variables (service variety, service availability, order visibility, response time and returnability) and dependent variable (customer satisfaction)

		<i>Service variety</i>	<i>Service availability</i>	<i>Response time</i>	<i>Order visibility</i>	<i>Returnability</i>	<i>Customer satisfaction</i>
Service	Pearson						
Variety	Correlation	1	0.101*	0.913**	0.128*	0.833**	0.845**
	Sig. (2-tailed)		0.048	0.000	0.012	0.000	0.000
	N	384	384	384	384	384	384
Service	Pearson						
Availability	Correlation	0.101*	1	0.130*	-0.023	0.056	0.066
	Sig. (2-tailed)	0.048		0.011	0.647	0.278	0.198
	N	384	384	384	384	384	384
Response	Pearson						
Time	Correlation	0.913**	0.130*	1	0.137**	0.740**	0.773**
	Sig. (2-tailed)	0.000	0.011		0.007	0.000	0.000
	N	384	384	384	384	384	384
Order	Pearson						
Visibility	Correlation	0.128*	-0.023	0.137**	1	0.170**	0.156**
	Sig. (2-tailed)	0.012	0.647	0.007		0.001	0.002
	N	384	384	384	384	384	384
Returnability	Pearson						
	Correlation	0.833**	0.056	0.740	0.170**	1	0.958**
	Sig. (2-tailed)	0.000	0.278	0.000	0.001		0.000
	N	384	384	384	384	384	384
Customer	Pearson						
Satisfaction	Correlation	0.845**	0.066	0.773**	0.156**	0.958**	1
	Sig. (2-tailed)	0.000	0.198	0.000	0.002	0.000	
	N	384	384	384	384	384	384

\*Correlation is significant at the 0.05 level (2-tailed).

\*\*Correlation is significant at the 0.01 level (2-tailed).

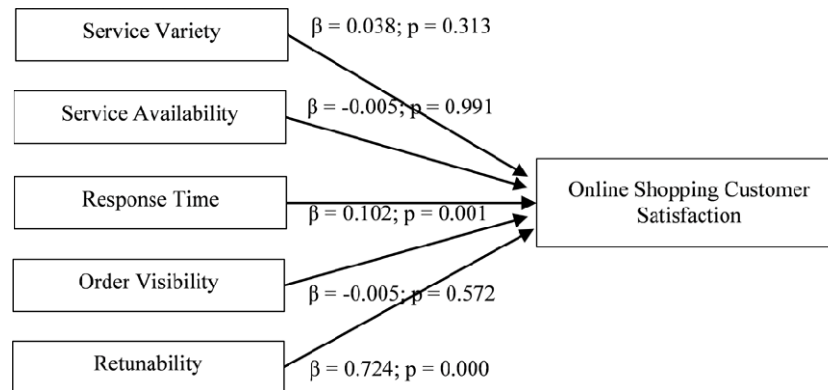
Data analysis stated there was a strong relationship between returnability and online shopping customer satisfaction. It means, if the courier service company provides returnability services, the customer would be more satisfied in the case that they really require for the services. Hence, there was a positive relationship between returnability and online shopping customer satisfaction. Returnability is a determinant for customer satisfaction. A courier service company that applies returns activity as an after-sale

service will be able to maintain and increase the customer satisfaction level (Castro and Matarrollo, 2010).

**Table 4** Results summary of correlation

<i>Variable</i>	<i>Pearson correlation</i>
Service variety	0.845
Service availability	0.066
Order visibility	0.156
Response time	0.773
Returnability	0.958

**Figure 2** Result of multiple regression analysis



## 6 Implication

A reliable courier service provider is important in establishing customers' confidence towards the services offered (Li and Suomi, 2009). Some of the possible theoretical contributions of this study is to provide an understanding of the parcel distribution design factors that will influence an online shopping customer satisfaction. With the limited studies conducted on which parcel distribution factors the courier service provider should focus on in order to gain customer satisfaction, this study will further help the future researcher to understand the possible factors that the customers are looking at. Second, this study provides an overall analysis on the parcel distribution factors from the customers' perspective which can be applied in a different area in a different country to further clarify the similarities of the findings.

With respect to the managerial implication, this study acts as a foundation to current courier service providers as well as to new start-up courier service providers. By knowing which factors influences customer satisfaction, this study gives an insight towards the strategies that should be focused on for parcel distribution. This study proposes the courier service provider to be more focus on the resolutions for quick response time and the parcel returnability service as the main agenda to gain customer satisfaction. Additionally, the courier service provider must be able to act fast on the queries from customers pertaining to the distribution pricing, parcels' distribution status and insurance

claim issues. Being responsive and able to provide real-time information is a must that the courier service provider should possess to make customers feel satisfied with the service provided, although the response is considered unacceptable such as delay of parcel distribution. Plus, returnability service is important which act as after-sale service where the majority of the courier service provider just ignore it. This is important for customers to return any unsatisfying parcels received, such as wrong items' size and broken fragile items. This research hopes to provide a valuable guideline that can act as a foundation to every courier service provider to improve their current and future services.

## 7 Limitation and future studies

There are three principal limitations of this study which opens opportunities for improvement in the future studies. Firstly, the 384 respondents in Cheras area are not representing the whole Malaysia's online shopping community population. Thus, future studies could extend the population sizes and areas that would enable the data collection to produce more reliable results. Secondly, the future researchers could study other factors which the researcher did not cover in this study such as customer experience, security and reliability. Finally, there is a need to hypothesise the relationships among the variables in different areas in Malaysia as well as in different countries.

## 8 Conclusion

The primary goal of this study is to identify the factors influencing online shopping towards customer satisfaction among Malaysian online shoppers. Particularly, the study confirms that service variety, response time, order visibility and returnability have significant influence towards online shopping customer satisfaction. The result supported the four hypotheses (H1, H3, H4 and H5) have a positive relationship, whereas H2 has a no positive relationship influencing online shopping towards customer satisfaction.

With the data that has been tested and verified, this research has introduced a conceptual model for a parcel distribution design. Among H1, H3, H4 and H5, response time and returnability resulted in a strong positive relationship with online shopping customer satisfaction. Therefore, Malaysia courier service provider shall focus on improving the respective departments to provide better response time and returnability services to customers.

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