

**EXPLAINING SINGAPOREAN ACCEPTANCE OF  
CONGESTION CHARGING: MALAYSIA AND  
SINGAPORE BORDER**

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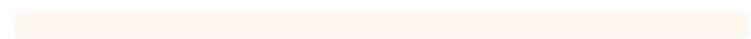
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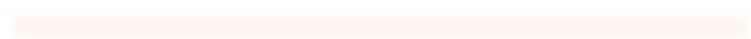
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# Explaining Singaporean Acceptance of Congestion Charging: Malaysia and Singapore Border

by

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A thesis submitted in fulfillment of the requirements for the degree of  
Bachelor of Entrepreneurship (Logistic & Distributive Trade) With Honours

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2023

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## Abstrak

Kajian ini memberi tumpuan kepada faktor-faktor yang mempengaruhi penerimaan warganegara Singapura terhadap caj kesesakan antara sempadan Malaysia dan Singapura. Dalam kajian ini, umur, pendidikan dan pendapatan adalah semua elemen yang mungkin memberi kesan kepada niat penerimaan mereka terhadap caj tersebut. Selain itu, pendekatan kuantitatif akan digunakan oleh pengkaji untuk menjalankan kajian ini. Soal selidik tinjauan dalam talian diwujudkan untuk mengumpul maklumat daripada responden. Soal selidik ini dicipta oleh Borang Google dan akan diedarkan kepada orang ramai. Selain itu, pengiraan pensampelan untuk penyiasatan ini akan berdasarkan peraturan praktikal yang dicadangkan oleh Roscoe (1975). Menurut Roscoe (1975), saiz sampel yang minimum akan melebihi 30 dan kurang daripada 500 peserta. Hasilnya, seramai 190 orang responden akan mengambil bahagian untuk melengkapkan borang soal selidik. Selain itu, pengkaji menggunakan teknik persampelan bukan kebarangkalian untuk menjalankan kajian ini. Seterusnya, data yang dikumpul akan dianalisis oleh perisian Statistical Package (SPSS) versi 25.0 dan mendapatkan hasil kajian.

**Kata kunci:** Pengecasan Kesesakan; Perceived Uncertainty; Model RBV, Warganegara Singapura, Penerimaan Awam

## Abstract

This study focuses on the factors affecting the Singaporean public acceptance of congestion charging between the Malaysia and Singapore border. In this study, age, education, and income are all elements that might impact their acceptance intention towards the charge. Besides that, the quantitative approach will be used by the researcher to conduct this study. An online survey questionnaire is created to gather information from respondents. This questionnaire is created by Google Form and will distribute to the public. Moreover, the sampling calculation for this investigation will be based on the suggested rule of thumb by Roscoe (1975). According to Roscoe (1975), the minimal sample size will be more than 30 and less than 500 participants. As a result, there will be 190 respondents participated to complete the questionnaire. In addition, the researcher is using non-probability sampling technique to conduct this study. Furthermore, the collected data will be analyzed by Statistical Package (SPSS) software version 25.0 and obtain research results.

**Keywords:** Congestion Charging; Perceived Uncertainty; RBV Model, Singaporeans, Public Acceptance

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## CHAPTER 1: INTRODUCTION

### 1.1 Background of the Study

In recent years, with the growth of urbanisation, the disparity among the demand and supply for urban transport is becoming progressively more pronounced, projecting mainly in urban areas. Congestion charging has the potential to mediate several transport issues, especially those that are connected to effective health, mobility, and the environment. The congestion charge is only applied to systems with time-differentiated tariffs designed to balance daily traffic patterns. Consequently, flat costs toll roads are often designed to increase revenue only, not to change regular traffic patterns. Hence, consider these systems to not be congestion charging (Wang, et, 2018).

First and foremost, congestion pricing has been noticed as the most suitable type of explanation to confirm the extreme utilisation of existing streets. However, Due to the fact that multiple studies have concluded that congestion pricing is an economically reasonable strategy may be used to effectively achieve congestion on roads; there are relatively few instances of such a project having been fully implemented past the planning stage (Liu, 2022). According to Selmoune et al., (2020), congestion charging has been studied the best option for ensuring that existing highways are used to their full potential. Although there are very few cases when such a scheme has adequately executed past the planning phase, congestion charge is a financially reasonable method that has the potential to reduce traffic congestion on roads.

Additionally, from an economic perspective, the goal of congestion pricing is to encourage reasonable travel decisions among consumers and reduce urban traffic congestion. There is a rise in discussion about congestion-based pricing as a useful economic tool for managing traffic demand. Congestion pricing has several challenges in practice, while being

beneficial in theory. Urban road congestion is a systemic issue, so sensible measures must be developed to have the most impact. Although it is possible to collect traffic congestion fees, more research has to be done on the public's perception of such taxes (Wang, et, 2018).

Moreover, the city's public transportation system and its laws governing the use of private vehicles need to be completely serviced. Restricting the use of private vehicles inside the core business district is one of the additional strategies to encourage the use of public transportation (Jaimin et al., 2019). This can be accomplished by introducing a congestion charge scheme, similar to what the neighbouring country of Singapore did.

This study is to explain the public acceptance of congestion charging. The researchers will recently concentrate their efforts on finding solutions to the congestion on the Malaysia and Singapore border and metropolitan highways. Besides, to study based on the age, education, and income of Singaporeans will affect the acceptance of congestion charging.

## **1.2 Problem Statement**

A few years ago, government had planned to implement a congestion charge system in place of the current highway toll system on highways. Then, the new system suggests three periods: the peak, the off-peak, and the usual. There will be application and use of these various congestion charge rates. This is because the congestion charge conditions are good but it is not a new thing, foremost cities around the world have already accepted the system and many more are allowing for it. Today, there are several forms of congestion pricing for road users in cities including Singapore, London, Stockholm, and Milan. The advantage is that Malaysia has a huge and diversified pool to acquire from which to take knowledge and adopt greatest practices that are suitable to the precise needs and tailored to our population's individual needs (Ashaari, 2019).

The demand and supply gap for urban transportation has recently become more pronounced, especially in metropolitan areas and major cities, as a result of the expansion of urbanisation. From an economic perspective, the goal of congestion pricing is to encourage reasonable travel decisions among consumers and reduce urban traffic congestion. There is growing discussion about congestion-based pricing as a useful economic tool for managing traffic demand. Congestion charging has several challenges in practice while being beneficial in theory. Urban road congestion is a structural issue, so sensible measures must always be developed to have the most impact. Although it is feasible to gather traffic congestion fines, research on the public's perception of such taxes is still needed (Wang, et, 2019).

Large environmental, economic, and social costs to total welfare are now facing traffic congestion which is a common issue that is a typical occurrence in big cities around the world (Hayashi, et, 2004). Congestion charging is currently being considered by governments as a practical method of controlling congestion. This is due to the fact that congestion charges have been in place for a very long time in important foreign cities including Singapore, the United Kingdom, London, Sweden, Stockholm, Italy and Milan. If the long-term solution is applied in the next ten years when the public transportation network system is fully developed, would road users in Kuala Lumpur be prepared to accept the congestion charges to minimise journey times for rush periods and motivate people to use public transportation? (Deeon, 2022).

Yet, using simple econometric models in numerous research has determined variables affecting public acceptance of congestion charges. These investigations offer helpful insights, but they do not reveal the underlying psychological mechanisms. This study examined Singaporean acceptance of the congestion charges that must be paid for transiting to Malaysia based on demographic factors which are age, income, and education. Thus, this study aims to examine the Singaporean acceptance of congestion charging between the Malaysia and Singapore border.

### 1.3 Research Questions

There are some questions regarding the research that must be carried out to study based on age, education and income affects the Singaporean acceptance of congestion charging between the Malaysia and Singapore border. The research questions of this study are as follows:

- I. What is the relationship between age and Singaporeans acceptance of congestion charging between Malaysia and Singapore border?
- II. What is the relationship between education and Singaporeans acceptance of congestion charging between Malaysia and Singapore border?
- III. What is the relationship between income and Singaporeans acceptance of congestion charging between Malaysia and Singapore border?

### 1.4 Research Objectives

As a result, this study aims to achieve the following objectives:

1. To examine how Singaporeans perceived acceptance toward age affects the Singaporeans acceptance of congestion charging between Malaysia and Singapore border.
2. To understand how Singaporeans perceived acceptance toward education affects the Singaporeans acceptance of congestion charging between Malaysia and Singapore border.
3. To identify how Singaporeans perceived acceptance toward income affects the Singaporeans acceptance of congestion charging between Malaysia and Singapore border.



## 1.5 Scope of Study

Due to the proximity between Malaysia and Singapore, many Singaporeans cross into Malaysia. Others have come to utilise the infrastructure and services, while others have come to work.

The subject of the study is the acceptance of congestion charging in Malaysia among Singaporeans who travel to Malaysia to work or enjoy its facilities and services. It also focuses on their reactions to the congestion fee that the Malaysian government has imposed on them. It will distinguish Singaporean acceptability based on age, income, and education, which are demographic variables. We found that Singaporeans' support of congestion pricing in Malaysia is influenced by a number of characteristics that tempt them to travel there. Age, level of education, and income are all factors that may influence the acceptability of the fee. As a consequence, this study investigates the major factors that sustain its popularity and compares them to Singaporean acceptance.

## 1.6 Significance of Study

This study's findings offer theoretical and practical insights to managers in the transportation sector and service literature. It assists in numerous ways, theoretically. First, the resource-based view (RBV) is employed in this study to examine the variables influencing Singaporean acceptance of the congestion charging at the border between Malaysia and Singapore. Moreover, according to published studies, politicians and the general public are becoming increasingly interested in the topic of the acceptability problem (Chorus et al., 2011, Hensher and Bliemer, 2014). Malaysia is a developing nation in the Asia-Pacific region that

differs from wealthy countries where past research has been conducted regarding culture and expressiveness.

This study is helpful in understanding better Singaporean acceptance of the congestion charging between the Malaysia and Singapore border. Then, the government or commercial sectors involved in the urban transportation industry can enhance the low satisfaction elements. Besides that, by identifying essential variables that affect Singaporean acceptance of congestion charging, innovative improvement measures can be developed by the relevant sector to enhance the acceptability of Singaporean toward congestion charging at the border between Malaysia and Singapore. Furthermore, the sustainability of the tourism industry may be maintained by recognising the critical elements that contribute to the acceptance of the congestion charging at the location. Besides, the study's conclusions should provide valuable guidelines to improve urban congestion issues for the government and private sectors.

Applying the Resource-based view (RBV) in the Asia-Pacific region thus opens up new opportunities for examining these qualities for additional research by academics in the future. Furthermore, as the study focused on the urban congestion charging issues in an emerging economy such as Malaysia, it broadened and deepened our understanding of the traffic congestion issue from a contextual perspective. The majority of past research on congestion charging uses industrialised nations as its sample. Cultural differences may be necessary to improve the degree to which outcomes from one country cannot be transferred to another since those other countries may have unique tastes and demands firmly based on their shared cultural or societal norms.

## **1.7 Definition of Term**

### **1.7.1 Acceptance of Congestion Charging**

The congestion fee is one policy area in which this pattern of initial opposition has given way to overwhelming public acceptance, particularly in high-profile cases such as Stockholm and London (Tvinnereim et al., 2020). Congestion pricing is a method used in cities to reduce traffic congestion by charging consumers a surcharge during particular times of the day. Higher toll levels during peak hours reduce demand for a scarce resource – road space – by incentivising motorists to utilise alternate modes of transportation, drive at various times of day, or forego travel.

### **1.7.2 Age**

The duration of a person's life or an object's existence. It can also be defined as one of the stages of life or the duration of an existence extending from the beginning to a specific point in time and a lifespan.

### **1.7.3 Education**

Education is the socially organised and regulated process of transferring socially significant knowledge from one generation to the next. The primary way to obtain an education is to enrol in a program at an educational institution.

### **1.7.4 Income**

Income refers to cash or cash-equivalents received for work performed, interest or profit on capital invested, or rent from a rented property or land. It is either a wage or a salary when it is derived through employment. It refers to all funds obtained by worker, business, investment, charity, organisation, or the economy.

## 1.8 Organizational of the Proposal

The study explores the research's introduction in Chapter 1, which contains information on the study's background and the problems that led to the research's existence. The research objectives and questions presented in this chapter also assist in determining and comprehending the independent and dependent variables used in the study. Chapter 1 also describes the scope of the study, the significance of the study, the definition of the term, and the organization of the proposal. In addition, the next chapter, Chapter 2, will describe the literature review of the research's variables, present its hypotheses, and lay out its conceptual framework. The research method and design will be included in Chapter 3 involving using questionnaires to gather data. The collected data will be analysed using the test's reliability to demonstrate that the questionnaire is valid. Moreover, Chapter 4 describes the data analysis and findings of the research. Meanwhile, Chapter 5 explains the discussion and conclusion of the study.

## CHAPTER 2: LITERATURE REVIEW

### 2.1 Introduction

The study looked at explaining Singaporeans acceptance of congestion charging between Malaysia and Singapore border. The purpose of this chapter is to illustrate the problems of this study by reviewing various theories or models that fully explain the concept of public perceived acceptance affects willingness to accept congestion charging. Moreover, we also present the extent to which the factors affect willingness to accept congestion charging by using a conceptual framework. Therefore, this chapter is divided into four important parts to accomplish this task which are the first. The second paragraph examines various models or theories that emphasise public acceptance of congestion charging. After this analysis, there is a complete framework to understand how these factors affect willingness to accept congestion charging between the Malaysia and Singapore border. Importantly, this argument led to the development of an overall study issue, leading to the problem under study in the present study.

### 2.2 Underpinning Theory

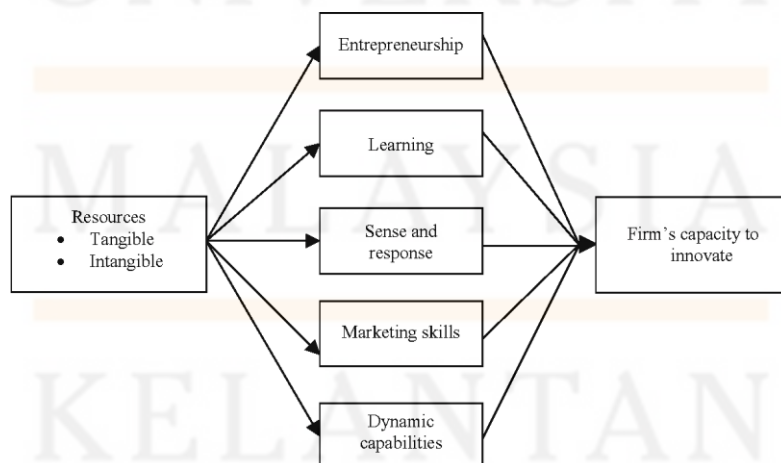


Figure 2.1: Resource-Based View

Resource-based view (RBV) a company's facility to sustain a good edge depends on its access to valuable, rare, distinctive, and irreplaceable resources (Zhao & Morgan, 2017). To increase administrative expertise inside the RBV framework, the internal examination of resources should be given more effect. When it comes to administrative analysis, RBV stresses an inside-out strategy that views the organisation as a collection of resources (James, 2022). It highlights how these resources and how they are combined produce administrative differences. The investigation of the administration must therefore begin with its internal environment, according to this approach. Theory for creating instruments to look into the position of businesses connected to the resources they consume. According to Barney, J. (1991), a resource-based view, associations have resources, some of which help them gain a reasonable edge and some of which affect in better long-term performance.

### **2.3 Previous Studies**

We can understand more about the demographic factors influencing Singaporeans acceptance of congestion charging from earlier studies. There are three primary demographic factors that influence Singaporeans acceptance of congestion charging: age, level of education, and income. The majority of the people polled have either directly or indirectly indicated their displeasure or conflict with congestion charging (Fu, 2012). A survey conducted by the China Youth Daily Social Investigation Center found that 75.4% of respondents reject congestion pricing, despite the fact that they may cite successful international experiences. Self-interest and ambiguity about how it would function are the main drivers behind the public's criticisms. 53.7% of the public are worried about how congestion service charges will be used, 20.2% of the public are sceptical about how to charge congestion service charges efficiently because there are no clear execution rules, and 54.6% of the public believe that public transportation is

ineffective and that congestion charging can not effectively address the congestion issue. As a result, a significant barrier is mistrust and uncertainty surrounding the policy measures for congestion charge (Wang et al., 2019).

### **2.3.1 Acceptance of Congestion Charging**

The congestion fee has been implemented in a few cities throughout the world as a result of urbanisation. In 1975, Singapore initially implemented a congestion tax in the downtown area, utilising a manually paid "Regional Pass" method. The first and most successful city to implement congestion charges was Singapore. After 1998, Singapore implemented an electronic toll payment system. The congestion charges not only significantly decreased traffic congestion and accidents but also boosted traffic revenue, setting the framework for future highway system improvements. In 1996, Seoul began charging for traffic congestion. In 2003, according to Leape (2006), London instituted a congestion charge for vehicles crossing the bridge. As a result, district-wide traffic decreased by 27%, while bus travel times rose by 25%. Following seven months of a test congestion pricing plan being implemented in Stockholm, Sweden, traffic fell by 22%, and by 18% after its formal acceptance. According to Kockelman et al., the adoption of congestion charges is directly connected to the number of rates for congestion charges, including the hours after charges are fully implemented, the region where pricing happens, and other aspects of the charging mechanism (2005). According to Bonsall and Cho (1999), complex pricing schemes, such as moment pricing based on congestion delays, were less popular with the public than fixed-rate fees (Wang et al., 2018). According to Hensher and Li (2013), the more complicated a congestion charge system is, the more difficult it is for the public to comprehend, resulting in public discontent. In addition, research has indicated that the exchange rate has a significant effect on the public's acceptance of fixed-rate, credit-based, and time-based fees.

Most transportation experts believe that road pricing is the most effective method for addressing the negative consequences of mobility because cars are taxed in a way that makes them aware of the marginal social costs associated with their driving behaviour (King et al., 2007; Knight, 1924; Pigou, 2017; Walters, 1961). In addition, this pricing mechanism has been defended as a means of generating revenue (de Palma et al., 2007) that might be used to encourage community mobility, support the construction of new organisations, and maintain existing road networks (Manville & King, 2013). The features of individuals also affect their perceptions of costs and advantages. Automobile owners are anticipated to be more resistant to urban tolls than public transit users (Jaensirisak et al., 2005; Kottenhoff & Brundell Freij, 2009), whilst those who are more worried about the situation are more likely to favour congestion pricing (Jaensirisak et al., 2005; Janssens et al., 2009). The public's understanding of the challenges involved with car use and the benefits of a charge plan are other factors to consider. Acceptance is anticipated to increase as public awareness of the negative effects of vehicle use and the efficacy of congestion pricing in resolving traffic-related issues rises (Schade & Schlag, 2000; Steg, 2003). People are more likely to support a toll system when it is presented as a package that contains clear information about the final use of revenues (Albalade & Bel, 2009), allowing the system's benefits to be readily apparent. Despite the fact that support increases as individuals expect benefits (Steg, 2003), group benefits appear to be more important for acceptance than individual benefits (Schuitema et al., 2011). Therefore, collective results such as public transportation (Kottenhoff & Brundell Freij, 2009; Rentziou et al., 2011) and conservational improvements (Loukopoulos et al., 2005) appear to be the preferred toll revenue allocation because they are also associated with equity and environmental neutrality (Schuitema et al., 2011). The public and political approval of a congestion-pricing plan is viewed as crucial to its success (CEPAL, 1999; Sikow-Magny, 2003)



### 2.3.2 Age

Age is also a basic demographic characteristic that is crossed by social characteristics, such as marital status and education. The population of Singapore reached 5.5 million in 2021. Singapore had the biggest population, with 3.9 million people (72.3%) in the working-age range of 15 to 64 years. With 15.3% of the population (0.83 million), or those under 15 years old, Singapore had the second-largest population. With 12.4% of the overall population, or 0.68 million people, 65 and older was the third-largest age group in 2021.

By using appropriate questions to identify the age demographic of the people who took a survey, using age brackets for convenience and consistency, it can potentially gain a lot of valuable detail during our analysis, to reveal any correlation between age and subsequent opinions and behavioural traits.

The earliest studies on congestion charges were conducted in downtown London in the early 1970s, but they received little attention due to the substantial excess capacity on the public transportation system at the time. Yet, due to London's rapid population increase, growing traffic congestion concerns, and environmental deterioration, the discussion and debate on the congestion charge continued and lasted over time. As a result, London City received permission in the 1990s to impose a congestion fee and keep the proceeds.

After an intensive 18-month process of public deliberation, political factors were less important when Ken Livingston was chosen as London's first mayor in 2000 due to a concentration of power. On February 17, 2003, he inaugurated a congestion charge plan in central London (Bhatt et al. 2008). According to Litman (2006), a survey of a business group that contributed 22% of the town's GDP revealed that the majority (over 90%) of the members felt either no effect or positive effect on their business, with only 9% reporting a negative impact on their business, despite the fact that the congestion charge in London was initially criticised by interest groups or various stakeholders for having a negative economic impact.

Additionally, Bhatt et al. (2008) discovered that acceptance of the London congestion fee grew from around 40% prior to the scheme's implementation to above 50% eight months later. Another important component in the introduction of the London congestion charge is the public's perception of the congestion problem. According to Bhatt et al. (2008), in 1999, 41% of poll respondents thought a congestion fee was the best method to pay for improvements to London's public transportation system and 90% of city inhabitants considered there was too much congestion in the city. In conclusion, significant levels of political dedication as well as public acceptance led to the effective implementation of the congestion charge in London.

### **2.3.3 Education**

In the past twenty years, there have been political debates about and abandonments of the Stockholm congestion charge scheme. The "Dennis Agreement," a complete and accurate investment in a toll system, was first proposed by a local Green Party and the Social Democrats in cooperation with elected alliances in 1991. Political changes prevented the implementation of the agreement until the local Green Party again won enough seats in the 2002 election, which ultimately compelled the Social Democrats to accept an experiment in congestion charging.

A full-scale, seven-month trial of the improved public transportation was run from January to July 2006, and an extensive analysis followed to ascertain the truth behind the plebiscite and the relationships between variables affecting travel behaviour and decision-making (Bhatt et al. 2008). According to reports, persons who lived in the charging zone, were highly educated, of working age, or thought the toll system would save them time tended to be more supportive of the congestion fee system. Contrarily, residents who paid higher rates for the congestion pricing system, were male, immigrants, or lived outside the pricing zone were less likely to support it (Hrsman & Quigley 2010).

It seems to be interesting to note that opinions about the congestion fee in Stockholm varied before and during the experiment (Eliasson et al. 2009; Schuitema et al. 2010). More

notably, 55% of city of Stockholm citizens said that enacting a congestion charge system was a "very or somewhat terrible move" in the autumn of 2005. Nevertheless, 53% of locals said the trial was a "very good idea" in April 2006. The benefits of the congestion charge scheme (e.g., less congestion, more parking space) were greater than what the citizens anticipated, and participants were typically more concerned with the performance of the congestion charge than its personal cost, which contributed to the increase in acceptance (Schuitema et al. 2010). Stockholm eventually opted to implement the congestion charge plan by referendum in 2007 due to the ongoing worsening of traffic congestion and encouragement from the trial's success as well as the well publicised success of the London congestion charge scheme (Hrsman & Quigley 2010).

#### **2.3.4 Income**

According to Phang & Toh (2004), Singapore is another successful example that due to its considerably small and limited surface, in the early 1970s, the government had no idea but to introduce an area licensing scheme. This policy led to a 20% increase in bus passengers and a 10% reduction in bus travel time (Phang & Toh, 2004). Tariffs vary during peak hours to increase road users' efficiency and fairness without incurring any additional costs. This was accomplished by implementing variable toll costs based on vehicle classification (vehicle type and the number of axles), and the time of day or night.

However, congestion charges could appear unfair from the viewpoint of the "citizen." This would be the case if different socioeconomic groups have different levels of support for or acceptance of the core rationale or explanation for congestion pricing. (Eliasson, 2016). Similarly, individuals can be considered "winners" when social decisions are complete in accordance with their favourites as individuals (which may or may not be in line with their "consumer" interests), such as environmental legislation or tax progressivity. According to Eliasson (2016) that, the case of congestion charging was considered an "elite" endeavour,

which is more in line with what wealthier or more cultured populations view as "fair," "just," or "socially desirable." It is simple to conceive that high-income groups would perceive that estimating is a more equitable distribution method than, say, administrative choices - perhaps as a result of education, self-interest, or societal norms. Hence, it is also feasible that high-income groups might provide environmental advantages.

## 2.4 Hypothesis Statement

Based on the above discussion, assumptions can be created the following:

H<sub>0</sub>: There is no significant relationship between Singaporean acceptance of congestion charging towards age between Malaysia and the Singapore border.

H<sub>1</sub>: There is a significant relationship between Singaporean acceptance of congestion charging towards age between Malaysia and the Singapore border.

H<sub>0</sub>: There is no significant relationship between Singaporean acceptance of congestion charging towards education between Malaysia and the Singapore border.

H<sub>2</sub>: There is a significant relationship between Singaporean acceptance of congestion charging towards education between Malaysia and the Singapore border.

H<sub>0</sub>: There is no significant relationship between Singaporean acceptance of congestion charging towards income between Malaysia and the Singapore border.

H<sub>3</sub>: There is a significant relationship between Singaporean acceptance of congestion charging towards income between Malaysia and the Singapore border.

## 2.5 Conceptual Framework

The researchers discovered that the framework below will be the build framework. The focus of this research will be on the Singaporean acceptance of congestion charging between the Malaysia and Singapore border. As independent variables for the study, the researchers chose Age, Education and Income.

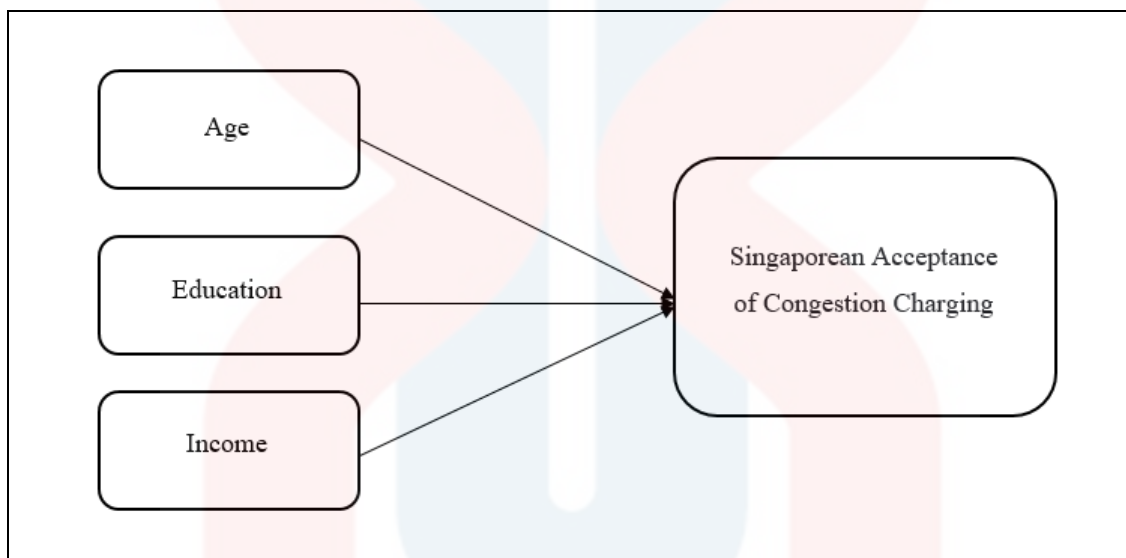


Figure 2.2: Conceptual Framework

## 2.6 Summary

Overall, the Singaporean acceptance of the congestion charging between the Malaysia and Singapore border is the focus of this chapter. The research is described in this chapter's introduction, which includes an overview of the study's background, problem statement, research questions, and objectives, as well as its scope, significance, and definition of the term. The topics covered in this chapter serve as the backdrop for all subsequent discussions in this study.

## **CHAPTER 3: RESEARCH METHOD**

### **3.1 Introduction**

This chapter discusses in great detail on the methodology and research design used to carry out the study's objectives. This research will discuss the methods of research procedures in the process of collecting data and information to type decisions that are the targets and objectives of this study. This chapter will mention every component involved in carrying out the population, sample size and sampling method used for the questionnaire. Next, in this study, quantitative methods in this analysis are a method of online analysis or technique by using the questionnaire as the device. Finally, a thorough explanation of the data collection procedure is given.

### **3.2 Research Design**

A research design, according to Epetimehin & Ekundayo (2011), is a framework that is used to introduce researchers to the process of performing a study. The research design is the main project that details the techniques, processes, and procedures utilised to obtain and understand the necessary information (Zikmund et al., 2003). In general, research design may be characterised as a structure for establishing and carrying out a specific research project. The researcher carefully chooses this design to guarantee that appropriate procedures are used to pursue and achieve the study's objectives or hypotheses, as well as to complete the investigation.

The quantitative methodology was employed by the researchers in this study to collect data. A quantitative method means a study of a huge number of persons who are involved in the usage of structured questions with predetermined answer possibilities. The quantitative approach creates statistics through the use of methods such as surveys. A structured

questionnaire was created to collect data on Singaporean acceptance of the congestion charging toward age, education, and income. The data was then analysed to determine the relationship.

### **3.3 Data Collection Methods**

Data collecting methods, according to Sekaran (2003), are an important aspect of the research process. Data and information may be gathered from two sources: primary and secondary.

#### **3.3.1 Primary Data**

The major data-gathering method used in this study is a standard online survey questionnaire. In Malaysia, an online questionnaire is used to collect information from Singaporean visitors. Following that, SPSS is used as a tool to find and interpret information derived from the questionnaire.

#### **3.3.2 Secondary Data**

Quantitative data which has already been gathered by another party for a different purpose is known as secondary data. The researcher used and gathered a large number of secondary materials. For instance, information from a website, an online journal, or an article, as well as newspapers and magazines.

### **3.4 Study Population**

The term "population" refers to the whole team or collection of elements to whom the research's outcomes must be addressed. Based on the definition of population, all the units that can be affected by study results are included. Moreover, All teams that share the variable feature that forms the subject of the inquiry and for which general conclusions can be drawn are referred to collectively as the population (Shukla, 2020).

As a result the Singaporeans who have travelled across borders to Malaysia are the study's target group. The respondents for this study thus range in age from 18 to 60 and above. According to the Department of Statistics Singapore (2022), the population of Singaporeans is approximately 5,637,022.

### **3.5 Sample Size**

One aspect of research design that researchers must take into account as they organise their study is the sample size (Burmeister & Aitken, 2012). The sample size is a subset of the population. The Singaporeans were the study's population, from which the samples were drawn. As a result, the sampling calculation for this investigation will be based on the suggested the rule of thumb by Roscoe (1975). The minimal sampling size was according to Roscoe (1975) that, the minimal sample size that will be more than 30 and less than 500 participants in social science study research, especially under developing non-probability sampling method. As a result, there will be 190 respondents participated to complete the questionnaire. This indicates that 190 Singaporeans who are visiting Malaysia responded to the surveys. As a result, the questionnaires were dispersed at random among individuals who could demonstrate their willingness to participate in the survey.

### **3.6 Sampling Techniques**

Sampling is a strategy for selecting a tiny percentage of the population or particular people in order to make generalisations and estimate the population's characteristics. In order to get usable data, researchers usually utilise a variety of sampling approaches in market research. This saves time and resources (Fleetwood, 2022).

The sort of sampling technique employed in this study is non-probability sampling. The population's components do not have any probabilities associated with them being selected as



target respondents in non-probability sampling schemes. This means that it is impossible to confidently extrapolate the results of the sample's study to the entire population. Some of the non-probability sampling plans are more dependable than others and could offer some important leads to potentially useful information with regard to the population. Designs for non-probability sampling that fall under the broad categories of convenience sampling and purposeful sampling.

According to Uma Sekaran and Roger Bougie (2017), there are several types of sampling, including convenience sampling, judgement sampling and quota sampling. This study will use convenience sampling. As its name implies, convenience sampling refers to the collection of information from members of the population who are conveniently available to provide it. One would expect the "Pepsi Challenge" contest to have been administered on a convenience sampling basis. Such a contest, with the purpose of determining whether people prefer one product to another, might be held at a shopping mall visited by many shoppers. Those inclined to take the test might form the sample for the study of how many people prefer Pepsi over Coke or product X to product Y. Such a sample is a convenience sample.

Consider another example. A convenience sample of five officers who attended a competitor's showcase demonstration at the county fair the previous evening offered the vice president of the company information on the "new" products of the competitor and their pricing strategies, which helped the VP to formulate some ideas on the next steps to be taken by the company. Convenience sampling is most often used during the exploratory phase of a research project and is perhaps the best way of getting some basic information quickly and efficiently.

### **3.7 Research Instrument Development**

According to Rani (2012), the purpose of a questionnaire is to collect information from respondents about their attitudes, behaviours, and opinions. A questionnaire is a collection of

inquiries made to people in order to gather statistics on a particular subject (Roopa & Rani, 2012). Questionnaires have been used in this study as an instrument. This approach is the most compatible for gaining data and information from respondents. Through this method, feedback on aspects of the study can be obtained directly from the respondents. In this study, sources of data will be gathered in questionnaires to investigate and explain Singaporeans acceptance of congestion charging between Malaysia and Singapore border.

The aims of the performed study should be made clear in the questionnaire as well. The format of the questionnaire was created with two goals in mind. One of them is how simple it is for respondents to respond to queries. Limiting the lengthy questions that were asked on the questionnaire served the second objective of helping the respondent. In study as well, the researcher's name and contact information are included on the first page of the questionnaire, along with a promise of secrecy. This also causes respondents to be more motivated in answering the questionnaire. The questionnaire also consisted of three parts. Part A also covers nominals for demographic profiles for example gender, age, race, marital status, education level and monthly income. While ordinal scales are also used for information of respondents toward the acceptance of congestion charging. While, part B also covers the dependent variable of the Singaporeans acceptance of congestion charging.

Section	Variables	Author
A	Demographic	(Liu & Zheng, 2013)  (Eliasson, 2016)

B	Singaporeans acceptance of congestion charging	(Wang et al., 2019)
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Table 3.1: Overview of Research Instrument

Source: Develop for the research

### 3.8 Measurement of the Variables

This section describes the measurement items that were used in this study. The independent variables in this survey are age, education, and income. The dependent variables in this survey are Singaporeans acceptance of congestion charging.

#### 3.8.1 Operationalization of Variables

In this study, an ordinal scale is used, along with a Likert scale in the survey. This is due to the abstract concept of factors that cannot be accurately measured. The scale consists of a fixed decision question design that addresses unique mentality, trust, assessment, and feeling in factor estimation. Respondents must demonstrate their level of understanding, fulfilment, or different reactions to the assertions in the survey, which range from the most minor to the most significant.

These sections contain a variety of questions, including multiple choice with only one answer, multiple choice with only multiple answers, ranking, and matrix choices with five Likert scales. From section 'A' to section 'B,' respondents will be asked to tick only one of the five alternative scores to indicate their level of agreement with each statement. The statement will be scored on a five-point Likert scale.

### 3.8.2 Measurement Scale

#### a) Likert Scale

A Likert scale is a type that asks the respondent to agree on a set claim about stimulus items. It will be divided into five answer categories, starting with 1-Strongly Disagree, 2-Disagree, 3- Neutral, 4-Agree, 5-Strongly Agree on a five-point scale which has shows in Table 3.2.

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

Table 3.2: Five-Point Likert Scale

#### b) Nominal Scale

Nominal scale responses are simply named or grouped. The distribution of questionnaires, a quantitative instrument, can be utilised to provide qualitative information to the study's findings. A nominal scale can be categorised, given names, or given labels. Nominal data refers to a kind of category, such as gender (male/female) that cannot be sorted. Section A questions compute each respondent's demographic profile using a nominal scale. In order to analyse the target respondents, gender, age, race, marital status, level of education, and income are all quantified on a nominal scale relying on the questionnaires.

### 3.9 Procedure for Data Analysis

Data analysis was used to analyse the data which was met from the analysis questionnaire. This section outlines the analytical tools that are being used in transmitting raw data into expressive statistics and material. The Social Sciences Statistical Package (SPSS) software version 25.0 was used to analyse all of the data collected and analyse it for the accurate result. SPSS is a software package used by researchers for analysis of statistical data

(Contributor, 2018). Besides, SPSS is a statistical tool established by IBM and widely used by researchers throughout the world. Hence, the data gathering in this study will be calculated and analysed by using SPSS. This data analysis will be used to analyse the data which was collected from the survey or analysis questionnaire. The data collected in this study will be calculated and analysed using SPSS. This data analysis will be performed by Descriptive Analysis, Normality Analysis, Reliability Analysis, Spearman Correlation Coefficient and R-Square Test.

### **3.9.1 Descriptive Analysis**

Descriptive analysis is a methodology for precisely specifying the kind and selection of sensory qualities (Kemp et al., 2018). The ability to provide objective, statistically reliable, and statistically interpretable data was a revolutionary invention for its time and a crucial accomplishment that gave sensory evaluation a scientific basis. Descriptive analysis serves as a flexible source of product information in industry, government, and academic settings since it makes it possible to acquire objective, thorough, and educational sensory data (Kemp et al., 2018). Descriptive analysis is especially helpful in product design, when sensory data are connected to hedonic consumer data and physic-chemical data generated using instrumental measurements.

### **3.9.2 Reliability Analysis**

Reliability is the measure to which test results are reliable with regard to one or more causes of inconsistency—the choice of particular questions, the choice of raters, the day and time of testing (Livingston et al., 2018). Consistency and Reliability Test results are trustworthy to the extent that they remain constant across testing occasions (Livingston et al., 2018). Additionally, Cronbach's Alpha can be used to test the dependability of the device. When the alpha value is one, it properly captures reliability; yet, if the value is zero, there is

complete unreliability. The instrument has a high level of dependability if Cronbach's Alpha is as indicated in Table 3.3 below:

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Table 3.3: Value of Cronbach's Alpha

The alpha of Cronbach's alpha is used by the authors to evaluate the correctness of the questionnaire results. Based on Cronbach's alpha coefficient test were conducted on all four variables.

The information of the alpha coefficient range of the Cronbach had been clearly stated in Table 3.3. Given that the questionnaire is thought to be of low quality, the alpha value for its accuracy according to Cronbach's should not be less than 0.5. A pilot test was carried out to evaluate the questionnaire's validity and reliability in order to make sure it can be used for the research. The researchers distributed 30 sets of questionnaires for pilot test.

### 3.9.3 Regression Analysis

Regression analysis is among of the most used techniques for statistical analysis in public health research. According to Liang & Zeger (1993), regression analysis is a reliable method of identifying which variables have impact on a topic of concentration. Regression analysis is helpful statistical method that can be leveraged across an organization to determine the degree to which particular independent variables are influencing dependent variables.

While there are many types of regression analysis, at their core they all examine the influence of one or more independent variables on a dependent variable. Regression includes the following as special cases: linear models for measured responses, logistic models for survival analyses, and binary responses for times to occurrences. Regression analysis starts with the fundamental premise that all observations are statistically independent, or at the very least uncorrelated, with one another (Liang & Zeger, 1993).

### **3.9.4 R-square test**

R-squared (R<sup>2</sup>) is a statistical measure that shows how much of a dependent variable's variance is explained by one or more independent variables in a regression model. According to Fernando (2021), an indicator of how much variance in a dependent variable is explained by one or more independent variables in a regression model. R-squared is typically understood in the context of investing as the proportion of a fund's or security's movements that can be accounted for by changes in a benchmark index (Fernando, 2021).

### **3.9.5 Anova**

ANOVA is a statistical analysis technique that divides systematic components from random factors to account for the observed aggregate variability within a data set (Bevans, 2020). The presented data set is statistically affected by the systematic factors but not by the random ones. The ANOVA test is used by analysts to evaluate the impact of independent factors on the dependent variable in a regression analysis (Bevans, 2020). A statistical test called an analysis of variance, or ANOVA, is used to compare the means of more than two groups. One independent variable is used in a one-way ANOVA, while two independent variables are used in a two-way ANOVA (Kenton, 2022).

$$F = \frac{MST}{MSE}$$

F = ANOVA coefficient

MST = Mean sum of squares due to treatment

MSE = Mean sum of squares due to error

### 3.9.6 Hypothesis testing

Spearman's rank correlation measures the degree and direction of relationship between two ranked variables. It simply provides a measure of how monotonically a relationship between two variables can be expressed, or how well a monotonic function can capture that relationship. The strength of a monotonic relationship between paired variables is statistically measured by the Spearman correlation coefficient ( $\rho$ ) (Cavallo, 2020). A perfect Spearman correlation,  $\rho = +1$  or  $\rho = -1$ , occurs when each variable is a perfect monotone function of the other ( $\rho = +1$  implies a monotonic increasing function and  $\rho = -1$  implies a monotonic decreasing function);  $\rho = 0$  implies that there is not a monotonic correlation; and the closer  $\rho$  is to  $\pm 1$  the stronger the monotonic relationship. Spearman correlation coefficient measures only monotonic relationships; therefore, a significant relationship can exist even if  $\rho = 0$  (Cavallo, 2020).

### 3.10 Summary

This chapter starts with an introduction before going on to detail the research strategy and then the data collection technique will be used in this study. The data will be gathered via a Google form-based online survey and then collected data from Singaporeans in Malaysia. Two sections made up the questionnaire: the first covered the respondents' demographics, and the second covered the specified dependent and independent variables. Descriptive analysis



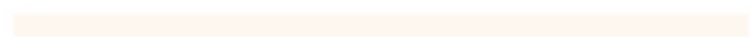
will be used in the first phase of the analysis, while reliability testing and parametric tests (T-test) will be used in the second section. In the subsequent chapter, the findings of the analysis and discussion of the data collected will be presented.



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## **CHAPTER 4:**

### **DATA ANALYSIS AND FINDINGS**

#### **4.1 Introduction**

This chapter discusses the findings of this study obtained from the questionnaire survey of four parts starting with acceptance of congestion charging, the use of congestion charges, the effectiveness of congestion charging, and perception of the congestion problem. The data that was collected were analysed by using SPSS and the final results of statistical analysis was presented in this chapter. There were several types of analysis used in this study which are response rate, reliability analysis Cronbach's Alpha, descriptive analysis for demographic and customer preference analysis, multiple regression analysis, r-square test, anova.

#### **4.2 Preliminary Analysis**

A pre-test is a test given to train and prepare before the questionnaire is presented or received.

##### **4.2.1 Expert Industry**

Given expert search and rely on their information to re-correct or get more information on their areas of expertise. For example, give a questionnaire draft to Final Year Project supervisor or industry experts to check or identify the question, then collect suggestions from them and have improvements. Hence, the error at the early stage is able to be minimised through expert industry.

##### **4.2.2 Pilot Test**

The alpha of Cronbach's alpha is used by the authors to evaluate the correctness of the questionnaire results. Based on Cronbach's alpha, coefficient tests were conducted on all four

variables.

The information of the alpha coefficient range of the Cronbach had been clearly stated in Table 3.3. Given that the questionnaire is thought to be of low quality, the alpha value for its accuracy according to Cronbach's should not be less than 0.5. A pilot test was carried out to evaluate the questionnaire's validity and reliability in order to make sure it can be used for the research. The researchers distributed 30 sets of questionnaires for the pilot test.

Table 4.1 showed the pilot test result and its coefficient of Cronbach's alpha by each variable from 30 respondents at Singapore. Based on Cronbach's alpha coefficient tests were conducted on all four variables. The table above shows the results of Cronbach's alpha for Singaporeans Acceptance of Congestion Charging (0.913). So, the overall scale is highly internally consistent.

Questionnaire	Items	Conbrach's Alpha
Singaporeans Acceptance of Congestion Charging	15	0.913

Table 4.1: Conbrach's Alpha

### 4.3 Demographic Profile of Respondents

This section discusses the demographic analysis of 190 Singaporeans. This section presented the findings about gender, ethnic, age, education level, income, and knowledge or acceptance of congestion charging. Next, the demographic profiles of respondents were recorded, analysed and simplified as shown in Table 4.2.

No.	Category	Details	Frequency (190)	Percentage (%)	
1	Gender	Male	88	46.3	
2		Female	102	53.7	
3	Race	Malay	37	19.5	
4		Chinese	99	52.1	
5		Indian	35	18.4	
6		Eurasian/Mixed	9	4.7	
7		Others	10	5.3	
8		Marital status	Single	89	46.8
9			Married	77	40.5
10	Divorced		15	7.9	
11	Widowed		9	4.7	
12	Age	18-19 years old	25	13.2	

13		20-29 years old	67	35.3
14		30-39 years old	60	31.6
15		40-49 years old	23	12.1
16		50-59 years old	12	6.3
17		>60 years old	3	1.6
18	Education	Primary School	2	1.1
19		Lower Secondary School	4	2.1
20		Secondary School	16	8.4
21		Post Sec (non tertiary)	8	4.2
22		Diploma	44	23.2
23		Professional Qualifications	26	13.7
24		University	90	47.4

25	Monthly income level	Below S\$ 1850	35	18.4
26		S\$1850-S\$2850	24	12.6
27		S\$2851-S\$3850	30	15.8
28		S\$3851-S\$4850	46	24.2
29		S\$4851-S\$5850	35	18.4
30		S\$5851-S\$6850	15	7.9
31		Above S\$6850	5	2.6

Table 4.2: Descriptive of Demographic Analysis

#### 4.3.1 Gender

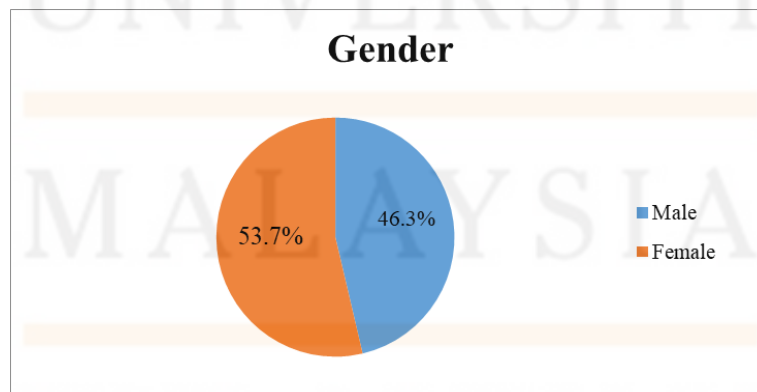


Figure 4.1: Percentage of Gender

Based on Table 4.2, most of the respondents are male with the frequency of 88 while others are female respondents with the frequency of 102. In terms of percentage according to Figure 4.1, 53.7% of the respondents are females and the other 46.3% belong to male respondents. From this data, it can be concluded that females are more accepting of congestion charging than males.

#### 4.3.2 Race

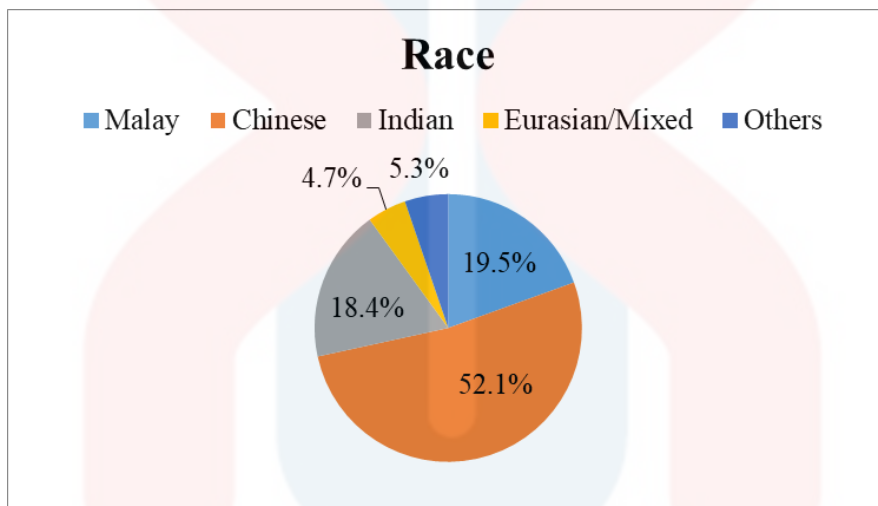


Figure 4.2: Percentage of Race

In this study, most of the respondents are Malay with the frequency of 37 respondents and percentage of 19.5%. 99 respondents with a percentage of 52.1% are Chinese followed by 35 respondents of Indian with the percentage of 18.4%. The least of the race is Eurasian or Mixed with frequency 9 and percentage 4.7%. Others of the respondents show by 10 and a percentage of 5.3%.

### 4.3.3 Marital Status

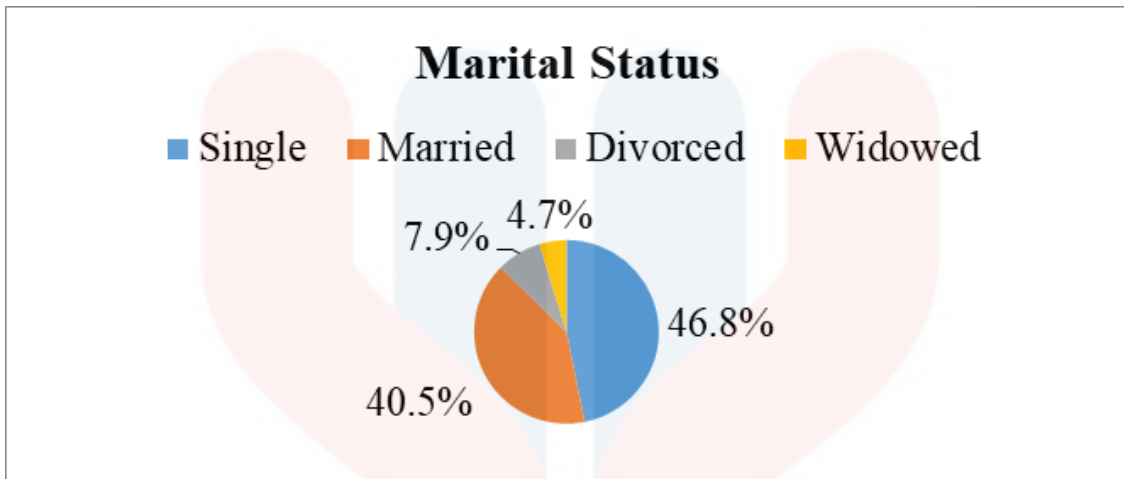


Figure 4.3: Percentage of Marital Status

Based on Figure 4.3, most of the respondents are Single with the frequency of 89 and percentage 46.8% while Married with the frequency of 77 and percentage 40.5%. In terms of percentage according to Figure 4.3, there is a frequency of 15 and 7.9% of the respondents are Divorced and the frequency of 9 and 4.7% belongs to Widowed.

### 4.3.4 Age Group

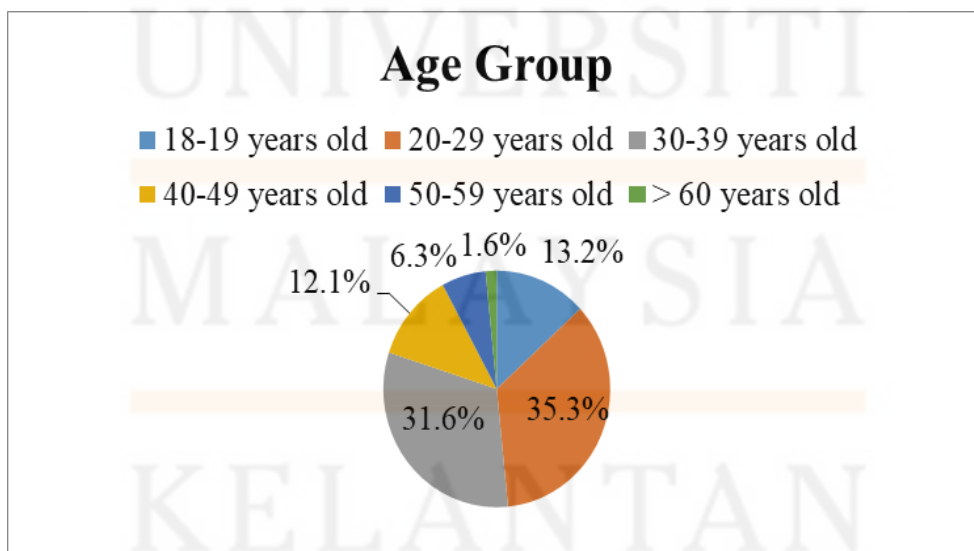


Figure 4.4: Percentage of Age



For the age category, 67 respondents are between 20-29 years old with the highest percentage, 35.3%. The second highest comes from respondents between 30-39 years old with the frequency of 60 and percentage of 31.6%. Then followed by respondents between 40-49 years old with the frequency of 23 and percentage of 12.1%, while 12 respondents with the percentage of 6.3% are aged 50-59 years old. After that, respondents between 18-19 years old with the frequency of 25 and percentage of 13.2%, while 3 respondents with the percentage of 1.6% are aged 60 and above years old.

#### 4.3.5 Educational Level

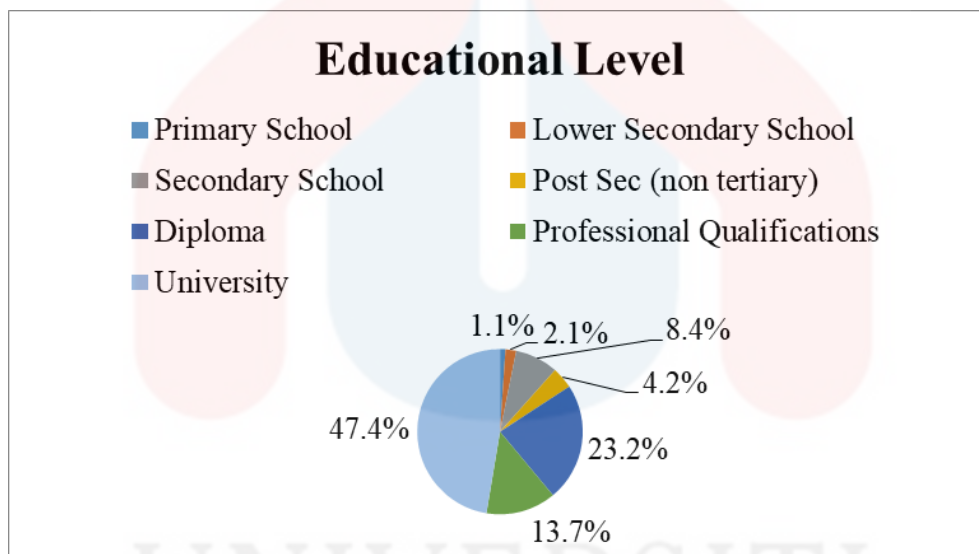


Figure 4.5: Percentage of Education Level

For the education level, the majority of respondents have the education until University level with the frequency of 90 and percentage of 47.4%. The second higher education level is 23.2% or 44 respondents are Diploma. 13.7% and 26 respondents are studying until Professional Qualifications and 8.4% and 16 respondents are from Secondary School. 4.2% and 8 respondents are studying until Post Sec (non-tertiary) and 2.1% and 4 respondents are from Lower Secondary School. Then, the least education level is Primary School with the respondents of 2 and percentage of 1.1%.

#### 4.3.6 Monthly Income Level

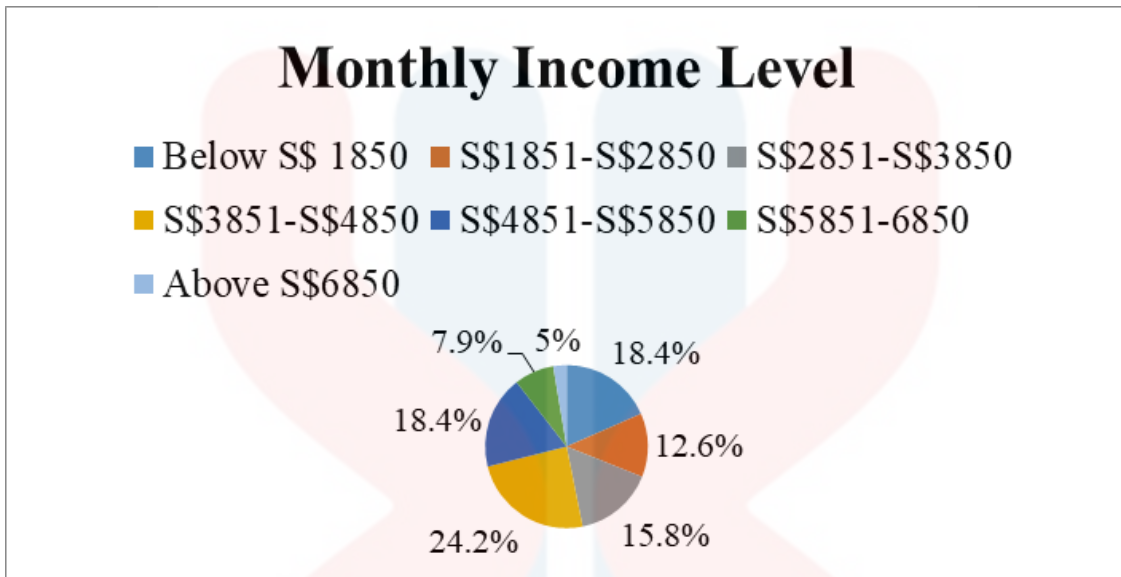


Figure 4.6: Percentage of Income

Based on Figure 4.6, the analysis has shown that the highest respondents' income S\$3851-S\$4850 is 24.2% or 46 respondents, and the second highest respondents' income below S\$1850 and S\$4851-S\$5850 was 18.4% and 35 respondents. Then, respondents have income between S\$2851-S\$3850 with the 15.8% and 30 respondents. Followers, the respondents have income between S\$1850-S\$2850 with the 12.6% and 24 respondents. After that, respondents have income between S\$5851-S\$6850 with the 7.9% and 15 respondents. Only 5 respondents or 2.6% have monthly income from S\$6850 and above.

#### 4.4 Descriptive Analysis

The researchers use the mean for each segment of the dependent variable while doing the descriptive analysis. It is to find out Singaporean acceptance of congestion charging between Malaysia and Singapore Border. Consequently, the researcher compared the means of

each question on the online questionnaire that was given to responders. There were 5 levels of means scores, based on the table of intervals and levels used to interpret mean scores. The mean scores, which range from 1.00 to 1.80, indicate that the respondents' degree of agreement with the question is very low. If the mean scores were from 1.81 to 2.60, there was a low level of mean score or the respondents disagreed with the question. Moreover, mean scores from 2.61 to 3.40 indicate there was partially agreement from respondents and the level was moderate. In addition, there was a high level of mean scores and the respondents agreed with the question as the mean scores were from 3.41 to 4.20. The mean scores between 4.21 and 5.00, on the other hand, indicate that there was a very high level of mean scores and that the respondents totally agree with the question. Table 4.3 below shows the Intervals and levels used to interpret mean scores.

Interval	Level
1.00-1.80	Very Low (Totally Disagree)
1.81-2.60	Low (Disagree)
2.61-3.40	Moderate (Partially Agree)
3.41-4.20	High (Agree)
4.21-5.00	Very High (Totally Agree)

Table 4.3: Intervals and Levels Used to Interpret Mean Scores

#### 4.4.1 Descriptive Statistics of Dependent Variable

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Mean_DV	190	1.93	4.80	3.9579	.47474
Valid N (listwise)	190				

Table 4.4: Mean and Standard Deviation

According to Table 4.4, Singaporeans' acceptance of congestion charging has a mean agreement and standard deviation of 3.9579 and 0.47474, respectively. It shows that there was a high level of mean scores and this represents the respondents agreeing with the question in the section of acceptance of congestion charging.

#### 4.4.2 Descriptive Statistics for each question on the Dependent Variable

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation

1) Do you agree to a paper-based area license for a 7 km <sup>2</sup> restricted zone only?/Adakah anda bersetuju dengan lesen kawasan berasaskan kertas untuk zon terhad 7 km <sup>2</sup> sahaja?	190	1.00	5.00	3.7842	1.05448
2) It is worth implementing the operating time at 7:30 am to 7/2 pm on weekdays/Saturday, public holidays are excluded?/Adalah patut dilaksanakan masa operasi pada 7:30 pagi hingga 7/2 malam pada hari bekerja/Sabtu, cuti umum dikecualikan?	190	1.00	5.00	3.9316	1.04934
3) I agree that tolls charging is carried out throughout the day/half day for the daily/monthly period./Saya bersetuju pengecasan tolls dilaksanakan sepanjang	190	1.00	5.00	3.8053	1.07348

hari/separuh hari untuk tempoh harian/bulanan.					
4) I agree to the congestion charge exemptions for Public transit and emergency vehicles./ Saya bersetuju dengan pengecualian caj kesesakan untuk transit awam dan kenderaan kecemasan.	190	1.00	5.00	4.1000	.98963
5) I agree that revenue allocation used for improving public transport and highway./Peruntukan hasil yang digunakan untuk meningkatkan pengangkutan awam dan lebuhraya.	190	1.00	5.00	3.9316	.97076

6) Do you have the same view about congestion charges now compared with before its introduction?/Adakah anda mempunyai pandangan yang sama mengenai caj kesesakan sekarang berbanding sebelum pengenalannya?	190	1.00	5.00	3.7737	1.00071
7) Do you think that the Malaysia congestion will result in less congestion to/from the inner city; better air quality in the inner city?/Adakah anda berfikir bahawa kesesakan di Malaysia akan menyebabkan kesesakan yang kurang ke / dari bandar dalam; kual	190	1.00	5.00	4.0211	.86653
8) The implementation of Malaysia's congestion tax is a good process./Pelaksanaan cukai kesesakan Malaysia adalah proses yang baik.	190	1.00	5.00	4.0211	1.01813

<p>9) I agree that the kilometer charge is distinguished by different levels of charges for the purpose of using different incomes./Saya bersetuju bahawa caj kilometer dibezakan oleh tahap caj yang berbeza untuk tujuan menggunakan pendapatan yang berbeza.</p>	190	1.00	5.00	3.8632	.96072
<p>10) I agree with the area price, a fixed charge is imposed on all vehicles entering, going, driving or parking on public roads within the charging zone for an unlimited time/day./Saya bersetuju dengan harga kawasan, caj tetap dikenakan ke atas semua kende</p>	190	1.00	5.00	3.9579	.96407



11) My opinion of congestion charging is mainly based on information from social media./Pendapat saya mengenai kesesakan yang dikenakan adalah berdasarkan maklumat daripada media sosial.	190	1.00	5.00	3.9263	1.04139
12) The congestion charge could effectively alleviate traffic congestion in Malaysia./Caj kesesakan itu dapat mengurangkan kesesakan lalu lintas di Malaysia dengan berkesan.	190	1.00	5.00	4.0579	.92113
13) People will use cars less because of the congestion charge./Orang ramai akan menggunakan kereta kurang kerana caj kesesakan.	190	1.00	5.00	4.0632	.96292

14) Traffic congestion has a great effect on my daily life./Kesesakan lalu lintas memberi kesan besar kepada kehidupan seharian saya.	190	1.00	5.00	3.9737	.89345
15) A policy that has been successfully implemented in foreign countries could be effective in Malaysia./Dasar yang telah berjaya dilaksanakan di negara asing boleh berkesan di Malaysia.	190	1.00	5.00	4.1579	.87669
Valid N (listwise)	190				

Table 4.5: Descriptive Statistics for each question on the Dependent Variable

Table 4.5 shows the descriptive statistics of the dependent variable in this study which is Singaporeans acceptance of congestion charging. There are 15 questions in the section of Singaporeans acceptance of congestion charging in the questionnaire. The mean scores of the first question in the section of Singaporeans acceptance of congestion charging, do you agree to a paper-based area licence for a 7 km<sup>2</sup> restricted zone only? was 3.78. Besides that, the mean scores of the question, is it worth implementing the operating time at 7:30 am to 7/2 pm on weekdays/Saturday, public holidays are excluded? was 3.93. Meanwhile, I agree that tolls charging is carried out throughout the day/half day for the daily/monthly period's mean scores was 3.80. Moreover, the fourth question in the section of Singaporeans' acceptance of

congestion charging, I agree with the congestion charge exemptions for public transit and emergency vehicles, shows the second highest mean score which is 4.10. Next, the mean scores of I agree that revenue allocation used for improving public transport and highway was 3.93. Not only that, 3.77 was the mean score of the sixth question which is do you have the same view about congestion charges now compared with before its introduction? It shows the lowest mean scores among the question of Singaporeans acceptance of congestion charging and it was also represented that the respondent agreed with the question. The mean scores of do you think that the Malaysia congestion will result in less congestion to/from the inner city; better air quality in the inner city? and the mean scores of the implementation of Malaysia's congestion tax is a good process was both 4.02. Furthermore, the mean scores of I agree that the kilometre charge is distinguished by different levels of charges for the purpose of using different incomes was 3.86. Besides that, the tenth question of the section of Singaporeans acceptance of congestion charging which is I agree with the area price, a fixed charge is imposed on all vehicles entering, going, driving or parking on public roads within the charging zone for an unlimited time/day shows the high level of mean scores, which was 3.95. Meanwhile, the mean scores in my opinion of congestion charging is mainly based on information from social media was 3.92. At the same time, the congestion charge could effectively alleviate traffic congestion in Malaysia.'s mean score was 4.05. Furthermore, the mean scores of people will use cars less because of the congestion charge was 4.06, while the question of traffic congestion has a great effect on my daily life shows a high level of mean scores which was 3.97. Last but not least, the fifth question in the section of Singaporeans acceptance of congestion charging, a policy that has been successfully implemented in foreign countries could be effective in Malaysia shows the highest mean scores which is 4.15 and it represents the very high level of mean scores and the respondents agree with this question.

#### 4.5 Validity and Reliability Test

Based on the rule of thumb by Roscoe (1975), the study was created to collect data from 180 valid samples. 190 questionnaire sets in total were received and collected by the researchers at the conclusion. As a result, the sample size for this study was 190 and Table 4.6 shows the response rate was 105%.

Sample Size (S)	Number of Respondent (N)
Target Sample	180
Actual Sample	190
Response Rate	$(190/180) \times 100\% = 105\%$

Table 4.6: Sample Size and Response Rate

##### 4.5.1 Actual Reliability Test

There were 15 questions used for dependent variables to assess Singaporeans' public opinion on congestion pricing along the Malaysia-Singapore border. Then, they were all employing the Likert scale question format.

The dependent variable reliability analysis results for this study shows in Table 4.7 below. The dependent variable is then recorded at 0.76 on Cronbach's Alpha scale. Based on Table 3.3, which is the value of Cronbach's Alpha Coefficient, indicates that Cronbach's Alpha Coefficient of acceptance of congestion charging has an acceptable association. As a result, the dependability coefficients for this investigation were accurate.

Questionnaire	Number of Items	Cronbach's Alpha	Internal Consistency
Dependent Variable			
Acceptance of congestion charging	15	0.76	Acceptable
No of respondent (N) = 190			

Table 4.7: Reliability Coefficient for each Section of Questionnaire

#### 4.6 Normality Test

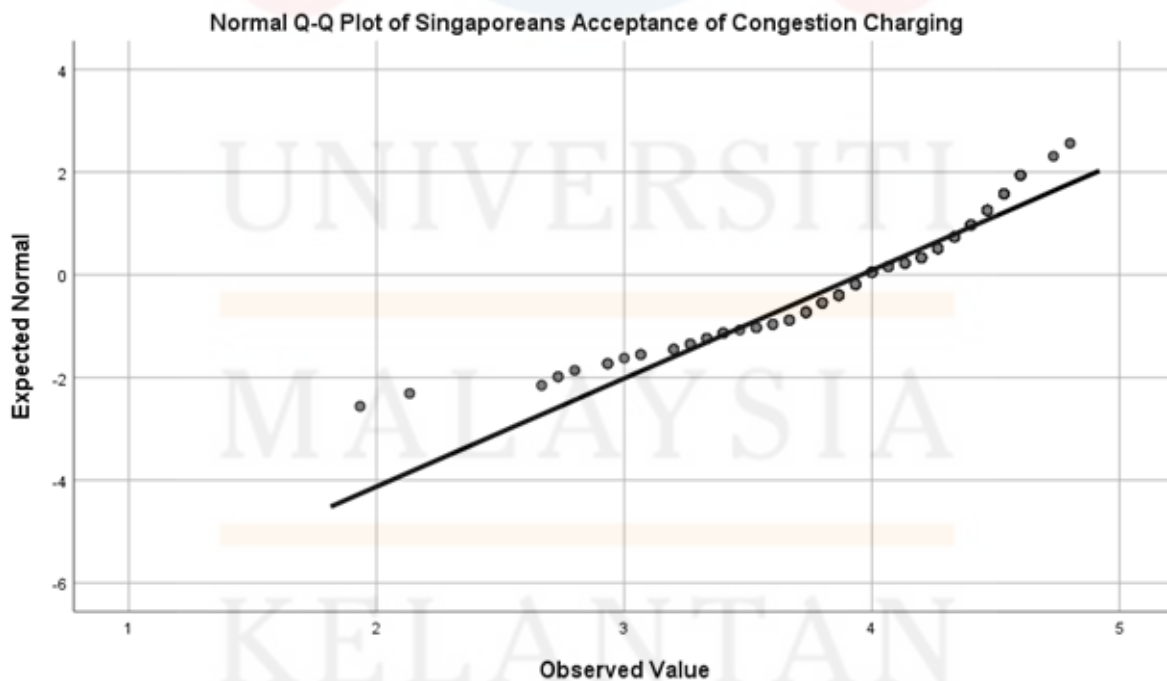


Figure 4.7: Normality Test of Singaporeans Acceptance of Congestion Charging

In order to determine normality graphically, the researchers use the output of a normal Q-Q Plot. The data points will be near the diagonal line if the data are normally distributed. The data are not normally distributed if the data points deviate from the line in a clear non-linear way. In this probability plot that is shown in Figure 4.7, the data roughly form a straight line along the line, as we can see from the typical Q-Q diagram above. The data seem to suit the normal distribution well. Data from this study are therefore normally distributed.

#### 4.7 Hypothesis Test

Correlations						
			Age	Educational	Income	Singaporeans Acceptance of Congestion Charging
Spearman's rho	Age	Correlation Coefficient	1.000	.040	.565**	.024
		Sig. (2-tailed)	.	.588	.000	.743
		N	190	190	190	190
		Education	Correlation Coefficient	.040	1.000	.290**
	Sig. (2-tailed)	.588	.	.000	.049	
	N	190	190	190	190	

	Income	Correlation	.565**	.290**	1.000	.277**
		Coefficient				
		Sig. (2-tailed)	.000	.000	.	.000
	N	190	190	190	190	
	Singaporeans Acceptance of Congestion Charging	Correlation	.024	-.143*	.277**	1.000
		Coefficient				
		Sig. (2-tailed)	.743	.049	.000	.
N		190	190	190	190	
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Table 4.8: Spearman Correlation Coefficient

#### 4.7.1 Hypothesis 1

H<sub>0</sub>: There is no significant relationship between Singaporean acceptance of congestion charging towards age between Malaysia and the Singapore border.

H<sub>1</sub>: There is a significant relationship between Singaporean acceptance of congestion charging towards age between Malaysia and the Singapore border.

Based on the Table 4.8, it can be concluded that there is a significant relationship between Singaporean acceptance of congestion charging towards age between Malaysia and the Singapore border, as the results shows ( $p=0.743$ ,  $r=0.024$ ) indicating as a very strong positive correlation between the variables.

**4.7.1 Hypothesis 2**

H<sub>0</sub>: There is no significant relationship between Singaporean acceptance of congestion charging towards education between Malaysia and the Singapore border.

H<sub>2</sub>: There is a significant relationship between Singaporean acceptance of congestion charging towards education between Malaysia and the Singapore border.

Next, according to between Singaporean acceptance of congestion charging towards education between Malaysia and the Singapore border, as the results shows (p=0.049, r=-0.143) indicating as a weak negative correlation between the variables.

**4.7.1 Hypothesis 3**

H<sub>0</sub>: There is no significant relationship between Singaporean acceptance of congestion charging towards income between Malaysia and the Singapore border.

H<sub>3</sub>: There is a significant relationship between Singaporean acceptance of congestion charging towards income between Malaysia and the Singapore border.

Moreover, based on the between Singaporean acceptance of congestion charging towards income between Malaysia and the Singapore border, as the results shows (p=0.000, r=0.277) indicating as a weak positive correlation between the variables.

**4.8 R-Square**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate



1	.411 <sup>a</sup>	.169	.155	.43628
a. Predictors: (Constant), Monthly income level, Educational level, Age group				

Table 4.9: Model Summary

The percentage of the dependent variable variation that is explained by the independent variables is represented by R Squared. Simply said, it assesses how well the model's attributes can account for the model target. Based on Table 4.9, R, the multiple correlation coefficient shows a moderate relationship between variables, which was 0.411. Besides that, the R square scores 0.169 and it represents that it shows little to no variance explained.

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.193	3	2.398	12.596	.000 <sup>b</sup>
	Residual	35.404	186	.190		
	Total	42.596	189			
a. Dependent Variable: DV name						
b. Predictors: (Constant), Monthly income level, Educational level, Age group						

Table 4.10: Anova

According to Table 4.10, the output of the ANOVA analysis and whether there is a statistically significant difference between our group means. We can see that the significance value is 0.000, which is below 0.05 alpha level. As a result, we can infer that the mean number of demographic profiles differs in a statistically significant way (age, education, income).

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.171	.146		28.578	.000	3.883	4.459
	Age group	-.140	.033	-.336	-4.251	.000	-.205	-.075
	Educational level	-.058	.023	-.181	-2.515	.013	-.104	-.013
	Monthly income level	.144	.024	.505	6.011	.000	.097	.191
a. Dependent Variable: DV name								

Table 4.11: Coefficients

From Table 4.11 above, the result shows that the P value of the age group and monthly income level is both 0.000, while the P value of the educational level is 0.013 where both of their values are less than  $\alpha$  (0.05). It indicates that age group, educational level and monthly income level are influencing Singaporeans acceptance of congestion charging.

#### **4.9 Summary of the Chapter**

This chapter uses descriptive analysis and regression analysis to analyse the results collected and generates results for further discussion.

The descriptive tests are then used to understand each data point that has been entered into the SPSS programme. Each test and analysis performed was to test the level of effectiveness of the data obtained by 190 respondents. The next chapter will discuss the main findings in more detail.

## CHAPTER 5: DISCUSSION AND CONCLUSION

### 5.1 Introduction

This chapter covers the statistical analysis summaries from the previous chapter, along with a discussion of the primary findings, study limitations, and study recommendations. In addition, a conclusion was drawn for this study project's entire chapter.

### 5.2 Key Findings and Discussion

Before distributing all questionnaires to respondents, a pilot test was done, and 30 questionnaires were issued to determine their reliability analysis. The pilot study reveals that Cronbach's Alpha Coefficient for the dependent variable, which is Singaporeans' acceptance of congestion pricing, is 0.913, indicating an exceptional strength of correlation. Therefore, the dependent variables have met the minimum value required for an acceptable reliability study, since the value must be greater than 0.6 or surpass the weak phases of the association's strength. Cronbach's Alpha Coefficient value for the dependent variable (Singaporeans' support of congestion pricing) is 0.76, based on actual data. There is evidence that Singaporean approval of congestion pricing is associated with favourable factors. Consequently, the reliability coefficients for this study were accurate.

Acceptance of congestion pricing by Singaporeans had the highest mean and standard deviation for descriptive analysis, with a mean of 3.9579 and a standard deviation of 0.47474. This indicates that respondents concur with the question posed in the section on the acceptability of congestion pricing. Primarily, the benefits of congestion pricing were observed along the major routes leading to the Malaysia-Singapore border, although traffic delay was

only marginally decreased. By this difference, we also discovered that Singaporeans' approval of congestion pricing declined in Malaysia.

Next, a correlation analysis was conducted to determine the links between all the variables in this study. The outcome of the association is shown in Table 5.1. The correlation analysis reveals a moderately favourable association between age, education level, income level, and acceptability of congestion pricing among Singaporeans. According to the hypothesis test, there is a very strong positive correlation between age and the factors, a weak negative connection between education and variables, and a weak positive correlation between income and variables.

The analysis is backed by a previous case study by Tvinnereim et al. (Tvinnereim et al., 2020), which demonstrates that this group responded positively and significantly to the introduction of congestion when viewed in isolation. This effect could be attributed to either a greater degree of flexibility in work hours among this group or a higher level of confidence in the capacity of specialists to resolve practical issues such as traffic congestion. An alternate explanation for the education effect could be that more educated persons place a greater value on time relative to money. There is a weakly positive correlation between education and income group ( $r = 0.277$ ). In the regression analysis, the influence of income is if anything, negative.

Hypothesis	Statement of hypothesis	Significant value	Correlation value	Conclusion
1	There is a significant relationship between	.000	.024	Significant accepted

	Singaporean acceptance of congestion charging towards age between Malaysia and the Singapore border.			and moderate positive correlation
2	There is a significant relationship between Singaporean acceptance of congestion charging towards education between Malaysia and the Singapore border.	.013	-.143	Significant accepted and moderate weak negative correlation
3	There is a significant relationship between Singaporean acceptance of congestion charging towards income between Malaysia and the Singapore border.	.000	.277	Significant accepted and moderate weak positive correlation

Table 5.1 Summary of Correlation

The multiple linear regression assumptions utilised in this investigation included linearity, independence, and normality. Table 5.2 provides an overview of the multiple linear regression and an analysis of the assumptions.

Assumption	Result
Linearity	Met

Independence	Met
Normality	Met

Table 5.2 Summary of Multiple Linear Regression Assumptions

Based on table 5.2, all multiple linear regression results assumptions were met. Multiplelinear regression analysis was used in this study to evaluate the final objective of the acceptance of congestion pricing by Singaporeans between the Malaysian and Singaporean borders. The summary of multiple linear regression analysis was illustrated in Table 5.3 below.

Hypothesis	Significant value	Empirical result
There is a significant relationship between Singaporean acceptance of congestion charging towards age between Malaysia and the Singapore border.	.000	Accepted
There is a significant relationship between Singaporean acceptance of congestion charging towards education between Malaysia and the Singapore border.	.013	Accepted
There is a significant relationship between Singaporean acceptance of congestion charging	.000	Accepted

towards income between Malaysia and the Singapore border.		
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Table 5.3 Summary of Multiple Linear Regression Analysis

All three hypotheses were accepted because the alpha value was less than 0.05. Therefore, it may be argued that Singaporeans' support of congestion pricing is influenced by their age, level of education, and income. All three hypotheses were accepted because the alpha value was less than 0.05. Therefore, it may be argued that Singaporeans' support of congestion pricing is influenced by their age, level of education, and income.

Age, education level, and income can enhance the dependent variable of Singaporeans' approval of congestion pricing at the Malaysia-Singapore border.

### 5.3 Implications of the Study

This research provides insight into Singaporean approval of congestion pricing between the Malaysian and Singaporean borders. The results pertain to the willingness of Singaporeans to visit or go to Malaysia by accepting a congestion fee while driving their vehicle. Thus, this study has identified several consequences that could aid the Malaysian government in increasing Singaporeans' support of congestion pricing at the Malaysian and Singapore border.

Among the independent variables that determined Singaporeans' acceptability of congestion pricing, the age group had the greatest influence, followed by monthly income and level of education. Therefore, the Malaysian government can improve the congestion fee mechanism or value that Singaporean citizens can accept. The biggest influence demographic is age group. It can be by age they have a different opinion towards of the acceptance of congestion charging. Some of them can accept it and some cannot accept it.



The independent variables' influence on demographic characteristics is observed among those with the highest degree of education, who support congestion pricing approximately one step more than the reference group, or around half a standard deviation.

This effect could be attributed to either a greater degree of flexibility in work hours among this group or a higher level of confidence in the capacity of specialists to resolve practical issues such as traffic congestion. An alternate explanation for the education effect could be that more educated persons place a greater value on time relative to money.

In addition, income has a substantial impact on Singaporeans' support of congestion pricing. Therefore, our results do not support a scenario in which wealthier individuals favour congestion pricing to enjoy unrestricted traffic flow at the expense of a little higher road toll. Our findings are consistent with those of Norheim et al. (2010), who hypothesized that wealthier individuals would be more likely to cross a road toll charging point during peak hours and hence be subject to greater expenses.

#### **5.4 Limitations of the Study**

The limitations of the study are defined as a border that surrounds the particular research that has been conducted. Some limitations were adopted in this research.

First, the major limitation encountered in pursuing this study is limited to Singaporeans who stay in Malaysia only. During this limited period, it is difficult to get respondents from Singaporeans because researchers stay in Kelantan. To complete the study, researchers only use social media such as WhatsApp, Facebook, and Twitter to distribute survey forms to Singaporean society. The researcher also identified groups and pages on Facebook to obtain data from respondents of different races.

The second limitation is there is inadequate cooperation from the respondents because not all of the respondents are cooperative and show commitment in this study. We noticed that the respondents did not think carefully while answering a question and some of them just tickled the answer without reading it properly. To improve the research in the future, the researcher has to add simple and easiest questions in questionnaires which will be distributed to respondents. It will help the respondents to answer quickly, and simple questions will not trouble them as much as long questions which are difficult to understand. This will contribute to the efficiency of the questionnaires.

Next, the limitation encountered in pursuing this study is the data collected were limited. The scope of this paper is narrowed to 200 respondents. Based on the Singaporean people who came to Malaysia, 200 people will be chosen to conduct the questionnaire. As the sample size is small, it might influence the accuracy of the result. The collection of research data is obtained through sample responses on instruments in the form of questionnaires. This sample may not be representative of the entire Singaporean population in Malaysia. However, the sample size has reached 90 percent confidence from the formula used. Besides that, there are several previous researchers whose secondary data required when doing this research is still insufficient.

### **5.5 Recommendations/Suggestions for Future Research**

For further study, since this study had only focused on Singaporeans in Malaysia, further studies should enlarge the sample size to other generations of Malaysians. This is because of the different opinions of Malaysians about congestion charging. At the same time, Malaysia can learn from the experience of other countries that have implemented congestion charging.

Therefore, this research would be better if we conduct it over a longer time to get the most quality data collection among Singaporeans people towards the congestion charging. If this research were conducted for a longer time, we believe that this research can be done wisely and have a valid result.

Next, to prevent respondents who do not give honest information, we need to increase the number of respondents so that the probability of having valid information will be increased. Through this, we need to properly select a respondent who can properly answer our questionnaire.

## **5.6 Overall Conclusion of the Study**

In this research, there are three independent variables which are age, education, and income, and one dependent variable which is acceptance of congestion charging. The researchers collected the data for this research by using a google form questionnaire. The questionnaires were distributed to 200 respondents of Singaporeans in Malaysia. The objectives of this research were to identify based on the age, education, and income of Singaporeans will affect the acceptance of congestion charging.

Based on the descriptive statistics of the independent variable in this study, the fifth question in the section on Singaporean's acceptance of congestion charging shows the highest mean score which is 4.15 and it represents a very high level of mean scores and the respondents agree with this question. The present study has confirmed that independent variables affect the dependent variables. Age, education, and income level are influencing Singaporean's acceptance of congestion charging.

From the result findings, for the age category, 67 respondents are between 20-29 years old with the highest percentage, 35.3%. while for the education level, the majority of

respondents have an education until the university level with a frequency of 90 and a percentage of 47.4%. For the income level, the analysis has shown that the highest respondents' income of S\$3851-S\$4850 is 24.2% or 46 respondents. The limitations of the study can allow researchers to offer additional recommendations to enhance the research for future studies.

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**APPENDIX A: DRAFT OF QUESTIONNAIRE**  
**QUESTIONNAIRE SURVEY ON EXPLAINING SINGAPOREANS ACCEPTANCE**  
**OF CONGESTION CHARGING: MALAYSIA AND SINGAPORE BORDER**

Dear Respondents,

We are a student of Bachelor in Entrepreneurship (Logistic and Distributive Trade) with Honors from the Faculty of Entrepreneurship Business, University Malaysia Kelantan, Kampus Kota, currently doing our group Final Year Project (FYP) in fulfilling the requirements of our degree. Study of Singaporeans Acceptance of Congestion Charging: Malaysia and Singapore Border is the topic of our current investigation. It takes less than 3 to 5 minutes to complete this questionnaire, thus your assistance is required. All information will be kept confidential, anonymous, and used only for academic purposes. We therefore really appreciate your cooperation and candour in responding to this questionnaire.

Responden yang dihormati,

Kami merupakan pelajar Ijazah Sarjana Muda Keusahawanan (Perdagangan Logistik dan Pengeedaran) dengan Kepujian daripada Fakulti Perniagaan Keusahawanan, Universiti Malaysia Kelantan, Kampus Kota, sedang menjalankan Projek Tahun Akhir (FYP) kumpulan kami dalam memenuhi keperluan ijazah kami. Kajian Penerimaan Warga Singapura terhadap Caj Kesyakan: Sempadan Malaysia dan Singapura adalah topik penyiasatan semasa kami. Ia mengambil masa kurang daripada 3 hingga 5 minit untuk melengkapkan soal selidik ini, oleh itu bantuan anda diperlukan. Semua maklumat akan dirahsiakan, tanpa nama dan digunakan hanya untuk tujuan akademik. Oleh itu, kami amat menghargai kerjasama dan kejujuran anda dalam menjawab soal selidik ini.

Regards,

LAU YAN YEE (A19A0230)

NG SIUW YIN (A19A0407)

SITI NUR AQILAH BINTI ZULKARNAIN (A19A0869)

SITI NUR ASIAH BINTI MOHD RAZALI (A19A0870)

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## SECTION A - DEMOGRAPHIC PROFILE

This section aims to gather information on respondents' background.

Instruction: Please tick (/) if the information below appropriate to yourself. Each question should have ONE answer only.

Bahagian ini bertujuan untuk mengumpul maklumat latar belakang responden.

Arahan: Sila tandakan (/) jika maklumat di bawah sesuai dengan diri anda. Setiap soalan hendaklah mempunyai SATU jawapan sahaja.

1) Gender/ Jantina	
<input type="checkbox"/>	Male / Lelaki
<input type="checkbox"/>	Female / Perempuan
2) Race / Bangsa	
<input type="checkbox"/>	Malay / Melayu
<input type="checkbox"/>	Chinese / Cina
<input type="checkbox"/>	Indian / India
<input type="checkbox"/>	Eurasian/Mixed / Eurasia/Campuran
<input type="checkbox"/>	Others / lain-lain
3) Marital status / Status perkahwinan	
<input type="checkbox"/>	Single / Bujang
<input type="checkbox"/>	Married / Berkahwin
<input type="checkbox"/>	Divorced / Berceraai
<input type="checkbox"/>	Widowed / Janda
4) Age group / Kumpulan umur	
<input type="checkbox"/>	18-19 years old / tahun
<input type="checkbox"/>	20-29 years old / tahun
<input type="checkbox"/>	30-39 years old / tahun
<input type="checkbox"/>	40-49 years old / tahun
<input type="checkbox"/>	50-59 years old / tahun
<input type="checkbox"/>	> 60 years old / tahun
5) Educational level / Tahap pendidikan	
<input type="checkbox"/>	Primary School / Sekolah Rendah
<input type="checkbox"/>	Lower Secondary School / Sekolah Menengah Rendah
<input type="checkbox"/>	Secondary School / Sekolah Menengah
<input type="checkbox"/>	Post Sec (non tertiary) / Post Sec (bukan tertiar)
<input type="checkbox"/>	Diploma / Diploma
<input type="checkbox"/>	Professional Qualifications / Kelayakan Profesional
<input type="checkbox"/>	University / Universiti
6) Monthly income level / Tahap pendapatan bulana	
<input type="checkbox"/>	Below S\$ 1850 / S\$ 1850 ke bawah
<input type="checkbox"/>	S\$ 1850 – S\$ 2850
<input type="checkbox"/>	S\$ 2851 – S\$ 3850
<input type="checkbox"/>	S\$ 3851 – S\$ 4850

	S\$ 4851 - S\$5850
	S\$ 5851 - S\$ 6850
	Above S\$ 6850 / S\$ 6850 ke atas

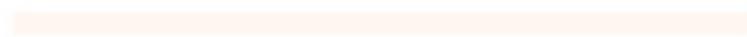
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## SELECTION B - DEPENDENT VARIABLE - PUBLIC ACCEPTENCE OF CONGESTION CHARGING

Please indicate the extent to which you agree or disagree with the following statements using 5-points Likert Scale. Please tick (/) only one point for each item.

Sila nyatakan sejauh mana anda bersetuju atau tidak bersetuju dengan pernyataan berikut menggunakan Skala Likert 5 mata. Sila tandakan (/) hanya satu mata untuk setiap item.

1	2	3	4	5
Strongly Disagree/ <i>Sangat tidak setuju</i>	Disagree/ <i>Tidak setuju</i>	Neutral	Agree/ <i>Setuju</i>	Strongly Agree/ <i>Sangat setuju</i>

No	Statements	1	2	3	4	5
1	Do you agree to a paper-based area license for a 7 km <sup>2</sup> restricted zone only? /Adakah anda bersetuju dengan lesen kawasan berasaskan kertas untuk zon terhad 7 km <sup>2</sup> sahaja?					
2	It is worth implementing the operating time at 7:30 am to 7/2 pm on weekdays/Saturday, public holidays are excluded?/Adalah patut dilaksanakan masa operasi pada 7:30 pagi hingga 7/2 malam pada hari bekerja/Sabtu, cuti umum dikecualikan?					
3	I agree that tolls charging is carried out throughout the day/half day for the daily/monthly period. /Saya bersetuju pengecasan tolls dilaksanakan sepanjang hari/separuh hari untuk tempoh harian/bulanan.					
4	I agree to the congestion charge exemptions for Public transit and emergency vehicles. / Saya bersetuju dengan pengecualian caj kesesakan untuk transit awam dan kenderaan kecemasan.					
5	I agree that revenue allocation used for improving public transport and highway./Peruntukan hasil yang digunakan untuk meningkatkan pengangkutan awam dan lebuh raya.					
6	Do you have the same view about congestion charges now compared with before its introduction?/Adakah anda mempunyai pandangan yang sama mengenai caj kesesakan sekarang berbanding sebelum pengenalannya?					
7	Do you think that the Malaysia congestion will result in less congestion to/from the inner city; better air quality in the inner city?/Adakah anda berfikir bahawa kesesakan di Malaysia akan menyebabkan kesesakan yang kurang ke / dari bandar dalam; kualiti udara yang lebih baik di bandar dalaman?					

8	The implementation of Malaysia's congestion tax is a good process./Pelaksanaan cukai kesesakan Malaysia adalah proses yang baik.					
9	I agree that the kilometer charge is distinguished by different levels of charges for the purpose of using different incomes./Saya bersetuju bahawa caj kilometer dibezakan oleh tahap caj yang berbeza untuk tujuan menggunakan pendapatan yang berbeza.					
10	I agree with the area price, a fixed charge is imposed on all vehicles entering, going, driving or parking on public roads within the charging zone for an unlimited time/day./Saya bersetuju dengan harga kawasan, caj tetap dikenakan ke atas semua kenderaan yang memasuki, pergi, memandu atau meletak kenderaan di jalan awam di dalam zon pengecasan untuk masa/hari tanpa had.					
11	My opinion of congestion charging is mainly based on information from social media./Pendapat saya mengenai kesesakan yang dikenakan adalah berdasarkan maklumat daripada media sosial.					
12	The congestion charge could effectively alleviate traffic congestion in Malaysia./Caj kesesakan itu dapat mengurangkan kesesakan lalu lintas di Malaysia dengan berkesan.					
13	People will use cars less because of the congestion charge./Orang ramai akan menggunakan kereta kurang kerana caj kesesakan.					
14	Traffic congestion has a great effect on my daily life./Kesesakan lalu lintas memberi kesan besar kepada kehidupan seharian saya.					
15	A policy that has been successfully implemented in foreign countries could be effective in Malaysia./Dasar yang telah berjaya dilaksanakan di negara asing boleh berkesan di Malaysia.					

**THANK YOU  
TERIMA KASIH**

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## APPENDIX B: GANTT CHART

Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Selection of Research Title A) Discussion with supervisor B)Collect information from journal, books and past thesis.														
Writing Research Proposal														
Submission Proposal to Supervisor and do the Correction After Checking														
Research Proposal Presentation A) Presentation to supervisor and examiner														
Questionnaire Distribution														
Actual Data Collection														
Data Analysis														
Discussion of Findings														
Conclusion / Final Touch-up														
Multidisciplinary Research on The Entrepreneurship and Business E-Colloquium 2022/2023														