A STUDY ON CONSUMER ADOPTION OF RIDE-HAILING APPS IN MALAYSIA

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ABSTRACT
The application of Ride-Hailing Apps in the market have created a new topic for debate and discussion in Malaysia. This new and effective way of providing services have made it easy and convenient for both drivers and consumers to come to a mutual agreement before the service is acquired. This study was initiated to investigate the factors that affect the consumer adoption of Ride-Hailing Apps in Malaysia. With the use of a survey questionnaire, 220 targeted respondents in Malaysia provided valuable feedback. Data analysis results showed that perceived usefulness, subjective norms, perceived risk and perceived playfulness have significant relationship towards consumer adoption of Ride-Hailing Apps in Malaysia. This study benefits the service provider to be more competitive in this industry by understanding the needs and concerns of consumers when they adopt the use of Ride-Hailing Apps.

Keywords: consumer adoption; Ride-Hailing Apps; Malaysia.

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1. INTRODUCTION
In the new era of globalization, the technological advancement has improved the social advancement and enhancing the quality of life. Most of the people are having their own mobile devices, which is internet accessible. The popularity of mobile technology has
increased the need and demand of smartphone as it is getting convenient and it made world wide get connected. Mobile application or for some people it might call "mobile app" is a software application running in the smartphone. If we were to compare the technology in the past and today's technology, downloading a ringtone from mobile devices is not exciting anymore. This is because the advancement of technology allows every single device holder to access to plenty of mobile applications like games, calculators, photos and video editing applications, etc. With the advancement of mobile technology, our life is getting easier and it is all on our finger tips. It is getting common now that one can book short-term accommodation like hotel room, reserving a table of a restaurant or even booking a transportation service like taxi service within a few presses on mobile app. In the past, the passengers need to go to the roadside for calling taxi, for now they can only press a button for calling taxi. Currently, the most popular companies in the market for provide ride-hailing platform to the customers are Uber and Grab. These companies are all offering the same benefit to their customers by linking the customers with the drivers through mobile phone applications. These mobile applications provided the platform to merge the demand with the correct of supply, which it is way more effective compare to those day. The Ride-Hailing Apps can be downloaded from iTunes or Play Store. All that consumers have to do once they have the application on their smartphone are register themselves as an application user, request for the services and pay for the services.

With the rapid development in mobile internet, the launched of Ride-Hailing App has met the requirements of intelligent transportation. With the use of Ride-Hailing Apps, travelers can helpfully discharge taxi data through cellular telephone and the data will be sending to all the service provider drivers who utilize the driver terminal of the apps. The use of Ride-Hailing Apps has diminished the asymmetry amongst travelers and drivers and this has enhanced the proficiency of calling a taxi [1]. Ride-Hailing Apps prepared a platform where consumer can inquire for taxi service through mobile devices and the service inquiry will be sent to taxi drivers who happen to be at the area or nearby the area. Consumer can always read driver’s profile before buying the service, this is to make sure all the drivers have a legal license or permit to provide the service. For some of the place, transits service is often infrequent and inflexible and this has actually caused the inconvenience for those who are relaying on public
transports to travel from place to place. Therefore, the appearance of Ride-Hailing Apps has created a platform, where all the taxi drivers and consumers can easily meet the demand and the supply of the services. Instead of giving a service-inquire-call to inquire the service or waiting for available taxi drivers passing by, with the existence of the Ride-Hailing Apps, consumers will only need a few presses on the mobile devices to inquire the service. This actually increase the convenience and the effectiveness of both drivers and consumers in the industry.

Therefore, the objective of doing this research is to identify the reasons that affect the willingness of the consumers to adopt Ride-Hailing Apps. Besides that, this research also serves the purpose to improve effectiveness of the service providing companies as well as to help the traditional service provider to be more effective and competitive.

1.1. Behavioural Adoption

Adoption is an act of taking something as our own and whether the customer willing to purchase the products or services. Theory of Acceptance Model (TAM), Innovation Diffusion Theory (IDT) and Theory of Planned Behavior (TPB) are known as the most well-known research models that study on the user adoption of new technologies and products. The relationship between attitude, intention and behavior in Theory of Reason Action (TRA) and TPB lies the reason that people are contemplated creatures and that they will experience the way toward thinking by assessing different ideal and unfavorable emotions to decide. In any case, in [2] contended that in spite of the fact that people are contemplated being, this procedure of thinking and assessment prompting demeanor arrangement requires psychological exertion and time which is frequently unrealistic, in actuality, choices and inclinations. Choices are more natural and regularly shaped rapidly on the premise of restricted data accessible in a given circumstance. So that, choices rely on upon different causal variables that are both general and conduct particular [3].

Adoption process theory may give important understanding to building a hypothetical system. Inside this exploration stream, models have been created to think about the acknowledgment of new items, thoughts and practices. Early applications have concentrated on agriculturist's reception of ranch practices [4-7], educational system's acknowledgment of new practices [8] and doctors' acknowledgment of new medications [9]. Several more recent observational
studies have approved reception hypothesis in an extensive variety of items [10-13]. According to [14], the create of TRA has speculated that a problem is by the prediction of a person's intention to engage in a given behavior. The TRA proposes that the consumer behavior is dictated by subjective norm and attitude towards behavior in question and behavioral intention [15].

1.2. Perceived Usefulness
Perceived usefulness happened when a person believes that using a particular system would enhance his or her level of performance. Technology Acceptance Model (TAM) that created by [16] is an adaptation of the Theory of Reasoned Action (TRA) by [14]. In [16] created TAM to explain about computer-usage behavior. Based on Davis’s research, he found that the factors affecting attitude towards a technology is perceived usefulness, users’ behavior intention to the technology will be affected. According to their usefulness is a subjective probability, use this technology to improve the way users can complete. Perceived usefulness (PU) refers to a person believes that using a particular system would improve one’s work performance [16]. TAM has become a widely used model for predicting the acceptance and use of information systems and has as of late been connected to anticipate web reception [17]. The previous studies result shows that the relationship between perceived usefulness and adoption is significant.

H1: There is a significant relationship between perceived usefulness and adoption of Ride-Hailing Apps.

1.3. Subjective Norms
Subjective norm is intended to predict behavior, which in turn, prediction of actual behavior. In [18] defined that subjective norms is considered to be the perceived pressure imposed by others such as neighbor, friends, peers and others that perform the behavior of interest and such action have either directly or indirectly influence on respondent’s behavior. Subjective norm is people think that most people who are very important to him that he should or should not have a problem to perform actions. In [19] said friends, family members and colleagues of the subjective norms have a positive impact, personal purchases on the Internet. It also proven from [20], he considered that significant subjective norms on the use of e-commerce plans but less than the other variables. The previous studies result shows that the relationship between
perceived subjective norms and adoption is significant.

H$_2$: There is a significant relationship between subjective norms and adoption of Ride-Hailing Apps.

### 1.4. Perceived Risk

Perceived risk is to purchase items in uncertainly and most of them are expensive items such as cars, houses and computers. Each time the customer purchases the product, he or she has some doubts about the product especially for those high price products.

Since 1960s, the consumers’ behavior can be used to explain the theory of perceived risk. There are many research have examined the influence of perceived on traditional consumer decision making [21]. There are different types of consumers’ perceived risk that guaranteed by researches, which shift as indicated by the product and service [22]. There two type of risk will face when using the implicit uncertainty global infrastructure for internet banking are security/privacy risk and financial risk. For the security/privacy risk refers to potential loss due to internet fraud, hacker intrusion, and privacy information lost. Financial risk refers to the possibility of monetary loss, transaction error, or abuse of the e-mail account [17]. Some customers are worrying about losing money, while performing transactions or transferring money over the internet [23]. So, this study takes perceived risk as a negative factor to predict customers’ behavior intention of internet banking adoption [17]. The previous studies result shows that the relationship between perceived risk and adoption is significant.

H$_3$: There is a significant relationship between perceived risk and adoption of Ride-Hailing Apps.

### 1.5. Perceived Playfulness

Playfulness is a complex variable, it includes personal pleasure and mental stimulation and interest [24]. Perceived playfulness is a part of TAM, in [25] suggest to people fully utilize the internet. Internet not only use for the utilitarian purpose also can use for the leisure. In particular, the interests and technology is defined as an individual’s tendency to spontaneous interaction, creativity and imagination [26]. It has been widely integrated into TAM model as a condition directly affects extrinsic motivation. Users are not always rational or logical and emotional playing a user to accept a particular one of the often overlooked role [27]. They have come up with three different but related ways, including research in this technology,
especially in the TAM model: perception of enjoyment, entertainment flow and perception. The extent to which sense enjoyment is “use a specific system activity is considered to be in the enjoyment of their rights, in addition to any performance consequences of use from the system” [28]. Flow theory emphasizes the particular context to explain human motivation function, rather than individual differences and as long as it is consensus in the measurement process, playfulness is the most widely used to measure the concept [29]. Computer playfulness have been defined as “spontaneous cognitive micro-computer interaction degree” [26]. The previous studies result shows that the relationship between perceived playfulness and adoption is significant.

H4: There is a significant relationship between perceived playfulness and adoption of Ride-Hailing Apps.

1.6. Perceived Price Level

Perceived price level to determine a fair price, consumers can be based on the price to judge the price value relative to other relevant prices, (i.e. those offered by competitors or paid by other customers) and the consumer will also compare the price with other competitor. The seller also practices the fairness of the price-setting to be more competitive to others competitor. In other words, some consumers use procedural justice judgments by the results of a fair price (offer price). For example, some consumers assume that higher prices equal the better quality of the product. In the market, to provide pricing information such as competitor's prices, advertising rates and the prices paid by others, more readily available than the means used to set prices. Therefore, transparency of price transparency in the pricing. Prices provided by the representative of prices and price-setting practices. In any case, firms might be hesitant to report cost increments since clients all around lean toward a lower cost and thoughtfulness regarding the cost permits clients to scrutinize another the price of the product and service. In the age of social media, such a declaration could trigger a wider range of consumer cost-conscious approach. These authors found that social media traffic soared, when Apple announced the iPad or iPad2 pricing for the latest prices [30]. Previous studies showed that the relationship between perceived price level and adoption is significant.

H5: There is a significant relationship between perceived price level and adoption of Ride-Hailing Apps.
2. METHODOLOGY

The conceptual framework of this study was adopted from [1]. The conceptual framework is formed by one dependent variable which is behavioural adoption and five independent variables which are perceived usefulness, subjective norms, perceived risk, perceived playfulness and perceived price level. A set of questionnaires that consists of the measurement items which adopted from [1, 16, 31-32] was distributed to 220 respondents for the data collection purpose.

Reliability analysis and multiple linear regression analysis were being employed in this study for the data analysis purpose. The reliability analysis result was listed in Table 1. The Cronbach values for all the variables are ranged from 0.714 to 0.898, which are categorized at acceptable level where all the values are above 0.7.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived usefulness</td>
<td>0.800</td>
</tr>
<tr>
<td>Subjective norm</td>
<td>0.819</td>
</tr>
<tr>
<td>Perceived risk</td>
<td>0.865</td>
</tr>
<tr>
<td>Perceived playfulness</td>
<td>0.898</td>
</tr>
<tr>
<td>Perceived price level</td>
<td>0.714</td>
</tr>
<tr>
<td>Adoption</td>
<td>0.847</td>
</tr>
</tbody>
</table>

3. RESULTS AND DISCUSSION

There are 82 male respondents and 138 female respondents participated in this study. The highest respond age group is 18-21 in this survey, which cover 50% of the total number of participants. Moreover, in the ethnicity, the most number of respondents in this survey are Chinese (70%), the second is Indian (16.8%) and followed by Malay (13.2%). There are 115 respondents in this study do no used Ride-Hailing Apps before and the rest of 105 respondents have used Ride-Hailing Apps.

The multiple regression analysis result showed that 66% of total variation in behavioral adoption can be explained by all the five independent variables. Furthermore, perceived
usefulness, perceived subjective norms, perceived risk and perceived playfulness showed significant relationship towards consumers’ adoption of Ride-Hailing Apps as their p-value are less than 0.05. This study provided the same result with the previous study and the finding indicated that the consumer really concerned about the usefulness, subjective norms, risk and playfulness when they willing to adopt Ride-Hailing Apps. In previous studies, perceived price level are direct affects consumers’ adoption of Ride-Hailing Apps. However, the analysis result of this study showed that there is no significant relationship between perceived price level and adoption of Ride-Hailing Apps as the p-value is 0.627 which is greater than 0.05. This finding showed that respondents in this study are not really care about the price if the service provider provide good service and satisfy the consumers’ needs and wants, the consumers are willing to pay good service with a higher price.

<table>
<thead>
<tr>
<th>Variable</th>
<th>t-Value</th>
<th>Sig.</th>
<th>Hypothesis Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived usefulness</td>
<td>6.189</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Subjective norm</td>
<td>3.263</td>
<td>0.001</td>
<td>Supported</td>
</tr>
<tr>
<td>Perceived risk</td>
<td>-2.095</td>
<td>0.037</td>
<td>Supported</td>
</tr>
<tr>
<td>Perceived playfulness</td>
<td>5.903</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Perceived price level</td>
<td>0.486</td>
<td>0.627</td>
<td>Not supported</td>
</tr>
</tbody>
</table>

$R^2 = 0.660$

$\alpha = 0.05$

4. CONCLUSION

This research objective is to identify the relationship between perceived usefulness, perceived subjective norms, perceived risk, perceived playfulness and perceived price level with consumer adoption of Ride-Hailing Apps. In a nutshell, this study has advanced our understanding on the mechanisms underlying user adoption of Ride-Hailing Apps. As an advanced and innovative mobile commerce application, the adoption behavior of Ride-Hailing Apps depends on many factors. Results shown that perceived usefulness, perceived subjective norms, perceived risk, perceived playfulness and perceived price level
are key factors which affects consumer adoption toward Ride-Hailing Apps. Besides that, results also showed that perceived price level is not a consistent and powerful predictor of consumer’s adoption behavior. In order to have a better understanding on consumer adoption of ride hailing apps in Malaysia, it is suggested that future research can be done on the comparative studies between the consumer who has adopt the apps and consumer who has never adopt the apps.

5. REFERENCES

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