

Passengers' Attitudes to the Service items of Jeepneys in Metro Manila by Different Lifestyles

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Abstract: This study aims to clarify the attitudes of jeepney passengers in Metro Manila to clarify the perceptions towards the different perspectives of the levels of services, not only fare or time but also security and familiarity, to clarify the behavioral intentions under the situations that could be occurred in future, and to compare the perceptions and behavioral intentions among different lifestyles of passengers. The definition of lifestyle in this study is the one that is derived from personal conditions such as ways of thinking and sense of value. Most paratransit modes in developing countries, same as jeepneys, are operated by flexible operation with midsize vehicles, which can meet the specific needs of the passengers, however, these characteristics can be hardly identified only by common quantitative and objective indices, such as amount of fares, travel time or waiting time. This study focuses people's attitudes which are asked by perceptions and behavioral intentions based on the social-psychological approach for evaluating paratransit modes. Perceptions and behavioral intentions of passengers are measured by interview based questionnaire survey considering behavioral background and lifestyles of the respondents.

Keywords: Paratransit, Jeepney, Perception, Life Style

1. INTRODUCTION

1.1 Background of the Study

A Jeepney, routed paratransit in the Philippines, is within a drastically changing context in Metro Manila, the Philippines. This includes the introduction of LRT and MRT from 1984, the development of transit terminals by private shopping malls, and the increasing popularity of megataxis that provides point-to-point express services by midsize air-conditioned vans. This kind of changes will be continuing due to the relatively faster economic growth particularly in developing countries. Although right after the World War II jeepneys used to cover whole city areas either major arterial roads or narrow community roads, their role is now in a transition period because of the changes mentioned above. Paratransits in developing countries play a great role towards informal sector not only as their transportation modes but also as the creation of employment, however, most of them is now facing similar situations. Hence it is important to determine new roles of these modes in a strategic transportation planning to maximize their advantages. It is also necessary to slow down the fast increasing and often excess use of private modes

Most paratransit modes in developing countries, same as jeepneys, are operated with

midsize vehicles, which can meet the specific needs of the passengers. For example, such kind of midsize vehicles can enter narrower streets and they can stop wherever the passengers might require. However these characteristics can be hardly identified only by common quantitative indices, such as fares, travel time or waiting time. Hence attitudes which are asked by perceptions and behavioral intentions based on the social-psychological approach should be included in the questionnaires as compensation to the quantitative indices. As perceptions and behavioral intentions of passengers are measured by the social-psychological approach, a personal-based analysis is required to identify the behavioral background and right here lifestyles are considered. The definition of lifestyle in this study is the one that is derived from personal conditions such as ways of thinking and sense of value and that is the potential factors for using transport modes such as private car and public transport.

1.2 Objectives

This study aims to clarify the attitudes of jeepney passengers by a social-psychological approach, especially for the following objectives:

- 1) To clarify the perceptions towards the different perspectives of the levels of services, not only fare or time but also security and familiarity etc.;
- 2) To clarify the behavioral intentions under the situations that could be occurred in the future; and,
- 3) To compare the perceptions and behavioral intentions among different lifestyles of passengers.

2. LITERATURE REVIEW

Traditional random utility framework has been used for estimating the demand in transportation planning, however, this framework is supposed that all individuals are identical. To compensate this kind of contradiction, attitudinal theory been discussed since 1960s. Main concept of attitudinal theory is that the perception is one of the factors which determine his/her travel behaviors, and individuals have different lifestyles.

Ajzen (2009) has focused peoples' attitudes and the change of behaviors. Studies treating attitudinal theory in the transport field mainly attempt to clarify the causality between perceptions and behaviors or compare the characteristics among different lifestyles. For example, Popuri et al. attempted to consider the perceptual indices into binary logistic regression model and clarified that goodness-of-fit of the choice model is higher (it means that there is at least causality between perceptions and behaviors), or Murray et al. clarified the differences of prejudice (differences of lifestyles) to public transportation by comparing three regions.

While above studies focus on the cases in developed countries, this kind of studies are not popular in the case of developing countries. Joewono and Kubota clarified the causality between perceptions and behaviors towards paratransit users and compared the characteristics by students and non-students. Susilo et al. divided into 7 clusters by different perceptions towards transportation policies (but not towards specific transportation mode such as paratransits). Choocharukul and Van focused peoples' intention of private car use in developing countries by applying attitude and perception to car and public transport.

3. ENVIRONMENT SURROUNDING THE JEEPNEYS

3.1 Changes of Roles among Public Transportation Modes

In Metro Manila, main urban public transportation modes are buses, LRT/MRT, jeepneys, megataxis, tricycles and taxis. Jeepney passengers can alight wherever they want along the route. Megataxis, on the other hand, provide basically point-to-point express services by air-conditioned van. Tricycles are demand based paratransit mainly cover within limited neighborhood areas.

LRT Line 3 and most of the bus routes in Metro Manila operate along EDSA (one of the main ring road in Metro Manila). Jeepneys are prohibited to operate along EDSA so that jeepneys and megataxi complement these modes, outside and inside EDSA. The number and route of the megataxi, some of which operate in the same route as jeepneys, has been increased so that people start to use not only jeepneys but also megataxi in recent years.

3.2 Jeepney Terminals

Jeepney terminals can be divided into mainly three types. One uses just a roadside space without specific facilities for passengers. Second is a terminal located off-street without specific facilities. Third one is a terminal which is developed with facilities such as shelters, information boards, bays etc.. The second one, in general, has been used for decades and is managed mostly by the jeepney associations, however, the third one, which has appeared in recent years mostly located besides large shopping malls, is planned and developed by private commercial mall developers. The reason why the shopping mall developers have developed terminals is to obtain the customers of lower and middle incomes who mainly use the public transportation modes. Most of them provide spaces for both jeepneys and megataxis. Some of such terminals also work as well-for transfer points to LRT/MRT and buses as well as to another jeepney and megataxi routes. The total number of operating jeepneys is 48,366, and the number of jeepney routes is 641 in 2006, which is much more than those of buses (the 2,633 operating buses and the 163 bus routes) in Metro Manila. For this reason, jeepneys have a potential to be used as feeder systems to the LRT/MRT or bus systems, and the terminals would become to play an important role of connecting them.

4. QUESTIONNAIRE DESIGN AND SURVEY CONDUCTION

Three categories of questions regarding attitudes are designed in the questionnaire: perceptions towards levels of service including quantitative indices (ex. fare, time) and qualitative indices (ex. security, familiarity), lifestyles showing the personal way of thinking or sense of value which help to understand more detailed background of attitudes, and behavioral intentions under the specific current and hypothetical situations which reflect the former or current roles of jeepneys and possibility to be taken place by other travel modes (Table 1). The surveys were conducted by the students of University of the Philippines, Diliman. 290 replies were collected through the personal interview surveys to the jeepney passengers that were conducted at three jeepney terminals in Metro Manila; SM North (Quezon City) (Fig. 1), Shaw Boulevard LRT Line 3 station (Pasig City) and a certain jeepney terminal in Manila City (Table 2). These places are typical public transport terminals in different locations. SM North, located at the LRT line 3 and line 1 terminal and also the public transport terminal of more than 30 routes of jeepney and megataxi, establish paratransit terminal and is a big transfer point of public transport for connecting suburban area of metro Manila. Shaw Boulevard LRT Line 3 station is located just next to several shopping malls. A

certain jeepney terminal in Manila City is located in the down town of Manila located many small shops and market.

Table 1. Items of the questionnaire (1)

	Questions	Index
Perceptions towards levels of service	Q.1 Dangerous ↔ Safe	Semantic Differential Method (five-point Likert scales)
	Q.2 Stressed ↔ Relaxed	
	Q.3 Disorder ↔ In order	
	Q.4 Noisy ↔ Quiet	
	Q.5 Uncertain ↔ Certain	
	Q.6 Unfamiliar ↔ Familiar	
	Q.7 Busy ↔ Calm	
	Q.8 Dirty ↔ Clean	
	Q.9 Slow ↔ Fast	
	Q.10 Cheap ↔ Expensive	
	Q.11 Vacant ↔ Crowded	
	Q.12 Formal ↔ Easy	
	Q.13 Poor ↔ Elegant	
	Q.14 Inconvenient ↔ Convenient	
	Q.15 Uncomfortable ↔ Comfortable	
Lifestyles	Q.16 It is cool to own a car	Four-point scales
	Q.17 I try to avoid being near to unfamiliar people	
	Q.18 I like something new and different	
	Q.19 I appreciate old things	
	Q.20 I care more about myself than the others	
	Q.21 I cannot trust stranger so much	
	Q.22 Shorter travel time is the priority	
	Q.23 Cheaper fare is the priority	
	Q.24 I hate an uncomfortable ride	
	Q.25 I hate to wait without knowing the end	
Q.26 Safety is most important	Strongly disagree,	
Behavioral intentions	Q.27 It is acceptable to use the jeepneys for short trips	Somewhat disagree,
	Q.28 For long trips, I would avoid using the jeepneys if possible	Strongly agree
	Q.29 In the night time, I do not want to use the jeepneys alone	
	Q.30 I would avoid using the jeepneys when raining if possible	
	Q.31 When the jeepneys do not drop me off at a walkable place to the destination, I would avoid using them if possible	
	Q.32 Because I have to wait for a long time, I would avoid using the jeepneys in the peak-time if possible	
	Q.33 When I have to wait for a long time to transfer to jeepneys, I would avoid using the jeepneys if possible	
	Q.34 For long trips, I try to use air-conditioned transportation mode	
	Q.35 If I can, I would avoid using the jeepneys in any case	
	Q.36 Even if I own a car, I would use the jeepneys in some cases	



Figure 1: Jeepneys at the public transport terminal located in SM North

Table 2: Details of the personal interview survey

	SM North	Shaw Blv.	Manila city
Date	9th and 10th Dec. 2010 (Thu, Fri)	8th, 9th and 10th Dec. 2010 (Wed, Thu, Fri)	1st, 2nd and 3rd Dec., 2010 (Wed, Thu, Fri)
No. of collected samples	100	100	99
No. of analyzed samples	97	99	94

The number of collected samples and analyzed samples are shown in Table 2. Females are the 58% of the samples, and 87% of the respondents are 18 to 60 years old.

5. ATTITUDES OF JEEPNEY PASSENGERS

5.1 Perceptions towards Levels of Service

Figure 2 shows the average values of replies to the questions describing the perceptions of jeepney passengers towards different levels of service (LOS) (15 items). Respondents tend to consider “Familiar”, “Easy” or “Cheap” as the advantages of jeepneys, although they tend to consider “Noisy”, “Dirty” or “Dangerous” as the disadvantages.

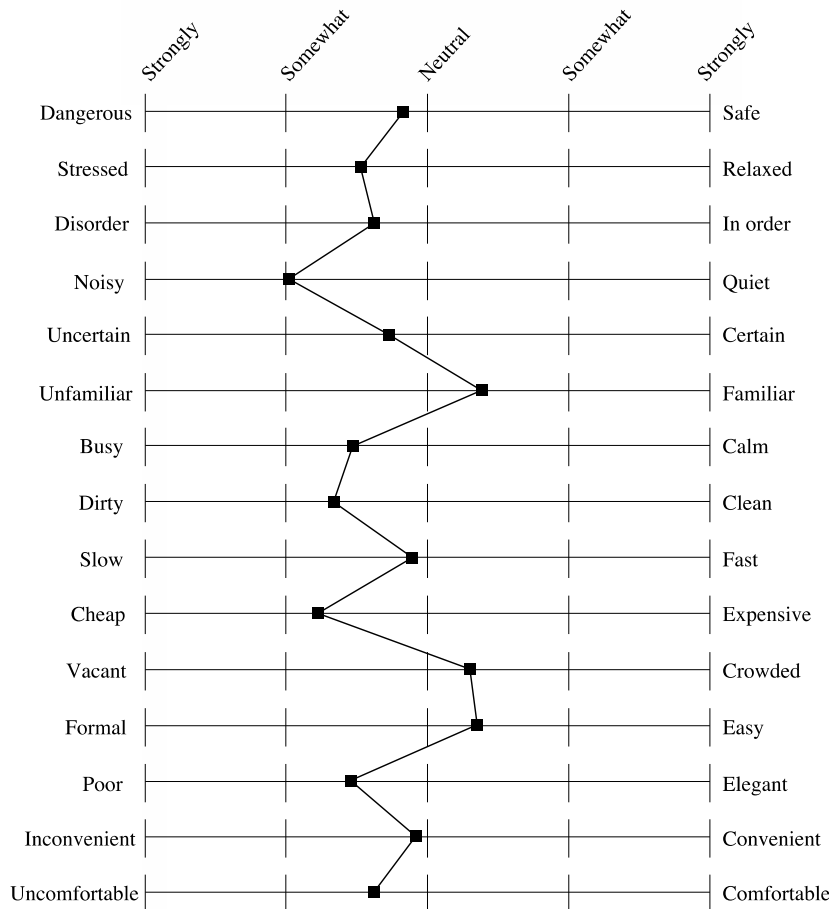


Figure 2: Passengers' perceptions of the jeepney LOS

Also “poor” “stressed” and “disorder” as negative images are relevant to the jeepneys,

however, the average score of them are not so critical: between “somewhat” to “neutral”. Index related to level of services such as “Convenient/Inconvenient”, “Certain/Uncertain” and “Fast/Slow” have slight negative perception, but not so remarkable. Perception of the jeepneys is generally not so positive but not so negative.

5.2 Behavioral Intentions under Some Specific Situations

Figure 3 shows the behavioral intentions towards jeepney usage under 10 specific situations, in order to analyze the difference between different situations. Respondents tend to think that it is acceptable to use the jeepneys for “short trip”, and they tend to avoid using jeepneys for “long trips” and “trips at night”. “*Longer time of transfer at peak time*” also would be an important factor of avoiding the use of jeepneys (about 76% of the respondents strongly or somewhat agree). It is remarkable result that more than 70% of the respondents strongly agree or somewhat agree that “*Even if I own a car, I would use the jeepneys in some cases*”. This shows that jeepneys still has large potential as an urban transport by its convenience even if people percept it a little bit negative.

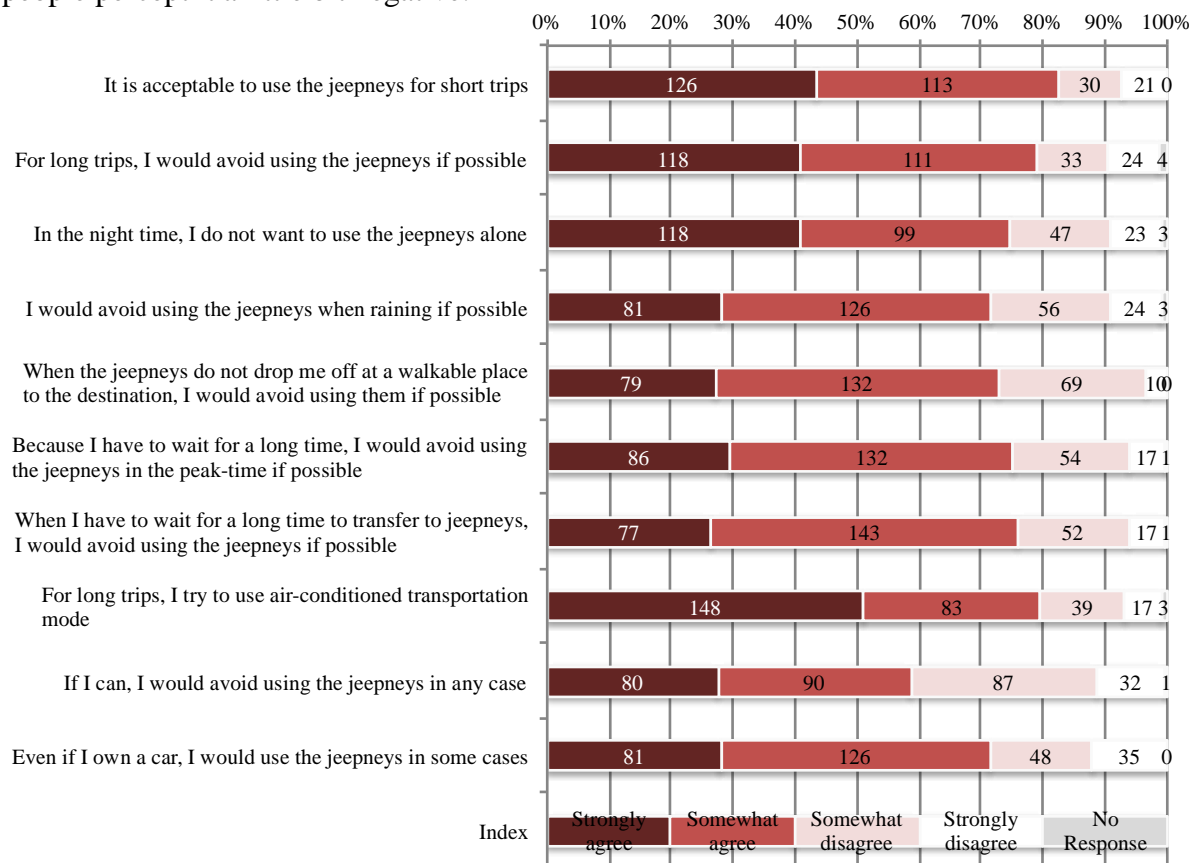


Figure 3: Behavioral intentions of the jeepneys

6. COMPARISONS OF PERCEPTIONS AND BEHAVIORAL INTENTIONS BY DIFFERENT LIFESTYLES

6.1 Classification of lifestyles

In order to classify the respondents into different lifestyles, factor analysis is carried on to the

questions of lifestyles. Table 3 is the factor matrix of this analysis and each item is arranged based on the factor loading more than 0.400. Two factors are extracted named as: 1) *service oriented*, and 2) *car oriented*. From the factor scores, respondents are divided into four groups of their lifestyle: 1) *both car and service oriented group*, 2) *service oriented group*, 3) *car oriented group*, and 4) *neither car nor service oriented group* (Table 4).

Table 3: Factor loading matrix of lifestyles

		Factor	
		1	2
Service Oriented	Safety is most important	.727	.020
	I hate an uncomfortable ride	.722	-.052
	Shorter travel time is the priority	.643	.062
	Cheaper fare is the priority	.640	-.043
	I hate to wait without knowing the end	.577	.056
Car Oriented	I try to avoid being near to unfamiliar people	-.132	.680
	I like something new and different	.026	.577
	It is cool to own a car	.166	.549
-	I appreciate old things	.065	.377
	I care more about myself than the others	.101	.283
	I cannot trust stranger so much	.220	.131

Table 4: Four groups by different lifestyles

	Car oriented (higher than average)	Non-car oriented (lower than average)
Service oriented (higher than average)	<i>Both car and service oriented group</i> (n=123)	<i>Service oriented group</i> (n=54)
Non-service oriented (lower than average)	<i>Car oriented group</i> (n=36)	<i>Neither car nor service oriented group</i> (n=77)

6.2 Comparison of perceptions towards levels of service by different lifestyles

Figure 4 shows the average values of replies to questions describing the perceptions of jeepney passengers towards the levels of services by different lifestyles. It is found that respondents of *both car and service oriented group* and *service oriented group* tend to respond similarly, *car oriented group* and *neither car nor service oriented group* do so. The former is more likely to regard jeepneys as negative mode especially about safe/dangerous, relaxed/stressed, in order/disorder, quiet/noisy and clean/dirty, however, their perception about “easy” and “familiar” and “cheap” are not so different from other group. This shows that even *both car and service oriented group* and *service oriented group* evaluate jeepney as “easy” and “familiar” and “cheap”. Non-service oriented group such as *car oriented group* and *neither car nor service oriented group* percept jeepney as neutral, not so negative and not so positive.

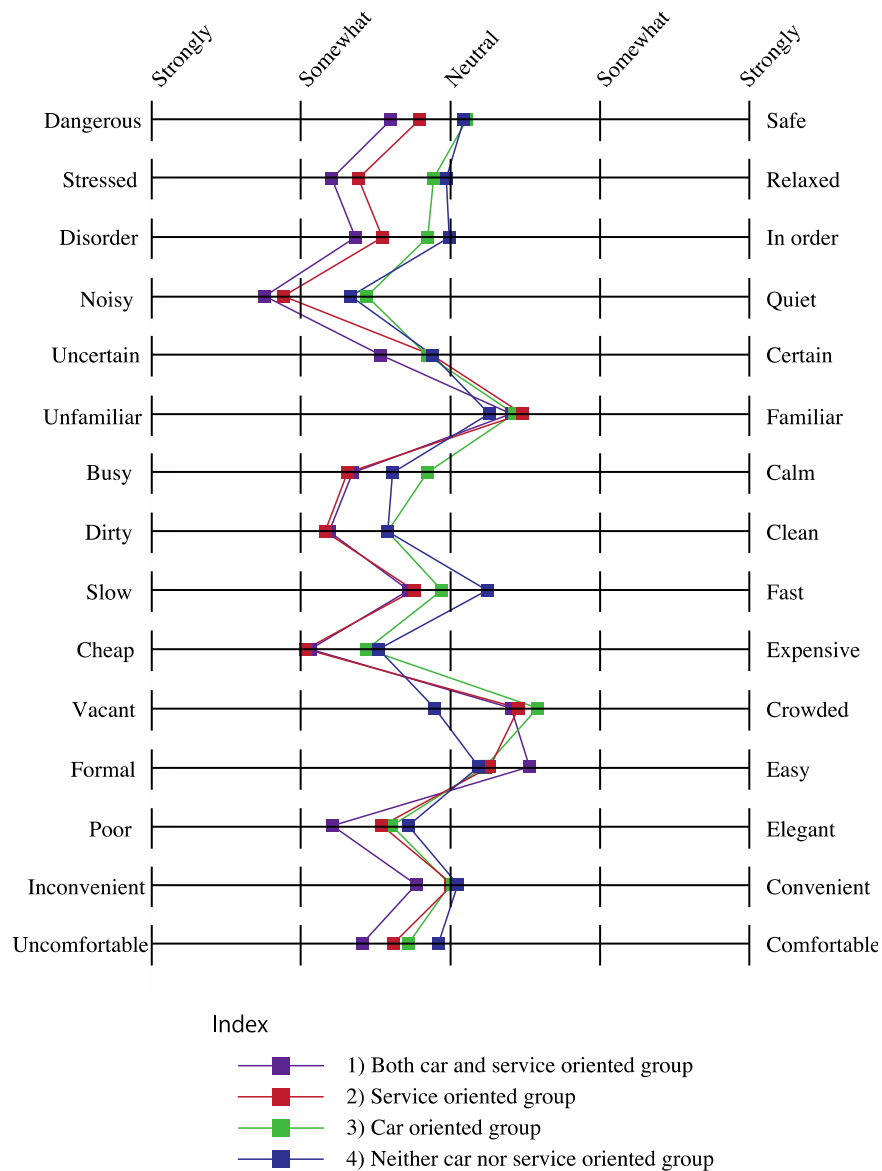


Figure 4: Passengers' perceptions of LOS by different lifestyles

6.3 Comparison of Behavioral Intentions by Different Lifestyles

In Figure 5 shows the comparison of behavioral intentions by different lifestyle groups defined in 6.2. It is found that respondents of *both car and service oriented group*, *service oriented group* and *car oriented group* are more likely regard to strongly agree or somewhat agree to each question compared with *neither car nor service oriented group*.

Car oriented agree more about the followings compare with Service oriented group: "I would avoid using the jeepneys when raining if possible", "When the jeepneys do not drop me off at a walkable place to the destination, I would avoid using them if possible" and "If I can, I would avoid using the jeepneys in any case". On the other hand, Service oriented group agree more about another 7 questions compare with Car oriented group.

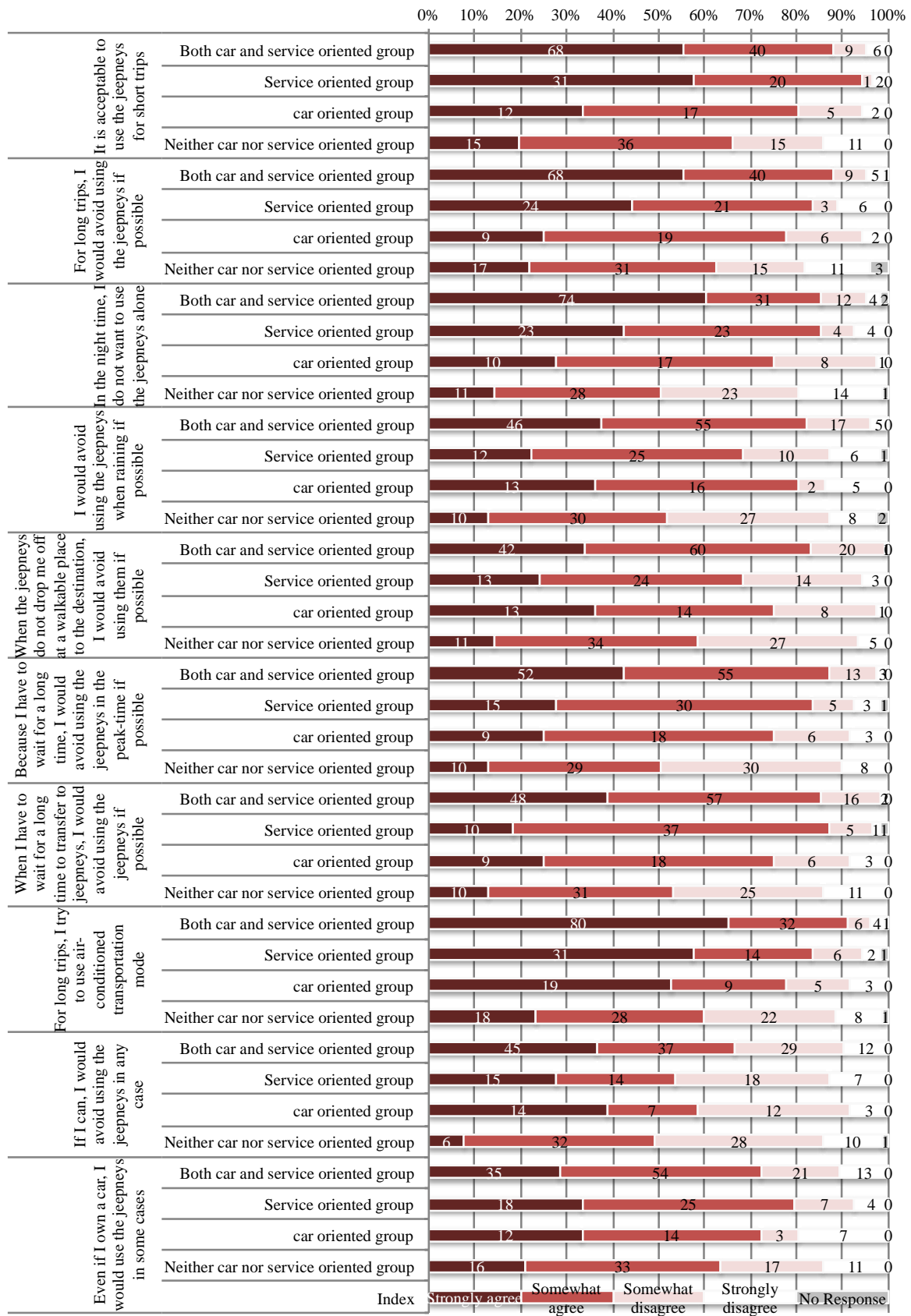
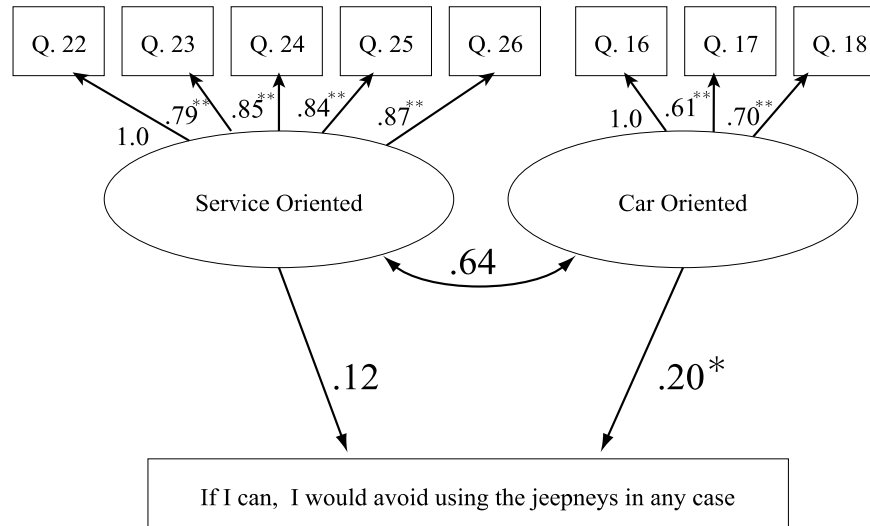


Figure 5: Comparison of behavioral intentions by four different lifestyle groups

6.4 Comparison of Behavioral Intentions by Different Lifestyles by Structural Equation Model

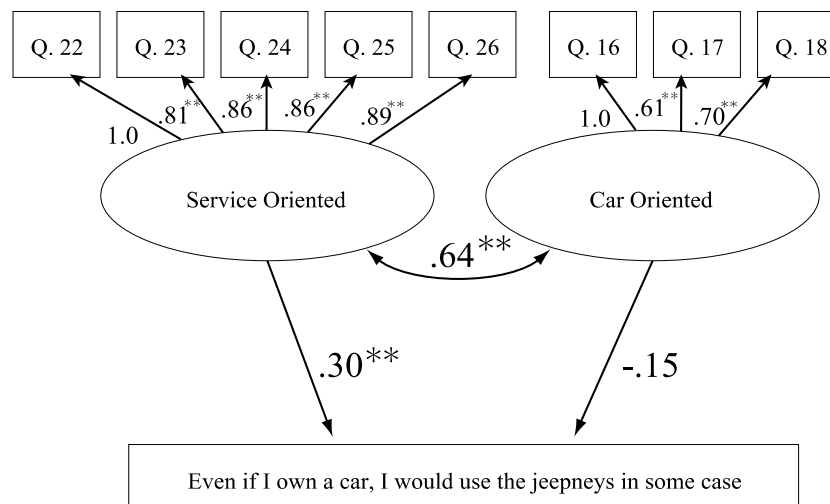
In Figure 6 and 7, observed variables are grouped by different factors and expressed as latent variables. Structural Equation Model (SEM) is applied to capture the causality between lifestyles and behavioral intentions. It is found that the more people are car and service oriented, the more they would avoid using jeepneys in any case if it is possible. On the other hand, although car oriented people tend not to use the jeepneys in some case when they own a car, service oriented people tend to use it in same condition.



AGFI=.963 RMSEA=.023 $\chi^2=28.816$ $p=.272$

** : 5% of significance level * : 10% of significance level

Figure 6: Influence on jeepney use by lifestyles



AGFI=.957 RMSEA=.034 $\chi^2=33.510$ $p=.119$

** : 5% of significance level * : 10% of significance level

Figure 7: Influence on jeepney use by lifestyles (when owing a car)

7.0 CONCLUSIONS

In this study, questionnaire survey was conducted to grasp the attitudes of jeepney passengers in Metro Manila. From the results of the analysis, it becomes clear that the respondents tend to consider jeepneys as a “Familiar”, “Easy” or “Cheap” transportation mode, and are acceptable for “short trips”. This shows that people evaluate frequency, availability, and reasonableness of the jeepneys. On the other hand, the respondents also tend to consider jeepneys as a “Noisy”, “Dirty” or “Dangerous” transportation mode, and they tend to avoid using jeepneys for “long trips”, and in the case of inconvenient transfer/access or for some certain usages. As people tend to change their attitudes to public transportation after having their own private cars, it is necessary to overcome and improve those disadvantages to make use of the existing jeepneys such as rain proof, shorter waiting time in peak time and more clean exhaust.

Comparison of perceptions and behavioral intentions is analyzed among different lifestyles that are obtained from personal conditions. As a result of the analysis, different perceptions and behavioral intentions among the different lifestyles are identified. It becomes clear that it is not always true that people belong to same social status have the same perceptions and behavioral intentions towards jeepneys in some cases. This kind of personal based analysis, and analyzing relationship between intentions/perception and actual mode choice are more important in further studies.

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