

# CHARACTERISTICS OF CAR OWNERSHIP AND USE IN HOUSEHOLD LEVEL IN LAMPUNG, JAKARTA AND WEST JAVA

By:

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## ABSTRAK

Tulisan ini membahas karakteristik kepemilikan dan penggunaan mobil pribadi di Kota Madya Bandar Lampung, DKI Jakarta, Kabupaten dan Kota Madya Bekasi, Kota Madya Bandung dan Kabupaten Garut. Wawancara dilakukan menggunakan daftar pertanyaan dan melibatkan 75 keluarga sebagai responden, masing-masing 25 keluarga untuk tiap kelompok status ekonomi (rendah, sedang dan tinggi) dan masing-masing 15 keluarga untuk tiap daerah tingkat dua. Untuk memahami hubungan antara sejumlah variable yang terkait dengan kepemilikan dan penggunaan mobil pribadi, dilakukan analisis *contingency coefficient*. Secara umum terdapat perbedaan berarti antar daerah dalam hal merek, volume mesin, umur, lama kepemilikan, penggunaan, harga dan metode pembayaran mobil pribadi yang dimiliki.

**Kata kunci:** Kepemilikan dan penggunaan mobil pribadi, wawancara, *contingency coefficient*

## ABSTRACT

This paper discusses the characteristics of private car ownership and use in Bandar Lampung Municipality, Jakarta Province, Bekasi Regency and Municipality, Bandung Municipality and Garut Regency. The interviews were held using questionnaires and include 75 households as the respondents, 25 households in each economic status group (low, medium and high) and 15 households in each region. In order to understand the association between a number of private car ownership and use variables, a contingency coefficient analysis was done. Generally, there are significant differences between regions in term of owned private car manufacturer, engine size, age, holding duration, use, price and method of payment

**Key words:** Private car ownership and use, interview, contingency coefficient

## 1. INTRODUCTION

The knowledge of vehicle ownership and use can be used to produce approximate prediction of the demand on the highway network and consequent energy consumption, to

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introduce appropriate transportation demand management and to predict income obtained from car purchasing tax / car registration tax and contribution of vehicle manufacture industries to public wealth. Researches regarding this topic in household level has already done in many countries for decades but have not yet been comprehensively studied in Indonesia.

## 2. LITERATURE REVIEW

Mode choice is affected by economic, social and land use factors. Economic growth of a country increases the average income of households, which allows households to purchase more cars and live in more spacious property (usually in suburban area). The demand of such property results in scattered settlement development with low density, making the provision of public transport infeasible, thus increasing car dependency. Social change into a more individualistic society also encourages people to use the private car instead of public transport. Therefore demand of for higher car ownership will be greater. (Bates et al, 1981).

Vehicle ownership study can be either in aggregate or disaggregate levels. In the aggregate study, vehicle ownership is examined at the aggregate level, e.g. zonal, regional or national level. In the disaggregate study, the household is used as the decision making unit and the forecasts at zonal, regional, or national level are obtained by aggregating over households. A vehicle ownership study in the household level is needed since according to Oi and Shuldiner (1963) and Schor (1989) in Bhat and Pulugurta (1998) *the disaggregate models are structurally more behavioural compared to aggregate models and are better able to capture the causal relationship between auto ownership determinants and auto ownership levels.*

Using household survey data from 4 residential areas in Jakarta, Putranto (2001b) found that socio-economic and trip characteristics of a household can be used to predict household car ownership rate in Jakarta. Surprisingly, number of live in servants can be used to predict household car ownership rate as good as the use of household income category. Table 1 summarised several factors affecting car ownership.

A study in aggregate level in Bandar Lampung Municipality, Jakarta Province, Bekasi Regency and Municipality, Bandung Municipality and Garut Regency showed that wealth level and accessibility are positively correlated to vehicle ownership rates (Putranto, 2001a).

**Table 1.** Factors Affecting Car Ownership in at Least 3 Areas Under Study

Factors	Average Correlation Coefficient, R*	Notes
no. of live-in servants	0.551	indicates the economic level of the household
Household income	0.550	indicates the potential of car purchase
no. of household members	0.413	indicates the potential of trip making
no. of driver work trips	0.407	indicates most driver duties were for work trips
no. of live in household members	0.390	indicates the potential of trip making
no. of total trips	0.389	indicates the potential of car use
no. of family work trips	0.364	indicates most cars were used for work purposes
no. of drivers	0.326	indicates the economic level of the household
no. of adults	0.264	indicates the major user of car

Source: Putranto (2001b)

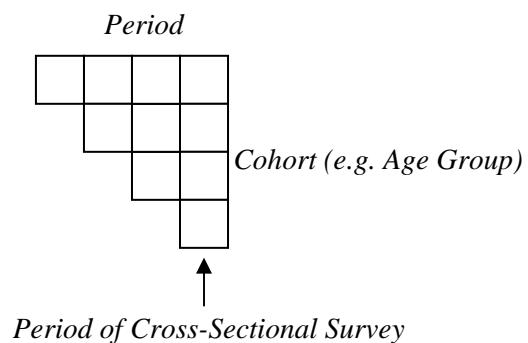
### 3. METHODOLOGY

The purpose of a cohort study in this research is to understand the behaviour of households on acquiring different types of vehicle through different stages of life. A Retrospective Multiple-Cohort Study Based on a Single Cross-Sectional Survey was conducted. This type of cohort study was chosen since only single cross-section will be needed to obtain historical data of household vehicle purchasing behaviour (Mason and Fienberg, Ed., 1985). Therefore, both the practicability and the comprehensiveness of the study can be achieved. As can be seen in Figure 1, common age groups across cohorts can be linked by moving from the upper left to the lower right. The disadvantages of this design include memory decay in the respondents and as with other cross-sectional surveys we may simply be dealing with survivors. The questionnaire that was used in the interview is presented on Figure 2a and 2b.

A limited number of samples was withdrawn. The respondents were from various municipalities and regencies mostly in Java. The basis of selection is mainly the availability of the contact person in the area. However, Table 2 shows that the selected areas have various characteristics of population density and per capita income.

The number of respondents in each regency and municipality was 15, resulting in a total number of respondents of 75. From each economic status group (low, medium and high), relatively equal number of households was selected in order to obtain representative sample (neglecting the fact that percentage of households on each groups is naturally not

equal and can be significantly different between regions). The selection was done subjectively by appraising the condition of the house. Regrouping into the appropriate economic status group was done later after obtaining the household monthly expenditure. However, since previous studies showed that the reliability of respondent's answer on expenditure is questionable, we should aware of the accuracy of the grouping.



**Figure 1.** Retrospective Multiple-Cohort Study from Single Cross-Sectional Survey

**Table 2.** Municipalities and Regencies Included in the Sample

Selected Provinces	Selected Municipalities	Selected Regencies	Population Density Per sq.km <sup>+</sup>	Per Capita Income (Rupiahs) <sup>+</sup>	Year of the Data <sup>#</sup>
Lampung	Bandar Lampung		4,535	2,050,732	1998/1997
West Java	Bandung		30,036	n.a*.	1996/n.a.
	Bekasi <sup>o</sup>	Bekasi <sup>o</sup>	1,832	n.a.*	1996/n.a.
		Garut	583	n.a.*	1996/n.a.
Jakarta*	All		13,786	7,260,784	1995/1996

Source: [www.bps.go.id](http://www.bps.go.id) and its regional office links

• 5 municipalities in Jakarta will be treated as one city

<sup>o</sup> Since 1997 some part of Bekasi Regency become Bekasi Municipality

+ Estimated data are printed in italic

\* Estimated per capita GRDP in West Java was 1,740,617 in 1996

# First figure for population density year, second figure for per capita income year

**HOUSEHOLD HISTORY ON OWNING VEHICLE (Sheet 1 of 2)**

Day Month

Date of Survey: 2001

Name of the head of the family: .....

*main<sup>+</sup> servants visitors<sup>#</sup>*

Complete following list to describe the member of household (put the data of main members of the household only)

+ Any household members who have no definite plan when to leave the house, not necessarily blood related to the head of the family

x Any household members ho have definite plan when to leave the house

\* Start from the latest and include all money earning activities (running own business, self employed profession, etc.)

**Figure 2a.** Preliminary Design of Cohort Survey Questionnaire (Sheet 1)

**HOUSEHOLD HISTORY ON OWNING VEHICLE (Sheet 2 of 2)**

Complete following list to describe the household history of purchasing vehicles .Please start from the vehicle purchased earliest.

Purchasing Year	Type of Vehicle (Car/ Motor-cycle)	Brand	Manufacturing Year	Volume of Engine (cc)	Cash Price at the Time of Purchasing (Rupiah)	Method of Payment (Cash/ Loan/ Lease)	Monthly Expenditure	Description of Vehicle Use		Vehicle Holding Duration (Year)	Price of Vehicle at the End of Holding Duration (Rupiah)
								Who Use It?	For What Purpose?		

**Figure 2b.** Preliminary Design of Cohort Survey Questionnaire (Sheet 2)

Students from University of Tarumanagara, Jakarta were recruited as interviewers. These students have a background in transport studies and are familiar with local conditions. Appropriate training was given to the selected interviewers. The interviewers have been given sufficient explanation about the aim of the study and the definitions of every term used in the questionnaire. They have also been provided with knowledge about how to deal with various behaviours of respondents. The tips for successful interview have also been given, e.g. the appropriate time to conduct an interview, interviewing style that facilitates relax atmosphere etc.

In order to understand the association between a number of private car ownership and use variables, a contingency coefficient analysis was done SPSS 10.1. Contingency coefficient is a measure of association based on chi-square. The value ranges between 0 and 1, with 0 indicating no association between the row and column variables (in a cross tabulation analysis) and values close to 1 indicating a high degree of association between the variables. Since the association analysis between couples of variables involve at least one nominal variable, contingency coefficient analysis can be considered as the most appropriate method. Actually some the variables are originally interval variables (vehicle engine size, age, holding duration and price), but each variable are deliberately grouped into several classes and consequently become ordinal variable. Grouping into several classes may simplify the interpretation of cross tabulation result.

#### **4. THE DATA**

Not every household in the sample owns a car. Some households own motorcycles as the only motorized vehicle owned, but there is no household in the sample that does not own any motorized vehicle. Although this circumstance is not due to a deliberate selection, in the further studies, broadened the sampling frame to include non-motorized vehicle owner household is recommended. Some households own more than one car. Compensating the number of households that do not own any car, this circumstance cause list of own cars (100 cars) longer than list of household (75 households). Table 3 only shows list of owned car regardless the identity of the owning household. The contingency coefficient analysis was based on the figure on this table.

The reader should aware the percentage of Indonesian-Chinese households in the selected sample from Jakarta, Bandung, Bandar Lampung and Bekasi are 100%, 93%, 73% and 33% respectively (the figure for Garut has not been confirmed). This does not reflect the percentage of Indonesian-Chinese households in the general population. Separate paper will be produce to show ethnicity balance control that was conducted during similar study in Yogyakarta Municipality and Bantul Regency.



**Table 3. The Data**

	Name of the Area	Classified Vehicle Manufacturer	Classified Engine Size (cc)	Classified Vehicle Age (Years)	Classified Holding Duration (Years)	Classified Vehicle Use	Classified Job	Classified Vehicle Cash Price (Rupiah)	Metode of Payment
1	Bandar Lampung	Toyota	(c)1500-1999	(b)5-10 years	(c)5-10 years	daily acitivities	businessman/woman	(a)< 100 million	cash
2	Bandar Lampung	Isuzu	(d)2000-2499	(b)5-10 years	(b)< 5 years	business/work	businessman/woman	(a)< 100 million	cash
3	Bandar Lampung	Suzuki	(b)< 1500	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(a)< 100 million	cash
4	Bandar Lampung	Toyota	(c)1500-1999	(c)> 10 years	(d)> 10 years	business/work	businessman/woman	(a)< 100 million	cash
5	Bandar Lampung	Toyota	(c)1500-1999	(b)5-10 years	(c)5-10 years	business/work	businessman/woman	(a)< 100 million	cash
6	Bandar Lampung	Isuzu	(c)1500-1999	(b)5-10 years	(b)< 5 years	daily acitivities	housewife	(a)< 100 million	cash
7	Bandar Lampung	Honda	(b)< 1500	(c)> 10 years	(c)5-10 years	business/work	manager level or higher	(a)< 100 million	cash
8	Bandar Lampung	Toyota	(d)2000-2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(b)100-200 million	cash
9	Bandar Lampung	Toyota	(d)2000-2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(b)100-200 million	cash
10	Bandar Lampung	Various Others	(e)> 2499	(a)< 5 years	(b)< 5 years	business/work	manager level or higher	(b)100-200 million	cash
11	Bandar Lampung	Suzuki	(b)< 1500	(b)5-10 years	(c)5-10 years	business/work	employee	na	installment
12	Bandung	Honda	(c)1500-1999	(c)> 10 years	(a)na	daily acitivities	businessman/woman	(a)< 100 million	cash
13	Bandung	Isuzu	(e)> 2499	(a)< 5 years	(a)na	daily acitivities	businessman/woman	(b)100-200 million	installment
14	Bandung	Isuzu	(d)2000-2499	(b)5-10 years	(a)na	daily acitivities	businessman/woman	(a)< 100 million	cash
15	Bandung	Isuzu	(e)> 2499	(b)5-10 years	(a)na	daily acitivities	businessman/woman	(a)< 100 million	cash
16	Bandung	Various Others	(e)> 2499	(c)> 10 years	(a)na	daily acitivities	businessman/woman	(a)< 100 million	cash
17	Bandung	Honda	(c)1500-1999	(c)> 10 years	(a)na	daily acitivities	businessman/woman	(a)< 100 million	cash
18	Bandung	Suzuki	(b)< 1500	(c)> 10 years	(a)na	business/work	businessman/woman	(a)< 100 million	installment
19	Bandung	Suzuki	(b)< 1500	(b)5-10 years	(a)na	business/work	businessman/woman	(a)< 100 million	cash
20	Bandung	Various Others	(b)< 1500	(b)5-10 years	(a)na	business/work	businessman/woman	(a)< 100 million	cash
21	Bandung	Mitsubishi	(e)> 2499	(a)< 5 years	(a)na	business/work	employee	(a)< 100 million	cash
22	Bandung	Suzuki	(b)< 1500	(c)> 10 years	(a)na	business/work	employee	(a)< 100 million	cash
23	Bandung	Toyota	(d)2000-2499	(c)> 10 years	(a)na	business/work	employee	(a)< 100 million	cash
24	Bandung	Honda	(c)1500-1999	(a)< 5 years	(a)na	daily acitivities	housewife	(a)< 100 million	installment
25	Bandung	Mitsubishi	(c)1500-1999	(b)5-10 years	(a)na	daily acitivities	housewife	(a)< 100 million	cash
26	Bandung	Suzuki	(b)< 1500	(a)< 5 years	(a)na	daily acitivities	housewife	(a)< 100 million	cash
27	Bandung	Suzuki	(b)< 1500	(b)5-10 years	(a)na	daily acitivities	housewife	(a)< 100 million	installment
28	Bandung	Toyota	(c)1500-1999	(a)< 5 years	(a)na	daily acitivities	student	(a)< 100 million	cash
29	Bandung	Toyota	(c)1500-1999	(b)5-10 years	(a)na	daily acitivities	professional	(a)< 100 million	installment
30	Bandung	Various Others	(c)1500-1999	(a)< 5 years	(a)na	daily acitivities	professional	(a)< 100 million	installment
31	Bandung	Toyota	(c)1500-1999	(a)< 5 years	(a)na	business/work	professional	(a)< 100 million	installment
32	Bandung	Mitsubishi	(d)2000-2499	(c)> 10 years	(a)na	daily acitivities	student	(a)< 100 million	cash
33	Bandung	Toyota	(b)< 1500	(b)5-10 years	(a)na	school	student	(a)< 100 million	installment
34	Bandung	Toyota	(c)1500-1999	(b)5-10 years	(a)na	school	student	(a)< 100 million	installment
35	Bandung	Various Others	(c)1500-1999	(b)5-10 years	(a)na	business/work	student	(a)< 100 million	cash
36	Bandung	Mitsubishi	(e)> 2499	(a)< 5 years	(a)na	business/work	businessman/woman	(b)100-200 million	cash
37	Bandung	Toyota	(d)2000-2499	(a)< 5 years	(a)na	business/work	businessman/woman	(b)100-200 million	cash
38	Bandung	Toyota	(c)1500-1999	(a)< 5 years	(a)na	daily acitivities	housewife	(b)100-200 million	cash
39	Bandung	Various Others	(c)1500-1999	(a)< 5 years	(a)na	daily acitivities	housewife	(b)100-200 million	cash
40	Bandung	Toyota	(d)2000-2499	(a)< 5 years	(a)na	daily acitivities	student	(b)100-200 million	cash
41	Bekasi	Isuzu	(e)> 2499	(b)5-10 years	(c)5-10 years	business/work	employee	(a)< 100 million	cash

42	Bekasi	Various Others	(c)1500-1999	(a)< 5 years	(b)< 5 years	business/work	manager level or higher	(a)< 100 million	cash
43	Bekasi	Mitsubishi	(c)1500-1999	(b)5-10 years	(b)< 5 years	business/work	manager level or higher	(a)< 100 million	cash

**Table 3. The Data (Continuation)**

	Name of the Area	Classified Vehicle Manufacturer	Classified Engine Size (cc)	Classified Vehicle Age (Years)	Classified Holding Duration (Years)	Classified Vehicle Use	Classified Job	Classified Vehicle Cash Price (Rupiah)	Metode of Payment
44	Bekasi	Suzuki	(b)< 1500	(b)5-10 years	(b)< 5 years	school	housewife	(a)< 100 million	cash
45	Bekasi	Isuzu	(d)2000-2499	(b)5-10 years	(c)5-10 years	school	housewife	(a)< 100 million	cash
46	Bekasi	Various Others	(c)1500-1999	(b)5-10 years	(c)5-10 years	school	housewife	(a)< 100 million	cash
47	Bekasi	Suzuki	(b)< 1500	(c)> 10 years	(c)5-10 years	business/work	manager level or higher	(a)< 100 million	cash
48	Bekasi	Various Others	(e)> 2499	(b)5-10 years	(c)5-10 years	business/work	manager level or higher	(a)< 100 million	cash
49	Bekasi	Toyota	(c)1500-1999	(a)< 5 years	(b)< 5 years	school	student	(a)< 100 million	cash
50	Bekasi	Suzuki	(c)1500-1999	(b)5-10 years	(c)5-10 years	daily acitivities	businessman/woman	(a)< 100 million	cash
51	Bekasi	Isuzu	(c)1500-1999	(b)5-10 years	(c)5-10 years	school	student	(a)< 100 million	cash
52	Bekasi	Suzuki	(c)1500-1999	(b)5-10 years	(c)5-10 years	school	student	(a)< 100 million	cash
53	Bekasi	Various Others	(e)> 2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(c)> 200 million	cash
54	Bekasi	Various Others	(e)> 2499	(a)< 5 years	(b)< 5 years	daily acitivities	housewife	(c)> 200 million	cash
55	Bekasi	Honda	(d)2000-2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(c)> 200 million	cash
56	Bekasi	Various Others	(e)> 2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(c)> 200 million	cash
57	Bekasi	Various Others	(d)2000-2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(b)100-200 million	cash
58	Bekasi	Various Others	(e)> 2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(b)100-200 million	installment
59	Bekasi	Suzuki	(c)1500-1999	(a)< 5 years	(b)< 5 years	business/work	employee	(b)100-200 million	cash
60	Bekasi	Suzuki	(c)1500-1999	(a)< 5 years	(b)< 5 years	school	housewife	(b)100-200 million	cash
61	Bekasi	Toyota	(c)1500-1999	(a)< 5 years	(b)< 5 years	school	housewife	(b)100-200 million	cash
62	Bekasi	Toyota	(c)1500-1999	(a)< 5 years	(b)< 5 years	business/work	manager level or higher	(b)100-200 million	cash
63	Bekasi	Suzuki	(c)1500-1999	(a)< 5 years	(b)< 5 years	daily acitivities	businessman/woman	(b)100-200 million	cash
64	Bekasi	Various Others	(e)> 2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(b)100-200 million	cash
65	Garut	Mitsubishi	(c)1500-1999	(c)> 10 years	(d)> 10 years	daily acitivities	businessman/woman	(a)< 100 million	cash
66	Garut	Various Others	(c)1500-1999	(b)5-10 years	(b)< 5 years	daily acitivities	businessman/woman	(a)< 100 million	cash
67	Garut	Honda	(b)< 1500	(c)> 10 years	(b)< 5 years	business/work	businessman/woman	(a)< 100 million	cash
68	Garut	Isuzu	(e)> 2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(a)< 100 million	cash
69	Garut	Suzuki	(c)1500-1999	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(a)< 100 million	cash
70	Garut	Isuzu	(c)1500-1999	(b)5-10 years	(c)5-10 years	daily acitivities	employee	(a)< 100 million	cash
71	Garut	Mitsubishi	(e)> 2499	(b)5-10 years	(c)5-10 years	business/work	employee	(a)< 100 million	cash
72	Garut	Toyota	(c)1500-1999	(a)< 5 years	(b)< 5 years	business/work	employee	(a)< 100 million	cash
73	Garut	Toyota	(e)> 2499	(c)> 10 years	(b)< 5 years	business/work	employee	(a)< 100 million	cash
74	Garut	Honda	(b)< 1500	(b)5-10 years	(c)5-10 years	business/work	employee	(a)< 100 million	cash
75	Garut	Toyota	(c)1500-1999	(b)5-10 years	(c)5-10 years	business/work	employee	(a)< 100 million	cash
76	Garut	Suzuki	(c)1500-1999	(c)> 10 years	(d)> 10 years	daily acitivities	manager level or higher	(a)< 100 million	cash
77	Garut	Toyota	(c)1500-1999	(c)> 10 years	(d)> 10 years	business/work	manager level or higher	(a)< 100 million	cash
78	Garut	Isuzu	(c)1500-1999	(b)5-10 years	(c)5-10 years	business/work	manager level or higher	(a)< 100 million	cash
79	Garut	Suzuki	(b)< 1500	(b)5-10 years	(b)< 5 years	business/work	manager level or higher	(a)< 100 million	cash
80	Garut	Toyota	(e)> 2499	(a)< 5 years	(b)< 5 years	business/work	manager level or higher	(a)< 100 million	cash
81	Jakarta	Honda	(a)na	(c)> 10 years	(b)< 5 years	business/work	businessman/woman	(c)> 200 million	cash

82	Jakarta	Toyota	(c)1500-1999	(b)5-10 years	(b)< 5 years	business/work	businessman/woman	(a)< 100 million	cash
83	Jakarta	Suzuki	(c)1500-1999	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(a)< 100 million	installment
84	Jakarta	Isuzu	(e)> 2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(a)< 100 million	cash
85	Jakarta	Honda	(d)2000-2499	(b)5-10 years	(b)< 5 years	business/work	employee	(a)< 100 million	cash
86	Jakarta	Mitsubishi	(c)1500-1999	(b)5-10 years	(c)5-10 years	various others	housewife	(a)< 100 million	cash

**Table 3. The Data (Continuation)**

	Name of the Area	Classified Vehicle Manufacturer	Classified Engine Size (cc)	Classified Vehicle Age (Years)	Classified Holding Duration (Years)	Classified Vehicle Use	Classified Job	Classified Vehicle Cash Price (Rupiah)	Metode of Payment
87	Jakarta	Toyota	(d)2000-2499	(b)5-10 years	(b)< 5 years	various others	manager level or higher	(a)< 100 million	cash
88	Jakarta	Various Others	(c)1500-1999	(a)< 5 years	(b)< 5 years	business/work	manager level or higher	(a)< 100 million	cash
89	Jakarta	Isuzu	(e)> 2499	(b)5-10 years	(c)5-10 years	school	student	(a)< 100 million	cash
90	Jakarta	Honda	(d)2000-2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(c)> 200 million	cash
91	Jakarta	Various Others	(e)> 2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(c)> 200 million	cash
92	Jakarta	Honda	(c)1500-1999	(a)< 5 years	(b)< 5 years	daily acitivities	housewife	(c)> 200 million	installment
93	Jakarta	Toyota	(c)1500-1999	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(c)> 200 million	installment
94	Jakarta	Isuzu	(e)> 2499	(a)< 5 years	(b)< 5 years	various others	businessman/woman	(b)100-200 million	cash
95	Jakarta	Toyota	(c)1500-1999	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(b)100-200 million	cash
96	Jakarta	Various Others	(d)2000-2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(b)100-200 million	cash
97	Jakarta	Mitsubishi	(e)> 2499	(a)< 5 years	(b)< 5 years	business/work	businessman/woman	(b)100-200 million	cash
98	Jakarta	Toyota	(e)> 2499	(a)< 5 years	(b)< 5 years	various others	housewife	(b)100-200 million	cash
99	Jakarta	Suzuki	(a)na	(a)< 5 years	(b)< 5 years	business/work	manager level or higher	(b)100-200 million	cash
100	Jakarta	Various Others	(c)1500-1999	(a)< 5 years	(b)< 5 years	school	student	(b)100-200 million	cash











#### **4. CONCLUSION**

It can be concluded from the analysis that wealth level and accessibility positively correlated to vehicle ownership rates. The percentage of 15-24 years old cohort correlated better to the motorcycle ownership rate than private car ownership rate. Unexpected direction of correlation between vehicle ownership rates and population density (and therefore availability of public transport) may hypothetically caused by different stages of vehicle ownership. Indonesia is still in a very early stage of vehicle ownership in which wealth and accessibility factors may dominantly determine the vehicle ownership rate.

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