INDEPENDENT STUDY

Factors Affecting Taxi Loan Approval

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An Independent Study in Partial Fulfilment of the Requirement of the Degree of

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Lastly, I would like to dedicate this study to my grandfather Sanguan Tripipatkul, who passed away in 2001.

VEERAPHON CHAROENSIRIWAT

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Nowadays, there are many factors that affect credit approval. Especially taxi drivers with unstable income There are also other factors affecting income, such as social factors, car factors, financial factors, etc., combined with the current transportation, public transport is very important and there will be more and more in the future. Which is reflected in the government's policy that encourages people to travel by public transport vehicles but people are still not satisfied with the quality of service

This independent studyaimsto study the factors that affect the income of the taxi driver so that the taxi driver can access the funding source in order to develop their cars to develop the ability to provide servicesand the benefit of financial institutions for lending for taxi drivers by using multiple liner regression with stepwise method to create the model to predict level of income of taxi drive

The result the key factor that effect to level of income of taxi driver is debt payment per month

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Student's signature Advisor's signature

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1. INTRODUCTION

This chapter introduces the background of the project. Transportation in Bangkok is a top priority delinquent. From the registration record of new vehicles in October 2018, there were 307,252 registered cars. Out of these 12,425 were taxis (4.04% of new cars registered in 2018). There are various types of taxis in Thailand such as sedan cars, multi-purpose vehicles and sport utility vehicles. Some taxi drivers do not have their own cars because of the money deficit and/or the lack of credit to buy a car. They have to rent a car from a Co-operative agency. Some drivers, however, attempt to buy their own taxis on credit. This study aims to explore factors that affect the approval of taxi loans.

Figure 1: Shows the percentages of the loans requested by the taxi drivers classified by the car types in Thailand on June 2018.

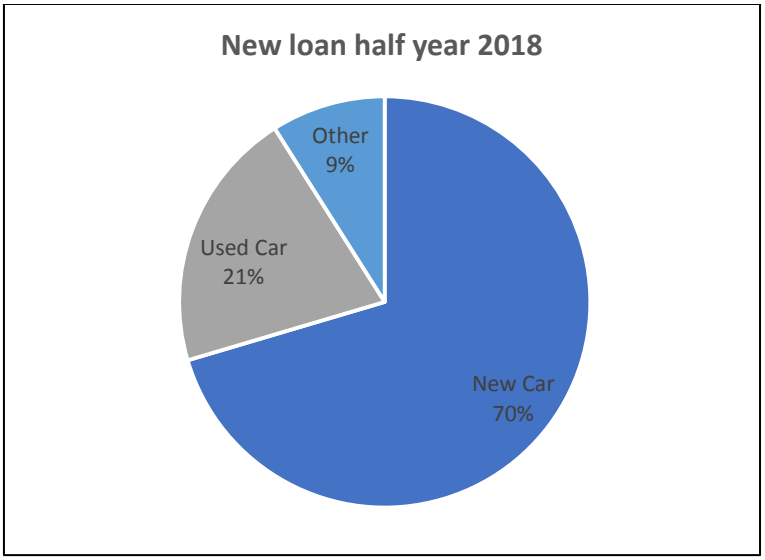

Figure 1: New hire purchasing loan

2. BACKGROUND

2.1. Objectives

1. To identify the factors that affect the income of taxi driver.
2. To create the model that predict the income level of Thai's taxi driver in order to consider loan approval.

2.2. Scopes

This study assumes the following conditions.

1. Thai taxi drivers are base service in Bangkok Thailand
2. The sample size of the data collected by taxi drivers in Thailand is 1,000.

3. LITERATURE REVIEW

This chapter is introduced the related work and discussion of Taxi driver

3.1. Cluster analysis

According to Jiawei Han M. K (2006), cluster analysis is one of the main data analysis methods which is extensively intended for many practical applications in developing areas like Bioinformatics. Margaret H. Dunham (2006) explains that clustering is the procedure of dividing a given set of matters into split clusters. This is complete in such a way that objects in the same cluster are similar while objects belonging to different clusters differ considerably, with respect to their attributes

3.2. K-Mean

According to research by Kaur, Kaur (2003) The k-means algorithm is effective in making clusters for many applied applications. But the complexity of the original k-means algorithm is very high, especially for huge data. Furthermore, this algorithm marks in different types of clusters depending on the Freely choice of original centroids and Thakare et al. discuss about performance of k-means algorithm with numerous databases such as Iris, Wine, and Crude oil database and many distance metrics. In summarise, the performance of k-means clustering is depending on the data and distance metrics.

3.3. Correlation coefficient

According to research Rodgers, Nicewander (1998) discuss about the historical development of correlation in 1885 by Sir Francis Galton and ways to understand the correlation coefficient. A wealth of additional attractive and useful portrayals is available when a more statistical and less algebraic approach is taken to the correlation problem and the publish by National Council on Measurement in Education. Retrieved (2014) a correlation coefficient is a numerical measure of type of correlation, meaning an association between two factors. The factors may be two columns of a given data set of explanations, often called a sample of a multivariate random factors with a known distribution.

3.4. Variance Inflation Factor Testing

According to Stine (2011)the variance inflation factor (VIF) and two diagnostic plots for least squares regression, partial regression plots, and partial residual plots. Robert M. O'brien (2017) test the multicollinearity by using variance inflation factor and the rule of thumb for being a criterion. Allison, P. D. (1999) explains the variance inflation factor (VIF) is the ratio of variance in a model with several relationships divided by the variance of a model with one term alone and Hair, Tatham, Black (2006)clarifies about variance inflation factor testing calculates in the severity of multicollinearity in an ordinary least squares regression analysis. It provides an index that measures how much the variance (the square of the estimate's standard deviation) of an estimated regression coefficient is increased because of collinearity.

3.5. Regression analysis

According Zou, PhD, Tuncali, Silverman, MD (2003) Discuss about correlation and simple linear regression with two important statistical concepts, correlation and regression, which are used usually in radiology research, are reviewed and demonstrated herein. Nimon and Reio, Jr. Discuss in this research about using multiple linear regression analysis presented regression commonality analysis since it is an underutilized technique for human resource management. It can turn contribute to theory and Bowermanetal, (1990) describe regression analysis is a statistical technique. Its basic aim is to build a mathematical model to relate dependent variables to independent variables. In general, a regression model will be defined as a single algebraic equation of the form

3.6. Stepwise MultipleRegression

According to research by Wan Nawang et al. (2009) have ways a research to recognize factor of childhoodto become fishermen. There are two methods that use in their research which are factor analysis and multiple linear regression. The multiple linear regression that was used in their research, it: Shows that there are three factors that influence the respondence interest in fishermen career which are training programmed, profitable and marketing. Martina, Ghania, Ahmad (2010) forecast fish landing by using stepwise method. The strength correlation between marine fish landing and fishing boat and fishermen and fishing gears licensed. Efroymson,M. A. (1960) elucidate stepwise regression is a method of fitting regression models in which the choice of analytical variables is passed out by an automatic procedure. In each step, a variable is considered for addition to from the set of illustrative variables based on some pre-criterion. Usually, this takes the form of a sequence of F-tests or T-tests and publish of School of Geography (2010) explain stepwise linear regression is a method of regressing multiple variables while simultaneously removing those that aren't important. This webpage will take you through doing this in SPSS. Stepwise regression essentially does multiple regression a number of times, each time removing the weakest correlated variable. At the end you are left with the variables that explain the distribution best. The only requirements are that the data is normally distributed (or rather, that the residuals are), and that there is no correlation between the independent variables (known as collinearity).

4. METHODOLOGY

In this chapter, the questionnaire design is discussed together with the data clustering techniques, and the data analysis techniques.

4.1. Material

1. The Microsoft office, for example Microsoft Word is used to design the questionnaire and prepare the document, Microsoft Excel is used to prepare and cluster the data.
2. The Google forms is used to collect the answers from the taxi drivers.
3. The SPSS modeler is used to analyse and create the scoring model i.e. K-Mean Multiple Liner Regression and stepwise method.

4.2. Method

This section is explaining about the methodology of this project.

1. Design the questionnaire and setting the target
2. Cleansing and clustering the data
3. Clustering the data by using K-mean method
4. Correlation testing
5. Variance inflation factor testing
6. Create model by using Stepwise Multiple Liner Regression

Step 1: Design the questionnaire and setting the target

From the literature review, there are many factors that affect taxi drivers' incomes such as their knowledge of routes, the working hours, and the traffics. The questionnaire is grouped into four sections including:

1. Demography
2. Cartype
3. Driving experience
4. Mobile application usage

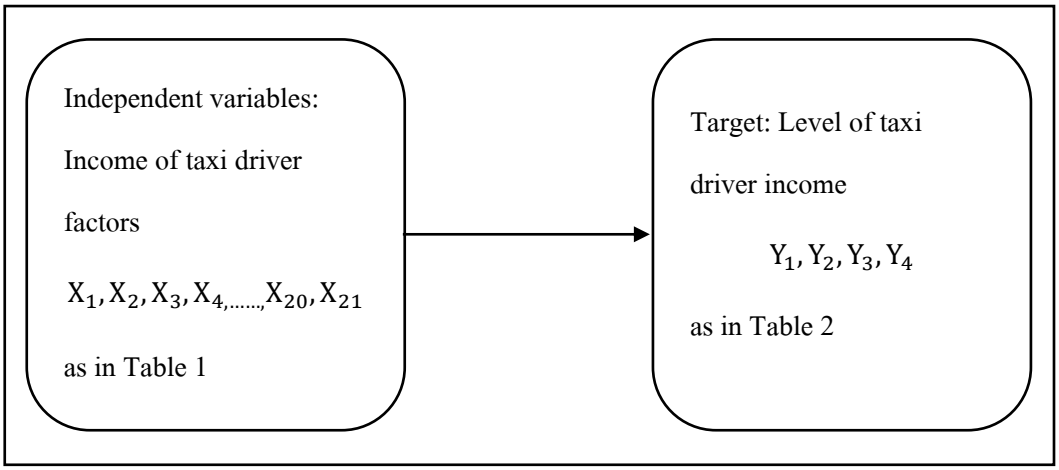

Figure 2: Equation structure

Table1: List of variables, descriptions, choice and type of variables.

Variables	Descriptions	1	2	3	4	Type of variable
Y	Level of income (Baht)	Less than 20,000	Between 20,000 to 30,000	Between 30,000 to 40,000	More than 40,000	Ordinal
X_1	Sex	Male	Female			Nominal
X_2	Status	Single	Married			Nominal
X_3	Age	Less than 30	Between 30 to 40	Between 40 to 50	Higher than 50	Ordinal
X_4	Number of children	None	Between 1 to 2	Between 3 to 4	More than 4	Ordinal
X_5	Level of Education	Primary School	Secondary School	Bachelor	Master or higher	Ordinal
X_6	Experience of driving Taxi	Less than 3 years	Between 3 to 6 years	Between 6 to 10 years	More than 10 years	Ordinal
X_7	Type of car	Sedan	MPV	SUV		Nominal
X_8	Car age	Less than 1 years	Between 1 to 3 years	Between 3 to 5 years	More than 5 years	Ordinal

Variables	Descriptions	1	2	3	4	Type of variable
X_9	Number of car	First car	Second car	Third car	Forth or more car	Ordinal
X_{10}	Maintenance fee per month (Baht)	Less than 1,000 Baht	Between 1,000 to 2,000 Baht	Between 2,000 to 3,000 Baht	More than 3,000 Baht	Ordinal
X_{11}	Debt payment per month (Baht)	Less than 5,000 Baht	Between 5,000 to 10,000 Baht	Between10,000 to 20,000 Baht	More than 20,000 Baht	Ordinal
X_{12}	Average distance per trip (km)	Less than 5 km	Between 5 to 15 km	Between 15 to 25 km	More than 25 km	Ordinal
X_{13}	Customer zones	Extremely less customer zone	less customer zone	Medium customer zone	High customer zone	Nominal
X_{14}	Average driving time per day (Hours)	Less than 6 hours	Between 6 to 9 hours	Between 9 to 12 hours	Higher than 12 hours	Ordinal
X_{15}	Starting time of driving	Between 00.00 to 06.00	Between 06.00 to 12.00	Between 12.00 to 18.00	Between 18.00 to 24.00	Nominal
X_{16}	Best weather for driving	Extremely hot	Hot	Raining	Extremely raining	Nominal
X_{17}	Using mobile application for catching a passenger	Use	Do not use			Flag
X_{18}	Number of mobile application	None	1 mobile application	2 mobile application	More than 2 mobile application	Ordinal

Variables	Descriptions	1	2	3	4	Type of variable
X_{19}	Year of mobile application for catching a passenger	None	Less than 1 years	Between 1 to 2 years	More than 2 years	Ordinal
X_{20}	Bonus from mobile application per month	None	Less than 1,000 Baht	Between 1,000 to 2,000 Baht	More than 2,000 Baht	Ordinal
X_{21}	Number of trip by mobile application	None	Less than 100 trips	Between 100 to 150 trips	More than 150 trips	Ordinal

Step 2: Cleansing and clustering the data

Cleansing and clustering the data is the also one important process. It is the process of detecting, removing incorrect data and looking for trends of data.

Figure 3: Shows the level of income of taxi driver. Most taxi drivers (76%) have income less than 40,000 Baht per month.

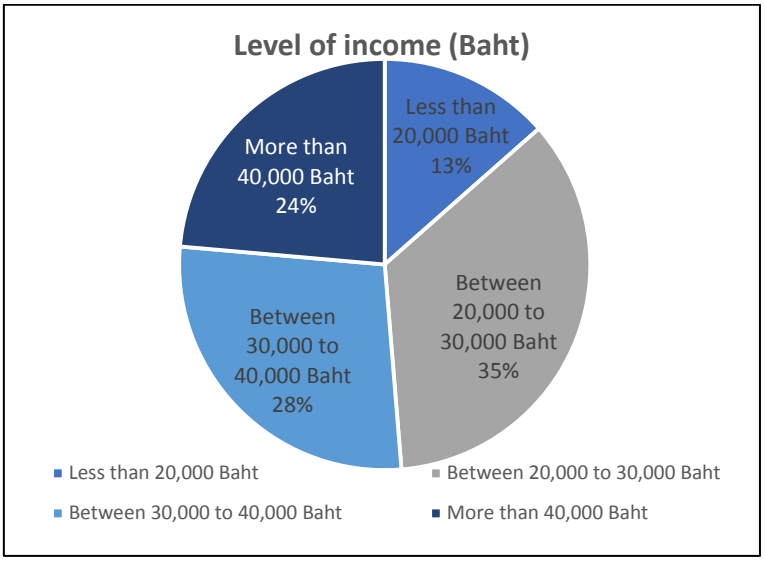

Figure 3: Portion of level of income (Baht)

Figure 4: Shows sex of taxi driver. male and female are equally.

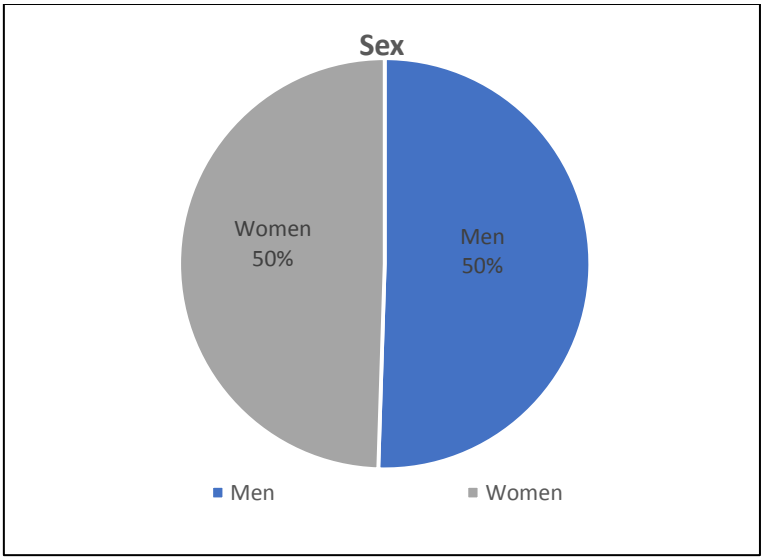

Figure4: Portion of sex

Figure 5: Shows status of taxi driver. More than 57% of population is married.

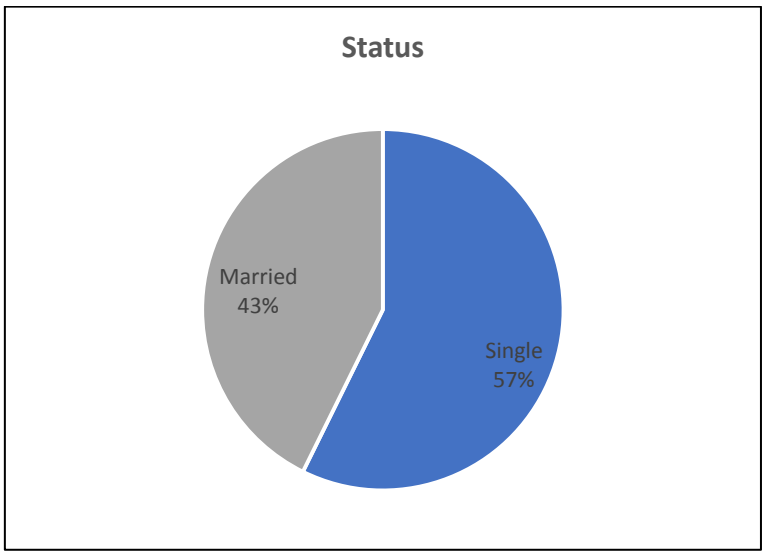

Figure 5: porting of status

Figure 6: Shows age of taxi driver. Most of taxi driver have age over 40-year-old.

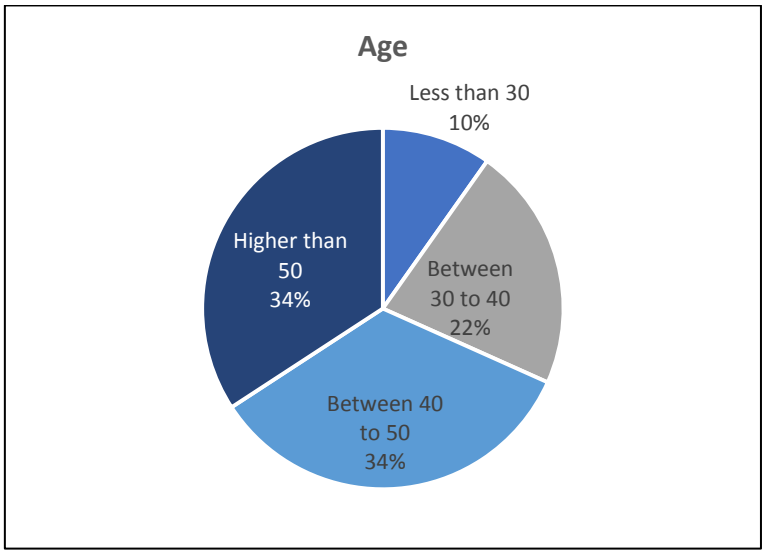

Figure 6: Portion of age of taxi driver

Figure 7: Shows number of children for a taxi driver. Most of taxi driver do not have children.

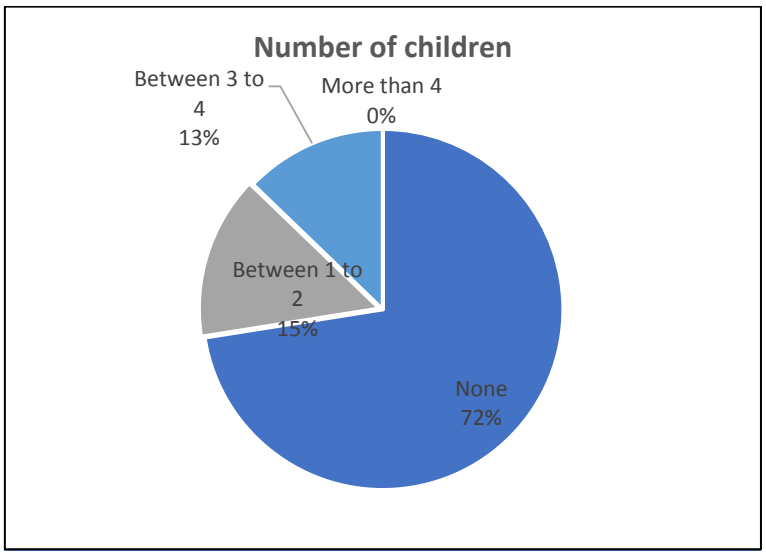

Figure 7: Portion of number of children

Figure 8: Shows the levels of education of taxi drivers. Surprisingly, some have college degrees.

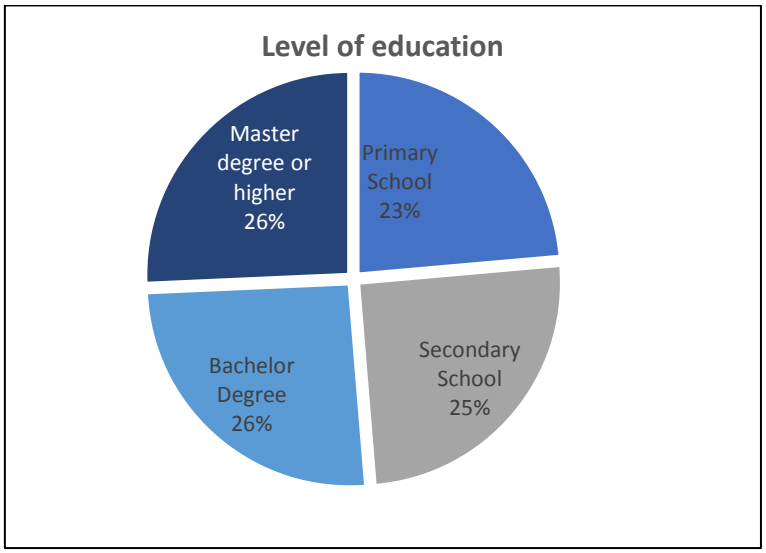

Figure 8: Portion of level of education

Figure 9: Shows theexperience of driving taxi. Most of taxi driver have a experience of driving between 3 to 6 year.

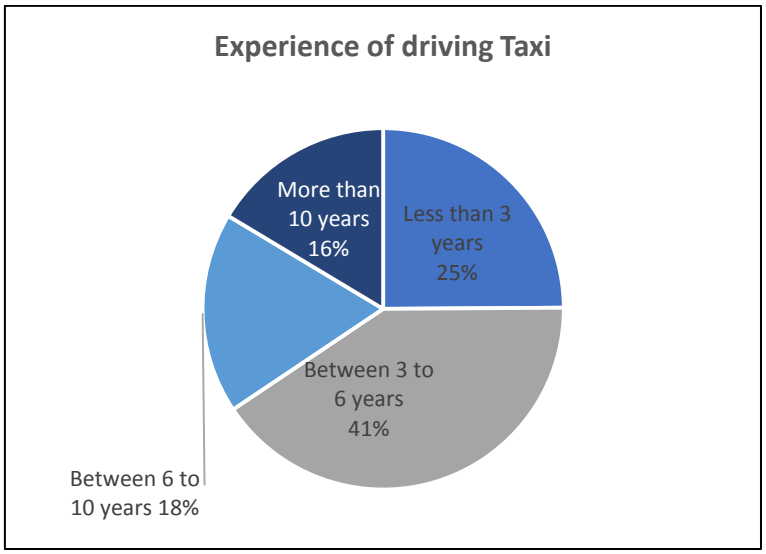

Figure 9: Porting of experience of driving taxi

Figure 10: Shows type of car they buy. Most of taxi are sedan car.

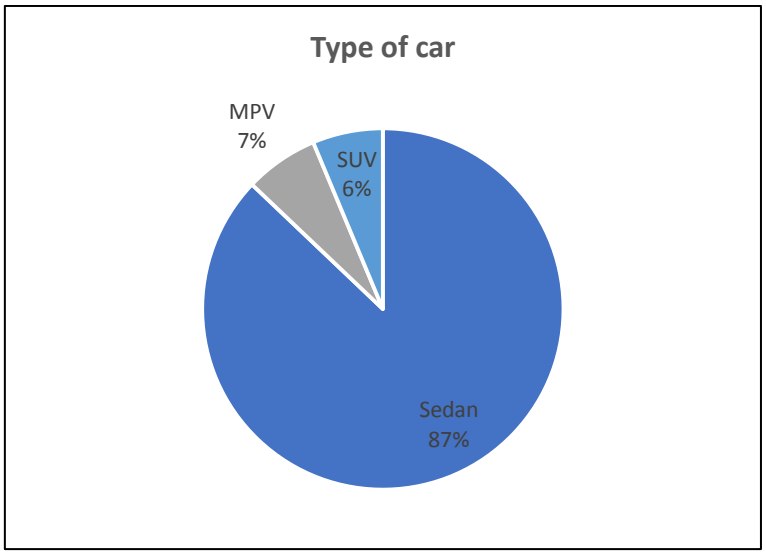

Figure 10: Porting of type of car

Figure 11: Shows car age of taxi. Most cars are younger than 5 years.

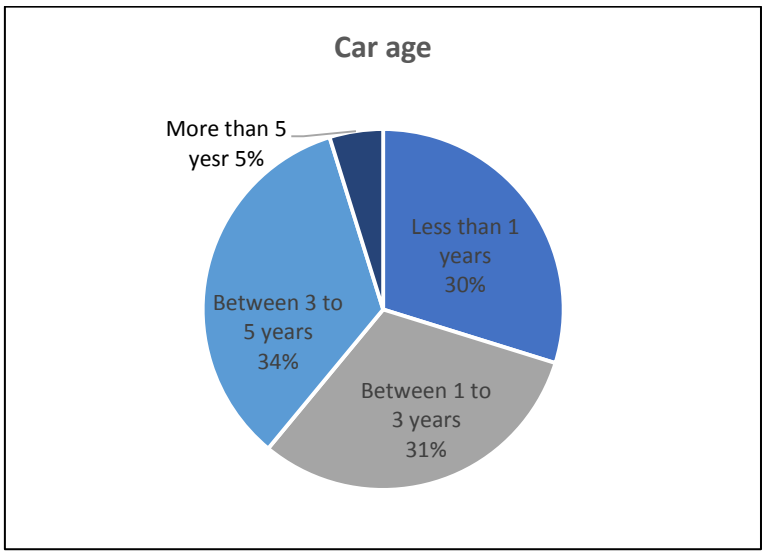

Figure 11: Porting of car age

Figure 12: Shows the number of the previous cars that a taxi driver has.

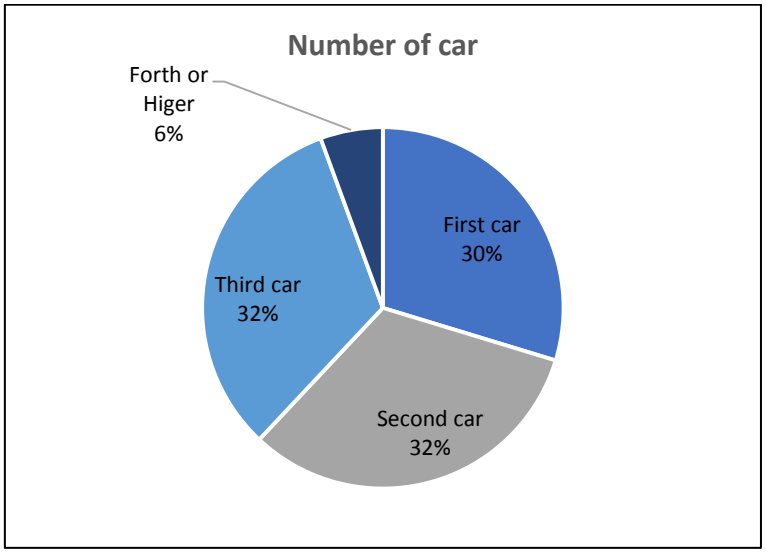

Figure 12: Porting of number of car of taxi driver

Figure 13: Shows maintenance fee per month of taxi. Most of maintenance is lower than 1,00 baht per month.

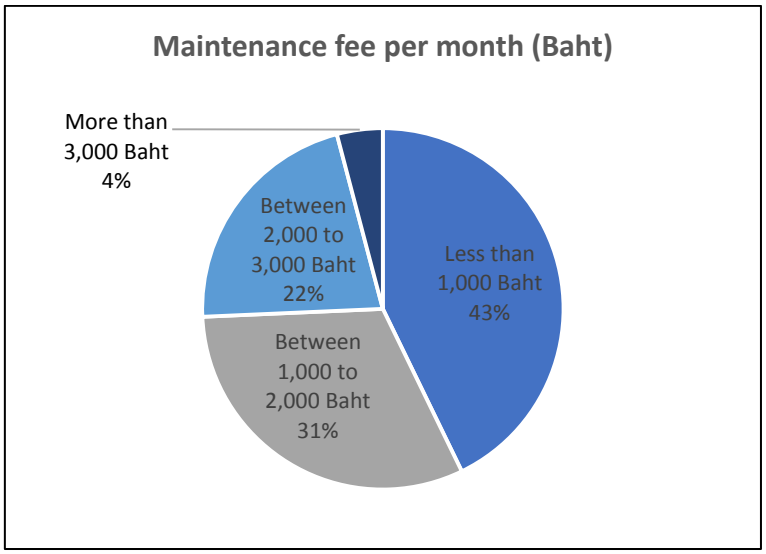

Figure 13: Porting of maintenance fee per month (Baht)

Figure 14: Shows debt payment per month of taxi drive. Most of taxi drive have debt not more than 10,000 baht per month.

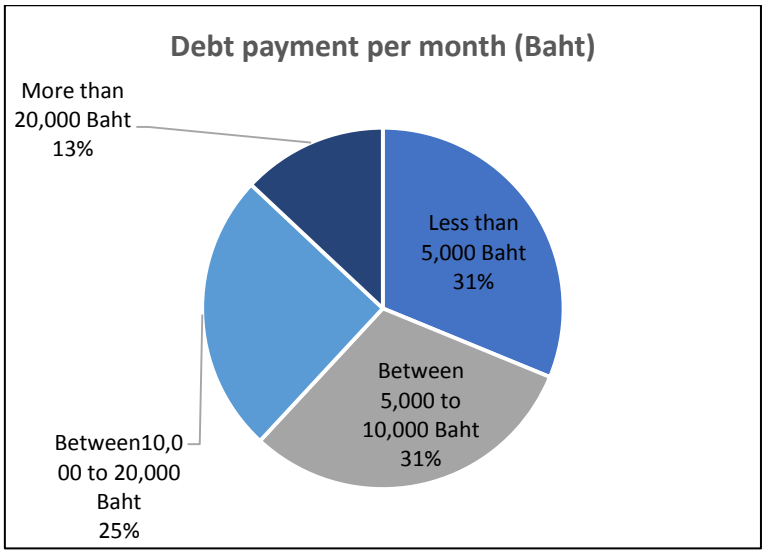

Figure 14: Porting of debt payment per month (Baht)

Figure 15: Shows average distance per trip. Most of trips are less than 25 kilometres.

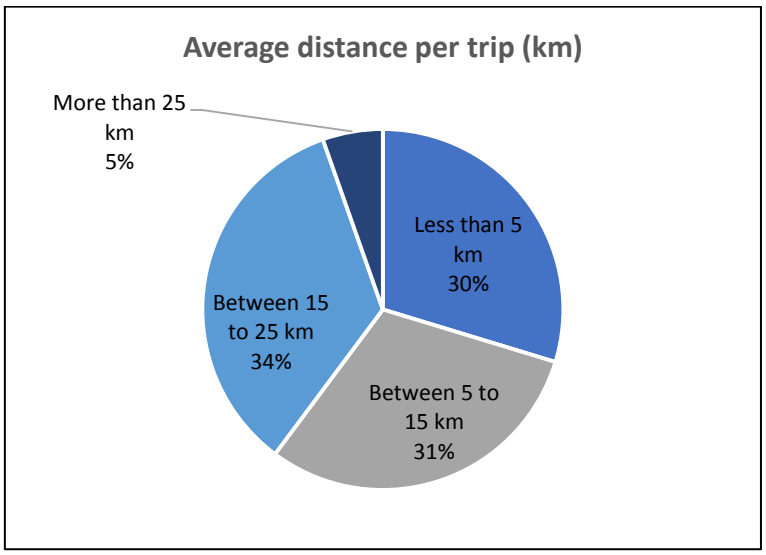

Figure 15: Porting of average distance per trip (km)

Figure 16: Shows the customer zones.

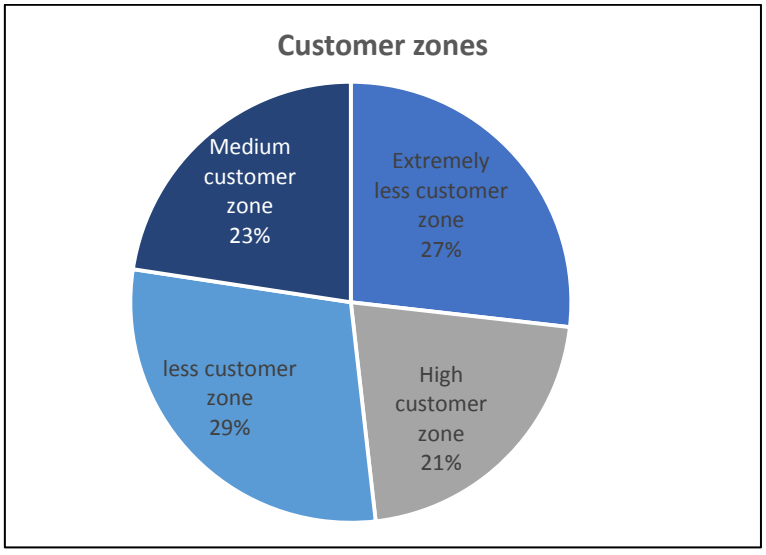

Figure 16: Porting of customer zones

Figure 17: Shows average driving time per day. Most of taxi driver drive more than 6 hours per day.

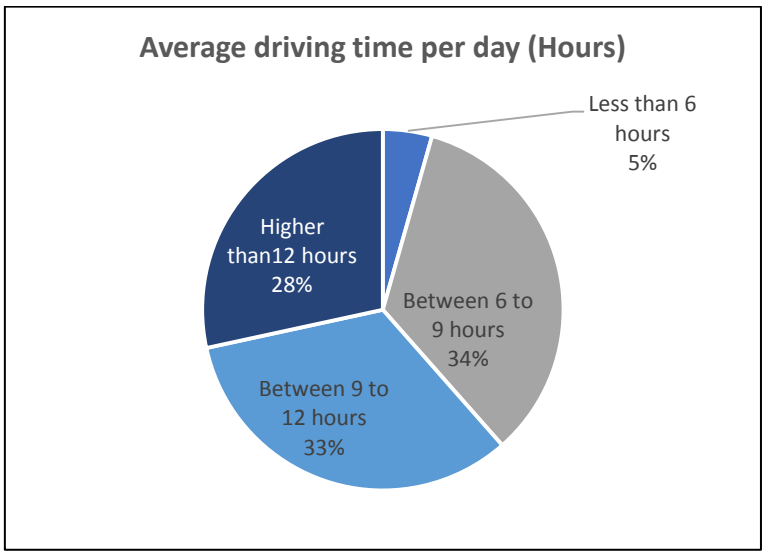

Figure 17: Porting of average driving time per day (Hours)

Figure 18: Shows start time of driving. Starting time of driving is not different.

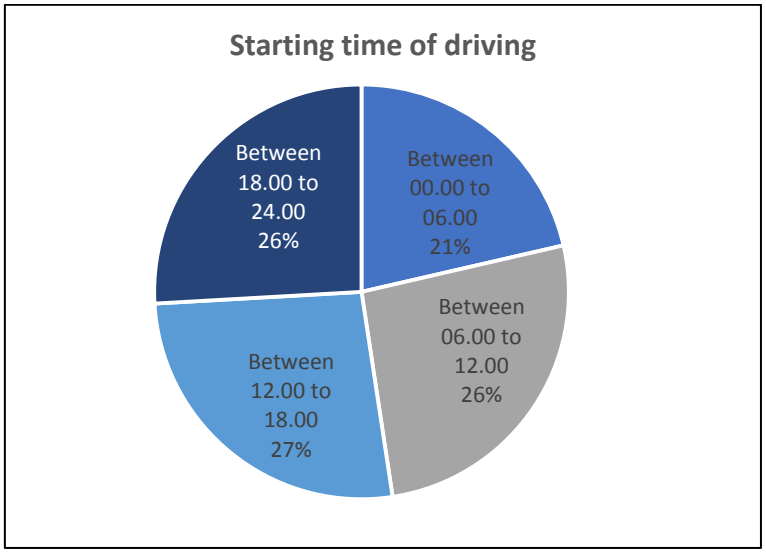

Figure 18: Porting of starting time of driving

Figure 19: Shows best weather for driver.

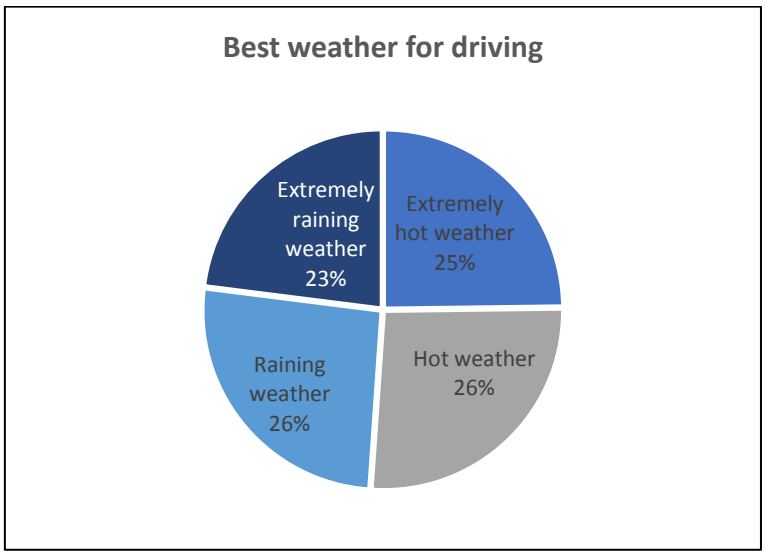

Figure 19: Porting of best weather for driving

Figure 20: Shows using mobile application for catching a passenger of driver. Half of driver do not use mobile application for catching a passenger.

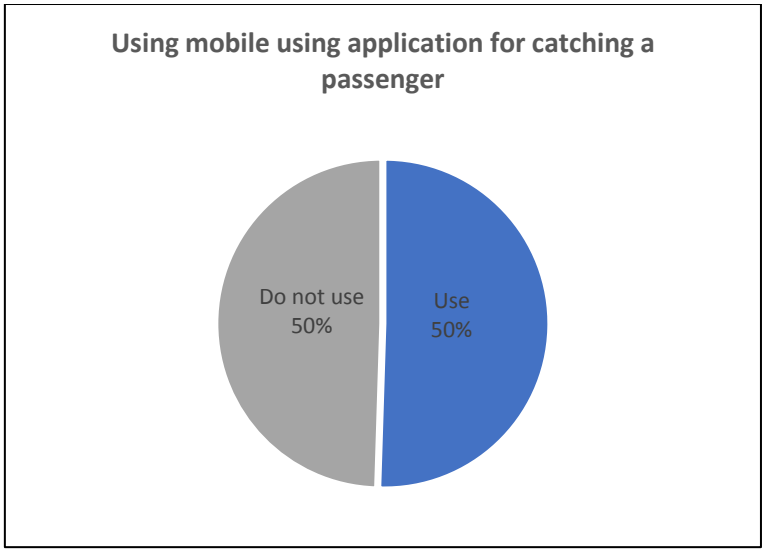

Figure 20: Porting of using mobile application for catching a passenger

Figure 21: Shows the number of mobile applications that taxi drivers use for catching passengers.

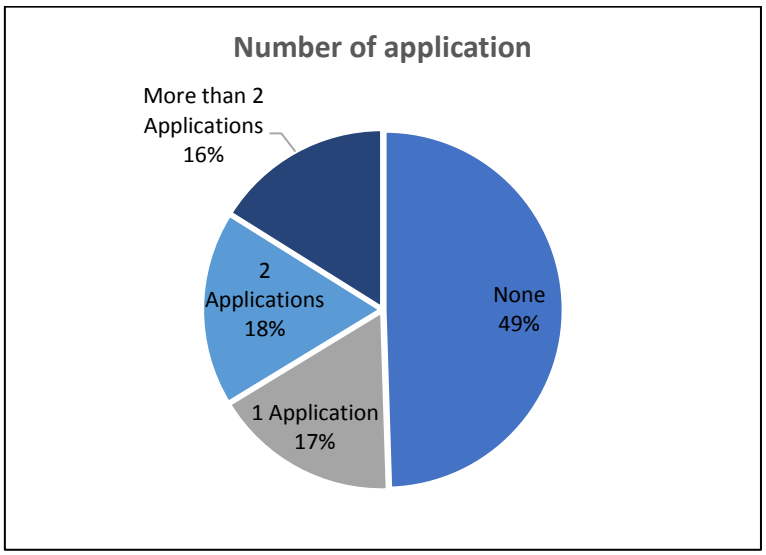

Figure 21: Porting of number of mobile application that taxi using

Figure 22: Shows the years of using mobile applications that taxi drivers use for catching passengers.

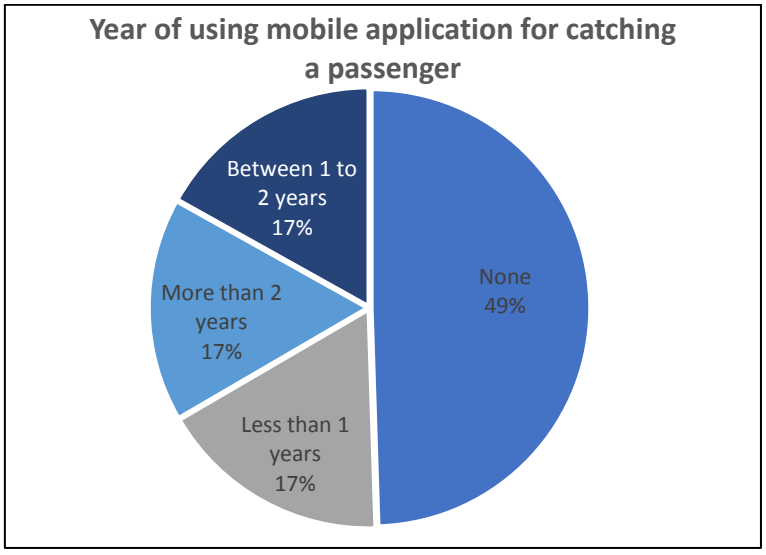

Figure 22: Porting of year of mobile application for catching a passenger

Figure 23: Showsbonus income from mobile applications per month that taxi drivers use.

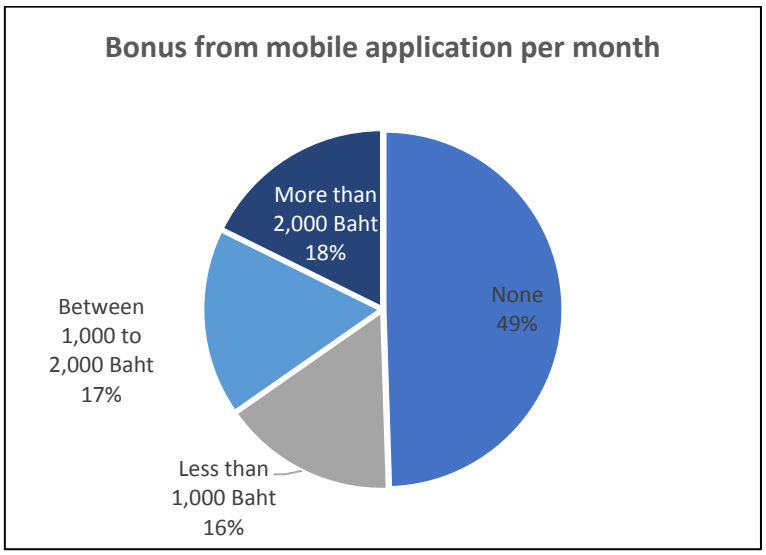

Figure 23: Porting of bonus from mobile application per month

Figure 24: Shows number of trip by mobile application that taxi driver use for catching a passenger.

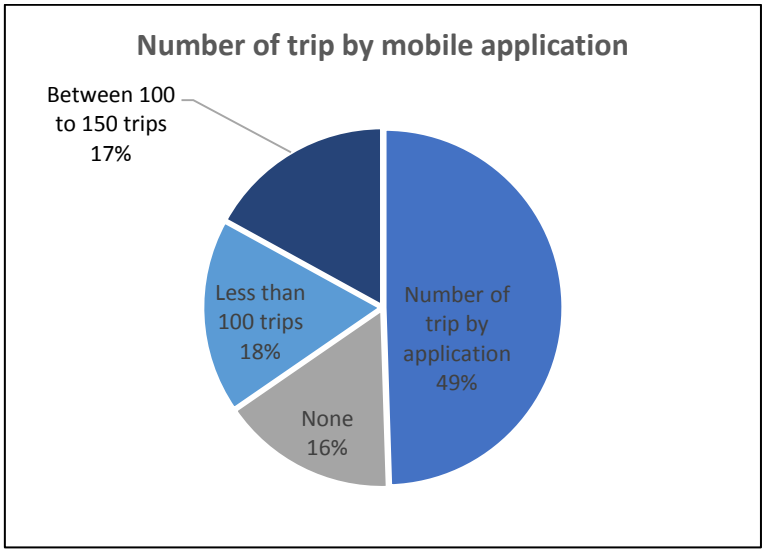

Figure 24: Porting of number of trip by mobile application

Step 4: Clustering the data by using K-mean method

We began by choosing six factors to cluster consisted of sex, status, type of car, customer zones, driving start time, and weather preference. Because demographic and personal information is the first topic that taxi driver answering and making good model should be designed to be consistent with data andpurpose of using.

Figure25: explains quality of the cluster from the six factors.

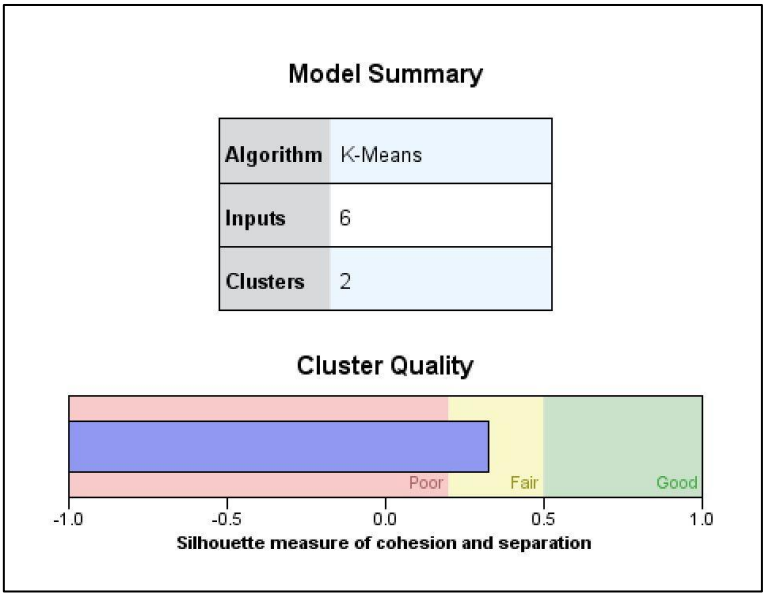

Figure 25: Model input and cluster quality of usual information

Figure 26: explains the cluster size of usual information factor.

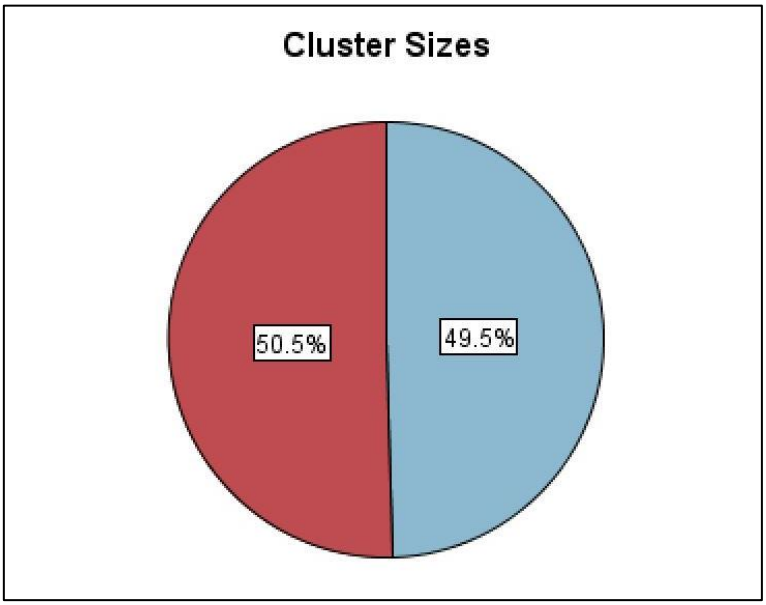

Figure 26: Cluster size of usual information

Figure 27: explains the most predictive usual information factor.

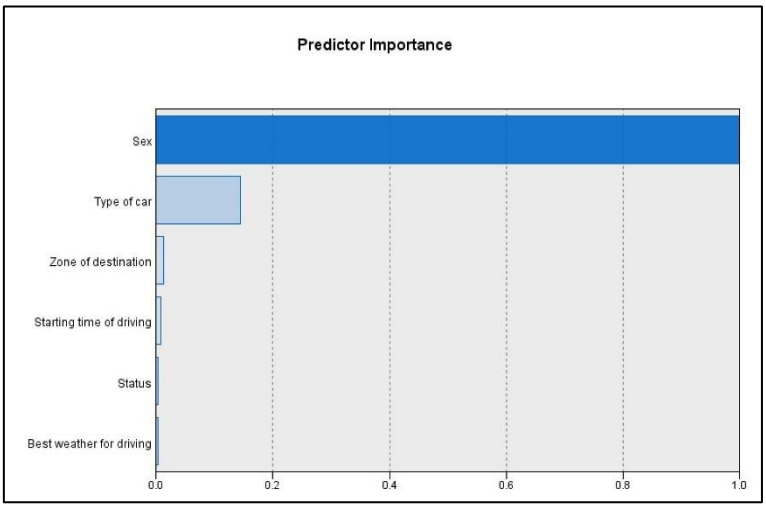

Figure 27: Predictive factors of usual information

From the usual information, the most predictive factor is sex. Then the remaining factors were further analysed to be a tool to cluster more data.

Figure 28: explains the remaining factorsthe quality of the new cluster.

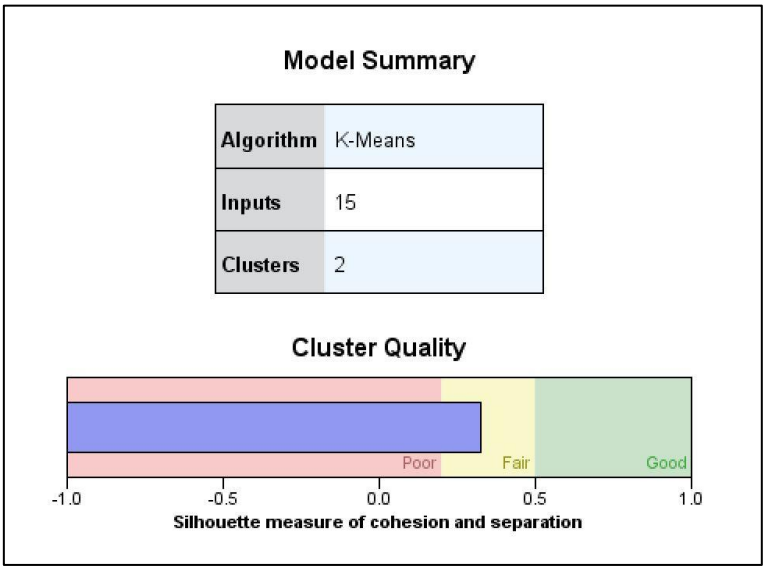

Figure 28: Model input and cluster quality of remaining factor

Figure29: explains the cluster size of the remaining factors.

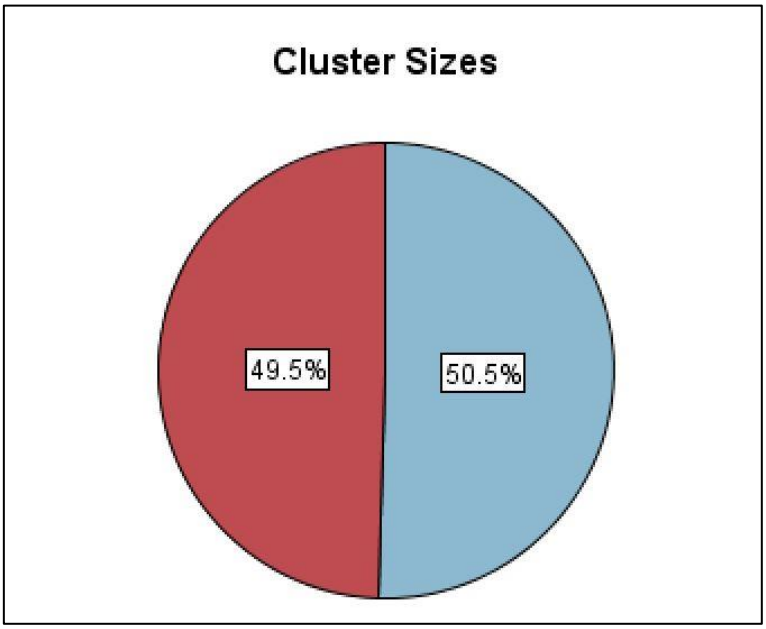

Figure 29: Cluster size of remaining factor

Figure 30: shows that the most predictive factor is using mobile application for catching a passenger.

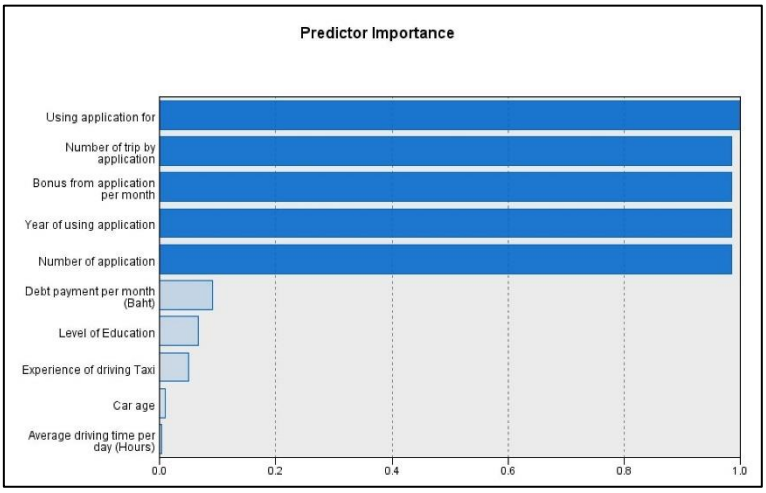

Figure 30: Predictive factors of remaining factor

Hence, we used “sex” and “using mobile application for catching a passenger” to cluster data. The following are the four sets of data.

1. Male taxi driver who using mobile application for catching a passenger.
2. Male taxi driver who do not using mobile application for catching a passenger.
3. Female taxi driver who using mobile application for catching a passenger.
4. Female taxi driver who do not using mobile application for catching a passenger.

Step 5: Correlation testing

Correlation testing is the method to check the dependencies among variables.

Cluster1: Male taxi driver who using mobile application for catching a passenger.

Table 4: Correlation testing for male taxi driver who using mobile application for catching a passenger (1).

Factor	Y	X_1	X_2	X_3	X_4	X_5	X_6	X_7
Y	1.00	-	0.37	-0.08	0.32	0.77	0.63	0.33
X_1	-	1.00	-	-	-	-	-	-
X_2	0.37	-	1.00	-0.15	0.69	0.24	0.20	0.66
X_3	-0.08	-	-0.15	1.00	-0.09	-0.09	-0.11	-0.13
X_4	0.32	-	0.69	-0.09	1.00	0.19	0.15	0.39
X_5	0.77	-	0.24	-0.09	0.19	1.00	0.63	0.21
X_6	0.63	-	0.20	-0.11	0.15	0.63	1.00	0.20
X_7	0.33	-	0.66	-0.13	0.39	0.21	0.20	1.00
X_8	-0.12	-	0.05	0.02	0.02	-0.07	-0.05	0.01
X_9	0.26	-	0.36	0.16	0.23	0.12	0.11	0.45
X_{10}	-0.06	-	0.23	-0.04	0.13	-0.05	-0.01	0.31
X_{11}	0.89	-	0.34	-0.12	0.30	0.69	0.57	0.33
X_{12}	0.30	-	0.47	-0.09	0.28	0.20	0.18	0.61
X_{13}	-0.17	-	-0.23	0.07	-0.13	-0.17	-0.12	-0.35
X_{14}	-0.21	-	-0.33	0.13	-0.18	-0.11	-0.06	-0.48
X_{15}	0.10	-	0.14	0.05	0.01	-0.01	0.05	0.15
X_{16}	-0.02	-	-0.08	0.07	-0.08	0.01	-0.04	-0.02
X_{17}	-	-	-	-	-	-	-	-
X_{18}	-0.05	-	-0.02	-0.07	0.02	0.00	0.00	-0.12
X_{19}	-0.03	-	-0.07	-0.01	-0.11	0.03	-0.05	-0.01
X_{20}	-0.07	-	0.13	-0.08	0.06	0.06	0.02	0.08
X_{21}	0.07	-	0.02	-0.03	0.03	0.05	0.04	0.04

Table 5: Correlation testing for male taxi driver who using mobile application for catching a passenger (2).

Factor	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}
Y	-0.12	0.26	-0.06	0.89	0.30	-0.17	-0.21	0.10
X_1	-	-	-	-	-	-	-	-
X_2	0.05	0.36	0.23	0.34	0.47	-0.23	-0.33	0.14
X_3	0.02	0.16	-0.04	-0.12	-0.09	0.07	0.13	0.05
X_4	0.02	0.23	0.13	0.30	0.28	-0.13	-0.18	0.01
X_5	-0.07	0.12	-0.05	0.69	0.20	-0.17	-0.11	-0.01
X_6	-0.05	0.11	-0.01	0.57	0.18	-0.12	-0.06	0.05
X_7	0.01	0.45	0.31	0.33	0.61	-0.35	-0.48	0.15
X_8	1.00	-0.05	0.78	-0.09	0.09	-0.07	-0.07	-0.03
X_9	-0.05	1.00	0.08	0.26	0.36	-0.19	-0.22	0.03
X_{10}	0.78	0.08	1.00	-0.02	0.23	-0.15	-0.20	0.06
X_{11}	-0.09	0.26	-0.02	1.00	0.33	-0.18	-0.22	0.10
X_{12}	0.09	0.36	0.23	0.33	1.00	-0.25	-0.38	0.12
X_{13}	-0.07	-0.19	-0.15	-0.18	-0.25	1.00	0.18	-0.01
X_{14}	-0.07	-0.22	-0.20	-0.22	-0.38	0.18	1.00	-0.11
X_{15}	-0.03	0.03	0.06	0.10	0.12	-0.01	-0.11	1.00
X_{16}	-0.08	0.08	-0.03	-0.03	-0.05	-0.01	0.00	-0.04
X_{17}	-	-	-	-	-	-	-	-
X_{18}	-0.07	-0.04	-0.12	-0.03	-0.02	0.00	0.11	-0.06
X_{19}	0.03	-0.07	-0.07	-0.09	-0.04	0.03	-0.06	-0.12
X_{20}	0.03	0.03	0.04	-0.06	0.14	-0.01	-0.06	0.03
X_{21}	-0.11	0.13	-0.02	0.05	-0.06	0.00	0.01	-0.12

Table 6: Correlation testing for male taxi driver who using mobile application for catching a passenger (3).

Factor	X_{16}	X_{17}	X_{18}	X_{19}	X_{20}	X_{21}
Y	-0.02	-	-0.05	-0.03	-0.07	0.07
X_1	-	-	-	-	-	-
X_2	-0.08	-	-0.02	-0.07	0.13	0.02
X_3	0.07	-	-0.07	-0.01	-0.08	-0.03
X_4	-0.08	-	0.02	-0.11	0.06	0.03
X_5	0.01	-	0.00	0.03	0.06	0.05
X_6	-0.04	-	0.00	-0.05	0.02	0.04
X_7	-0.02	-	-0.12	-0.01	0.08	0.04
X_8	-0.08	-	-0.07	0.03	0.03	-0.11
X_9	0.08	-	-0.04	-0.07	0.03	0.13
X_{10}	-0.03	-	-0.12	-0.07	0.04	-0.02
X_{11}	-0.03	-	-0.03	-0.09	-0.06	0.05
X_{12}	-0.05	-	-0.02	-0.04	0.14	-0.06
X_{13}	-0.01	-	0.00	0.03	-0.01	0.00
X_{14}	0.00	-	0.11	-0.06	-0.06	0.01
X_{15}	-0.04	-	-0.06	-0.12	0.03	-0.12
X_{16}	1.00	-	0.06	-0.05	0.01	0.09
X_{17}	-	1.00	-	-	-	-
X_{18}	0.06	-	1.00	0.09	-0.07	0.04
X_{19}	-0.05	-	0.09	1.00	0.03	0.00
X_{20}	0.01	-	-0.07	0.03	1.00	-0.01
X_{21}	0.09	-	0.04	0.00	-0.01	1.00

From Table 4, 5, and 6 correlation testing of men taxi driver who use application for getting a ride cluster can concludethat number of children, level of education, car age, number of car, debt payment per month (Baht) and bonus income from mobile applications per month is the independence factor for create

a model for the reason that 6 factors can explain level of income the most. We can condense correlatevariables by usingcorrelation testing if the factor can explain another factor better than the targetwe can has censored them off the model for exampleX_2, can explain Y only 37%, butX_2 can explain X_4 up to 69%, so we can eliminate X4 out of the mode

Cluster2: Male taxi driver who do not using mobile application for catching a passenger

Table 7: Correlation testing for male taxi driver who do not using mobile application for catching a passenger (1).

Factor	Y	X_1	X_2	X_3	X_4	X_5	X_6	X_7
Y	1.00	-	0.46	0.00	0.45	0.80	0.64	0.50
X_1	-	1.00	-	-	-	-	-	-
X_2	0.46	-	1.00	-0.03	0.65	0.34	0.27	0.66
X_3	0.00	-	-0.03	1.00	0.01	0.03	0.12	-0.06
X_4	0.45	-	0.65	0.01	1.00	0.32	0.33	0.43
X_5	0.80	-	0.34	0.03	0.32	1.00	0.67	0.36
X_6	0.64	-	0.27	0.12	0.33	0.67	1.00	0.28
X_7	0.50	-	0.66	-0.06	0.43	0.36	0.28	1.00
X_8	-0.25	-	-0.02	-0.06	-0.07	-0.14	-0.12	-0.02
X_9	0.35	-	0.43	0.20	0.36	0.31	0.29	0.55
X_{10}	0.00	-	0.19	-0.10	0.09	0.04	0.05	0.35
X_{11}	0.86	-	0.42	-0.01	0.41	0.72	0.57	0.44
X_{12}	0.34	-	0.47	-0.08	0.36	0.22	0.13	0.61
X_{13}	-0.22	-	-0.28	0.03	-0.22	-0.16	-0.07	-0.38
X_{14}	-0.27	-	-0.33	0.09	-0.33	-0.16	-0.10	-0.37
X_{15}	0.07	-	0.14	0.09	0.00	0.04	0.13	0.19
X_{16}	-0.09	-	-0.02	-0.08	0.00	-0.10	-0.04	-0.06
X_{17}	-	-	-	-	-	-	-	-
X_{18}	-	-	-	-	-	-	-	-
X_{19}	-	-	-	-	-	-	-	-
X_{20}	-	-	-	-	-	-	-	-
X_{21}	-	-	-	-	-	-	-	-

Table 8: Correlation testing for male taxi driver who do not using mobile application for catching a passenger (2).

Factor	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}
Y	-0.25	0.35	0.00	0.86	0.34	-0.22	-0.27	0.07
X_1	-	-	-	-	-	-	-	-
X_2	-0.02	0.43	0.19	0.42	0.47	-0.28	-0.33	0.14
X_3	-0.06	0.20	-0.10	-0.01	-0.08	0.03	0.09	0.09
X_4	-0.07	0.36	0.09	0.41	0.36	-0.22	-0.33	0.00
X_5	-0.14	0.31	0.04	0.72	0.22	-0.16	-0.16	0.04
X_6	-0.12	0.29	0.05	0.57	0.13	-0.07	-0.10	0.13
X_7	-0.02	0.55	0.35	0.44	0.61	-0.38	-0.37	0.19
X_8	1.00	-0.11	0.76	-0.19	-0.07	0.02	0.00	0.02
X_9	-0.11	1.00	0.09	0.26	0.35	-0.20	-0.23	0.10
X_{10}	0.76	0.09	1.00	0.03	0.16	-0.12	-0.08	0.11
X_{11}	-0.19	0.26	0.03	1.00	0.29	-0.20	-0.22	0.07
X_{12}	-0.07	0.35	0.16	0.29	1.00	-0.28	-0.28	0.14
X_{13}	0.02	-0.20	-0.12	-0.20	-0.28	1.00	0.17	-0.22
X_{14}	0.00	-0.23	-0.08	-0.22	-0.28	0.17	1.00	-0.10
X_{15}	0.02	0.10	0.11	0.07	0.14	-0.22	-0.10	1.00
X_{16}	0.09	-0.02	0.10	-0.07	-0.09	0.13	-0.03	0.04
X_{17}	-	-	-	-	-	-	-	-
X_{18}	-	-	-	-	-	-	-	-
X_{19}	-	-	-	-	-	-	-	-
X_{20}	-	-	-	-	-	-	-	-
X_{21}	-	-	-	-	-	-	-	-

Table 9: Correlation testing for male taxi driver who do not using mobile application for catching a passenger (3).

Factor	X_{16}	X_{17}	X_{18}	X_{19}	X_{20}	X_{21}
Y	-0.09	-	-	-	-	-
X_1	-	-	-	-	-	-
X_2	-0.02	-	-	-	-	-
X_3	-0.08	-	-	-	-	-
X_4	0.00	-	-	-	-	-
X_5	-0.10	-	-	-	-	-
X_6	-0.04	-	-	-	-	-
X_7	-0.06	-	-	-	-	-
X_8	0.09	-	-	-	-	-
X_9	-0.02	-	-	-	-	-
X_{10}	0.10	-	-	-	-	-
X_{11}	-0.07	-	-	-	-	-
X_{12}	-0.09	-	-	-	-	-
X_{13}	0.13	-	-	-	-	-
X_{14}	-0.03	-	-	-	-	-
X_{15}	0.04	-	-	-	-	-
X_{16}	1.00	-	-	-	-	-
X_{17}	-	1.00	-	-	-	-
X_{18}	-	-	1.00	-	-	-
X_{19}	-	-	-	1.00	-	-
X_{20}	-	-	-	-	1.00	-
X_{21}	-	-	-	-	-	1.00

From table 7, 8, and 9 correlation testingofmale taxi driver who do not using mobile application for catching a passenger cluster can concludethat number of children, level of education, type of car, Car age and debt payment per month (Baht) is the independence factor for create a model.

Cluster3: Female taxi driver who using mobile application for catching a passenger

Table 10: Correlation testing for female taxi driver who using mobile application for catching a passenger (1).

Factor	Y	X_1	X_2	X_3	X_4	X_5	X_6	X_7
Y	1.00	-	0.13	0.01	0.24	0.80	0.59	-
X_1	-	1.00	-	-	-	-	-	-
X_2	0.13	-	1.00	-0.07	0.66	0.07	0.01	-
X_3	0.01	-	-0.07	1.00	-0.05	0.00	-0.07	-
X_4	0.24	-	0.66	-0.05	1.00	0.12	0.01	-
X_5	0.80	-	0.07	0.00	0.12	1.00	0.57	-
X_6	0.59	-	0.01	-0.07	0.01	0.57	1.00	-
X_7	-	-	-	-	-	-	-	1.00
X_8	-0.10	-	-0.07	-0.02	-0.06	-0.02	0.00	-
X_9	0.00	-	0.05	0.08	0.05	-0.01	-0.01	-
X_{10}	-0.09	-	-0.09	-0.03	-0.04	0.05	-0.02	-
X_{11}	0.87	-	0.13	0.00	0.23	0.69	0.52	-
X_{12}	0.01	-	0.01	-0.02	0.02	-0.01	-0.02	-
X_{13}	0.01	-	0.01	-0.03	0.08	0.05	0.09	-
X_{14}	-0.12	-	-0.11	-0.07	-0.08	-0.12	-0.01	-
X_{15}	0.08	-	-0.01	-0.12	-0.02	0.10	0.09	-
X_{16}	0.05	-	-0.01	0.00	0.02	-0.03	-0.01	-
X_{17}	-	-	-	-	-	-	-	-
X_{18}	0.00	-	0.08	-0.03	0.14	-0.07	-0.09	-
X_{19}	0.03	-	0.00	0.06	-0.05	0.00	0.00	-
X_{20}	0.02	-	0.02	0.01	0.01	0.03	0.08	-
X_{21}	-0.03	-	0.16	-0.04	0.12	-0.01	-0.02	-

Table 11: Correlation testing for female taxi driver who using mobile application for catching a passenger (2).

Factor	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}
Y	-0.10	0.00	-0.09	0.87	0.01	0.01	-0.12	0.08
X_1	-	-	-	-	-	-	-	-
X_2	-0.07	0.05	-0.09	0.13	0.01	0.01	-0.11	-0.01
X_3	-0.02	0.08	-0.03	0.00	-0.02	-0.03	-0.07	-0.12
X_4	-0.06	0.05	-0.04	0.23	0.02	0.08	-0.08	-0.02
X_5	-0.02	-0.01	0.05	0.69	-0.01	0.05	-0.12	0.10
X_6	0.00	-0.01	-0.02	0.52	-0.02	0.09	-0.01	0.09
X_7	-	-	-	-	-	-	-	-
X_8	1.00	0.03	0.84	-0.05	-0.04	-0.02	0.03	-0.06
X_9	0.03	1.00	-0.07	-0.03	-0.07	-0.09	-0.03	-0.01
X_{10}	0.84	-0.07	1.00	-0.03	-0.04	-0.01	-0.05	-0.03
X_{11}	-0.05	-0.03	-0.03	1.00	0.02	0.04	-0.11	0.08
X_{12}	-0.04	-0.07	-0.04	0.02	1.00	0.01	-0.02	0.06
X_{13}	-0.02	-0.09	-0.01	0.04	0.01	1.00	0.06	0.00
X_{14}	0.03	-0.03	-0.05	-0.11	-0.02	0.06	1.00	0.11
X_{15}	-0.06	-0.01	-0.03	0.08	0.06	0.00	0.11	1.00
X_{16}	-0.08	0.02	-0.02	0.05	0.03	0.03	-0.01	0.01
X_{17}	-	-	-	-	-	-	-	-
X_{18}	-0.16	0.11	-0.19	0.02	-0.07	0.03	0.05	0.06
X_{19}	0.03	-0.05	0.06	0.04	0.05	0.02	-0.15	-0.07
X_{20}	-0.06	0.01	-0.03	0.01	0.09	0.04	0.03	-0.06
X_{21}	0.05	0.01	0.09	-0.04	0.08	0.06	0.08	0.02

Table 12: Correlation testing for female taxi driver who using mobile application for catching a passenger (3).

Factor	X_{16}	X_{17}	X_{18}	X_{19}	X_{20}	X_{21}
Y	0.05	-	0.00	0.03	0.02	-0.03
X_1	-	-	-	-	-	-
X_2	-0.01	-	0.08	0.00	0.02	0.16
X_3	0.00	-	-0.03	0.06	0.01	-0.04
X_4	0.02	-	0.14	-0.05	0.01	0.12
X_5	-0.03	-	-0.07	0.00	0.03	-0.01
X_6	-0.01	-	-0.09	0.00	0.08	-0.02
X_7	-	-	-	-	-	-
X_8	-0.08	-	-0.16	0.03	-0.06	0.05
X_9	0.02	-	0.11	-0.05	0.01	0.01
X_{10}	-0.02	-	-0.19	0.06	-0.03	0.09
X_{11}	0.05	-	0.02	0.04	0.01	-0.04
X_{12}	0.03	-	-0.07	0.05	0.09	0.08
X_{13}	0.03	-	0.03	0.02	0.04	0.06
X_{14}	-0.01	-	0.05	-0.15	0.03	0.08
X_{15}	0.01	-	0.06	-0.07	-0.06	0.02
X_{16}	1.00	-	0.11	0.03	-0.06	0.00
X_{17}	-	1.00	-	-	-	-
X_{18}	0.11	-	1.00	-0.02	0.05	-0.07
X_{19}	0.03	-	-0.02	1.00	0.02	0.06
X_{20}	-0.06	-	0.05	0.02	1.00	0.10
X_{21}	0.00	-	-0.07	0.06	0.10	1.00

From table 10, 11, and 12 correlation testing ofmale taxi driver who do not using mobile application for catching a passenger cluster can concludethat number of children, level of education, experience of driving taxi, Car age and debt payment per month (Baht) is the independence factor for create a model.

Cluster4: Female taxi driver who do not using mobile application for catching a passenger

Table 13: Correlation testing for female taxi driver who do not using mobile application for catching a passenger (1).

Factor	Y	X_1	X_2	X_3	X_4	X_5	X_6	X_7
Y	1.00	-	0.25	-0.03	0.42	0.69	0.65	-
X_1	-	1.00	-	-	-	-	-	-
X_2	0.25	-	1.00	-0.03	0.66	0.18	0.14	-
X_3	-0.03	-	-0.03	1.00	-0.04	-0.10	-0.04	-
X_4	0.42	-	0.66	-0.04	1.00	0.27	0.22	-
X_5	0.69	-	0.18	-0.10	0.27	1.00	0.65	-
X_6	0.65	-	0.14	-0.04	0.22	0.65	1.00	-
X_7	-	-	-	-	-	-	-	1.00
X_8	-0.43	-	-0.01	0.04	-0.06	-0.21	-0.21	-
X_9	0.05	-	0.00	0.08	-0.09	0.03	0.07	-
X_{10}	-0.37	-	0.00	0.09	-0.05	-0.18	-0.18	-
X_{11}	0.83	-	0.16	-0.06	0.35	0.70	0.57	-
X_{12}	-0.03	-	0.00	0.04	0.00	-0.03	-0.08	-
X_{13}	0.06	-	0.07	0.07	0.14	0.10	0.00	-
X_{14}	-0.05	-	0.03	0.04	-0.01	-0.15	-0.06	-
X_{15}	-0.07	-	0.00	-0.01	-0.09	0.02	0.00	-
X_{16}	0.07	-	-0.04	0.05	-0.03	0.07	-0.06	-
X_{17}	-	-	-	-	-	-	-	-
X_{18}	-	-	-	-	-	-	-	-
X_{19}	-	-	-	-	-	-	-	-
X_{20}	-	-	-	-	-	-	-	-
X_{21}	-	-	-	-	-	-	-	-

Table 14: Correlation testing for female taxi driver who do not using mobile application for catching a passenger (2).

Factor	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}
Y	-0.43	0.05	-0.37	0.83	-0.03	0.06	-0.05	-0.07
X_1	-	-	-	-	-	-	-	-
X_2	-0.01	0.00	0.00	0.16	0.00	0.07	0.03	0.00
X_3	0.04	0.08	0.09	-0.06	0.04	0.07	0.04	-0.01
X_4	-0.06	-0.09	-0.05	0.35	0.00	0.14	-0.01	-0.09
X_5	-0.21	0.03	-0.18	0.70	-0.03	0.10	-0.15	0.02
X_6	-0.21	0.07	-0.18	0.57	-0.08	0.00	-0.06	0.00
X_7	-	-	-	-	-	-	-	-
X_8	1.00	-0.06	0.87	-0.27	0.08	-0.08	-0.04	0.04
X_9	-0.06	1.00	-0.03	0.05	-0.04	0.06	-0.05	0.09
X_{10}	0.87	-0.03	1.00	-0.22	0.08	-0.05	0.00	0.01
X_{11}	-0.27	0.05	-0.22	1.00	-0.02	0.04	-0.07	-0.08
X_{12}	0.08	-0.04	0.08	-0.02	1.00	0.02	-0.05	0.04
X_{13}	-0.08	0.06	-0.05	0.04	0.02	1.00	-0.02	-0.04
X_{14}	-0.04	-0.05	0.00	-0.07	-0.05	-0.02	1.00	0.07
X_{15}	0.04	0.09	0.01	-0.08	0.04	-0.04	0.07	1.00
X_{16}	-0.02	-0.02	0.06	0.07	0.00	0.04	0.03	-0.02
X_{17}	-	-	-	-	-	-	-	-
X_{18}	-	-	-	-	-	-	-	-
X_{19}	-	-	-	-	-	-	-	-
X_{20}	-	-	-	-	-	-	-	-
X_{21}	-	-	-	-	-	-	-	-

Table 15: Correlation testing for female taxi driver who do not using mobile application for catching a passenger (3).

Factor	X_{16}	X_{17}	X_{18}	X_{19}	X_{20}	X_{21}
Y	0.07	-	-	-	-	-
X_1	-	-	-	-	-	-
X_2	-0.04	-	-	-	-	-
X_3	0.05	-	-	-	-	-
X_4	-0.03	-	-	-	-	-
X_5	0.07	-	-	-	-	-
X_6	-0.06	-	-	-	-	-
X_7	-	-	-	-	-	-
X_8	-0.02	-	-	-	-	-
X_9	-0.02	-	-	-	-	-
X_{10}	0.06	-	-	-	-	-
X_{11}	0.07	-	-	-	-	-
X_{12}	0.00	-	-	-	-	-
X_{13}	0.04	-	-	-	-	-
X_{14}	0.03	-	-	-	-	-
X_{15}	-0.02	-	-	-	-	-
X_{16}	1.00	-	-	-	-	-
X_{17}	-	1.00	-	-	-	-
X_{18}	-	-	1.00	-	-	-
X_{19}	-	-	-	1.00	-	-
X_{20}	-	-	-	-	1.00	-
X_{21}	-	-	-	-	-	1.00

From Table 13, 14, and 15 correlation testing offemale taxi driver who using mobile application for catching a passengercluster can concludethat status, experience of driving taxi, car age and debt payment per month (Baht) is the independence factor for create a model.

Step 6: Variance inflation factor testing

Variance inflation factor testing was applied to test the multicollinearity by set the factor that we need to test be a target and find theR^2convertto VIF if it is less than the rule of thumb that factor will be revoke.

Cluster1: Male taxi driver who using mobile application for catching a passenger.

Table 16: Variance inflation factor testingof male taxi driver who using mobile application for catching a passenger.

List of factors	R^2	VIF
Number of children	0.12	1.14
Level of Education	0.49	1.98
Car age	0.01	1.01
Number of car	0.10	1.11
Debt payment per month (Baht)	0.54	2.19
Bonus from mobile application per month	0.03	1.03

From table 16 male taxi driver who using mobile application for catching a passenger cluster after correlation testing have remain only 6 factors is number of children, level of education, car age, number of car, debt payment per month (Baht) and bonus from mobile application per month then we use variance inflation factor to test multicollinearity between factors. All of 6 factors do not have multicollinearity in significant level.

Cluster2: Male taxi driver who do not using mobile application for catching a passenger.

Table 17: Variance inflation factor testingof male taxi driver who do not using mobile application for catching a passenger.

List of factors	R^2	VIF
Number of children	0.25	1.33
Level of Education	0.52	2.08
Type of car	0.28	1.38
Car age	0.04	1.04
Debt payment per month (Baht)	0.58	2.37

From table 17 male taxi driver who using mobile application for catching a passenger cluster after correlation testing have remain only 5 factors is number of children, level of education, type of car, car age and debt payment per month (Baht) then we use variance inflation factor to test multicollinearity between factors. All of 5 factors do not have multicollinearity in significant level.

Cluster3: Female taxi driver who using mobile application for catching a passenger.

Table 18: Variance inflation factor testingof Female taxi driver who using mobile application for catching a passenger.

List of factors	R^2	VIF
Number of children	0.07	1.08
Level of Education	0.54	2.16
Experience of driving Taxi	0.36	1.57
Car age	0.01	1.01
Debt payment per month (Baht)	0.53	2.11

From table 18female taxi driver who using mobile application for catching a passenger cluster after correlation testing have remain only 5 factors is number of children, level of education, experience of driving taxi, Car age and debt payment per month (Baht) then we use variance inflation factor to test multicollinearity between factors. All of 5 factors do not have multicollinearity in significant level.

Cluster4: Female taxi driver who do not using mobile application for catching a passenger

Table 19: Variance inflation factor testingof Female taxi driver who do not using mobile application for catching a passenger.

List of factors	R^2	VIF
Status	0.03	1.03
Experience of driving Taxi	0.33	1.50
Car age	0.08	1.09
Debt payment per month (Baht)	0.36	1.56

From table 19female taxi driver who using mobile application for catching a passenger cluster after correlation testing have remain only 4 factors is status, experience of driving taxi, car age and debt payment per month (Baht) then we use variance inflation factor to test multicollinearity between factors. All of 4 factors do not have multicollinearity in significant level.

Step 7: Create model by using Stepwise Multiple Liner Regression method

We use Multiple Liner Regression with stepwise method to make 4 models that deviate by K-mean with stepwise method condition thatprobabilityofFtestis less than or equal to0.050 and probability of F to remove is more than or equal to0.100.

Stepwise will choose factors that effect the most and choose another factor to compose with model if the probability of F is less than or equal to 0.050 the factor will remain in the modelotherwise will be remove.

Cluster1: Male taxi driver who using mobile application for catching a passenger

Table20: Stepwisemultiple liner regression formale taxi driver who using mobile application for catching a passenger.

Model	Variables Entered	Variables Removed	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	Debt payment per month (Baht)	-	0.889	0.790	0.789	0.463866
2	Level of Education	-	0.915	0.838	0.837	0.407750
3	Number of children	-	0.917	0.841	0.840	0.404254

From table20 the first composition factor that using stepwise is debt payment per month (Baht) followed by level of education and number of children.

Table21: Coefficients of factor for male taxi driver who using mobile application for catching a passenger.

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.817	.076		10.777	.000
	Debt payment per month (Baht)	.841	.027	.889	30.691	.000
2	(Constant)	.510	.075		6.762	.000
	Debt payment per month (Baht)	.641	.033	.677	19.195	.000
	Level of Education	.290	.033	.305	8.651	.000
3	(Constant)	.423	.084		5.035	.000
	Debt payment per month (Baht)	.622	.034	.657	18.230	.000
	Level of Education	.292	.033	.308	8.794	.000
	Number of children	.095	.041	.061	2.312	.022

From table 21 the final model of male taxi driver who using mobile application for catching a passenger compose with debt payment per month (Baht), level of education and number of children.

Cluster2: Male taxi driver who do not using mobile application for catching a passenger

Table22: Stepwisemultiple liner regression step for male taxi driver who do not using mobile application for catching a passenger.

Model	Variables Entered	Variables Removed	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	Debt payment per month (Baht)	-	.860	0.739	0.738	0.464354
2	Level of Education	-	.899	0.808	0.807	0.399057
3	Type of car	-	.907	0.823	0.821	0.383881
4	Car age	-	.912	0.832	0.829	0.37507
5	Number of children	-	.914	0.835	0.832	0.372276

From table 22 the first composition factor that using stepwise is debt payment per month (Baht) followed by level of education, type of car, number of children and car age.

Table23: Coefficients of factor for male taxi driver who do not using mobile application for catching a passenger.

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.787	0.067		11.666	0
	Debt payment per month (Baht)	0.817	0.031	0.86	26.621	0
2	(Constant)	0.59	0.062		9.589	0
	Debt payment per month (Baht)	0.559	0.038	0.588	14.722	0
	Level of Education	0.299	0.032	0.378	9.461	0
3	(Constant)	0.465	0.065		7.137	0
	Debt payment per month (Baht)	0.511	0.038	0.537	13.439	0
	Level of Education	0.288	0.03	0.365	9.47	0
	Type of car	0.177	0.039	0.137	4.591	0
4	(Constant)	0.713	0.094		7.576	0
	Debt payment per month (Baht)	0.493	0.037	0.518	13.148	0
	Level of Education	0.286	0.03	0.362	9.62	0
	Type of car	0.186	0.038	0.144	4.939	0
	Car age	-0.101	0.028	-0.095	-3.576	0
5	(Constant)	0.665	0.096		6.925	0
	Debt payment per month (Baht)	0.476	0.038	0.501	12.566	0
	Level of Education	0.285	0.03	0.361	9.656	0
	Type of car	0.16	0.039	0.124	4.079	0
	Car age	-0.1	0.028	-0.094	-3.571	0
	Number of children	0.085	0.039	0.065	2.173	0.031

From table 23 the final model of male taxi driver who do not using mobile application for catching a passenger compose with debt payment per month (Baht), level of education, type of car, number of children and car age.

Cluster3: Female taxi driver who using mobile application for catching a passenger.

Table24: Stepwisemultiple liner regression step for Female taxi driver who using mobile application for catching a passenger.

Model	Variables Entered	Variables Removed	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	Debt payment per month (Baht)	-	.872	0.761	0.76	0.475148
2	Level of Education	-	.912	0.833	0.831	0.398048
3	Experience of driving Taxi	-	.916	0.839	0.837	0.391614
4	Number of children	-	.918	0.843	0.841	0.386781
5	Car age	-	.920	0.847	0.844	0.383175

From table 24 the first composition factor that using stepwise is debt payment per month (Baht), follow by level of education, experience of driving taxi, number of children and car age.

Table25: Coefficients of factor for female taxi driver who do using mobile application for catching a passenger.

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.812	0.08		10.148	0
	Debt payment per month (Baht)	0.849	0.03	0.872	28.179	0
2	(Constant)	0.488	0.074		6.597	0
	Debt payment per month (Baht)	0.6	0.035	0.616	17.203	0
	Level of Education	0.339	0.033	0.371	10.355	0
3	(Constant)	0.416	0.077		5.43	0
	Debt payment per month (Baht)	0.577	0.035	0.593	16.433	0
	Level of Education	0.303	0.034	0.332	8.872	0
	Experience of driving Taxi	0.093	0.03	0.096	3.041	0.003
4	(Constant)	0.31	0.085		3.642	0
	Debt payment per month (Baht)	0.556	0.036	0.571	15.643	0
	Level of Education	0.304	0.034	0.332	8.987	0
	Experience of driving Taxi	0.103	0.03	0.107	3.393	0.001
	Number of children	0.092	0.034	0.07	2.69	0.008
5	(Constant)	0.459	0.105		4.371	0
	Debt payment per month (Baht)	0.552	0.035	0.567	15.655	0
	Level of Education	0.305	0.033	0.334	9.107	0
	Experience of driving Taxi	0.104	0.03	0.109	3.472	0.001
	Number of children	0.088	0.034	0.068	2.609	0.01
	Car age	-0.065	0.027	-0.06	-2.382	0.018

From table 25 the final model of female taxi driver who using mobile application for catching a passenger compose with debt payment per month (Baht), level of education, experience of driving taxi, number of children and car age.

Cluster4: Female taxi driver who do not using mobile application for catching a passenger.

Table26: Stepwisemultiple liner regression step for Female taxi driver who do not using mobile application for catching a passenger.

Model	Variables Entered	Variables Removed	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	Debt payment per month (Baht)	-	.833	0.694	0.692	0.4614
2	Car age	-	.860	0.74	0.738	0.425934
3	Experience of driving Taxi	-	.883	0.78	0.778	0.392131
4	Status		.891	0.793	0.79	0.381212

From table 26 the first composition factor that using stepwise is debt payment per month (Baht) followed by car age, experience of driving taxi and status.

Table27: Coefficients of factor for female taxi driver who do using mobile application for catching a passenger.

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.715	0.069		10.397	0
	Debt payment per month (Baht)	0.814	0.035	0.833	23.354	0
2	(Constant)	1.247	0.103		12.087	0
	Debt payment per month (Baht)	0.754	0.033	0.772	22.558	0
	Car age	-0.192	0.029	-0.224	-6.543	0
3	(Constant)	1.038	0.1		10.379	0
	Debt payment per month (Baht)	0.62	0.037	0.634	16.829	0
	Car age	-0.181	0.027	-0.211	-6.681	0
	Experience of driving Taxi	0.217	0.033	0.246	6.645	0
4	(Constant)	0.808	0.114		7.087	0
	Debt payment per month (Baht)	0.606	0.036	0.621	16.861	0
	Car age	-0.185	0.026	-0.216	-7.022	0
	Experience of driving Taxi	0.208	0.032	0.236	6.547	0
	Status	0.193	0.05	0.115	3.858	0

From table 27 the final model of female taxi driver who do using mobile application for catching a passenger compose with debt payment per month (Baht),car age, experience of driving taxi and status.

5. RESULTS AND DISCUSSIONS

This chapter is explaining about result, discussion of experiment and the limitations of the model will be presented

5.1. Result of the Model

The equation for male taxi driver who using mobile application for catching a passenger is

$$Y = 0.622X_{11} + 0.292X_5 + 0.095X_4 + 0.423 \quad \text{Equation1}$$

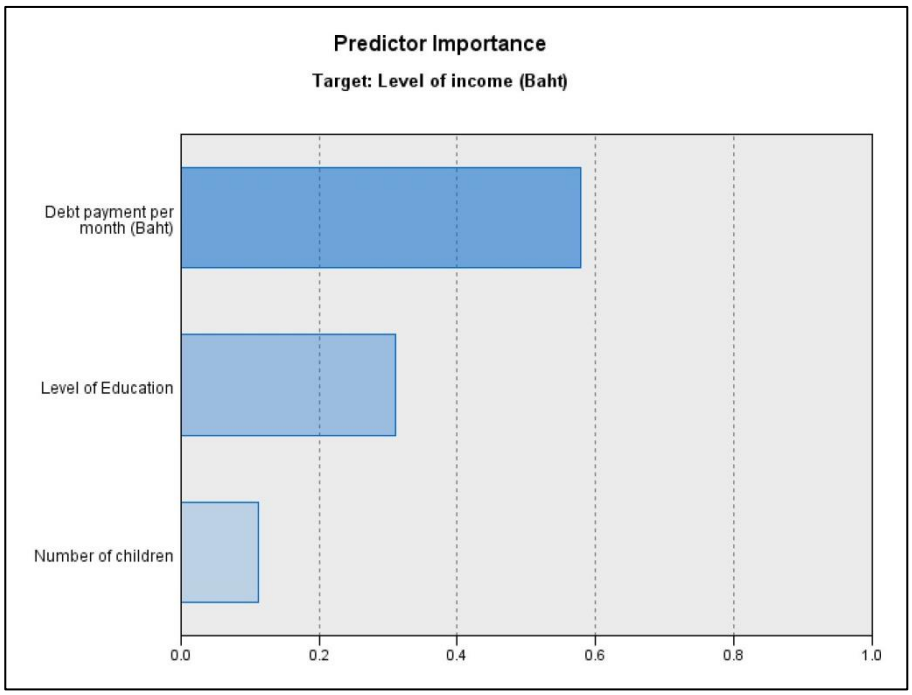

Figure 31: Prediction ability of factor for male taxi driver who using mobile application for catching a passenger

From the equation 1 the most powerful factor is debt payment per month (Baht)with coefficient 0.622. Second factor is level of education with coefficient 0.292 and the last factor is number of children with coefficient 0.095.

The equation for male taxi driver who do not using mobile application for catching a passenger is

$$Y = 0.476X_{11} + 0.285X_5 + 0.16X_7 - 0.1X_8 + 0.085X_4 + 0.655 \quad \text{Equation 2}$$

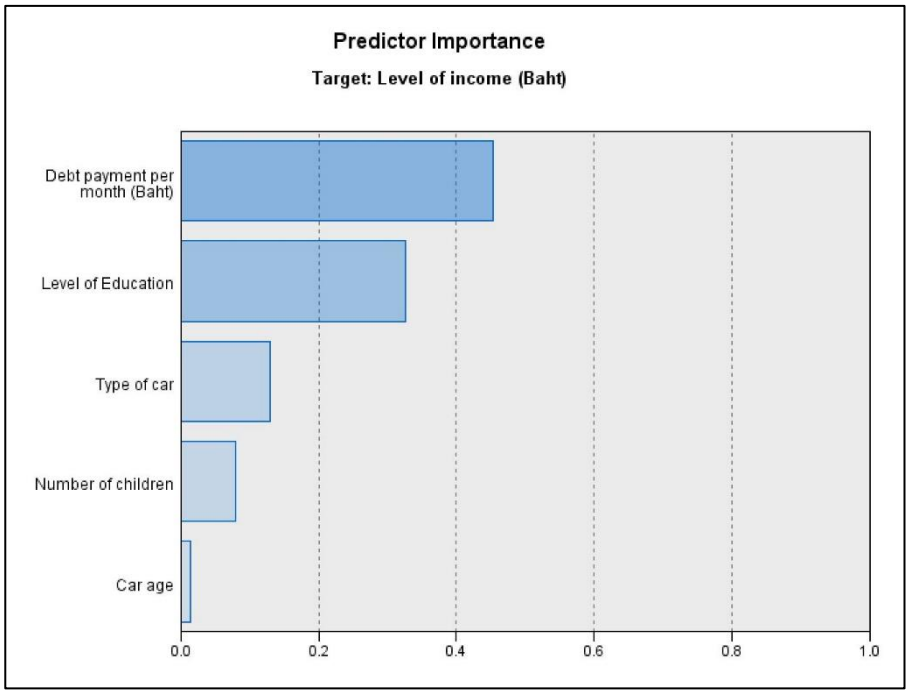

Figure 32: Prediction ability of factor for male taxi driver who do not using mobile application for catching a passenger

From the equation 2 the most powerful factor is debt payment per month (Baht) with coefficient 0.476. Second factor is level of education with coefficient0.285.third factor is type of car with coefficient 0.16. forth factor is number of children with coefficient 0.085 and the last factor is number of children with coefficient 0.095.

The equation for female taxi driver who using mobile application for catching a passenger is

$$Y = 0.552X_{11} + 0.305X_5 + 0.104X_6 + 0.088X_4 - 0.065X_8 + 0.459$$ Equation 3

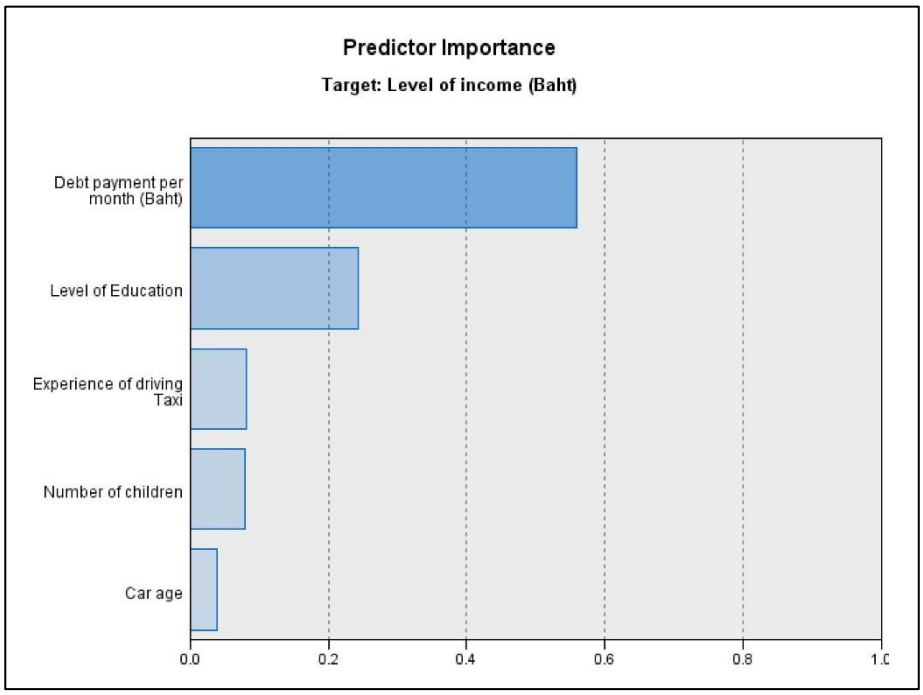

Figure 33: Prediction ability of factor for female taxi driver who using mobile application for catching a passenger

From the equation 3 the most powerful factor is debt payment per month (Baht) with coefficient 0.552. Second factor is level of education with coefficient 0.305. third factor is experience of driving taxi with coefficient 0.104. forth factor is number of children with coefficient 0.088 and the last factor is car age with coefficient 0.065.

The equation for female taxi driver who do not using mobile application for catching a passenger is

$$Y = 0.606X_{11} - 0.185X_8 + 0.208X_6 + 0.193X_2 + 0.808 \quad \text{Equation 4}$$

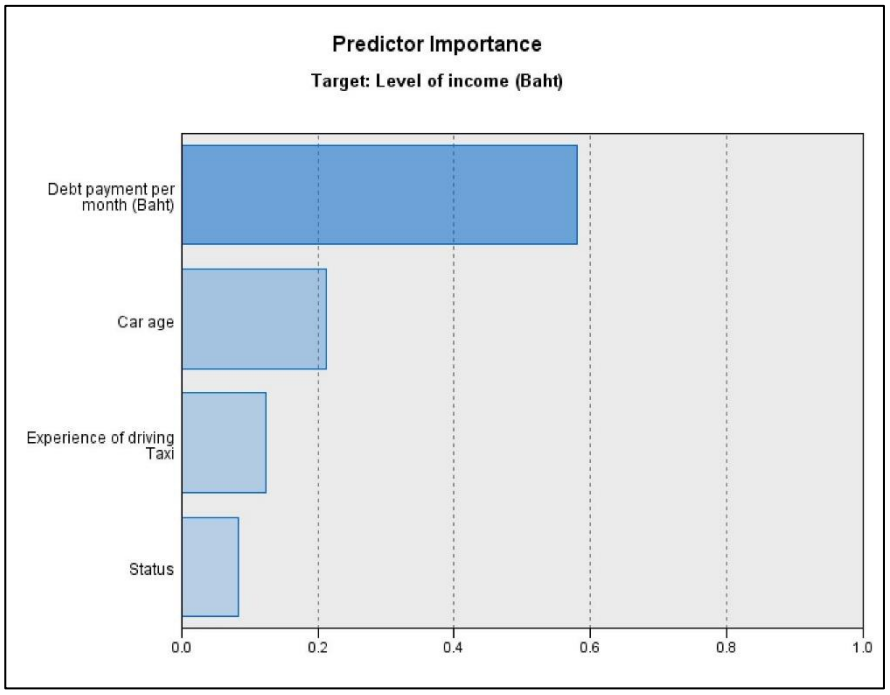

Figure 34: Prediction ability of factor for female taxi driver who do not using mobile application for catching a passenger

From the equation 4 the most powerful factor is debt payment per month (Baht) with coefficient 0.606. Second factor is car age with coefficient 0.185. third factor is experience of driving taxiwith coefficient 0.208 and the last factor is status with coefficient 0.193.

5.2. Conclusion

The collected data of taxi driver in Bangkok Thailand is assessed to determine the relationship between level of income and other factors by using K-mean method and multiple liner regression analysis.

The result of K-mean show that are deviated to 4 group of taxi driver by sex and using mobile application for catching a passenger. The consequence of the model show that the importance factor is debt payment per month (Baht). This reseach is very beneficial and necessary to financial institute for approving loan for taxi driver because we believe that if the taxi driver has more pressure to drive they can more money.

Secondly not only debt payment per month but also car age factor is effect to taxi driver income because old car the maintenance fee is higher than new car and the customer aspect new car more than old car.

Moreover, level of education and experience of driver are most active for minimising trip time to get more job.

Finally, the level of income of taxi driver can be increased by improving mainly 2-point financing condition for example debt payment per month and Asset condition such as car age and type of car.

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