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The Influence of The Covid-19 Pandemic on Mode Choice Preference in Jakarta

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Abstract

The COVID-19 pandemic has had an enormous global impact in only a few months. It coerces the government in any country to impose some strict policies to stop COVID-19 from spreading, i.e., stay-at-home requirements or household lockdowns. Travel behaviours are essentially impacted due to such measures. This study focuses on changes in travel behaviour caused by the COVID-19 outbreak in Jakarta. The data was taken through an online survey of 1138 respondents. The questionnaire in this study includes questions about the mode choice containing the purpose of the trip, frequency, travel distance, and several other supporting attribute factors in the pre-pandemic period until the early months of the pandemic. Results clarified that people's travel behaviour was considerably contrastive between those two different times, i.e., the frequency of being outside, transport apps used, and Eid and Christmas Homecoming Tradition. Moreover, the top destinations are grocery stores indicated for primary movement only. In this case, it can be seen that there is a shifting mode for people's daily movement, from what was previously public to private vehicles. Distance, activities, driving license, and vehicle ownership were essential considerations for mode choice throughout the COVID-19 outbreak. The findings of this study may be helpful in transportation planning and establishing policies in the future.

Keywords: *Covid-19 Pandemic; Mode Choice Preference; Travel Behaviour*

INTRODUCTION

The COVID-19 outbreak has significantly disrupted daily life, routine activities, and travel patterns globally (Bhaduri et al., 2020). People in Indonesia (especially Jakarta) currently have to obey the government's orders to stay at home, entirely or partially, which leads to new habits in behaviour, including travel behaviour. During pandemics, many cities implemented several limitations to stop the virus breakout.

Besides, the steps which the central and local governments take in dealing with the spread of this virus tend to differ according to each level of society's social and economic conditions. The solutions mentioned are school termination, virtual classes and courses, remote working, limited activities in shops and dine-in restaurants, preventing public and social events, and other things. (Abdullah et al, 2020). Such rules, restrictions, and current policies will fundamentally change people's lifestyles and ways of interacting; for a certain period, it will also impact economic conditions (de Haas et al., 2020; Mogaji, 2020). Meanwhile, a person's level of vigilance against the chances of being exposed to the spread of the virus will have an impact on travel behaviour and mode choice preference.

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RESEARCH METHOD

Survey Design and Sample

The questionnaire was created and distributed using the Indonesian language via Google Forms. It was widely dispersed using personal messages, online communities, emails, and social media platforms, e.g., Twitter, Instagram, and Facebook, from November through December 2020 and collected 1138 responses using random sampling techniques. The questionnaire was divided into three conditions for comparison. The first condition was the travel mode chosen before the COVID-19 pandemic, the second was during the early time of the pandemic (around March to June), and the last was recent. The questions consisted of socio-demographic variables followed by the character of daily travel to factors that should be considered in their travel behaviour before and during the COVID-19 pandemic (early and recent times).

The socio-demographic factors in this study are age, monthly income in Indonesian Rupiah, gender, education level, residence status, marital status, employment status, vehicle ownership, driving license ownership, how many school-age children in a household, employment status, and the working status of the spouse (whether or not their spouse is also a worker).

The fundamental role of movement was characterized as the reason individuals predominantly attempted their trips. It is possible that during the pandemic, people will reduce their trivial trips. Nevertheless, sometimes some conditions require a person to keep traveling outside their zone (in this case Jakarta Region), such as a business trip. Thus, it is crucial to ask in detail and precisely about the purpose of the trip and when their first travel outside Jakarta was made. It identifies a few things, e.g., whether the trips are regular or occasional, distance, frequency, mode choice, and travel time.

The virus spread significantly in Indonesia when the survey was run at the end of the year. Therefore, in general, it can be said that respondents have experienced living in the pandemic era for several months. Hence, the acquired data can be thoroughly assessed regardless of Jakarta's lockdown rules and timelines.

Multinomial Logistic Regression

A multinomial logit is a derivation from a logit regression which demonstrably inferred that a linear model would be ensued by responses' log odds, with the linear equation as follows:

$$log\ \frac{\mathrm{Pij}}{\mathrm{Pij}} = \alpha j + \beta_j X_i$$

Where α_i is a constant and β_j is a regression coefficient vector, for $j = 1,2,\ldots,j-1$.

Maimunah and Shinji (2015) stated that supplement I, observed individually, has been deleted due to a simplification issue. Moreover, Maimunah and Shinji (2015) explained that in some cases, Pj, j = 1,..., j-1 denotes the likelihood that the j^{th} option is supposed to be determined. The calculated parameters will determine the impact of changes in X on the probability ratios' logarithm. The restriction using a calculated probability equal to 1 in total must be considered a constraint. Every equation assumes that the attribute X is a linear function of the logarithm of the probability, which came from one option that compared to another. The next step is to ensure that the sum of the individual probability for the four outcomes must equal one. These odds also depend on other odds associated with the other two equations. There will be unnecessary to do an estimation for all equations. The logit decision, which created a constraint to eliminate the approximation parameters, can be introduced to the reduced model. Renormalizing the predicted parameter value after the initial least squares regression might be used to achieve this (Maimunah & Shinji, 2015). However, the errors are probably triggering the occurrence of heteroscedasticity. Additionally, generalized least squares should be considered for the cross-equation error

correlation. A general form of the maximum probability technique should be applied in case of inadequate repetition as it will ensure the accurate statistics of large samples and consistent parameter values (Pindyck, 1998).

FINDINGS AND DISCUSSION

Descriptive Analysis

This article is supplementing and giving information about variables used in specific models. Most respondents who were allowed to react to the question stated that their daily travels, including their leisure travel, had been impacted by the COVID-19 pandemic. As we might see from the figure below, people may likely avoid traveling, as shown in the pink colour of Figure 1, meaning they were not going anywhere during the pandemic. The primary commute purpose of vacation also sharply decreased before and during pandemics. The intention of respondents' daily commute other than work is dominated by grocery shopping and doing exercise.

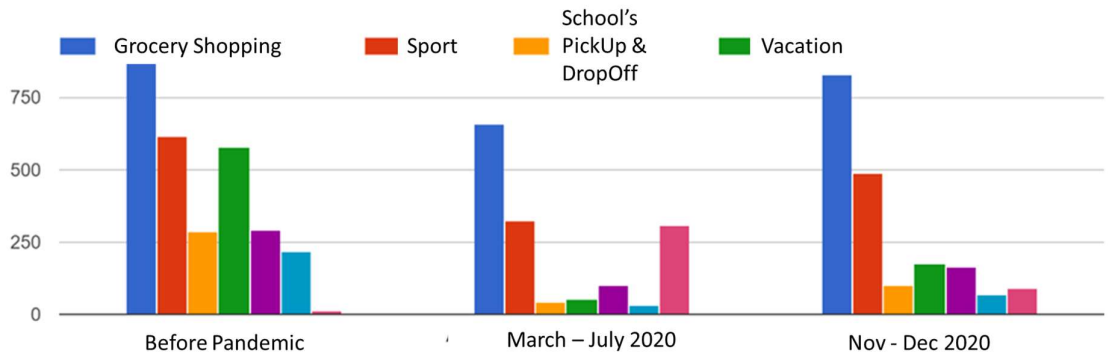


Figure 1. Respondents' daily commutes other than work

As the pandemic spread and forced the world into lockdown, business organizations, governments, and companies had no option but to switch to remote or online working. Many people rapidly transitioned from working in offices to working from home. As a result, there has been a drastic increase in the number of remote workers in Jakarta lately, as shown in Figure 2 below. Before the pandemic, most people were making daily commutes to their offices. This situation might be affected people's travel behaviour as well.

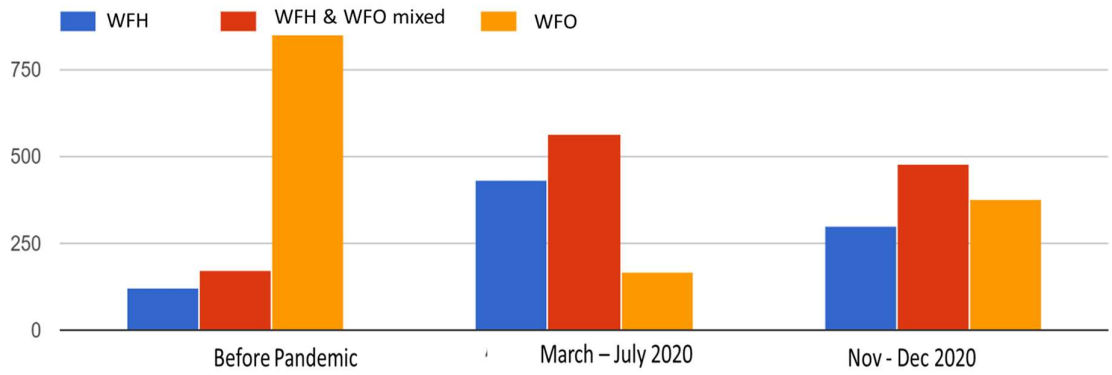


Figure 2. Remote Work Statistics

It can be seen in Figure 3 that before the COVID-19 pandemic, the intensity of people checking the internet before leaving the house reached the middle score. Meanwhile, this habit changed after the pandemic. People often check conditions outside through the internet before doing outdoor activities. This might be a prevention to protect themselves from contracting and transmitting the virus.

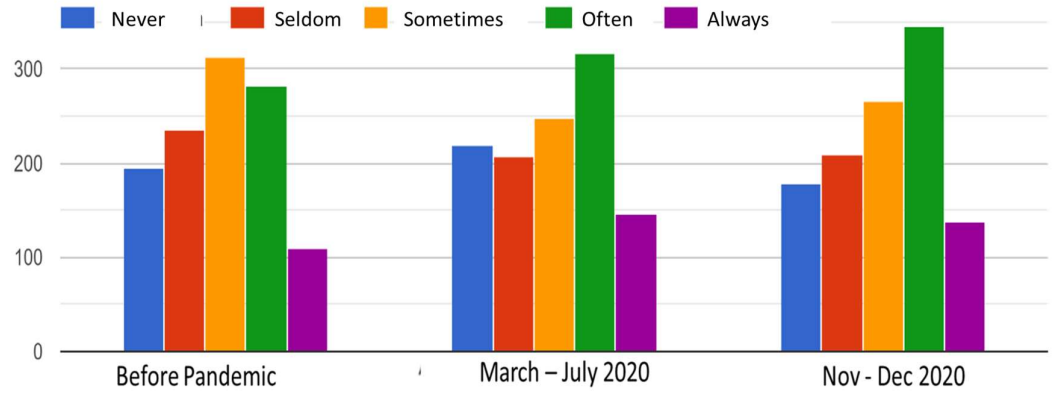
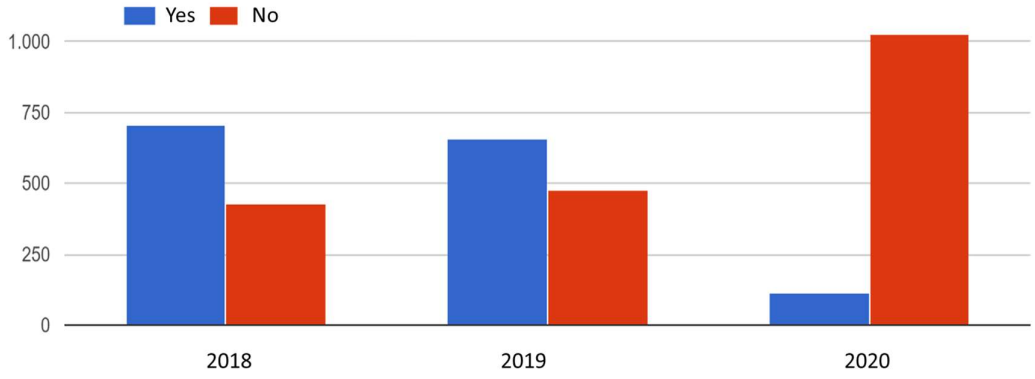


Figure 3. Frequency of Internet Checking before the commute

Eid and Christmas Day are usually the busiest times for domestic travel when Indonesians gather with relatives and friends across the cities. Since the COVID-19 pandemic was announced, the government has appealed to residents not to travel during the Eid holiday to minimize the spread of COVID-19. As shown in Figure 4, the movement has been in freefall since the start of the pandemic, while public officials have appealed to the public to avoid unnecessary travel.



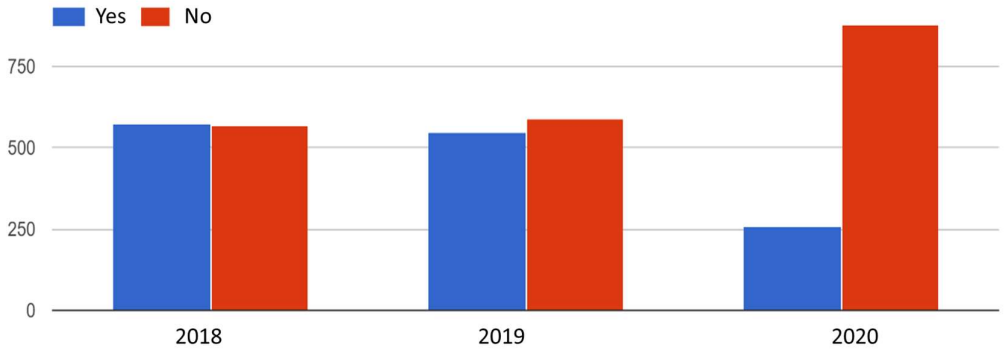


Figure 4. Homecoming on Eid (above) and Christmas (below)

Figure 5 below provides descriptive statistics of the people's movement frequency other than work, as seen in the figure. During the early pandemic, due to lockdown policies, they were strictly not going anywhere, and now the behaviour has changed to twice a week compared to pre-COVID days when people tend to move up to three times a day.

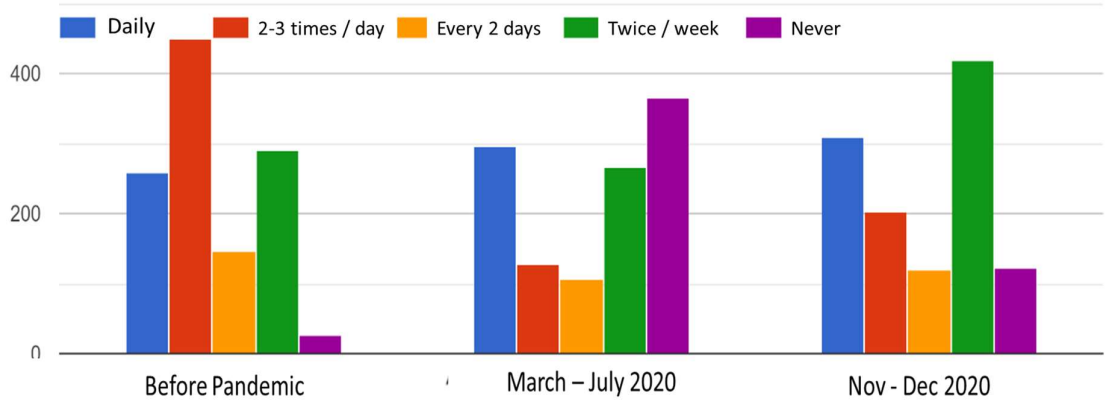


Figure 5. Commuting Frequency other than work

Modelling Result

The collected data can be estimated using multinomial logit as the dependent variable is the selected mode choice. The result of model-fitted information demonstrates that the Chi-square test in 1% and 5% levels are significant for each case in some variables. The first case in Table 2 was the result of people's mode choice preference before the pandemic, the second case in Table 3 was the result of the early COVID-19 pandemic (around March – July), and the last case in Table 4 was the current situation. The parameter estimates for each variable were described in detail in the appendix. Further, the result mentioned in Table 1 below indicates that Pseudo R-Square is also high through this model, scoring greater than 0.2 for the Cox and Snell, Nagelkerke, and Mc Fadden indicator.

Tabel 1. Pseudo R-Square

Pseudo R-Square

Cox and Snell	.501
Nagelkerke	.567
McFadden	.323

Likelihood Ratio Tests

Effect	Model Fitting Criteria: -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests: Chi-Square	df	Sig.
Intercept	468.194[a]	.000	0	.
income	477.878	9.684	2	.008
age	481.818	13.624	2	.001
distance	468.407	.213	2	.899
other_act	482.848	14.654	8	.066
internet	469.683	1.489	2	.475
multi_trip	470.640	2.446	2	.294
travel_time	494.971	26.777	12	.008
dla	471.201	3.007	2	.222
dlc	476.633	8.439	2	.015
spouse_work	474.239	6.045	2	.049
spouse_wfh	469.270	1.076	2	.584
car_own	490.859	22.665	2	.000
motor_own	485.473	17.279	2	.000
child_school	468.587	.393	2	.822
job	473.778	5.583	2	.061
edu	473.287	5.093	8	.748
marital	472.153	3.959	2	.138
gender	469.579	1.385	2	.500

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Table 2. Likelihood Ratio Test (Case 1)

Likelihood Ratio Tests

Effect	Model Fitting Criteria: -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests: Chi-Square	df	Sig.
Intercept	329.627[a]	.000	0	.
income	330.085	.458	2	.795
distance	342.581	12.954	2	.002
age	333.485	3.858	2	.145
other_act	343.697	14.070	8	.080
internet	330.034	.407	2	.816
multi_trip	333.016	3.389	2	.184
travel_time	354.088	24.462	14	.040
dla	336.508	6.881	2	.032
dlc	342.918	13.291	2	.001
spouse_work	330.912	1.286	2	.526
spouse_wfh	335.676	6.050	2	.049
car_own	389.768	60.142	2	.000
motor_own	353.054	23.427	2	.000
child_school	329.911	.285	2	.867
job	335.797	6.170	2	.046
edu	339.931	10.305	8	.244
marital	333.464	3.838	2	.147
gender	330.345	.718	2	.698

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Table 3. Likelihood Ratio Test (Case 2)

Likelihood Ratio Tests

Effect	Model Fitting Criteria: -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests: Chi-Square	df	Sig.
Intercept	394.962[a]	.000	0	.
income	395.024	.062	2	.970
age	402.591	7.629	2	.022
distance	403.536	8.573	2	.014
other_act	420.614	25.652	10	.004
internet	396.845	1.882	2	.390
multi_trip	398.980	4.018	4	.404
travel_time	405.268	10.305	14	.740
dla	399.845	4.883	2	.087
dlc	407.651	12.689	2	.002
spouse_work	396.860	1.898	2	.387
spouse_wfh	396.369	1.407	2	.495
car_own	442.235	47.272	2	.000
motor_own	400.188	5.226	2	.073
child_school	398.307	3.345	2	.188
job	398.905	3.943	2	.139
edu	409.961	14.998	8	.059
marital	403.202	8.239	2	.016
gender	398.236	3.274	2	.195

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Table 4. Likelihood Ratio Test (Case 3)

As public transportation was selected as the reference category in the parameter estimations, the model reflects that the frequency of doing activities other than work is the only significant, influential factor in all models before and during a pandemic.

Numerous things influence people's mode of transportation extensively. Several crucial elements that probably influence the mode selections, particularly during a pandemic, were found. In the first model, factors that significantly impact mode choice preference before the COVID-19 pandemics are income, age, frequency of activities other than work, travel time, motorbike driving license, whether or not their spouse is a worker, job status, and vehicle ownership. People are more likely to use a car with a higher income. The older people and the longer time on their daily commute also make them more likely to choose a car. Interestingly, if the respondents' spouse was also a worker, the model said that respondents were more likely to use a car than public transport. As mentioned in the appendix's first table, the students were likely to use private vehicles on their daily commutes.

In the second model, the early COVID-19 pandemic, the statistical tests validated that the significant factors on respondents' travel behaviour are distance, frequency of activities other than work, travel time, driving license and vehicle ownership, and whether or not their spouse was doing remote working. If their spouse was not working from home (WFH), meaning they still go to the office, the respondents tended to use public transport instead of private vehicles. Moreover, respondents with longer distances scarcely choose public transport over private vehicles. In contrast, short-distance travel reveals otherwise.

The last model was quite interesting. It can be said that people adapted to the new normal condition, and they were using their privilege of living. Factors significantly affecting mode choice preference in Jakarta are age, distance, frequency of activities other than work, driving license and vehicle ownership, education, and marital status. Single people are more likely to choose private vehicles over paratransit or public transport than married people. Furthermore, compared to non-vehicle owners, car owners are more likely to select private transportation over paratransit or public transportation since they have more options for doing that and holding a driving license. People with any level of education also observed that if they have a higher liability of selecting an option in transport mode, they tend to choose it rather than public transport or paratransit. This was reasonable because public transport can be an ideal setting to spread coronavirus and may even increase the risk in certain boroughs.

CONCLUSION

Theoretically, the government's implementation of the lockdown policy and the personal dread of infectious disease will more or less cause changes in travel behaviour compared to the normal situation before the pandemic. This research explored how changes in travel habits brought on by the covid outbreak were explored through the results from an online poll in some periods. Here are some key findings from this study. First, during the COVID-19 pandemic, grocery shopping is the primary purpose for making daily movements other than work and followed by outdoor exercises, such as taking a walk, jogging, or riding a bike outside. Subsequently, the use of private vehicles was increasing, followed by the decreasing use of paratransit (i.e., taxi, ojek, and on-demand ride service) and public transport in contrast. Travel behaviour of huge annual events for Indonesian people, such as Eid and Christmas homecoming traditions, was also dramatically changing. During a pandemic, people tend to cancel their annual homecoming plan and celebrate in a small private group or individual celebration to avoid spreading the virus. It indeed made a significant impact on transportation.

Monthly income, age, travel time, motorbike driving license, car ownership, motorbike ownership, job status, activities other than work, and whether or not their spouse is a worker

became the most significant factors affecting their mode choice before the COVID-19 pandemic. In the second model, the early time of the COVID-19 pandemic, some significant variables, i.e., distance, travel time, activities other than work, spouse remote working status (WFH), driving license, and vehicle ownership, were identified. Particular variables become influential while others are no longer significant, e.g., income, job status, and age. Age, distance, driving license and vehicle ownership, education level, and marital status were the most influential factors in mode choice in recent times during the COVID-19 outbreak.

The findings could suggest transportation planning in the new-normal era or during the post-pandemic period. These encounters may influence future conduct long after the actual infection is not, at this point, a danger. People have experienced the ease and comfort of doing main activities, e.g., working and studying, from home, and this might impact their daily commute in the future. So, these conditions, encountered with the new patterns of activities and mobilities after the pandemic spread out, will surely impact individuals' travel behaviour.

LIMITATION & FURTHER RESEARCH

It is necessary to note that this research paper has many limitations. Because this research used an online survey as a method of data collection, it indicates that the respondents, with a narrow age range, responded to this questionnaire and are only citizens accustomed to using the internet. Summing up results for an average population in a given society will probably be useless.

Furthermore, Van Dorn et al. (2020) mentioned that several factors, which have not been included in this research, such as health inequalities and socioeconomic conditions, also played a significant role in identifying travel behaviour. Almost certainly, the behaviour patterns in this study cannot fully represent the authentic habits of respondents, especially before the pandemic. Future studies should solve this issue with larger and more diverse representative samples.

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APPENDIX

Parameter Estimates

choice[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp (B)	
								Lower Bound	Upper Bound
Mobil	Intercept	-4.709	1.560	9.116	1	.003			
	income	.000	.000	3.935	1	.047	1.000	1.000	1.000
	age	.073	.023	10.487	1	.001	1.076	1.029	1.124
	distance	-.005	.044	.012	1	.912	.995	.914	1.084
	[other_act=0]	-1.997	1.545	1.672	1	.196	.136	.007	2.802
	[other_act=2]	.372	.466	.636	1	.425	1.450	.582	3.617
	[other_act=3]	.830	.519	2.560	1	.110	2.293	.830	6.334
	[other_act=4]	-.873	.705	1.535	1	.215	.418	.105	1.662
	[other_act=7]	0[b]	.	.	0	.	.	.	.
	[internet=0]	-.347	.362	.920	1	.338	.706	.347	1.437
	[internet=1]	0[b]	.	.	0	.	.	.	.
	[multi_trip=0]	.169	.395	.182	1	.669	1.184	.545	2.570
	[multi_trip=1]	0[b]	.	.	0	.	.	.	.
	[travel_time=0]	-19.039	.000	.	1	.	5.388E-009	5.388E-009	5.388E-009
	[travel_time=5]	.704	1.204	.342	1	.559	2.022	.191	21.399
	[travel_time=10]	2.498	1.270	3.868	1	.049	12.158	1.009	146.570
	[travel_time=15]	.237	.979	.058	1	.809	1.267	.186	8.634
	[travel_time=30]	1.399	.529	7.008	1	.008	4.052	1.438	11.416
	[travel_time=45]	.488	.765	.407	1	.523	1.629	.364	7.295
	[travel_time=60]	0[b]	.	.	0	.	.	.	.
	[dla=0]	-.036	.552	.004	1	.949	.965	.327	2.849
	[dla=1]	0[b]	.	.	0	.	.	.	.
	[dlc=0]	-.176	.423	.173	1	.677	.838	.366	1.922
	[dlc=1]	0[b]	.	.	0	.	.	.	.
	[spouse_work=0]	-.598	.477	1.575	1	.209	.550	.216	1.399
	[spouse_work=1]	0[b]	.	.	0	.	.	.	.
	[spouse_wfh=0]	-.493	.510	.935	1	.334	.611	.225	1.659
	[spouse_wfh=1]	0[b]	.	.	0	.	.	.	.
	[car_own=0]	-1.511	.575	6.896	1	.009	.221	.071	.682
	[car_own=1]	0[b]	.	.	0	.	.	.	.
	[motor_own=0]	.157	.409	.148	1	.701	1.170	.525	2.609
	[motor_own=1]	0[b]	.	.	0	.	.	.	.
	[child_school=0]	.316	.508	.386	1	.535	1.371	.506	3.714
	[child_school=1]	0[b]	.	.	0	.	.	.	.
	[job=0]	2.017	1.114	3.278	1	.070	7.512	.847	66.647
	[job=1]	0[b]	.	.	0	.	.	.	.
	[edu=1]	1.418	1.195	1.409	1	.235	4.129	.397	42.922
	[edu=2]	1.309	1.096	1.428	1	.232	3.704	.432	31.733
	[edu=3]	.806	.808	.996	1	.318	2.239	.460	10.907
	[edu=4]	.820	.802	1.046	1	.306	2.270	.472	10.926
	[edu=5]	0[b]	.	.	0	.	.	.	.
	[marital=0]	.707	.711	.987	1	.320	2.028	.503	8.177
	[marital=1]	0[b]	.	.	0	.	.	.	.
	[gender=0]	-.049	.413	.014	1	.906	.952	.424	2.140
	[gender=1]	0[b]	.	.	0	.	.	.	.
Motor	Intercept	.086	1.628	.003	1	.958			
	income	.000	.000	1.945	1	.163	1.000	1.000	1.000
	age	-.007	.025	.090	1	.765	.993	.945	1.042
	distance	-.019	.042	.207	1	.649	.981	.904	1.065
	[other_act=0]	-.202	1.248	.026	1	.871	.817	.071	9.428
	[other_act=2]	1.109	.490	5.127	1	.024	3.032	1.161	7.921
	[other_act=3]	.849	.496	2.926	1	.087	2.336	.884	6.178
	[other_act=4]	-.254	.702	.130	1	.718	.776	.196	3.074
	[other_act=7]	0[b]	.	.	0	.	.	.	.
	[internet=0]	-.375	.365	1.060	1	.303	.687	.336	1.404
	[internet=1]	0[b]	.	.	0	.	.	.	.
	[multi_trip=0]	-.496	.391	1.605	1	.205	.609	.283	1.312
	[multi_trip=1]	0[b]	.	.	0	.	.	.	.
	[travel_time=0]	2.571	1.673	2.362	1	.124	13.081	.493	347.288
	[travel_time=5]	3.267	1.133	8.319	1	.004	26.230	2.849	241.509
	[travel_time=10]	3.441	1.175	8.579	1	.003	31.204	3.121	311.952
	[travel_time=15]	2.162	.868	6.201	1	.013	8.690	1.585	47.653
	[travel_time=30]	1.010	.565	3.197	1	.074	2.747	.907	8.313
	[travel_time=45]	1.372	.663	4.286	1	.038	3.945	1.076	14.463
	[travel_time=60]	0[b]	.	.	0	.	.	.	.
	[dla=0]	.815	.503	2.632	1	.105	2.260	.844	6.051
	[dla=1]	0[b]	.	.	0	.	.	.	.
	[dlc=0]	-1.393	.501	7.739	1	.005	.248	.093	.663
	[dlc=1]	0[b]	.	.	0	.	.	.	.
	[spouse_work=0]	.673	.468	2.072	1	.150	1.961	.784	4.906
	[spouse_work=1]	0[b]	.	.	0	.	.	.	.
	[spouse_wfh=0]	-.009	.525	.000	1	.986	.991	.354	2.772
	[spouse_wfh=1]	0[b]	.	.	0	.	.	.	.
	[car_own=0]	1.236	.473	6.836	1	.009	3.442	1.363	8.693
	[car_own=1]	0[b]	.	.	0	.	.	.	.
	[motor_own=0]	-1.898	.535	12.601	1	.000	.150	.053	.427
	[motor_own=1]	0[b]	.	.	0	.	.	.	.
	[child_school=0]	.074	.545	.019	1	.892	1.077	.370	3.132
	[child_school=1]	0[b]	.	.	0	.	.	.	.
	[job=0]	-.714	1.010	.500	1	.480	.490	.068	3.545
	[job=1]	0[b]	.	.	0	.	.	.	.
	[edu=1]	-.733	1.085	.457	1	.499	.480	.057	4.027
	[edu=2]	.151	1.026	.022	1	.883	1.163	.156	8.683
	[edu=3]	.183	.809	.051	1	.821	1.201	.246	5.865
	[edu=4]	.348	.808	.186	1	.667	1.416	.291	6.905
	[edu=5]	0[b]	.	.	0	.	.	.	.
	[marital=0]	-.863	.654	1.743	1	.187	.422	.117	1.519
	[marital=1]	0[b]	.	.	0	.	.	.	.
	[gender=0]	-.478	.419	1.301	1	.254	.620	.273	1.409
	[gender=1]	0[b]	.	.	0	.	.	.	.

a. The reference category is: PT.

b. This parameter is set to zero because it is redundant.

Parameter Estimates

choice[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp (B)	
								Lower Bound	Upper Bound
mobil	Intercept	-6.554	2.548	6.618	1	.010			
	income	.000	.000	.123	1	.725	1.000	1.000	1.000
	distance	.189	.055	11.975	1	.001	1.208	1.086	1.345
	age	.024	.028	.748	1	.387	1.025	.970	1.083
	[other_act=0]	1.289	1.261	1.045	1	.307	3.628	.307	42.924
	[other_act=2]	1.030	1.303	.624	1	.429	2.801	.218	36.044
	[other_act=3]	1.820	1.586	1.317	1	.251	6.175	.276	138.352
	[other_act=7]	2.414	1.344	3.225	1	.073	11.183	.802	155.915
	[other_act=14]	0[b]	.	.	0	.	.	.	.
	[internet=0]	.287	.465	.381	1	.537	1.333	.535	3.319
	[internet=1]	0[b]	.	.	0	.	.	.	.
	[multi_trip=0]	1.539	.812	3.591	1	.058	4.661	.949	22.897
	[multi_trip=1]	0[b]	.	.	0	.	.	.	.
	[travel_time=0]	2.879	1.209	5.666	1	.017	17.796	1.663	190.463
	[travel_time=5]	1.930	1.157	2.784	1	.095	6.891	.714	66.522
	[travel_time=10]	1.694	1.164	2.120	1	.145	5.444	.556	53.287
	[travel_time=15]	1.514	1.022	2.194	1	.139	4.543	.613	33.665
	[travel_time=30]	2.105	.822	6.561	1	.010	8.208	1.639	41.097
	[travel_time=45]	1.841	.822	5.022	1	.025	6.305	1.260	31.557
	[travel_time=60]	1.606	.811	3.926	1	.048	4.985	1.018	24.421
	[travel_time=100]	0[b]	.	.	0	.	.	.	.
	[dla=0]	-1.536	.665	5.331	1	.021	.215	.058	.793
	[dla=1]	0[b]	.	.	0	.	.	.	.
	[dlc=0]	-.624	.602	1.075	1	.300	.536	.165	1.743
	[dlc=1]	0[b]	.	.	0	.	.	.	.
	[spouse_work=0]	-.648	.615	1.108	1	.293	.523	.157	1.747
	[spouse_work=1]	0[b]	.	.	0	.	.	.	.
	[spouse_wfh=0]	-1.296	.543	5.700	1	.017	.274	.094	.793
	[spouse_wfh=1]	0[b]	.	.	0	.	.	.	.
	[car_own=0]	-3.326	.698	22.688	1	.000	.036	.009	.141
	[car_own=1]	0[b]	.	.	0	.	.	.	.
	[motor_own=0]	-.691	.566	1.493	1	.222	.501	.165	1.518
	[motor_own=1]	0[b]	.	.	0	.	.	.	.
	[child_school=0]	-.183	.665	.076	1	.783	.833	.226	3.062
	[child_school=1]	0[b]	.	.	0	.	.	.	.
	[job=0]	1.070	1.265	.715	1	.398	2.914	.244	34.788
	[job=1]	0[b]	.	.	0	.	.	.	.
	[edu=1]	2.362	1.795	1.732	1	.188	10.609	.315	357.402
	[edu=2]	1.720	1.359	1.601	1	.206	5.586	.389	80.199
	[edu=3]	1.911	1.034	3.418	1	.064	6.760	.891	51.261
	[edu=4]	1.990	1.020	3.805	1	.051	7.314	.991	53.995
	[edu=5]	0[b]	.	.	0	.	.	.	.
	[marital=0]	1.249	.849	2.162	1	.141	3.485	.660	18.408
	[marital=1]	0[b]	.	.	0	.	.	.	.
	[gender=0]	.171	.537	.101	1	.750	1.186	.414	3.401
	[gender=1]	0[b]	.	.	0	.	.	.	.
motor	Intercept	-.023	2.535	.000	1	.993			
	income	.000	.000	.049	1	.824	1.000	1.000	1.000
	distance	.088	.059	2.235	1	.135	1.092	.973	1.225
	age	-.033	.032	1.104	1	.293	.967	.908	1.029
	[other_act=0]	-1.027	1.147	.802	1	.370	.358	.038	3.389
	[other_act=2]	-.339	1.165	.085	1	.771	.712	.073	6.993
	[other_act=3]	-1.446	1.489	.943	1	.332	.236	.013	4.361
	[other_act=7]	-.309	1.228	.063	1	.802	.734	.066	8.152
	[other_act=14]	0[b]	.	.	0	.	.	.	.
	[internet=0]	.113	.480	.055	1	.814	1.120	.437	2.871
	[internet=1]	0[b]	.	.	0	.	.	.	.
	[multi_trip=0]	.839	.853	.968	1	.325	2.315	.435	12.320
	[multi_trip=1]	0[b]	.	.	0	.	.	.	.
	[travel_time=0]	3.788	1.194	10.059	1	.002	44.162	4.251	458.818
	[travel_time=5]	.580	1.419	.167	1	.683	1.786	.111	28.855
	[travel_time=10]	2.919	1.078	7.334	1	.007	18.529	2.240	153.261
	[travel_time=15]	1.755	1.103	2.531	1	.112	5.782	.666	50.238
	[travel_time=30]	2.318	.821	7.969	1	.005	10.151	2.031	50.736
	[travel_time=45]	1.895	.852	4.948	1	.026	6.651	1.253	35.311
	[travel_time=60]	.942	.838	1.264	1	.261	2.565	.497	13.254
	[travel_time=100]	0[b]	.	.	0	.	.	.	.
	[dla=0]	.078	.633	.015	1	.902	1.081	.313	3.736
	[dla=1]	0[b]	.	.	0	.	.	.	.
	[dlc=0]	-2.399	.698	11.812	1	.001	.091	.023	.357
	[dlc=1]	0[b]	.	.	0	.	.	.	.
	[spouse_work=0]	-.189	.673	.079	1	.779	.828	.221	3.098
	[spouse_work=1]	0[b]	.	.	0	.	.	.	.
	[spouse_wfh=0]	-1.029	.599	2.954	1	.086	.357	.111	1.155
	[spouse_wfh=1]	0[b]	.	.	0	.	.	.	.
	[car_own=0]	.791	.633	1.561	1	.211	2.205	.638	7.623
	[car_own=1]	0[b]	.	.	0	.	.	.	.
	[motor_own=0]	-2.951	.687	18.425	1	.000	.052	.014	.201
	[motor_own=1]	0[b]	.	.	0	.	.	.	.
	[child_school=0]	-.385	.724	.282	1	.595	.681	.165	2.815
	[child_school=1]	0[b]	.	.	0	.	.	.	.
	[job=0]	-1.985	1.126	3.110	1	.078	.137	.015	1.248
	[job=1]	0[b]	.	.	0	.	.	.	.
	[edu=1]	3.256	1.569	4.308	1	.038	25.954	1.199	561.902
	[edu=2]	.826	1.364	.367	1	.545	2.285	.158	33.108
	[edu=3]	.919	1.107	.690	1	.406	2.508	.287	21.939
	[edu=4]	.769	1.122	.469	1	.493	2.157	.239	19.443
	[edu=5]	0[b]	.	.	0	.	.	.	.
	[marital=0]	-.273	.773	.124	1	.724	.761	.168	3.461
	[marital=1]	0[b]	.	.	0	.	.	.	.
	[gender=0]	.471	.566	.692	1	.406	1.601	.528	4.852
	[gender=1]	0[b]	.	.	0	.	.	.	.

a. The reference category is: PT.

b. This parameter is set to zero because it is redundant.

Parameter Estimates

choice[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp (B)	
								Lower Bound	Upper Bound
mobil	Intercept	-5.147	3.007	2.930	1	.087			
	income	.000	.000	.019	1	.891	1.000	1.000	1.000
	age	.046	.029	2.507	1	.113	1.047	.989	1.108
	distance	.088	.049	3.277	1	.070	1.092	.993	1.201
	[other_act=0]	-1.636	1.464	1.248	1	.264	.195	.011	3.437
	[other_act=2]	-1.722	1.356	1.611	1	.204	.179	.013	2.552
	[other_act=3]	-3.435	1.480	5.390	1	.020	.032	.002	.586
	[other_act=7]	.359	1.423	.064	1	.801	1.432	.088	23.275
	[other_act=14]	.493	2.019	.060	1	.807	1.638	.031	85.621
	[other_act=21]	0[b]	.	.	0	.	.	.	.
	[internet=0]	-.174	.434	.161	1	.688	.840	.359	1.967
	[internet=1]	0[b]	.	.	0	.	.	.	.
	[multi_trip=0]	2.924	1.720	2.892	1	.089	18.623	.640	541.608
	[multi_trip=1]	3.016	1.871	2.598	1	.107	20.408	.521	798.625
	[multi_trip=1, 0]	0[b]	.	.	0	.	.	.	.
	[travel_time=0]	-.943	1.283	.540	1	.463	.390	.031	4.819
	[travel_time=5]	.595	1.393	.182	1	.669	1.813	.118	27.812
	[travel_time=10]	.451	1.228	.135	1	.714	1.569	.141	17.409
	[travel_time=15]	1.020	1.210	.710	1	.399	2.772	.259	29.706
	[travel_time=30]	.148	.699	.045	1	.832	1.160	.295	4.562
	[travel_time=45]	.532	.809	.432	1	.511	1.702	.349	8.310
	[travel_time=60]	-.092	.619	.022	1	.882	.912	.271	3.072
	[travel_time=100]	0[b]	.	.	0	.	.	.	.
	[dla=0]	-1.296	.637	4.139	1	.042	.274	.079	.954
	[dla=1]	0[b]	.	.	0	.	.	.	.
	[dlc=0]	-.826	.541	2.333	1	.127	.438	.152	1.264
	[dlc=1]	0[b]	.	.	0	.	.	.	.
	[spouse_work=0]	-.612	.485	1.592	1	.207	.542	.209	1.403
	[spouse_work=1]	0[b]	.	.	0	.	.	.	.
	[spouse_wfh=0]	-.438	.578	.574	1	.449	.646	.208	2.003
	[spouse_wfh=1]	0[b]	.	.	0	.	.	.	.
	[car_own=0]	-3.406	.691	24.306	1	.000	.033	.009	.128
	[car_own=1]	0[b]	.	.	0	.	.	.	.
	[motor_own=0]	.509	.528	.928	1	.335	1.664	.591	4.687
	[motor_own=1]	0[b]	.	.	0	.	.	.	.
	[child_school=0]	.841	.655	1.649	1	.199	2.319	.642	8.375
	[child_school=1]	0[b]	.	.	0	.	.	.	.
	[job=0]	2.782	1.670	2.778	1	.096	16.158	.613	426.108
	[job=1]	0[b]	.	.	0	.	.	.	.
	[edu=1]	1.510	1.980	.581	1	.446	4.525	.093	219.127
	[edu=2]	2.914	1.229	5.626	1	.018	18.432	1.659	204.794
	[edu=3]	2.869	.939	9.339	1	.002	17.611	2.798	110.863
	[edu=4]	2.990	.931	10.326	1	.001	19.893	3.211	123.258
	[edu=5]	0[b]	.	.	0	.	.	.	.
	[marital=0]	.348	.831	.176	1	.675	1.417	.278	7.223
	[marital=1]	0[b]	.	.	0	.	.	.	.
	[gender=0]	-.059	.541	.012	1	.913	.942	.326	2.721
	[gender=1]	0[b]	.	.	0	.	.	.	.
motor	Intercept	-16.890	2.319	53.062	1	.000			
	income	.000	.000	.061	1	.805	1.000	1.000	1.000
	age	-.030	.028	1.128	1	.288	.971	.919	1.026
	distance	-.031	.043	.502	1	.479	.970	.891	1.056
	[other_act=0]	-1.549	1.394	1.235	1	.266	.212	.014	3.263
	[other_act=2]	-1.367	1.298	1.109	1	.292	.255	.020	3.247
	[other_act=3]	-2.176	1.418	2.355	1	.125	.113	.007	1.828
	[other_act=7]	-.701	1.364	.264	1	.607	.496	.034	7.187
	[other_act=14]	-.559	1.830	.093	1	.760	.572	.016	20.675
	[other_act=21]	0[b]	.	.	0	.	.	.	.
	[internet=0]	-.563	.430	1.715	1	.190	.570	.245	1.322
	[internet=1]	0[b]	.	.	0	.	.	.	.
	[multi_trip=0]	19.246	.753	653.986	1	.000	228278241.1	52222731.41	997859628.2
	[multi_trip=1]	19.688	.000	.	1	.	355160187.7	355160187.7	355160187.7
	[multi_trip=1, 0]	0[b]	.	.	0	.	.	.	.
	[travel_time=0]	1.242	.952	1.702	1	.192	3.462	.536	22.366
	[travel_time=5]	1.500	1.329	1.274	1	.259	4.482	.331	60.620
	[travel_time=10]	1.845	1.015	3.305	1	.069	6.327	.866	46.236
	[travel_time=15]	2.468	1.142	4.668	1	.031	11.794	1.257	110.628
	[travel_time=30]	.748	.701	1.139	1	.286	2.113	.535	8.354
	[travel_time=45]	1.296	.785	2.726	1	.099	3.654	.785	17.011
	[travel_time=60]	.204	.614	.111	1	.739	1.227	.368	4.088
	[travel_time=100]	0[b]	.	.	0	.	.	.	.
	[dla=0]	-.016	.513	.001	1	.975	.984	.360	2.691
	[dla=1]	0[b]	.	.	0	.	.	.	.
	[dlc=0]	-1.845	.536	11.837	1	.001	.158	.055	.452
	[dlc=1]	0[b]	.	.	0	.	.	.	.
	[spouse_work=0]	-.190	.484	.154	1	.695	.827	.320	2.136
	[spouse_work=1]	0[b]	.	.	0	.	.	.	.
	[spouse_wfh=0]	.126	.568	.050	1	.824	1.135	.373	3.454
	[spouse_wfh=1]	0[b]	.	.	0	.	.	.	.
	[car_own=0]	.073	.560	.017	1	.897	1.075	.359	3.224
	[car_own=1]	0[b]	.	.	0	.	.	.	.
	[motor_own=0]	-.632	.536	1.391	1	.238	.531	.186	1.519
	[motor_own=1]	0[b]	.	.	0	.	.	.	.
	[child_school=0]	-.146	.632	.053	1	.817	.864	.250	2.982
	[child_school=1]	0[b]	.	.	0	.	.	.	.
	[job=0]	.532	1.332	.159	1	.690	1.702	.125	23.164
	[job=1]	0[b]	.	.	0	.	.	.	.
	[edu=1]	3.195	1.399	5.220	1	.022	24.419	1.575	378.590
	[edu=2]	2.943	1.182	6.198	1	.013	18.979	1.870	192.589
	[edu=3]	2.156	.957	5.080	1	.024	8.637	1.325	56.312
	[edu=4]	2.536	.972	6.807	1	.009	12.632	1.880	84.903
	[edu=5]	0[b]	.	.	0	.	.	.	.
	[marital=0]	-1.689	.763	4.897	1	.027	.185	.041	.824
	[marital=1]	0[b]	.	.	0	.	.	.	.
	[gender=0]	-.748	.478	2.451	1	.117	.473	.185	1.207
	[gender=1]	0[b]	.	.	0	.	.	.	.

a. The reference category is: PT.

b. This parameter is set to zero because it is redundant.