

第IV部門

The Influence of Parents on the Car Attitudes of their Children

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1. Introduction

Excessive car usage is often causing problems for the individual as well as for the society as whole. Environmental and health problems or car accidents are often discussed. In Japan, the number of the cars in total is still moderately increasing. One of the counter measures for this matter is Mobility Management (MM), which induces people to use alternative transport modes instead of cars. In MM, a main practice is to guide people to use public transportation through focusing on stimulating the psychological aspects via communication. Communication often takes place in family. Therefore, the influence of the family on the car ownership is worth looking into. In this study, two research are covered. Firstly, the influence of the parents' car attitudes on the attitudes of their children. Children here indicate those aged 18-25 years old. From the perspective of MM, in a broader sense of definition, one of the resolution can be more use of environmental-friendly cars. Therefore, secondly, the influence of the parents on their child's preference for certain car types is discussed with specific emphasis on environmentally friendly cars.

2. Descriptive Data Analysis, Survey Area

In this study, 300 groups are asked to answer the questionnaire. Each group consisted of the father, mother and their 18-25 year old child. We collect samples from all over Japan. 200 samples are taken from urban areas, and 100 samples are from the rural area. The definition of urban and rural area is based on the research area of 4th Nationwide Person Trip Survey conducted by the Ministry of Land, Infrastructure and Transport of Japan (MLIT).. The questionnaire was conducted as a web survey from December

16th 2016 to January 5th 2017.

All of the respondents are asked questions of attitudes toward the cars, personality, socio-demographic, attitudes toward public transportation, car experience and environmental concern. In addition to this, only children are asked questions about communication and general quality of relationship between family members.

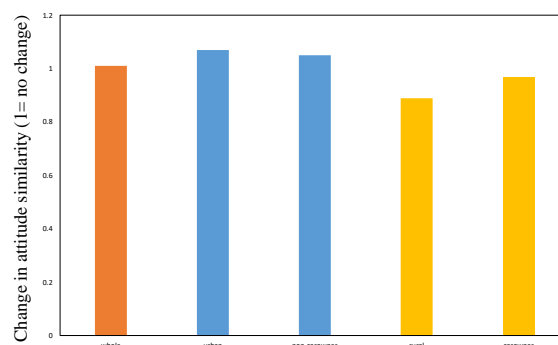
3. Attitudinal Similarity

Firstly, the similarity of the attitudes toward the cars between the parents and the children is researched. Anova analysis is conducted on each attitudinal questions over the 3 groups, mothers, fathers and children (**Table 1**). For most of the questions significance are confirmed.

Table 1 Anova Analysis

		All Samples(N=300)						
Variables		Father		Mother		Children		Anova
		Mean	Std.Dev	Mean	Std.Dev	Mean	Std.Dev	
Q1	Cars are comfortable	2.34	1.076	2.54	1.131	2.41	1.269	0.005***
Q2	Cars allow one to care for others	2.86	1.333	3.10	1.223	3.20	1.453	0.008***
Q3	Cars are convenient	1.93	0.841	2.24	1.059	2.31	1.109	0.000***
Q4	Cars allow one to travel anytime	1.96	0.867	2.37	1.088	2.35	1.166	0.000***
Q5	Cars are environmentally friendly	4.09	1.236	4.43	1.229	4.78	1.226	0.000***
Q6	Cars allow one to travel safely	3.65	1.314	3.88	1.260	3.50	1.335	0.001***
Q7	Cars are cool	3.16	1.348	4.05	1.274	3.27	1.320	0.000***
Q8	Cars allow one to do adventurous things	2.80	1.384	3.59	1.465	3.09	1.376	0.000***
Q9	Cars are disturbing ones neighborhood	4.48	1.427	4.45	1.438	4.48	1.509	0.975
Q10	Cars allow one to express yourself	3.70	1.514	4.36	1.396	3.88	1.488	0.000***
Q11	Cars help one to save time for travel	2.94	1.251	2.97	1.232	2.77	1.203	0.117
Q12	Cars are giving someone impression	4.31	1.339	4.42	1.313	4.12	1.452	0.026***
Q13	Cars allow one to be independent	2.58	1.023	2.88	1.270	2.77	1.266	0.009***
Q14	Cars are trendy	4.30	1.358	4.71	1.429	4.38	1.542	0.022***
Q15	Cars allow one to pick up or see off others	2.48	1.010	2.66	1.170	2.67	1.228	0.087**
Q16	Cars are fun to have	3.30	1.348	4.28	1.452	3.73	1.446	0.000***
Q17	Cars are expensive to own and maintain	1.99	0.940	2.07	1.177	2.35	1.278	0.000***
Q18	Cars allow to distinguish one self from others	4.14	1.410	4.46	1.420	3.94	1.411	0.000***
Q19	Cars bring prestige	4.29	1.476	4.55	1.459	4.16	1.379	0.005***

*, p<0.1 ** p<0.05 *** p<0.01

Figure 1 η_k in different conditions

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This indicates there is the possibility of the attitudinal difference non-coincidental. Then the difference in attitudes between the parents and the children controlling for residential areas of parents and car ownership of children are analyzed. In either rural area or for car owners, the similarities are confirmed. Further the difference in attitudes considering family relationship is analyzed. Family relationship here is measured by 3 scales, cohesiveness, expressiveness based on Brief family relationship (Ching et al, 2014⁽¹⁾).

The assumption is that if the score of family relationship is better, then the attitudes get more similar because the children might tend to take parent's action positively. η_k in Figure 1 is indicating the effects of the family relationship on the car attitudes. A value below one indicates that, as the family relationship gets better, the attitudes get closer. In other words, in rural area or for car owning children, the family relationship positively influences similarity in attitudes.

4. Car preference regression

Firstly a Principle Component Analysis (PCA) was conducted to reduce attributes of attitudinal factors discussed in previous section. The results are shown in Table 2. According to this, the factors can be divided into three groups. which are named “Usefulness”, “Image” and “Environmental/Safety”. Then later, car type preference of the children is estimated based on the regression model with attitudes toward the cars of father, mother, and children, in addition to the other variables such as the environmental concern and the certain type of car ownership of the parents. The model was constructed for four different car types as shown in Table 3. F, M, C indicates fathers, mothers, and children respectively. The results show that car attitudes and type of car parents own are significant for car type preference of children. The other findings are that mother's attitudes are more important for the child's car type preference.

Table 2 Principle Component Analysis(PCA)

	Variables	Component Analysis		
		Usefulness (28.0%)	Image (26.6%)	Environmental and Safety (10.3%)
X1	Cars are convenient	0.881		
X2	Cars allow one to travel anytime	0.877		
X3	Cars are comfortable	0.803		
X4	Cars allow one to pick up or see off others	0.735		
X5	Cars allow one to be independent	0.723		
X6	Cars help one to save time for travel	0.614		0.253
X7	Cars allow to distinguish oneself from others		0.878	
X8	Cars bring prestige		0.849	
X9	Cars allow to express yourself	0.336	0.782	
X10	Cars are trendy		0.724	0.261
X11	Cars are fun to have	0.250	0.702	
X12	Cars are giving arrogant impression		0.629	0.225
X13	Cars are environmentally friendly		0.240	0.849
X14	Cars allow one to travel safely	0.360	0.283	0.685

Table 3 Car type preference Regression model

Dependent Variable		Explanatory Variables	β	t value	significance	R ²
Child Preference of	Kei-jidosha	Environmental/Safety(M)	0.147	2.304	***	0.241
		Child_Gender_Dummy(M)	-0.246	-4.341	***	
		ChildNon_Car Owner Dummy	-0.140	-2.442	***	
		Parents have Keijidosha	0.169	2.834	***	
		Image(M)	0.198	2.706	***	
	middle size	Child_Gender_Dummy(M)	0.123	2.117	***	0.205
		ChildNon_Car Owner Dummy	-0.135	-2.307	***	
		ENVC	0.157	2.299	***	
		Parents have middle size car	0.180	2.989	***	
		Parents have foreign car	-0.142	-2.289	***	
	foreign	Parents have sports car	0.126	1.883	***	0.196
		Environmental/Safety(F)	0.145	2.275	***	
		Image(M)	0.272	3.700	***	
		Child_Gender_Dummy(M)	0.120	2.055	***	
		Urban_Dummy	-0.100	-1.735	**	
	sports	Parents have foreign car	0.121	1.943	**	0.209
		Image(M)	0.248	3.400	***	
		Environmental/Safety(M)	0.115	1.761	*	
		Child_Gender_Dummy(M)	0.221	3.815	***	
		ChildNon_Car Owner Dummy	-0.093	-1.585		
		Parents have keijidosha	-0.095	-1.567		
level of significance ***1% ** 5% *10%						

level of significance *** 1% ** 5% *10%

5. Conclusion

In this study, the influence of the attitudes of the parents toward the car attitudes of children is researched. The main findings are that parents have a strong influence on the attitudes of their children, especially mother's effects are more powerful. Moreover, the car type preference is also strongly affected by the cars the parents own. It is therefore suggested that for successful mobility management an approach targeting the whole family is required. Further research is needed to obtain and construct latent factors that influence the explanatory variables discussed here.

Reference

- 1) Fok, Carlotta Ching Ting, et al.(2014). The Brief Family Relationship Scale: A brief measure of the relationship dimension in family functioning, Assessment, 21.1, pp. 67-72