Differences in Decision Making Factors and Process in Residential Choice Focusing on Planned Residential Duration

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Abstract: This study analyzes both the strategies residents implement, and the factors they consider when planning residential choice. In addition, it aims to suggest how policy can improve the social capital of communities through residential derivation or relocation of public facilities. The data for this analysis was collected via a questionnaire, targeting apartment dwellers in the inner-city areas of Sendai, Japan. The questionnaire was distributed by hand, and collected by mail. The respondents were classified into two groups based on Planned Residential Duration (PRD): the Long PRD group and the Short PRD group. After examining the data, statistical analyses revealed the following findings: 1) that the importance of factors for residential choice could vary depending on planned residential duration, 2) and that decision making strategy could also vary contingent on planned residential duration. Finally, some implications for the formation of wealthy communities and the distribution of educational facilities were discussed.

Keywords: Residential Choice, Planned Residential Duration, Decision Making Process, Dual Process Model

1. INTRODUCTION

Decision making of settlement or temporary inhabitancy has long been argued as an important consideration for spatial planning. Recently, it has become increasingly important because of the serious social problems that communities face. For instance, a lot of inhabitants, particularly in urban areas, suffer from loneliness and depression, resulting in lower participation and engagement in the community, and ultimately a lowering of social capital. Recent research shows that low social capital contributes to community problems such as bad health (Kawachi *et al.*, 2008), low productivity (Baker, 2000), low security (Inaba *et al*, 2011), slow recovery from disaster (Aldrich, 2011) and so on. Hence, increasing the number of inhabitants who can contribute positively to their community could contribute to the creation of a more wealthy community in terms of both economic prosperity, and social cohesiveness.

To better understand these issues and to contribute to the development of strategies to solve these problems, this study focuses on the residential decisions and its processes of inhabitants in a particular area. It should be noted that we have divided these residents into two groups: planned long-term inhabitancy, and short-term residency. For the former group, residents had planned, in advance, to live in an area for the long term; for the latter group, residents had not planned to settle for the long term, but stayed on anyway. Although it may be possible to increase both types of inhabitants, increasing the former would be more desirable because they would make a concerted effort to commit and adjust to their community from the beginning. To increase the number of planned long-stay inhabitants, it is important to better understand the decision making processes of these types of residents, and

to do this, it will be helpful to discuss theories that seek to explain this behavior. In other words, it is necessary to better understand such inhabitants from the viewpoint of Planned Residential Duration (PRD).

Noteworthy considerations in the process of Residential Choice (RC)[(1)] are residential location, housing type, and transport-- all key issues for spatial planning; these decisions help to shape important policy choices like population distribution and/or land use. Indeed, there are a lot of existing studies of these factors (see Timmermans, 2003; Wegener, 2004; Schirmer *et al*, 2014): conventional studies on residential choice adopt the framework of rational choice theory and place utility theory (Wolpart, 1965) within the general equilibrium framework (Hertel *et al*, 2008). Generally speaking, models on RC implicitly assume that there is no significant difference between individual preference and attitude to a built environment, and thus, such models basically only consider features of the physical environment. However, some studies show evidence that not only a built environment, but also one's attitude toward and preference for an object could have an impact on residential location choice (Cao et al, 2009; Næss, 2009; Sliva, 2014; Schirmer *et al*, 2014). By not taking self-selection into account, we could overestimate the impact of built environment on RC, which could lead to inappropriate planning, and ultimately make communities less attractive for residents and detract from the overall health and wealth of the community.

Although recent studies have considered psychological aspects of RC, there are some factors that have not been evaluated. For instance, Bohte *et al* (2009) reviewed psychological studies on RC focusing on "attitude" and "cognition", but did not refer to the impact of key variables like conformity, decision making strategy, and cultural norms. In addition, to my knowledge, there are no studies that have analyzed residential choice behavior focusing on PRD. Hence, the present study aims to address this absence in the literature and to clarify the impact of PRD on factors affecting decision making and the process of RC.

2. DECISION MAKING PROCESS FOR RESIDNTIAL CHOICE VIEWED FROM A PLANNED RESIDENTIAL DURATION PERSPECTIVE

According to Dual Process Models-- descriptive frameworks for decision making processes-- such as the Heuristic-systematic model (Chaiken & Maheswaran, 1994) or the Elaboration likelihood model (Petty & Cacioppo, 1986; Cacioppo *et al*., 1986), the decision making process could change depending on the motivation to process information related to an object. That is, low motivation leads to a heuristic strategy (decision making without deep thinking), and high motivation leads to a deliberate strategy (decision making based on deep thinking). Considering that one's motivation to process information depends on the degree of self-relevance, people would consider an issue deeply if it is really important to them. In contradistinction, people make decisions without careful consideration if the issue is not relevant to them.

So, what kinds of issues are important? Generally speaking, when the decision provides the opportunity for a big loss or benefit, we usually consider the issue important. That is, the motivation to process information is closely related to the level of benefit (including negative benefit) the issue can bring.

For instance, imagine a household that is looking for a residency. If the household plans to live in the district for the long term, benefit or loss that will be brought by the place would be a crucial factor. For example, if a lot of friendly and kind families are in the neighborhood, the living situation could be comfortable, and the inhabitants would obtain great benefit from living there. Conversely, if there are some insistent claimants in the neighborhood, the

household could be uncomfortable and suffer from the neighbors. In other words, compared to those who have short PRD, long-term benefit from the community would be a more important consideration for households with long PRD. On the other hand, if a household plans to live in a district for just a few years, the household would be less concerned about benefit or loss, and thus residential location choice for households with short PRD will be less complex than and lacking the depth of those who have long PRD.

Following this line of reasoning, it is hypothesized that 1) decision making process for residential choice could differ depending on PRD, and 2) that factors affecting RC could vary depending on PRD. The present study seeks to verify the above hypotheses by analyzing relevant data by means of a questionnaire survey.

3. METHOD: A QUESTIONNAIRE SURVEY

3.1 Surveyed Areas and Its Characteristics

In order to evaluate the importance of decision making factors and to clarify this process based on PRD, a questionnaire survey was conducted in the central city area of Sendai, Japan. Sendai is the one of the biggest cities in Japan, with a population of approximately 1.05 million, consisting of about 465 thousand households (Population census of Japan, 2010). As for housing type, 40.6 percent of these households live in detached housing (of which 90.7 percent own their homes), and 58.2 percent live in apartments (20.4 percent ownership). As for spatial distribution, Sendai is typical of other big cities: residents living in detached housing mostly live in the suburbs, and people living in rented apartments or condominiums mostly live in the city center.

The survey targets inhabitants who live in apartments in the central area of Sendai, and focuses specifically on two types of apartment dwellers: long PRD dwellers and short PRD dwellers. Since in the suburbs, most households own their own detached houses, and few have short-term PRD, data collection for both long PRD and short PRD was difficult. Hence it is really difficult to conduct the survey targeting households who have long PRD or short PRD in the suburbs. On the other hand, there are both types of dwellers (those who have long PRD or short PRD) in the inner city area. Given these limitations, the present study focuses on apartment dwellers in the inner city.

The Kamisugi area was chosen as the point of distribution for the questionnaire as it is one of the most typical inner city areas of Sendai. It is located within 1 km from the city hall and with a population of about 10 thousand. 39.4 percent of the inhabitants own their own homes, and 52.3 percent live in rented housing (Population census of Japan, 2010). However, since there were an inadequate number of respondents, the questionnaire was also distributed near JR Sendai station. Sendai Station is located in the heart of DID area, and about 1.5 km from the Kamisugi area.

In the Kamisugi area, the questionnaire was distributed to each household with the help of a building security manager (because of the tight security situation, it is difficult to enter the apartment complexes). As for the Sendai station location, the questionnaire was distributed on the street by hand. In total, 1600 questionnaires were distributed.

3.2 Items and Questions

In the questionnaire, the respondents were asked to point out factors that they emphasized when they chose current housing, as well as to rate the importance of each factor in both their

RC and satisfaction with their current living environment. Some demographic variables like age, sex, family structure and their residential area (name of the district) were also collected. In addition, respondents were asked about PRD for their current residence, the actual duration that the respondents have lived in the area, and the length of time that the respondents spent deciding on their current residence.

First, the respondents were asked to choose the factors that they emphasized when they actually chose their current place from the following eleven factors: economic constraints like budget, landscape, educational environment, access to public transportation, natural environment, daily shopping convenience, area security, site area (size of the lot), atmosphere, leisure environment, and so on. This question measures "revealed preference".

Next, the respondents were asked to rate the importance of nine items from existing studies, items that are often used to measure one's residential utility (ex. Schirmer *et al*, 2014): accessibility to a work place, shopping convenience, floor area, site space, site area, educational environment, past land use, land price/housing rent, atmosphere, and security. These items were measured with a 7-point Lickert scale ranging from 1: Not important at all, to 7: Very important. In addition, respondents were also asked which was more important for their RC, specific information about the area or a vague image of the area. The specific information includes, for example, factors like housing price, floor area, accessibility to public transport and so on; whereas a vague image here means only an impression or general information like safeness of the area, whether the district is upscale, the general educational opportunities, etc.

Furthermore, the extent of satisfaction at their current residence was also measured with 7-point Lickert scale ranging from 1: not at all, to 7: strongly agree. More specifically, data about comprehensive satisfaction (ex. In total, I am satisfied with current residence.), and satisfaction to a built environment (land scape, shopping convenience, site area, floor area, public transport, commute time, educational environment, shopping access) were collected. The survey was conducted in February 2010.

The questionnaire measures PRD, a type of behavioral intention, which generally speaking, is a psychological variable, and we have to give it a numerical value with an upper limit whenever it is measured. The research approach using such data might be problematic, yet, even in the transport research field, SP data, which could be one type of censored data, has been used and has provided a lot of helpful findings. For a similar reason, the current paper uses such data, even though it might have some problems.

4. RESULTS

4.1 Outline of the Respondents

The collection rate was 6.13 percent (98 respondents; 36 for short PRD, 62 for long PRD) probably due to two reasons: the security system and obstructive baggage.

In Japan, it is almost impossible to enter new condominiums and apartments without a resident ID, so when I distributed the questionnaire, I asked the security manager of the building to distribute it. However, it is almost impossible to know how the manager treats it. Considering that the manager would worry about complaints from the inhabitants, the manager might hesitate to distribute it to all households. Some security managers may have put the questionnaire in the common space with a comment like the following: "Please take it away. But it is not a duty". This process would very likely lower the collection rate.

As for the questionnaire given out near JR Sendai station, since the questionnaire was

handed out on the street, and people who received it needed to carry it to their destination, the questionnaire could be seen by receivers as an unimportant obstruction, and simply be ignored or discarded. This is one explanation for the low collection rate, and would be a problem if the survey is regarded as a "social survey", because a social survey usually needs a minimum number of responses to ensure the data represents a societal average, not just a particular group. However, if the survey is regarded as a "field experiment", it is acceptable and fair, because a psychological experiment in a laboratory requires only 20-30 respondents for one condition.

As mentioned above, the current study employs mixed data from both the Kamisugi area and JR Sendai station. In the Kamisugi area, the questionnaire was distributed to most of the apartments and condominiums except for a small complex. However, as not enough questionnaires were collected from the Kamisugi area, 400 questionnaires were distributed again near JR Sendai station—60 were collected. Of these 60 questionnaires, 17 were from people living in an apartment or a condominium in the city center of Sendai. The data from these 17 respondents was included in the analysis, and the study assumes that there is no critical difference in the living environment of the respondents.

Table 1 shows an outline of the respondents. The Mean age was 49.54 (S.D. 18.03) and the ratio of males was .46. The Mean residential duration of respondents' current residence was 8.30 (S.D. 8.05) years as a whole. PRD was 14.15 (S.D. 12.79) years. The correlation between the above was .51 and statistically significant ($p < .001$). The results indicate that the longer PRD is, the longer the actual current residential duration is, i.e. correlation between PRD and actual residential duration was relatively high. This could be interpreted that it is not so common for people to decide to keep living in a residence for the long term after a short-term trial.

Next, I classified the respondents into two groups based on PRD: respondents who had PRD for less than 5 years were classified as the short PRD group; respondents with PRD over 10 years were classified as the long PRD group. Fortunately, there were no respondents with PRD between 5 and 10 years. Here, it is assumed that "short" PRD means residents have a distinct intention to move in the near future. On the other hand, "long" PRD means the residents plan for a long-term residency. According to the surveys (MLIT, 2014), the mean of actual residential duration of apartment dwellers is 11.5 years in the Tokyo area. Considering that the mean figure of 11.5 years was calculated for both the long PRD group and the short PRD group, PRD for households who have a distinct intention to move could be less than the average of apartment dwellers (11.5 years). Hence people whose PRD was less than 10 years are regarded as short PRD group. Table 2 shows the characteristics of the two PRD groups.

In order to check the similarity of the two groups, demographic features of the groups were tested. The Sex ratio of the two groups was tested by a chi square test revealing that there was no difference between them ($\chi^2(1) = 2.20$, $p = .14$). The mean age of both groups was also tested with ANOVA. The result shows that the mean age of the long PRD group was significantly older than that of the short-term PRD group ($m_{long,\ short} = 57.42, 36.17$, $F(1, 95) = 46.31$, $p < .001$). In addition, the ratio of households with children for each group was tested by a chi square test as well, showing no difference between the two groups ($\chi^2(1) = .08$, $p = .82$). Hence it can be said that the difference in mean age was not due to the presence of children. Furthermore, it can be said that having children would not impact group comparison results, suggesting that the differences revealed in the analysis were caused by only a difference of PRD.

Table 1. The outline of the respondents

Area	The num. of distributed questionnaire	The num. of collected questionnire	collection rate
Kamisugi area	1200	81	.07
JR Sendai station	400	17	.04(2)
total	1600	98	.006
mean age		49.54 (S.D. 18.03)	
sex ratio		male : female = 46 : 54	
mean residential duration(years)		14.15 (S.D. 12.79)	

Table 2. The composition of the two PRD groups

Respondents	Male	Female	Total	Male ratio	Mean age (S.D.)	Raito of families with children	Ratio of rented housing
Short PRD (0-5 yrs)	13	23	36	.36	36.17 (11.63)	.33	.86
Long PRD (over 10 yrs)	32	30	62	.52	57.42 (16.46)	.31	.13
All respondents	45	53	98	.46	49.54 (18.03)	.32	.40

Table 3. The number of respondents who emphasized following factors in RC and its ratio

Factors	Total		Short PRD		Long PRD		χ^2	p
	The num. (a)	Ratio(a/A)	The num. (b)	Ratio (b/B)	he num. (atio (c/(			
Financial constraint	42	.43	21	.58	21	.34	5.57	**
Landscape	23	.23	10	.28	13	.21	.59	
Educational environment	26	.27	5	.14	21	.34	4.67	**
Public transport	65	.66	23	.64	42	.68	.15	
Natural environment	6	.06	1	.03	5	.08	1.11	
Shopping convenience	54	.55	19	.53	35	.56	.12	
Security	21	.21	9	.25	12	.19	.43	
Land area	9	.09	5	.14	4	.06	.15	
Atmosphere	24	.24	12	.33	12	.19	2.41	†
Entertainment	2	.02	2	.06	0	.0	3.51	
Others	15	.15	6	.17	9	.15	.08	
Total num. of respondents (A)	98							
The num. of short PRD (B)	36							
The num. of long PRD (C)	62							

** $p < .01$, * $p < .05$, † $p < .10$

4.2 Importance of Factors for Residential Choice Viewed from the Perspective of PRD

Table 3 shows the number of respondents who emphasized each factor as important when they chose their current residence. For this question, the respondents were allowed to choose multiple factors. Looking at the totals, we can see that 66 percent of the respondents rated public transport as important, 55 percent viewed daily shopping convenience important, and 43 percent viewed financial constraint as important. This data is common to apartment dwellers in general.

Scrutinizing the data trends more closely, it appears that both short and long PRD group valued access to public transport, shopping convenience, and financial constraint. However, there are some differences in both of the PRD group answers. In order to verify these differences, a chi square test was applied; the results reveal statistically significant differences in financial constraint ($\chi^2(1) = 5.57$, $p < .01$), educational environment ($\chi^2(1) = 4.67$, $p < .01$), and atmosphere ($\chi^2(1) = 2.41$, $p < .09$).

Table 4. Importance of factors in Residential Choice (RC)

Factors	Mean		*F-value*	*p*
	Short PRD	Long PRD		
Commute time	5.69	5.33	$F(1,96) = .24$	
Floor area	5.03	4.87	$F(1,96) = .53$	
Shopping convenience	5.56	5.52	$F(1,96) = .04$	
Site area	4.17	4.55	$F(1,96) = 2.07$	
Educational environment	3.61	4.99	$F(1,96) = 13.11$	**
Site price	7.14	5.05	$F(1,96) = 2.59$	
Security	5.14	5.47	$F(1,96) = 2.51$	
Atmosphere	5.25	5.57	$F(1,96) = 2.35$	
Past land use	2.53	4.14	$F(1,96) = 28.85$	**

$^{**}p < .01$, $^{*}p < .05$, †$p < .10$

Table 5. The results of the regression analysis evaluating the importance of educational environment for residential choice

Independent valuables	B	Std. Error	Beta	t	p
const.	3.30	.31		10.49	***
PRD	.06	.02	.37	3.69	***
Children (0 = no children, 1 = with children)	1.23	.42	.29	2.91	**

B: partial regression coefficient

Beta: standardised partial regression coefficient

*** p <.001, ** p <.01

These above results can be interpreted as follows. As for financial constraints, the respondents with short PRD are more likely to place more value on it than the respondents with long PRD. In addition, there are more respondents who emphasized atmosphere of their district in short PRD than in long PRD. On the other hand, educational environment was more valued by the long PRD group than the short PRD group. These results suggest that decision making factors for RC could be different depending on the PRD, even if the decision making framework is the same.

Table 4 shows the degree of importance of each decision making factor when the respondents decided their residence. When ANOVA (analysis of variance) was applied to the ratings, there were no significant differences in most factors. Ratings of educational environment and past land-use, however, showed a significant difference (F (1, 96) = 13.11, p < .01). In addition, a regression analysis employing “importance of educational environment” as the dependent valuable, and “PRD” and “children dummy” as independent valuables was conducted as well. As shown in Table 5, PRD was still statistically significant, while having children was also significant. Hence, the respondents with long PRD are more likely to emphasize educational environment than those who have short PRD. These findings also indicate that decision making factors could be different depending on PRD. Hence it can be concluded that choice of residential environments and conditions could vary, depending on the length of PRD.

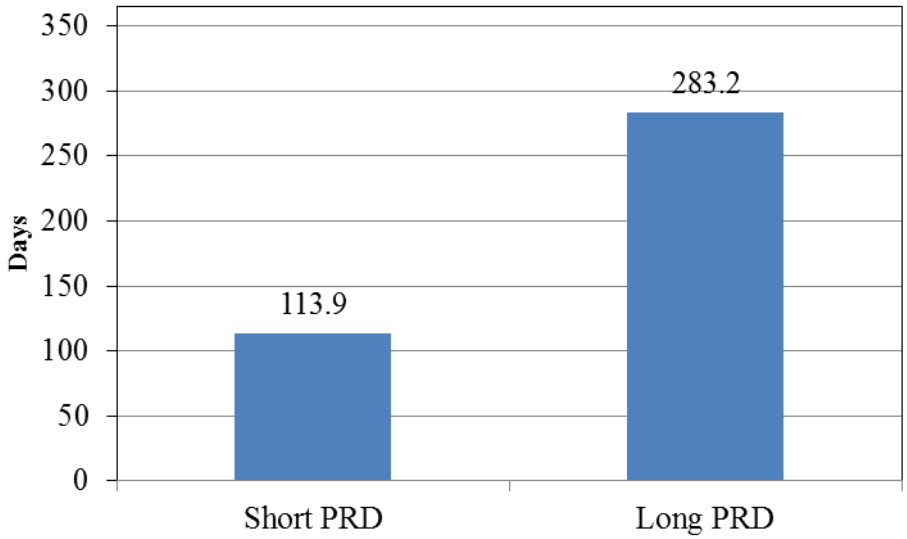

Figure 1. The number of days spent for RC by short and long PRD

4.3 Decision Making Process based on PRD

In order to analyze decision making process in RC, respondents were asked to provide the number of days they had spent deciding on their current residence. In the actual questionnaire, the number of days was measured on a monthly and daily basis. In other words, I asked the respondents to put the number of months and days spent deciding their current residence. These figures were then calculated as the total number of days.

Figure 1 shows the number of days spent deciding current residence by each PRD group. On average, the short PRD group spent 113.9 days (about 4 months) making their decision, while the long PRD group spent 283.2 days (about 10 months). In order to check the difference between them, ANOVA was applied and it reveals that the long PRD group spent significantly more days than the short PRD group ($F(1, 89) = 7.45$, $p < .01$). This result supports the hypothesis that people with long PRD are more likely to consider RC more deeply than those with short PRD. Thus, it is reasonable to assume that the dual process model could be applied to residential choice when describing decision making process.

In addition, to ascertain decision making strategy, the amount of mental imagery used in RC was also measured in the questionnaire with a 7-point Lickert scale ranging from 1: not at all, to 7: very much. Here, mental imagery means a general image and/or impression of the residence that is shaped by past experiences, prototypes, reputation, symbolic buildings and so on. ANOVA reveals that the long PRD group emphasized mental imagery in their RC more than the short PRD group ($m_{\text{long, short}} = 5.25, 4.75$, $F(1, 96) = 4.52$, $p < .04$). In addition, the amount of specific information about a particular residence used when choosing current residence, such as total price of the residence or convenience of the residence was also measured. ANOVA reveals that there is no significant difference between two PRD groups ($m_{\text{long, short}} = 5.63, 5.72$, $F(1, 96) = .31$, $p = .58$). These findings suggest that while the long PRD group could use both mental imagery and specific information about residence in RC, the short PRD group could use only specific information for their residential decision making. Given this, it is reasonable to assume that, while the long PRD group uses a more deliberate strategy, the short PRD group uses a more heuristic strategy in their decision making process. The findings on decision making strategy are consistent with the dual process model as well. Hence, these results, as in the above sections, suggest that the decision making process in RC

Table 6. The extent of satisfaction by short and long PRD

Factors	Mean		*F-value*	*p*
	Short PRD	Long PRD		
Comprehensive satisfaction	5.69	5.93	$F(1,96) = 2.56$	
Land scape	4.44	4.85	$F(1,96) = 1.57$	
Daily shopping convenience	5.69	5.93	$F(1,96) = 1.35$	†
Site area	4.39	4.26	$F(1,96) = .18$	
Floor area	4.69	4.47	$F(1,96) = .53$	
Public transport	5.97	6.00	$F(1,96) = .02$	
Commute time	5.94	5.67	$F(1,96) = 1.26$	
Educational environment	4.56	5.57	$F(1,96) = 23.04$	**
Shopping access	5.17	5.68	$F(1,96) = 4.87$	*

$^{**}p < .01$, $^{*}p < .05$, †$p < .10$

also could vary depending on PRD.

4.4 The Degree of Satisfaction Viewed by PRD

Finally, I analyzed the degree of satisfaction respondents felt with their current living environment. Table 6 shows the results. The satisfaction level was measured with 7-point Lickert scale. As shown in Table 6, almost all the items show a high satisfaction level. Particularly, comprehensive satisfaction, satisfaction to access to public transport, and commute time were highly evaluated. The high satisfaction of these factors can be attributed to the location of the "Kamisugi area" (there is a Metro station within 500 meters). Further, there are a lot of bus stops in the area and 16 bus services per hour after 7 o'clock on week days. Clearly, satisfaction in relation to public transport and commute time are high.

Next, ANOVA was applied to clarify the differences between the groups, revealing that there were significant differences in educational environment, shopping access (access to shops and stores), and daily shopping convenience. Particularly, the rating of educational environment showed a big difference: the long PRD group was more satisfied than the short PRD group. Considering that the long PRD group valued educational environment in their decision making process, the difference in rating of educational environment could come from a factor that have an impact on the decision making process, i.e. PRD.

5. DISCUSSION

5.1 Decision Making Factors and Process

There were more respondents in the short PRD group who highlighted financial constraints than in the long PRD group. In addition, when looking at the importance of financial constraint, the short PRD group rated it somewhat more important than the long PRD group, though the difference was not significant. Hence it can be concluded that PRD might have an influence on importance of financial constraint. That is, since people with short PRD do not consider all factors deeply, they are more likely to value monetary condition than those with long PRD.

On the other hand, the results shown in Table 3 and Table 4 suggest that there are differences in importance of decision making factors by PRD. The long PRD group

emphasizes educational environment and past land use more than the short PRD group, and thus suggests that decision making factors could be different depending on PRD.

With the above findings in mind, which is a more essential factor in residential choice, PRD? Other physical or economic factors like educational environment or budget constraint? From the analysis above, it is clear that some conditions are influenced by PRD and some are not. While economic condition, environmental and psychological factors like educational environment and past incident (past land use) would become more important only for people with long PRD, there are some factors that would not be impacted by PRD. Hence, we need to more carefully consider the relationship between these factors when we hypothesize a causal relationship and creat a model to describe residential decision making process.

As for the decision making process, the results suggest that decision making strategies could be different depending on PRD. While the Long PRD group took advantage of both mental image and specific information when choosing a residence, the short PRD group used only concrete information in their residential decision making. Furthermore, the long PRD group spent more days than the short PRD group for their residential decision making. Since the long PRD group uses more materials and longer decision making duration than the short PRD group for their residential decision making, it could be said that long PRD group are more deliberate and more carefully consider their RC than the short PRD group.

To sum up, considering that people with long PRD could make their residential choice based on longer decision making duration, deeper consideration, and different choice factors from people with short PRD, it could be concluded that decision making process in RC varies contingent on PRD.

5.2 The Relationship between PRD and Satisfaction

Although there was no difference in comprehensive satisfaction between the two PRD groups statistically, partial satisfaction of factors like educational environment was different depending on PRD. Why does PRD have an influence on satisfaction level? The difference of decision making factors could provide some insights.

If the length of time spent thinking about RC changes according to PRD, then some factors could be overlooked or ignored during the decision making process. For example, since the short PRD group uses a slightly heuristic strategy, unlike the long PRD group, they do not consider some important factors like educational environment as significant in RC. Consequently, after living in an area, they would notice the importance of the factors they did not value, and that detection would lead to degradation in satisfaction level. In other words, since the short PRD group did not think much of educational environment in their heuristic RC, even though it is important in their daily life, their partial satisfaction became lower than the long PRD group that thought much of it in their RC. Therefore, it is reasonable to assume that careful consideration of a range of factors when making RC affects the subsequent feeling of satisfaction.

5.3 Implications and Limitations

The first implication of this study is that a better understanding of the psychology of residential decision is needed. Increased comprehension of RC would contribute to the creation of a more precise model to describe residential choice behavior, which would contribute to future prediction. Further, the study also suggests the necessity of both more psychological studies on RC, as well as the development of a new research field. Such enhancements to the study of RC could contribute to tailor-made spatial planning.

The study also suggests a possible strategy for increasing the number of long-term residents. According to the findings in this paper, "educational environment" could be a key factor, and thus, an improved educational environment would more effectively attract residents with long-term PRD. As a result, the community could become better organized, safer, and generally reflect a higher level of social capital: to provide what a long PRD resident needs could contribute to the overall wealth and prosperity of the community.

A final implication is a suggestion concerning facility management. In the current survey, 86.1 percent of the short PRD groups live in rented apartments, and 87.1 percent of the long PRD groups live in condominiums. This means that, roughly speaking, a household living in an apartment does not have long PRD and does not value educational environment. On the contrary, condominium dwellers are likely to have long PRD and value educational environment. Here, what is important is the meaning of educational environment and the reason why people with long PRD value it. If it means schools for compulsory education or public libraries, facilities likely to be greatly valued by residents with long PRD, such facilities should be developed in areas that need long-term residency, or areas includes a lot of condominiums. On the other hand, facilities like non-compulsory nurseries, not as highly valued by long PRD dwellers, should be built in areas that include a lot of apartment rentals. By doing so, and since turnover in such areas is high, these facilities would attract new residents. In either case, the meaning of "educational environment" should be considered carefully in a future study.

On the other hand, there is a limitation on the findings in the present paper, because it only analyzes apartment dwellers in an inner city. It is necessary to analyze other residents and housing types like detached housing dwellers. Further, a different approach to collecting data, such as a field survey, is needed as well. Considering that residential choice behavior is influenced by housing type (ex. detached housing or apartment), housing ownership pattern (ex. Rented or owned), and area characteristics (ex. inner city, suburban, or rural), collecting enough samples to identify the source of an impact with would be difficult. Hence, a field experimental approach or area-focused social survey would contribute to comprehension of RC behavior and provide more analytical leverage for solving planning problems. Finally, the findings in this paper should be checked by means of various approaches and a broad collection of data as well, as it would make studies of the comprehension of RC more valid and reliable.

6. CONCLUSIONS

The present paper analyzed the impact of Planned Residential Duration (PRD) on decision making factors and process in residential choice by means of a questionnaire survey targeting apartment dwellers in the inner city area of Sendai, Japan. From the results of statistical analyses, the following findings were verified.

1) The respondents with short PRD are more likely to value financial constraints than the respondents with long PRD. In addition, there are more respondents who emphasized the atmosphere of their district in short PRD than in the long PRD. On the other hand, the respondents with long PRD valued educational environment more than those who have short PRD.
2) The respondents with long PRD are more likely to emphasize educational environment and past land-use than those who have short PRD.
3) The respondents who have long PRD spent significantly more days than short PRD

when they decided their current residence. Besides that, when deciding on residence, the respondents with long PRD took advantage of mental imagery more than those who have short PRD.

4) The respondents with long PRD were more satisfied with educational environment than those with short PRD. Considering that the long PRD group valued educational environment when they choose their residence and are more satisfied overall, it can be said that PRD could have an impact on satisfaction related to their residence.

The above findings suggest that decision making factors and the decision making process, like the dual process model, could be different depending on PRD. In addition, that difference due to difference in PRD could at least induce, a difference in satisfaction felt for current residence.

As for the limitations, of the study, the above findings are based only on apartment dwellers in an inner city, and thus it is necessary to analyze apartment dwellers in suburbs and detached housing dwellers in both the inner city and the suburbs. In addition, the present paper analyzed data from a "field experiment", and it is preferable to analyze survey data. Thus, to gain a more accurate and in-depth understanding of the decision making process in residential choice, various research approaches should be adopted, and a broader range of data should be evaluated in a future study.

NOTE

(1) The present paper uses the term "residential choice" to describe choice behavior related to residency. This is because it is preferable to use a term including residential location choice and housing type choice. It is commonly understood that there are strong links between residential location choice and housing type choice. For example, generally speaking, while there may be more apartment dwellers than detached-house residents in the city center, this relationship would be opposite in suburbs. Therefore it is necessary to consider the relationships between residential location and housing type when analyzing decision making process for residency. However, since the present paper considers only apartment dwellers living in an inner city area, it would not be appropriate to use "residential location choice" and "housing type choice". Therefore the present paper adopts the word "residential choice".

(2) Actually, 60 questionnaires were collected. However, since 43 respondents lived in other area, they were eliminated from the test sample.

ACKNOWLEDGEMENTS

I would like to express my gratitude to Mr. Yasuhiro MAEDA and Mr. Kazuya ICHII. They helped with conducting the questionnaire survey and with entering the collected data. Without their help, it would have been difficult to complete this study. In addition, I would like to show my appreciation to the respondents of the survey.

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