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THE EFFECT OF THE QUALITY OF APARTMENT HOUSES ON THE RESIDENTIAL SATISFACTION AND CORPORATION PERFORMANCE

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ABSTRACT: This study is to find out residential satisfaction, moreover, the effect in corporation performance based on a previous research of the influence on consumers' behavior by consumers' recognition of the quality of residential environment of apartment house. Further, the empirical study provides a theoretical model comprised of 10 research hypotheses of the relationship of each theory variable that is based on literature review. Residential environmental satisfaction is comprised of residents satisfaction, apartment buildings satisfaction, environmental satisfaction, societal satisfaction, and relationship satisfaction, and analyzed the influence level of residential environmental satisfaction on residential satisfaction and corporation performance. A survey data of KARSI research in 2009 regarding 2,503 households reside in 47 apartment houses throughout the nation has used as the evidential information for a hypothesis testing.

Keywords: *Apartment Housing, Housing Satisfaction, Prediction Model, Corporation Performance*

1. INTRODUCTION

Now apartment houses are facing a switch of concept of homebuilders and consumers from "products that are sold as built" to "products that are built well to be sold." To comply with such change, homebuilders consider houses as products and provide various services to satisfy high demand and requirement to meet the expectation of the market differentiation. To assure continuity in changing housing market, firms strive to develop housing products to enhance the residential satisfaction.

Until recently, the study of discovering residents' satisfaction in terms of the apartment housing management was insufficiently conducted due to more prioritized housing supply. However, expanding the lifespan of building by concentrating on maintenance and management of supplied apartment houses, and increasing residents' residential satisfaction seem to become more important than other attributes. Therefore, the need of studies on consistent management of apartment housing is desperately required. Especially, the recent trend of increased interests in qualitative improvement of houses

along with quantitative expansion, it is required to discover economical and efficient alternative policies to improve the housing quality.

This study is designed to find out the effect of the quality of apartment houses on the residential satisfaction and corporation performance.

The purpose of this study is to verify factors of the residents' recognition on the quality of apartment houses that affect residential satisfaction and corporation performance, to deduce a relative leverage on found influential factors, and, based on its result, to discover an implication of the government's housing policy to improve housing quality and the management scope of homebuilders.

To complete the study purpose efficiently, a literature review will be first conducted and then an empirical study will be conducted by using secondary information. The literature review will review residential environment, residential satisfaction, a study of the consumer satisfaction in marketing field, a study of the service quality, etc., of academia and various approaches of a practical field.

Based on such the literature review, a hypothesis of the relationship among each factors and a conceptual model of the study will be deduced. The evidential information for the hypothesis test will use a survey data of Korea Apartment Residents Satisfaction Index (KARSI) in 2009. The analysis will use multiple regression analysis to verify the study model. Multiple regression analysis is a statistical method to analyze the relationship between a dependent variable and multiple independent variables.

2. LITERATURE REVIEW

2.1 RESIDENTIAL ENVIRONMENT

Lynch(1997) hypothesized the residential environment is not just a simple combination of buildings and streets, but an organization of construction, nature, ecosystem, weather, and etc., and Song, In Sung (2004) hypothesized the residential environmental from the relationship with houses is created for each individual from a housing view based on housing location and a perspective of environment that connects the lifestyle of each individual and different aspects.

Park, In Suk and others (2008) identified the factor of residential environment as ‘perceived quality’ and hypothesized it as consumers’ recognized products, internal structures, finishing materials, construction status, and after-service. The result of previous research from the perspective of the construction industry is shown in Figure 1.

Classification		A	B	C	D	E	F	G	H	I	J
Residential Space	Residential Structure	•	•	•	•	•	•	•	•	•	•
	Residential Facility	•	•	•	•	•	•		•	•	•
	Comfort		•	•	•	•	•	•	•	•	
	Construction Status						•		•	•	•
Complex	Complex Exterior		•	•	•	•			•	•	

Management	Green Space	•	•	•	•	•			•		
	Recreational Facility	•	•	•	•	•		•	•		
	Management Condition		•	•					•	•	•
	Safety			•	•	•					•
	Parking Facility	•		•	•	•	•				

Fig. 1 Influential Factors of Residential Environment Quality

2.2 HOUSING SATISFACTION

Scholars provide the concept of housing satisfaction variously. However, Fried and Gleicher initially tried to establish the concept of housing satisfaction, who asserted the residents’ satisfaction is more appropriate than the characteristic of construction to evaluate the housing quality among various residential concepts. (Park, Jong Oh, et al., 2009).

Housing satisfaction not only evaluates the quality of residential environment by measuring the satisfaction level of individuals’ residential environment and its value, but also is a valid method to deduce designs or policies to improve the quality of residential environment. This study defines the housing satisfaction as the status to evaluate the overall satisfaction of apartment houses that residents reside.

2.3 KOREA APARTMENT RESIDENTS SATISFACTION INDEXES (KARSI) EVALUATION MODEL

Korean Apartment Residents Satisfaction Indexes (hereinafter “KARSI”) model is not only evaluates a simple apartment consumer satisfaction level, but is a causality structure model that encompasses KARIS’s performance model of two concepts of corporation performance and residents’ happiness that is based on a study of predicting results of improved housing satisfaction.

ence, KARSİ model preconditions causality between “measurement model” and “performance model” that measure housing satisfaction.

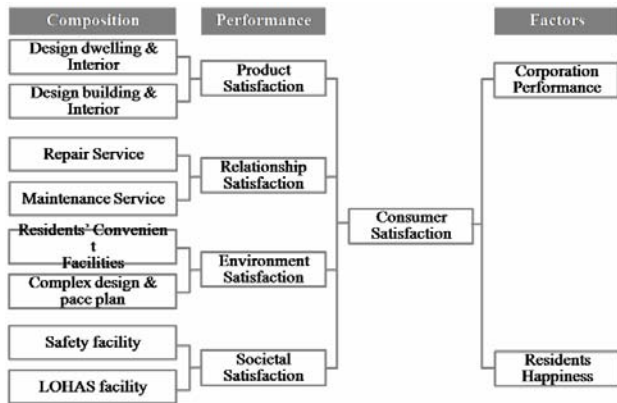


Fig. 2 Fundamental Model of 2010's Apartment Housing Quality Consumer Satisfaction Survey

KARSİ's measurement model is composed of a hierarchical structure of “product satisfaction,” “relationship satisfaction,” “environmental satisfaction,” and “societal satisfaction” that is based on studies of service quality and previous researches of housing satisfaction by deducing KARSİ satisfaction factors to evaluate objective aspects and subjective experiences of apartment from apartment houses' residents rather than focusing on homebuilders' perspective. (KARSİ, 2009).

3. HYPOTHESIS SET UP AND RESEARCH DESIGN

3.1 THEORETICAL MODEL OF RESEARCH

This study is designed to verify the influential factors of the quality of apartment houses on housing satisfaction and to deduce relative leverage of such factors to discover the essential factors to determine the housing quality of apartment houses. Further, it is designed to verify the influential level of residential environment on corporation performance and to deduce the relative leverage.

While previous research of the quality of residential environment (KARSİ, 2009) has composed 4 factors of product satisfaction, environmental satisfaction, societal satisfaction and relationship satisfaction, this research needs to categorize product quality, dwelling design and

performance and building design and performance, as a superordinate concept due to receiving higher weights from factor analysis. (Seo, Myung Gyo, 2009). As a result, the research model of causality between apartment houses' residential environment and corporation performance is as shown in Fig. 3.

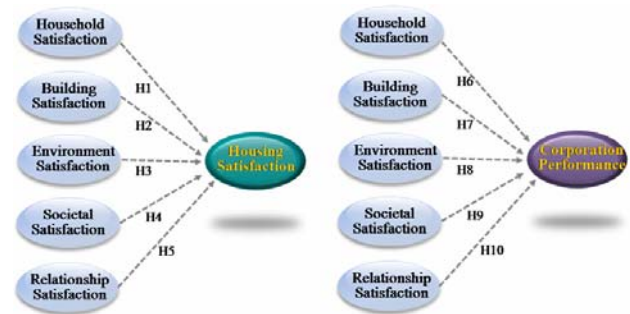


Fig. 3 Theoretical Model of Research

Regression of above research model is as follows.

$$\text{Housing Satisfaction}(Y1) = \beta0(\text{Invariable}) + \beta1 \text{ Residents' Satisfaction} + \beta2 \text{ Apartment Building Satisfaction} + \beta3 \text{ Environmental Satisfaction} + \beta4 \text{ Societal Satisfaction} + \beta5 \text{ Relationship Satisfaction} + e (\text{Error})$$

$$\text{Corporation Performance}(Y2) = \beta0(\text{Invariable}) + \beta1 \text{ Residents' Satisfaction} + \beta2 \text{ Apartment Building Satisfaction} + \beta3 \text{ Environmental Satisfaction} + \beta4 \text{ Societal Satisfaction} + \beta5 \text{ Relationship Satisfaction} + e (\text{Error})$$

This research has used multiple regression analysis to verify such research model. Multiple regression analysis is a statistical method to analyze a relationship between a dependent variable and multiple independent variables. Therefore, it can be understood as the most prominent analytical method for this research model that uses multiple independent variables.

3.2 ESTABLISHING RESEARCH HYPOTHESIS

This section provides 10 hypotheses based on literature review. In detail, hypotheses of the effect of the five factors of the residential environment's quality on housing satisfaction were presented first. (H1-H5). Then,

hypotheses of the effect of the five factors of the residential environment's quality on corporation performance were presented. (H6 ~H10).

Hypo	Contents
H1	Residents' recognition toward residents' satisfaction of the quality of residential environment will have a positive effect on housing satisfaction.
H2	Residents' recognition toward apartment buildings' satisfaction of the quality of residential environment will have a positive effect on housing satisfaction.
H3	Residents' recognition toward environmental satisfaction of the quality of residential environment will have a positive effect on housing satisfaction.
H4	Residents' recognition toward societal satisfaction of the quality of residential environment will have a positive effect on housing satisfaction.
H5	Residents' recognition toward relationship satisfaction of the quality of residential environment will have a positive effect on housing satisfaction.
H6	Residents' recognition toward environmental satisfaction of the quality of residential environment will have a positive effect on corporation performance.
H7	Residents' recognition toward apartment buildings' satisfaction of the quality of residential environment will have a positive effect on corporation performance.
H8	Residents' recognition toward environmental satisfaction of the quality of residential environment will have a positive effect on corporation performance.
H9	Residents' recognition toward societal satisfaction of the quality of residential environment will have a positive effect on corporation performance.
H10	Residents' recognition toward relationship satisfaction of the quality of residential environment will have a positive effect on corporation performance.

Fig. 4 Research Hypotheses

4. EMPIRICAL ANALYSIS

4.1 SAMPLE COMPOSITION

Gender distribution of respondents of KARSİ survey is 16.5% male and 83.5% female. Age distribution of respondents shows an even distribution when considering the ages of possessors of apartment where 27.0% of 35 years old or less, 41.0% of between 36 to 45, and 32.0% of elder population of 46 or above. Number of family of respondents show 73.2% of 3 to 4 people, where 13.3% of respondents have 1-2 people and 13.5% of respondents have more than 5 people.

Further, respondents are evenly distributed geographically. Among respondents, Gyeonggi-do has the most percentage of 27.8%, followed by Daegu, 13.6%, and followed by Busan, 11.4%. Other areas show the minimum of 18

households (0.7%, Incheon) to 40 households (1.6%, Choongbook).

Based on a survey of type of residents of respondents, 82.5% were new apartment residents by subscription and 17.5% showed ownership. Lastly, 99.4% of respondents were either household or spouse that improves the credibility of the research result.

4.2 THE EFFECT OF THE QUALITY OF RESIDENTIAL ENVIRONMENT ON HOUSING SATISFACTION

Five factors, residents' satisfaction, building satisfaction, environmental satisfaction, societal satisfaction, and relationship satisfaction, of influencing apartment houses' quality of residential environment was analyzed by using regression model by setting measuring indexes of relevant factors as independent variables and setting the overall satisfaction of housing satisfaction as a dependent variable.

Scale	Ave.	Std. Dev.	Correlation between research concept						p-value
			1	2	3	4	5	6	
1. Housing Satisfaction	5.543	1.220	1.000						0.000
2. Residents Satisfaction	5.531	1.029	0.802	1.000					0.000
3. Apartment building satisfaction	5.611	1.115	0.748	0.792	1.000				0.000
4. Environmental satisfaction	5.394	1.164	0.736	0.725	0.792	1.000			0.000
5. Societal satisfaction	5.264	1.239	0.738	0.732	0.756	0.838	1.000		0.000
6. Relationship satisfaction	5.003	1.548	0.738	0.692	0.672	0.715	0.725	1.000	0.000

Note) Correlation of concepts shows significance in $\alpha < 0.01$.

Fig. 5 Correlation between dependent variables and housing satisfaction

Fig. 5 shows Pearson correlation, aromaticity, and p-value between the dependent variable and independent variables and independent variables. The correlation between the dependent variable, housing satisfaction, and independent variables, household satisfaction, building satisfaction, environmental satisfaction, societal satisfaction, and relationship satisfaction toward the residential environment, shows statistically significant. This can be understood as interrelationship between the dependent variable and independent variables is existed. The correlation between housing satisfaction and household satisfaction shows the highest 0.802, and p-value is 0.000 showing interrelationship when analyzed by 0.01 significance level. The next level is between housing satisfaction and building satisfaction, 0.748, followed by societal satisfaction and relationship satisfaction, 0.738, then environmental satisfaction, 0.736. However, in general, housing satisfaction and five factors of residential environment quality show relatively high correlation.

Independent variable (variable)	Unstandardized Coefficient		Standardized Coefficient	t-value	P-value
	B	Std. Dev.	Beta		
Household Satisfaction	0.190	0.073		2.595	0.010*
Building Satisfaction	0.469	0.022	0.396	21.296	0.000**
Environment Satisfaction	0.129	0.022	0.118	5.852	0.000**
Societal Satisfaction	0.104	0.023	0.100	4.594	0.000**
Relationship Satisfaction	0.100	0.021	0.102	4.873	0.000**
	0.189	0.013	0.239	14.570	0.000**
R2=0.730		F=1353.518		p=0.000**	

*p<0.05, **p<0.01

Fig. 6 Result of Regression of the Influence on Housing Satisfaction

Fig. 6 provides multiple regression analysis of the effects on housing satisfaction by five factors of apartment houses' residential environment, "household satisfaction," "building satisfaction," "environmental satisfaction," "societal satisfaction," and "relationship satisfaction." First, by reviewing the explanation and suitability of the

overall regression model, the changes in independent variables of five factors in the quality of residential environment changes the dependent variable of housing satisfaction by 3.0%(R2=0.730). Further, the regression model set for this study is proven to be statistically suitable. (F=1353.518, p<0.01).

In conclusion, the quality of residential environment of apartment houses is affected by precedent factors of household satisfaction, relationship satisfaction, building satisfaction, societal satisfaction, and environmental satisfaction. Moreover, among those factors, household satisfaction has the most influential level, followed by relationship satisfaction.

4.3 RESEARCH RESULT AND SUMMARY

This research analyzed the influential level on housing satisfaction by five factors of the quality of residential environment of apartment houses, household satisfaction, building satisfaction, environmental satisfaction, societal satisfaction, and relationship satisfaction. (H1~H5). Moreover, this research provides hypotheses of the influential level of residential environment on corporation performance. (H6~H10). The research result on 10 hypotheses are as shown in Fig. 7.

	Research Hypotheses	Expected Value	t-value	Sig.	Result
H1	Household satisfaction on residential environment → Housing satisfaction	+	21.296	0.000**	Selected
H2	Building satisfaction on residential environment → Housing satisfaction	+	5.852	0.000**	Selected
H3	Environment satisfaction on residential environment → Housing satisfaction	+	4.594	0.000**	Selected
H4	Societal satisfaction on residential environment → Housing satisfaction	+	4.873	0.000**	Selected
H5	Relationship satisfaction on residential environment → Housing satisfaction	+	14.570	0.000**	Selected
H6	Household satisfaction on residential environment → Corporation performance	+	16.566	0.000**	Selected
H7	Building satisfaction on residential environment → Corporation performance	+	3.634	0.000**	Selected
H8	Environment satisfaction on residential environment →	+	4.130	0.000**	Selected

	Corporation performance				
H9	Societal satisfaction on residential environment → Corporation performance	+	6.060	0.000**	Selecte d
H10	Relationship satisfaction on residential environment → Corporation performance	+	20.722	0.000**	Selecte d

**p<0.01

Fig. 7 Summary of Analyses on Research Hypotheses

5. CONCLUSION

This study provides a clue to improve homebuilders' management scope and to find alternative policies of the government by verifying housing satisfaction of apartment houses' quality of residential environment, corporation and influential factors. Further, this study has conducted empirical analysis based on the survey data of 47 apartment houses buildings of 2,503 households nationwide. Apartment houses' residential environment comprises "household satisfaction," "building satisfaction," "environment satisfaction," "societal satisfaction," and "relationship satisfaction," measures subcategory of the quality of residential environment by 39 categories. Further, this study has analyzed relative leverage between independent variables of the quality of residential environment and dependent variable of housing satisfaction and corporation performance.

The empirical analysis provides a theoretical model composed of 10 hypotheses of relationship of each theoretical variables based on literature review, which can be classified as two major categories. First, this study has analyzed the effect of the quality of residential environment on housing satisfaction, then the effect of the residential environment on housing satisfaction. Lastly, relative leverage of factors of the residential environment has analyzed. The empirical analysis has used Cronbach's α and multiple regression analysis to verify the validity of each scale and key findings of this study are as follows.

First, the influential level of the quality of residential environment on housing satisfaction has analyzed. According to the analysis, the precedent factors to determine housing satisfaction on the quality of apartment houses are affected by five factors of household

satisfaction, building satisfaction, environment satisfaction, societal satisfaction, and relationship satisfaction, and among those five factors, household satisfaction and relationship satisfaction have the most influential levels. Second, the influential level of the quality of residential environment on corporation performance has analyzed. According to the analysis, similarly, the precedent factors to determine housing satisfaction on the quality of apartment houses are affected by five factors of household satisfaction, building satisfaction, environment satisfaction, societal satisfaction, and relationship satisfaction. Among five factors, relationship satisfaction has the most influential level, followed by household satisfaction.

From the perspective of homebuilders, improving residential environment is essential to improve housing satisfaction of relative apartment houses. Moreover, based on the result of presented research hypotheses verification, improving the design or construction status of interior of apartment that closely attached to resident's daily lives and improving repair and maintenance among five factors of the quality of residential quality can be essential way to enhancing housing satisfaction and corporation performance

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