

Relation between Mixed Building Use and Living Environment: Difference of Evaluation by Degree of Mixed Use

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1. Introduction

Mixture of uses is one of essential parts to describe characteristics of towns. For example, in old towns, people live close to places they work. Residential uses and commercial uses exist together and they are often in a same building. In these towns, mixed use plays a role to form vibrant communities. On the other hand, in residential areas, mixed use is not welcomed to keep quiet and calm communities. In Japan, control of mixture is mainly done by zoning. Cities are delineated into areas designated by use districts. Use districts regulate and lead building uses and forms in each district. However, confirmations of actual use of buildings are not frequently done. Changes of uses have done individually and gradually inside buildings. Then, difference with uses in appearances and uses in actual occurs. One of the most characteristic examples is mixed use in apartment buildings.

In many apartment buildings, un-ignorable rate of units are replaced into non residential uses such as offices, shops, parlors and so on, but they are invisible from appearance of buildings. This study focuses on these invisible mixed uses and clarifies how residents subconsciously feels about mixed use.

In previous studies, Hatori¹⁾ researched the location where mixed building use tends to occur. Hillier²⁾ clarified relations between the mixed land use and criminal occurrence. Estimation of mixed use should be also discussed from viewpoint of residents. Therefore, this study clarifies the evaluation of mixed use inside building by residents. We conducted questionnaire survey about the evaluation of commercial use in the apartment houses to residents and compared the evaluation among apartment houses which have different characteristics.

2. Questionnaire and Focused area

The questionnaire consists of attributes of respondents (age, sex, town and district where they live), attributes of apartment houses they live (display of nameplate, ownership, building height, number of dwelling units and so on), existence or non-existence of 10 business types of non residential uses, and evaluations to

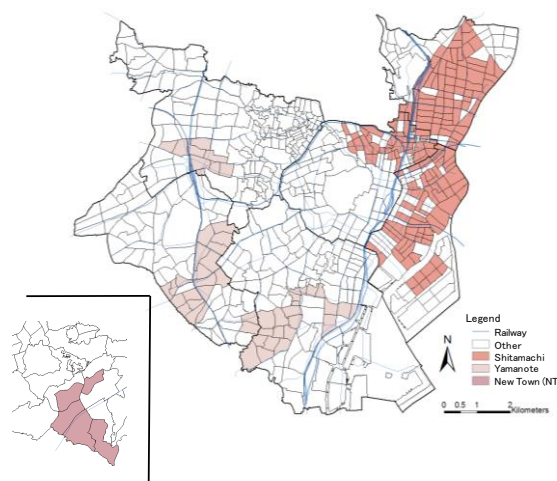


Fig.1 Yamanote, Shitamachi, Newtown

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non-residential uses from 4 viewpoints (crime prevention, convenience, atmosphere and acceptability).

We chose three types of areas in Tokyo for comparison of response. First area is traditional shopping, entertainment and residential districts in east part of Tokyo (Shitamachi). Second area is traditional residential districts in west part of Tokyo (Yamanote). Third area is Newtown in suburb area of Tokyo. Respondents of the questionnaire were 954 residents in 221 towns.

3. The analysis of the evaluation of mixed building use

3.1 Overall trend

To assess overall trend of evaluation of crime prevention, convenience, atmosphere and tolerance in case of there are mixture of non residential uses (10 business types), index is defined as formula (1). The results are Fig. 2 to Fig. 5.

$$(A - B) / C \times 100 \cdot \cdot \cdot (1)$$

A: The number of respondents who positively answered

B: The number of respondents who negatively answered

dC: The number of all respondents.

Fig.2 shows that crime prevention is negatively evaluated in almost all business types except as law, accounting. It means entering of non-residents into the buildings generally give unsafe feelings to residents. Fig. 3 shows that medical use is positively evaluated, and law-accounting, practice club and beauty treatment salon are evaluated positively in small measure. On the other hand, general offices, design, NPO, religious and others are all negatively evaluated. It means that residents tend to feel a little convenience to service that they possibly use. Fig.4 shows that atmosphere is as same as crime prevention, negatively evaluated in almost all business types. However, low, accounting use is positively evaluated. Result of tolerance as Fig.5 shows that acceptability is different with previous three viewpoints. It is positively answered in almost all business types except as religious and food service.

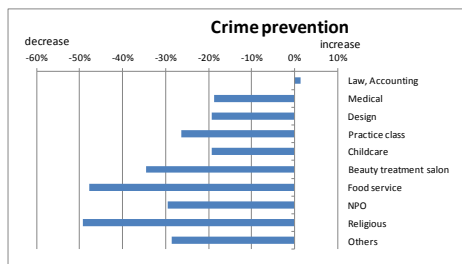


Fig. 2 Evaluation of crime prevention

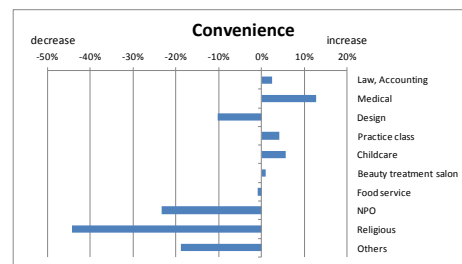


Fig. 3 Evaluation of convenience

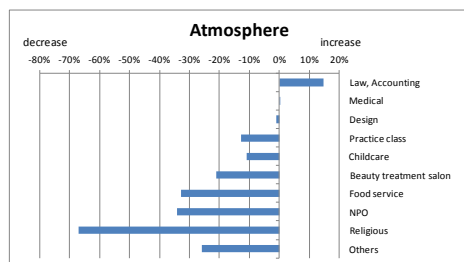


Fig. 4 Evaluation of atmosphere

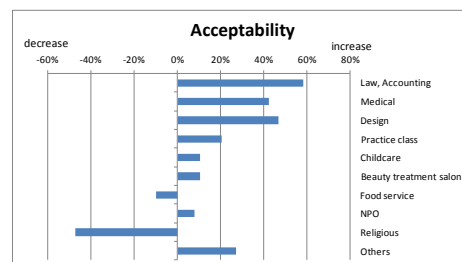


Fig.5 Evaluation of acceptability

3.2 Differences of evaluation of mixed use by attributions of apartment buildings

To analyze differences of the evaluation in apartment houses, we compared the result of the evaluation among classified classes (areas, display of nameplates, ownership form, building height, number of dwelling units). First, we made cross tabulation tables of classified class and the result. If the result of chi-square test shows that significance level is 10%, we carry out residual analysis to the table. In chi-square test, significant differences are found in display of nameplates and ownership form. On the other hand, significant differences are not found in area types, building height and number of dwelling units. Then, area types, building height and number of dwelling units are not considered to contribute to difference of the evaluation of mixed use. The results of the residual analysis are summarized as Table 1 and Table 2. They show the items which are more answered (+) and less answered (-) in a certain class than others. As the result, the residents living in the apartment houses where very few nameplates displayed are more negatively answered than the others. The residents who own the houses more negatively answered than residents who rent the houses.

3.3 Relation between recognition of mixed use and its evaluation

We compared difference of evaluations by whether or not respondents recognize mixed uses in their apartment house. The residents who don't recognize mixed use tend to evaluate more negatively than residents who recognize mixed uses.

Table1 The result of residual analysis

		Crime prevention decrease										Convenience decrease									
		Law, Accounting	Medical	Design	Practice class	Childcare	Beauty treatment salon	Food service	NPO	Religious	Others	Law, Accounting	Medical	Design	Practice class	Childcare	Beauty treatment salon	Food service	NPO	Religious	Others
Display of nameplate	Most (N=275)											-	-					-	-		
	Neutral (N=153)																				
	Very little (N=526)	+				+						+++	+++		+++	+++			+++		
Owned or Rent	Owned (N=415)	+	+++	+++	+++	+++	+++	+++	+++		+++							+			+++
	Rent (N=490)									-											-
	Others (N=49)																				

Table2 The result of residual analysis

		Atmosphere decrease										acceptability decrease									
		Law, Accounting	Medical	Design	Practice class	Childcare	Beauty treatment salon	Food service	NPO	Religious	Others	Law, Accounting	Medical	Design	Practice class	Childcare	Beauty treatment salon	Food service	NPO	Religious	Others
Display of nameplate	Most (N=275)		-	-	-	-	-	-	-	-		-	-	-	-				-		-
	Neutral (N=153)											-									
	Very little (N=526)		++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	++				+++		+
Owned or Rent	Owned (N=415)	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
	Rent (N=490)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Others (N=49)																				

Significance level +++:1%, ++:5%, +:10%

4. Conclusion and Discussion

This study clarified that evaluation about mixed building use differs with degree of display of nameplates, ownership form and with or without respondents recognize mixed use. Respondents who live and own the dwelling units themselves tend to evaluate more negatively about mixed building uses. They seem to concern about uses of other dwelling units and evaluation to mixed use tends to be worse. On the other hand, residents in apartment buildings with more nameplates and residents who recognize uses in other dwelling units tend not to negatively evaluate mixed use. It means that residents don't always deny non residential uses but tend to accept if they recognize who are in other dwelling units and how these units are used.

Keywords: *Urban housing, apartment house, mixed use*

Reference:

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