

Variations in Multi-family House Prices Following Remodeling Work

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Abstract: The remodeling of multi-family houses (MFH) has emerged as a significant issue in the construction industry. Many decision makers struggle with the decision to remodel because of insufficient information including standards or methods for projecting the price of their structure after remodeling. In this context, this research analyzed the change in price of MFHs after remodeling. To achieve this research goal, (i) the price data from 14 groups (i.e., MFH renovation cases and equivalent MFH cases without remodeling) were collected, and (ii) the trend of price variation among each group was analyzed. Finally, this research suggests price variations of each group in terms of three different time points (i.e., before remodeling, after remodeling, and the present), which shows the effects of remodeling on the price of MFHs. This research offers a framework for the development of a model that will predict the price of an MFH after remodeling.

Keywords: Renovation Projects, Renovation Valuation, Renovated Multi-Family House, Renovation Profitability

I. BACKGROUND AND PURPOSE

The housing market in South Korea has experienced an increasing diffusion ratio since the planning of housing supply in 1980 and has reached saturation. Multi-family houses (MFHs) are not satisfying their physical function because of deterioration. The deterioration of MFHs is causing economic and social problems and, as a result, the residential remodeling industry is now a major business area of the housing sector. Additionally, the government of South Korea is encouraging remodeling while easing the criteria for remodeling [1]. However, the actual state of the remodeling industry is poor because there are no standards available to home owners for remodeling decisions and valuations. Home owners cannot assess the profitability of remodeling. Therefore, this study analyzes data of cases where house prices have changed after remodeling.

II. SCOPE AND METHOD

This research focuses on remodeled MFH cases in Seoul because Seoul has a high frequency of real estate transactions and an active remodeling industry. The study method consisted of the following: 1) identifying recent MFH cases in Seoul, 2) identifying other comparator MFHs that were not remodels but that were of a similar size, and 3) comparing the price of the remodeled MFH and the comparison MFH by collecting price data at three different time points; i) before remodeling, ii) after remodeling, and iii) the present.

III. CASE STUDY

A. Data collection of remodeling and comparative cases

A total of 14 MFH remodel cases were identified. To identify the price variation in an MFH as a result of

remodeling, the price data of three different points (i.e., before remodeling, after remodeling, and the present) for 14 MFH cases and comparative MFH cases were obtained by the Korea Ministry of Land, Infrastructure, and Transport [2].

TABLE I
PRICE VARIATION OF GROUP 7

Division	Supply area (private Area)	Case	Unit price (Thousand won / m ²)		
			Before remodeling (May 2, 2005)	After remodeling (January 1, 2009)	Present (January 1, 2014)
Remodeling case	78.57m ² (82.21m ²) →112.33m ² (89.09m ²)	Case 7	2,262	6,671	5,008
Comparative cases	109.09m ² (84.65m ²)	Case 7-1	4,219	6,930	6,104
	109.09m ² (84.88m ²)	Case 7-2	3,705	7,558	6,060
	88.93m ² (87.54m ²)	Case 7-3	6,990	7,019	7,745
	113.09m ² (104.86m ²)	Case 7-4	4,057	4,771	4,796
	101.18m ² (84.78m ²)	Case 7-5	4,335	5,979	6,204
	109.09m ² (84.96m ²)	Case 7-6	4,566	6,028	6,792
	79.33m ² (66.08m ²)	Case 7-7	1,767	6,002	4,824
	109.09m ² (84.86m ²)	Case 7-8	4,187	6,540	5,830
	109.26m ² (84.98m ²)	Case 7-9	4,046	6,290	5,790
	109.09m ² (84.82m ²)	Case 7-10	2,774	6,919	5,425
Average unit price of comparative cases			4,065	6,940	6,320
Adjusted average (a)			4,159	6,300	5,939
Error rate for the average unit price (%) ((a)-the price of remodeling cases) / (a) * 100			45.62	-5.89	15.68

The criteria for the selection of the comparative cases were location and size. Ten MFH cases were selected as comparison cases for each remodeled case. As an example, Table 1 shows Group 7 was composed of one remodeled MFH and 10 comparison MFHs.

B. Analysis of Price Variations in Each Group

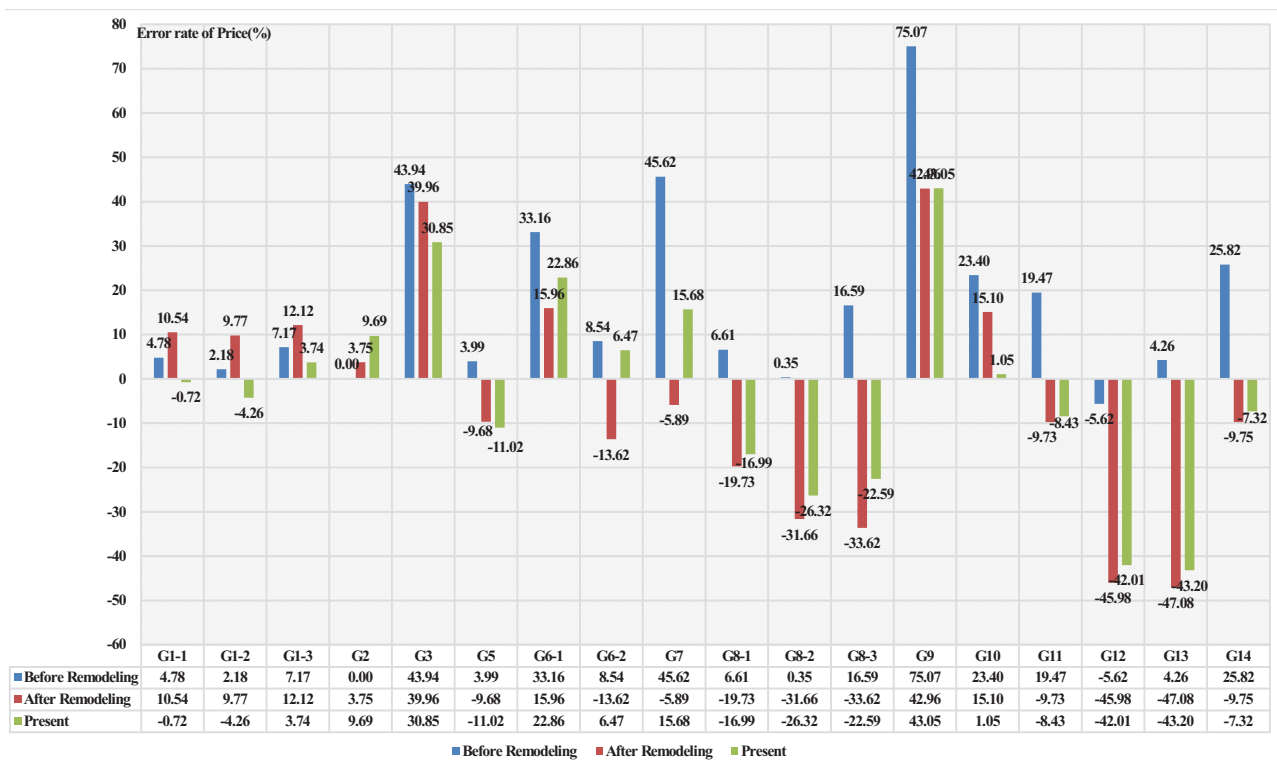
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Table 1 shows that Case 7 had three unit price points (thousand won / m²) i) 2,262 (before remodeling), ii) 6,671 (after remodeling), and iii) 5,008 (present). Before the remodeling of this MFH, the price was quite low compared to the average unit price of comparative cases (i.e., 2,262 vs. 4,065). However, the price of the remodeled MFH in case 7 jumped to the price of the comparative cases, and the present price of the remodeled MFH in case 7 was close to the average price (i.e., 5,008 vs. 6,320). Additionally, the adjusted average in Table 1 was analyzed for more specific results by removing edge cases (that is, cases 7-3 and 7-7), which had an abnormal price. Considering of these adjusted average values, the

case and the comparative cases was calculated and is shown in Table 1. For case 7, each error rate has been realized as 45.62%, 5.89%, and 15.68%.

Figure 1 shows the analysis results for the error rate for each group. The error rates of G1 to G14 decrease. Additionally, a negative error rate shows that the price is higher than the average price, therefore, cases G1, G2, G5, G8-1, G8-2, G11, G12, G13, and G14 show significant profitability from remodeling. Cases G3, G6-1, and G9 have below average prices. This study concludes that MFH remodeling work affects the price of the MFH, and the price of a remodeled MFH can be close to an MFH of similar size.



error rate of the three price data between the remodeled

Figure I. Price variation of remodelled MFHs by group

IV. CONCLUSION

This study shows that the price of an MFH approaches the average price of MFHs of a similar size after remodeling, and that remodeling is profitable. Because of insufficient remodeling cases, the results of this research did not suggest a significant rate of increase on the price of an MFH after remodeling. Continuous gathering of price data is required to analyze price variation trends to assure house owners of a wise remodeling decision. This study is expected to serve as a basis for decision making in the remodeling industry.

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