

# **Improvement of Real Estate Appraisal Sales Comparison Approach Based on Cluster Analysis and Hierarchical Analysis**

**Jie Sun and Haicong Yu (China, PR)**

**Key words:** Quantity surveying; Real estate development; Valuation; sales comparison approach; fuzzy clustering analysis; hierarchical analysis;

## **SUMMARY**

Sales comparison approach is one of the most commonly used valuation approaches in real estate appraisal. In practice, however, the accuracy of estimated value has been definitely influenced due to the subjective and arbitrary determination on both quantification of real estate value influence factors and selection of comparison cases. To overcome above disadvantage, this paper proposed an improved approach by applying statistical analysis such as clustering and hierarchical analysis into the market comparison method, and then further present real estate appraisal model. To begin with, according to the dates of Shenzhen real estate sales price and real estate property need prepared. Then fuzzy clustering analysis was introduced to calculate the fuzzy membership degree and sensibility of regional factors and individual factors of all real estate. Both the final regional factors set and individual factors set can be determined according to the calculation results. Then, the most influenced feature factors was selected and quantified by utilizing Delphi survey method and hierarchal analysis. By doing so, the weights of each feature factor and the quantification rules can be determined. Last, on the basis of the above process, fuzzy clustering analysis was used to analysis the relevant building data to get the optimal clustering. In the optimal clustering set, the most similarity cases with estimated object were finally selected. This paper avoids the arbitrary selection of comparison cases and the subjective feature factors adjustment by transform qualitative analysis to quantitative analysis. The improved sales comparison approach shows more accuracy and more reasonable results in real estate appraisal.