Building Appraisal Model of Artificial Neural Network in Lon 16 and Museum in Kaohsiung

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Abstract: The computer assistance mass assessment (CAMA) was used overseas to estimate the tax affairs from 1960. The computer assistance mass assessment provides the standardized procedure by using the computer assistance, carries on the massive real estate estimate. Applies generally in the massive estimate model tool contains the duplicate regression, neural network, the time series analysis and the taxes appraisal model and so on; Among them, the neural network is a forward-looking method.

In August, 2012 the real price registration system officially started announcement real estate transaction information. For finding out if the neural network has high forecast ability correspondence actual price registers, we try to use the back-propagation neural network (BPN) to estimate the dealing price from actual price registration system.

From the result we find out that the forecast ability of BNP using in the actual price registration system to conform to the anticipated research hypothesis; besides estimating the independent region house price, it also forecasting the cross neighbor regions. From the result, the mean absolute percentage error (MAPE) between 11.3%~14.4% is lower than the setting value 20%; MAPE between 38.5%~58.5% is higher than the setting value 30% when the hit-rate below 10%. MAPE between 75.0%~84.5% is higher than the setting value 70% when the hit-ratio below 20%. However the results show the forecast ability is lower in high total price.

In addition, we get the main three inputs are building area, land area and house age through the sensitivity analysis. Even put other variables try to improve the explanation quality, it doesn’t change a lot. By now, the biggest problem on BPN is the parameters setting are affected by the variables structure and data distribution. By the research results, the parameters affected the BPN are input variable number, the 1st hide level processing unit number, the ratio of the training and the testing samples and the circulation number.

Key words: computer assistance mass assessment, appraising, real price registration system, mean absolute percentage error