Sales Comparison Adjustment Methods

Allocation

For the allocation method, a certain percentage of the sale price of a property is allocated to each feature. The potential adjustment is based on that percentage allocated for a particular feature. Percentages applied may be based on cost data, market analysis, or assessor information.

Depreciated Cost

This method determines a potential adjustment by subtracting depreciation from the cost to build an improvement with the result being the value (adjustment) for the feature being measured. The difference between cost and value is depreciation so if the cost to build an improvement and the depreciation can be determined with relative accuracy then the result is the potential adjustment for that feature.

Grouped Data

This method involves grouping the data (sales) into two categories based on the feature being measured. The average or median price of the first group is compared to the average or median price of the second. The difference in those two prices is the potential adjustment for the feature being measured.

Paired Sales (True)

A method of comparing two properties that are considered to be the same in all features except for one. In theory, the difference in the sales price of each property is an approximation of the value difference (or adjustment) for the one feature in which the properties differ. For this analysis, all properties that were analyzed are compared against each other to find all "pairs" and then the average and median of the results of all of those pairs is found.

Paired Sales (Adjusted)

This is the same as True Paired Sales except that if a property differs in more than one feature (True Paired Sales requires that only one feature is different) and the appraiser is confident they can adjust for any of those differing methods so that the result is only one differing method this would allow for an "Adjusted Pair". Adjusted Pairs will nearly always have more data points since it allows for more than one differing feature (non-perfect matches).

Sensitivity

This method is based on the theory that the best adjustment is the one that results in the smallest range of adjusted sales prices for all sales analyzed. It "plugs in" an adjustment and calculates what the sales price would be if that were the adjustment and it does that for every sale. Then it determines the range (difference between the low and high) of the adjusted sales prices. It repeats that process to test every possible adjustment. The adjustment that leads to the smallest range of adjusted prices is the final result.

Survey

In this method, market participants (e.g. appraisers, brokers, real estate agents, etc) are contacted in order to determine what they believe to be what a typical buyer and seller would agree to as far as the added value for a particular feature (swimming pool, barn, new roof, addition, etc). Typically the average and/or median of those results is the potential adjustment based on the survey method.

Ordinary Least Squares Regression

Among the most common of all types of simple regression, this method minimizes the sum of the squares of the differences between a variable and it's predicted value (called the residual). One of the results of this regression method is the slope of a line that can be drawn through the data points. That slope is the potential adjustment based on this method.

Theil-Sen Regression

This simple regression method finds the slope of every possible line that can be drawn between every pair of data points if they were plotted on a chart. It then takes the median of all of the slopes of those lines and that is the potential adjustment based on this method. Since this method utilizes the median, it does reduce the impact of outliers on the data.

Least Absolute Deviation

This simple regression method determines every line that can be drawn between each pair of data points. For each of those lines, the distance of the remaining data points to the line is calculated using the absolute value. All of those distances are then added up and the slope of the particular line that results in the smallest sum of absolute values for the residuals (deviation) is the potential adjustment result based on this method.

Least Median of Squares

Another form of simple regression that is very similar to Ordinary Least Squares Regression except that instead of taking the average of the squares of the residuals, this method utilizes the median of the squares of the residuals. As a result this method tends to be a bit more robust to outliers than Ordinary Least Squares Regression.

Robust Simple Regression

If any of the above Simple Regression methods has the word "Robust" in front of it that means that during the calculations, when the average of all of the data points is subtracted from the data point in question, instead the median of all data points is subtracted from the data point in question. This tends to make a particular regression method more "robust" to outliers (meaning less impacted by outliers).

Modified Quantile Regression

This is a modified type of Robust Least Squares Regression where, instead of subtracting the median (the 50th percentile) from each data point, 9 different percentiles are tested (from 10% up to 90%) and the result from the one that has the best (highest) r-squared is the final result. This means that regression is calculated nine times (one time for each percentile tested) but only the results from the one with the best r-squared score is utilized.