Package Name: DMtest
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Add-in Type: Equation
Default Proc Name: DMtest
Default Menu Text: Diebold-Mariano Forecast Evaluation Test

Description: This add-in carries out Diebold and Mariano's (1995) test for the equality of forecast accuracy of two forecasts. The add-in requests the user to input 2 equation objects, the forecast sample, and to select a loss function (squared or absolute). The output is a spool that includes a table of results which displays the Diebold-Mariano test statistic and a p-value, and graphs of the two forecasts.

The procedure simply computes forecasts for the two equation objects and then calculates the forecast errors. Consider the forecast errors $\{e_{it}\}_{t=1}^{T}$ and $\{e_{jt}\}_{t=1}^{T}$ associated with the two forecasts $\{\hat{y}_{it}\}_{t=1}^{T}$ and $\{\hat{y}_{jt}\}_{t=1}^{T}$ of the time series $\{y_t\}_{t=1}^{T}$. The Diebold-Mariano test is interested in the expected loss associated with each forecast. The null hypothesis of equal forecast accuracy for two forecasts is $E[d_t] = 0$ where $d_t \equiv [g(e_{it}) - g(e_{jt})]$ is the loss differential and $g(e_{it})$ is a loss function. This procedure calculates the loss differential in one of two ways: the difference of the squared forecast errors or the difference in absolute forecast errors. The user can select which loss function they would like to use. The statistic is defined as

$$DMstat = \frac{\bar{d}}{\sqrt{\frac{1}{T}V(d)}} \sim N(0,1)$$

where $\bar{d} = \frac{1}{T}\sum_{t=1}^{T}[g(e_{it}) - g(e_{jt})]$ is the sample mean loss differential and $V(d)$ is the unconditional variance of d.

References

Diebold, F. and Mariano, R. (1995), "Comparing Predictive Accuracy," *Journal of Business and Economic Statistics*, 13, 134-144.