

- 1.1.4 Create dummy (indicator) variables to allow monthly seasonal components to be included in the regression model. Develop a new regression model, which includes these dummy variables and the three independent variables. Evaluate the model and comment on the strength of the model compared to the one in part 2.
- n – k – 1 = 37
- alpha = 0.01
- CV (t) = 2.977
- CV (F) = 2.606

Adding in the dummy variables generates the following output. This regression analysis has a strong positive correlation, sitting at 0.87. This high coefficient of determination is interpreted as 87% of the variation can be accounted for by the model.

Looking at the t-test chart, most independent variables, 86%, successfully reject the null hypothesis. This indicates significant predictability for the three original variables and for the months March through November. January and February however fail the t-test and fail to reject the null hypothesis, indicating these variables add no explanation to the variation.

In evaluating the overall significance of the model, the output F-value exceeds the critical value. This indicates significant predictability of DEOM by the model.

When observing the standard error distribution of the model, it can be noted that a greater amount of the data compared to the first model is skewed towards the middle, accounting nearly 80% of the standard errors within the first deviation. Since errors could be potentially being underestimated, a Durbin Watson test should be constructed to see if autocorrelation exists.

Finally, when looking at the Durbin-Watson test, the D critical value exceeds the upper value. The test fails to reject the null hypothesis, proving no autocorrelation exists. This validates the t-test and F-test results, proving the model possess significant predictability in accounting the variation in DEOM.