

Pre-class Learning Activities for Session 4

- Complete the following learning activities (listed below) before class.
- References are optional and not meant to be read from first page to last. Refer if necessary.
- You may be asked to volunteer/present your work for class participation points.
- If you presented your work in class, remember to email your work to instructor after class.
- You may be asked to provide comments/add-ons to work presented by students.

Learning Activities:

1. In NTULearn Main Site, watch Lecture Videos S4.1 and S4.2.
2. Activity 1:
 - i. Run the RScript qr1.R
 - ii. In the RScript qr1, the 6 quantile regression are plotted as 6 grey lines, but the model coefficients (b_0 , b_1) are not shown. Modify the RScript so that the model parameters for the 6 quantile regression models are exhibited in a table. [Hint: Where is the information saved in the R object?]
 - iii. One student asked if quantile regression is just fitting linear regression on the specific percentile of the data. True/False? Can you answer this from the software output?

R References:

- quantreg: rq.PDF (provided)

Python References:

- statsmodels (includes Engel dataset):
https://www.statsmodels.org/dev/examples/notebooks/generated/quantile_regression.html
- scikit-learn: https://scikit-learn.org/stable/modules/generated/sklearn.linear_model.QuantileRegressor.html