

Econometrics 720

Assignment 4

Due date: Monday 17 August 2015, 17:00

Electronic and hard copies

Consider

- the attached documents on *Nonparametric regression*
- any other valid sources on *Nonparametric regression*
- the data file xy_2015.xlsx

1. Give a full theoretical discussion on nonparametric regression based on the documents above. Use the following headings:
 - a. Objective
 - b. The underlying statistical model(s) (focus only on the simple regression case)
 - c. The following two methods of nonparametric regression
 - Kernel estimation
 - Local polynomial regression
 - d. Different Kernels
 - Tricube
 - The normal distribution
 - e. Evaluation of prediction results, including prediction intervals
 - f. Practical use and/or restrictions
2. Use the attached data to
 - a. Plot the data
 - b. Evaluate the appropriateness of nonparametric regression for the given data
 - c. Write a SAS *iml* program to fit a nonparametric regression model to the data. Base your model on a random selection of 80% of the data. Include both kernel estimation and local polynomial regression solutions.
 - d. Make a graphical representation that will include the data, estimates and prediction intervals.