ECON6300/7320/8300

Advanced Microeconometrics

Non-Parametric methods

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Practical 10

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Introduction

- This class will review:
  - Histograms
  - Kernel density
  - Non-parametric regression - Lowess/K-nearest neighbours
- We begin with a demonstration from Chapter 9 of Microeconometrics: Methods and Applications.
- We move on to a practical in which we estimate non-parametric Engel curves.

Assignment Project Exam Help

- We have the same World Bank data as last week

- Thus far we have assumed log-linear Engel curves

- Now we look more closely at the functional form

- We focus on regressions of log-medical expenditure on log-total expenditure with no controls.

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Practical (2)

1. Load, describe and summarise the data.

2. Estimate a histogram and kernel density of log-medical expenditure using Silberman's optimal bandwidth and the Epanechnikov kernel.

3. Estimate a linear Engel curve for log-medical expenditure on log-total expenditure

4. Use a parametric approach to estimate a non-linear Engel curve.

5. Perform a hypothesis test of non-linearity in your parametric specification. What do you conclude?

6. Estimate a non-parametric Engel curve.

7. Plot the linear, parametric non-linear, and non-parametric Engel curves on the same graph.

8. Based on your analysis so far, is linearity a reasonable assumption?