

Intro to Econometric Theory
Heinz School, Carnegie Mellon University
90-906, Spring 2005-6

Homework #5, due Monday, May 1, 2006

1. Do problem 10 on page 115 of Greene
2. The Medical Expenditure Panel Survey is an annual survey which collects information about medical expenditures, income, employment, demographics, health information, &c for a representative sample of Americans.

I have prepared an extract of these data for 1996, and it is available on the course website. The following are the columns in the data, in order:

Variable	Meaning
age	age of person in years
sex	sex of person, 1=male & 0=female
income	income in 1996 \$
employed	1=employed, 0=not employed
insured	1=had health insurance, 0=not
health	perceived health status, higher is sicker
spending	spending on health care, 1996 \$

To begin with, let's consider this model:

$$\begin{aligned} \text{spending}_i &= \beta_1 + \beta_2 \text{income} + \beta_3 \text{age} + \beta_4 \text{sex} \\ &+ \beta_5 \text{employed} + \beta_6 \text{insured} + \beta_7 \text{health} \end{aligned} \quad (1)$$

- (a) Test this model for heteroskedasticity. Discuss your findings and what they mean for inference.
- (b) How much more do people in very good health status spend than do people in excellent health status (estimate and CI). Make sure your answer is correct in the presence of heteroskedasticity.
- (c) Test whether insurance affects spending for people of different health statuses differently and discuss. Make sure your answer is correct in the presence of heteroskedasticity.