Applied Econometrics II
Dept of Economics, Carnegie Mellon University
73-360, Spring 2000

Final

Instructions You may use any books, notes, calculators, and other aids you like. You may not converse, nor may you cooperate.

Please complete all questions.

Questions 1,3,5,7 are worth 10 points each, and questions 2,4,6,8 are worth 15 points each..

Please show all relevant work.

Wherever possible use statistical tests and procedures we discussed in this course!

Please interpret your results in plain English.

Please refer to the relevant page in the output to tell us where you are getting your numbers and other results. (use the "SAS" page numbers — the small ones — so that the first regression appears on page 2).

For this test, we will analyze a dataset concerning the incomes of young physicians in the United States in 1990. The dataset is a sample of physicians who finished their residencies (last stage of training for physicians) between 1986 and 1989. The variables we will analyze are in the table below. An HMO is a health maintenance organization (a kind of heath insurance carrier).

A "generalist" is, essentially, a family doctor, a doctor who sees patients regularly and deals with the myriad of common health concerns. A specialist is the opposite of a generalist — a doctor who treats a more narrow range of conditions or who does a narrow range of procedures — surgeons, cardiologists, oncologists, etc.

Variable	Type	Description
income	continuous	1990 pre-tax income in $1000s
exper	continuous	experience in years in medicine
hours	continuous	number of hours worked a week
wage	continuous	average hourly earnings = 1000*income/(hours*50)
pcthmo	continuous	% doctors patients covered by HMO
gend	dummy	0 for males, 1 for females
general	dummy	1 for "generalist"

1. Holding constant experience, age, and gender, how much more do specialists make than generalists, at your best guess? 95% confidence interval? How many more hours do specialists work (confidence interval)?

2. A critic claims that your results are wrong. She claims that more experienced doctors have incomes, wages, and hours that are more "spread out" than do less experienced doctors and that your results are worthless because they do not account for this. How would you respond?

3. Does the difference in income between generalists and specialists come mostly from a difference in hours, a difference in wages, or a combination?

4. One theory of why female MDs make less income than do male MDs is that females typically have child-care obligations which result in them working fewer hours than do males. What evidence (either for, against, or both) regarding this theory can you find in the results? Please be thorough in your answer.

5. Do age and gender affect wages (holding constant type of doctor and experience)?

6. Another theory holds that female MDs make less money than do male MDs because they more often choose to be generalists than do males. What evidence for and/or against this theory can you find in the results? Answer thoroughly How much more likely is a female than a male to choose to become a generalist?

7. A critic of your results above claims that you are assuming that the effects of age, experience, and gender on income, wages, and hours are the same for generalists and specialists. Is this true? If you can, test to see if that assumption is valid.

8. Looking at the model on page 10, tell me about (your best estimate of) the pattern of wages for females vs males in generalist and specialist disciplines (holding constant experience and age).