ECON 381 Midterm #2

Prof. Krauth, Spring 2012

Please answer the question asked. You will be graded exclusively on your answer – you will receive no credit for extraneous information or almost getting it right and you will receive no penalty for failing to "show your work." Answers written in pencil will not be eligible for regrade.

True, false or uncertain (7 points each)

For each of these statements please indicate whether the statement is true, false, or uncertain, and briefly (1-3 sentences should do) explain why. Your grade will depend primarily on the quality of your explanation.

1. The effect of a payroll tax on employment will be higher when firms have more market power in their product markets.
2. Assuming that the minimum wage is already above the market wage, increasing the minimum wage further will always increase employment in a monopsonistic labour market.
3. Results from Mincer wage regressions suggest that the return to potential experience is higher for women than it is for men.
4. A finding that increased schooling raises a person's wage proves the human capital hypothesis and disproves the signalling hypothesis.
5. Theory predicts that firms will not be willing to invest in specific human capital for their workers.
6. The male-female wage gap is smaller in unionized firms than in non-unionized firms. This means that the male-female wage gap can be further reduced by expanding unionization.
7. The fact that Oaxaca decompositions can only explain a portion of the male-female wage gap means that there must be discrimination in the labour market.

Problems

1. **(24 points)** Suppose there are two kinds of workers: high-ability and low-ability. If they don't go to university, high-ability workers earn wage w_H, and low-ability workers earn wage w_L. High-ability workers who go to university obtain a wage premium[1] p (so they earn w_H+p) and low-ability workers who go to university earn the same premium (so they earn w_L+p).

   Suppose you are a staff economist for a government that is considering increasing

[1] This setup assumes that the premium is a constant dollar amount rather than a constant percentage amount. We can make it a constant percentage amount by just restating everything in terms of log wages.

access to university[2] and your boss would like you to estimate the university earnings premium. You have data on wages and university attendance for each worker, but you have no way of knowing which workers are high-ability and which are low-ability. You know that (1) all high-ability workers go to university; (2) exactly half of low-ability workers go to university; (3) exactly 1/3 of workers are high-ability and the other 2/3 are low-ability. Taken together, these facts imply that half of university educated workers are high-ability and half are low-ability, and that all non-university workers are low-ability.

a. Let $\overline{w}_1$ be the average wage of workers who go to university. Find $\overline{w}_1$.
b. Let $\overline{w}_0$ be the average wage of workers who don't go to university. Find $\overline{w}_0$.
c. Let $\overline{w}$ be the overall average wage of workers. Find $\overline{w}$.
d. The difference in average wages between those who do and don't go to university is $\overline{w}_1 - \overline{w}_0$. Find $\overline{w}_1 - \overline{w}_0$.
e. Why isn't your answer to (d) equal to the university earnings premium *p*?
f. Now suppose you also have data from before a previous expansion of access to university education. Before the expansion, all high-ability workers went to university and no low-ability workers did. Let $\bar{v}$ be the overall average wage of workers before the expansion. Find $\bar{v}$.
g. Use your answers to (a) and (f) to estimate the university wage premium *p* as a function of $\overline{w}$ and $\bar{v}$.
h. Suppose that the university wage premium depends on ability, so that it is p_H for high-ability workers and p_L for low ability workers. Will your estimate in (g) measure p_H, p_L, or some combination of the two?

2. **(27 points)** Suppose that you estimate separate Mincer wage regressions for men and women of the form:

$$\ln(wage) = \beta_0 + \beta_1 S + \beta_2 EXP$$

where S is years of schooling and EXP is years of experience. Your results are in the following table:

Variable description	Males		Females	
	Name	Value	Name	Value
Intercept	β_0^M	1.1	β_0^F	0.5
Returns to schooling	β_1^M	0.08	β_1^F	0.11
Returns to experience	β_2^M	0.04	β_2^F	0.03
Average years of school	$\bar{S}^M$	14	$\bar{S}^F$	14
Average experience	$\overline{EXP}^M$	10	$\overline{EXP}^F$	8

[2] Assume throughout this question that labour demand is perfectly elastic.

a. Complete the following table (in your exam book, not here). The first row has been filled in as an example:

Quantity	**In algebraic terms**	**In numeric terms**
Average (log) wage of females	$\beta_0^F + \beta_1^F \bar{S}^F + \beta_2^F \overline{EXP}^F$	2.28
Average (log) wage of males		
Male-female (log) wage gap		
Male-female (log) wage gap attributable to differences in education and experience		
Male-female (log) wage gap not attributable to differences in education and experience		

b. What percentage of the overall wage gap is attributable to differences in education and experience?