## Econometrics I, quiz 10

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## 23 September 2008

- 1. This is a 30-minute quiz
- 2. At **NO** point in the exam can you discuss the questions/answers with any of your colleagues.
- 3. When a multiple choice is present, circle the number indicating your choice of the answer.
- 4. Good luck. :-)

• Q1: You have a dataset of (y = income, x = education) pairs where N = 20. We have the following values calculated for the dataset:

Statistic	Value	Statistic	Value
$\bar{y}$	31.278		14.600
$\sigma_Y$	22.376	$\sigma_x$	3.119
$\mathrm{cov}_{(y,x)}$	23.597	$r_{(y,x)}$	0.338

The data has been generated by a model of the form:

$$f(y_i, x_i, \beta) = \frac{1}{\beta + x_i} e^{-\frac{y_i}{(\beta + x_i)}}$$

1. What is the log likelihood for this problem? (2 points)

- 2. What is a likely null hypothesis for this problem? (2 points)
- 3. What is the MLE estimate for the model parameters? (Need an equation and a value) (2 points)

4.	What is the asymptotic variance of the MLE estimate? (Need an equation and a value (2 points)
5.	What is the interpretation of the model parameter in terms of income and education (2 points)