

# BEE3015 - Econometric Analysis

## Homework 3

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You can achieve 100 points on this assignment, counting 5% towards your final grade in this module. For all questions, show your derivations or lines of thought!

1. [100 points]

Load the following data set for Stata from the Internet and answer the subsequent questions:

<http://fmwww.bc.edu/ec-p/data/wooldridge/wage1.dta>

If you wish to use a different computer programme than Stata, you are allowed to do so. If you are using Stata, it is recommended that you write all commands in a single do-file and attach the do-file as an appendix to your submission. Graphs and tables should be included with your answers to the following questions.

Base your whole analysis on a subset of the data set for individuals with at least 6 years of education. (Either drop all observations with less years of education or use an `if`-qualifier to restrict the sample for each command that you invoke.)

(a) [20 points]

Provide a table of summary statistics (number of observations, mean, standard deviation, minimum and maximum values) for the following variables:

- hourly wage (variable `wage` in the data set),
- years of education (variable `educ`),
- years of labour market experience (`exper`).

In addition, compute separately the fractions of workers in the observed sample that are “non-white” (`nonwhite`), women (`female`), married (`married`), employed in the services sector (`services`). How many people (as a percentage of the total sample size) are “white” male workers that are not employed in the services sector?

(b) [40 points]

Discuss how the hourly wage varies with the amount of education. You can provide tables and graphs as well as regression output to underline your arguments. Do your findings support your prior hypothesis about the relationship between wages and education? You may consider a transformation of the variables if it helps to carry out a more meaningful analysis. [For this part of the analysis, ignore all other variables in the data set.]

(c) [40 points]

Do your conclusions about the return to education from part (b) change if you account for the effect of the other variables mentioned in part (a)? Provide evidence in the form of regression output. Find a regression model that balances the tradeoff between efficiency and potential omitted-variable biases. Justify your choice. You may consider to account for a nonlinear relationship between wages and labour market experience by adding the variable `expersq` (squared years of experience) to the analysis. Do you find evidence for wage discrimination based on race or gender? Do you find evidence for a so-called “marriage premium”?

