

Homework assignment 1

Course: Introductory Econometrics

Lecturer: Dmytro Vikhrov

Due date: October 28, 2014.

Instructions. Use *wage1.gdt* dataset for this assignment (*File* → *Open data* → *Sample file...* → *Wooldridge tab*). You can work in groups, but each student must submit their own answers.

Problem 1

There are four occupation types in the dataset. You need to have one dummy variable for each occupation. Since there are only three dummy variables, you have to create a fourth one. For this go to *Add* → *Define new variable...* and type the following code:

```
series base_occ = (profocc != 1 && clerocc != 1 && servocc != 1)
```

To make sure that it worked, create another variable:

```
series tot = base_occ + profocc + clerocc + servocc
```

If you did everything correctly, then variable *tot* should be a column of ones.

Problem 2

1. Regress *wage* on four occupation dummies (from Problem 1), without an intercept. That is, run the following regression:

$$wage_{ij} = \beta_1 D_{i,base} + \beta_2 D_{i,prof} + \beta_3 D_{i,cler} + \beta_4 D_{i,serv} + \epsilon_{ij}.$$

What do $\hat{\beta}_1$, $\hat{\beta}_2$, $\hat{\beta}_3$ and $\hat{\beta}_4$ mean?

2. Construct 95% confidence intervals for mean wages by occupation. Interpret the meaning of each confidence interval.

Problem 3

1. Using GRETL (*Tools* → *Test statistic calculator* → *2 means*), perform t-test on the equality of means for each pair of occupations (six pairs). Fill in the table on page 2. In each cell write: H_0 and H_A , test statistics and p-value. Also, indicate which hypothesis you reject / do not reject. Use help button in the Test statistic calculator window if you need help on syntax.
2. Test the equality of variances for each occupation pair and fill in the table on page 3.

TESTS ON MEANS

	Servocc	Clerocc	Base_occ	Profocc
Servocc				
Clerocc				
Base_occ				
Profocc				

TESTS ON VARIANCES

	Servocc	Clerocc	Base_occ	Profocc
Servocc				
Clerocc				
Base_occ				
Profocc				