**University of Lincoln Assessment Framework**

**Assessment Briefing 2020-2021**

**Module Code & Title:** FIN9027M Quantitative Methods for Economics and Finance I

**Contribution to Final Module Mark:** 50%

**Description of Assessment Task and Purpose:**

The coursework for this module consists of an individual assignment. The required word count is 1,000 words in total excluding tables, graphs, and appendices.

Please note that this is an individual coursework. You should work independently. Collaboration is considered dishonest and unprofessional. Please see module handbook on ‘Dishonesty and Plagiarism’ and related University Regulations.

### **Answer ALL the Following Questions**

Note that this is not an essay type assignment. Please simply answer the questions one by one. Copy all Stata outputs in the assignment. Please note that this is an individual empirical project. You should work independently. Collaboration is considered dishonest and unprofessional.

Save your dataset and Stata do files in a .zip file with the name “Student Name\_Student ID” and send it to dradicic@lincoln.ac.uk by the hand-in date.

You will receive your dataset from the module leader Dragana Radicic.

1. Produce a summary statistics table (mean, standard deviation, minimum and maximum) for your dataset and provide comments. **(4 marks)**
2. Compute the correlation coefficients for each pair-wise combination of independent variables. Is there a high collinearity between any pair of variables? **(4 marks)**
3. Plot a histogram of *wage* with a normal distribution overlay. Copy the graph in your assignment. Does the distribution of *wage* appear close to normal? Explain. (**3 marks**)
4. Run the regression of *wage* on *educ* and report the results in the usual form, including the R-squared. Use conventional standard errors. Interpret the coefficient on *educ* and comment on its sign and magnitude. (**4 marks**)

Questions from 5-10 refer to the regression model from the question 4.

1. Create the regression line plot. Copy the graph in your assignment. (**3 marks**)
2. Is variable *educ* statistically significant? Report the *p* value and explain your answer. **(2 marks)**
3. What is the predictive power (goodness of fit) of the model? Explain. (**3 marks**)
4. Test for normality of error terms. Report the result. What can you conclude based on the test? (**3 marks**)
5. Test the null hypothesis of homoscedasticity using the White test, report and interpret the results. **(4 marks)**
6. Estimate the model with heteroskedasticity-robust standard errors. What can you comment on the inference from the model with the usual (conventional) standard errors? Does using the heteroskedasticity-robust standard errors change the outcome in any important way? **(5 marks)**
7. Run the regression of *wage* on *educ, exper, tenure, south, urban* and *married.* Report the results in the usual form, including the R-squared. Use conventional standard errors. Interpret the coefficients on each variable and comment on their sign and magnitude. **(12 marks)**

Questions from 12-18 refer to the regression model from question 11.

1. Create the regression line plot. Copy the graph in your assignment. (**3 marks**)
2. What is the predictive power (goodness of fit) of the model in question 9? Explain and compare with the goodness of fit from the model in question 4. (**3 marks**)
3. Test for normality of error terms. Report the result. What can you conclude based on the test? (**3 marks**)
4. Which of the variables are statistically significant at the 5% level? Explain your results. **(4 marks)**
5. Which of the variables are statistically significant at the 1% level? Explain your results. **(4 marks)**
6. Report the average variance inflation factor (VIF) of the model in question 9. Based on it, is multicollinearity a concern in the estimated model? (**3 marks**)
7. Apply the Breusch-Pagan test for heteroskedasticity and report the result. What do you conclude from the test? **(4 marks)**
8. Estimate the model from question 9 with heteroskedasticity-robust standard errors. What can you comment on the inference from the model with the usual (conventional) standard errors? (**5 marks**)

Questions from 20-25 refer to the regression model from question 19.

1. Test the joint null hypothesis that *south*=0and *married*=0*.* Report the result and *p* value. What can you conclude from the test? (**4 marks**)
2. Test the null hypothesis that *educ*=*tenure.* Report the result and *p* value. What can you conclude from the test? (**4 marks**)
3. Test the null hypothesis that *urban* =*married.* Report the result and *p* value. What can you conclude from the test? (**4 marks**)
4. Test the joint null hypothesis that *educ*= 0 and *exper*=0*.* Report the result and *p* value. What can you conclude from the test? (**4 marks**)
5. Test the null hypothesis that *educ*=70*.* Report the result and *p* value. What can you conclude from the test? (**4 marks**)
6. Test the null hypothesis that *south*= -90*.* Report the result and *p* value. What can you conclude from the test? (**4 marks**)

**End of coursework questions**

**Learning Outcomes Assessed:**

LO2 Formulate econometric models to perform empirical investigations in economics and finance.

LO4 Analyse data using econometric software packages.

**Knowledge & Skills Assessed:**

Researching and Analysing

Problem Solving

Organisation

Communication

Learning & Adaptability

Perseverance & Initiative

**Assessment Submission Instructions:**

Please submit a Turnitin copy via the Blackboard. Submission deadline is 18 December 2020 at 12:00 noon.

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**Date for Return of Feedback:** Week commencing18 January 2021

**Format for Assessment:** Turnitin assignment

**Marking Criteria for Assessment:** Marking scheme is included in the coursework description.

***Please note that all work is assessed according to the University of Lincoln*** [***Management of Assessment Policy***](https://cpb-eu-w2.wpmucdn.com/blogs.lincoln.ac.uk/dist/8/8024/files/2019/07/Management-of-Assessment-Policy.pdf) ***and that marks awarded are provisional on Examination Board decisions (which take place at the end of the Academic Year.***

**Feedback Format:** Written

**Additional Information for Completion of Assessment:**

**Assessment Support Information:**

**Important Information on Dishonesty & Plagiarism:**

University of Lincoln Regulations define plagiarism as 'the passing off of another person's thoughts, ideas, writings or images as one's own...Examples of plagiarism include the unacknowledged use of another person's material whether in original or summary form. Plagiarism also includes the copying of another student's work'.

Plagiarism is a serious offence and is treated by the University as a form of academic dishonesty. Students are directed to the University Regulations for details of the procedures and penalties involved.

For further information, see [plagiarism.org](http://www.plagiarism.org/)