|  |  |  |
| --- | --- | --- |
| **Time Constrained Paper - Brief** | | |
| Programmes: MSc International Accounting, and Finance, MSc International Finance and Economics, MSc Sustainable Economic Development and Emerging Markets, MSc Management with Business Analytics | Unit Name: Statistics and Data Modelling | |
|  | Level: 7 | Unit Weighting:  25% |
| **GENERAL INSTRUCTIONS TO CANDIDATES**   * **Please read the instructions carefully and ensure you understand how many questions you need to answer.** * The usual academic offences structure remains in place and in force * This time constrained paper is now similar in structure to a typical **individual** assignment. **All work should be your own and not completed in collaboration with others.** * You should use Harvard referencing if citing other people’s work. This will not form part of your word count.   **SPECIFIC INSTRUCTIONS FOR THIS ASSESSMENT**   * Answer all questions. * Show all workings to receive full marks. * Where a question has several parts, the weighting of marks is shown next to the question.   **The paper is to be electronically submitted via the Assignment Submission area in Brightspace by 12am on the** *(***Tuesday 28th March, 2023***).* **Please allow sufficient time to upload files before the deadline** **and in a Word document format.** | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ASSESSMENT TASK**  **Question 1 (Total 50 marks)**  The data set consists of 1,230 individuals, including information on education, wages, parents’ education, and other variables. You are interested in the intergenerational education mobility. The dependent variable is individual’s years of schooling. ‘motheduc’ is mother’s years of schooling and ‘fatheduc’ is father’s years of schooling. You have the following results in Table 1.  Table 1     1. Write the estimated regression model as an equation **(10 marks)** 2. Using the results in the table above, interpret the coefficient on parental education   **(10 marks)** 3. Explain the overall goodness of fit of the model.   **(5 marks)**   1. A second regression includes the ability score (‘abil’) in the regression. The ability score measures cognitive skills. Why do the coefficients of parental education change in Table 2 compared to Table 1?   **(10 marks)**  Table 2     1. Is the impact of parental education on their children’s level of education in Table 2 unbiased?   **(15 marks)**  **Question 2 (Total 50 marks)**  You want to estimate peer effect in classrooms. The data set includes students in classrooms, consisting of 5856 students in around 120 classes in secondary schools in England. You are interested in the peer effect of having more classmates with higher test scores.  You estimate the relationship between the *average group* mean and the outcome using the model below,  where represents the exam score for student *i* in class *g* at grade *t*. denotes the averagestandardised cognitive test scores in a class. Higher cognitive test scores are associated with stronger cognitive skills.  The parameter of interest is the coefficient on , which denotes the influence of classmates on exam scores. The variable measures the influence of studying in a classroom after being exposed to classmates with higher cognitive scores.  The results are shown in Table 3.  **Table 3. Peer effects measured by the *leave-own-out* measure**   |  |  |  | | --- | --- | --- | |  | (1) | (2) | | Dependent variable: Test scores |  | | | Averagestandardised cognitive test scores () | 0.441\*\* | 0.628\*\*\* | |  | (0.20) | (0.21) | | Constant | -1.158\*\*\* | -1.659\*\* | |  | (0.31) | (0.73) | | Specification |  | Excluding students with degree-educated parents | | *N* | 5856 | 4314 |   a) Interpret the regression coefficients in the Table 3 under both specifications.  **(15 marks)**  b) How would you improve the model to estimate the impact of peer effect? You may discuss what other variables to include in the model.  **(20 marks)**  c) What you want to do to measure the causal impact of peers? You can discuss data, model, and variables that you want to use.  **(15 marks)** |
| **Please note that as per the Standard Assessment Regulations any work submitted after the deadline will be capped at 0% as this time constrained paper is replacing an exam.**  **Plagiarism**  Plagiarism is the act of copying the work or ideas of others without proper acknowledgement of this work.  Plagiarism also includes self-plagiarism or duplication: the inclusion in coursework/exam, or a dissertation, or project, of any material which is identical or substantially similar to material which has already been submitted for any other individual assessment within the University or elsewhere.  Avoiding plagiarism is best achieved through the use of proper academic referencing and minimising direct quotations (i.e. re-write others’ ideas in your own words, but still provide the reference of where these ideas came from). |