**Part A:**

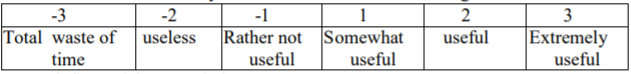
(based on formative assignments)

Revisit the labs, both the ones taught in class and the homework.

1. Upload your record of the lab on your blog and submit the link to the blog. (alternatively put them all in one pdf document)

2. For each of them (14 labs) write up one or two paragraphs that address the following questions: 1.) What was the main task of the lab? 2.) Which slidedeck(s) did it interact with? 3.) Why do you think it was included in the curriculum?

4.) Provide a score of how useful you found the lab on the following scale:



a. Briefly explain your choice

b. Also consider whether you think all felt the same about this lab vs. this score applies rather only for you specifically.

c. Finally, provide one or two suggestions how to improve the lab.

5.) In 2-3 sentences, what was your main take away from this lab in terms of your learning?

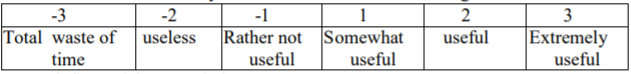
**1 Upload your record of the lab on your blog, and submit the link to the blog**

14 Labs have been uploaded on my blog, here is the link in the below.

https://github.com/AlexShanfei/Econometrics-Lab-works

**2. For each of them (14 labs) write up one or two paragraphs that address the following questions: 1.) What was the main task of the lab? 2.) Which slidedeck(s) did it interact with? 3.) Why do you think it was included in the curriculum?**

**4.) Provide a score of how useful you found the lab on the following scale:**



a. Briefly explain your choice

b. Also consider whether you think all felt the same about this lab vs. this score applies rather only for you specifically.

c. Finally, provide one or two suggestions how to improve the lab.

**5.) In 2-3 sentences, what was your main take away from this lab in terms of your learning?**

Lab01

1.1 Main task

The main task was to guide the user through R and RStudio installation and getting familiar with the RStudio.

1.2 Slidedeck interaction

Sorry I cannot find out which is relative to.

1.3 Why was it included in curriculum

Ensure that everyone can better use open statistical software for learning.

1.4 Usefulness score- 3

a-c. I have not used R or RStudio before, so it was a fantastic way to get it kind of clear. It is hard to say but there are both new and experienced users of R. Asking students to share their screen when they are coding or got problem which could fix issues immediately. It could show students what kind of usual issues to mention them to avoid.

#1.5 Main take away

#R and RStudio are straight forward to install and using.

Lab02

2.1 Main task

Explore the data set ceosal2.RData.

2.2 Slidedeck interaction

Sorry I cannot find out which is relative to.

2.3 Why was it included in curriculum

It included to familiarize the reader with the basic commands simple data exploration and data visualization.

2.4 Usefulness score-3

a-c. I have not used R very much, the lab2 helped me do the basic commands and Rmarkdown. It is hard to say but there are both new and experienced users of R. Asking students to share their screen when they are coding or got problem which could fix issues immediately. It could show students what kind of usual issues to mention them to avoid.

2.5 Main take away

Data visualization supplements summary statistics, and can be customized.

Lab03

3.1 Main task

Run simple linear regression and create supporting visualizations of the results.

3.2 Slidedeck interaction

Sorry I cannot find out which is relative to.

3.3 Why was it included in curriculum

Further exercise in using R, running simple linear regression and creating graphs of results.

3.4 Usefulness score- 3

a-c. It was a good experience to run regression using R for the first time. Through a simple and purposeful lab, readers are required to use data sets and perform simple regressions. Asking students to share their screen when they are coding or got problem which could fix issues immediately. It could show students what kind of usual issues to mention them to avoid. In my opinion, I suggest lecturer could give some induction of the next lecture and students could do preview following it.

3.5 Main take away

Stargazer is an R package that creates LATEX code, HTML code and ASCII text for well-formatted regression tables, with multiple models side-by-side, as well as for summary statistics tables, data frames, vectors and matrices.

Lab4

4.1 Main task

Explain amount spent in terms of customer characteristics and predict amount spent by a new customer.

4.2 Slidedeck interaction

UEA\_Week\_01\_005A\_Fast\_primer\_02\_Lecture\_MRB

4.3 Why was it included in curriculum

We could use the lab to run a multiple regression and the resulting model to predict, according to hypothesis.

4.4 Usefulness score- 3

a-c. Although I have used STATA to do multiple linear regression before, it is a good experience to operate on R. The others may not share this because they might have had more recent relevant experience. Asking students to share their screen when they are coding or got problem which could fix issues immediately. It could show students what kind of usual issues to mention them to avoid.

4.5 Main take away

In hypothesis testing, whether we reject the null hypothesis or not is the relative standard for passing the test. When the p-value is very low, we may not be able to reject the null hypothesis. In multiple regression, forecasting refers to fitting a model with a data set assuming specific values of a variable.

Lab5

5.1 Main task

The objective of the lab is to use data on used cars to build a model explaining price and predicting the sale price of a used car. The lab uses the Akaike Information Criterion (AIC) as a means for model selection.

5.2 Slidedeck interaction

Sorry I cannot find out which is relative to.

5.3 Why was it included in curriculum

The lab shows how a model can be selected using AIC and it makes the point of a model being able to predict outcomes for data that it was not fitted from is desirable.

5.4 Usefulness score- 3

a-c. AIC was kind of new to me, may I forgot some points, AIC is a good process for discussing or testing feasible. Perhaps it would be only for me that I forgot this part and it reminded me to do AIC to test feasible. Asking students to share their screen when they are coding or got problem which could fix issues immediately. It could show students what kind of usual issues to mention them to avoid.

5.5 Main take away

For AIC, I learned how to choose its practical model by balancing simplicity and loss of information.

Lab6

6.1 Main task

There were several important tasks for this lab. Part1 makes the reader go over the recommended references and get familiar with the structure and specific sections such as the Appendix on Matrix Algebra. It also gives a preview of this summative assessment in that it asks the reader to go over the previous week's slide decks. Part2 talks about formal exercises on the OLS estimator and bias estimation. Lastly, Part3 includes exercise in coding and the last part on Programming asks the reader to verify the Central Limit Theorem, which is the basis for almost all hypothesis testing.

6.2 Slidedeck interaction

All slide decks up to Session 2.

6.3 Why was it included in curriculum

A good connection between applying theory and practice to sample data sets.

6.4 Usefulness score-3

a-c These exercises gradually I deal with the R problem in time and make corresponding corrections through the evaluation of the students. This is very valuable. This should be enough useful for all of us. Asking students to bring their questions and errors to the class and discuss some common issues on the lecture.

6.5 Main take away

Have a good understanding of how to program and analyze the three distributions through R. On the Central Limit Theorem, as sample size increases the distribution of the sample means tends towards a normal distribution regardless of the distribution of the population from where the samples are drawn.

Lab7

7.1 Main task

Explore violations of linear regression model assumptions.

7.2 Slidedeck interaction

UEA\_ecoR2PhD\_CoreLectA01\_OLS\_stkm(1)

7.3 Why was it included in curriculum

How OLS estimates are affected by violations of the assumptions using simulated data.

7.4 Usefulness score- 3

a-c It illustrates the deviation of the two (whether violated or not) linear regression model assumptions. Personally, I have an updated understanding of using R for OLS regression. You can add one or two relatively brief experiments to increase the practicality of using the code.

7.5 Main take away

During the experiment, the biases should be handled carefully and the result of it will correspondingly affect the structure of the overall experiment

Lab8

8.1 Main task

The lab lets the reader calculate omitted variable bias and compare when x1 is omitted to when x2 is omitted. It also asks the reader to replicate the results of the interacting slide deck.

8.2 Slidedeck interaction

ExtraBonusLect03\_Causality\_Correlation\_MGM\_2017\_Primer

8.3 Why was it included in curriculum

This lab plays around with data how in terms of the relationship between variables x1 and x2 to be able to calculate changes in the parameters' bias.

8.4 Usefulness score- 3

a-c. This is useful because it can be used to perform R practice by calculating the deviations from the 4 situations that violate SLR1-4. Practice makes perfect. Those who are not familiar with this content will find this feature useful. The lecturer can ask the students to bring the problems they encounter during the practice to the classroom to share.

8.5 Main take away

The possibility and diversity of endogenous sources can cause serious problems for researchers.

Lab9

9.1 Main task

This lab shows and discussed a correction in the lab 5 for the use of AIC in model selection. Data issues, descriptive statistics, and graphical analysis were also discussed.

9.2 Slidedeck interaction

Lab02\_mkm\_Econometrics1\_RodBased\_DataHandling

9.3 Why was it included in curriculum

For correction and consistency of previous lab exercises. For some of us may need to take this session and read with Lab 05 comparatively。

9.4 Usefulness score- 1

a-c This lack of useful supplementary Lab05. It should be useful for everyone. Any questions made when do self-practice could bring to class and discuss.

9.5 Main take away

We could describe and graphically show the characteristics of the data.

Lab10

10.1 Main task

Compute and compare estimates of Treatment Effects, ATE and ATET, using Difference-in-means estimate, regression estimation, and a 2-step fitted regression for both homogenous and heterogenous treatment effect assumptions.

10.2 Slidedeck interaction

The Matrix Primer, Lab02\_mkm\_Econometrics1\_RodBased\_DataHandling & UEA\_ecoR2PhD CoreLect\_06 ATENT\_Match \_Stk

10.3 Why was it included in curriculum

This is about estimating the treatment effect under the assumption of homogeneity and heterogeneity.

* 1. Usefulness score- 3

a-c. This is very useful, because I have a clearer understanding of ATE and ATET.

In addition to the parts related to the previous exercises, there is also the operation of new knowledge, which is very important.Extend the exercise by choosing different treatments.

10.5 Main take away

Counterfactuals cannot be observed in the data, so when the therapeutic effect is the same, ATE is equal to ATET. For the mean of the difference, the regression will use the interaction term and 2 steps regression to fit the model for the subset with or without treatment, which can be used to estimate the treatment effect.

Lab11

11.1 Main task

Using simulated data, evaluate instrumental variables and determine which is best suited to correct endogeneity.

11.2 Slidedeck interaction

UEA\_ecoR2PhD\_CoreLect\_08\_IV\_Experiment\_PhD&UEA\_ecoR2PhD\_CoreLecture\_07\_IV\_Warmup\_StK

11.3 Why was it included in curriculum

IV Estimation is key for practicing econometricians when dealing with endogeneity. Selection of a suitable instrument can drive the results of a research project.

11.4 Usefulness score- 3

a-c. This topic will be helpful to my research. The content of my research will involve the issue of economic growth between regions in the country. Endogenous issues are a very important part of the analysis, including the amount of time during the IV assessment.

11.5 Main take away

After learning, IV estimation can correct endogeneity when correctly done.

Lab12

12.1 Main task

Using simulated data, evaluate potential instruments for an endogenous regressor, identifying for each the reasons for their validity as instruments, Exogeneity and Relevance.

12.2 Slidedeck interaction

UEA\_ecoR2PhD\_CoreLecture\_07\_Metrics\_IV\_Linear+MM\_StK\_old, Matrix lectures and videos

12.3 Why was it included in curriculum

This lab is based on selecting instruments to illustrate how to correct endogeneity using IV and after being corrected to include the function 'ivreg’, the lab gives an application of evaluating potential instruments.

12.4 Usefulness score- 3

a-c. Compared with Lab 11, the choice of experimental instruments is increased.

12.5 Main take away

Candidate tools should be evaluated in terms of externality and relevance.

Lab13

13.1 Main task

Estimate Fixed Effects and Random Effects models on panel data and compare these models.

13.2 Slidedeck interaction

UEA\_ecoR2PhD\_CoreLecture\_10A\_Panel\_StK

13.3 Why was it included in curriculum

Have a more complete understanding of the fixed and random effects of panel data.

13.4 Usefulness score- 1

a-c. Let me have a full understanding of serial correlation test, unit root and stationarity test and heteroscedasticity test, and accumulate experience for future research.

13.5 Main take away

Time-invariant regressors cannot be included in fixed-effect estimation.

These variables drop out when taking all variables in derivation of their sample means (time-demeaning) so their coefficients are unidentified from the individual specific effect. Out of sample prediction is impossible.

For individuals not included in the panel, one cannot ‘observe’ ηi . Therefore, even if the values of all regressors for this individual are observed, it is still impossible to predict an outcome. If most variation in time-varying regressors is between individuals, parameter estimates might not be very precise.

The specification of the static random-effect model is the same as the static fixed-effect

Model.

**FIXED EFFECTS VS. RANDOM EFFECTS**

Random effects can estimate the coefficients of time-invariant regressors.

Random effects can be used to make predictions outside the sample for which time-invariant regressors are informative.

Random effects assumes a stochastic structure on the individual specific effects, so it makes stronger assumptions than fixed effects.

Fixed effects estimation is robust against departures from the imposed stochastic structure on the individual specific effects, but less efficient than random effects estimation if the stochastic structure is correct.

The stochastic structure on the individual specific effect implies that the parameters β could be estimated using a single cross-section. Random effects only needs panel data to disentangle ηi from Uit.

Lab14

14.1 Main task

Go through the example of a Difference-in-Differences (DiD) application discussed in class.

14.2 Slidedeck interaction

UEA\_ecoR2PhD\_CoreLecture\_10C\_DiD\_StK

14.3 Why was it included in curriculum

When the individual will be observed before and after treatment for DID, which solves the problem of missing the overall level of variable bias

14.4 Usefulness score- 2

a-c. Make DID code fully practiced in the actual application process. For me personally, I did not conduct research on the DID part, so this also allowed me to accumulate more relevant experience.

14.5 Main take away

Practical application of DID.