

BS2570 Introductory Econometrics

Spring assessment (in replacement of the Spring exam)

Task:

Write an **essay** on:

'Mortality rate of Covid-19 and medical resources of a country: global evidence'
which investigates what factors affect the mortality rate of Covid-19, using empirical evidence established with econometric methods (such as regression estimation and hypothesis testing).

The above title is suggestive, just for you to know the theme of the essay. And you should design your own.

Format and content:

Use standard format for essays, e.g., 'Introduction', 'Conclusion' etc. You have full discretion on deciding how many sections to have and what they are called.

Your essay **MUST** including the following contents (however you may like to organise them):

1) Estimate the benchmark regression with one dummy variable chosen by yourself. The benchmark regression is given by:

$$MR_i = \alpha + \beta_1 HS_i + \beta_2 Bed_i + \beta_3 Doc_i + \beta_4 Nur_i + \gamma D_i + \varepsilon_i$$

Where:

MR=Mortality rate (Unit: %. Eg. if 2%, put '2' for variable value)

HS=Total health spending (US dollars/capita)

Bed=Hospital beds per 1000 inhabitants

Doc=Practising doctors per 1000 inhabitants

Nur=Nurses per 1000 inhabitants

D=dummy variable (Considered by yourself. Eg. Whether European country? Whether developed country? Whether country with aging population? You can try anything you are interested)

ε =error term which satisfies the standard OLS assumptions.

*Except for MR and D, all original data collected need to be converted to the natural logarithm of them for them to be used for the regression.

2) Evaluate the significance of each variable individually, as well as all of them jointly, plus interpretation. (Feel free to just judge with the p-values; decide significance level by yourself; no need to write H0 etc. Just report results in a table and explain/discuss, remembering this is an essay).

3) Consider potential problem of omitted variables of the benchmark regression. Check with a test and provide a brief discussion?

4) Your sample is likely to be small (less than 40 observations). Provide some discussions on potential issues of using a small sample from the econometric viewpoint?

Length requirement: no more than **2,000 words**, excluding all tables/figures/references/appendices. (LC may be saying this is a 3,000-word work; this is ok. I set 2,000 here where I have taken into account your workload on Eviews and finding the data.)

Submission deadline: **27th May, 11am**. This is an individual assessment, which means **EVERYONE** needs to submit their own work.

Further supporting advice:

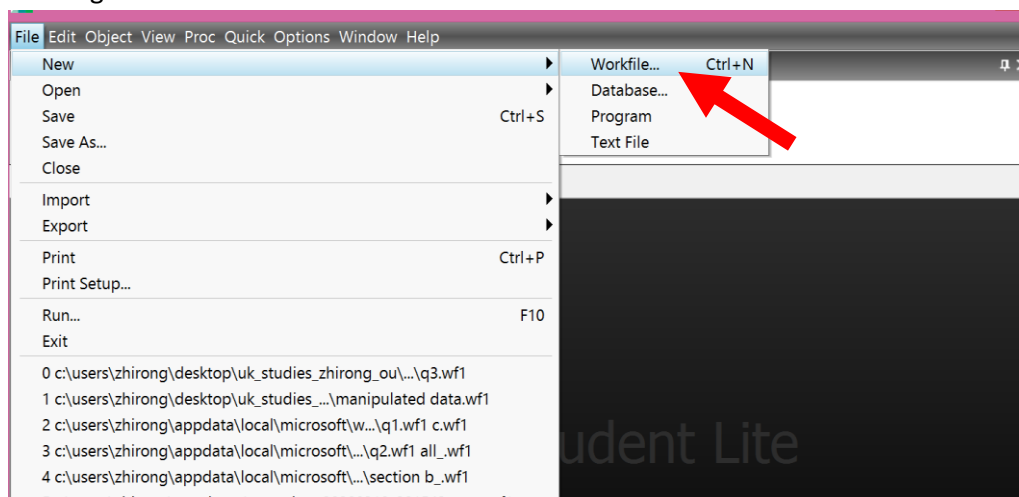
a) Note that Eviews 11 student lite version is free for download at:

<http://www.eviews.com/EViews11/EViews11Univ/evuniv11.html>

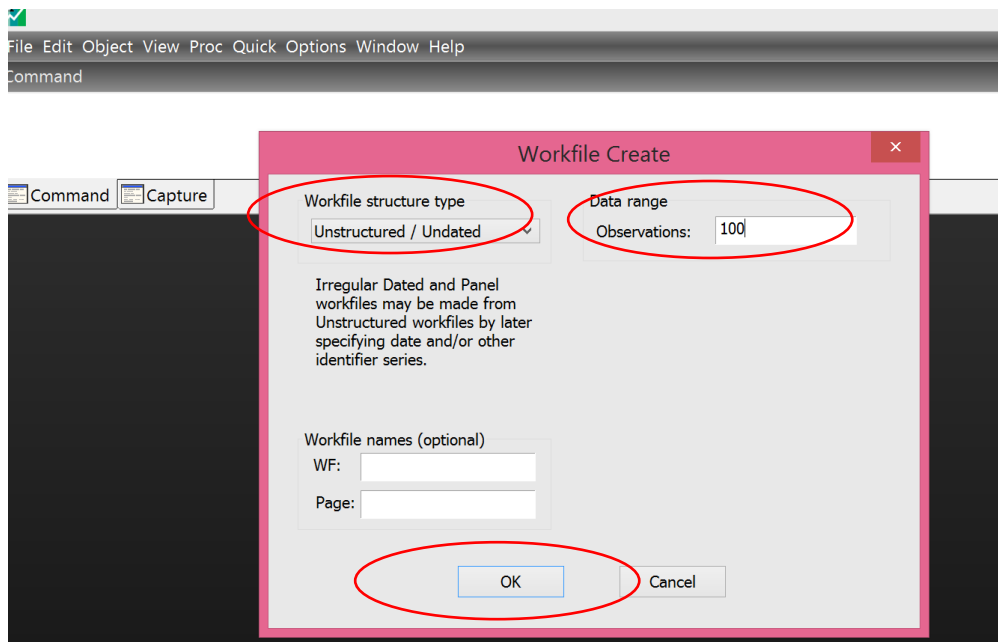
Note that this allows you to use Eviews 11 for free, for 1 year. All functions work as usual. But notice that this free version doesn't support 'save'. However I **DO NOT** require you to send me any Eviews file for this work, because it is an essay. Eviews in this case is more like a 'calculation', for you to find the correct numbers only.

However notice that, in our benchmark regression we have subscript 'i', instead of 't'. This is because here we are dealing with cross-sectional data (p.11 L1), rather than time series data. (At the same time, notice that 'panel data' in L16 is a combination of them. But we don't do that here because we don't have sufficient time series information, but only 'latest' data for each country)

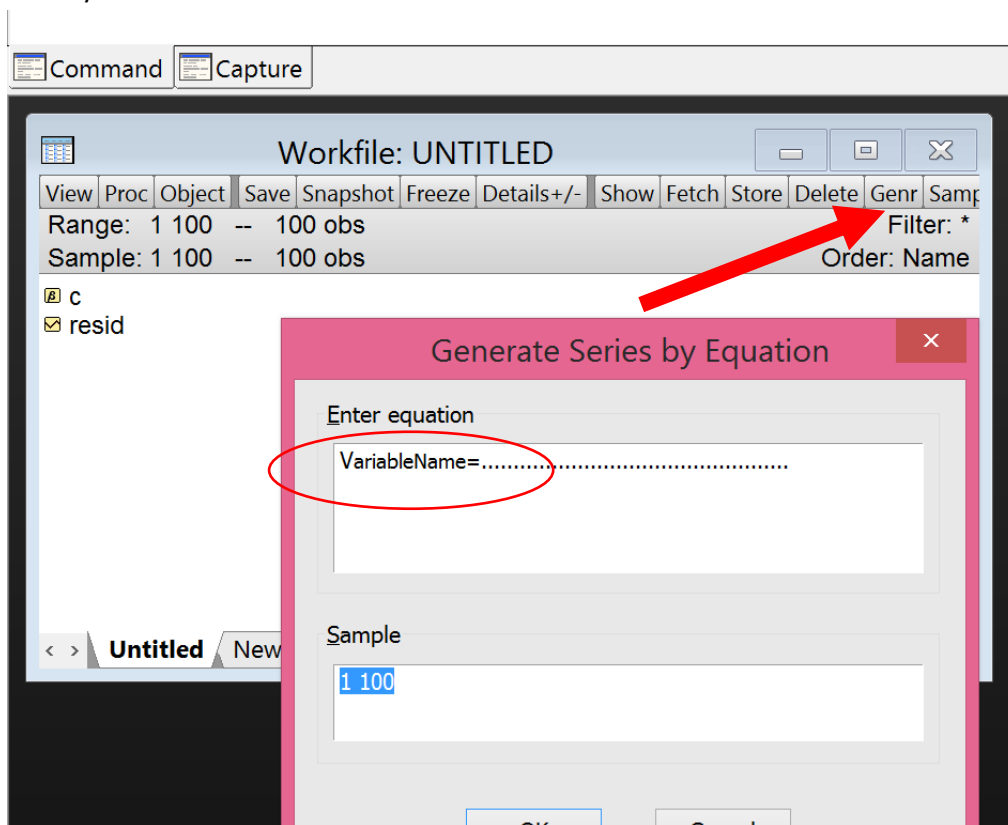
The following screen shot shows how to construct an Eviews workfile for cross-sectional data:



Now, set data type, number of observations; then click ok



Then you just create new variables using 'Genr' as usual. Then you can copy/paste your data from Excel or any data source.



b) Data needed for the regression can be collected from:

<https://coronavirus.jhu.edu/data/mortality>

<https://data.oecd.org/healthres/health-spending.htm#indicator-chart>

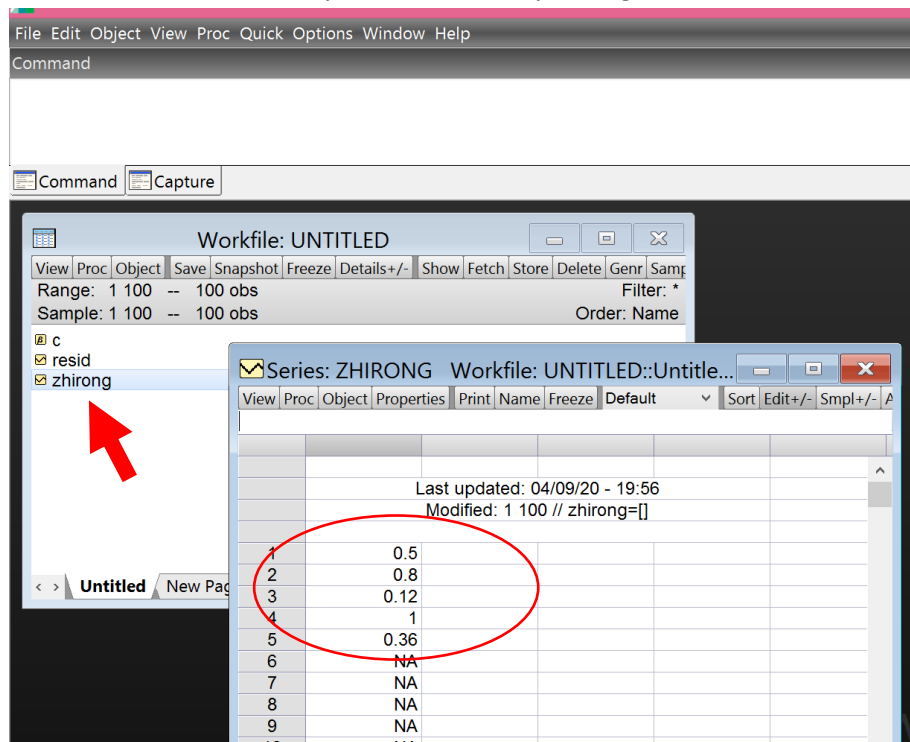
These sources need to be cited in your essay and referenced.

c) Note again, you will be estimating the regression using cross-sectional data, ie., data from different cross-sectional unit at a particular time. In our work we use the 'latest' data, for the following 34 countries (the cross-sectional units):

Australia, Austria, Belgium, Canada, China, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, South Korea, Lithuania, Luxembourg, Mexico, Norway, Poland, Portugal, Russia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom, US

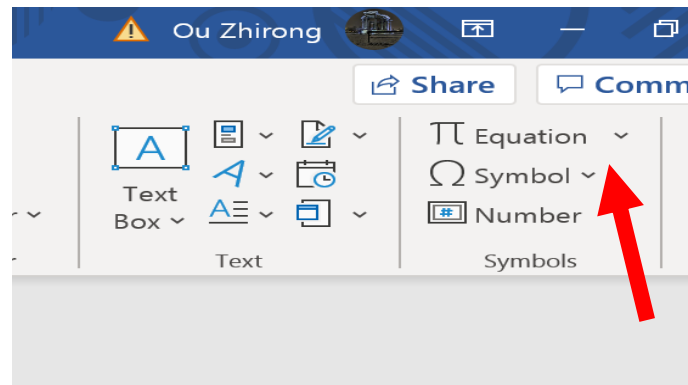
I have checked that all variables needed for these countries are available. Then on 'latest' data, you may find that some variables have data both for 2017 and 2018, eg. In that case you use the one for 2018. If only 2016 is available in any case, just use that, because that would still be the most up-to-date, available information.

In the example below I created a variable called 'Zhirong'. I have inputted values collected from 5 different countries for the same variable. You should be doing the same, keeping the same order of countries, for all variables. Then you can estimate your regression as normal.



d) Produce your own tables in reporting your Eviews finding. For equations, please type up using Word's equation editor (I strongly advise AGAINST snapshots or similar, as those would be inappropriate for a proper essay). The Word equation editor can be found here:

On Menu, check 'Insert'; then you will see 'Equation' in the 'Symbols' tag. Snapshot provided below:



An endnote:

In setting this special assessment, I send my upmost admiration and respect to all heroes fighting in the frontline all over the world. I also share my sympathy with all those suffer or lost their lives or loved ones. I hope that, by doing this special assessment you become tougher, more tolerate, more willing to share, and help and love people around you and those you may meet in the future. Having this crisis is unfortunate; but there are many things that are worth our reflection for a better world in the future. If there is a 'special something' besides the intended learning outcomes of Introductory Econometrics which this special assessment can bring to you, I would be extremely proud and feel rewarding.

Take care everyone!

Zhirong

09/Apr/2020