Untitled

Giuseppe Cinquemani

2022-04-26

Exercise 1

Deadline 27 May 2:30 pm

You MUST work in groups (max 3/4 people). The groups can change for next assignments. If you change there is a greater possibility to learn from your classmates.

Send me by email (giuseppe.cinquemani@unicatt.it) your work including your writings and your REPLICABLE codes (you must test it and be sure it works properly) in a zip file named "ex1 and a reference name"(the name can one of the group or a fantasy name). Your writing must contain name and surname of all the authors at the beginning of each file in the zip file. Remember that all the members of the working group MUST be able to answer about the code and the writings you send me, even if you did not contribute all in the same way.

The solution will be a collection of the best of your works. Extra bonus will be assigned to those asked to present the results during the dedicated class.

1. Data download and analysis

Use getsymbols() function of the package quantmod to download data from Fred (https://fred.stlouisfed.org/) and check the standard identity of any NIPA system:

Y=C+I+G+(EXP-IMP)

and comment on data. For complete details on data see https://www.bea.gov/sites/default/files/methodologies/mpi1_0907.pdf and the comments of table 9 contained in https://www.bea.gov/system/files/2019-05/Appendix.pdf

Check the same identity for at least one or two other countries. (Hint: choose countries you know and whose data are easily available on the internet)

2. Cycle Harding and Pagan style

Use the data downloaded in point 1 and dissect the cycle for at least three variables. Based on the results you obtain decide whether we are close to a recession. Hint: use R package "BCDating" to replicate the methodology presented in first two paragraphs of the original paper of Harding and Pagan

http://fmwww.bc.edu/RePEc/es2000/1164.pdf .

It is your choice using data in level in log level or detrend them. Comment the choice you made.

Notice: you do not know this topic, then you must read first the initial pages of the original paper describing the methodology.

3. Penn data

Visit the web site https://www.rug.nl/ggdc/productivity/pwt/?lang=en to understand the definition of the variables contained in the Penn World Tables dataset. Install the package pwt10 containing the last version of the Penn World Tables.

Extract the cross section of the contribution of labour share of total income and observe the distribution over time (at least three point with a 10 years distance). Verify the constancy of the variable over time for three countries.

Use the package pwt10 (you can use the package dplyr to manipulate the dataframe pwt) to replicate, for at least 10 countries, the table 5.1 in the book "The Economics of growth" by Aghion and Howitt

http://charitythinking.weebly.com/uploads/4/5/5/4/45542031/the___economics_of_growth.pdf

and comment the results you obtain in terms of relative size of Total factor productivity and capital accumulation. Remember that your results could be different because the dataset is not exactly the same.

Chose a different period of time and replicate the results just obtained.

4. Replicate MRW 92 results

Replicate the results for the "intermediate" case repoted in table I (pg. 414) of the article "A contribution to the empirics of economic growth" coauthored by Mankiw, Romer and Weil

https://eml.berkeley.edu/~dromer/papers/MRW_QJE1992.pdf

You can aggregate directly the data using the Penn database or download the aggregated data from the web site of the book "Applied Macroeconomics" by C.A. Favero

https://didattica.unibocconi.eu/myigier/index.php?IdUte=48917&idr=10020&lingua=eng&comando=Apri

The relevant data are contained in the file MRW.XLS of the zip file "Data and Exercises for Chapter 1". If you use these data remember that YL85 is the GDP per working-age person in 1985 (YL85 is the GDP per working-age person in 1960 and DY6085 is), IY is the variable I/GDP and should be divided by 100, N6085 is rate of growth of population and should be divided by 100, while $(g + \delta)$ is not directly observable and assumed equal 0.05.

Test the following restrictions: 1. $\beta_1 = -\beta_2$ 2. $\beta_1 = 0.5$ and $\beta_2 = -0.5$

Provide a measure of the uncertainty in parameters using the Boot() function from the package car or the boot() function from the package boot (they should produce the same results).

Include the human capital using the variable SCHOOL corresponding to s_h, that measures the percentage of the working-age population that is in the secondary school and replicate the unrestricted model of table II (pg. 420).