Growth Accounting Exercise

You can do this exercise in groups of up to four students. The exercise is due on March 9. This exercise is NOT mandatory. If you decide to hand in this exercise, the 90% of the final grade that does not come from handing in the regular problem sets is going to be the maximum between 1) the average between this exercise and your grade in the final exam and 2) your grade in your final exam.

The goal of this exercise is to perform a growth accounting exercise. The questions are directed but you will see that you will have to make some specific choices in selecting the data and answering the question. There is no right answer, only well-justified answers.

(a) Identify a time period and a country of your interest for which you can get data. We are going to focus on data from the EUKLEMS database `https://www.rug.nl/ggdc/overview-databases/?lang=en`. Note that this website also contains interesting data besides EUKLEMS

(b) Describe the evolution of aggregate output per worker. Discuss major policies in place (or policy changes), institutional features, etc. that characterize the country and time period of your choosing. Does it matter whether you focus on the total of the economy or the market economy?

(c) Decompose the growth in income per capita between, capital, human capital, and TFP using the formula coming from the time derivative of the equation from class $y = (K/Y)^{\alpha/(1-\alpha)} hA$. Assume $\alpha = 1/3$. Discuss different measures of capital and human capital that you have available in the data and whether they make a difference for your growth accounting exercise.

(d) Repeat your exercise by broad sectors of the economy (codes A, B, C, D-E, F, G, H, I, J, K, L, M-N and O-U). For which sector do you find the highest growth in output per worker? and the lowest? and the highest and lowest TFP growth?

(e) Compute the labor share for each of these broad sectors (averaged across years). This object corresponds to $(1-\alpha)$ in our model. Repeat the previous exercise using the implied sector-specific α rather than assuming it is $1/3$. Do the conclusions from your previous exercise change substantially?

(f) How would you compute aggregate growth in income per worker, TFP and capital using the sectoral data? Does it coincicide with the reported aggregates?

(g) Relate any major policy changes or state of the economy to the evolution of the aggregate or sectoral time series that you have analyzed for your country and time of study.