

GLBL 225 How Much Does Human Capital Matter?

Take Home Assignment 1

Due: Sunday, February 4

- You need to submit two files. A pdf file of the answers on canvas [Gradescope](#) and the code you used to get your answers in [Assignments](#).
 - You can use other coding syntaxes if you prefer. You should still be able to complete the assignment with just the code we provide from class.
 - You can access the codes and a list of functions on the [Weekly Course Page \(at the top\)](#).
 - You are allowed to work together, but everyone must submit their own code. Make comments on your code so we understand what you are doing. If the codes are too similar, we will flag this and investigate.
 - **Disclaimer:** This homework looks long, but only asks 3 questions. I included more instructions and tips because it is the first homework. Happy coding!
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A Growth Accounting Exercise

You work at an economic consultant firm that provides insights on macro growth to clients in governments, the private sector, and the nonprofit sector. A client is passionate about education projects and wants to understand which countries have successfully achieved growth through improvement in human capital. The client wants you to focus on the Southeast Asian Region from 1960 to 1990. Use the `hw1_modified_pwt1001.dta` dataset provided on the course github page [“Data for Homework”](#) folder.

Use the codes provided in class to perform a growth accounting exercise with a production function that includes human capital.

$$Y = AK^{\alpha}(hL)^{1-\alpha}$$

The client cares about output per capita growth. Assume that α is 0.3. First, modify your equations to incorporate the client’s request. Then, write a code to answer the following questions. Think of a plan and keep your code organized with comments.

- 1) Create a dataframe keeping only the Southeast Asian region and perform the growth accounting exercise. List the top 5 countries that have the highest growth rate from 1960 to 1990.

Some tips and suggestions:

- Make sure your directory where you put your files is correct. Ask the TF or me if you have problems with this.
- View the data to see what dataset you have.
- Use the dataframe syntax to restrict your sample, or you can use the command `filter()` from the `dplyr` package.
- Another command that is useful for sorting is: `order()`. For example, to order your data in terms of GDP using the dataframe syntax: `data[order(data$rgdpe) ,]`. You can use this to view the top 5 countries for your write-up.

- 2) Which 5 countries have the highest contributions of human capital? Which 5 countries have the highest TFP contributions? List the countries with their human capital contributions, and another list with TFP contributions. Provide a short paragraph of a few sentences analyzing your results for the client. You don't need to do any additional research, just provide the facts from the analysis, and you can speculate on some hypotheses if you want.
- 3) A new intern is helping you with the analysis. They were running a growth accounting exercise without human capital.

$$Y = AK^{\alpha}(L)^{1-\alpha}$$

Now show the top 5 countries with the highest TFP contributions and separately for the human capital contributions under this simple production function. Provide a short paragraph of a few sentences analyzing your results and how it compares to part (2) in terms of the ranking and magnitude.

Some tips and suggestions:

- You do not need to start another code. In the same dataframe, create a new variable such as `lk_simple` or `ly_simple`, and also create new contribution variables.

Don't forget to submit your code also in Assignments!