EC1B5 | Macroeconomics

Chapter 6

Aggregate Incomes

Additional Practice Questions:

Book Question 2

The following table lists 2014 PPP GDP per capita for four countries in $. It also lists the price of a Levi's 501 jeans in local currency in each country in 2014. The price of the Levi's 501 in the United states was $40.58 in 2014.

Country (Local Currency)	2014 PPP GDP per Capita	2014 Levi's 501 Price (in Local Currency)
Switzerland (Swiss franc)	$66,038.70	120.54
Argentina (Argentine peso)	$23,550.31	766.52
Australia (Australian dollar)	$47,671.10	102.23
Malaysia (Malaysian ringgit)	$23,910.80	229.36
Sources for Levi's prices: https://www.nationmaster.com/country-info/stats/Cost-of-living/Clothing-and-shoe-prices/Jeans/1-pair-of-Levi-501s-or-equivalent		
Source for currency conversion (USD to local currencies) using the average exchange rates: https://www.x-rates.com/average/?from=USD&to=EUR&amount=1&year=2021		
Source for PPP GDP per capita: https://tradingeconomics.com/		

Using the Levi's 501 jeans as a representative commodity common to the countries, calculate the PPP-adjustment factor for each country, and then the GDP per capita for each country in the local currency.

Book Question 7

In this question, we will use what you learned in the second part of the chapter to compare the performance of an economy in two different time periods, as its physical capital stock and efficiency units of labor change.

a. Suppose that from period 1 to period 2, the unemployment rate in the economy decreases. Everything else remains unchanged. What happens to the total efficiency units of labor? Express your results formally as an inequality, using the formula for total efficiency units of labor presented in the chapter (in particular, recall that total efficiency units of labor in two periods can be written as $H_1 = L_1 \times h1$ and $H_2 = L_2 \times h_2$; where L is the total number of employed workers).

b. What are the consequences of this decrease in unemployment for GDP? Express your results formally as an inequality, using the aggregate production function presented in the chapter.

c. What are the consequences for GDP per capita and GDP per worker?

d. Suppose that there is a technological advance from period 1 to period 2 and, at the same time, an increase in physical capital stock? Can you say whether GDP will increase or decrease? Why or why not?

Book Question 8

Assume that the country Lusitania has two industries, clothing production and computer chip production. At first, both industries have identical aggregate production functions: the following table shows how the output of each industry is affected by a change in efficiency units of labor.

Y (in Millions of Dollars)	Stock of Physical Capital (Units)	Efficiency Units of labor
100	15,000	16,000
150	15,000	20,000
180	15,000	24,000
200	15,000	28,000
210	15,000	32,000

a. Using the data in the table, draw a graph showing how output (on the y-axis) changes with efficiency units of labor (on the x-axis). What explains the shape of the graph? Why is it valid in this case to plot output against the efficiency units of labor and leave the stock of physical capital in the background?

b. A Lusitanian inventor has produced a new technology that doubles the output of computer chips for any combination of capital and labor. Explain, using an equation, how this invention affects the production of computer chips. Create a new table for computer chip production and compare it to the (unchanged) table for clothing production.

c. If you were a central planner, would you make any changes to the allocation of labor, holding capital fixed? If so, what factors might prevent you from implementing your policy?