

Practice Set 8

Economic Growth

This set contains problems for your own practice. It is highly recommended to work on the problems on your own. Do not just read the provided solutions. Instead, try to solve the problems and use the solutions only when you cannot continue on your own. Reading problems that someone else has solved has the same value for your preparation like watching someone else running a marathon on TV and then expecting to be able to run it, too. If you have questions on this set, please ask your section's teaching assistant.

1. Explain the difference between *sustained growth* and *catch-up growth*.
2. Country A has a higher GDP per capita than country B but country B exhibits a higher growth rate than country A. Comment on the validity of the following statements.
 - (a) *"The gap between the GDP per capita of both countries will converge over time"*.
 - (b) *"GDP per capita in Country B will eventually surpass that of country A"*.
3. *"GDP is 100 and it grows with 10% per year, thus it will take 6 years for GDP to become 160"*. Explain if the statement is accurate.
4. Explain the difference between 'actual GDP' and 'steady-state GDP'.
5. Explain the difference between 'depreciation' and 'depreciation rate'; and between "saving" and 'saving rate'.
6. An economy's GDP is currently below its steady-state GDP.
 - (a) Is this economy expected to grow or shrink next year?
 - (b) Is this economy expected to grow forever?
 - (c) If the production function, the saving rate and the depreciation rate remain constant, will this economy keep growing at a constant rate till it reaches the steady-state?
 - (d) What should happen for an economy to keep growing forever?
7. Consider an economy where the depreciation rate is 15%, the capital stock is currently 200, the GDP is 450 and the saving rate is 20%.
 - (a) How much capital will this economy have next year?
 - (b) Is the depreciation of capital going to be higher next year?
 - (c) Is this economy at its steady-state?
8. Explain how it could be possible for an economy to be above its steady-state GDP.
9. Consider two economies with identical production functions, saving rates and depreciation rates. Explain whether the following situations are possible according to the Solow model.
 - (a) The two economies have different steady-state GDPs.
 - (b) The two economies currently exhibit different growth rates.
10. Donald Trump had once said regarding the trade war between the US and China: *"What China does is unfair. If we were doing the same, our economy would grow faster than theirs. But we do not want to be unfair."* Use your knowledge from lecture 8 to explain the validity of this statement.