Intermediate Macroeconomics

Review session

ECON 3311 – Fall 2024

UT Dallas

Question #1

$Y = \bar{A} K^{\alpha} L^{\beta}$

$Y = 1 \cdot K^{0.3} (1.5L)^{0.3}$

$\approx (1.5)^{0.3} K^{0.3} L^{0.3}$

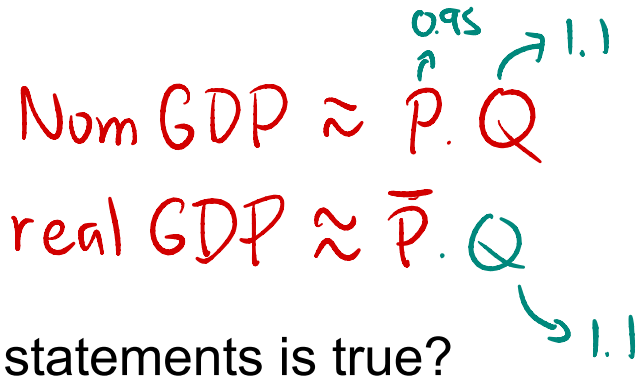
1.129

Suppose a production function displays decreasing return (ns) to scale. Which of the following statements is correct?

- ✗ a. If both inputs increase by 50%, output will decrease by less than 50%
- ✗ b. If only labor increase (s) by 50%, and capital stays the same, output will increase by 50%
- ✗ c. If only labor increase (s) by 50%, and capital stays the same, output will increase by 25%
- ✗ d. If only labor increase (s) by 50%, output will stay the same because only labor increased and capital did not
- ✓ e. None of the above answers are correct

Returns to scale
- Decreasing: $\alpha + \beta < 1$
- Constant: $\alpha + \beta = 1$
- Increasing: $\alpha + \beta > 1$

Question #2



Suppose that real GDP has increased. Which of the following statements is true?

✗ a. Nominal GDP must have increased by more than real GDP

✗ b. The country is producing more of every single good and service

✗ c. The change in real GDP is equal to the sum of C+I+G+EX

✓ d. Prices may have decreased

Question #3

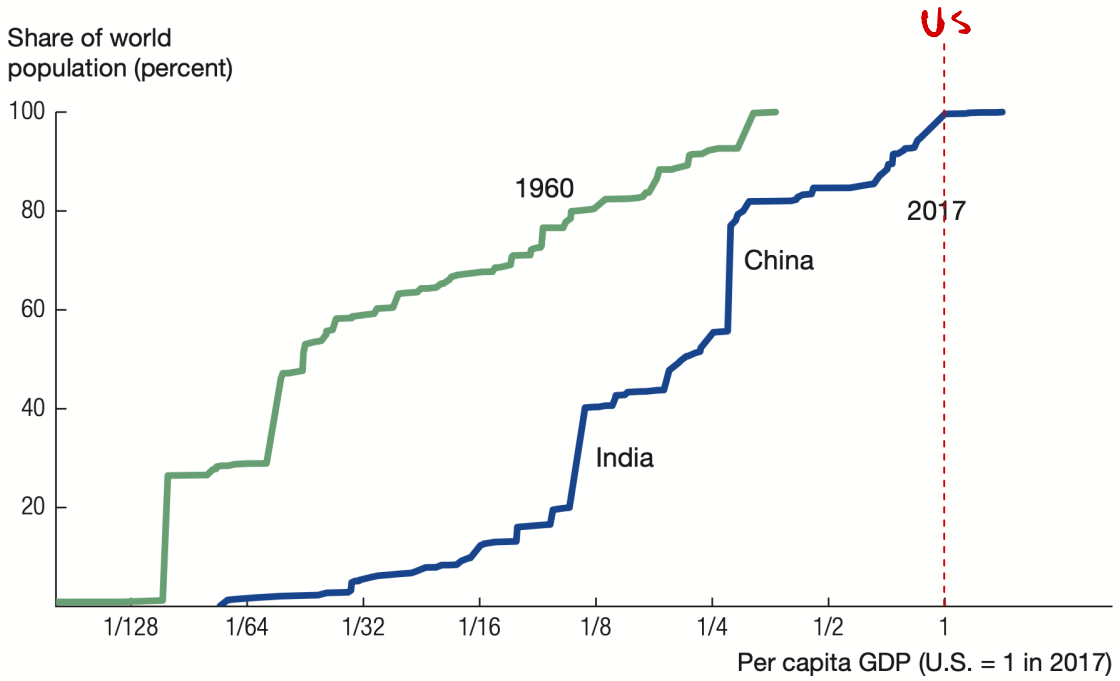
Which of the following can be concluded from the graph?

a. The income of every single country has increased from 1960 to 2017

b. The GDP of all countries is lower than that of the US

c. On average, countries have increased their real GDP from 1960 to 2017

The Distribution of World Population by Per Capita GDP, 1960 and 2017



Question #4

$M\bar{V} = PQ \rightarrow P = \frac{M\bar{V}}{Q} \Rightarrow \pi = g_M - g_q$

If real GDP is growing at a faster rate than the money supply, then the quantity theory of money predicts that there will be inflation.

a. True

✓ b. False

Question #5

110 → 120

(CPI)

If the consumer price index was 110 in 2023 and 120 in 2024, this means that the inflation rate from 2023 to 2024 was:

a. 10%

b. 12%

✓ c. 9.09%

d. 8.33%

Question #6

growth

The CPI measures the increase in all prices in the economy.

a. True

✓ b. False

$$\text{GDP Deflator} = \frac{\text{Nom GDP}}{\text{Real GDP}}$$

Question #7

$Y = F(K, L)$

$MPL = \frac{\partial Y}{\partial L} = \frac{\partial \bar{A} K^{\alpha} L^{\beta}}{\partial L}$

$MPK = \frac{\partial Y}{\partial K} = \partial \bar{A} K^{\alpha} L^{\beta} / \partial K$

Which of the following is true regarding a production function with only two inputs Y=F(K,L)?

✓ a. If it displays constant returns to scale, then there will be diminishing marginal product of labor and diminishing marginal product of capital

✗ b. If it displays constant returns to scale, then if there is diminishing marginal product of labor then the marginal product of capital is increasing

✗ c. If it displays constant returns to scale, then the marginal product of labor and the marginal product of capital are both constant

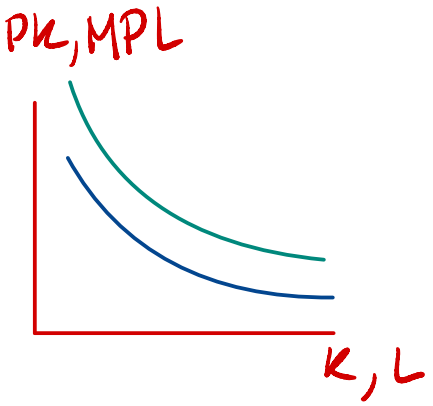
$\alpha = 1/3$

$\beta = 2/3$

$MPK = \frac{1}{3}\frac{Y}{K}$

$MPL = \frac{2}{3}\frac{Y}{L}$

$\alpha + \beta = 1$



Question #8

GDP will decrease if people started eating at home more and eating at restaurants less

a. True

b. False

Question #9

Suppose a country growing at a constant growth rate had GDP grow by 120% in 35 years. What can we conclude about its growth rate?

✓ a. Greater than 2%

✗ b. 2%

✗ c. Less than 2%

rule of 72

rule of 70

Question #10

Most of the difference in GDP per capita between countries can be explained by:

✓ a. Differences in Total Factor Productivity → $\bar{A}$; TFP ; "technology"

✗ b. Differences in capital per person

✗ c. Differences in the marginal product of capital

✗ d. Differences in the amount of labor in each country

65 scale difference in highest to lowest GDP per capita $65 \approx 5 \times 13$

Question #11

In the context of the basic Solow model, how can a country that's already at their (steady state)long-run capital level induce further growth?

✗ a. This is given, investment is always positive and thus capital keeps on increasing.

✓ b. By implementing technological improvements.

✗ c. By increasing their depreciation rate.

✗ d. By consuming more and saving less.

↑ Savings rate

↓ depreciation rate

↑ $\bar{A}$ (TFP)

On the Solow Model: The case of an improvement in Techonology

Remember the key condition to determine K* is: *Investment* = *Depreciation*

Naturally (given our assumption $I = sY$), features affecting Y can also push K^* **towards a higher level K^{**}**

For example, a technological improvement: $\bar{A} \longrightarrow \bar{A}'$ $\quad \bar{A}' > \bar{A}$