

Econ 102: Principles of Macroeconomics
Homework 5 (Page 1 out of 5)

Problem 1 (Growth Accounting)

Read the article about Latin America by Douglas Clement that you will find under the following link: http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=3196

- a. Summarize the key facts about Latin America and the key points of the paper. In particular, focus on the reasons why according to the authors economic growth was slow in these countries. Briefly explain why.

Your answer:

- b. How is growth accounting used to study these countries?

Your answer:

Econ 102: Principles of Macroeconomics
Homework 5 (Page 2 out of 5)

Problem 2 (Present Value)

Elizabeth holds a government bond that promises to pay \$1000 one year from now. The current price of this bond in the market is \$955.

- a. Given that the annual nominal interest rate on her saving account is 5%, advice her whether she should hold the bond until maturity or sell the bond and rather deposit the money in her saving account? Explain your answer carefully.

Your answer:

- b. If the market savings rate is 5%, could the market price of this bond actually be \$955 in equilibrium?

Your answer:

Problem 3 (Classical Model with Capital Accumulation and Government)

The economy of Wonderland is characterized by the following data:

- The production function is $Y = 2\sqrt{KL}$, where K is capital input, L is labor input, and Y is output (real GDP)
- The labor supply is independent from the real wage and equals $L^S = 10$
- The labor demand line is described by $W = \sqrt{\frac{K}{L^D}}$, where W is the real wage, and L^D denotes labor demand
- Saving rate is constant and equal to 10% of disposable income $Y-T$
- Depreciation of capital is 10%
- Government spending is $G=1$, and net taxes are $T=0$

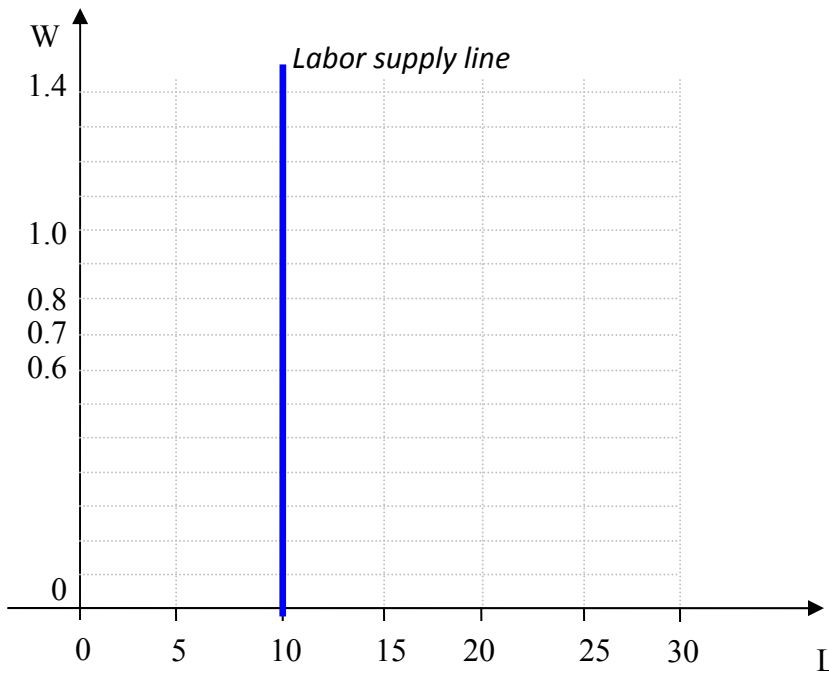
Econ 102: Principles of Macroeconomics
Homework 5 (Page 3 out of 5)

- a. Plug in for capital $K=10$. Fill in the missing values in the table below by calculating the values from the labor demand equation.

| L^D | W |
|-------|-----|
| 5 | |
| 10 | |
| 15 | |
| 20 | |

- b. Plot the labor market demand line and graphically indicate the equilibrium point (the supply line is already included).

Your answer:



- c. What will happen with labor demand line and the real wage W if the stock of capital K falls?

Circle the correct answer:

Labor demand line shifts to the left

Labor demand line shifts to the right

- d. Let $K=10$. Is the economy in the long-run equilibrium? Justify your answer.

Econ 102: Principles of Macroeconomics
Homework 5 (Page 4 out of 5)

Your answer:

- e. Suppose initially capital $K=20$ instead of 10. What is going to be the level of capital in the next period? Justify your answer by calculating depreciation and investment in new capital.

Your answer:

Depreciation of capital =

Investment =

Capital stock in the next period =

- f. Suppose initially capital $K=15$ instead of 10. What is going to be the level of capital in the next period? Justify your answer by calculating depreciation and investment.

Your answer:

Depreciation of capital =

Investment =

Capital stock in the next period =

- g. Let $K=10$. Suppose the government decides cut government spending to 0. What kind of fiscal policy is this?

Circle the correct answer:

Expansionary

Contractionary

- h. Refers further to point G. Right after the change in government policy, calculate the following items:

Your answer:

Output =

Savings =

Real wage W this period =

Capital stock next period =

Real wage W next period =

Econ 102: Principles of Macroeconomics
Homework 5 (Page 5 out of 5)

- i. Refers further to point G. Calculate the new long-run level of output, capital and real wage.

Your answer:

Problem 4 (Useful Approximations)

You were told that:

“If two variables A and B are multiplied together (and their underlying % changes are small), then the percentage change in their product is approximately equal to the sum of their percentage changes,” or*

$$\% \Delta(A \times B) \approx \% \Delta A + \% \Delta B$$

“If two variables A and B are divided (and their underlying % changes are small), then the percentage change of the ratio is approximately equal to the sum of their percentage changes,” or

$$\% \Delta(A / B) \approx \% \Delta A - \% \Delta B$$

Do you really believe that? As President Ronald Reagan once said, “Trust, but verify,” so let’s verify:

| | A | B | A × B | A/B |
|---------------|-------|-----|-------|-----|
| Initial value | 1,000 | 100 | | |
| Final value | 1,010 | 102 | | |
| Exact %Δ | | | | |

*Percentage change of a variable is the change in its value relative to its initial value times 100. For example: $\% \Delta A \approx \frac{(\text{Final value of A}) - (\text{Initial value of A})}{(\text{Initial value of A})} \times 100.$

Problem 5 (Definitions)

Give the key word that best fits the statement or definition.

- Increase in government deficit (aimed at increasing output)
- Fall in government deficit (aimed at increasing output)