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Economics 202-01
Fall 2018

Homework #3 (due by 9:00pm on Thursday, October 18)

Please submit your answers to this homework through the Assignment link at Blackboard. ***No credit will be given for answers submitted in class or emailed to the professor***, *regardless of the excuse.* This includes unique excuses like the police confiscated my computer right before I was going to submit it, excuses like "I lost my Internet", etc. Please note that all submissions are final, again – regardless of the excuse (which includes "I accidentally hit the submit button"). Note that Blackboard allows you to save your answers, but you must hit the "Save and Submit" button to submit your answers. If you are unfamiliar with Blackboard, then it would be a good idea to visit the class page at Blackboard and check out the homework assignments as they are posted.

Please note that when Blackboard grades homework answers, more specifically – answers to the fill-in-the-blank questions – your answer must match exactly with the answer that Blackboard is looking for. Below, you'll find some instructions on how to properly format these answers. Reading this section is strongly recommended.

Homework Questions 1-3 and 6-10
Formatting matters with your answer to these questions. For this reason, **understand that your answer can be technically correct but graded as wrong because you didn't follow the directions provided below.** Given that formatting is considered part of your answer, a wrongly formatted answer is still a wrong answer.

In that regard, please note the following comments below.
   (a) ***On questions #1a, #2, #3 and #6***, *please express your answer in terms of dollars,* ***not*** *dollars and cents, or a whole number. E.g., an answer of 15.2 should be rounded to the nearest whole number, which would give you an answer of 15 or $15 and* <u>not</u> *$15.20 or 15.2.*
   (b) ***On question #1b, #1c and answers in the first 3 columns of #8,*** *please express your answer as a whole number (or round to the nearest whole number, e.g. 5 instead of 5.1).*
   (c) ***On question #7a, 7b and answers in the last 2 columns of #8***, *please express your answer as a decimal and round to the nearest tenth. E.g., an answer like 0.75 or 3/4 should be expressed as 0.8 (*<u>not</u> *0.75 or 3/4).*
   (d) ***On questions #9 and #10***, *please note that you are calculating a percentage - but that you're told how to perform each calculation.*

If you have any questions about the comments above, then please ask them before submitting your homework for grading. Once homework is submitted, however, it's too late to make any changes.

Homework #3 Questions

1. Assume that the equations below describe the expenditures within a particular macroeconomy and that these equations conform to the assumptions we've made in lecture regarding the fixed price level Aggregate Expenditure model. All values for expenditure and income are dollar amounts, but for simplicity, we've dropped the $ below.

Round your answers in question 1a to the nearest whole number (e.g. 10000 or 10,000 instead of 10,000.1), and answers in 1b and 1c to the nearest whole number (e.g. 5 instead of 5.1).

$C = 0.8(DI) + 4000$ (C = consumption expenditures, DI = disposable income)
$I = 4000$ (I = investment expenditure)
$G = 8000$ (G = government expenditure)
$X = 2600$ (X = spending on exports)
$M = 3600$ (M = spending on imports)
$DI = Y - T$ (Y = real GDP, T = tax revenues)
$T = 5000$

1a. Find equilibrium GDP
1b. What is the value of this economy's government expenditure multipler?
1c. What is the value of this economy's tax multiplier?

2. Refer to the equations above in Question #1 and answer the following question.

Assume that $Y^* =$ equilibrium GDP and $Yp =$ Potential GDP.
If $Yp - Y^* = 8000$, then government can close this output gap if they change government expenditure (G) by _____

(note: it's strongly recommended that you use the government expenditure multiplier to answer this question. Be sure to round your answer to the nearest whole number and you do not need to include a $ with your answer, but if there's a decrease in expenditure here, be sure to include a negative sign with your answer. E.g., a decrease of $5000 should be written as -5000.

3. Refer to the equations above in Question #1 and answer the following question.

Once again, assume that $Y^* =$ equilibrium GDP and $Yp =$ Potential GDP.
If we continue to assume that $Yp - Y^* = 8000$, then government can close this output gap if they change taxes (T) by _____

(note: it's strongly recommended that you use the tax multiplier to answer this question. Be sure to round your answer to the nearest whole number and you do not need to include a $ with your answer, but if there's a decrease in expenditure here, be sure to include a negative sign with your answer. E.g., a decrease in T of $3000 should be written as -3000.

4. Assume that the equations below describe the expenditures within a particular macroeconomy and that these equations conform to the assumptions we've made in lecture regarding the fixed price level Aggregate Expenditure model. All values for expenditure and income are dollar amounts, but for simplicity, we've dropped the $ below.

$C = 0.8(DI) + 1000$ (C = consumption expenditures, DI = disposable income)
$I = 2000$ (I = investment expenditure)
$G = 1000$ (G = government expenditure)
$X = 1600$ (X = spending on exports)
$M = 1800$ (M = spending on imports)
$DI = Y - T$ (Y = real GDP, T = tax revenues)
$T = 1000$
$Yp = 12000$ (Yp = Potential GDP)

Given the equations above, we can describe the GDP, government budget and net exports in this economy. Select **three characteristics** from the list below which accurately describe this economy. Note that there is no partial credit on this question. I.e., your answer will either be all correct, or all wrong.

(a) inflationary gap   (g) trade deficit
(b) recessionary gap   (h) trade surplus
(c) no output gap   (i) net exports of zero
(d) government budget surplus
(e) government budget deficit
(f) balanced government budget

5. This question reuses the equations and assumptions of the fixed price level Aggregate Expenditure model from the previous question. Again, note that all values for expenditure and income are dollar amounts, but for simplicity, we've dropped the $ below.

$C = 0.75(DI) + 1000$ (C = consumption expenditures, DI = disposable income)
$I = 5000$ (I = investment expenditure)
$G = 3000$ (G = government expenditure)
$X = 2000$ (X = spending on exports)
$M = 1800$ (M = spending on imports)
$DI = Y - T$ (Y = real GDP, T = tax revenues)
$T = 3000$

Which of the following increases equilibrium real GDP by $2000:
Note: it's strongly recommended that you use the expenditure multipliers from class (the government expenditure multiplier and tax multiplier) to answer this question.
a. increase in government expenditure (G) by $2000 and pay for it by raising taxes (T) by $2000
b. increase government expenditure (G) by $2000 and pay for it by borrowing money
c. increase taxes (T) by $2000
d. decrease taxes (T) by $2000
e. all of the above
f. none of the above

6. Assume that the equations below describe the expenditures within Country X and that these equations conform to the assumptions we've made in lecture regarding the fixed price level Aggregate Expenditure model. All values for expenditure and income are dollar amounts, but for simplicity, we've dropped the $ below.

$C = 0.8(DI) + 4000$ (C = consumption expenditures, DI = disposable income)
$I = 4000$ (I = investment expenditure)
$G = 8000$ (G = government expenditure)
$X = 2600$ (X = spending on exports)
$M = 3600$ (M = spending on imports)
$DI = Y - T$ (Y = real GDP, T = tax revenues)
$T = 5000$

a. If government expenditure (G) increase by 1000, then equilibrium GDP

changes by _____

Note: round your answer to the nearest whole number (e.g. 3000 instead of 3000.1). Also, if your answer is negative (e.g. negative 3000), then write it with a negative sign in front of the number (e.g. -3000).

b. If taxes (T) decrease by 1000, then equilibrium GDP changes by _____

Note: round your answer to the nearest whole number (e.g. 3000 instead of 3000.1). Also, if your answer is negative (e.g. negative 3000), then write it with a negative sign in front of the number (e.g. -3000).

7. Consider the following consumption function below, where C = Consumption Expenditure and DI = Disposable Income.

$C = 0.75(DI) + 1200$ $DI = Y - T$ (where Y = real GDP and T = Taxes)

a. If we assume that Y = 10,000 and T = 2000, then the value of the average propensity to consume (APC) is _____

(note: express your answer as a decimal, rounded to the nearest tenth)

b. If we assume that Y = 10,000 and T = 2000, then the value of the average propensity to save (APS) is _____

(note: express your answer as a decimal, rounded to the nearest tenth)

8. Consider the table below, where each row illustrates a macroeconomic relationship between consumption, savings and disposable income

Note that C = Consumption, S = Savings, DI = Disposable Income, APC = Average Propensity to Consume, and APS = Average Propensity to Save

Assume that within this macroeconomy, the marginal propensity to consume (MPC) is constant at a value of 0.8 (i.e. **MPC = 0.8**). This allows you to predict how changes in consumption and disposable income should relate between the rows.

Row	C	S	DI	APC	APS
A	200	200		0.5	
B		240	600		0.4
C	840				
D			1700		

Given the information in the table above and the understanding that MPC = 0.8, please answer the following questions below.

- What is the amount of Disposable Income in Row A?
- What is the amount of Consumption in Row B?
- What is the Average Propensity to Consume (APC) in Row B?
- What is the amount of Savings in Row C?
- What is the amount of Disposable Income in Row C?
- What is the amount of Consumption in Row D?
- What is the amount of Savings in Row D?

Note: round answers to the nearest whole number (e.g. as already displayed in the table)

9. This question utilizes data from the Bureau of Economic Analysis website (http://www.bea.gov) within a table for nominal Gross Domestic Product (with various expenditure categories) in the second quarter of 2018 (*NIPAtables-Q2.2018.pdf*). This file is posted in the folder Homework #3 material within "Course Documents" at Blackboard.

The table includes values for Personal Consumption Expenditures (Consumption) and that expenditure is divided into two categories, Goods and Services, with goods being further divided into two smaller categories, Durables and Nondurables. For each of these three categories of consumption (Durables, Nondurables and Services), you'll be calculating the percentage of each of these categories in overall consumption.

To calculate these percentages, do the following. Divide the expenditure category amount listed in line 4, 5 or 6 by the amount of overall consumption in line 2, and then multiply by 100 (and round to the nearest tenth). E.g., if durable goods expenditure (line 4) is equal to $500 and overall consumption expenditure (line 2) is equal to $10,000, then the percentage of durable expenditure in overall consumption is (500/10000) x 100, which is 5.0%.

Calculate a percentage for each consumption-expenditure category in overall Consumption from the second quarter of 2018 (below, left) and **match** your calculation to the correct percentage (below, right) for that category.

Percentage categories   **Actual Percentage**
(expenditure category/Consumption x 100) in Q2, 2018   A. 8.5%
                                                                                 B. 10.5%
a. Percentage of Durable Goods Expenditure in overall Consumption   C. 15.7%
                                                                                 D. 20.7%
b. Percentage of Nondurable Goods expenditure in overall Consumption   E. 31.2%
                                                                                 F. 51.9%
c. Percentage of Services expenditure in overall Consumption   G. 68.8%
                                                                                 H. 71.8%
                                                                                 I. 74.7%

10. Use the file *NIPAtables-Q2.2018.pdf*, posted within Homework #3 material under "Course Documents" at [Blackboard](#)) to answer this question.

The table includes values for the major expenditure categories of GDP. You will be looking at three of them, Personal Consumption Expenditures (Consumption, line 2), Gross Private Domestic Investment (Investment, line 7) and Government Consumption Expenditures and Gross Investment (Government Spending, line 22).

Calculate the percentage of each of these categories in overall GDP, by doing the following. Divide the expenditure category amount listed in line 2, 7 and then 22 by the amount of overall GDP in line 1, and then multiply by 100 (and round to the nearest tenth). E.g., if Consumption (line 2) is equal to $10,000 and overall GDP (line 1) is equal to $50,000, then the percentage of Consumption in overall GDP would be (10000/50000) x 100, which is 20.0%.

After calculating a percentage for these three expenditure categories in overall GDP, **match** your calculation to the percentage (below, right) for that category. If you do not get any of these exact percentages, then match to the percentage that comes closest to your answer.

Percentage categories	**Percentage**
(expenditure category/overall GDP x 100) in Q2, 2018)	A. 10.1%
	B. 11.4%
a. Percentage of Consumption in overall GDP	C. 13.8%
	D. 17.2%
b. Percentage of Investment in overall GDP	E. 17.6%
	F. 42.3%
c. Percentage of Government Spending in overall GDP	G. 50.1%
	H. 68.0%
	I. 75.2%

11. In the folder Homework #3 material within "Course Documents" at [Blackboard](#), you'll find an article entitled "When the US paid off the entire National Debt". Read this article and answer the question below.

When President Andrew Jackson led the US to pay off the National Debt, what happened after that:

a. the country headed into a massive depression that would last 6 years
b. government surplus money was used to purchase large amounts of government land
c. distributing government surplus money to states allowed state banks to discontinue their printing of money
d. all of the above
e. none of the above

12. The website www.usgovernmentspending.com reports the Federal Debt to GDP ratio from 1792 through the current year (with estimates for the next several years to come).

This historical series of Debt-GDP ratios is included in a file entitled *DebtGDPratios.pdf* and posted within the folder Homework #3 material in "Course Documents" at Blackboard. The Debt-GDP ratio is located in the far right column (not including the column that reports whether the ratio is actual "a" or estimated "e"). Match the value you find in the table to the closest value on the list of Debt-GDP ratios below. Note that you'll use the same list for each question.

Debt-GDP ratio

a. What is the smallest value for the Debt-GDP ratio
between 1792 and 2017?

b. What is the largest value for the Debt-GDP ratio
between 1792 and 2017?

A.	0.00%
B.	0.02%
C.	0.69%
D.	32.27%
E.	59.92%
F.	90.41%
G.	95.14%
H.	105.65%
I.	118.96%
J.	124.56%
K.	none of the above