Concordia University

Department of Economics

ECON 203 – INTRODUCTION TO MACROECONOMICS

Fall 2010 Midterm Exam VERSION A

Instructor: AncaAlecsandru

Part I - Multiple choice questions (1point per question)

1. Which one of the following would increase per unit production cost and therefore shift the aggregate supply curve up?
A) a reduction in business taxes.
B) production bottlenecks occurring when producers are near full plant capacity.
C) an increase in the price of imported resources.
D) deregulation of industry.

2. According to Okun's law, if growth in actual GDP exceeds growth in potential GDP
A) unemployment rates will increase
B) employment will fall
C) the natural unemployment rate will increase
D) the unemployment rate will fall

3. In a macroeconomic model without foreign trade or government spending, aggregate expenditure is the sum of:
A) personal saving and private investment.
B) personal saving and personal consumption.
C) personal consumption and personal income.
D) personal consumption and private investment.

4. As used in the income-expenditure diagram in macroeconomics, the 45 degree line:
A) shows all the points at which spending and real income are equal.
B) contains only a consumption component.
C) represents consumption plus planned investment.
D) shows those income levels where the marginal propensity to save is 1.

5. Which of the following best completes this statement: "Once we include a proportional income tax in the model of aggregate expenditure and equilibrium real GDP…"
A) individual incomes are higher than they would be without the taxes.
B) the marginal propensity to consume out of disposable income rises as a result of the tax.
C) the multiplier is lower than it would be without the taxes.
D) the government must also be spending on goods and services.

6. A balanced increase (an equal increase) in the government's expenditure and tax revenue will:
A) lead to higher equilibrium GDP.
B) have no effect on equilibrium real GDP.
C) reduce equilibrium real GDP.
D) have an unpredictable effect on equilibrium real GDP.

7. In an open economy with constant prices an increase in exports would:
A) reduce aggregate expenditure, shift the AD curve to the left and lower equilibrium GDP.
B) increase aggregate expenditure, shift the AD curve to the right and lower equilibrium GDP.
C) increase aggregate expenditure, shift the AD curve to the right and raise equilibrium GDP.
D) reduce aggregate expenditure, shift the AD curve to give equilibrium at potential GDP.

8. For a given fluctuation in autonomous expenditure, economies with steeper AE functions will:
A) experience smaller business cycle fluctuations in real GDP.
B) experience the same business cycle fluctuations in real GDP.
C) experience larger business cycle fluctuations in real GDP.
D) experience stable real GDP with no business cycle fluctuations.

Part II – Answer all questions

Question # 1 GDP and Inflation (total: 6 marks) (from Lyryx)

Suppose you are given the following data on incomes and expenditures for the economy of Westland, in current prices for factors of production and outputs for the year 2008.

Government expenditure	780
Imports	1,100
Employment income	2,800
Net indirect taxes	200
Exports	1,000
Business income	760
Capital consumption allowance	230
Investment expenditure	720
Investment income	110
Consumption expenditures	2,700

i. What is the value of nominal GDP measured by the expenditure approach? (2 marks)

Nominal GDP = C+I+G+X-Z=2,700+720+780+1,000-1,100=4,100

ii. Suppose that the CPI for 2005=105 and the CPI for 2008=98. Find the real GDP for 2008 to 1 decimal place (2 marks).

The real GDP = (Nominal GDP/GDP deflator)*100. The GDP deflator is approximated by the CPI so the real GDP is (Nominal GDP/CPI)*100=(4,100/98)*100=4,183.67

iii. Find the inflation rate between 2005 and 2008 to 1 decimal place. Is this inflation or deflation? Explain (2 marks).

The inflation rate is [(CPI for 2008 – CPI for 2005)/CPI for 2005]*100 = [(98-105)/105]*100 = -6.7%
Prices have decreased by 6.7% from 2005 to 2008; this means the economy is experiencing deflation.

Question # 2 Unemployment (total: 6 marks) (from Lyryx)

Consider the following data collected from a country.

Total population	788
Population under 15 years of age or institutionalized	278

Not in the labour force	315
Unemployed	28
Part-time workers looking for full-time jobs	18

i. Calculate the size of the labour force. (2 marks)

Labour force = Total population – Population under 15 or institutionalized (population not able to work) - Not in the labour force (adult population who choses not to work or look for work) = 788-278-315 = 195

ii. Calculate the unemployment rate. (2 marks)

Unemployment rate= #unemployed/labour force=28/195=14.36%

iii. Now suppose 8 of the unemployed workers are so discouraged that they have given up looking for work. They decide to go back to school full-time. Find the new unemployment rate. (2 marks)

In the case, both the number of unemployed and the labour force will decrease by 8, as full time students are not considered in the labour force.
The new unemployment rate = (28-8)/(195-8)=20/187= 10.7%

iv. True or false: "Low unemployment rates imply more people are working"– (justify your answer for 2 extra points)

Unemployment rates change if the number of unemployed population or the labour force changes, or both change. As the example above shows, the unemployment rate decreases but the number of employed remains the same: 167.

Question #3 The AE and AD/AS/LRAS Models (Total=9 marks)

i. **True or False:** The US trade deficits (NX<0) are not related to its tax cuts and low private savings rates (3 marks). **Explain whether this statement is true or false. Marks are based solely on explanation. No marks will be awarded by simply stating "true" or "false" without giving an explanation.** *See also the textbook, page 161 for comparative data on trade balance.*

False.

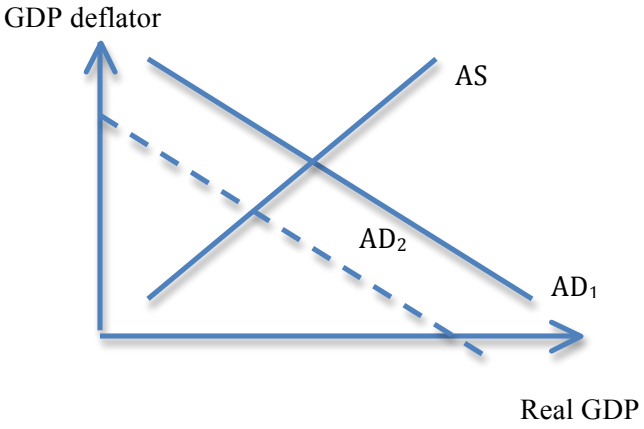
Using the equation for equilibrium output, Y=C+I+G+NX, and the budget constraint Y=T+C+S, we get that I+G+NX=T+S (equation 7.8, page 160) or NX=(S-I)+(T-G). So if S and T drop, NX drops. If private citizens do not save enough to supply funds for private firms to borrow and the government does not collect enough taxes to cover G, the country has to borrow from somewhere. NX<0 means this country borrows from other countries.

In class, we compared the trade balances of Canada and the US (p. 161, CIB).

ii. The U.S. trade deficit widened sharply in August, reflecting a surge in imports of consumer products as businesses restocked their shelves in hopes of a pickup in consumer demand.
(U.S trade deficit widens sharply- Martin Crutsinger, The Associated Press, Oct. 14, 2010)

Refer to the excerpt above to explain the changes in the economy (on domestic prices and output) as a result of increased imports. You could also illustrate the changes graphically. (3 marks)

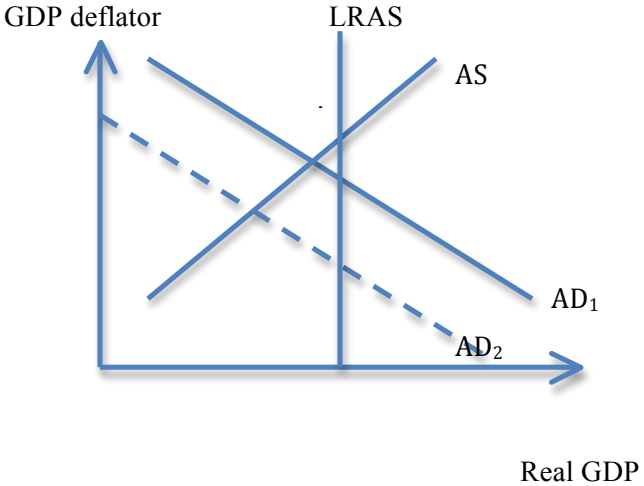
An increase in the amount of imports will decrease the net exports or increase the trade deficit, as stated in the article. This will have a negative effect on the economy because the demand for domestically produced goods by domestic consumers decreases (everything else constant), and will shift the aggregate demand curve to the left and downward. A new equilibrium is at a lower level of output and lower domestic prices.



iii. Production of construction and consumer goods dropped last month as high unemployment made Americans reluctant to spend. Lower production of automotive products, appliances, and energy offset a small gain in business equipment production. Production of machinery and electrical equipment also fell.
American factories were operating at 74.7 per cent of their capacity in September, down 0.1 per cent from August. That was the first drop since June 2009, when the deepest recession since the Great Depression ended
(U.S. factories pull back -DANIEL WAGNER, The Associated Press, Published Monday, Oct. 18, 2010)

Refer to the excerpt above to explain the changes in the economy (on domestic prices and output). You could also illustrate the changes graphically by using the AD/AS/LRAS model. (3 marks)

Lower demand for consumer goods (as more consumers are unemployed) made the AD curve shift to the left and downward. The new equilibrium is at a lower actual spending on actual output. Production levels have dropped below potential by 25.3%.



Question #4 Policies (Total=10 marks) (shorter than Tutorial #4 problem no.1, last question is from Lyryx)

The following equations describe the economy of Country A:

$C = 300 + 0.8Y^d$

$I = 400$

The government collects taxes T=500 (which are lump-sum, constant taxes, no induced-taxes, or t=0) and spends G=500. Only consumers pay taxes, and for now, exports=imports=0.

Y^d stands for disposable or after-tax income.

i. Find the equilibrium output in this economy. Show your calculations. (2 marks)

Yd is Y-T and C will become 300+.8 (Y-T).
AE=C+I+G+NX=300+.8 (Y-500)+400+500+0=800+.8Y
At equilibrium, planned expenditure becomes actual expenditure on domestically produced goods and services, so AE=Y and the equation above becomes Y=800+.8Y. From here, Y (1-.8)=800 therefore, Y =800/.2=4,000.

ii. What is the value of the autonomous expenditure multiplier? (1mark)

1/(1-c) =1/.2=5

iii. Provide a brief intuitive description (no rounds necessary) for why the multiplier in (ii) is larger than 1. (3 marks)

A change in autonomous expenditure induces a change in output and income that induces a further change in expenditure. Total expenditure and total output change by more then the original change in autonomous expenditure. *(see page 135 in your textbook)*

iv. Let the constant in the consumption function reflect consumer confidence. Suppose consumer confidence drops from 300 to 200 due to a war with Country B. Find the new equilibrium Y. (2 marks)

The new consumption function, C is now equal to 200+.8(Y-500) and the equilibrium equation for Y is: AE=C+I+G+NX=200+.8 (Y-500)+400+500+0=700+.8Y, therefore Y=700/.2=3,500.

Another way to solve this question was to calculate the change in output given the change in autonomous expenditure of -100. Income will drop by 100*5 (the multiplier) =500, so the new equilibrium income is 4,000-500=3,500.

v. If Country A is 3% below its targeted income. What changes in government expenditures are required to achieve this target? (2 marks)

The income level Y=3,500 is 3% below the potential level (or targeted level) of output. It means that, the potential output is 3,500/(1-0.03)=3,608.25
In order to have a 3,608.25-3,500=108.25 increase in output, the government has decided on an expansionary fiscal policy action. When we take into account the multiplier effect, government expenditures need to increase by 108.25/5=21.65

Question #5Budget balance (2 marks)

Last week, Finance Minister Jim Flaherty announced the largest deficit in Canadian history at $55.6 billion, up from the $53.8 billion forecasted in his March budget.

The Finance Department attributed last year's record deficit as partially due to a one-time payment of $5.6 billion to Ontario and British Columbia to implement a harmonized sales tax this year.

(CTVnews.ca)

Explain how the $5.6 billion payment affected the budget balance, using the budget balance function.

The government budget balance (BB) is given by the difference between net taxes (NT= amount of taxes collected minus transfer payments) and government spending (G). This balance is negative, showing a higher budget deficit than expected ($55.6 billion comparing with $53.8 billion).
This increase in the amount of the deficit is due to the additional expenditure ($5.6 billion) on implementing a new tax system (offices, computers, software, government employees, forms and advertising booklets, etc.). It is spending made by the government for an extension of the Canada Revenue Agency. This expense increases G and decreases BB.
The question was not referring to the tax itself, but to the process of implementation and it's costs.