Exam February 2016, Questions And Answers

Canadian Economic Policy and Institutions (Concordia University)

Concordia University
Department of Economics

ECON 318/2, Section BB – Instructor: George Tsoublekas

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ANSWERS

Name: **I.D.**

(Questions 1 – 3 refer to the following text)

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Media Relations, 613 782-8782

Bank of Canada maintains overnight rate target at 1/2 per cent

Ottawa – The Bank of Canada today announced that it is maintaining its target for the overnight rate at 1/2 per cent.

Inflation has evolved in line with the outlook in the Bank's July *Monetary Policy Report* (MPR). Total CPI inflation remains near the bottom of the target range, reflecting year-over-year price declines for consumer energy products. Core inflation has been close to 2 per cent, with disinflationary pressures from economic slack being offset by transitory effects of the past depreciation of the Canadian dollar and some sector-specific factors….

Increasing uncertainty about growth prospects for China and other emerging-market economies, in contrast, is raising questions about the pace of the global recovery. This has contributed to heightened financial market volatility and lower commodity prices…

Taking all developments into consideration, the Bank judges that the risks to the outlook for inflation remain within the zone for which the current stance of monetary policy is appropriate. Therefore, the target for the overnight rate remains at 1/2 per cent.

1. Explain what is meant in the text with the reference of *"…Total CPI inflation remains near the bottom of the target range …"*. What is the inflation range? Why is inflation mentioned in the context of interest rate setting? (6 pts)

   - *Total inflation refers to the Total Consumer Price Index.*
   - *The Inflation target is set as a range of between 1% and 3%*
   - *Monetary policy will be aiming at keeping a 2% mid-point inflation within a 6-8 quarter period*
   - *Interest rate is the tool that the BoC uses to regulate the economy:*
     - *When the economy is booming it creates an inflationary output gap. A high interest rate is set to put the brakes in the economy (contractionary monetary policy)*
     - *When the economy is slacking it creates an recessionary output gap. A low interest rate is set to help the economy (expansionary monetary policy)*

2. Explain briefly the BOC's periodic review and adjustment of short-term interest rates and describe the tools that the BOC uses to maintain its target on a daily basis. What is now the band width of the OLR? (6 points)

- *Since November 2000, the BOC follows a system of 8 fixed or pre-specified dates each year for announcing any changes to the official OLR that it uses to implement monetary policy along with a brief explanation of the conditions on which the Bank's rate–setting is based*
- *The "overnight lending rate (OLR)" is what chartered banks and the other money market participants use to charge for borrowings of one-day funds from each other and is market-determined, depending on the demand and supply of excess reserves of commercial banks*

- *The BOC establishes a target range, the "operating band", within which the actual OLR should fall. The band is one-half of 1% wide (50 basis points) around its mid-point (target OLR)*

- *The band width now is between .25% and 0.75%*

- *The BOC's commitment and the use of SRAs and SPRAs ensure that the OLR stays within the band*

- *SPRAs: Special Purchase and Resale agreements for injecting cash in the system on a short-term basis*
  - ***BoC offers to buy Gov't Securities from a few major financial institutions with an agreement to sell them back the next business day at a predetermined price***
  - ***The difference between purchase and resale prices determines the OLR***

- *SRAs: Sale and Repurchase agreements for removing cash in the system overnight*
  - ***BoC offers Government Securities to a few major financial institutions with an agreement to buy them back the next business day at a predetermined price***
  - ***The difference between sale and repurchase prices determines the OLR***

3. What is the difference between the total CPI and the core inflation? How are they used? Can we say that high inflation is bad, while low or no inflation is good? (5 points)

The Bank of Canada has the responsibility for the monitoring of and acting upon inflation. In its latest inflation target setting in November 2006, BOC and the Government of Canada renewed their objective for a 5-year period (until December 31, 2011) as follows:

- *The operational guide of the BOC will be the Core Inflation, a variant of the total CPI that provides a better measure of the underlying trend and is a better predictor of future changes in total CPI.*

- *Core Inflation excludes the following items that exhibit high volatility:*
  Fruits, Vegetables, Gasoline, Fuel Oil, Natural Gas, Tobacco Products, Inter-city travel, Mortgage rates, Indirect Taxes

- *The Bank is equally concerned about too much or too little demand pushing inflation appreciably above* ***or below*** *the 2% target*

- *Low inflation is indicative to low demand which may degenerate into a deflation and a spiral fall in prices and values*

4. Discuss briefly the reasons for why the Euro-zone is not considered an optimum currency area. (10 points)

- *The key issue is the **degree of geographical mobility**, **government intervention**, and the **degree of economic convergence**.*
- *The four often cited criteria for a successful currency union are:*
  a. *Labor mobility across the region. This includes physical ability to travel (visas, workers' rights, etc.), lack of cultural barriers to free movement (such as different languages) and institutional arrangements (such as the ability to have retirement plans transferred throughout the region).*
  b. *Openness with capital mobility and price and wage flexibility across the region. This is so that the market forces of supply and demand automatically distribute money and goods to where they are needed.*
  c. *A risk-sharing system such as an automatic fiscal transfer mechanism to redistribute money to areas/sectors which have been adversely affected by the first two characteristics. This usually takes the form of taxation redistribution to less developed areas of a country/region.*
  d. *Participant countries have similar business cycles.*

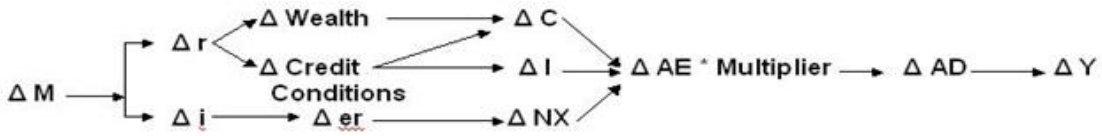
- *Additional criteria suggested are:*
  e. *Production diversification*
  f. *Homogeneous preferences*
  g. *Commonality of destiny*

- *Europe scores well on some of the measures characterizing an OCA. However,*
  - *it has lower labour mobility than the United States*
  - *it cannot rely on fiscal federalism to smooth out regional economic disturbances*
- *By the criteria listed above, European Union does not constitute an Optimal Currency Area and therefore the euro should be a suboptimum union of currencies*

5. Describe how an increase in money supply would affect the economy via the Monetary Transmission Mechanism. (8 points)

- *An increase in the money supply results in (or is equivalent to) a fall in nominal interest rate as well as a fall in real interest rate (assuming prices or inflation constant).*
- *A lower real interest rate*
  a) *Increases Wealth (through an increase in the values of financial assets), and*
  b) *Reduces the cost of financing, and increases the availability of credit*
  c) *Both these factors help in increasing consumption and planned investment expenditure in capital equipment and inventories*
- *A lower nominal interest rate reduces the inflow of foreign funds which results in a drop in the value of the currency thus increasing the competitiveness (profitability) of exports*
- *The combined positive impact on Consumption, Investment, and Net Exports shifts the Aggregate Demand to the right, thus increasing total output (income)*

The Monetary Transmission Mechanism Schema



(Question 6 refers to the following text)

Income splitting among new tax breaks aimed at families
http://www.ctvnews.ca/politics/income-splitting-among-new-tax-breaks-aimed-at-families-1.2079559#

Andrea Janus, CTVNews.ca
Published Thursday, October 30, 2014 3:42PM EDT

The federal government has introduced a new income-splitting benefit for couples with children under the age of 18 as part of a series of proposed new tax measures designed to appeal to young families.

The proposal consists of three new measures the government says will provide about $4.6 billion in tax relief for some four million Canadian families.

6. Assuming that the Marginal Propensity to Consume is MPC=0.88, the Marginal Tax Rate is t=0.25, and the Marginal Propensity to Import is z=0.46, estimate the impact on GDP that the gov't tax cuts (referred in the article above) will have on the economy. What should the implications be for the gov't budget? (5 points)

The impact that this measure will have on GDP is proportional to the fiscal multiplier with respect to tax changes.

The tax multiplier is $\frac{-c}{1-[c(1-t)-z]} = \frac{-0.88}{1-[0.88(1-0.25)-0.46]} = \frac{-0.88}{1-0.2} = -1.1$

Therefore the cut in taxes will increase GDP by – 1.1(– $4.6) = $5.06 billion*

The government budget will be affected negatively by an amount of $4.6 billion

7. Discuss briefly four of the major changes that Mr. P. Martin introduced in his historic budget in 1995 that helped in eliminating the federal deficits. (10 points)

Budget mechanics

1. *The government alerted Canadians to the need for expenditure reductions. In addition, the Dept of Finance was given more power in overseeing the expenditure plans of other departments.*
2. *The forecasting process of key macroeconomic variables was streamlined to concentrate on the current year and the two following ones (as opposed to a five-year period used before).*
3. *The private sector was involved in forming forecast values for key economic variables and then 'prudent' values were adopted, which generated a larger deficit or smaller surplus.*
4. *Put aside $3b per annum (as an expense) in the form of a contingency fund, and this $3b would automatically go towards debt reduction if unused.*

Fiscal policy changes

5. *The federal government reduced the Canada Health and Social Transfer, thus unloading a sizeable amount of its deficit to the provinces.*
6. *Program cuts: Program spending went from 17.5% of GDP in 1992/93 to 11.7% in 1999-2000.*
7. *Selected privatization contracts and deregulation activities*
8. *Transfer of selected powers to provinces (tourism, forestry, mining, training, etc) without a corresponding transfer of finances*
9. *Maintained high EI contributions creating surpluses that were used by the government.*
10. *Tax brackets were not adjusted, thus increasing income tax revenue due to lack of indexation.*

8. Briefly discuss the Council of Federation: its history and its relevance today. (10 points)

- *The anomaly of having several provinces running deficits while Ottawa was running successive surpluses provided the political and economic backdrop for the provinces, **led by Quebec**, to create the all-provinces and territories' **Council of the Federation (COF) in 2003**.*

- *According to the PREAMBLE of the founding agreement in December 2003:*
  - *Premiers agreed to create a COF, **as part of their plan to play a leadership role in revitalizing the Canadian federation and building a more constructive and cooperative federal system**.*
  - *Under the Constitution, **Canada's two orders of government are of equal status, neither subordinate to the other, sovereign within their own areas of jurisdiction and accordingly, they should have adequate resources to meet their responsibilities**.*

- *The initial priority of the COF was to work toward redressing the **vertical fiscal imbalance (VFI) in the federation**, where the federal government has access to revenues well in excess of its jurisdictional responsibilities (opposite to the provinces) that were spent by the federal government in areas of provincial jurisdiction, as if Ottawa was another province.*

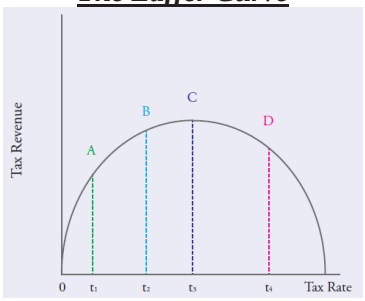
- ***The COF succeded in redressing aspects of VFI**, at least in relation to mushrooming healthcare costs (about 50% of the provinces' total program spending). The restoration of healthcare and equalization funds agreed to in the fall of 2004 closely followed COF's recommendations.*

- *Today, the COF does not represent a strong institution for the improvement of the Federation. The provincial efforts continue to be toward getting as many concessions from the fed. gov't, rather than genuinely trying to create an integrally harmonized market by giving up a little in their areas of responsibility.*

9. Discuss briefly the concept of the Laffer Curve and the Marginal Cost of Funds. Based on C.D. Howe's analysis, which tax in general has the highest and which has the lowest MCF of provincial taxes? Please elaborate. (8 pts)

- *The concept of the marginal cost of public funds is related to the slope, or curvature, of a government's Laffer curve – a **curve that shows the amount of tax revenues that can be collected at different tax rates.***

The Laffer Curve



- *Generally speaking, more tax revenue can be obtained from a tax base only by giving up some of the private sector activity that generates that tax base*
  - ***The efficiency loss from the reallocation of resources caused by tax increases is reflected in the shrinkage of the tax base**.*

- *When the tax rate increases, it shrinks the tax base by encouraging tax avoidance or tax evasion – the **percentage increase in tax revenue then is less than the percentage increase in the tax rate**.*

- *Provincial corporate income **tax bases are very sensitive to tax (have high MCF) because they are highly mobile, both inter-provincially and internationally***

- ***The lowest MCF is that for provincial sales taxes** ranging from 1.00 in Alberta to 1.21 in PEI.*

10. Consider the following information for Canada at the beginning of the year: (10 points)
    - Outstanding Debt: $560 billion
    - Nominal GDP: $1,600 billion
    - Average Interest Rate on Debt: 5%

    Answer the following:

a. What was the Debt to GDP ratio at the beginning of the year? (2 points)

$$\left(\frac{Debt}{GDP}\right)_0 = \frac{560}{1600} = 0.35 \quad or \quad 35\%$$

b. The Budget delivered for the current year estimates the government Operating Balance to be $25 billion deficit, based on a 3% nominal growth of the economy. Using all information, estimate the Debt to GDP ratio for the current year that is implied by the budget. (4 points)

$$\left(\frac{Debt}{GDP}\right)_1 = \frac{Debt_0 * (1+i) - OB_1}{GDP_0 * (1+g)} = \frac{560 * (1.05) - (-25)}{1600 * (1.03)} = \frac{588 + 25}{1648} = 0.372 \quad or \quad 37.2\%$$

c. Could you justify the change in the ratio? (4 points)

The Debt-to-GDP ratio rose because both the policy and the structural factors were detrimental to it:
Policy Factor: Operating Budget Balance is in deficit
Structural Factor: The economy's growth rate is lower than the interest rate.

11. Consider the following numerical version of mixed open economy: (20 points)

The Money Market

The Central Bank follows a fixed interest rate policy. Therefore it manipulates the money supply accordingly to maintain a rate at r = 0.07 (or 7%)

The Goods & Services Market

C = 100 + 0.8 Yd – 150 r	C = Private Consumption
I = 130 – 500 r	I = Gross Private Investment
G = 150	G = Autonomous Government Spending
T = – 50 + 0.2 Y	T = Taxes
X = 130 – 450 r	X = Exports
Z = 14 + 0.04 Y + 300 r	Z = Imports
S = Y – T – C	r = Interest Rate
Yd = Y – T	S = Private Saving
	Yd = Disposable Income

Determination of Equilibrium in the Economy

a. Knowing that r = 0.07, set the goods market at equilibrium and estimate the equilibrium output. (4 points)

AE = Y = C + I + G + X – Z
Y = {100 + 0.8[Y – (– 50 + 0.2 Y)] – 150 r} + {130 – 500 r} + 150 + {130 – 450 r} – {14 + 0.04 Y + 300 r}
Y = 100 + 0.8 Y + 40 – 0.16 Y – 150 r + 130 – 500 r + 150 + 130 – 450 r – 14 – 0.04 Y – 300 r
(1 – 0.8 + 0.16 + 0.04) Y = 100 + 40 + 130 + 150 + 130 – 14 – (150 + 500 + 450 + 300) r
0.4 Y = 536 – 1400 r
*Y = 1340 – 3500 *0.07 = 1340 – 245 = 1095*

b. Solve for the equilibrium levels of all components of Aggregate Expenditure, Taxes, and Private Saving. (4 points)

*T = – 50 + 0.2 * 1095 = – 50 + 219 = 169*
*I = 130 – 500 * 0.07 = 130 – 35 = 95*
*X = 130 – 450 * 0. 07 = 130 – 31.5 = 98.5*
*Z = 14 + 0.04 * 1095 + 300 * 0.07 = 14 + 43.8 + 21 = 78.8*
*C = 100 + 0.8 (1095 – 169) – 150 r = 100 + 0.8 * 926 – 150*0.7 = 100 + 740.8 – 10.5 = 830.3*
S = 1095 – 169 – 830.3 = 95.7

AE = Y = C + I + G + X – Z = 830.3 + 95 + 150 + 98.5 – 78.8 = 1095

Expansionary Monetary Policy

c. Assume that the Central Bank thinks that the economy records a recessionary gap and pursues an expansionary monetary policy. Thus, it increases the money supply which brought the interest rate down to r = 0.04 (or 4%). Compute the impact of this policy on output. (2 points)

*Y = 1340 – 3500 * 0.04 = 1200*

d. Solve for the new equilibrium levels of all components of Aggregate Expenditure, Taxes, and Private Saving. (4 points)

*T = – 50 + 0.2 * 1200 = – 50 + 240 = 190*
*I = 130 – 500 * 0.04 = 130 – 20 = 110*
*X = 130 – 450 * 0. 04 = 130 – 18 = 112*
*Z = 14 + 0.04 * 1200 + 300 * 0.04 = 14 + 48 + 12 = 74*
*C = 100 + 0.8 (1200 – 190) – 150 r = 100 + 0.8 * 1010 – 150*0.04 = 100 + 808 – 6 = 902*
S = 1200 – 190 – 902 = 108

AE = Y = C + I + G + X – Z = 902 + 110 + 150 + 112 – 74 = 1200

Interpretation of the Results

e. Complete the following table with the values that you have estimated above, and interpret your results. Has the expansionary monetary policy been beneficial to the economy? Please specify. (6 points)

Economic Aggregate	Original Position (a) & (b)	Expansionary Monetary Policy (c) & (d)
Interest rate	7.0%	4.0%
Total Output	1095.0	1200.0
Consumption	830.3	902.0
Investment	95.0	110.0
Private Saving	95.7	108.0
Taxes	169.0	190.0
Government Spending	150.0	150.0
Government Budget	19.0	40.0
Exports	98.5	112.0
Imports	78.8	74.0
Trade Balance	19.7	38.0

Expansionary monetary policy had a beneficial impact on the economy.

An increase in the money supply resulted in a fall in interest rate. The drop in interest rate prompted an increase in investment and consumption.

The lower interest rate created a drop in the demand for financial assets denominated in local currency, which resulted in a devaluation of the local currency. As a result, exports increased while imports decreased, thus improving the trade balance.

Increases in consumption, investment and exports pushed the aggregate demand to the right and output (income) increased, which was the objective of the expansionary monetary policy.

Because of the improvement in the economy, the government collected more taxes and, since the government spending remained the same, the government budget improved as well.