



**ECO 1102 D
INTRODUCTION TO MACROECONOMICS
FIRST MID-TERM EXAMINATION**

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Student Name:

Student #

KEY

You may not consult with any written documents whatsoever, and no conversation is permitted while the examination is in progress. Please remove all hats. The use of any electronic device with the exception of non-programmable calculators and dictionaries is strictly forbidden. Turn off all cellular telephones. As promised, this test is drawn very heavily from my lecture slides. Most of the material that you will see has been discussed at length in class. There are no tricks involved anywhere. You should move at a fairly fast pace. Do not get bogged down on any particular question. There are a total of 60 points, and the exam lasts for 75 minutes.

1. (4 points) Respond to all of the following four questions. Your answers do not have to be exactly right in order to receive credit. I will accept a range.

a) What is the approximate current rate of unemployment in Canada?

6.9 % (I accepted 6.4 to 7.4 %) – it has actually fallen to 6.8 % since the beginning of the course.

b) What was the approximate rate of real GDP growth in Canada (in percentage terms) on an annual basis during the year of 2016 based on data through November?

1.3 % or 1.6 % depending on whether it is November of 2016 over November of 2015 or the total for 2016 over the total for 2015 (minus December). (I accepted 1 – 2 %)

What is the approximate current level of nominal, current dollar GDP in Canada? In other words, what is the approximate size of this economy?

2.1 trillion \$ per year, or 2.1×10^{12} (I accepted 1.8 to 2.4 trillion)

c) What is the approximate rate of price inflation at an annual rate based on the CPI?

1.5 % (I accepted 1-2 %)

2. (12 points) Identify and give the significance of the following four points. You must furnish explanations as to how the topic fits into what we have studied. In other words, why did I bother to bring it up at all? Usually two of three sentences will suffice.

a) Briefly characterize the macroeconomic performance of the USA and Canada from 2009 until the current times.

The Great Recession occurred in 2008 and officially ended in 2009. Since then, we have experienced slow but positive growth in real GDP coupled with low inflation.

b) core inflation

See page 115 in the textbook. Those goods and services whose prices are the most volatile are excluded from the basket of goods and services that is used to form the consumer price index. The goal is to derive a measure of the medium to long-term underlying, generalized trend in prices (that will not be skewed by temporary rises or falls in the price of gasoline, for example).

c) level of real per-capita GDP versus the % change in real GDP realized over a time period

They are both widely employed as macroeconomic indicators, but their interpretations are not the same. The level of GDP per capita is a measure of living standards, as it represents aggregate output per person. The % change in real GDP represents the rate of economic growth, or the rate of growth in aggregate output (equals aggregate income) adjusted for inflation.

I went over this in class many times.

d) The three primary markets that comprise the macro-economy are the following:

- **The output market**

The price-type variable is P, the composite price level. The quantity-type variable is GDP (gross domestic product = national income)

- **The money market**

There are two price-type variables, both of which were accepted: the foreign exchange rate and the interest rate. There are two quantity-type variables, both of which were accepted: the money supply or the quantity of loanable funds.

- **The input or factor market**

o **Employment or labour market**

The price-type variable is the average wage. The quantity-type variable is aggregate employment. I also accepted either the unemployment rate, the labour-force participation rate, and the employment-to-population ratio.

For each of them, write down a price-type variable and a primary quantity-type variable. In the case of input markets, refer to the labour market.

3. (8 points) Productivity is such an important point for this class that it is the focus of 'essential principle' number 8 of the textbook.

a) Define the term, and explain why it is so important.

See pages 132-134 of the textbook. It is output divided by input. The question is how much output can be squeezed from a given level of inputs? Alternatively, how can the same level of output be squeezed out of a lower level of inputs? It is a gauge of efficiency of the production process. Rising productivity means rising living standards on average

b) What are some of the factors that determine productivity? I went over four, but I am asking you to give THREE of them. Warning! Some of you are likely to answer the wrong question. In class I also went over a list of points that relate to public policy. The question that I am asking does not deal with the actions that the government can take to raise productivity, such as enforcing property rights or encouraging foreign direct investment. Instead, talk about the underlying causes of productivity growth that occur without governmental intervention. You should furnish some explanation as to what they are and why they are important for productivity. 6 or 7 sentences should suffice. You should not fill in all of the space below.

See pages 132-134 in the textbook.

- **Physical capital stock per worker, in the form of equipment and structures. The more the better.**
- **Human capital per worker, in the form of skills, knowledge, training, experience, and ability embodied in the labour force. The more the better.**
- **Natural resources per worker, in the form of inputs derived from the land. The more the better.**
- **Technological knowledge, in the form of the best techniques and the most efficient methods of production. The more refined, the better.**

4. (12 points) Provide brief responses to the next three questions. Two sentences will suffice.

- a) What is the purpose of price deflators in macroeconomics? I went over a number of applications.

See pages 100-101 in the textbook. It is to disentangle the components of the nominal growth rate of a quantity or variable (such as GDP, wages) into an element that is attributed to price inflation and one that is attributable to real growth (meaning changes in the volume of economic activity).

- b) What is the purpose of the circular flow model of the macroeconomy?

It consists of a blueprint or the basic anatomy of the basic structure of the macroeconomy – how the various components are related to each other. It displays the linkages between the major markets that comprise the macroeconomy.

- c) Why must it necessarily be the case that national income, as generated by the factor payments approach, equal GDP, as generated by the expenditure approach?

See pages 97-98. Because every transaction has a dual identity as an expenditure and as an income. \$ 1 spent by one economic agent represents \$ 1 of income earned by other agents, and vice versa. It must therefore be the case that after we sum up all of the expenditures and all of the incomes to arrive at the bottom line, aggregate income = aggregate expenditure.

- d) What is the primary function of the loanable funds market, as presented in chapter 8. Do NOT present it. Instead, explain what its purpose is.

It is comprised of financial intermediaries who bring borrowers and savers together so that investment spending is financed. It brings about equality between savings and investment spending.

5. (9 points) Consider the following data on Canadian GDP. This is taken right out of the textbook. You must show your work in order to receive any credit. The base year for the deflator is 2007.

year	Nominal GDP (in billions)	GDP deflator
2013	1893	111
2014	1975	113

- a) What was the growth rate of nominal GDP between 2013 and 2014?

$$[(1975 / 1893) - 1] * 100 = 4.3 \%$$

b) What was the growth rate of the GDP deflator between 2013 and 2014?

$$[(113 / 111) - 1] * 100 = 1.8 \%$$

c) What was real GDP in 2013 measured in 2007 prices?

$$\text{Real GDP}_{2013} = \text{nom GDP}_{2013} / \text{deflator}_{2013} * 100 = 1893 / 111 * 100 = 1705$$

d) What was the growth rate of real GDP between 2013 and 2014?

$$\text{Real GDP}_{2014} = \text{nom GDP}_{2014} / \text{deflator}_{2014} * 100 = 1975 / 113 * 100 = 1748$$

$$[(1748 / 1705) - 1] * 100 = 2.5 \%$$

e) Was the growth rate of nominal GDP higher or lower than the growth rate of real GDP? Explain why.

In this case, it was higher because of the inflation that occurred.

$$4.3 \% - 1.8 \% = 2.5 \%$$

6. (6 points) These questions concern the articles that I posted on the courseweb. They will be graded very generously such that if you can persuade the grader that you read the article, you should receive credit.

a) There are a total of five articles dealing with the themes of productivity, innovation, and investment that were posted on the courseweb. There is much overlap between them as far as content is concerned, and I certainly do not expect you to be able to distinguish between them. Write about four sentences regarding the essential substance of these articles.

I expect that relatively few of you did this reading. Here are some of the themes that I picked up in my reading of these articles. Insufficient investment in capital, insufficient innovation, slow adaptation of new technology, a need to better foster a culture of innovation (which means developing new and better ways of creating value). All of these are mentioned as reasons for Canada's slow growth in productivity over the past 15 years or so, which has lowered living standards below what would otherwise be the case.

b) There is an article authored by Chris Ragan of McGill University whose title is "Fixing the CPI". What is its essence?

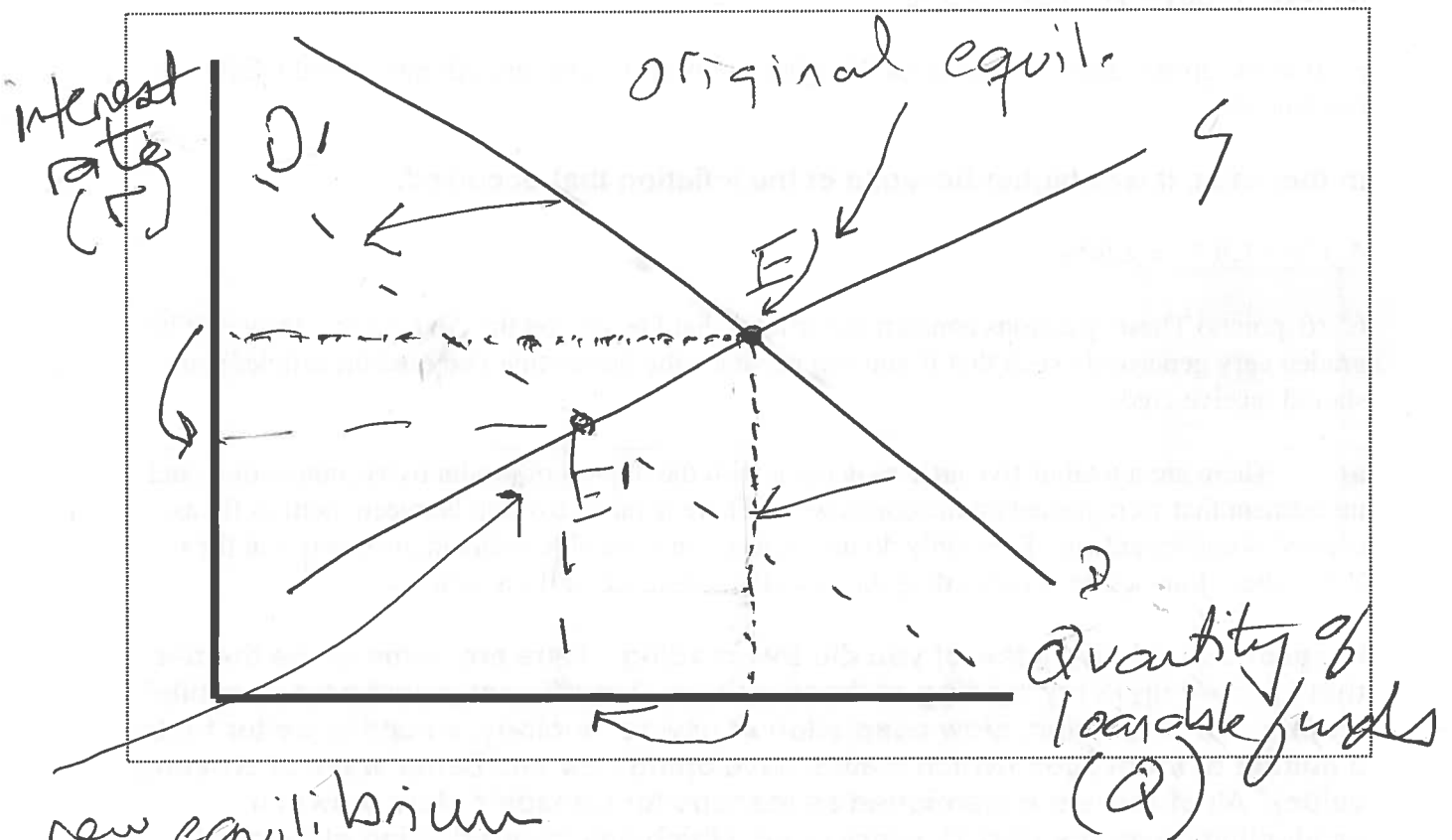
The official CPI as it is measured by Statistics Canada is biased upward such that the true rate of inflation is over-stated. It does not take proper account of substitution bias. I mentioned in class why this is so important. This ends up costing the government more money than what would otherwise be the case for social insurance benefits because the amounts that are paid are indexed for

inflation according to the CPI.

7. (9 points)

a) On the axes that are provided below, depict the loanable funds market in equilibrium. Label all axes and curves.

b) On the same figure, show what happens in this market if investment becomes less attractive such that investors do not want to spend as much as they did before on capital goods. In the United Kingdom, some analysts claim that the BREXIT vote is having exactly this effect. Indicate which curves, if any, shift, and explain how the loanable funds market adjusts. If there is a shift, explain why it shifts in that direction.



At each possible rate of interest the quantity demanded of loanable funds decreases. We obtain a new functional relationship between the variables of the interest rate and the Q_d of loanable funds.
equil. $r \downarrow$ equil. $Q \downarrow$