

**ECO 1102 C
INTRODUCTION TO MACROECONOMICS
MID-TERM EXAMINATION**

Professor: David Gray
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Student Name:

Student # _____

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 80 points that are supposed to be allocated at a rate of one per minute. Budget your time accordingly.

1. (6 points) Respond to any three 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?

6.6 % - I will accept 6-7 %.

b) What was the approximate rate of real GDP growth in Canada (in percentage terms) on an annual basis during the year of 2014?

About 2 % - I will accept 1.5-2.5 %.

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

About 2 trillion \$ (\$ 2,000,000,000,00) or \$ 2 * 10¹²

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

1.5 % - I will accept 1-2 %.

2. (16 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 during the 1950s and the 1960s.

These were considered to be very good economic times characterized by widely-shared prosperity and rising living standards (even the poor were becoming better off), low inflation, low unemployment, and fairly fast growth in real GDP.

b) core inflation

See page 127 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) What are the three primary markets that comprise the macro-economy?

- **The output market**
- **The money market**
- **The input or factor market**
 - **Employment or labour market**

3. (10 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 page 145 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.

See pages 145-147 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 and knowledge 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 four questions. Two sentences will suffice.

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

See pages 108-110 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 of the basic structure of the macroeconomy – how the various components are related to each other. It displays the linkages between the markets.

- 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 100-101. 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) The production process involves the generation of economic ‘necessary evils’ such as expenditures on national defense, environmental clean-up, and criminal justice. What repercussions does this have for the use of the official GDP accounts (produced by Statistics Canada) as an indicator of economic welfare? Does it cause an overstatement or an understatement, and why?

The value of the production that caused the economic bad is counted in the official accounts for GDP, but the cost or negative values of the bads – those unavoidable by-products of production– is totally ignored. If we were to account for those costs, it would involve subtracting some estimate of these costs from the value for GDP, which means that official GDP would be lower. Therefore, this factor causes an overstatement of our welfare based on the GDP accounts.

5. (10 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 2002.

year	Nominal GDP (in billions)	GDP deflator
2009	1600	118
2008	1520	121

- a) What was the growth rate of nominal GDP between 2008 and 2009?

$$((1600 / 1520) - 1) * 100 = 5.3 \%$$

- b) What was the growth rate of the GDP deflator between 2008 and 2009?

$$((118 / 121) - 1) * 100 = - 2.5 \% \text{ (It is a contraction.)}$$

- c) What was real GDP in 2009 measured in 2002 prices?

$$\$ 1600 / 118 * 100 = \$ 1,356$$

- d) What was the growth rate of real GDP between 2008 and 2009?

$$\text{Real GDP in 2008: } \$ 1,520 / 121 * 100 = \$1,256$$

$$\% \text{ change in real GDP} = ((1356 / 1256) - 1) * 100 = 7.9 \% \text{ (8 \%)}$$

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

In this case, which is not common, it was lower because it was price deflation rather than inflation that occurred.

6. (10 points)

The following transactions took place in the economy of Lowland last year. These figures are contained in what I have called the national accounts.

Wages paid to labour	5,000
Interest income	200
Consumption expenditure	3,900
saving	1,100
personal income taxes	200
firms' profits	465
indirect taxes	145
government expenditure	1,000
exports	350
imports	390
gross investment expenditure	1,100
depreciation	150
transfer payments	500

- a) Calculate the GDP level using the expenditure approach, and explain your work. It is insufficient to write only numbers.

$$\mathbf{C + I + G + X - Imports = 3,900 + 1,100 + 1,000 + 350 - 390 = \$ 5,960}$$

- b) Calculate the GDP level using the factor incomes approach, and explain your work. It is insufficient to write only numbers.

$$\mathbf{Factor\ incomes + indirect\ taxes + depreciation = wages + interest + profits + indirect\ taxes + depreciation = 5,000 + 200 + 465 + 145 + 150 = \$ 5,960}$$

I should have provided units corresponding to the figures, but I neglected to do so.

7. (12 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 is an article dealing productivity that was drawn from a report released by the Conference Board of Canada. According to this article, whose title is "Productivity boost would raise incomes, study says" what is the most pressing need for Canadian businesses as far as improving productivity is concerned? What reform do they recommend for the government to take?

I instructed the correctors to grade these questions leniently. If you confused the points contained in one of these articles with those raised in another article, that was fine, provided that the point was sensible.

Firms in Canada have under-invested in modern technology, such as in computerization, robotics, and plant & equipment. It also mentions that typical firm size is small relative to the United States. This article also mentioned the unduly high Canadian dollar, which no longer applies now that the loonie has depreciated so much.

b) The national accounts were released recently for Nov 2014. Approximately how fast, and in what direction, was real GDP growing (at an annual rate) during this time period? Your answer does not have to be exact. Was this report considered to be good news, bad news, or so-so news?

It was bad news. Real GDP contracted during the month of November such that real GDP in the month of November 2015 was 1.9 % higher than it was in November 2013.

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. 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.

d) There is an article that I asked you to read in regards to a very recent macroeconomic phenomenon that has occurred over the past six to twelve months that was quite unexpected. It has dominated the headlines as far as the economic news is concerned. What is it? A phrase will suffice.

Either the huge decline in the price of crude oil or the significant depreciation in the exchange rate for the Canadian dollar. These two phenomena go together.

8. (4 points) This question is drawn right out of the textbook. Suppose that a borrower and a lender agree on a nominal interest rate to be paid for the entire term of the loan. Then inflation turns out to be higher than they both expected.

a) Is the real interest rate on this loan higher or lower than expected? Why?

The real interest rate turns out to be lower than expected. Had either or both parties expected higher inflation, they would have agreed to a higher nominal interest rate.

b) Does the lender gain or lose from this unexpectedly high inflation?

The lender loses and the borrower gains because had the lender known that inflation would be higher, he/she would have demanded that a higher interest rate be paid on the loan.

