Assignment 1 **Economics 222, Fall 2006**
Due: Drop Box 2nd floor Dunning Hall by noon Sept. 29th, 2006
Maximum Group Size: 4 people

1. **Working With Data** (30 marks)

   This question requires you to retrieve and manipulate data. To get the data, go to the 'data sources' link on the 222 course webpage. Then go to 'CANSIM', then 'CANSIM II @ CHASS'. (Note: If you try this from off-campus, use the Queen's library webpage and read 'help with off-campus access' if you haven't already set up a 'web-proxy'.)

   Retrieve the following 3 series: Canadian Real GDP (v3860085); Canadian Nominal GDP (v646937); U.S. Real GDP (v21581591). We only need 3 observations for each series: the values for 1985, 1995, and 2005. Because the U.S. series is at quarterly frequency, simply take the first observation (*i.e.* 1985Q1) for 1985, and similarly for 1995 and 2005.

   Once you have the data, a spreadsheet program such as Microsoft Excel will work well for these purposes.

   (a) Display the arranged data in a table.

   (b) Compute the growth rates for each series for each 10-year period (*i.e.* the change in the level of the series from 1985 to 1995, and 1995 to 2005). Which country had the faster real growth rate for each period?

   (c) Why was the difference between the growth rates of Canadian nominal GDP and Canadian real GDP larger in the 1985-1995 period than the 1995-2005 period?

   (d) The formula for the compound growth of a series is:

   $$x_{t+n} = x_t(1+g)^n \tag{1}$$

   where: x is the value of the series; the subscripts indicate the year, $g=$ the growth rate and $n=$ the number of years. Using this formula, compute the average annual growth rate of Canadian real GDP over 1995-2005.

   (e) Graph Canadian nominal and real GDP against time (with the axes labeled and units indicated). Where do the two series appear to cross? Why?

(f) If, for some reason, you lost the labels for the nominal and real GDP series (or forgot which CANSIM "v series numbers" denoted which series), how could you distinguish the two series over a period of sustained deflation (falling nominal prices)?

2. **Assorted Shorter Questions** (15 marks)

   (a) True/False/Uncertain. Briefly explain/defend your answer.

   The belief that equilibrium in the economy is restored relatively rapidly through adjustments in wages and prices is what characterizes the Classical (as opposed to the Keynesian) approach in macroeconomics. As a result, classical economists believe there is a role for government policy in the economy.

   (b) Why do some countries have a much higher Gross National Product (GNP) than Gross Domestic Product (GDP)? Give an example of such a country, and cite your source used.

   (c) The CPI is 311.1 for 2002 when using 1975 as the base year. Suppose we keep the same basket of goods, but switch to using 2002 as the base year. What is the CPI for 1975 using this new 2002 base year?

3. (35 points)

   (a) Billy Bishop buys a one-year government bond on January 1, 1914 for $200. He receives principal plus interest totaling $340 on January 1, 1915. Suppose that the CPI is 150 on January 1, 1914 and 230 on January 1, 1915. Suppose that Billy Bishop expected that the CPI would be 180 in January 1, 1915. Find the nominal interest rate, the inflation rate, the real interest rate, Billy Bishop's expected inflation rate and Bill Bishop's expected real interest rate. (10 points)

   (b) For each of the following transactions, what is the contribution to the current year's GDP of the following transaction?

   i) Roy Brown purchased 5 widgets produced the previous year from Widgets Incorporated at $10 a widget in January 1, 1914. Widgets Incorporated purchased the widgets at $4 a widget the previous year. The owner made $10 profit and workers were paid $15 and the government collected $5 tax. What is the contribution to GDP in 1914? Make sure to explain the effects on the expenditure, product and income accounts. (10 points)

ii) In 1917 Wilfrid "Wop" May replaces his plane the "Avro 504" with a newly produced plane, the "Sopwith Pup". When he purchased the "Avro 504" in 1915, it was $50. The "Sopwith Pup", which he purchased from Robert Borden Company, cost him $90. Robert Borden Company bought it from the Sopwith Airplane company the same year for $70. The Sopwith Airplane company made the plane with $40 of parts they had purchased in 1916 and $10 of parts produced in 1917 by John McCrae. Wilfrid "Wop" May sells his "Avro 504" to Manfred von Richthofen for $40 dollars at garage sale. What is the contribution to GDP in 1917? Make sure to explain the effects on the expenditure and product accounts. (15 points)

4. (20 points)

   (a) In Utopia, the following data give the real GDP (Y), capital (K) and labour (N) between 1870 and 1940:

Year	Y	K	N
1870	532	224	8
1940	2000	800	20

   assuming that $a_k = 0.4$ and $a_N = 0.6$, find how much total factor productivity grew between 1870 and 1940. (12 points)

   (b) What happened to the marginal product of labour between 1870 and 1940? (8 points)