

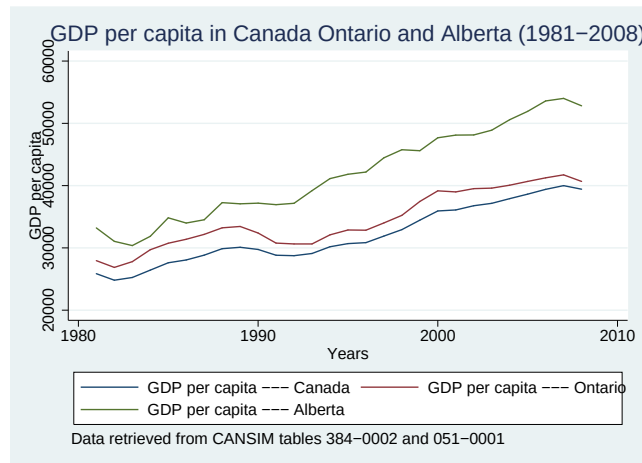
ECON 222
Macroeconomic Theory I
Fall Term 2009

Answers to Assignment 1

Question 1: Some Canadian Macroeconomic Data (30 Marks)

(a)

Answer



Different comments: Growth trend over the years seem to be similar for Ontario and Canada as a whole, which is normal since Ontarian GDP constitutes a great part of Canadian GDP. Alberta seems to have been more affected by the 1981-1982 recession whereas for Canada and Ontario, the 1990-1992 has been more severe. In general, Alberta has experienced greater growth.

(c)

Answer

Comments: In fact, over this period of time, growth per capita has been greater in Canada and Ontario than in Alberta. Greater labour productivity outweighs the losses caused by a shorter working week (intensity). As for Canada compared to Ontario, it seems that there has been greater progress in employment levels. Any other comments that pertain to the numbers of the table and that are relevant to economic performance should be accepted.

(d)

Answer

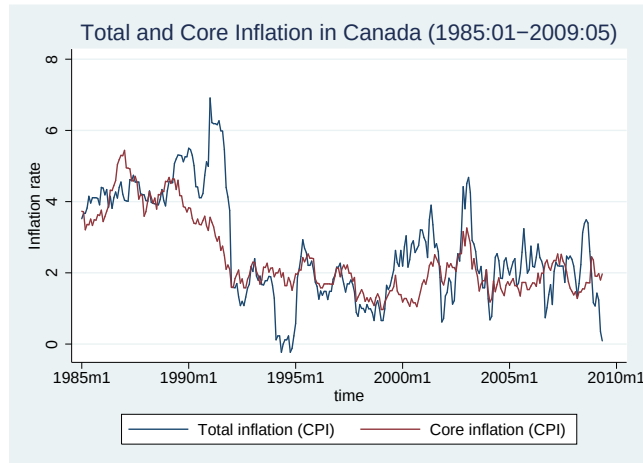
Note: In fact, since we are looking for a yearly inflation rate, that is from January 1984 to January 1985, series should start in 1985:01.

Question 2: National Accounts and Economic Changes in Iceland (20 Marks)

(a)

Answer

$$\begin{aligned} CA &= NX + NFP \\ NFP &= CA - NX \end{aligned}$$



In 1997: $NFP = -11$ and in 2007: $NFP = -60$

(b)

Answer

$$\begin{aligned}
 tY &= T \\
 Gvt.savings &= (T - TR - INT) - G \\
 G &= T - TR - INT - Gvt.savings \\
 Y &= C + I + G + NX \\
 C &= Y - I - G - NX
 \end{aligned}$$

In 1997: $G = 364.4$, $C = 55.6$ and in 2007: $G = 386$, $C = 687$

Question 3: Labour Demand, Supply and the baby boom (25 Marks)

(a)

Answer

$$\begin{aligned}
 100A - 4AN &= w \\
 N &= \frac{100A - w}{4A} \\
 N^D &= 25 - \frac{w}{4A}
 \end{aligned}$$

(b)

Answer

$$\begin{aligned}
 N^D &= N^S \\
 25 - \frac{w}{4A} &= 5 + \frac{w}{5} \\
 25 - \frac{w}{20} &= 5 + \frac{w}{5} \\
 20 &= \frac{w}{20} + \frac{w}{5} \\
 w^* &= 80
 \end{aligned}$$

$$N^* = 21$$

(c) Answer

$$\begin{aligned} 25 - \frac{w}{4A} &= 10 + \frac{w}{5} \\ 15 &= \frac{5w}{20} \\ w^* &= 60 \end{aligned}$$

Original workers are worse off since the equilibrium wage has dropped.

(d)

$$\begin{aligned} 25 - \frac{w}{4 \times 2} &= 10 + \frac{w}{5} \\ 15 &= \frac{13w}{40} \\ w^* &= 46.15 \end{aligned}$$

The drop in productivity lowers wages

(e) Illustrate the answers to (a), (b), (c) and (d) graphically (label all axes).

Question 4a: Factor Productivity and Growth (10 Marks)

4a)

2000

$$\begin{aligned} Y &= A(K)^{a_K}(N)^{a_N} \\ 1400 &= A(500)^{\cdot 3}(20)^{\cdot 7} \\ A &= \frac{1400}{((500 \cdot 3) * (20 \cdot 7))} \\ A &= 26.65 \end{aligned}$$

2008

$$A = 32.06$$

$$= (A_{2008} - A_{2000})/A_{2000} \times 100 = 20.30 \quad (1)$$

4b)

i)

Nominal return

$$\begin{aligned} i &= (1400 - 1000)/1000 \\ &= .4 \end{aligned}$$

Inflation

$$\begin{aligned} \pi &= (175 - 135)/135 \\ &= .296 \end{aligned}$$

Real return

$$\begin{aligned} r &= i - \pi \\ &= .103 \end{aligned}$$

ii)

Expect inflation

$$\begin{aligned} \pi^e &= (185 - 135)/135 \\ &= .370 \end{aligned}$$

Expect real return

$$\begin{aligned} r^e &= i - \pi \\ &= .03 \end{aligned}$$

Table 1: Question 1 (b): Growth rates of real GDP per capita (1981-2008)

	Canada	Ontario	Alberta
Total growth rate	52.45%	45.52%	59.04%
Average yearly growth rate	1.57%	1.4%	1.73%

Table 2: Question 1 (c): Decomposition of real GDP per capita (1997-2007)

	Canada	Ontario	Alberta
Labour Productivity	15.83%	14.85%	12.72%
Intensity	-2.63%	-2.31%	-0.98%
Utilization	8.97%	6.31%	5.82%
Profile	2.57%	2.87%	2.83%

Table 3: Question 1 (e): Comparison of total and core CPI inflations in Canada

	Total CPI inflation	Core CPI inflation
1985:01-1993:11	1.36%	1.03%
1993:12-2009:05	0.92%	0.43%