ECON 222

Winter 2004 – Sections C and D

Assignment 1 – ANSWER KEY

Question 1 – 30 marks

(a) Both shares are rising over time. Ontario's share of Canadian RGDP goes from 40.39 to 40.97. Ontario's share of Canadian population goes from 37.2 to 37.54.

(b) The ratio of Ontario's per capita RGDP to Canada's per capita RGDP is rising over time. It goes from 1.08 to 1.1 over the sample.

(c) Ontario's average growth rate in RGDP is 3.62% and Canada's average growth rate in RGDP is 3.19%. Ontario has a higher average growth rate in RGDP.

(d) Ontario's average growth rate in per capita RGDP is 2.28% and Canada's average growth rate in RGDP is 2.13%. Ontario has a higher average growth rate in per capita RGDP.

(e) The average growth rate in per capita RGDP is approximately equal to the average growth rate in RGDP minus the average growth rate in population.

Ontario's average growth rate in population is 1.31% Canada's average growth rate in population is 1.04%.

Ontario's (approx.) growth rate in per capita RGDP is $3.62\% - 1.31\% = 2.31\%$.
Canada's (approx.) growth rate in per capita RGDP is $3.19\% - 1.04\% = 2.15\%$.
These numbers are very close to the answers in **(d)**, but there is approximation error.

Question 2 – 20 marks

(a) Use $CA = NX + NFP$ to get $NFP = 25$.

(b) Use $\frac{T}{Y} = 0.45$ and $Y = 2110$ to get $T = 949.5$. Then use
$S_{gov} = T - G - TR - INT$ to get $G = 404.5$. Finally use $S_{nat} = Y + NFP - C - G$ to get $C = 1237.5$.

Question 3 – 25 marks

(a) Year 1 Nominal Output: $250 + 300 + 75 = 625$. Year 2 Nominal Output:
$300 + 375 + 150 = 825$.

(b) Year 1 Real Output is 625. Year 2 Real Output: $200 + 450 + 112.5 = 762.5$. RGDP growth: $\frac{762.5-625}{625} = 0.22$. RGDP growth from Year 1 to Year 2 is 22%.

(c) Year 2 Real Output is 825. Year 1 Real Output: $375 + 250 + 100 = 725$. RGDP growth: $\frac{825-725}{825} = 0.138$. RGDP growth from Year 1 to Year 2 is 13.8%.

(d) GDP deflator: $\frac{625}{725} = 0.86$. Inflation from Year 1 to Year 2 is $\frac{1-0.86}{0.86} = 16\%$.

Question 4 – 25 marks

(a) $MPN = \frac{\partial Y}{\partial N} = 0.6AK^{0.4}N^{-0.4}$.

(b) $\frac{\partial MPN}{\partial N} = -0.24AK^{0.4}N^{-1.4} < 0$. Since this derivative is negative, an increase in N leads to a decrease in MPN.

(c) $MPN = 0.6AK^{0.4}N^{-0.4} = \omega$. Rearranging we have $N = K(\frac{0.6A}{\omega})^{2.5}$.

(d) $\frac{\partial N}{\partial \omega} = -2.5K(0.6A)^{2.5}\omega^{-3.5} < 0$. Since this derivative is negative, an increase in the real wage leads to a decrease in labour demand.