Econ 807: Macroeconomic Theory and Policy
Assignment 2: Measurement

Instructions: Please type your assignment in report form.

1. Go to CANSIM and download the following macroeconomic time-series for Canada: (1) real GDP; (2) employment; (3) average hours worked (AHW); (4) real wage bill; (5) adult (15+) population. Use quarterly frequency and seasonally adjusted data. Get data for as far back as possible, choosing as your initial date, the time-series with the most recent start date (so that all your time-series have the same start date).Construct and plot the following time-series using the data retrieved above:

   (a) Real per capita GDP = Real GDP ÷ Population.

   (b) Labour Input = Employment×AHW.

   (c) Labour Productivity = Real GDP ÷ Labour Input.

   (d) Real Wage = Real Wage Bill ÷ Labour Input.

   (e) Real Capital Income = Real GDP – Real Wage Bill.

2. Let $y_t = \exp(z_t)n_t^{\theta}$ represent aggregate production possibilities. If labour is paid its marginal product, then θ represents labour's share of total income. Using the data you collected above, plot labour's share of income for Canada and report the average for this number over your sample period. This average can be used as an estimate for θ.

3. Using your measures for y_t, n_t and your estimate for θ, compute (and plot) the time-path for TFP $z_t = \ln y_t - \theta \ln n_t$.

4. Use the HP filter (available on Eviews) to detrend the following (logged) time-series:

   (a) Real per capita GDP;

   (b) Employment (per capita);

   (c) Average hours worked (per employed person);

   (d) Total hours (per capita);

   (e) Real wage;

   (f) Labour productivity;

   (g) Capital income (per capita);

   (h) TFP.

5. Compute the following business cycle statistics for each of the variables above: (i) standard deviation; (ii) correlation with real per capita GDP; (iii) first-order autocorrelation. Present your results in a table.