

Economics G6220  
**Advanced Macroeconomic Analysis**  
**Problem Set 1**  
Due February 6

In this homework you are asked to analyze the extent to which the numbered business cycle facts discussed in chapter 1 of Uribe's International Macroeconomics textbook apply to (a) South Korea and (b) The United States. To this end compute the relevant business cycle statistics for the following four alternative detrending methods: (a) log-linear detrending; (b) log-quadratic detrending; (c) Hodrick Prescott filtering with  $\lambda = 100$ ; and (d) Hodrick Prescott filtering with  $\lambda = 6.25$ . Make a two by two graph showing the natural logarithm of real per capita GDP and the trend, one panel per trend. Discuss how the detrending method influences the volatility of the cyclical component of output. Also discuss which detrending method identifies recessions for the U.S. most in line with the NBER business cycle dates. The data should be downloaded from the World Bank's WDI's database. As the sample period for South Korea use 1960 to 2011 and for the United States use 1965-2011. Specifically, use the following time series to construct the required business cycle statistics:

|   |                 |
|---|-----------------|
| GDP per capita (constant LCU)                               | NY.GDP.PCAP.KN  |
| Household final consumption expenditure, etc. (% of GDP)    | NE.CON.PETC.ZS  |
| Gross capital formation (% of GDP)                          | NE.GDI.TOTL.ZS  |
| General government final consumption expenditure (% of GDP) | NE.CON.GOV.T.ZS |
| Imports of goods and services (% of GDP)                    | NE.IMP.GNFS.ZS  |
| Exports of goods and services (% of GDP)                    | NE.EXP.GNFS.ZS  |

It is recommended that you perform the computation using Matlab. Please hand in your computer code as an appendix to your assignment.