Advanced Quantitative Methods
Homework 7: Time-series

Johan A. Elkink
jos.elkink@ucd.ie

Due March 23, 2011, 9am

Please submit the R code used for this homework electronically. Preferably in the same PDF document as the answers.

Variables in money.dta:

Year	Year of observation
M2	Money demand in December
GDP	Seasonally adjusted real GDP
interest	Interest (discount) rate

Variables in presidents.csv:

year	Year of observation
party	Political affiliation of US president
unemployment	US unemployment rate
president	US president
lunemployment	US unemployment rate $(t-1)$
l2unemployment	US unemployment rate $(t-2)$
lparty	party at $t-1$
l2party	party at $t-2$

1. Open money.dta and investigate the regression $\log(M2) = \beta_0 + \beta_{GDP} \log GDP + \beta_i interest + \varepsilon$.
   (a) (20%) Test for unit roots in $M2$, $\log M2$, $\log GDP$ and $interest$.
   (b) (10%) Perform the regression, report the results, and perform a unit root test on the residuals.
   (c) (20%) Assuming the model is cointegrated, estimate the short-term and long-term elasticity between GDP and money demand.
2. (50%) Douglas Hibbs, "Political parties and macroeconomic policy." *American Political Science Review*, 1977, 71, 1467-1487 claims that unemployment is lower under Democratic presidents since 1948. Performing whatever estimations or tests you think necessary to see if the same holds for the 1980-2010 period. Write a brief report on the estimations and tests performed and the substantive conclusions.[1]

[1] To see how even the most well-known methodologists in political science have difficulty interpreting time-series effects, see: http://douglas-hibbs.com/HibbsArticles/Reply_APSR_1983.pdf.