## Problem Sheet 4: VARs and Granger Causality

**Exercise 1**

Excel file LONGGDP.XLS contains annual data on real GDP per capita for four of the world's largest English-speaking countries (USA, UK, Canada and Australia) for the years 1870-1993. Take differences to obtain time series of the growth in GDP per capita for each of the four countries. Using an ADL model, investigate where GDP growth in any country Granger causes GDP growth in any other country. For instance, does GDP growth in the US Granger cause GDP growth in the UK? Does it in Canada?

**Exercise 2**

Using the GDP growth data for four countries of exercise 1, estimate a VAR. Discuss the estimated coefficients in this VAR. Discuss Granger causality issues in this VAR. Do your Granger causality results differ from those in Exercise 1?