

WESS 2016 Intermediate Econometrics

Class Exercise 1: Nonstationarity and unit roots

The file `divpr.dta` is a STATA file containing seasonally adjusted data from 1970 q1 to 1991 q4 for the US for GDP, personal disposable income, consumer spending, profits and dividends. The definitions are as follows:

GDP: real Gross Domestic Product, billion of 1987 dollars

PDI: real Personal Disposable Income, billions of 1987 dollars

PCE: real Consumers Expenditure, billions of 1987 dollars

PROFITS: Profits after tax, billions of current US dollars

DIVIDENDS: Dividends, billions of current US dollars

1. Look at the data.

2. Carry out test for unit root versus stationarity for all time series and for all time series differenced.

Discuss the choice of the test.

3. Consider the dividends and profits series. Since dividends depend on profits, consider the following simple model:

$$DIVIDENDS_t = \alpha_1 + \alpha_2 PROFITS_t + u_t$$

Are dividends and profits cointegrated? Use the Engle-Granger two step method (static regression) to test for cointegration.

4. Repeat in part 3 but using real consumers expenditure and real disposable income this time.

$$PCE_t = \alpha_1 + \alpha_2 PDI_t + u_t$$

What do you find? Can you construct an error correction model? Interpret your results.