Time series data and macroeconomics

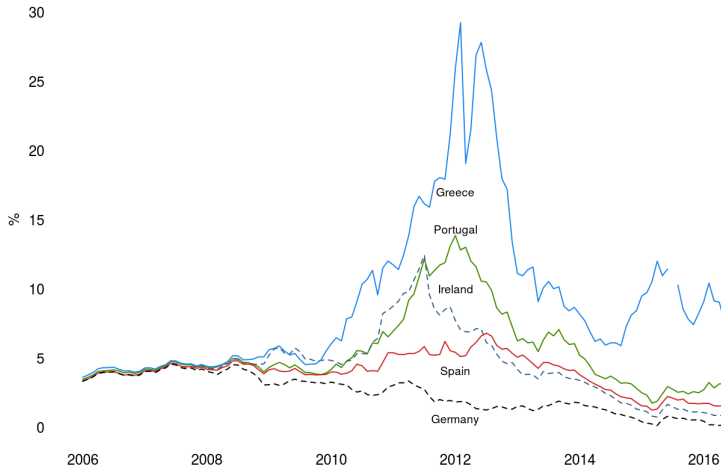School of Economics, University College Dublin

Spring 2017

Before Economics.
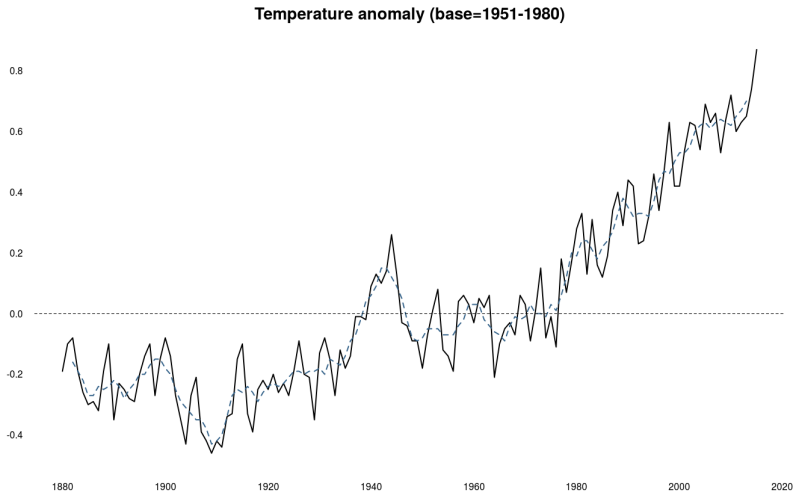
10-year government bonds interest rates
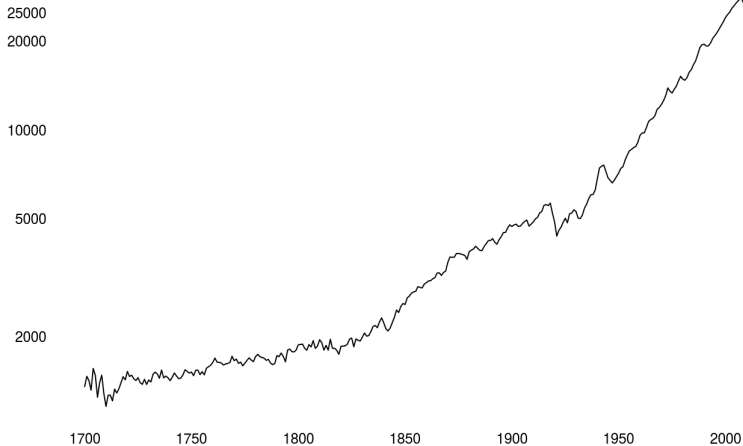
Data source: Eurostat

Global average temperature anomaly
Data source: NASA

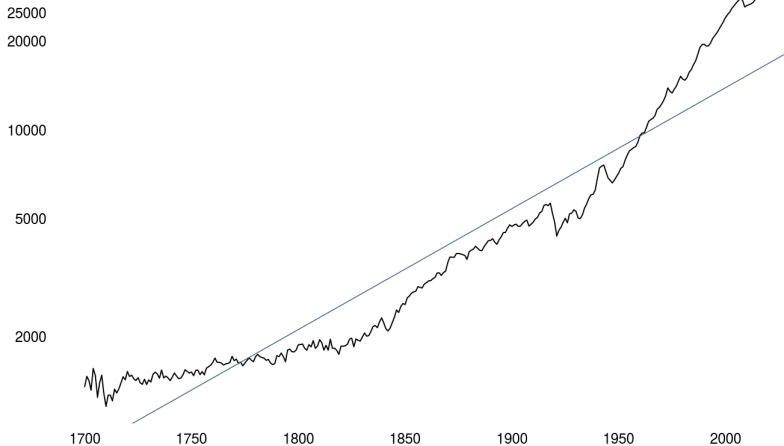

Temperature anomaly (base=1951-1980)

Trends and cycles in U.K. GDP per capita

Data source: Bank of England

Trends and cycles in U.K. GDP per capita (log-linear trend)
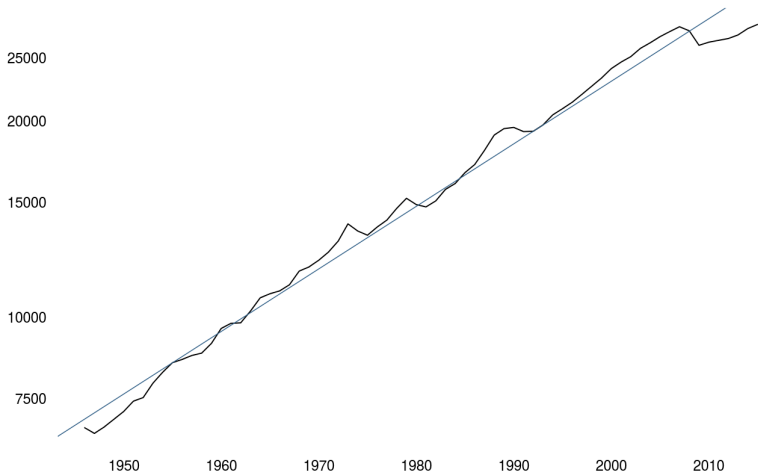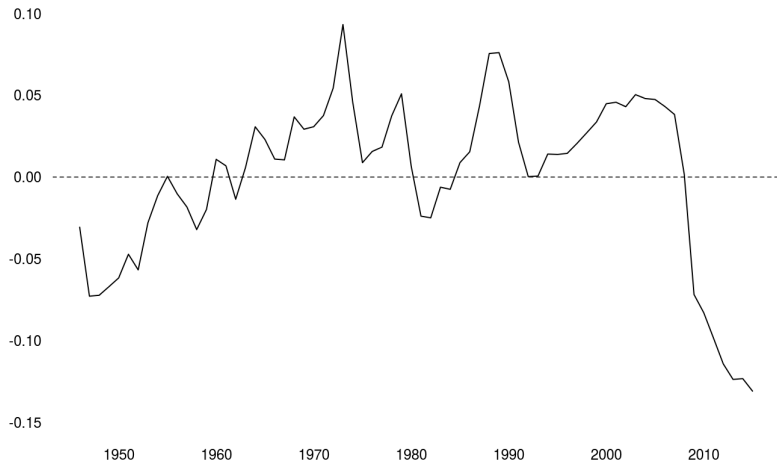
Data source: Bank of England

Trends and cycles in U.K. GDP per capita since 1946 (log-linear trend)
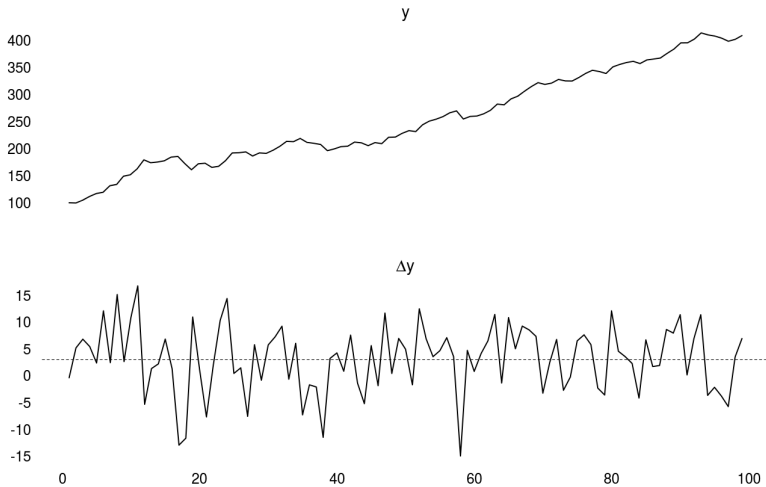
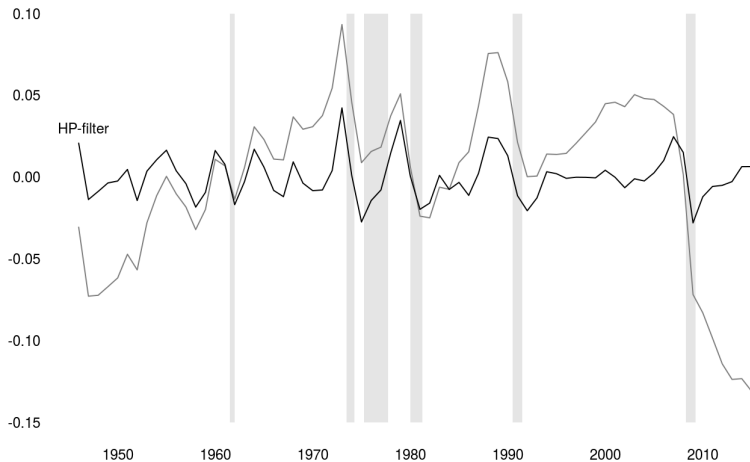Data source: Bank of England

Cycles from log-linear model: U.K.

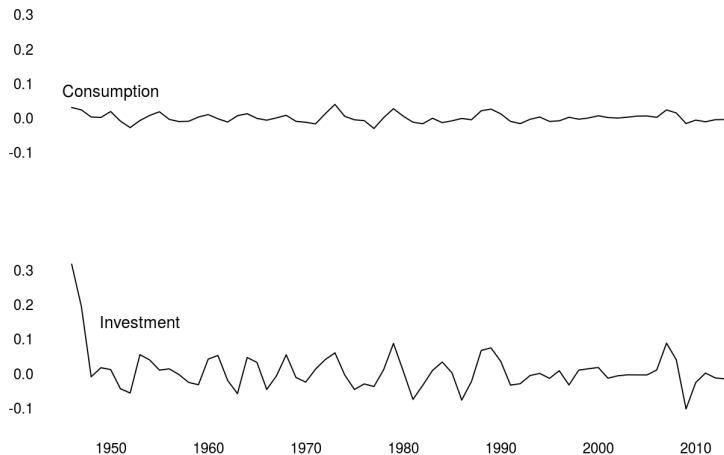# Example of a caveat with regard to linear detrending

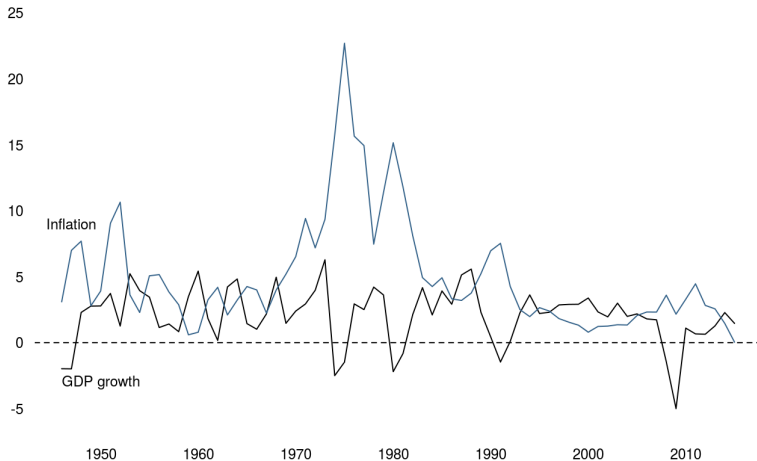# HP-filtered cycles: U.K

HP-filtered cycles: U.S.

Cycles in consumption and investment for the U.K.
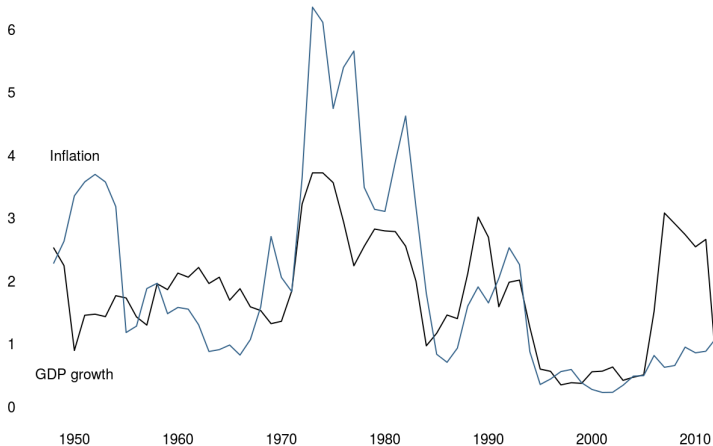
Data source: Bank of England

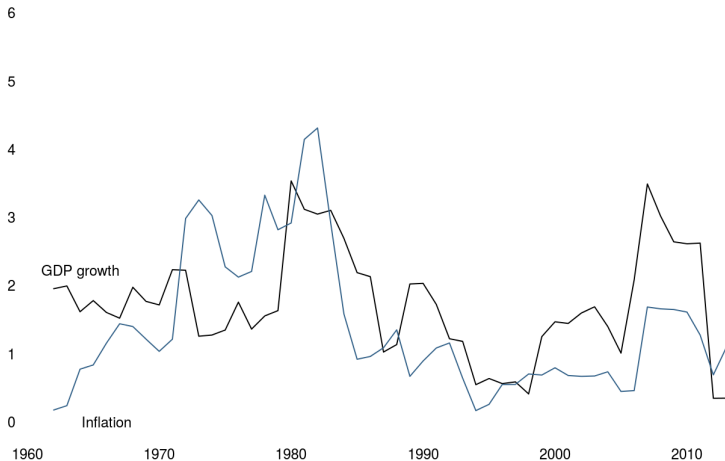# Cycles in growth and inflation U.K. economy
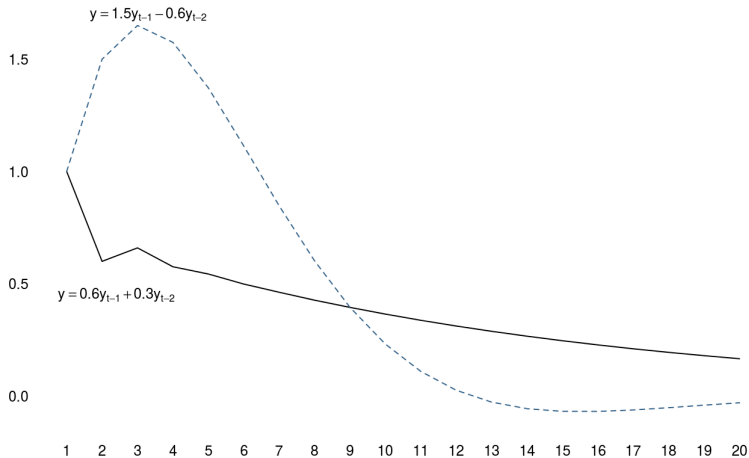
Data source: Bank of England

Volatility in economic growth and inflation: U.K. (standard deviation, 5-year moving average)

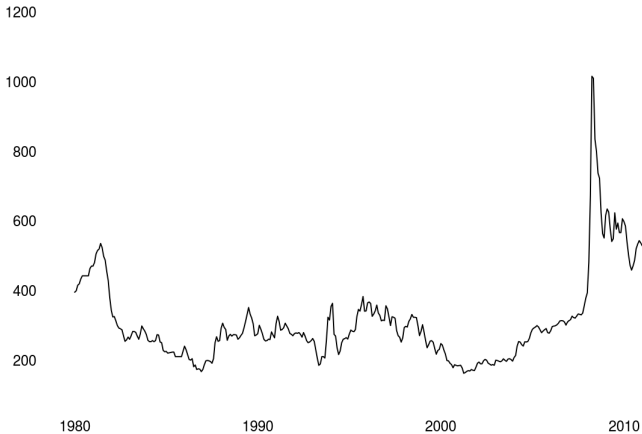# Volatility in economics growth and inflation: U.S. (standard deviation, 5-year moving average)

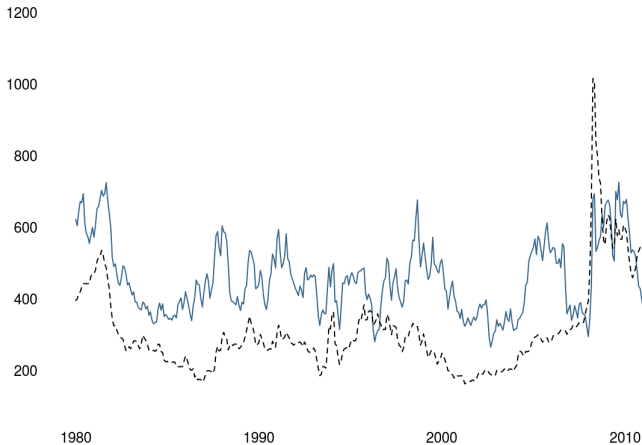# Example of the Impulse Response Function of two different $AR(2)$ models

$y = 1.5y_{t-1} - 0.6y_{t-2}$

$y = 0.6y_{t-1} + 0.3y_{t-2}$

Nominal prices for rice

Data source: IMF

Real (in blue) and nominal prices (dashed, black) for rice

Decomposition of international rice prices

Data source: IMF, U.S. Buro for Labor Statistics

Decomposition of additive time series
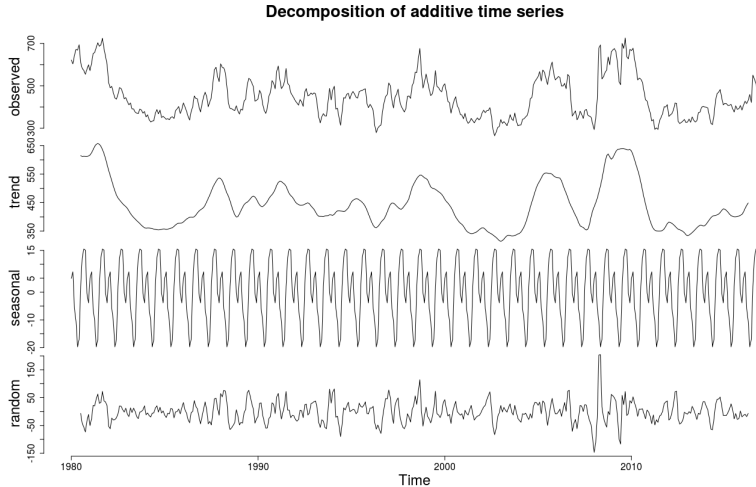
Volatility in international rice prices

Data source: IMF
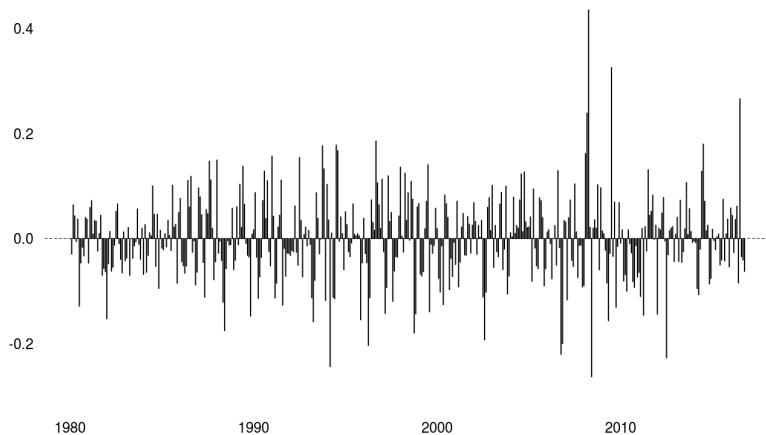
Impulse Response Function based on $AR(4)$ model fitted to the rice prices

Shock is 1 at $Y = 1$