

# Time series data and macroeconomics

School of Economics, University College Dublin

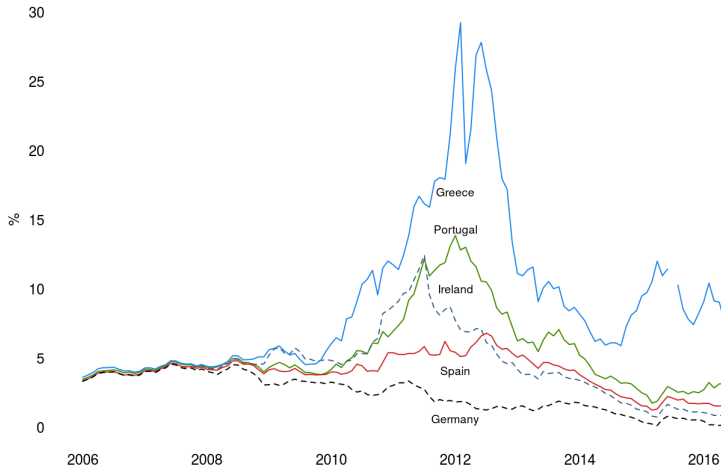
Spring 2017



Before Economics.

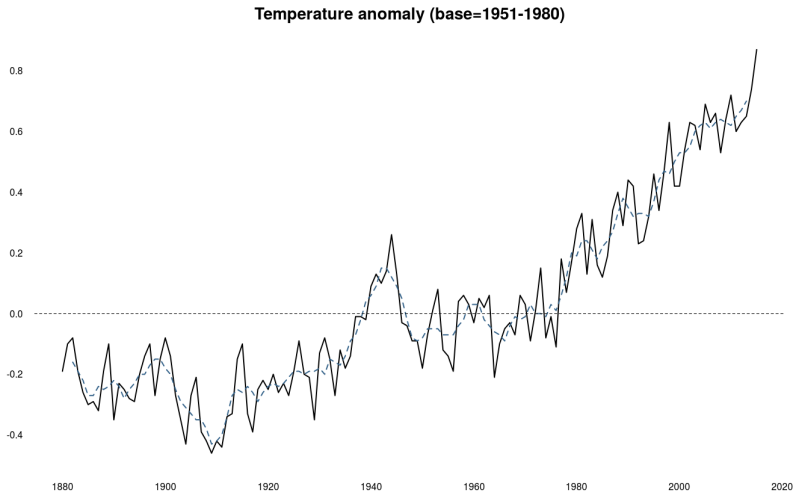
# 10-year government bond interest rates

Data source: Eurostat



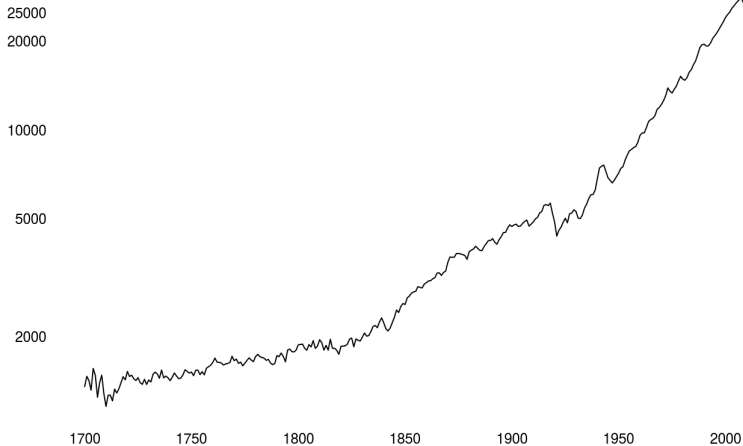
# Global average temperature anomaly

Base period is 1951-1989. Data source: NASA



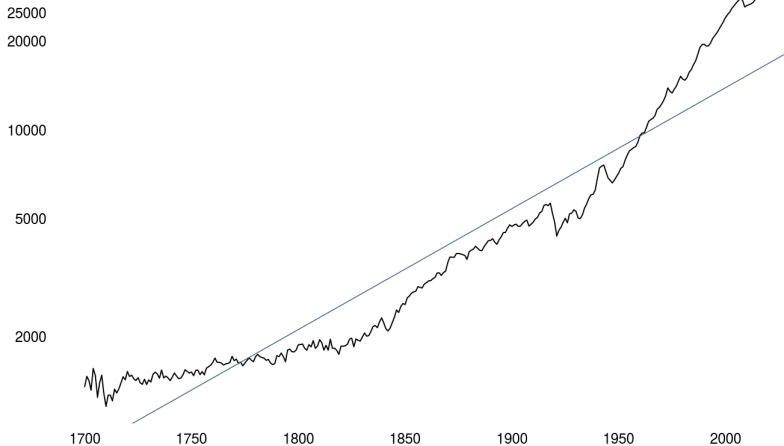
# Trends and cycles in U.K. GDP per capita

Data source: Bank of England



# Trends and cycles in U.K. GDP per capita (log-linear trend)

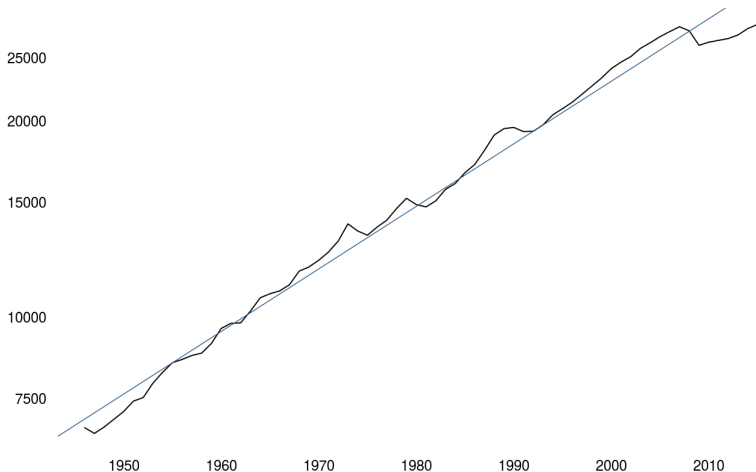
Data source: Bank of England



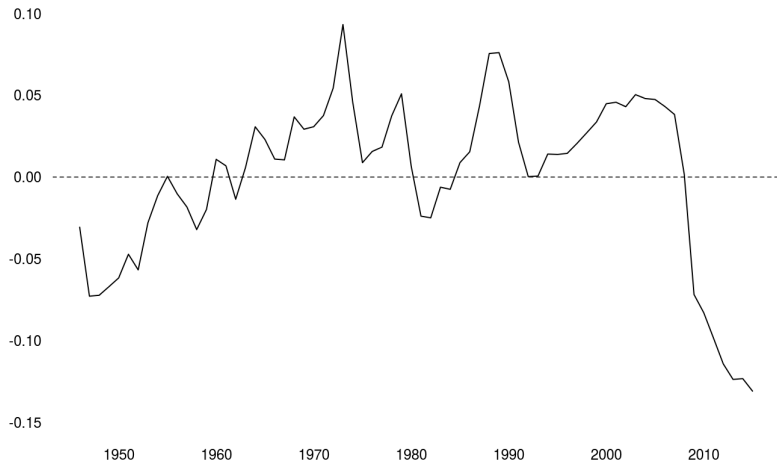
# Trends and cycles in U.K. GDP per capita since 1946

## (log-linear trend)

Data source: Bank of England

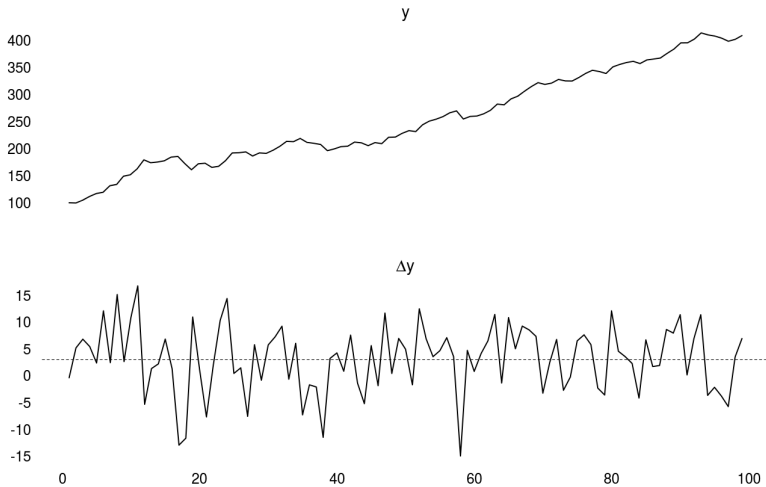


## Cycles from log-linear model: U.K.

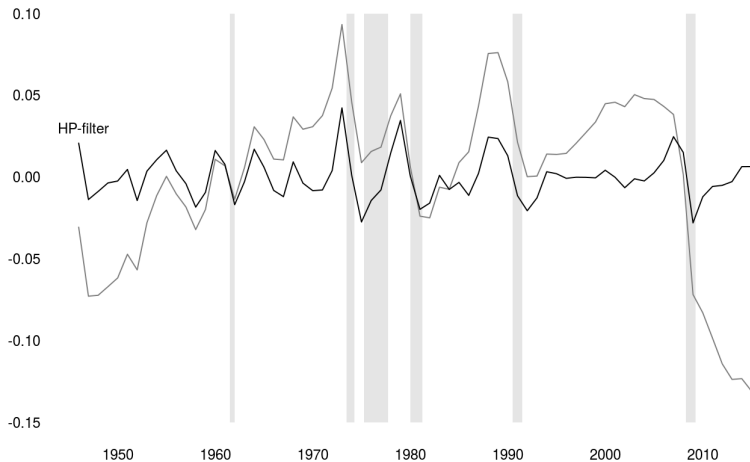




## Example of a caveat with regard to linear detrending



# HP-filtered cycles: U.K

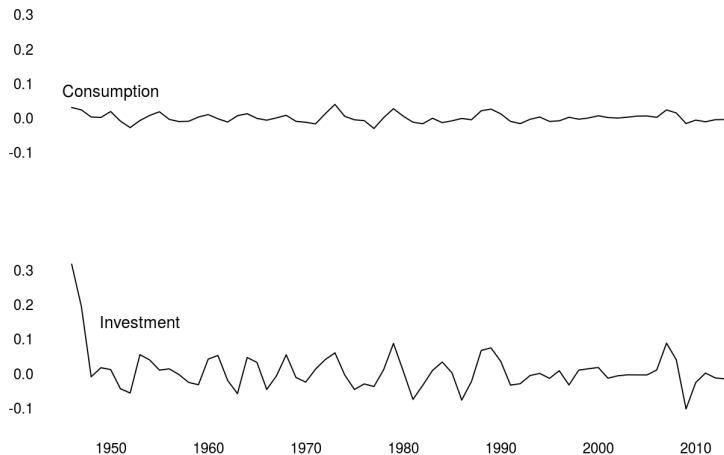


# HP-filtered cycles: U.S.

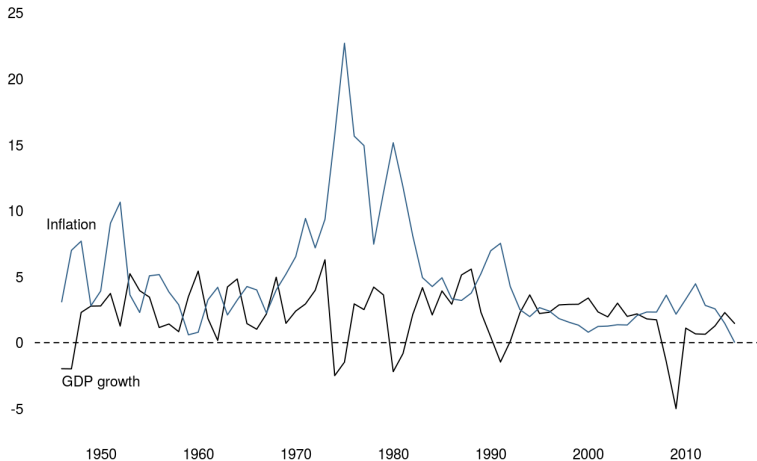


# Cycles in consumption and investment for the U.K.

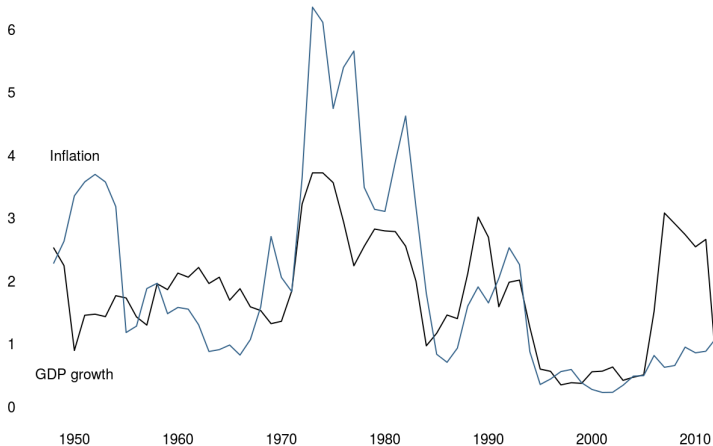
Data source: Bank of England



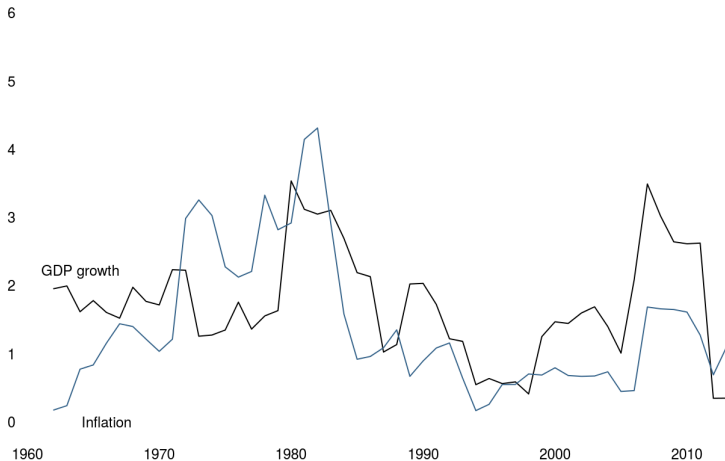
# Cycles in growth and inflation



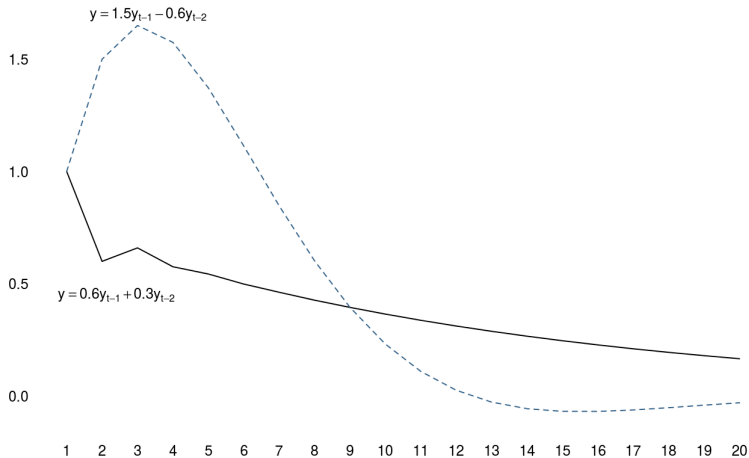
# Volatility in economic growth and inflation: U.K. (standard deviation, 5-year moving average)



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



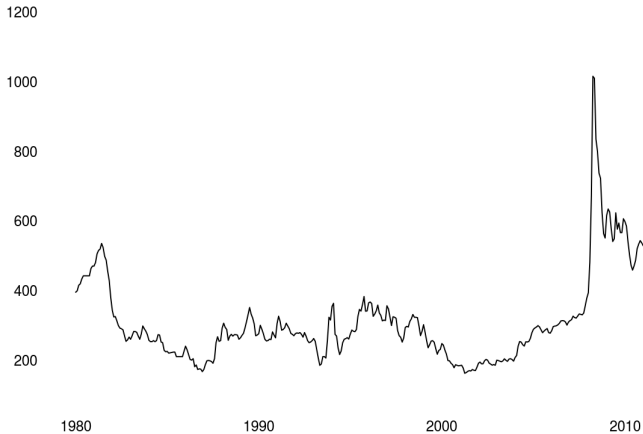
# Example of the Impulse Response Function of two different $AR(2)$ models





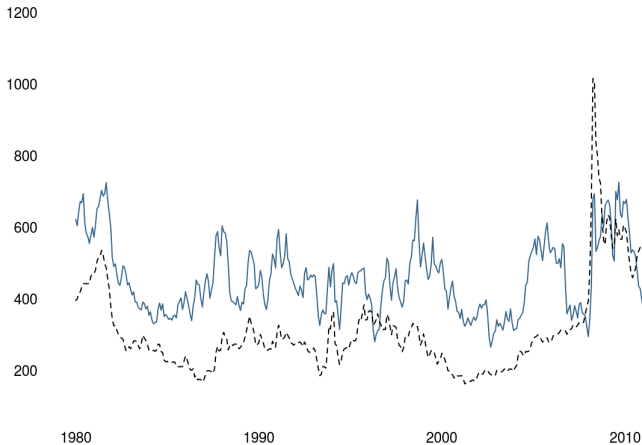
# Nominal prices for rice

Data source: IMF



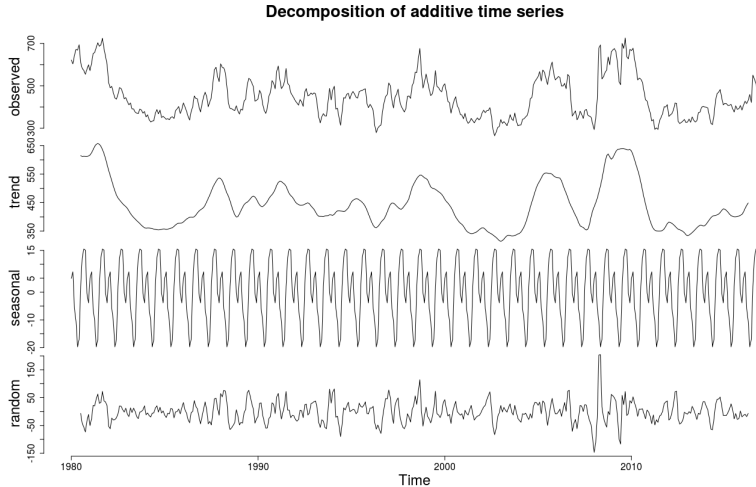
# Real (in blue) and nominal prices (dashed, black) for rice

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



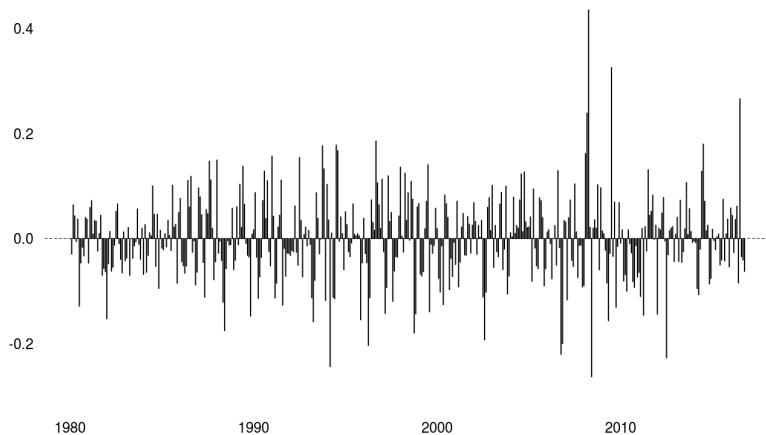
# Decomposition of international rice prices

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



# 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  $Y = 1$

