

# Macroeconomic time series

- **Branches of economics**

- **Macroeconomics:** considers the performance, structure, and behavior of a national or regional **economy as a whole**
- **Microeconomics:** considers individual households and firms

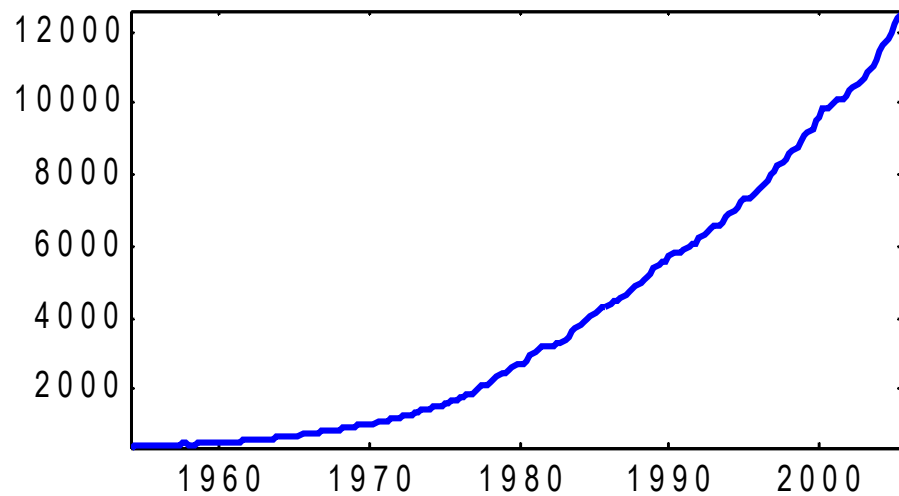
- Typical macroeconomic time series (*indicators*) are:

- Gross domestic product (GDP) (produit intérieur brut; PIB)
- Unemployment rate
- Price level
- Consumption, Investment
- Export, Import

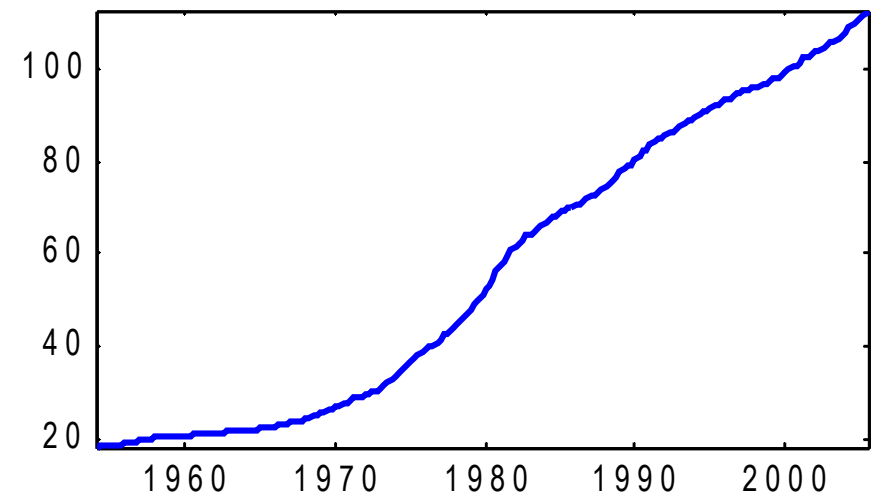
# Macroeconomic time series

## Macroeconomic indicators of the U.S.

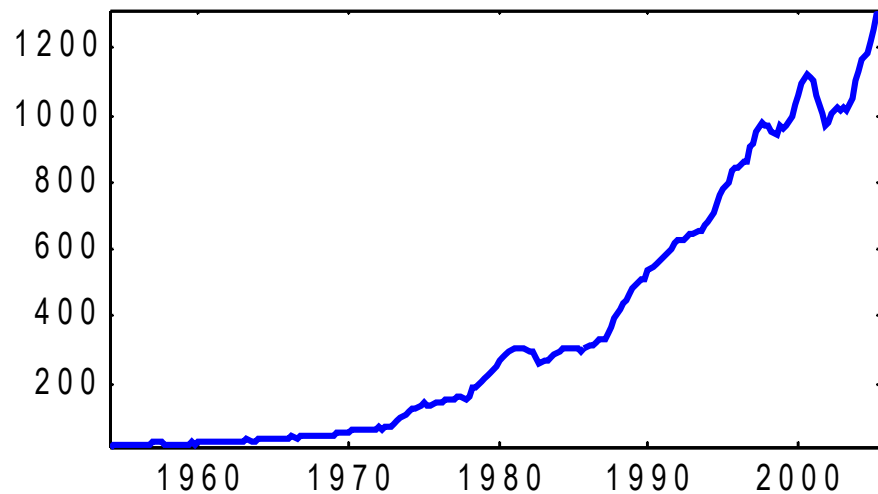
GDP



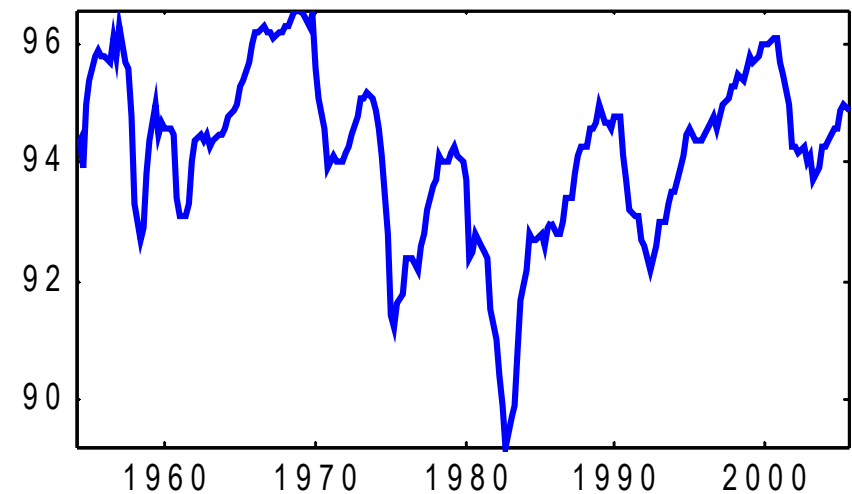
Price



Exports

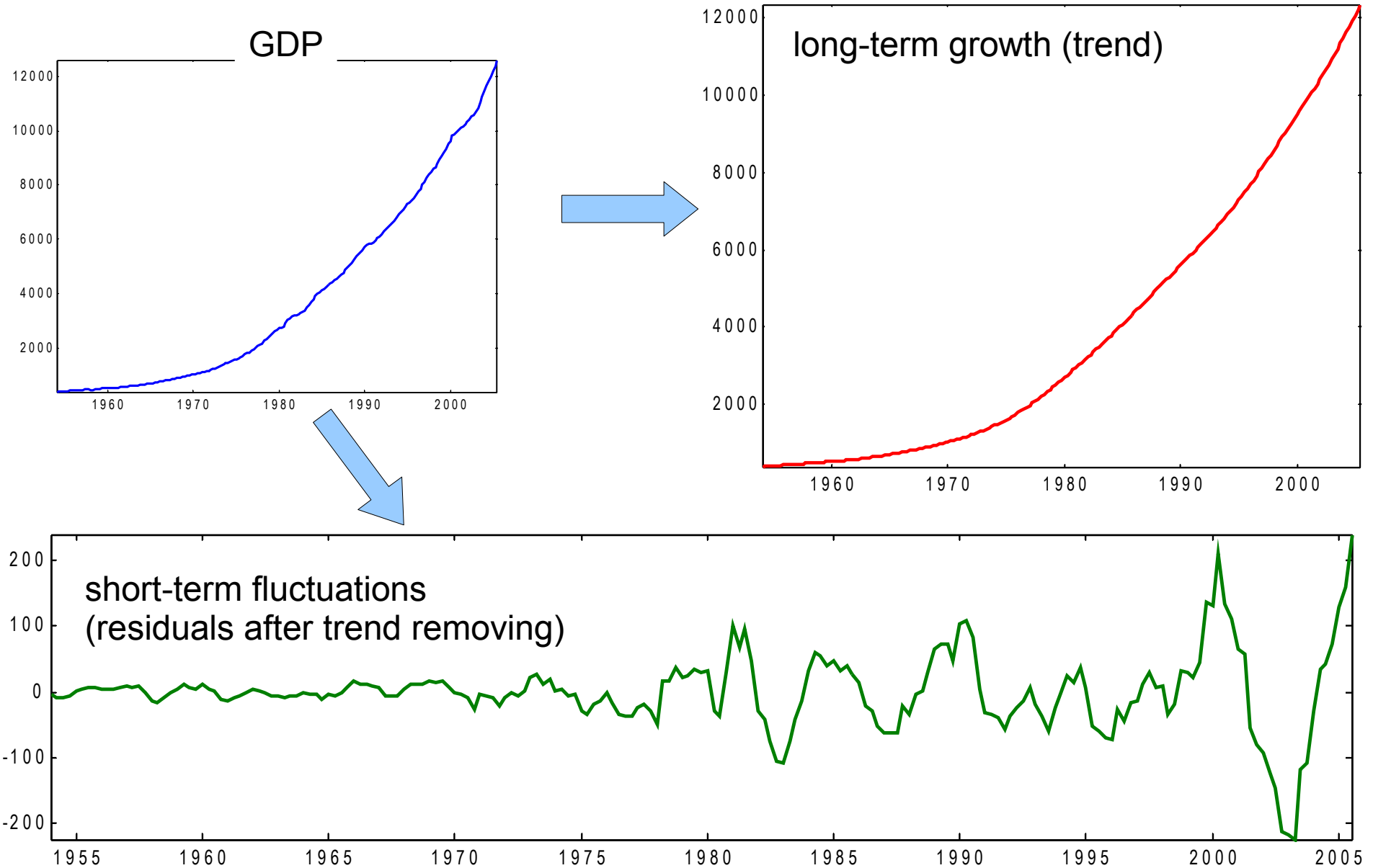


Employment



# Macroeconomic time series

## Two main areas of research



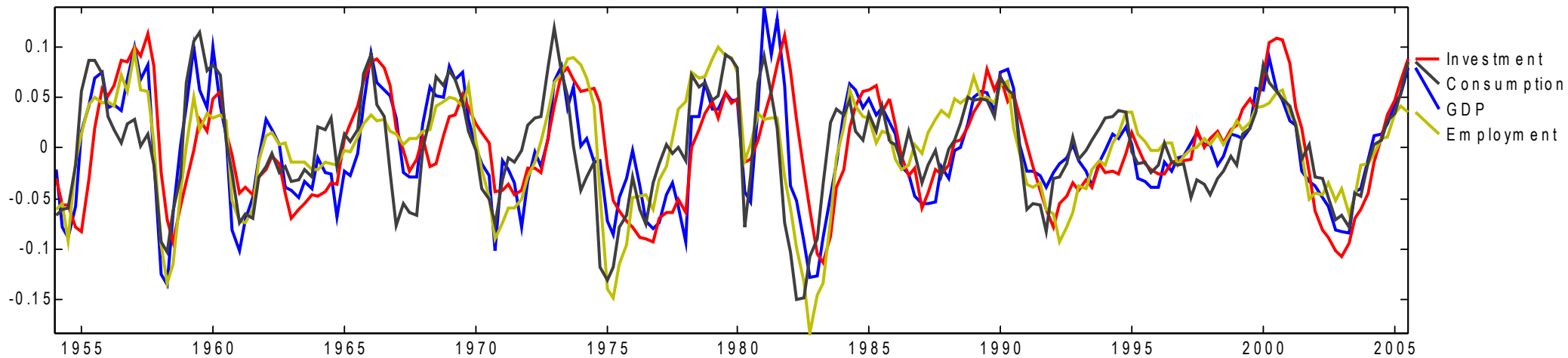
# Macroeconomic time series

- In this atelier we will concentrate on the **short-term fluctuations**
- These fluctuations are referred to as „**business cycles**“
- The origin of these fluctuations is still discussed in controversy
  - Real business cycle theory (fluctuations arise from exogenous shocks)
  - Endogenous business cycle theory (fluctuations are intrinsic = endogenous)

**Business cycles** are a type of **fluctuation** found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of **expansions occurring at about the same time in many economic activities**, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle; this sequence of changes is recurrent but not periodic; in duration business cycles vary from more than one year to ten or twelve years; they are not divisible into shorter cycles of similar character with amplitudes approximating their own.

Burns, A. F. & Mitchell, W. C. Measuring Business Cycles, NBER, New York, 1946

# Macroeconomic time series



## Questions/tasks

- Characterization of these fluctuations
- Extraction of the business cycles behavior
- Interactions between different time series

# Macroeconomic time series

## Literature

Kydland, F. E. & Prescott, E. C. (1998), *Business cycles: Real Facts and a Monetary Myth*, in Kevin D. Salyer James E. Hartley, Kevin D. Hoover, ed., 'Real Business Cycles: A Reader', Routledge, .

<http://research.mpls.frb.fed.us/research/QR/QR1421.pdf>

P. Dumas, M. Ghil, A. Groth and S. Hallegatte (2009), *Dynamic coupling of the climate and macroeconomic systems*, Math. Social Sci., to appear.

[http://www.atmos.ucla.edu/tcd/PREPRINTS/Dyn\\_couple-EHESS\\_final.pdf](http://www.atmos.ucla.edu/tcd/PREPRINTS/Dyn_couple-EHESS_final.pdf)