

Econometrics 3 - Problem Set 10

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1 Univariate analysis

(a) Data presentation: source and plots for each time series

U.S. Infra-Annual Labor Statistics: Unemployment Rate Total: From 15 to 64 Years for United States Units: Percent, Seasonally Adjusted Frequency: Quarterly From: 1970-01-01 // 2024-01-01 Source: Organization for Economic Co-operation and Development (le lien à ajouter <https://www.oecd.org>)

U.S. Gross Domestic Product Description: Gross domestic product (GDP), the featured measure of U.S. output, is the market value of the goods and services produced by labor and property located in the United States. Units: Billions of Dollars, Seasonally Adjusted Annual Rate Frequency: Quarterly From: 1970-01-01 // 2024-01-01 Source: U.S. Bureau of Economic Analysis (le lien à ajouter <https://www.bea.gov>)

- (b) Unit root and stationarity tests for each time series
- (c) Identification of the ARMA or ARIMA process for two time series
- (d) Forecasts: in-sample and out-of-sample, for two time series

2 Multivariate analysis

- (a) Selection of the lag order of the multivariate model
- (b) Estimation of the multivariate model, and quality checks of the estimation
- (c) Granger non-causality tests
- (d) Forecasts: in-sample and out-of-sample, for all variables
- (e) Orthogonalized impulse response functions, for all variables (use Cholesky method, and explain how you interpret the ordering of the variables)