Vector Autoregressive

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Abstract

After examining several univariate time series data, let's move on to the investigation of multivariate time series dataset. I will just collect the dataset and put them into the standard vector autoregressive model (VAR). With the help of VAR model, the dynamic interaction of multivariate variables should become easier to perceive.

1 Introduction

Most data in this notes are from the Federal Reserve Economic Database (FRED). Table 1.1 gives the summary of dataset. The instruction for collecting dataset is referred the paper by Angeletos et al. (2018), Gilchrist and Zakrajšek (2012) and Doan et al. (1984).

Data	Mnemonic	Freq
Real gross domestic product per capita	A939RX0Q048SBEA	Q
Gross Domestic Product	GDP	Q
GDP: Implicit Price Deflator	GDPDEF	Q
Personal Consumption Expenditure: Nondurable Goods	PCND	Q
PCE: Services	PCESV	Q
PCE: Goods	PCDG	Q
Gross Private Domestic Investment	GPDI	Q
Nonfarm Business Sector: Real output per hour of all person	OPHNFB	Q
NBS: Labor Share	PRS85006173	Q
NBS: Average Weekly Hours	PRS85006023	Q
Civilian Employment (Ave)	CE16OV	M
Civilian Noninstitutional Population (EoP)	CNP16OV	M
Civilian Unemployment Rate (Ave)	CNP16OV	M
Effective Federal Funds Rate (Ave)	FEDFUNDs	M
M1 (money supply)		Q
S&P-500 index		Q
Treasury Spread		M
Total Factor Productivity (growth rate)	DTFPu	Q

2 Model Quarterly Dataset

As some time series data, like treasury spread, is monthly time series and starting date is most time at 1980s, so we will model the quarterly time series from 1950 to 2007.

References

Angeletos, G.-M., Collard, F., and Dellas, H. (2018). Business cycle anatomy. Technical report, National Bureau of Economic Research.

Doan, T., Litterman, R., and Sims, C. (1984). Forecasting and conditional projection using realistic prior distributions. *Econometric reviews*, 3(1):1–100.

Gilchrist, S. and Zakrajšek, E. (2012). Credit spreads and business cycle fluctuations. *American Economic Review*, 102(4):1692–1720.