

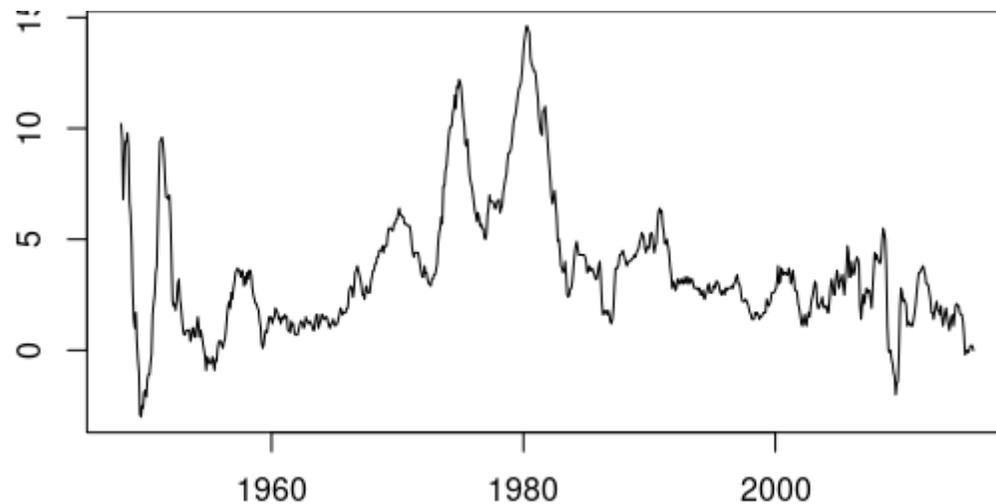
Lab 5

Statistical learning - EEBL

2023-10-25

Non-linear regression

Given the variable inflation in `USInflation.csv`,



consider $f(t) := \mathbb{E}[infl_t|t]$, where t is the number of days since the first point recorded in our dataset 1948/1/22.

Smoothing splines

- model $f(t)$ using global polynomials of different order and interpret the errors;
- model $f(t)$ using splines of different order and interpret the errors. Does using natural splines improve the fit?
- model $f(t)$ with smoothing splines and choose the number of knots by cross-validation. What is the selected λ ? How many df does it determine?

Kernel smoothing

- model $f(t)$ using the Nadaraya-Watson estimator. What is the optimal bandwidth h given by leave-one-out cross-validation?
- compare the $f(t)$ fitted by the two different models.