Fox Module 20: Collinearity

(The attached PDF file has better formatting.)

Homework assignment: Interest rates and inflation

Financial economists often model nominal interest rates as expected inflation plus the real interest rate plus an error term.

- Real interest rates are relatively steady over time.
- Expected inflation is often modeled as actual inflation in the previous period.
- The error term is both random fluctuation and changes in monetary policy.

A statistician has monthly data for interest rates, wage inflation, and general inflation.

A. What is the estimated β for a regression of interest rates on general inflation?
B. What is the standard error of the β coefficient?
C. What is the estimated β for a regression of interest rates on wage inflation?
D. What is the standard error of the β coefficient?
E. What are the estimated β′s for a regression of interest rates on both inflation rates?
F. What is the correlation of wage inflation with general inflation?
G. What are the standard errors of the β coefficients?

Month	*Wage Inflation*	*General Inflation*	*Interest Rates*	*Month*	*Wage Inflation*	*General Inflation*	*Interest Rates*
January	6.06%	5.12%	7.85%	July	6.48%	5.70%	8.39%
February	6.18%	5.20%	8.39%	August	6.76%	5.60%	8.84%
March	6.17%	5.14%	8.17%	September	6.74%	5.73%	9.11%
April	6.26%	5.35%	8.20%	October	7.00%	5.97%	9.04%
May	6.40%	5.36%	8.25%	November	6.95%	6.00%	8.95%
June	6.42%	5.51%	8.25%	December	7.28%	6.14%	9.60%