Macroeconomic Models:
Weekly Update

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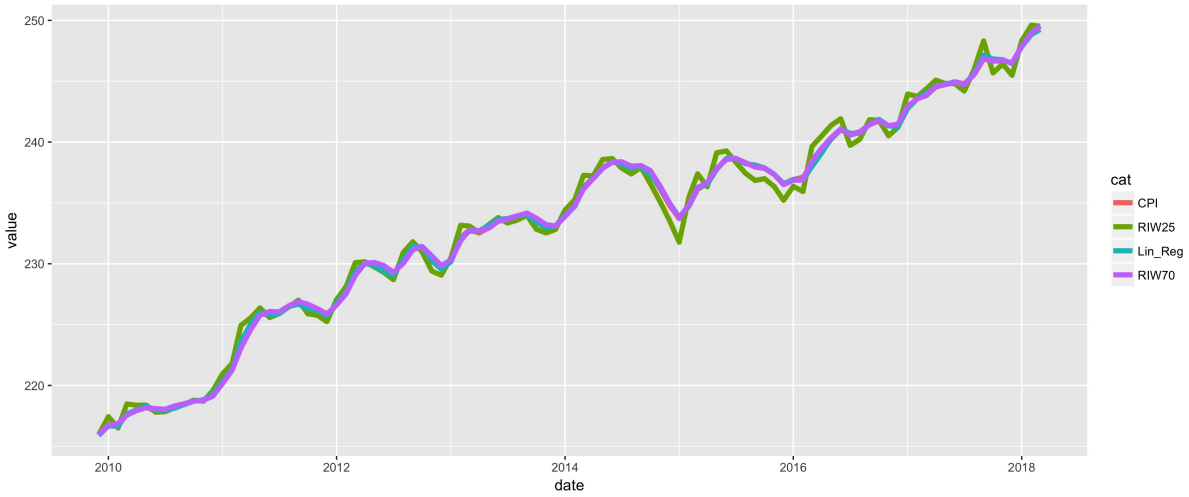
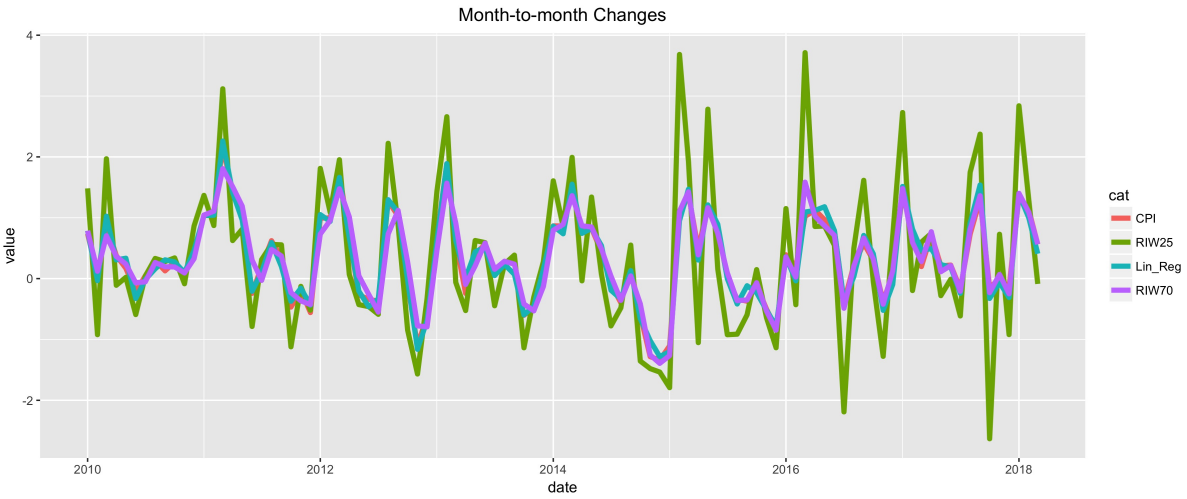


- $R^2_{25} = 0.9937$
- $R^2_{70} = 0.9997$
- $R^2_{\text{LinReg}} = 0.9998$
- The distinct lines are easier to see on a plot of month-to-month differences.



- $R^2_{25} = -0.21$
- $R^2_{70} = 0.97$
- $R^2_{\text{LinReg}} = 0.94$
- This indicates that the changing weights account for this lost $\approx 6\%$ variation.
- Relative expenditure weights change as prices change!! Consider a basket of two items:
  - Month 1
    - Prices
      Item A: \$30
      Item B: \$70
    - Relative importance weights
      Item A: 30%
      Item B: 70%
  - Month 2
    - Prices
      Item A: \$35
      Item B: \$70
    - NEW relative importance weights
      Item A: 100*(35/105) = 33.33%
      Item B: 100*(70/105) = 66.67%
- Key formulas, for strata i and time t:

$$\text{CPI}_t = \text{CPI}_{t-1}\left(\sum_i \left[\text{RIW}_{i,t-1}\left(\frac{\text{Strata}_{i,t}}{\text{Strata}_{i,t-1}}\right)\right]\right)$$

$$\text{RIW}_{t,\text{U}} = \text{RIW}_{t-1}\left(\frac{\text{Strata}_t}{\text{Strata}_{t-1}}\right) \text{ then normalize... } \frac{\text{RIW}_{t,\text{N}}}{100} = \frac{\text{RIW}_{t,\text{U}}}{\text{CPI}_t/\text{CPI}_{t-1} \times 100}$$