Issues in forecasting and out-of-sample forecast evaluation

- **For integration**, focusing on forecasting properties of individual systems models rather than domain-specific details may be constructive
  1. Forecasting is fundamental to economic decision-making
  2. Forecasts can be backed out from a behavioral model of decision-making
  3. These forecasts can be observed and (often) compared to real data
- **Experience in economics: (Elliott and Timmermann, 2008, *JEL*)**
  - Many 'rich' models forecast poorly
    - simplistic models can be tough benchmarks
  - Averaging or combining multiple models can work well (better than selecting a single model)
  - Take misspecification seriously in the economic model
  - Misspecification implies nonstationarity
  - The performance criterion matters (loss function)
  - Density forecasts are more generally useful than point forecasts
- **Lots of discussion of out-of-sample evaluations**
  1. There are *lots* of out-of-sample evaluation criteria
     - See chapters in *Handbook of Economic Forecasting*, vols I and II
     - Can evaluate model accuracy
     - Can assess potential model deficiency — what information seems to be missing
  2. Not a silver bullet.
     - Parameter estimation error affects forecasting performance
     - For confidence intervals, etc., we often need to manually account for parameter uncertainty
     - There be can other technical complications as well