Forecasting Local and State Tax Revenues

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Objectives of Economic Forecasting

- Predicting future economic variables (e.g. employment, GDP, tax revenues)
- Empirical testing and quantifying economic relationships suggested by economic theory
- Forecasting models and purpose

Economic Forecasting Methods

- Surveys
  - Consumers
  - Businesses
  - Experts
- Leading Indicators (variables whose change precedes changes in the general economy)
  - Business cycles
  - Inventories
  - Production levels
  - Orders for manufacturing inputs
  - Future markets
  - Stock market

Economic Forecasting Methods

- Extrapolation or trends
  - Extrapolate historical changes in the variable of interest
  - Maybe as simple as using as a moving average or more sophisticated techniques that incorporate non linear changes
- Time series
  - Incorporate both trends and economic relationships suggested by historical economic performance or economic theory
  - Often statistically complex and difficult to understand by those not trained in econometrics

Economic Forecasting Methods

- Structural Models
  - Demand and supply for individual or groups of commodities are mathematically modeled and parameters estimated from historical data
  - Very complex and requires substantial effort to understand by even competent econometricians
- Combined models
  - Use some elements of each method
  - Most more respected forecast models use varying combinations of these models

Shortcomings

- None forecast structural change well
- None forecast most “turning points” well
- Lucas Critique
  - Nearly all models base forecast on the way economic variables have interacted historically
  - The future is unique politically, technologically, and in many other manners
  - Using historically based interaction of variables may not accurately predict the future
  - Predicting the reaction of economic agents to a changing environment requires extremely “deep” and complex models

Connecting Economic Forecasts to Tax Revenues

- Most tax revenue models are based on economic forecasts
- However, tax systems usually do not directly tax the variables that are forecasted
- Tax revenues are not coincidental to economic activity (usually lagged)

Forecasting Accuracy

- Economic forecasts and economists are widely criticized for their lack of prediction accuracy
- Simple example: Assume an economist was asked to predict the price of oil:
  - The futures price is $70 and the economist predicts $70
  - At the future time the price turns out to be $100
  - Economist is criticized for not predicting $100
  - If the economist had predicted $100 and market participants recognized the economist's oracle like abilities, then the market would have quickly moved the future price to $100
- Market adjusts to all expected influences and those unexpected influences may cause havoc because resulting rapid adjustments are unplanned and unanticipated
- Pat Barkey, MBBER will talk more explicitly about forecasting accuracy

Strategies to Address Downturns

- Reserves
- Use conservative forecasts
- Stress tests
- Contingency plans

Economic Stabilization and Growth

- Capitalistic systems usually result in higher growth rates
- Capitalistic systems are also subject to substantial economic fluctuations as the economy adjusts to changing conditions
- For the most part (but not always) stabilization policies results in reduced long term growth