

# Economics 390

## Economic Forecasting

- Prerequisite: Econ 410 or equivalent
- Course information will be on website
- Office Hours
  - Wed 1:30-3:30
  - or by appointment

# Textbooks and Readings

- *Elements of Forecasting*
  - Francis Diebold
- *Introduction to Econometrics*
  - Stock and Watson
  - Chapters 14, 15, 16
  - Scanned copy on webpage
- Additional Readings on Webpage
  - Will be updated throughout semester

# Computer Software

- STATA
  - Continuity with Econ 410
  - Available in Social Science Computer Labs
- Small STATA can be purchased for \$49
  - One-year license
- Excel useful for graphic
- For advanced users:
  - MATLAB, GAUSS, Ox, R

# Assessment

- Problem Sets (weekly): 15%
- Project: 25%
- 3 Midterm exams: 20% each
- There will be no Final exam

# Problem Sets

- Weekly
- Starting this week
- Conceptual, algebraic, theoretical, and numerical
- Computer analysis
- You can work together, but also attempt everything yourself
- I'll send the assignments by email

# Exams

- First Midterm: Tuesday Feb 23
- Second Midterm: Thursday March 25
- Third Midterm: Thursday May 6
- Exams will have mix of conceptual, theoretical, and interpretive questions

# Forecasting Project

- Goal is to everyone to design an individual project, make decisions, and have some fun
- You will choose a specific time series, make a set of forecasts, and evaluate your success
- You will work on this project throughout the semester.
- The Forecasting Project will require 3 reports

# Timing

- You will select a time-series to forecast
- It must have at least one new realization between when you turn in your (second) forecast report and when you turn in your evaluation report.
- For example, if you want to forecast the U.S. unemployment rate for April 2010, the number is announced by the BLS on May 7. You can turn in your forecast up until May 4.
- If you want to forecast first quarter U.S. GDP, it is announced by the BEA on April 30. You can turn in your forecast up until April 29.

# First Project Report

- Due Tuesday Feb 16
- Describe the variable
  - Source
  - When future observations will be available
    - This constrains the timing for your second report
  - Where you will find them
  - Present a time-series of the historical series

# Second Project Report

- Forecast Report
- Due one full day before your forecast date, latest by Tuesday May 4
- Must include:
  - Description of the data, including plots and time-series properties
  - Description of your forecasting method
  - Description of your forecasting model and parameter estimates

# Second Project Report (continued)

- Extrapolation Forecasts
  - A full year of extrapolation forecasts
  - For monthly data, this means a set of 12 forecasts
  - For quarterly data, a set of 4 forecasts
- Point and Interval Forecasts
  - Point forecasts are the expected future values
  - Interval forecasts are possible ranges
  - You will learn these concepts over the semester

# Third Project Report

- Due by 4pm Wednesday May 12
- Brief forecast evaluation
- Compare your one-step-ahead forecast with the actual realization
  - Was the actual value close to your forecast?
  - Did the actual value fall in your forecast interval?
  - Would a decision-maker have been wise to listen to you?

# Data for Project

- You select your economic series to forecast
- As this is an economics course, it should be an *economic* series.
- Feel free to ask me about possibilities.
- You can pick a standard economic series, or can be creative.
- I advise against financial series. There is little to forecast, and the project will turn out to be uninteresting.

# Data Frequency

- Pick an economic series which is available monthly or quarterly
- Annual series are difficult to fit in our evaluation window
- Weekly is possible, but have extra challenges.
- Daily series have special difficulties which we will not cover

# Sample Size

- When you select a time-series, check that there is a sufficient historical record for you to fit a forecasting model
- If the sample length is too short, you will not be able to fit an meaningful model, and the project will not be interesting
- I suggest a minimum of 20 years of monthly or quarterly data

# Questions

- In the First Project report, you will describe your selected time-series and data availability
- The purpose is so that you will have assessed feasibility, before you get too far along
- It also gives me a chance to review your project to assess feasibility

# Finding Data

- Many economic data series are on the web
- Be careful to check for historical availability. Many only post a few years of observations
- Official government sites are very good sources, and have full historical series
- An excellent starting point is the data page at Resources for Economists: [rfe.org](http://rfe.org)
- Links on the course webpage

# Example

- Wisconsin Unemployment Rate
- November 2009: 8.2%
- December 2009 announced by BLS this Friday Jan 22
  - Announced earlier by Wisc DWD, perhaps Thursday Jan 21
- Recent History
  - 8.8% in August
  - 8.4% in September
  - 8.4% in October
- Future Releases by Bureau of Labor Statistics (BLS)
  - December 2009: January 22
  - January 2010: March 10
  - February 2010: March 26
  - March 2010: April 16

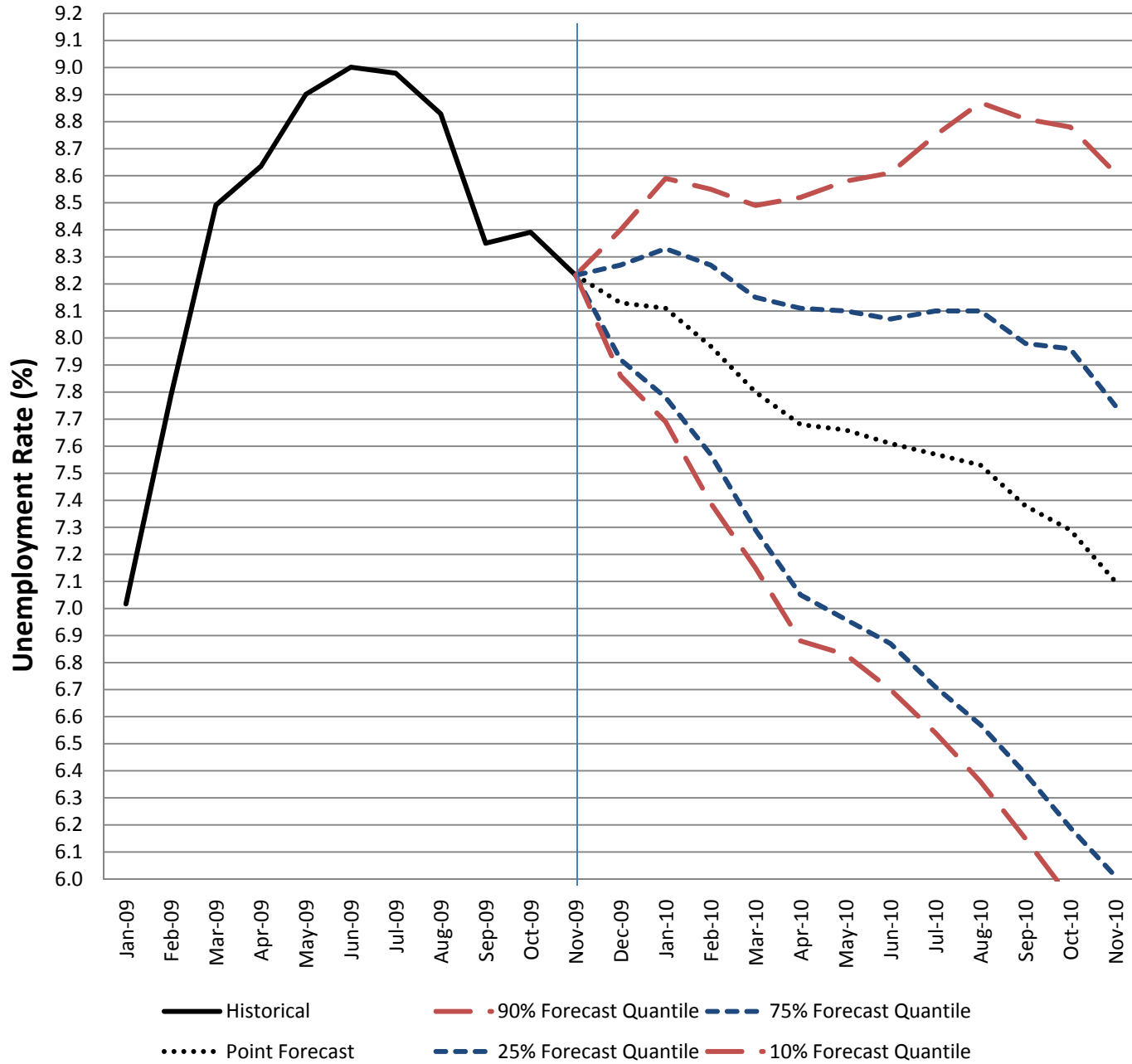
# Extrapolative Forecasts

	<b>Point Forecast</b>	<b>50% Interval Forecast</b>	<b>80% Interval Forecast</b>
2009:12	8.1%	(7.9%, 8.3%)	(7.9%, 8.4%)
2010: 1	8.1%	(7.8%, 8.3%)	(7.7%, 8.6%)
2010: 2	8.0%	(7.6%, 8.3%)	(7.4%, 8.6%)
2010: 3	7.8%	(7.3%, 8.2%)	(7.2%, 8.5%)
2010: 4	7.7%	(7.1%, 8.1%)	(6.9%, 8.5%)
2010: 5	7.7%	(7.0%, 8.1%)	(6.8%, 8.6%)
2010: 6	7.6%	(6.9%, 8.1%)	(6.7%, 8.6%)
2010: 7	7.6%	(6.7%, 8.1%)	(6.5%, 8.8%)
2010: 8	7.5%	(6.6%, 8.1%)	(6.4%, 8.9%)
2010: 9	7.4%	(6.4%, 8.0%)	(6.2%, 8.8%)
2010:10	7.3%	(6.2%, 8.0%)	(5.9%, 8.8%)
2010:11	7.1%	(6.0%, 7.8%)	(5.7%, 8.6%)

# Forecast for Friday's Release December 2009

- Point Forecast: 8.1%
  - Decline of 0.1% from November
- 50% Forecast Interval
  - [7.9% to 8.3%]
- 80% Forecast Interval
  - [7.9% to 8.4%]

# Wisconsin Unemployment Rate



# Upcoming Announcements

- Jan 20 (Wed)
  - Producer Price Index (BLS)
- Jan 21 (Thurs)
  - Usual Weekly Earnings (BLS)
- Jan 22 (Fri)
  - Regional and State Employment and Unemployment (BLS)
- Jan 27
  - Mass Layoffs (BLS)
- Jan 29
  - Employment Cost Index (BLS)
  - Gross Domestic Product (BEA)
- Feb 1
  - Personal Income (BEA)