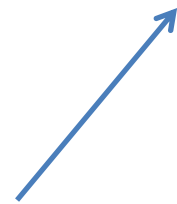


Understanding and Improving Forecasts

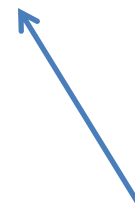
Patrick M. Barkey, Director
Bureau of Bus. & Econ. Research
The University of Montana

Evaluating Economic Forecasts

X “causes” Y



Money Supply Growth
Gasoline Prices
Strength of Dollar
Wheat Price



Inflation
Montana Personal Income
Montana Capital Gains
Oil and Gas Severance Tax
Collections

Forecasting Models: Equations and Estimates

1 9:1 PRED.L324 = A1_0 + A1_1 * LAG1(L324) + A1_2 * POILDOM + A_L324;

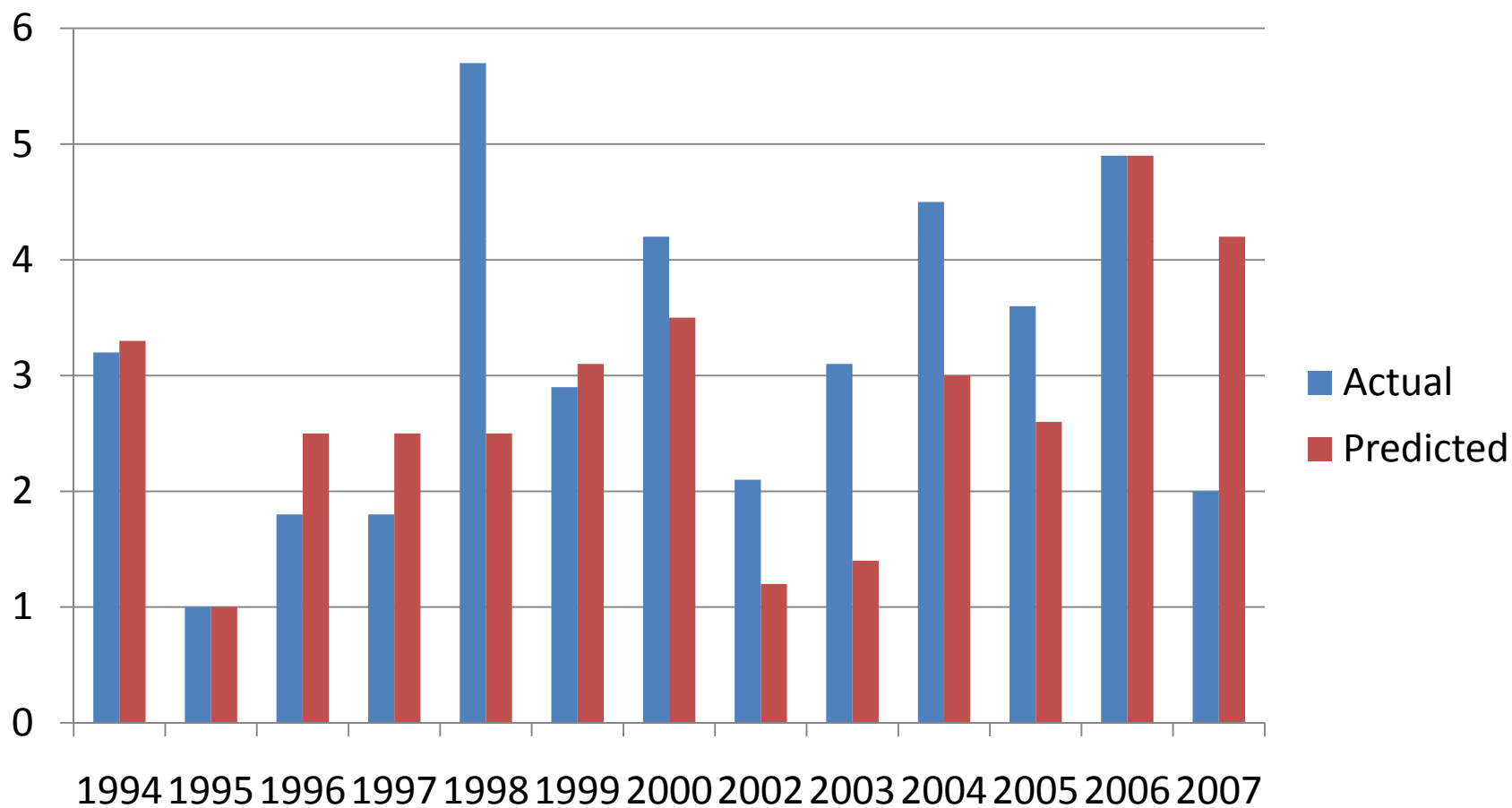
2 10:1 PRED.L21 = EXP(A3_0 + A3_1 * LAG1(LOG(L21)) + A3_2 * LOG(WPI10 / WPI) + A3_3 * LOG(GDPR) + A3_4 * (D1 - D4) + A3_5 * (D2 - D4) + A3_6 * (D3 - D4)) + A_L21;

3 12:1 PRED.L321 = EXP(A4_0 + A4_1 * (LOG(IPSG321) - LOG(LAG1(IPSG321))) + A4_2 * (D1 - D4) + A4_3 * (D2 - D4) + A4_4 * (D3 - D4) + LOG(LAG1(L321))) + A_L321;

Sources of Forecast Error

- | | | |
|---|---|-------------------------|
| 1. Model Error
(specification or omission) | } | Blame the
forecaster |
| 2. Estimation Error | | |
| 3. Input Error | } | Blame the data |
| 4. Shock or Random Error | } | Blame your luck |
| 5. Political Acceptability | | |

UM BBER Forecasts



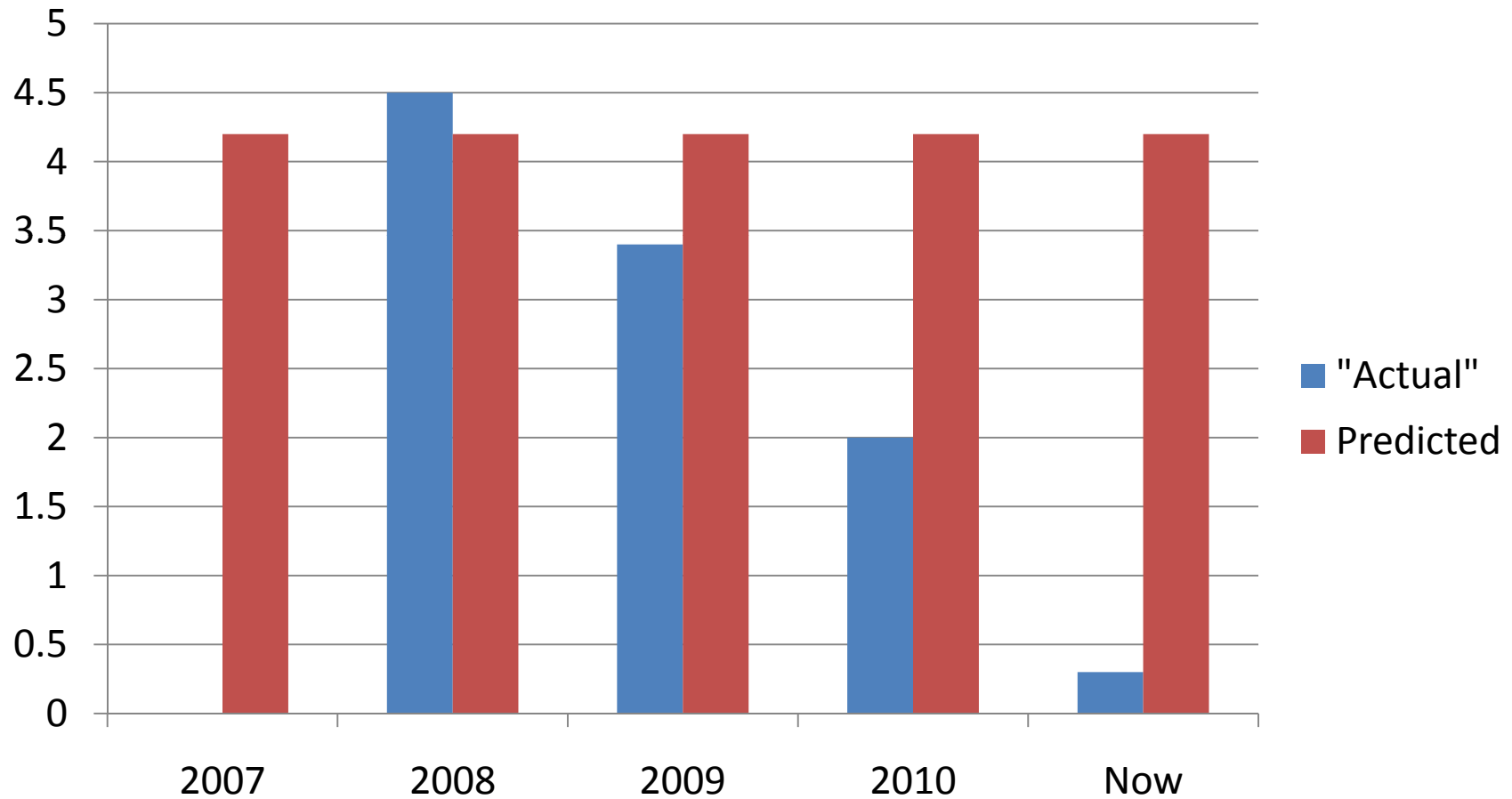
Percent Growth in Inflation-Corrected Non-Farm Labor Income

A Few Practical Observations

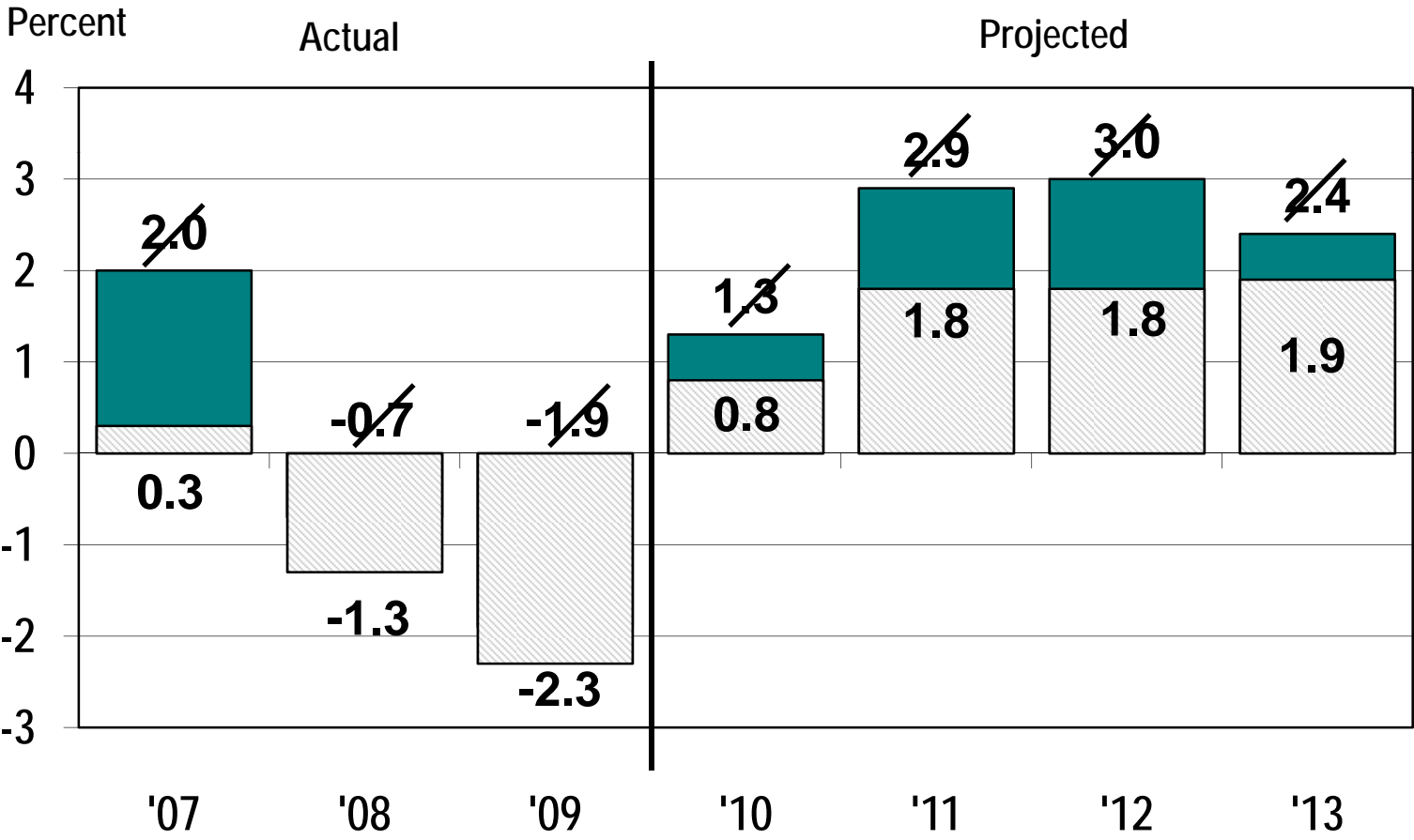
- Forecasts are usually “smoother” than actual data
- Forecasting data that are strongly trended is usually easier
- Forecasting “turning points” where trends change direction is very hard
- Forecasts are revised because data and assumptions about inputs change

Impact of Data Revision

Example: Predicting 2007 Growth



Actual and Projected Change in Nonfarm Labor Income, Montana



Why Revenue Forecasting is Harder

- Forecasting Dollars, Not Growth
- Need to Forecast All Components of GF Revenues, Not Just the Total
- Forecast Horizon is at least 2.5 years