An Anatomy of Jobless Recoveries: Will Employment Lag as It Did in 2001-03? If Not, Why Not?

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Grateful for Invitation, Privileged to be here

- Preview of talk
- Part 1. Background on dimensions of the 2007-09 U. S. economic crisis
  - Employment and unemployment
    - Changes and ratios compared to NBER peak
  - Total Unemployment (discouraged workers, forced part-time)
- Save handout for Part 2

Part 2. Core of the Talk

- Anatomy of Jobless Recoveries
- A Unified Empirical Analysis of the Actual, Cyclical, and Trend Behavior of
  - Real GDP per Capita
  - Total Economy Productivity
  - Hours per Employee
  - Employment Rate
  - Labor Force Participation Rate
- Asynchronized cyclical behavior of employment and productivity identified in my 1979 article, it's nothing new (but has gotten more severe)

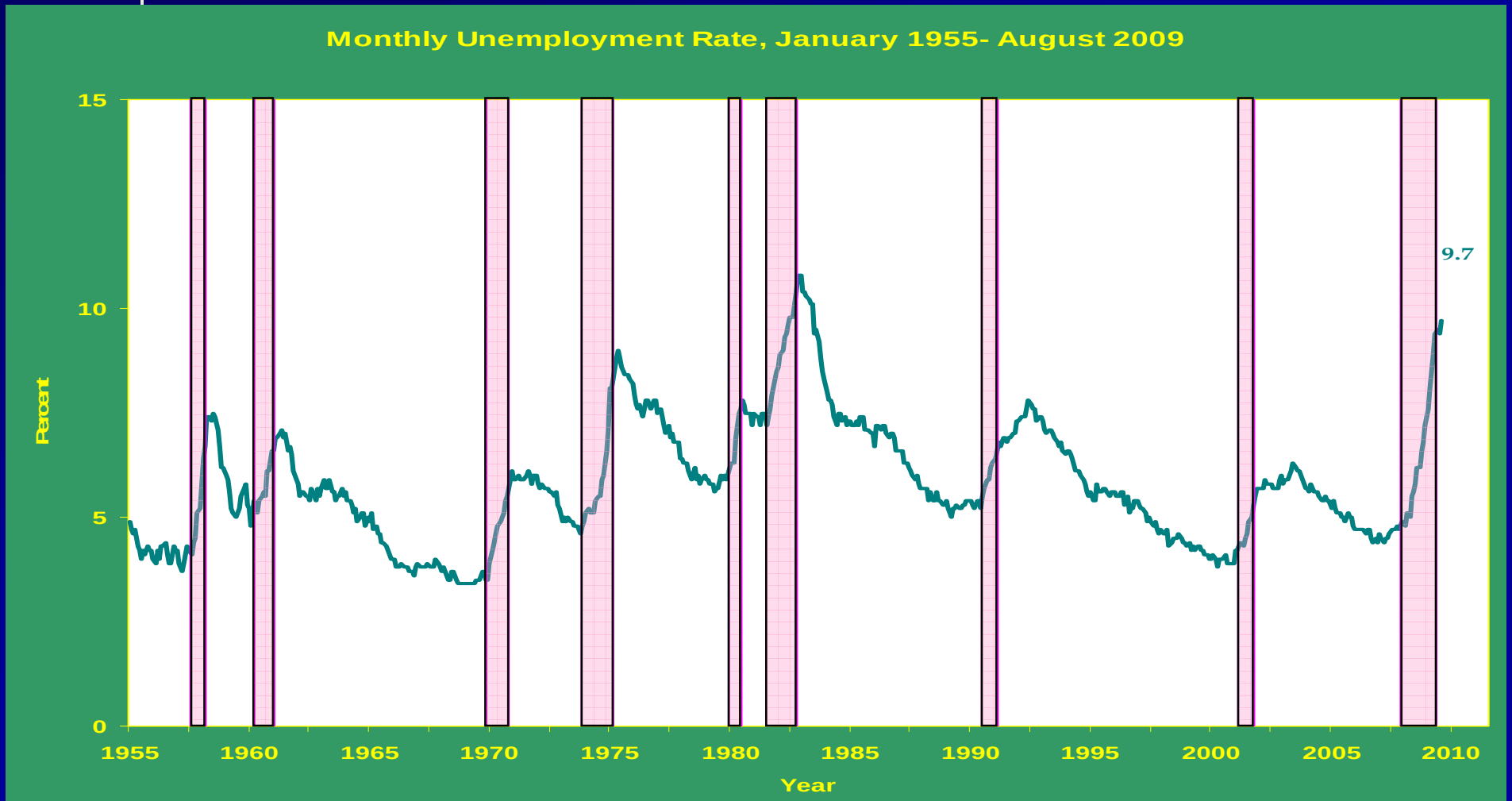
Questions to be Addressed in Part 2

- Changes in the Cyclical Behavior of Employment and Productivity
  - This is the third "jobless recovery"
    - 1991-92, 2001-03, 2009-?
  - Corollary: Productivity Puzzles
    - "End of Expansion" Effect
    - "Early Recovery Productivity Bubble"
- How much of this is new?
- Any Chance that 2009-11 won't repeat 2001-03?
  - Leads us to another set of facts on corporate profits and the stock market as causes of changing cyclical behavior in the labor market
- Byproduct of the analysis: the slowing long-run trend growth rate of real GDP per capita

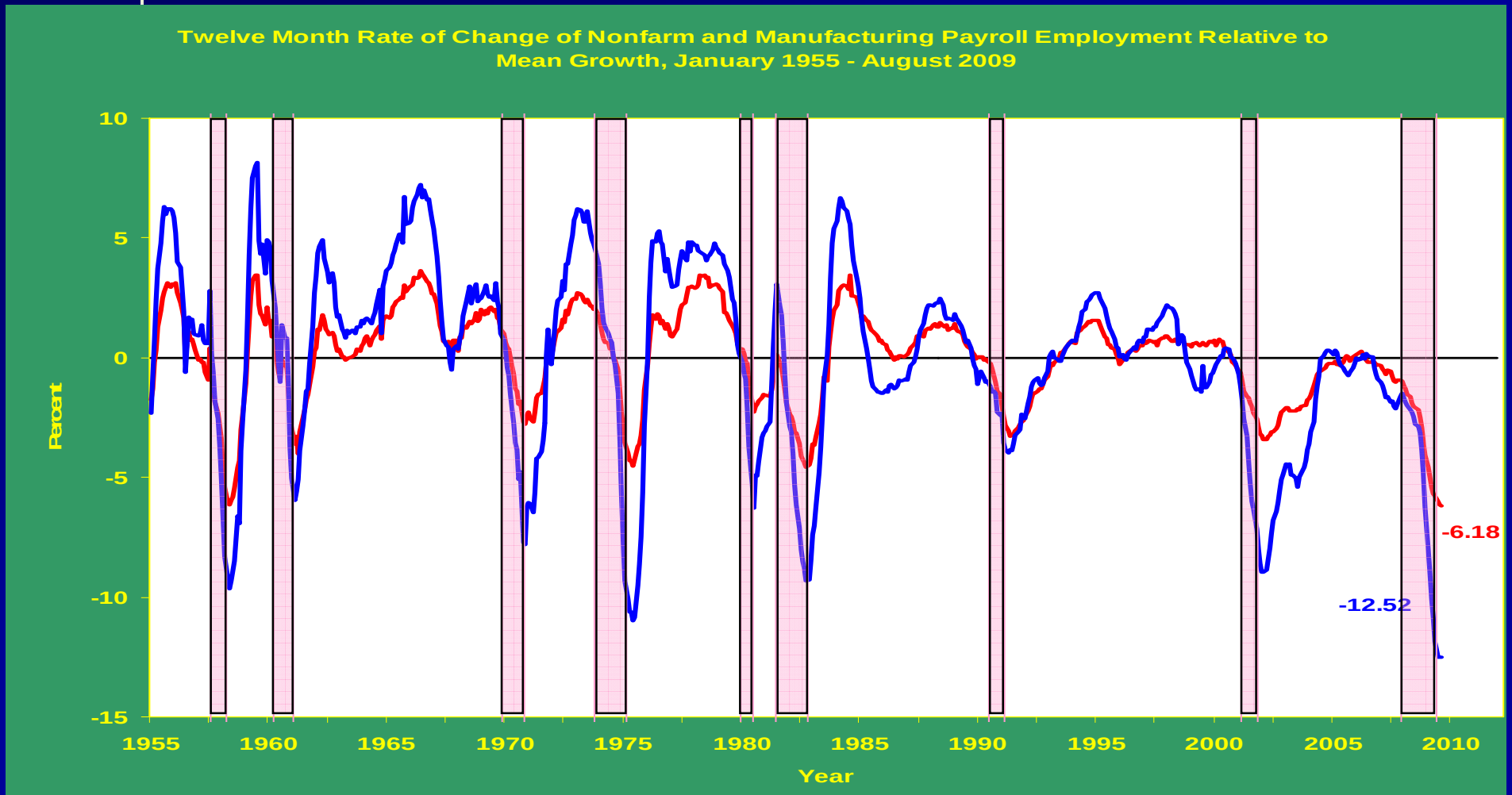
Part 1. Graphs for Perspective on this Cyclical Episode

- All data on employment are current through last Friday
- All data on productivity are current through the release of August 7
- We look first at unemployment rate (then later at hidden unemployment)
- Then 12-month and 6-month changes in employment
  - Total economy vs. manufacturing
  - Adjusted for postwar trend growth
- How bad is this episode as compared to worst previous postwar recessions?

The Monthly Unemployment Rate Since 1955



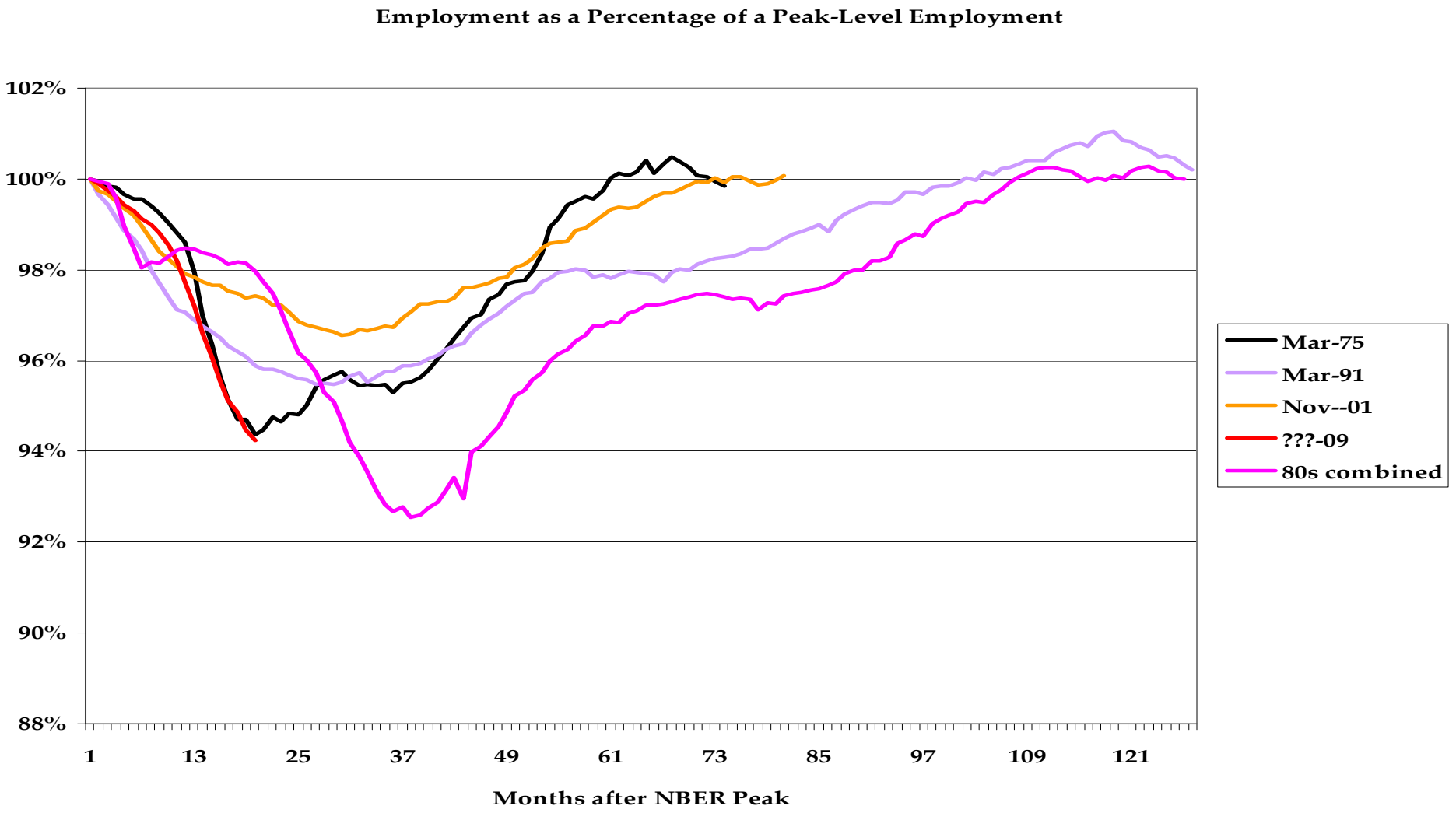
12-Month Change Relative to Postwar Mean Change



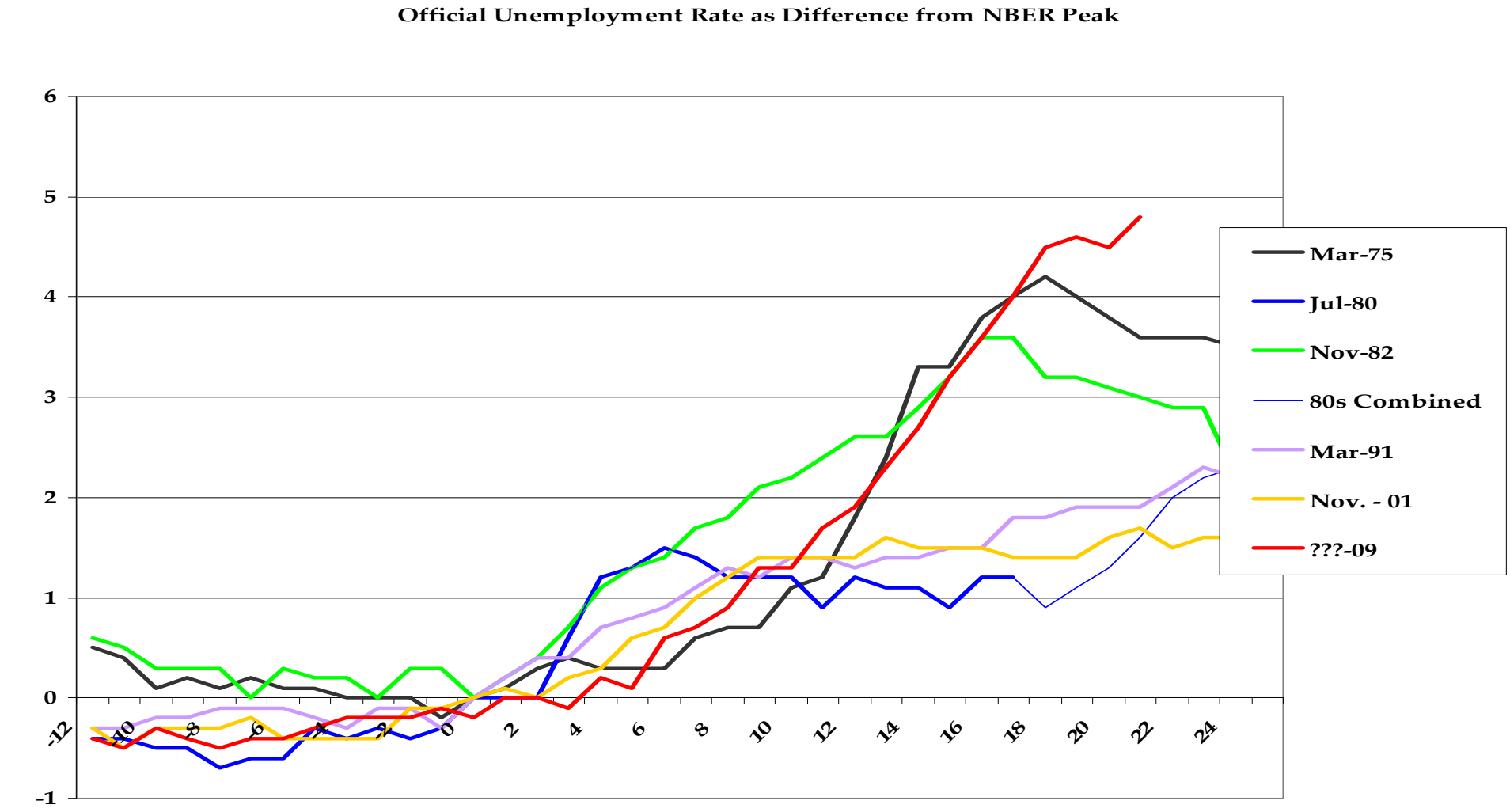
Fixing Flaws in These Comparisons

- Unemployment Rate doesn't convey change over the recession episode
- Employment 12-mo don't reflect duration of the negative change
- Solution: Employment as % of NBER peak employment
- But must adjust for different trends in employment
  - Solution: divide by "potential employment" measured by growth between NBER peaks

Employment as Percentage of "Potential Employment"



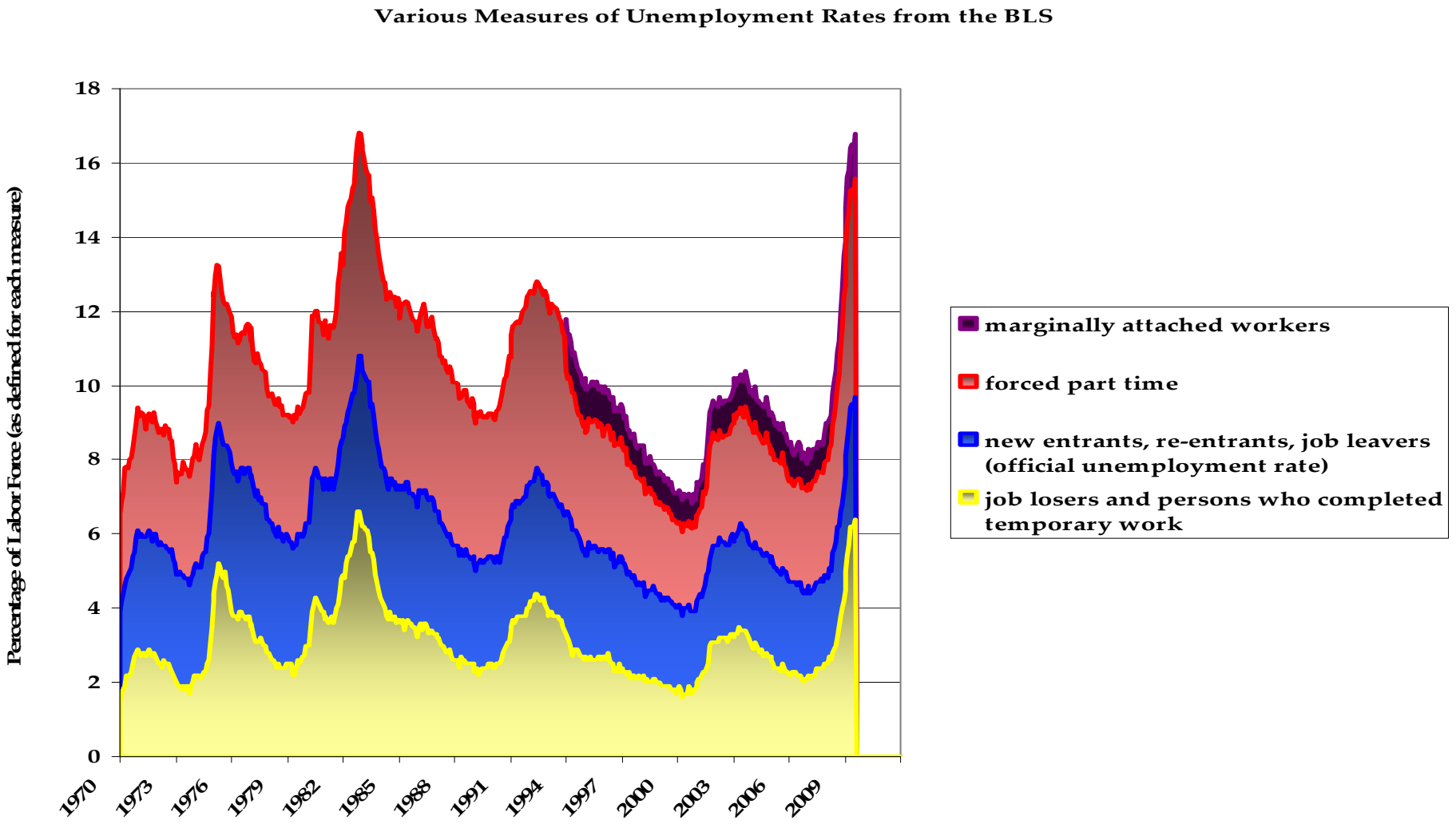
Difference Between Unemployment Rate and NBER Peak



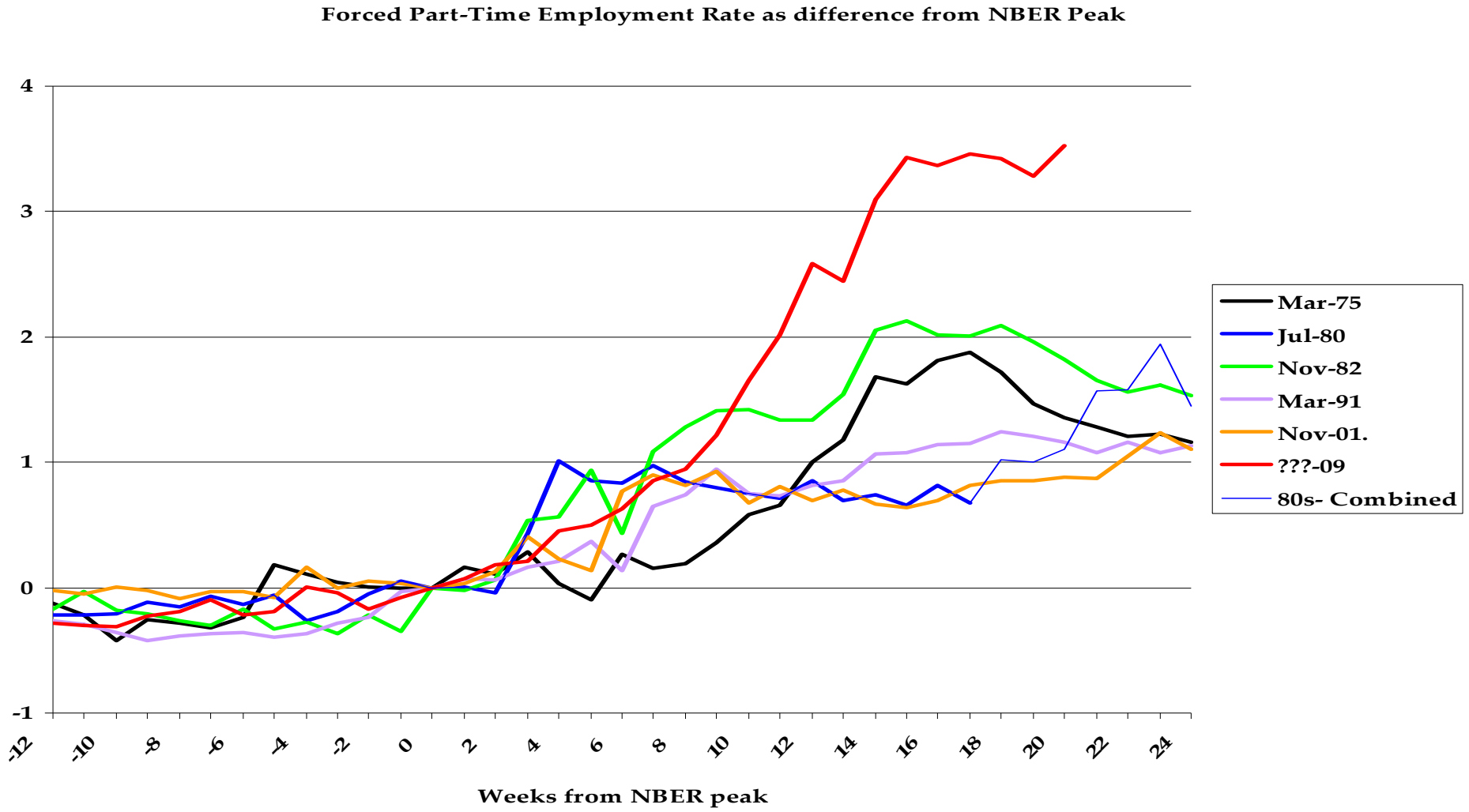
Advantages of Employment vs. Unemployment

- Employment ratios:
  - Correct for discouraged workers (NYT Monday front page)
  - Drop of employment from peak includes those who move into unemployment and out of labor force
- Remaining Flaw
  - No correction for involuntary part-time

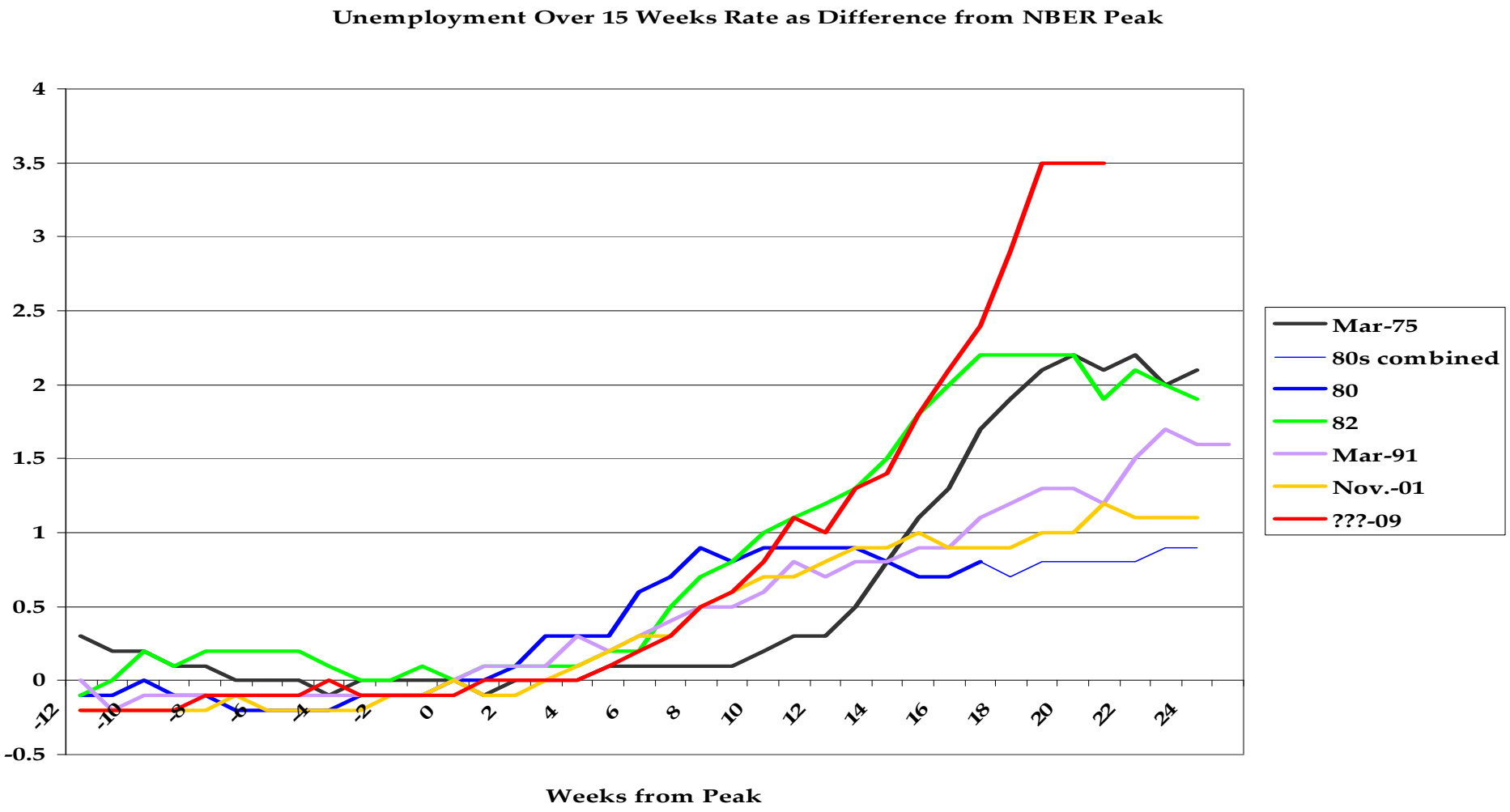
Comprehensive Unemployment Rates Since 1970



Involuntary Part-time Employment vs. the NBER Peak



Unemployment > 15 Weeks vs. NBER Peak



Conclusions from Part 1

- Every measure of employment decline and unemployment increase makes this episode the worst of the postwar
- But so far it's not as bad as the double recession 1980-82 in decline of employment from peak
- But the big question is how long the high U and declining E will persist

Introduction to Part 2

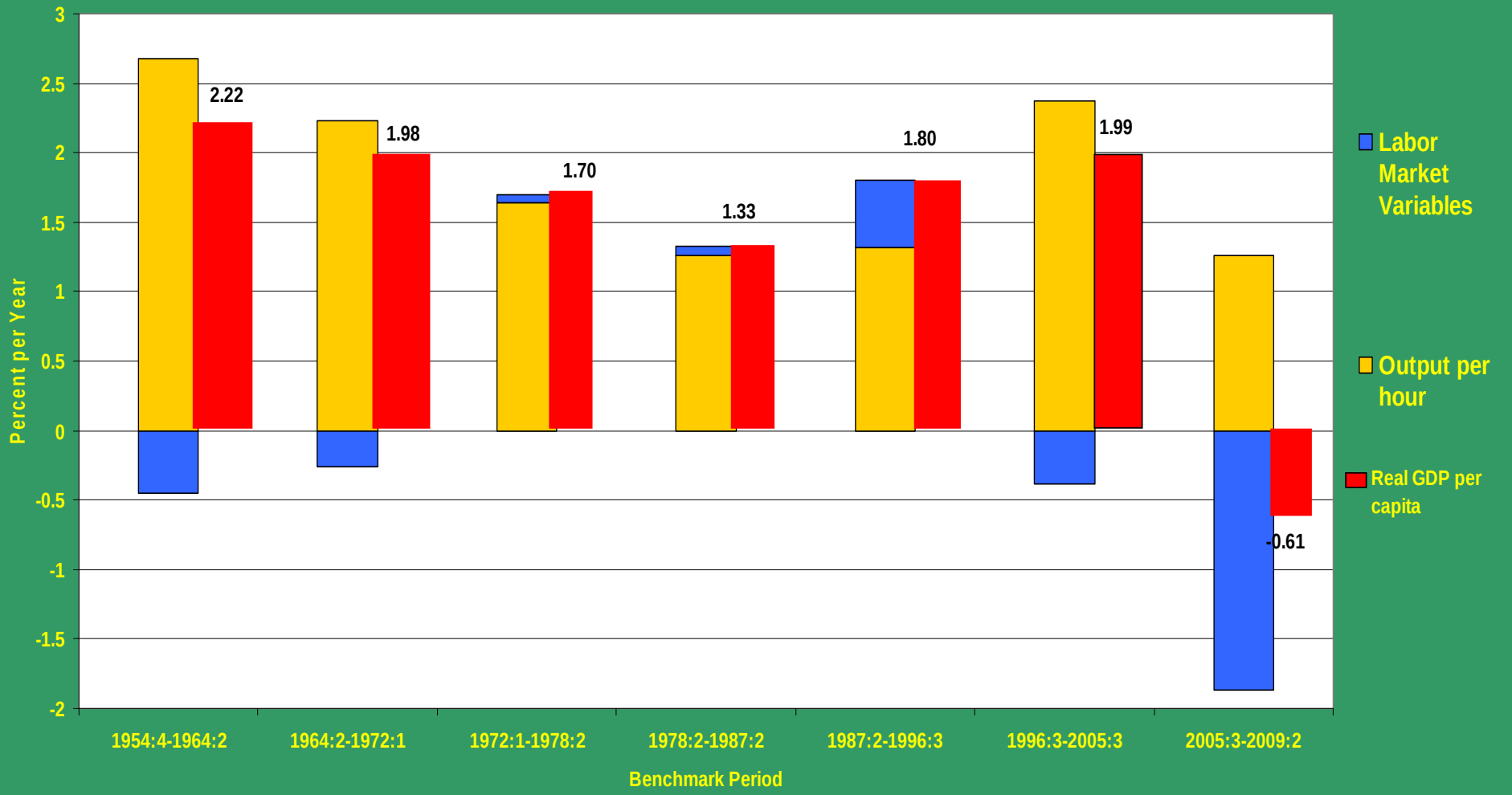
- Summarize the outcome on research in creating trends and deviations from trends of the *OUTPUT IDENTITY*
- Pay particular attention to recoveries of 1991-92 and 2001-03
- Subsequently relate this history to corporate profits as a substantive explanation and new unemployment claims as a cyclical indicator

Using the "Output Identity" to Link Income per Capita to Productivity

- $Y/N \equiv Y/H * H/E * E/L * L/N$

- The four right-hand terms exhibit procyclical behavior
- BUT concept of productivity usually discussed in U.S. is for NFPB sector
- This equation works as long as our data are for *total economy productivity* and *total economy hours per employee.*
  - *Y* is real GDP, *H* is total economy hours (unpublished BLS series)

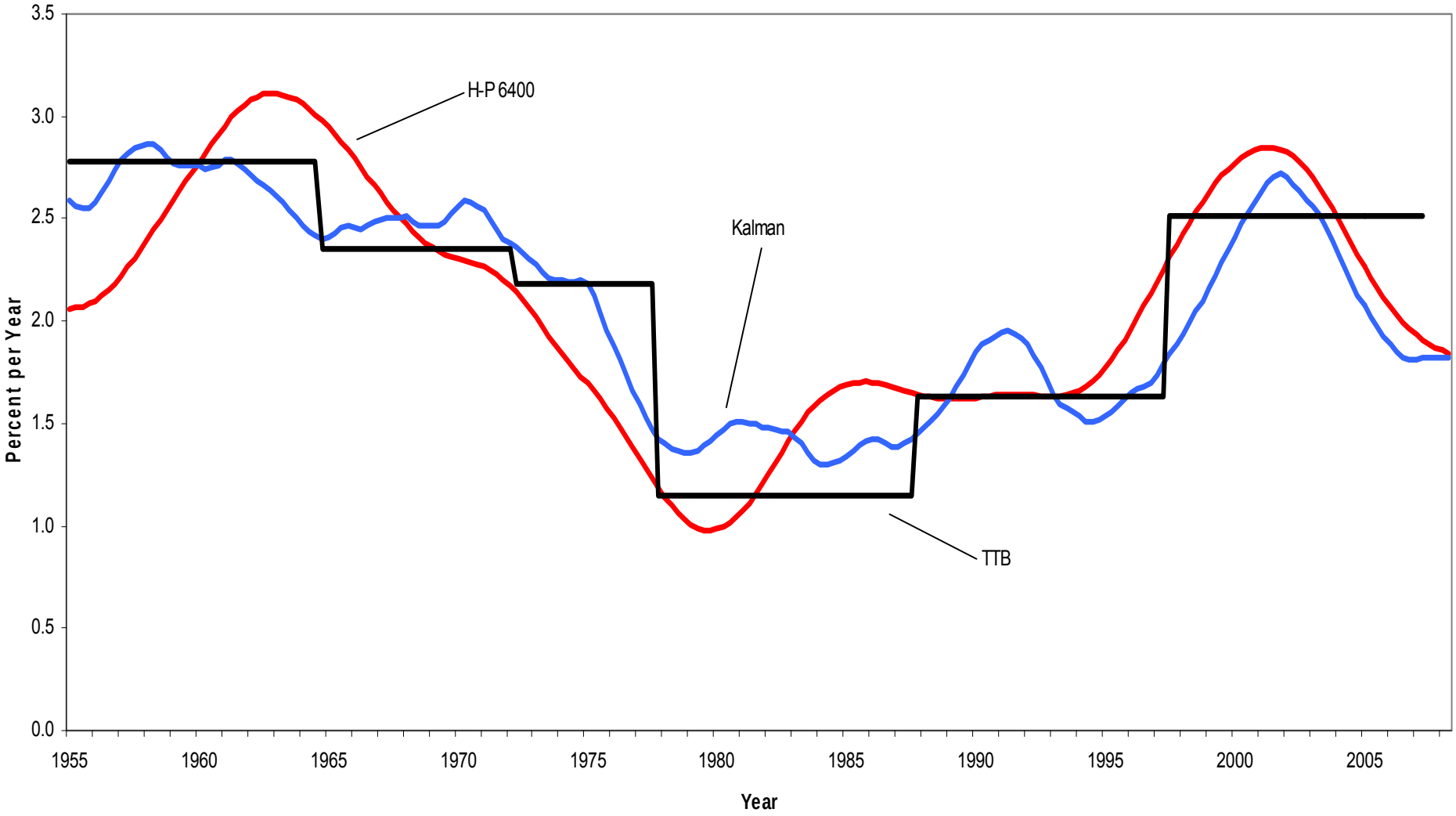
Growth Rates of Y/N, Y/H, and H/N, Selected Intervals



Brief Methodological Comments on Trend Method

- Standard statistical methods (e.g. Hodrick-Prescott filter) "bend" too much in response to business cycles.
- The trend in a variable should represent its growth rate *independent of business cycles*
- Kalman filter allows feedback from the business cycle

Three Methods for Estimating the Productivity Trend through 2008



Kalman Trend with Cyclical Feedback

- Can estimate trend line for each component of the output identity

  (Y/H, H/E, E/L, and L/N)

- The technique is based on a regression that estimates the sensitivity of the component (e.g., productivity) to past changes in the output gap
- But where does the output gap come from?

Iterative Process

- To estimate the business cycle component of output, there is a problem
- You can't regress the output deviation from trend on itself!
- Solution: independent research on inflation

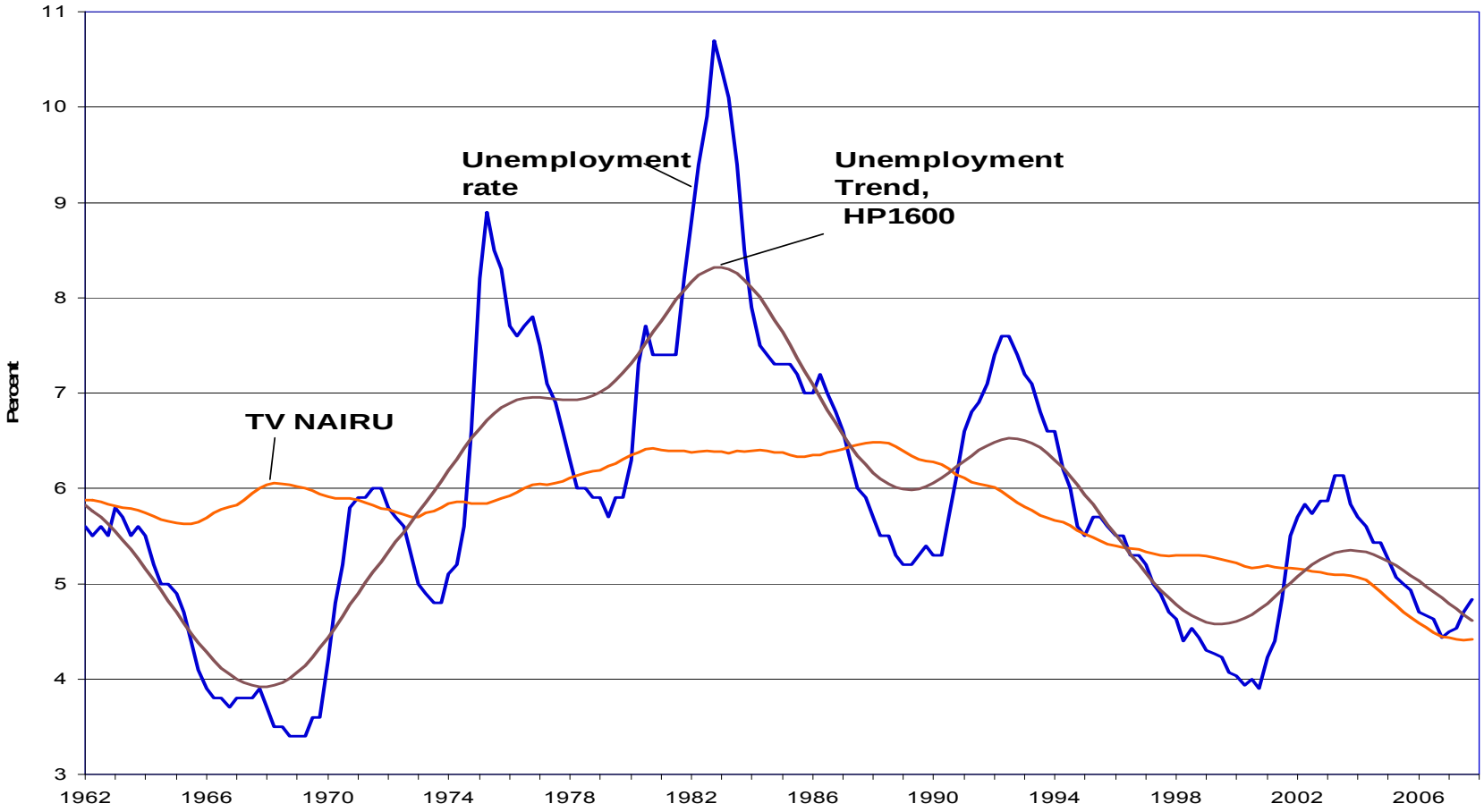
Longstanding Specification of the U. S. Inflation Process

$$p_t = a(L)p_{t-1} + b(L)(U_t - U^N_t) + c(L)\, z_t + e_t$$

$$U^N_t = U^N_{t-1} + \eta_t,\ E\eta_t = 0,\ var(\eta_t) = \tau^2$$

- Single-equation reduced form for inflation, no wages
- Supply shock variables included explicitly (no shocks z=0)
- Demand variable is the unemployment gap
- The TV-NAIRU is « backed out » from the estimation: controlling for supply shocks, what must the U gap have been to explain how inflation is behaving
- Need to smooth it or it will soak up all residual variation

Actual Unemployment Rate, H-P 1600 Trend, and TV-NAIRU

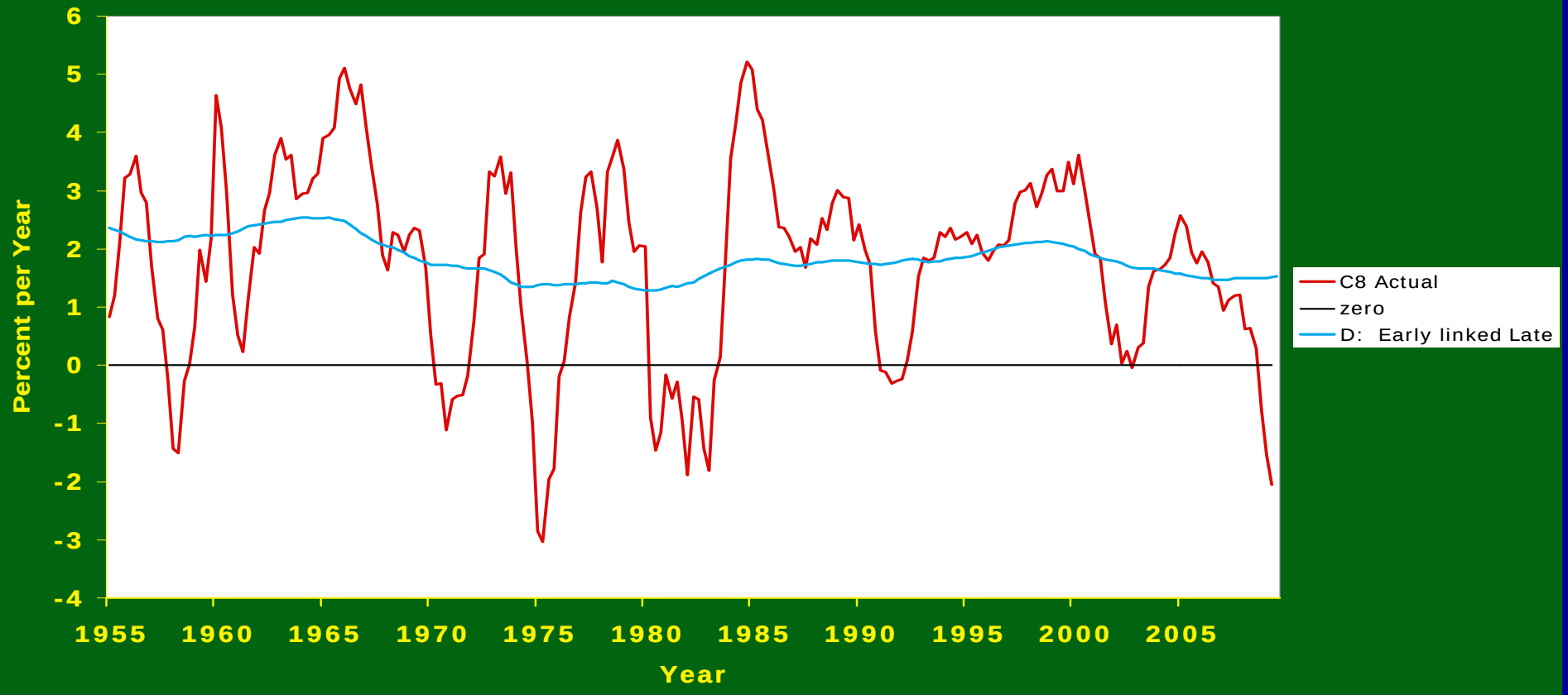


Unemployment Gap = U Rate – TV-NAIRU

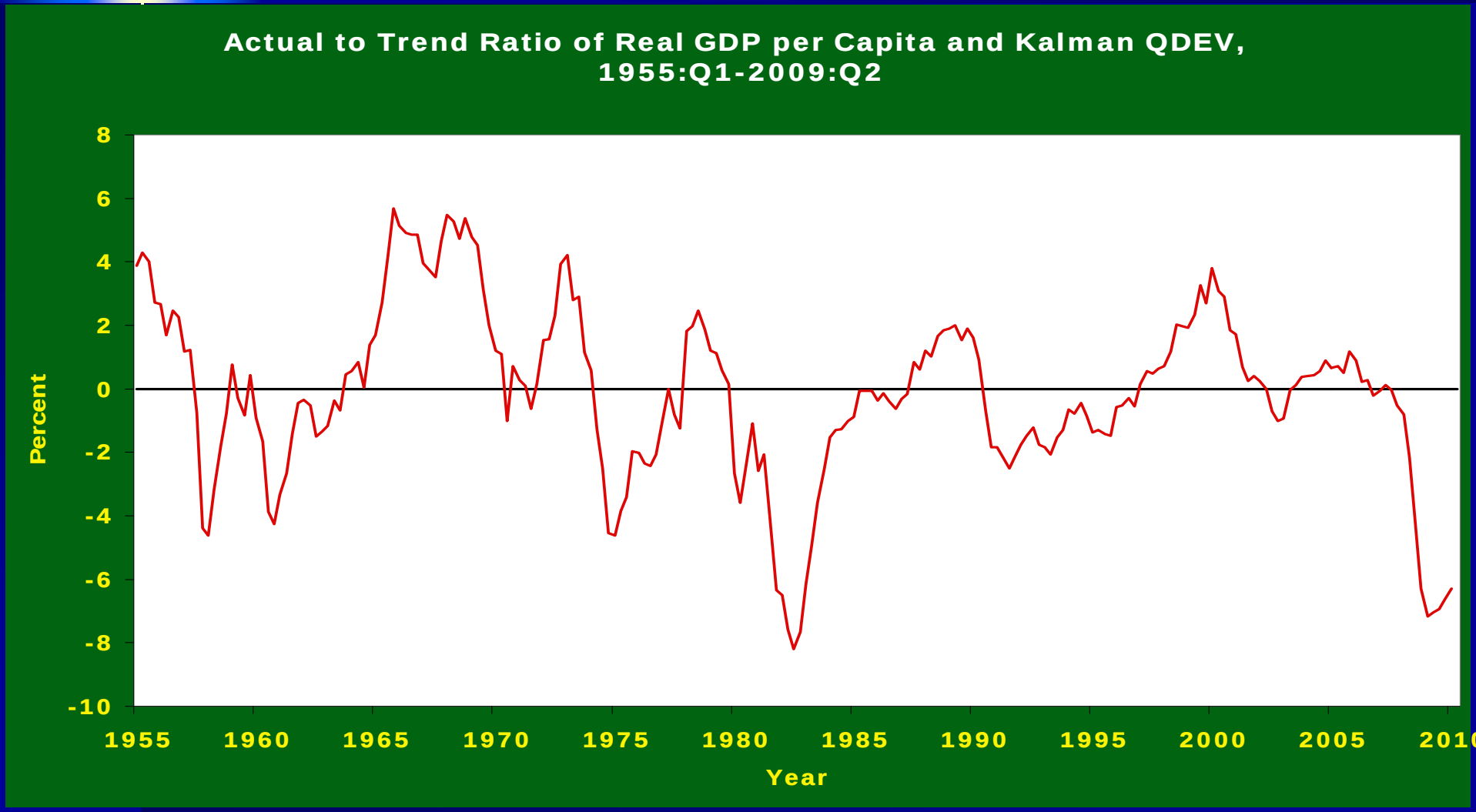
- This unemployment gap is then fed back into the Kalman technique to create the cyclically purged output trend
- Summary:
  - Output trend is created directly by using U gap for cyclical correction
  - Four components of output identity are trended using Y gap for cyclical correction

Eight-quarter change in Real GDP vs. Its Trend

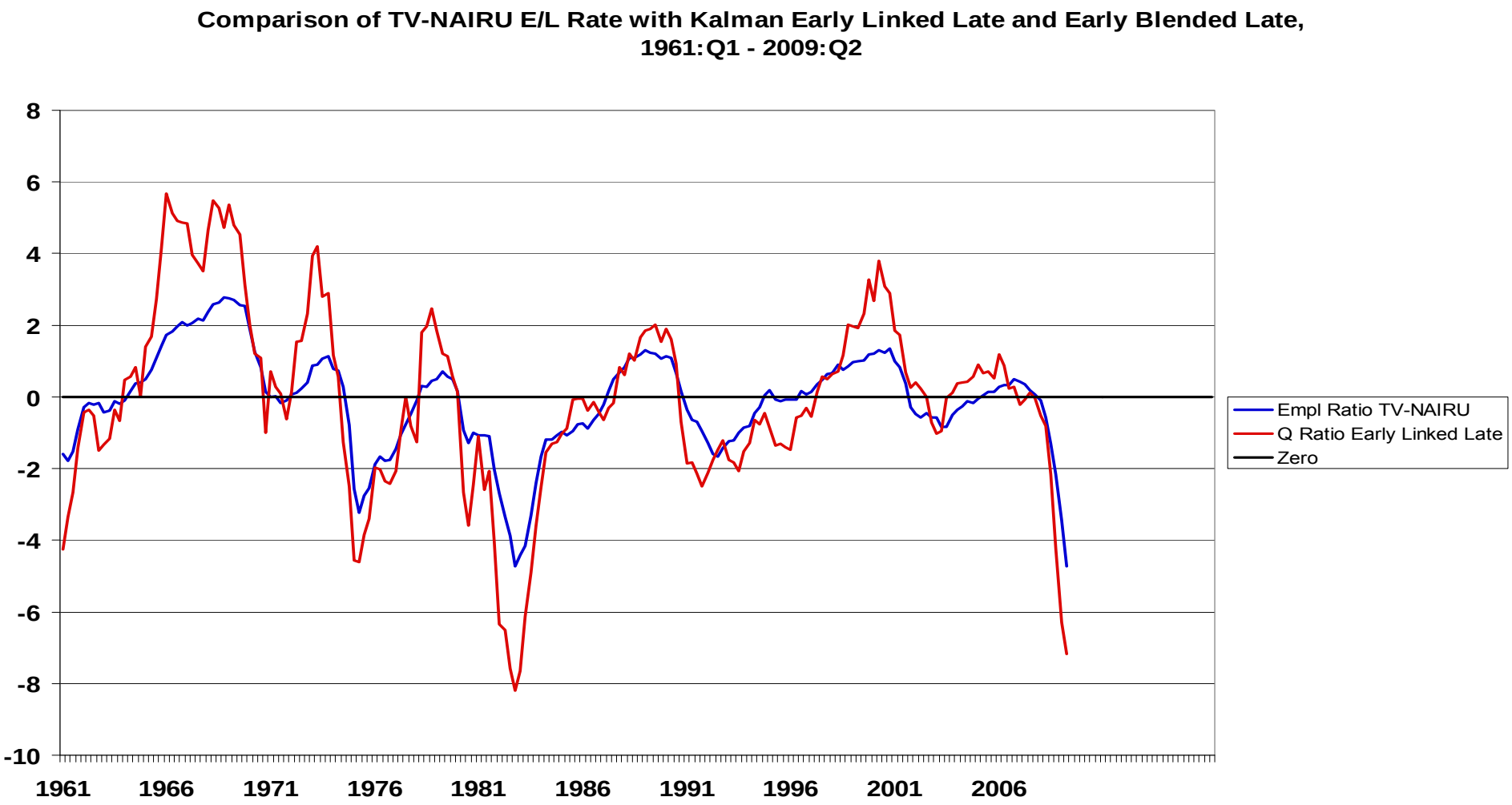
Figure 9d. Eight Quarter Annual Rate of Growth of Real GDP per Capita Compared to Five Alternative Kalman Direct Trends, 1955:Q1-2009:Q2



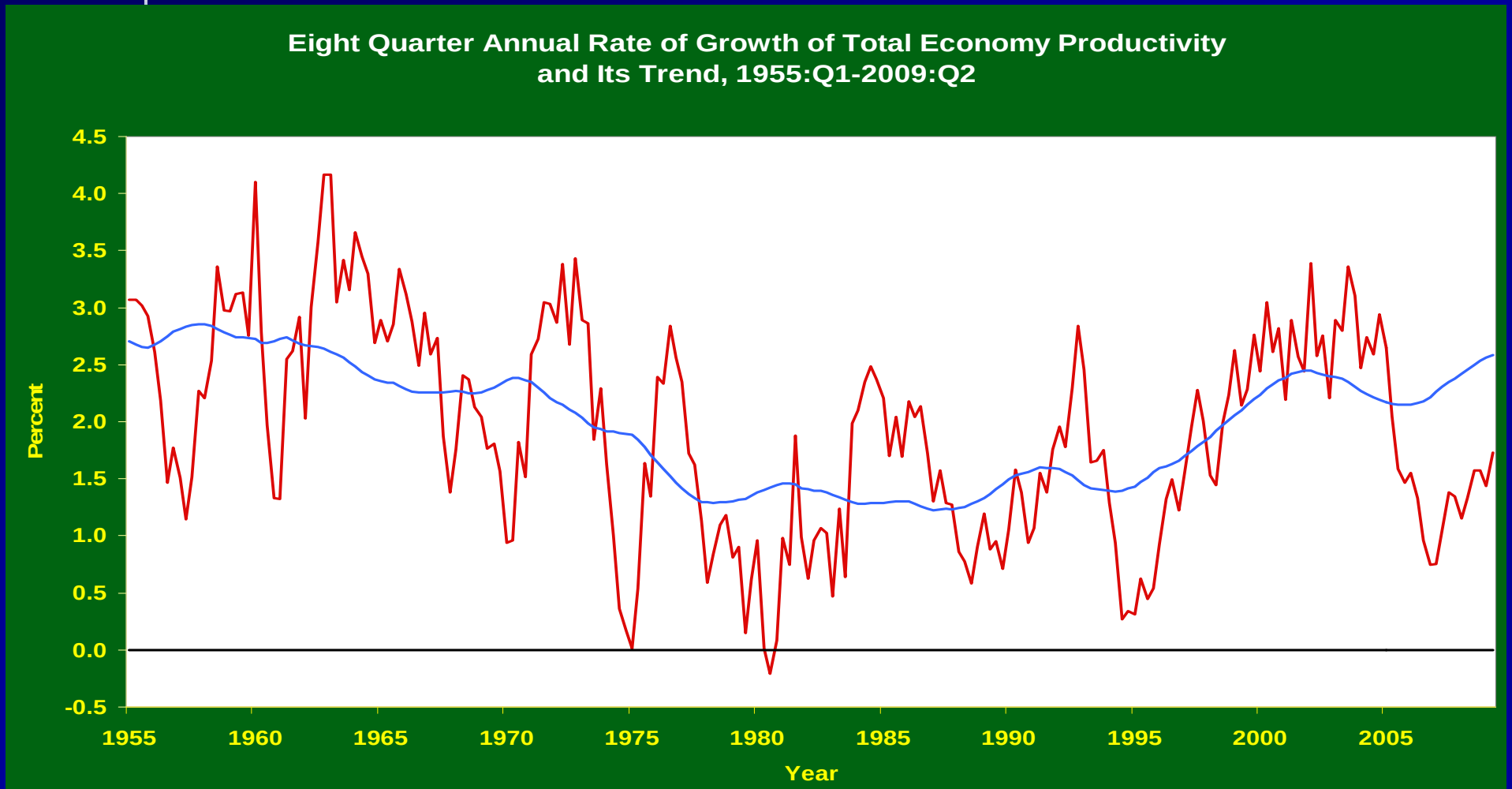
Implied Output Gap with Predictions to 2010:Q2



Comparisons of Output and Unemployment Gaps, 1961-2009

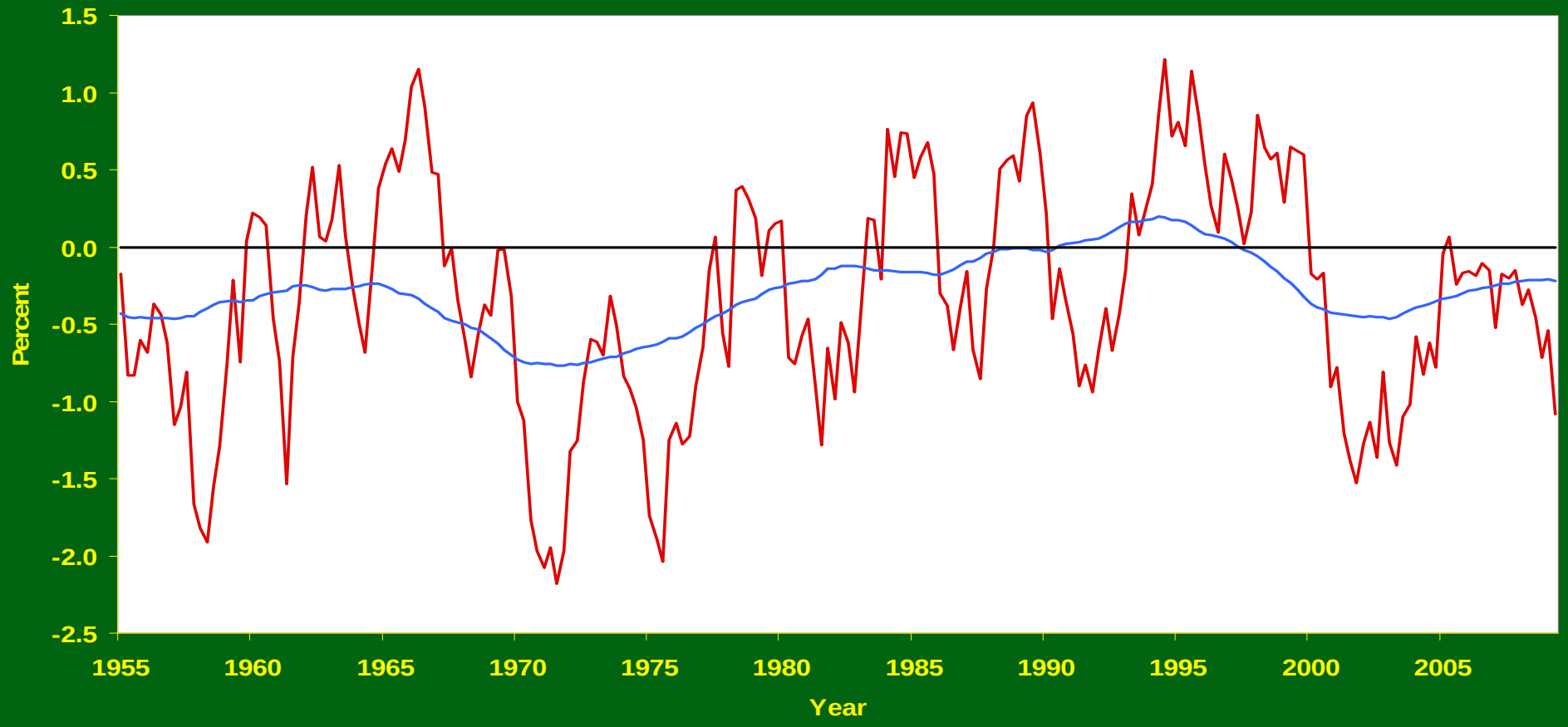


Trend and Cycle for Total Economy Productivity

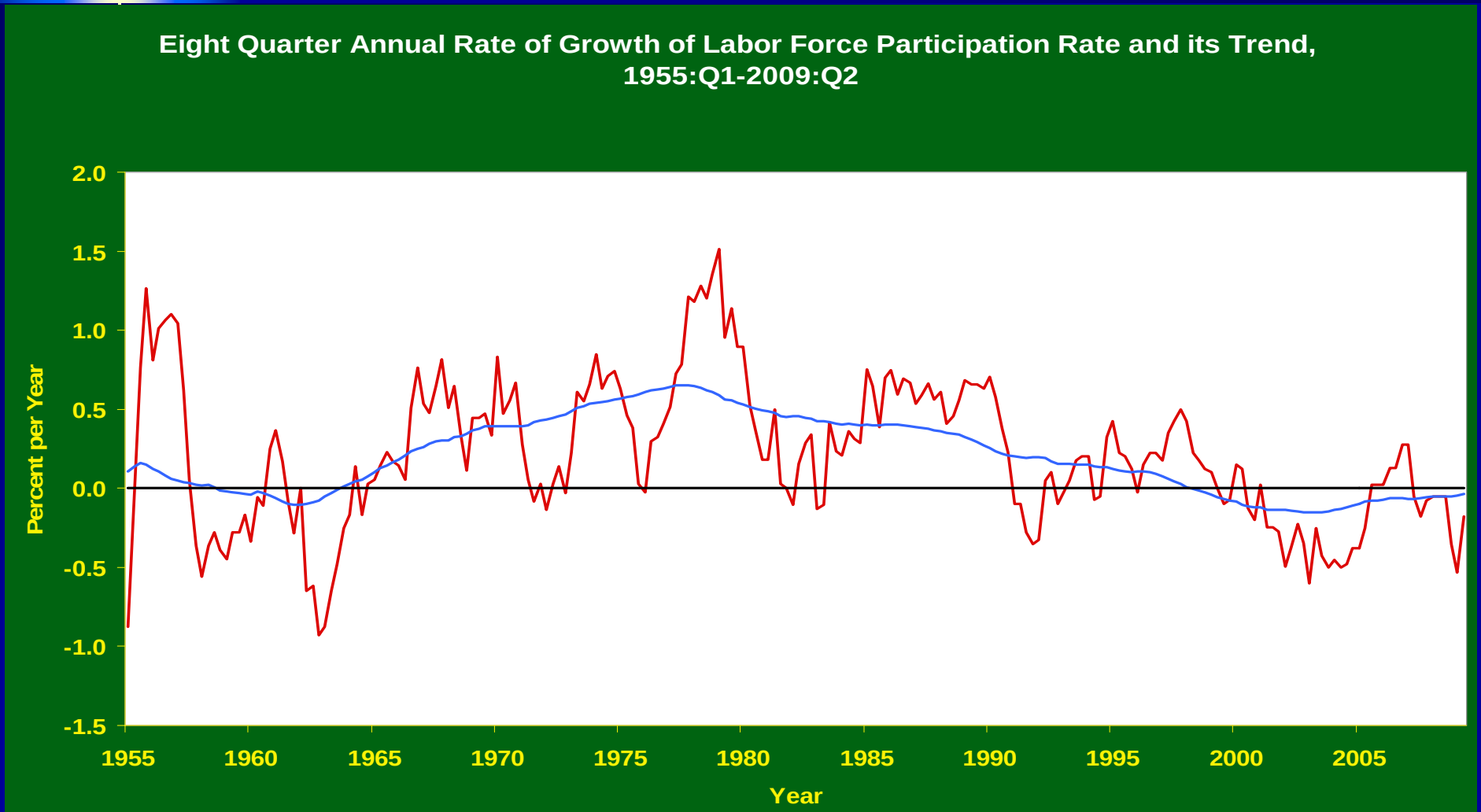


Total Economy Hours/Employee and Its Trend

Figure 5a. Eight Quarter Annual Rate of Growth of Hours per Employee and Its Trend, 1955:Q1-2009:Q2



Labor Force Participation Rate and Its Trend



Explanations for Hours per Employee

- Hours decline was fastest when participation was increasing fastest
  - Negative correlation reflected in stability of growth in Y/N
  - Prosperity of the late 1990s even more evident in labor-market data than in output data
  - Growth of H/E in late 1990s an outlier?
- Continued decline in H/E after 2000 a possible sign of forced part-time employment as employers refuse to provide health care benefits
- Current involuntary part time at a postwar high

Explanations for Participation

- One-time entry of women peaking in 1975-80
- Women are now retiring
- CBO, Others project decline in LFPR due to retirement of baby boomers (85 and 90 year olds are included)
- Other factors: birth rate (stable), wealth (delayed retirement), welfare reform
- Decline in participation in 2000-05 concentrated in young cohorts (16-25)

Conclusion About Trend in Real GDP per Capita

- Slowdown from 2.5 in early 1960s to 1.3 in 1980, up to 2.1 in 2001, back to 1.5 now
- Viewed over decades, productivity growth is negatively correlated with labor force growth
- Hours per Employee growth also negatively correlated with LFPR growth

$$\Delta x'_t = \sum_{i=1}^{4} \alpha_i \Delta x'_{t-i} + \sum_{j=0}^{4} \beta_j \Delta q'_{t-j} + \phi x'_{t-1} + \sum_{k=1}^{7} \gamma_k D_k + \varepsilon_t$$

Specification of Regressions

- Dependent variables in Table 5 are first differences of ratios of actual to trend
- $\Delta x'_t = \Delta(x_t - x^*_t)$
- In order from left to right
  - *H/E, E/L, L/N,* Aggregate *H, Y/H*
- Specification:

$$\Delta x'_t = \Sigma a_i \Delta x'_{t-1} + \Sigma \beta_j \Delta y'_{t-j} + \varphi x'_{t-1} + \Sigma \gamma_k D_k + \varepsilon_t$$

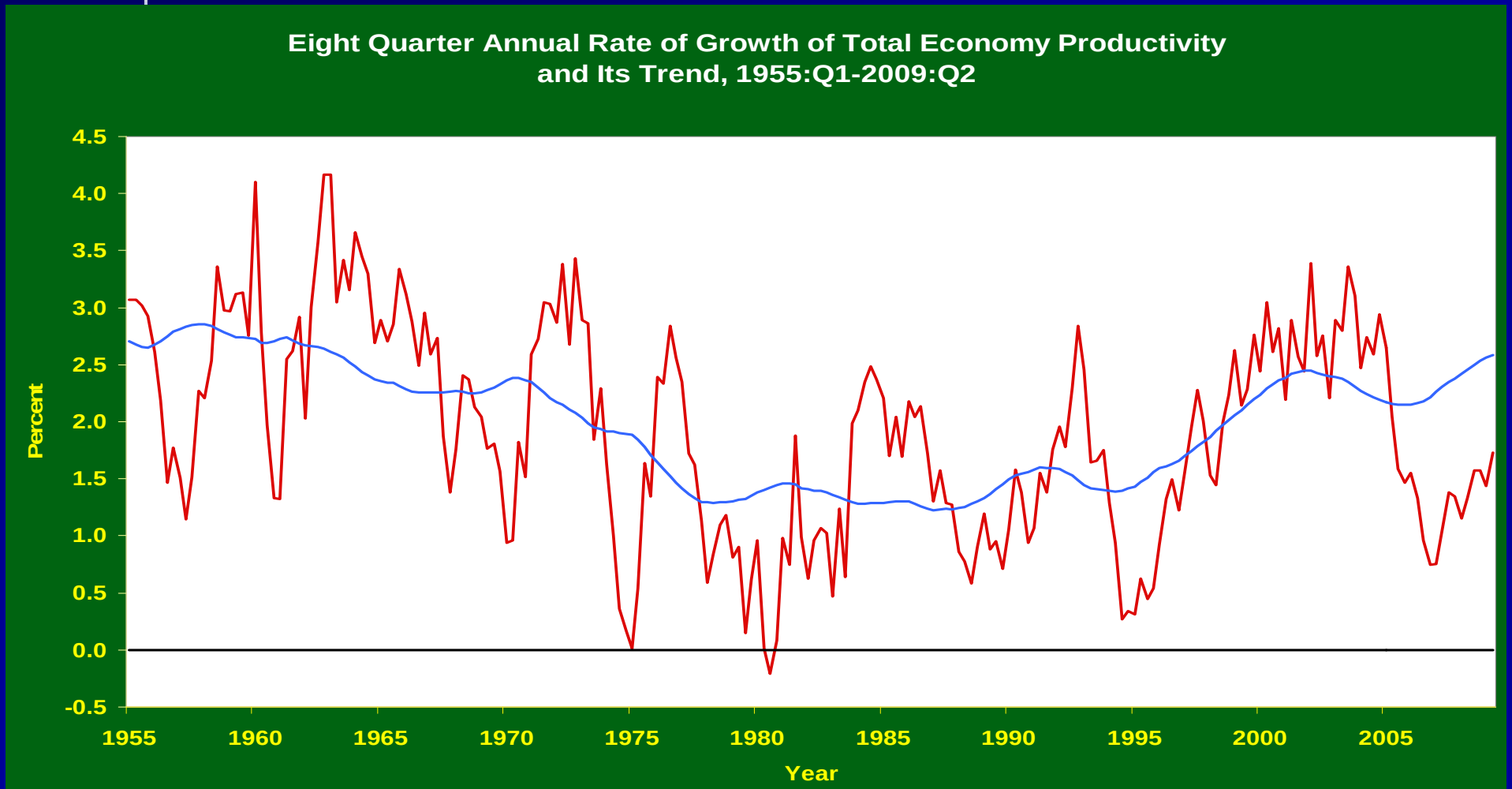
Motivation of End-of-Expansion Effect

- Firms consistently overhire in last stage of business expansion
- Defined as interval between peak of growth cycle and NBER peak
- Makes productivity growth low at EOE and relatively fast during recession and early recovery
- Dummy variables *1/M* and *-1/N*, sum to zero
- Developed in Gordon (1979)
- Zero sum implies correction of overhiring in recession and recovery, "early recovery productivity bubble"

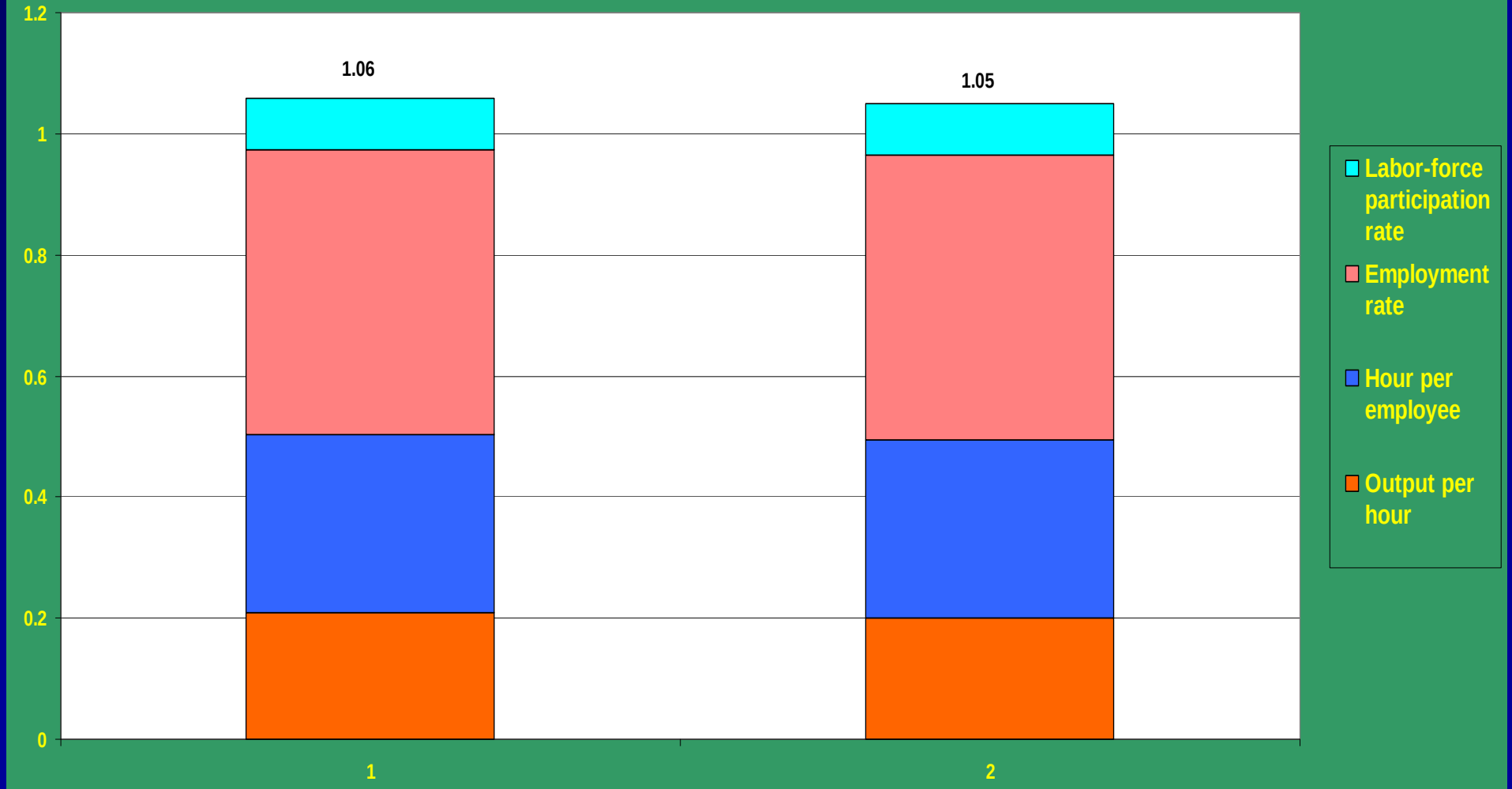
Aspects of Regression Results in Table 5

- Shown are sums of coefficients
- ** indicates significance at 1 percent, * indicates significance at 5 percent
- Note significance of EOE dummy variables in most but not all periods
- Bottom of table shows EOE coefficients when they are all forced to be equal

Trend and Cycle for Total Economy Productivity



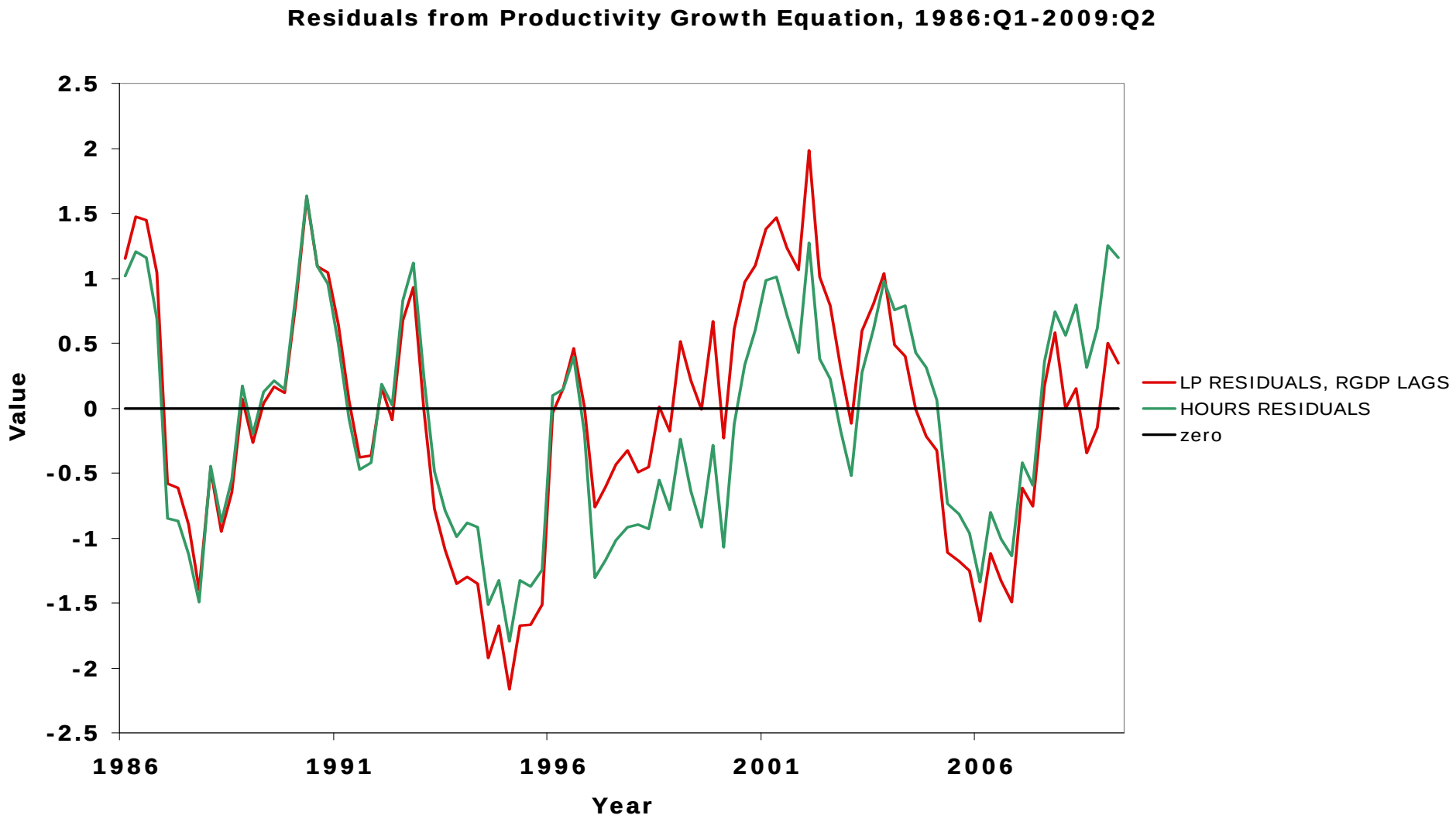
Summary of the Long-run Responses from Table 6



"Early Recovery Productivity Bubble"

- Table 7
  - Top panel shows change in productivity relative to predicted in three most recent recessions
  - Bottom panel the first six quarters of the past two recoveries
- The equation consistently underpredicts productivity growth in *both* the recession and recovery
- Let's look at the time path of these residuals

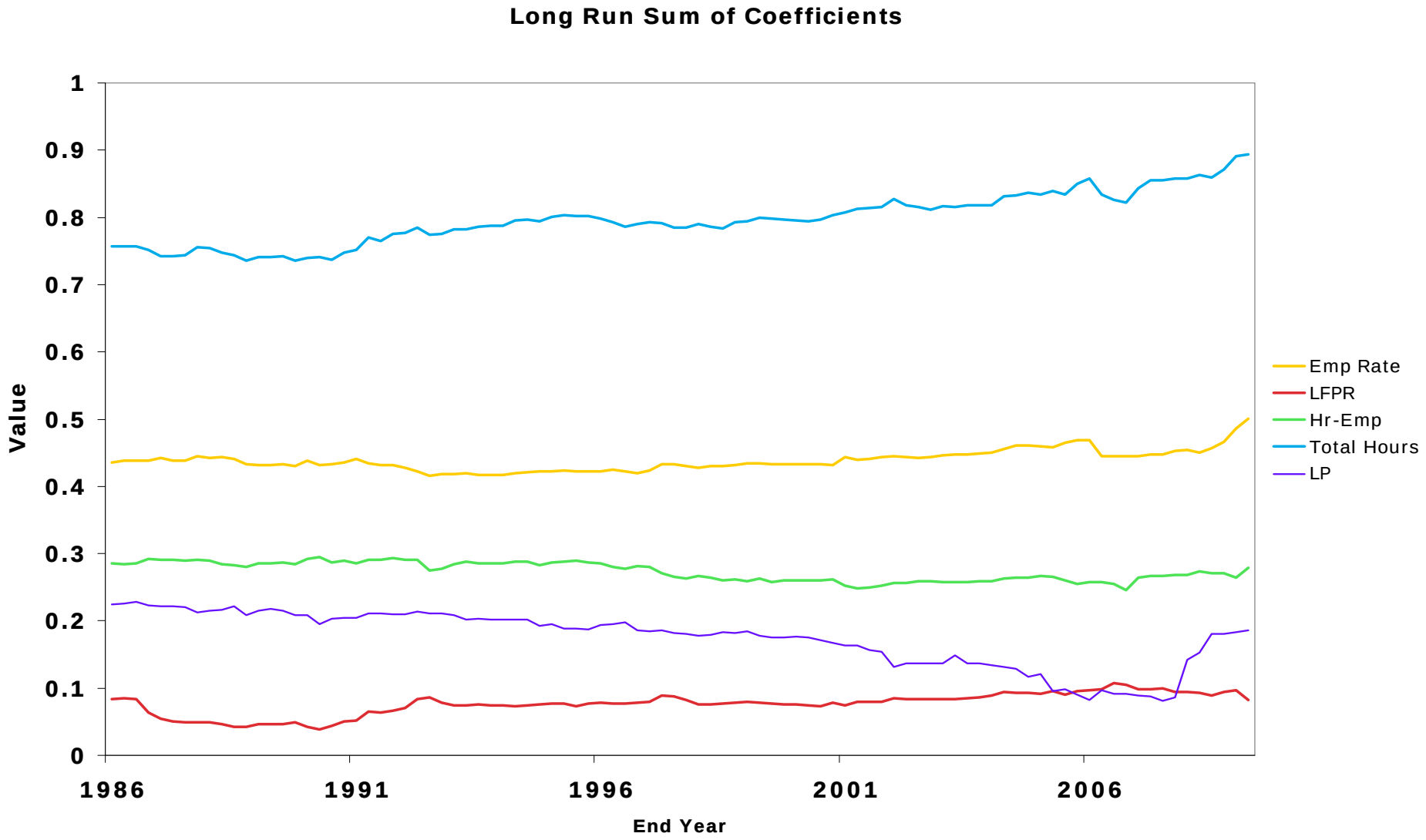
Increasing Tendency for Productivity Growth to Perform Well in Recessions and Early Recoveries



Can This Change in Behavior Be Quantified?

- A standard technique to capture changing coefficients is the "rolling regression".
- Instead of running a single regression over the entire sample period, cut the sample period in half, and then roll the regression forward one quarter at a time
- Let's look at long run effects of output on the components of the output identity (the regressions of Table 5)

Long-Run Responses to Changes in Output Gap, Rolling Regressions



Explanation of Changes in Cyclical Responses

- The Basic Idea: Recent Recessions have experienced (compared to pre-1995)
  - Sharper declines in corporate profits
  - Sharper declines in stock market
  - Greater reliance on stock options for executive pay
- Result? Savage Corporate Cost Cutting

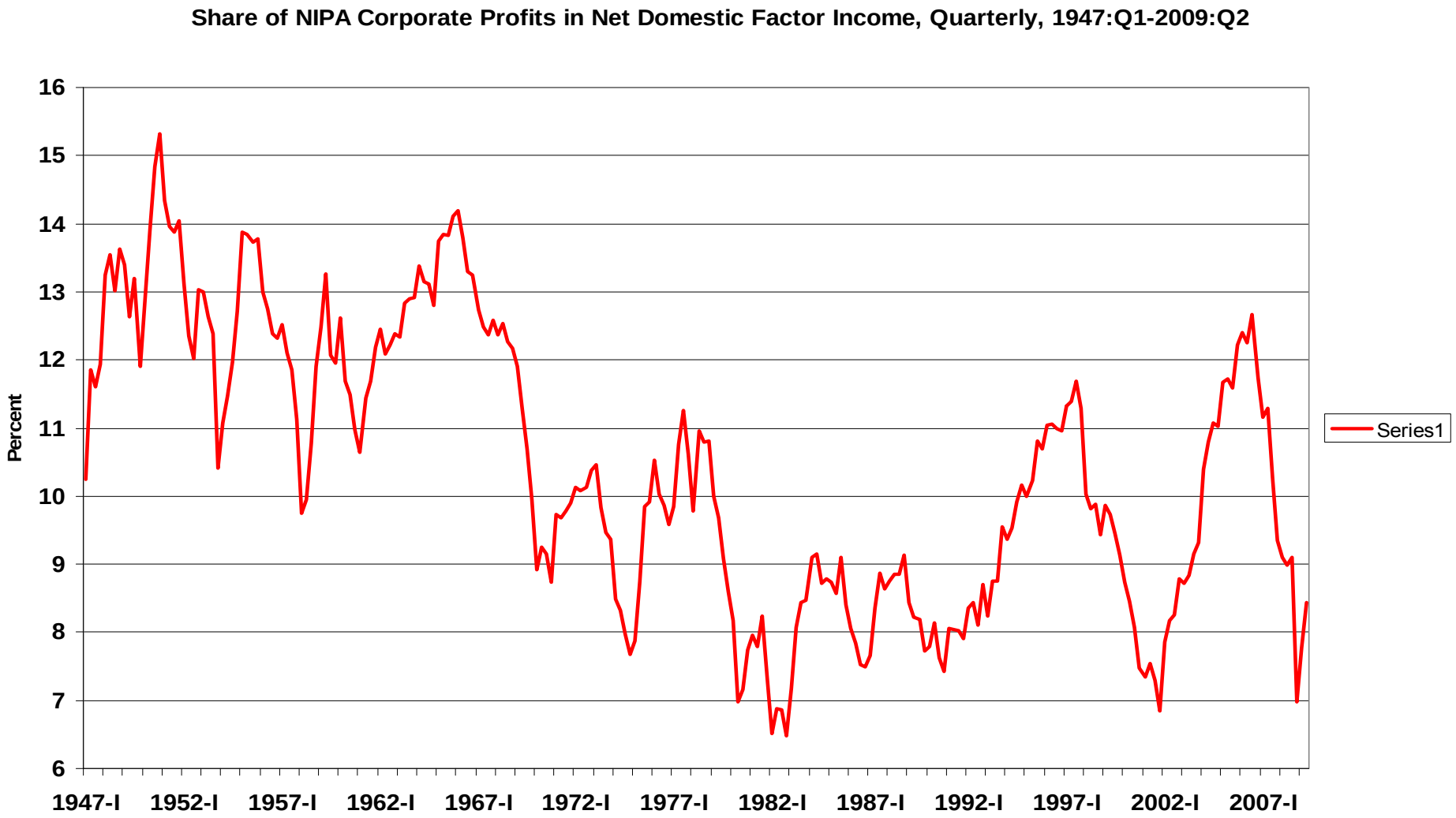
Explaining the Two Hypotheses

- Cost Cutting in 2001-03
  - Employment declined until mid-2003 while output increased
  - Result: unusual upsurge of productivity
  - Profits had been propped up by accounting scandals, then collapsed
  - More of manager pay relied on stock options than 10 years earlier
  - Great pressure to revive profits and stock prices by cutting costs, leading to massive layoffs
- Oliner-Sichel-Stiroh (2007 BPEA) support: cross-industry positive correlation profit decline and employment decline

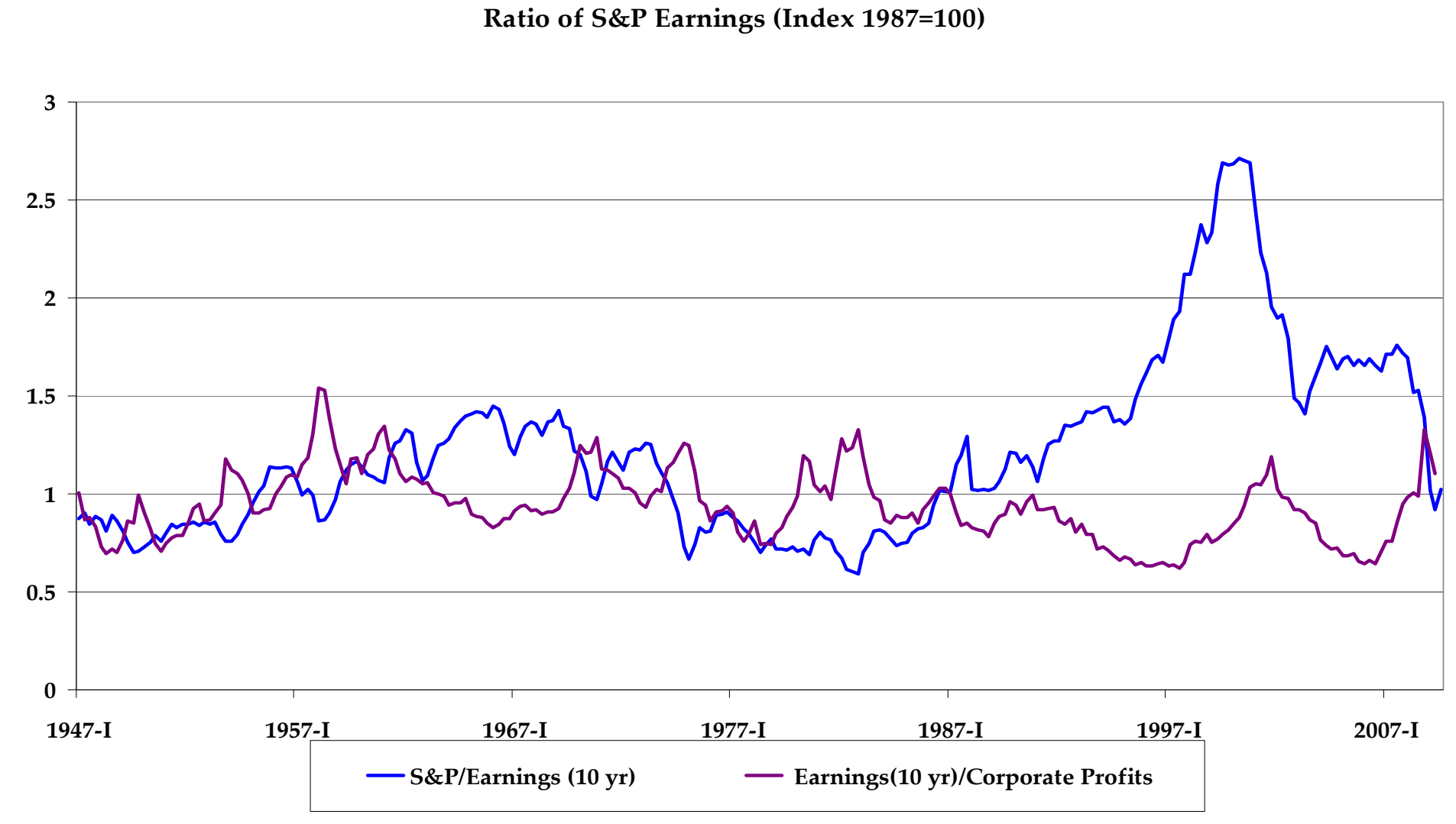
Charts on Profits and the Stock Market

- Was the decline in profits and/or stock market in 2000-02 greater than in previous recessions?
- Was the decline in profits and/or stock market in 2007-09 similar to 2000-02 or to previous episodes?
- Byproduct of slides – to what extent can we tell if stock market is currently over or undervalued?

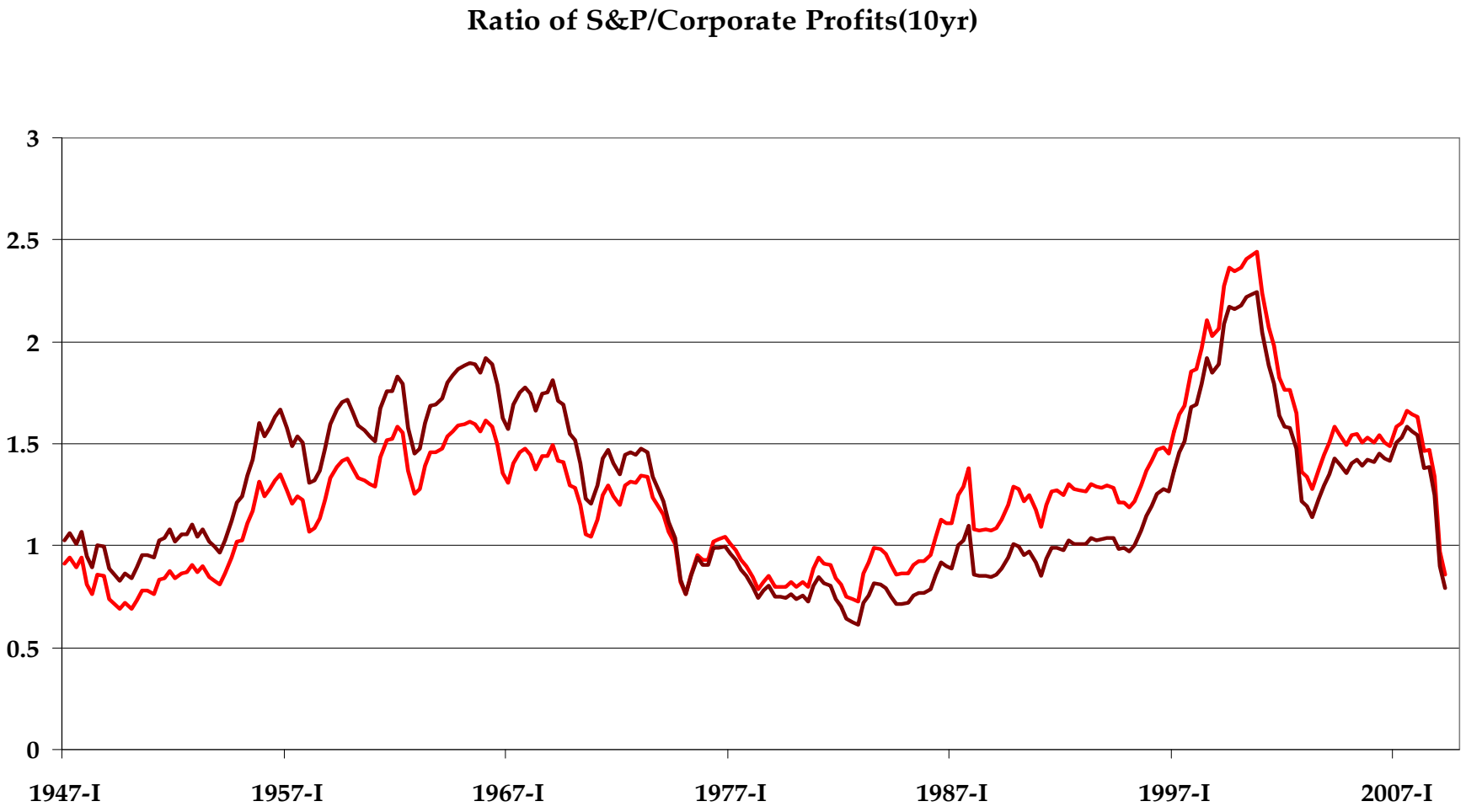
Income Share of Corporate Profits, 1947:Q1 – 2009:Q2



S&P Price-Earnings Ratio (10-Year) and Ratio of S&P to NIPA Profits



Ratio of S&P Index to NIPA Corporate Profits and Net Domestic Income (Trailing 10-Year MA)



Complementary Intangible Capital Hypothesis

- Benefits of late 1990s ICT investment was delayed
- "Learning lag" in how to use ICT investment, development of software
- Many of benefits of 1995-2000 ICT investment occurred with a lag in 2001-03
- Explains how output could grow with employment declining

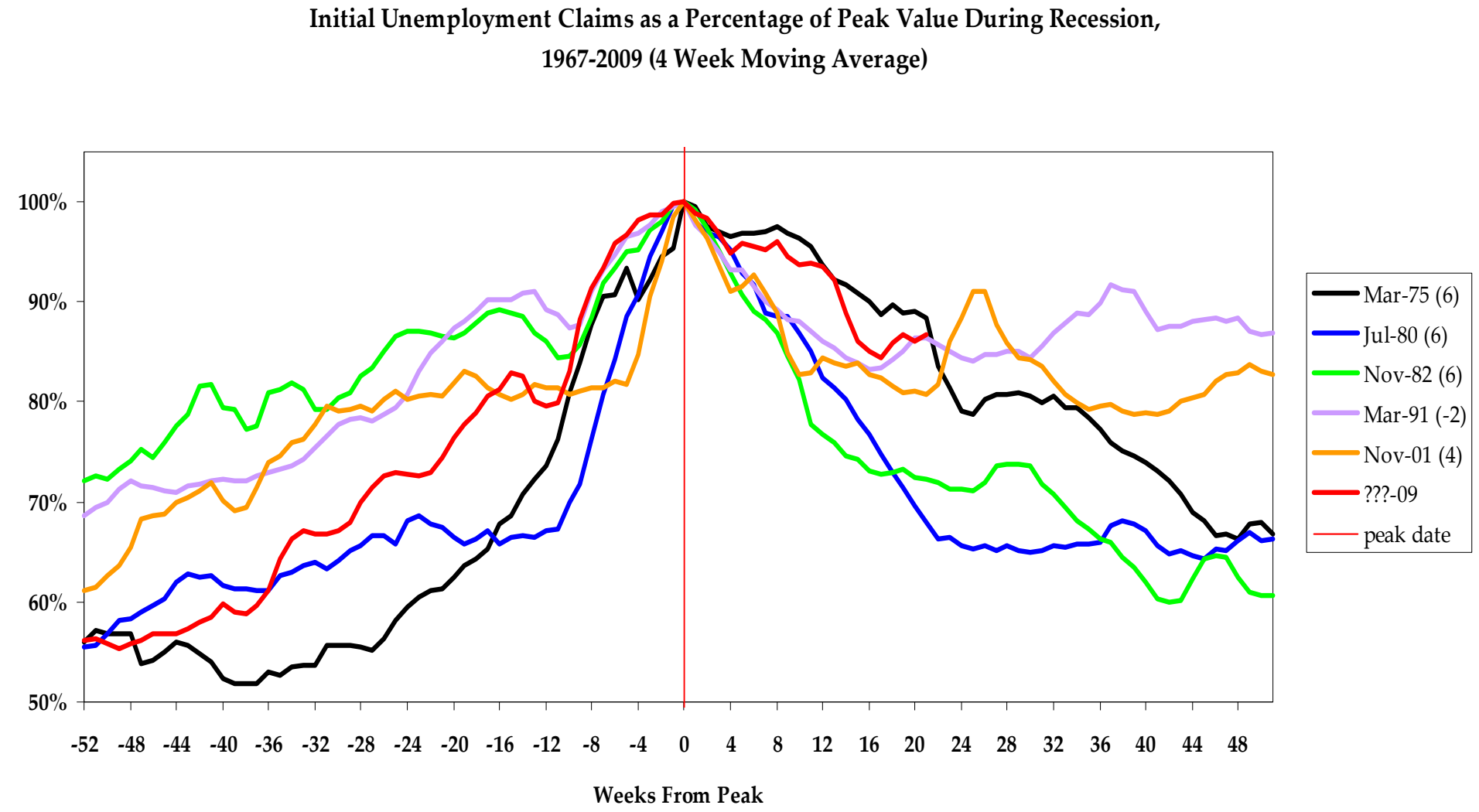
Why Productivity Trend Growth Slowdown 2004-07?

- Profits revived, reducing pressure for cost cutting. Employment grew again
- Intangible capital: delayed benefits of 1995-2000 investment boom gradually ended
- ICT investment did not revive; returned to pre-1995 values as share of GDP

Finally, We're Ready to Address the Main Question

- To what extent is the 2007-09 and post-2009 recovery more or less similar to 2001-03 and 2003-07?
- Similar: magnitude of decline in profit share and in stock price ratios
- Suggests similarly high downward response of employment to output as in 2000-02
- Little noticed: similar pattern of new claims for unemployment insurance

Independent Evidence: Which Cycle is Most Similar to This One?



Differences from 2000-03

- Output decline much sharper
- End-of-expansion effect in 2006-07 much greater
  - More overhiring to be reversed
  - Makes more likely a larger than average early recovery productivity bubble
- Tightness of credit continues to stifle small business hiring, implies higher productivity and lower employment
- BUT: Absence of intangible capital effect, overhang of undigested technological advances and capital investment

Predictions

- Weak hiring and a strong early recovery productivity bubble
  - Already started in 2009:Q2 with 6+ percent NFPB productivity growth
  - 2009:Q3 is also on track for 6 percent
- Riskier prediction: it won't last as long as in 2002-2003
  - Lack of support for further rises in productivity from intangible capital
  - Corporate profit share turned faster in 2009 than in 2001-02
- Employment will start to grow 6 to 9 months after June 2009 NBER trough compared to 19 months in 2001-03
- Unemployment peak will be reached between December 2009 and March 2010, a 6 to 9 delay compared to 19 months in 2001-03