

MACROECONOMIC DATA AND FORECASTS

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“An economist is an expert who will know tomorrow why the things he predicted yesterday didn't happen today.”

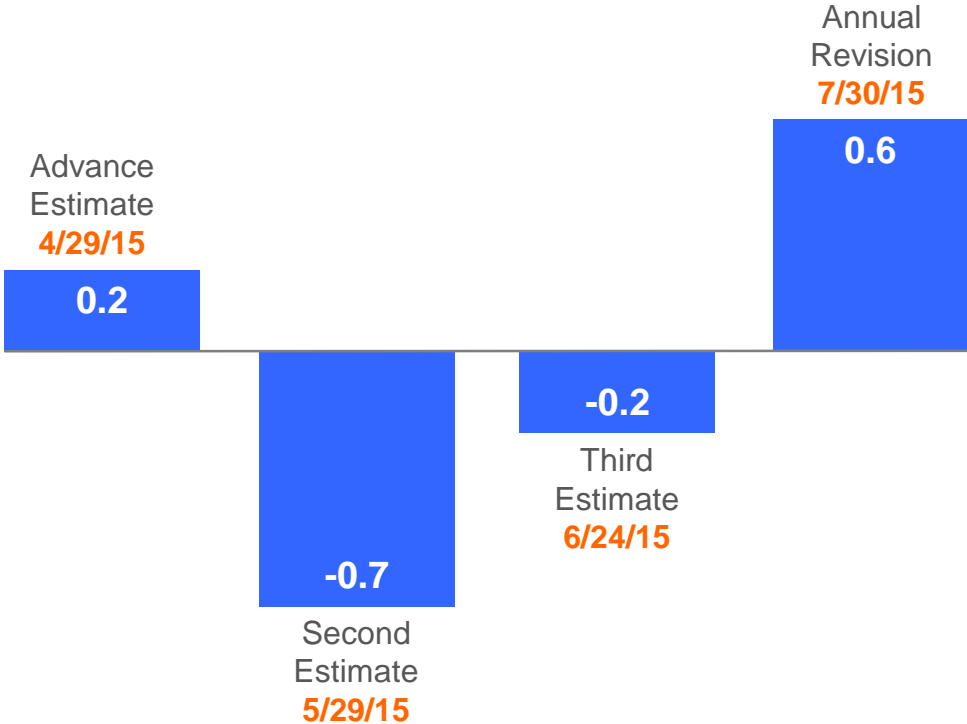
- Laurence J. Peter

The most-watched government data
are old news...

and then they're revised.

U.S. Real GDP Growth Estimates

1st Quarter 2015



*Table 2***Shares of Source Data for the Quarterly GDP Estimates**

Advance Quarterly Estimate	<i>Percent</i>
Trend-based data	25.1
Monthly data and trend-based data	29.7
Initial monthly or quarterly data	45.3
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Preliminary Quarterly Estimate	
Trend-based data	22.6
Monthly data and trend-based data	1.7
Initial monthly or quarterly data	6.6
Revised monthly or quarterly data	69.2
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Final Quarterly Estimate	
Trend-based data	12.7
Monthly data and trend-based data	1.2
Initial monthly or quarterly data	16.6
Revised monthly or quarterly data	69.5

~ 40% of advance numbers
are from “trend” models!

Revisions Between Quarterly Annualized Percent Changes of Real GDP

Revision	Average	Absolute Average
Advance to Second	0.1	0.5
Advance to Third	0.1	0.6
Second to Third	0.0	0.2
Advance to Latest	-0.1	1.2

Based on the period from 1993 through 2013.

The average growth rate in this period (based on today's data) was 2.6%.

Why So Many Revisions?

- Timeliness versus accuracy trade-off.
 - “The Bureau emphasized that the ... advance estimate ... is based on source data that are incomplete or subject to further revision by the source agency”
- Seasonal adjustment.
 - Seasonal events affecting the economy follow a more or less regular pattern each year.
 - Statistics are regularly adjusted to make it easier to observe the longer term movements in the series.
- Conceptual/Definitional Changes.
 - July 2013: major changes adding in business R&D.

Statistical Significance

- Estimates of changes are often not “statistically different” from zero.
- Bureau of Labor Statistics language:
 - “changed little”
 - “basically unchanged”
- The estimates may look big.
 - But, if we can’t say they’re different from zero then we need to look for more information.
- We may not even be sure of the direction of the change!

LABOR MARKET

Employment and Unemployment

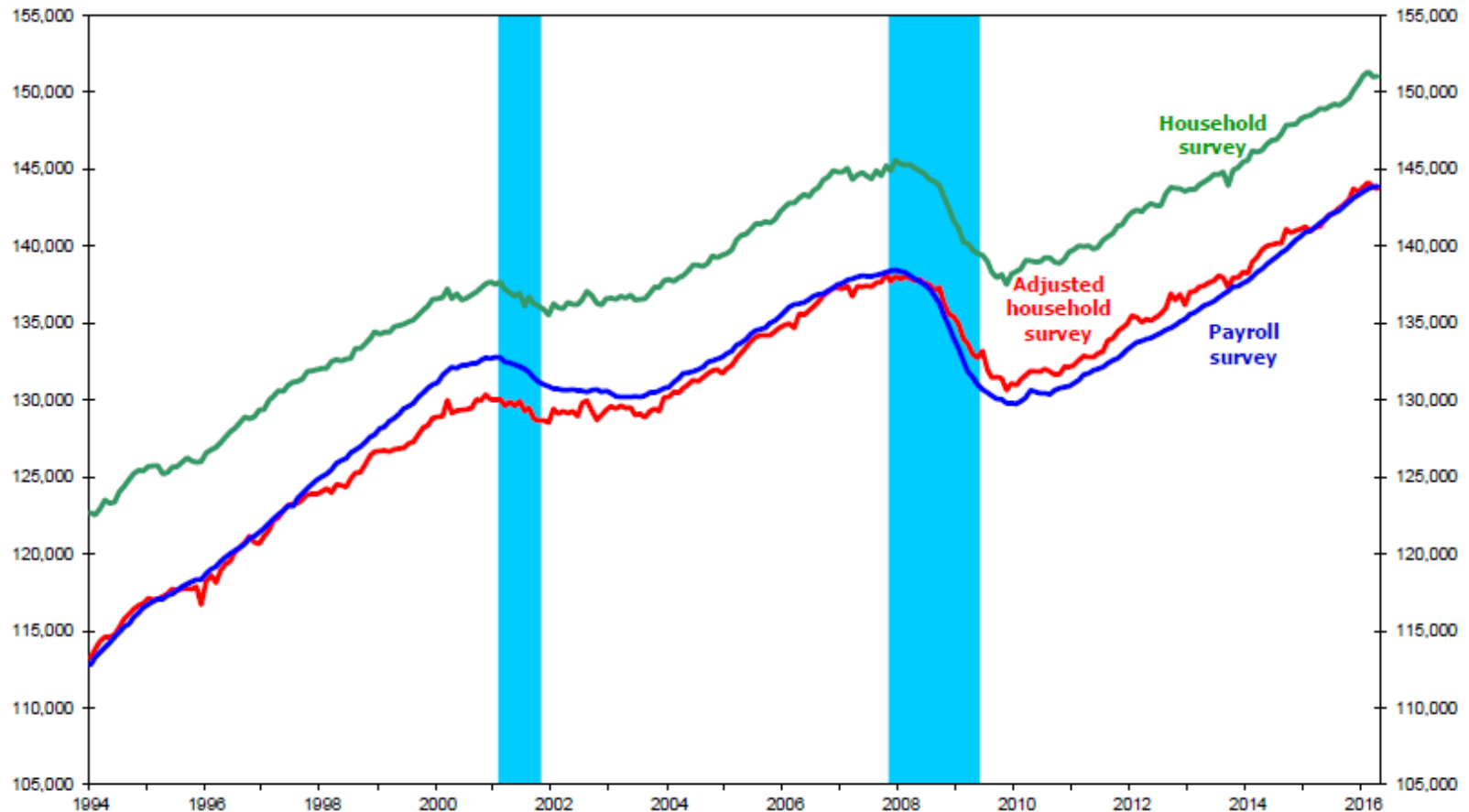
- Most labor market data are collected by the Bureau of Labor Statistics (BLS)
- Monthly Survey Data
 - Current Population Survey (CPS)
 - A Joint Effort Between the BLS and the Census Bureau
 - Household survey
 - Key data: Unemployment Rate
 - Current Employment Statistics (CES)
 - Establishment survey
 - Eventually “benchmarked” to the “universe” of employed persons
 - Key data: Payroll employment
- Population = employed + unemployed
+ not in the labor force

Two Monthly Measures of Employment

	Payroll Survey	Household Survey
Approx. Sample Size	623,000 Individual worksites	60,000 households
“Statistically Significant” Change	114,000	500,000
Demographic Groups?	No	Yes
Includes self employed, agriculture, etc?	No	Yes
Most Recent Value (May 2016)	143,894,000 Jobs	151,030,000 Persons

Chart 1. Household and payroll survey employment, seasonally adjusted, January 1994–May 2016

Numbers in thousands



Note: The household series presented here has been smoothed for population control adjustments. The adjusted household series has been adjusted to an employment concept more similar to the payroll survey's and smoothed for population control adjustments. Shaded areas represent recessions as determined by the National Bureau of Economic Research (NBER).

Latest trends in payroll and household survey employment

Employment measure Seasonally adjusted, numbers in thousands	Over-the-month change April–May 2016	Over-the-year change May 2015–2016
Payroll survey employment ¹	38	2,398
Household survey employment ²	26	2,097
Adjusted household survey employment ³	-105	2,467

¹ Payroll survey estimates for April and May 2016 are preliminary and subject to revision.

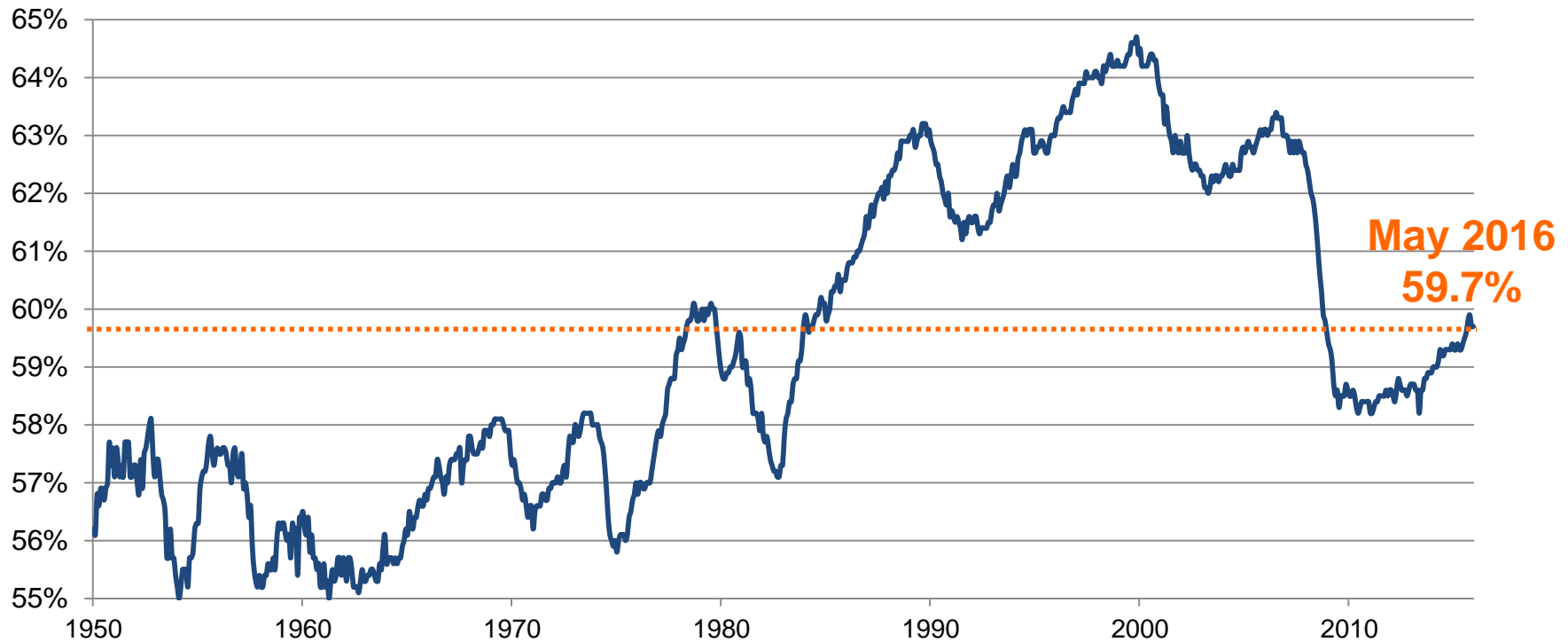
² The effects of level shifts from annual population control adjustments have been smoothed out in the historical household survey employment estimates used here; thus, the changes shown above will differ from those calculated using the official estimates in the Employment Situation and in the public databases available on the BLS website. See the Appendix for further explanation.

³ This is a research series created from household survey employment to be more similar in concept and definition to payroll survey employment. Household survey employment is adjusted by subtracting agriculture and related employment, the unincorporated self-employed, unpaid family workers, private household workers, and workers absent without pay from their jobs, and then adding nonagricultural wage and salary multiple jobholders. The effects of annual population control adjustments also have been smoothed out in the historical data in this series.

Employment to Population Ratio

The most dramatic graph of the US labor market today

Source: U.S. Bureau of Labor Statistics



PRICES AND INFLATION

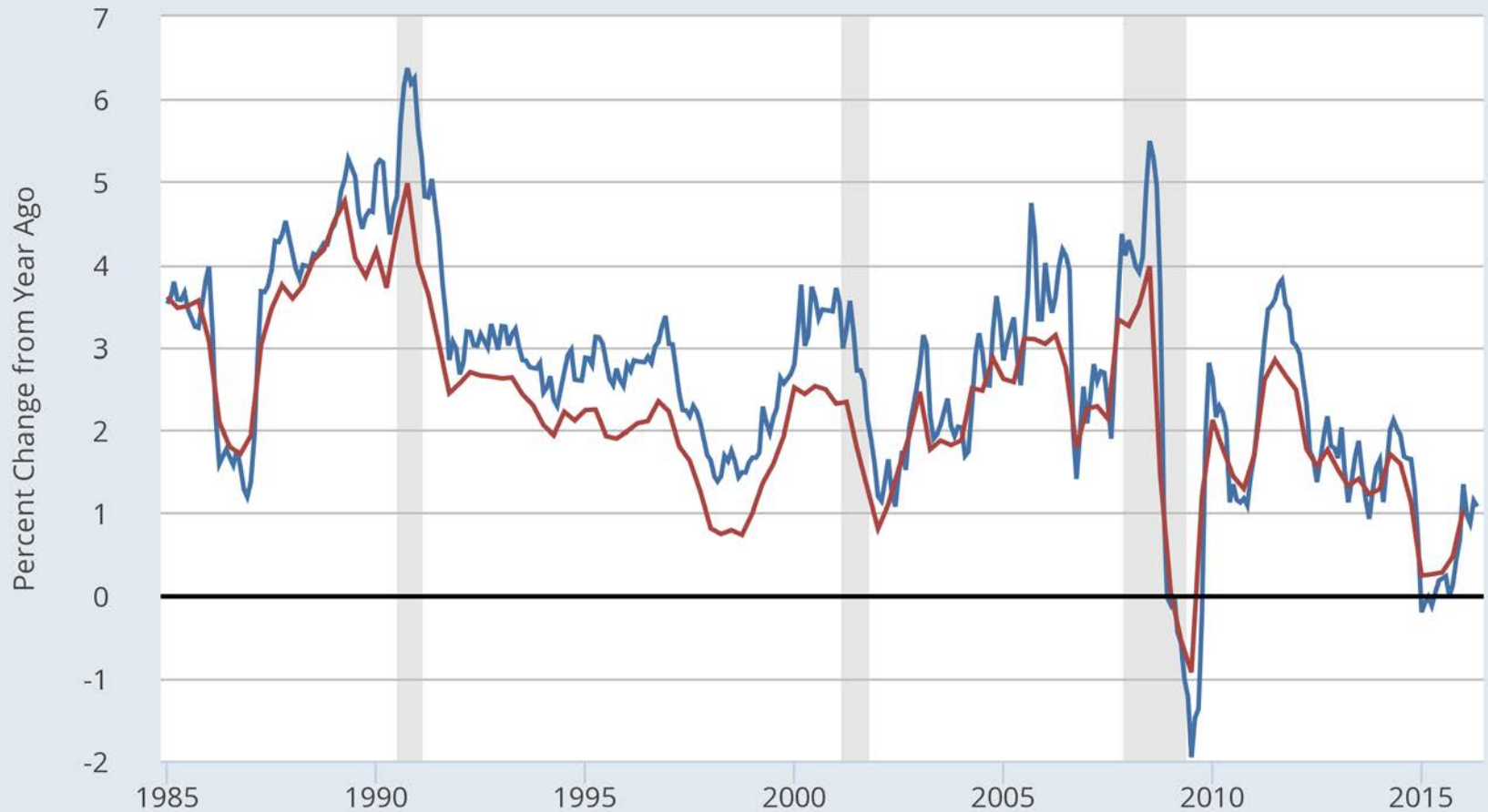
Prices and Inflation

- Overall/Headline Inflation: General rise in the price level.
- Consumer Price Index (CPI)
 - Produced by the Bureau of Labor Statistics (BLS)
 - Used to make cost-of-living adjustments to Social Security benefits.
- Personal Consumption Expenditures (PCE) price index
 - Produced by the Bureau of Economic Analysis (BEA)
 - As of January, 2012, the Fed has a target of 2% inflation as measured by the PCE price index.
- CPI is generally about 0.5% points higher than PCE
 - Average from 1985-2015: CPI is 2.7%, PCE is 2.3%.
- Core measures exclude food and energy
 - Reduces volatility.
 - May be a better forecast of future inflation than overall/headline inflation.

CPI and PCE



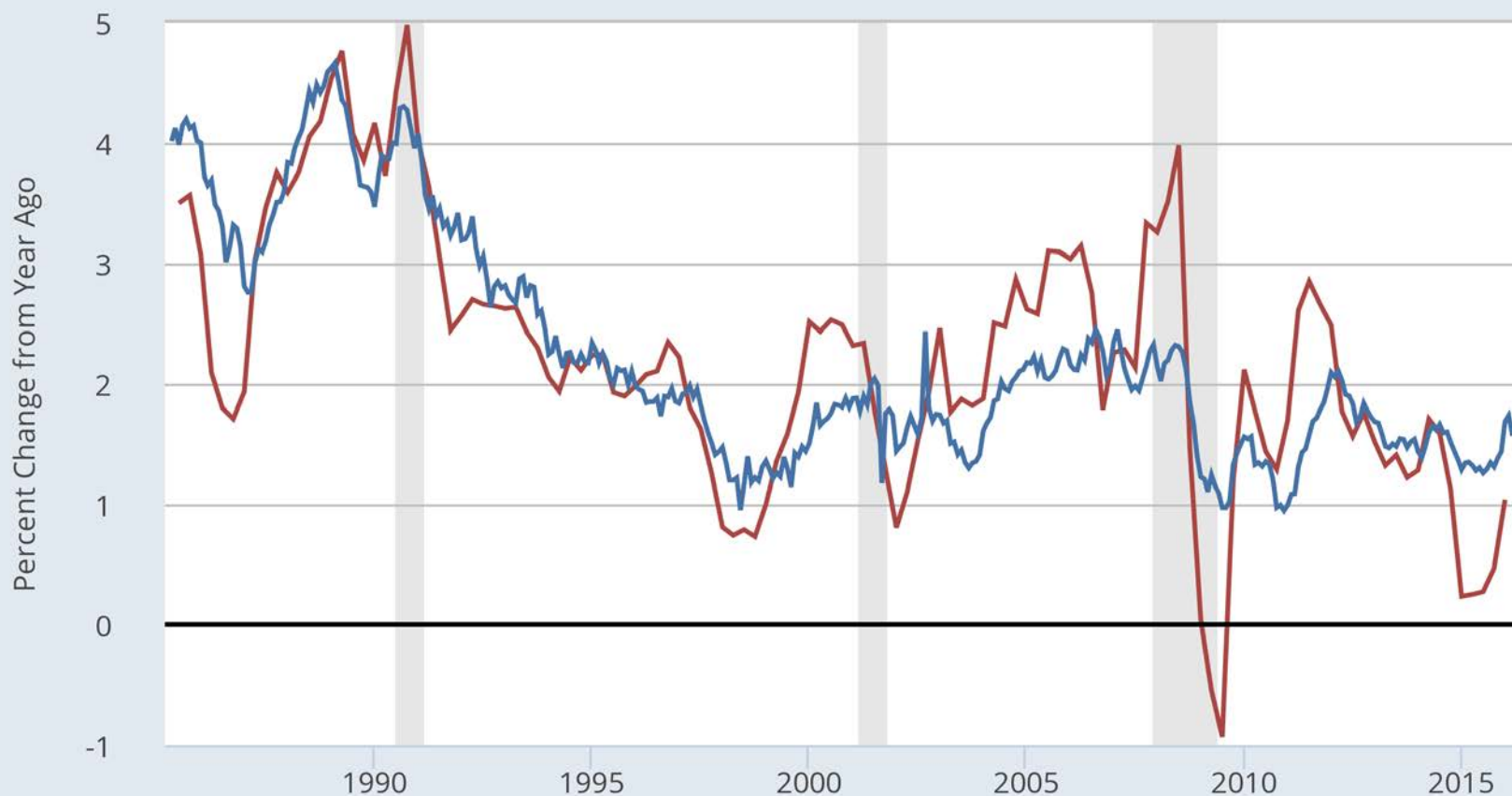
— Consumer Price Index for All Urban Consumers: All Items
— Personal Consumption Expenditures: Chain-type Price Index



PCE and “Core” PCE



- Personal Consumption Expenditures: Chain-type Price Index
- Personal Consumption Expenditures Excluding Food and Energy (Chain-Type Price Index)



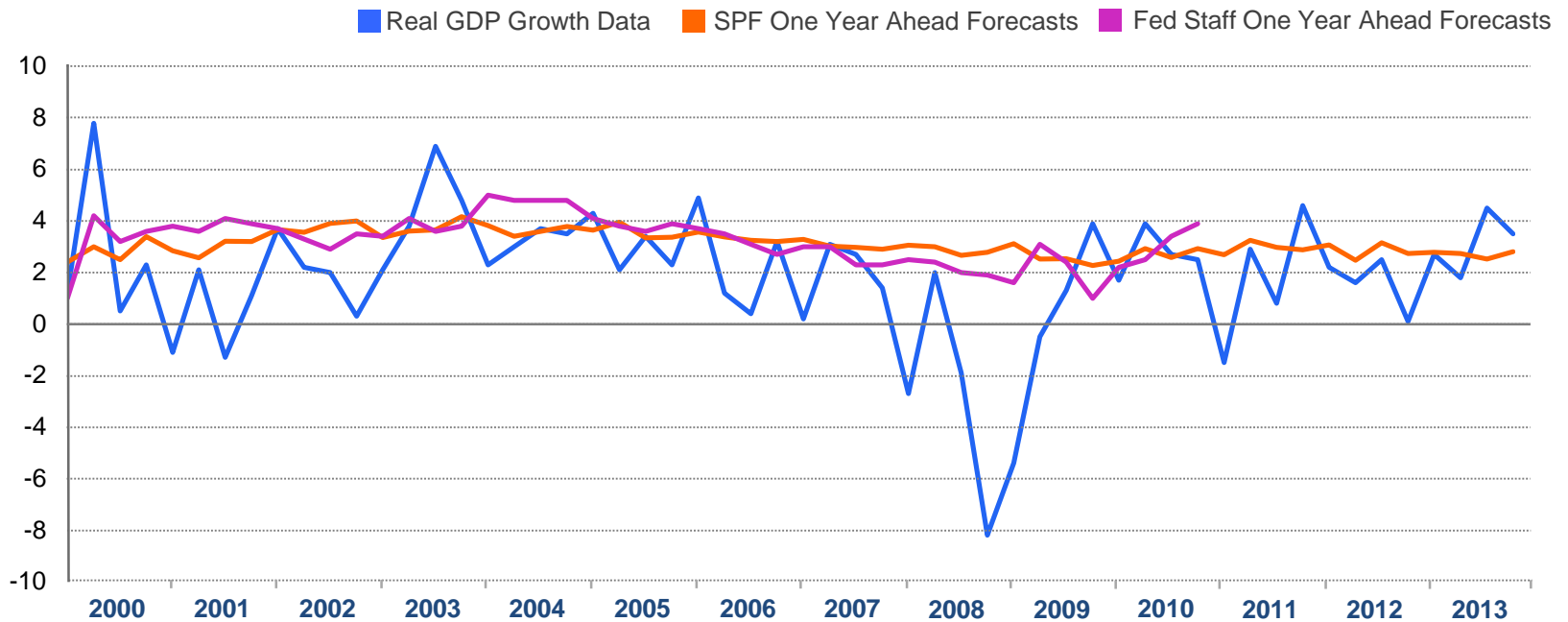
FORECASTS

Advocates Love Forecasts

- ***“Marketing salaries for great marketers will double over the next 5 years.”***
- ***“By 2018, 70 percent of jobs in [Minnesota] will require postsecondary education.”***
- ***“There is not a reason in the world why we cannot grow at a rate of 4 percent a year.”***

Economic Forecasts Fail Miserably at Key Times

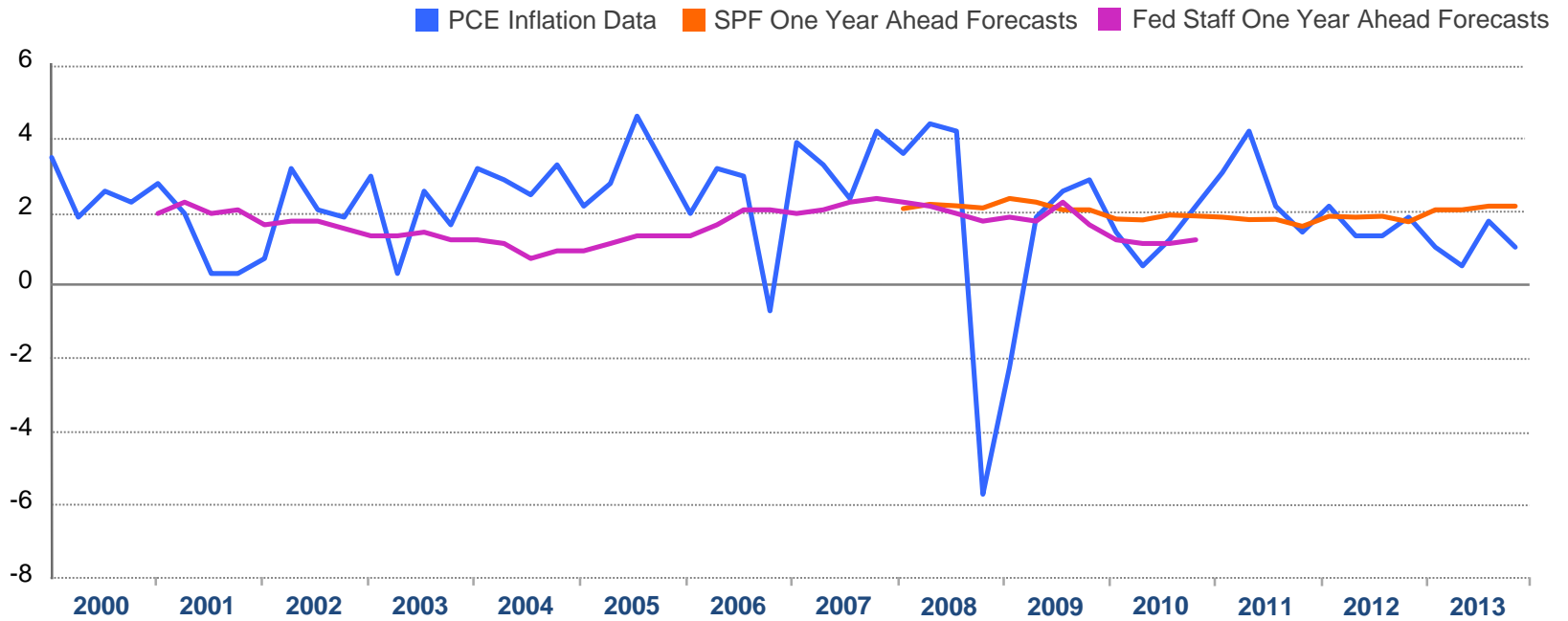
Real GDP Growth (%)



Source: U.S. Bureau of Economic Analysis, Philadelphia Fed Survey, and Fed Greenbooks

PCE Inflation Forecasts

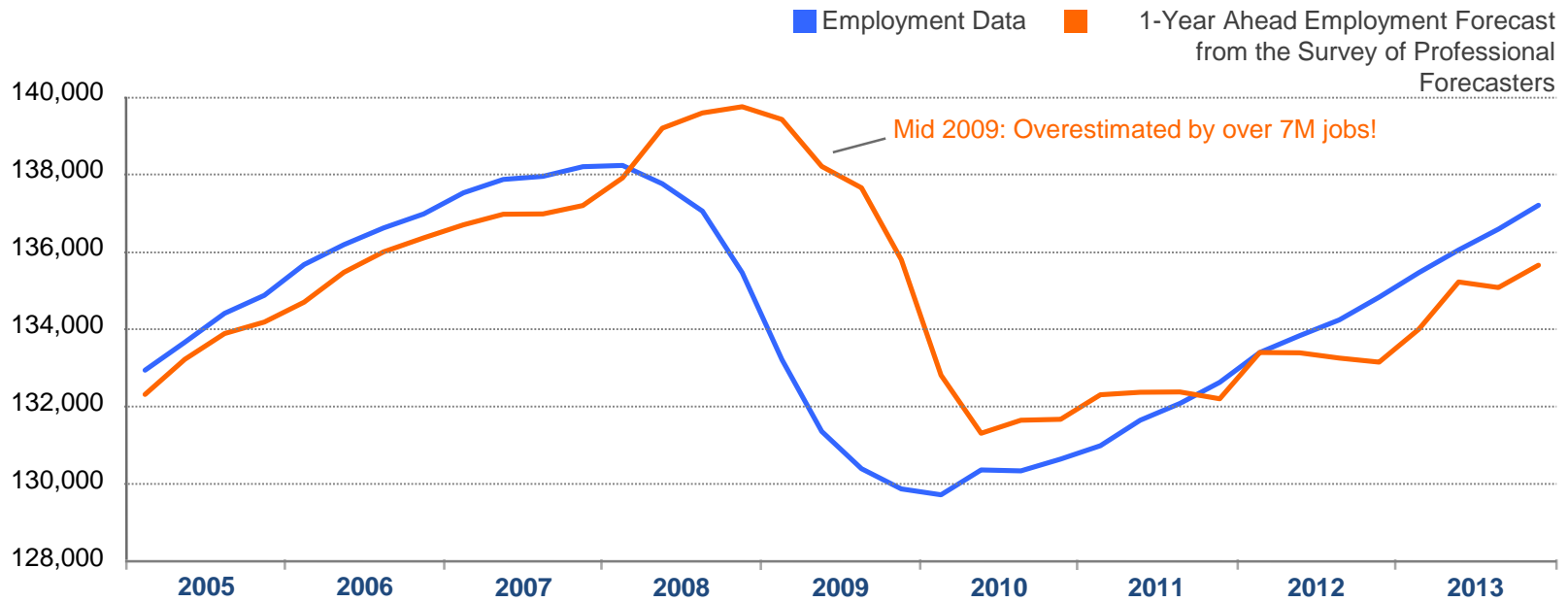
PCE Inflation (%)



Source: U.S. Bureau of Economic Analysis, Philadelphia Fed Survey, and Fed Greenbooks

Example: US Employment Forecasts

Employment (in Thousands)



Source: U.S. Bureau of Statistics, Philadelphia Fed Survey

“Economists put decimal points in their forecasts to show they have a sense of humor.”

- William Gilmore Simms

Are there any good forecasters?

- The Federal Reserve Board's staff is generally the best forecaster for the U.S. economy
 - But this does not mean good!
- Recently surveys of professional forecasts have mostly caught up to the Fed
 - e.g. the Philadelphia Fed's Survey of Professional Forecasters (SPF)

How do we identify bad forecasts?

- Biased is bad – in that case they don't even do well on average.
 - Unless focusing only on specific events – then only average over those events, not full sample.
- Ask how the forecast was made – did they use all available information?
- There can be a lot of luck involved: a bad forecaster can look good for a time, but if you count on them going forward you will get burnt.
- Consider the source of the forecast – is it an advocate?

Good Benchmarks

- Simple models, e.g. historical mean
- Averaging across lots of different forecasts

“Trust the weather forecast or
always carry an umbrella.”

- Tony Yezer

Macro Pitfalls

- Accounting isn't necessarily causal
 - just because $GDP = C + I + G + NX$ doesn't mean that an increase in C increases GDP
- The economic pie isn't fixed
- Productivity \neq output
- Stocks versus flows
 - Deficit and debt are very different things
- Ratios can be trouble

Final Takeaways

- Macroeconomic data can send mixed signals as it arrives in real time.
- Macroeconomic forecasts are notoriously unreliable.
- When we most want to know the future is when forecasts are most likely to fail.
- So...
 - don't be surprised when forecasts fail.
 - don't rely on a single number.
 - watch the private sector for new data to complement government data.

THANK YOU!

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Contact Information

- Full slides from the presentation will be available on my website:
 - <http://home.gwu.edu/~tsinc/sinclairwc2016.pdf>
- Feel free to contact me for interviews, background research, or just curiosity questions about:
 - Labor market and macroeconomic data and forecasts for the U.S. and around the world; U.S., Euro-Area, China, Canada, Australia, or global macro or labor market events; Federal Reserve actions; government macro policy or impacts; etc.
- How to reach me:
 - Tara Sinclair
 - Associate Professor of Economics and International Affairs
 - The George Washington University
 - Email: tsinc@gwu.edu (generally the best way to reach me)
 - Chief Economist at Indeed
 - Email: taras@indeed.com
 - Follow me on Twitter @TaraSinc
- Also feel free to check my website for new research:
 - Web: <http://home.gwu.edu/~tsinc/>

Data Sources

- BEA Website: <http://www.bea.gov/index.htm>
 - Data and methodology for GDP, PCE, etc.
- BLS Website: <http://www.bls.gov/>
 - Data and methodology for: CPI, PPI, Employment and Unemployment measures, etc.
- Business Cycle Dates: <http://www.nber.org/cycles/>
- Philadelphia Federal Reserve
 - Real Time Data:
 - <http://www.philadelphiafed.org/research-and-data/real-time-center/real-time-data/>
 - Forecasts:
 - Greenbook data:
 - <http://www.philadelphiafed.org/research-and-data/real-time-center/greenbook-data/>
 - FOMC forecasts
 - <http://www.philadelphiafed.org/research-and-data/real-time-center/monetary-policy-projections/>
 - Survey of Professional Forecasters:
 - <http://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/>

More Data Sources

- St. Louis Federal Reserve
 - Most recently revised data: Federal Reserve Economic Data (FRED):
 - <http://research.stlouisfed.org/fred2/>
 - “Vintage” data: Archival Federal Reserve Economic Data (ALFRED):
 - <http://alfred.stlouisfed.org/>
- Department of Labor’s Unemployment Insurance Weekly Claims Data:
<http://www.dol.gov/ui/data.pdf>
- Cleveland Federal Reserve Inflation Expectations Data:
http://www.clevelandfed.org/research/data/inflation_expectations/
- Federal Reserve Board Data Releases:
<http://www.federalreserve.gov/econresdata/statisticsdata.htm>
 - Industrial Production and Capacity Utilization
 - Money Stock and Reserve Balances
 - Banking, Financial, and Exchange Rate Data
- Divisia Monetary Aggregates from the Center for Financial Stability:
http://www.centerforfinancialstability.org/amfm_data.php
- Conference Board Data: <https://www.conference-board.org/data/>
 - Consumer Confidence, Help Wanted Online Index, Global Business Cycle Indicators...

Background Research

- “The Failure of Forecasts in the Great Recession”
 - By Daniel S. Culbertson and Tara M. Sinclair, *Challenge*. Vol. 57 No. 6 pp. 34-45
 - <http://mesharpe.metapress.com/content/y5772154621m1881/>
- GDP Estimates:
 - Landefeld et al (2008, *Journal of Economic Perspectives*)
 - http://www.bea.gov/about/pdf/jep_spring2008.pdf
 - BEA’s National Income and Product Accounts (NIPA) Primer
 - http://www.bea.gov/national/pdf/nipa_primer.pdf
- Federal Reserve Speeches:
 - <http://federalreserve.gov/newsevents/speech/2012speech.htm>
- Real time data analysis:
 - Croushore (2011, *Journal of Economic Literature*)
 - <http://www.aeaweb.org/articles.php?doi=10.1257/jel.49.1.72>
- Fed’s forecasting ability generally:
 - Romer and Romer (2000, *American Economic Review*)
 - http://elsa.berkeley.edu/wp/c+dromer_aer2000.pdf
- Data Revisions in Recessions:
 - Swanson and van Dijk (2006, *Journal of Business and Economic Statistics*)
 - <http://amstat.tandfonline.com/doi/abs/10.1198/073500105000000036>
 - Haltom et al (2005, Federal Reserve Bank of Atlanta *Economic Review*)
 - http://www.frbatlanta.org/filelegacydocs/erq205_haltom.pdf
- Fed’s forecasting ability in recessions:
 - Sinclair et al (2010, *Economic Letters*)
 - <http://www.sciencedirect.com/science/article/pii/S0165176510001278>
- Comparing the Fed Staff and the FOMC for forecasting:
 - Romer and Romer (2008, *American Economic Review*)
 - http://elsa.berkeley.edu/~dromer/papers/aer_98_2.pdf
- “Lucky” Forecasters (including references on averaging forecasts):
 - Bürgi, Constantin and Tara M. Sinclair. “A Nonparametric Approach to Identifying a Subset of Forecasters that Outperforms the Simple Average to Empirical Economics.” GW Research Paper on Forecasting Working Paper No. 2015-006.

Other Great Places to Check for Economic Stories

- NBER Working Paper Series:
 - <http://federalreserve.gov/newsevents/speech/2012speech.htm>
- IGM Experts Panel:
 - <http://www.igmchicago.org/igm-economic-experts-panel>
- Shameless Plugs:
 - My Website:
 - <http://home.gwu.edu/~tsinc/>
 - GW Research Program on Forecasting:
 - <http://research.columbian.gwu.edu/cer/research/forecasting>
 - GW Institute for International Economic Policy:
 - <http://www.gwu.edu/~iiep/>
- A few of my favorite blogs:
 - <http://blog.indeed.com/>
 - <http://internationaleconpolicy.wordpress.com/>
 - <http://econbrowser.com/>
 - <http://macroblog.typepad.com/>
 - <http://economistsview.typepad.com/>
 - <http://marginalrevolution.com/>
 - <http://blog.bea.gov/>