

Five Controversial Propositions About the U. S. Economy

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Let's start with five different pieces of the Conventional Wisdom, and then present a Controversial Proposition disagreeing with each of the five. We start with a general assessment of the New Economy in comparison with the "Great Inventions" of the past and become progressively more specific about the sources of the 1995-2000 U. S. economic miracle and the ongoing slowdown in 2001.

Conventional Wisdom (CW), Controversial Proposition (CP)

- 1. CW: "The computer chip has transformed us at least as pervasively as the internal combustion engine or the electric motor."

CP: The computer chip has been around for 40 years; its greatest achievements are in the past; the new part of the "New Economy" since 1995 rates low on a scale of inventions that includes electricity and the internal combustion engine.

- 2. CW: "Even the most bearish analysts agree the microchip and Internet are changing almost everything in the economy."

CP: "Everything?" The U. S. productivity revival is narrowly based in computer production; the revival is partly temporary; multi-factor productivity growth in much of the economy has not revived; and MFP growth in the U. S. is not impressive compared to Europe.

- 3. CW: The productivity growth revival accounts for everything good about the miracle U. S. economy of the late 1990s – low inflation, low unemployment, high profits, high stock market. The revival is structural, not cyclical, and will protect the economy through any temporary downturn.

CP: The productivity growth revival surely helped, but much else formed the foundation of the "Goldilocks economy". If part or all of that foundation crumbles away, so does the economic performance even if productivity growth remains strong.

- 4. CW: The main source of a U. S. economic slowdown is the stock market pullback that has already occurred. The "wealth effect" will reduce growth in consumption to a rate equal to income growth instead of greatly exceeding it. GDP growth will slow from maybe 5 to 3 percent, but that's it.

CP: Let's review the most important economics article written in 1940.

- 5. CW: Alan Greenspan's immediate move to reduce short-term rates between FOMC meetings assures a soft landing.

CP: Monetary policy was not the cause of the boom and won't be the salvation of the slowdown. Monetary policy had less to do with both the boom and slowdown than in any business cycle since 1954.

- 1. CW: "The computer chip has transformed us at least as pervasively as the internal combustion engine or the electric motor" (*Fortune*, June 8, 1998).

CP: The computer has been around for 50 years; its greatest achievements are in the past; the new part of the "New Economy" since 1995 rates low on a scale of inventions that includes electricity and the internal combustion engine.

- What is the "New Economy"?
 - Computers have been around for 50 years
 - My definition: *Acceleration* of rate of technical change in computers around 1995
 - Computer deflator: 1987-95 -14.7% p.a.
1995-99 -31.2% p.a.
 - Invention and rapid diffusion of the World Wide Web

- Historical Comparisons
 - MFP Growth since 1870: the "Big Wave"
 - Is the question "Why the Slowdown?" or "What caused the Golden Age?"
 - "Compared to the pace of economic growth in the 20th century, all other centuries -- even the 19th -- were standing still."
 - Figure 1: 1995-99 was outstanding even in comparison with 1913-72
 - But Figure 2: 1995-99 contribution still a pipsqueak compared to 1913-72. 67% of cumulative growth since 1870 contributed by 38 percent of the years (1913-72).

- Five Great Sets of Inventions
 - Electricity (electric light and electric motors)
 - Internal Combustion Engine
 - Petroleum, Petrochemicals, Plastics, Pharmaceuticals, Antibiotics
 - Entertainment and early information industries: Telephone, Radio, Movies, TV, Recorded Music, Mass-circulation Newspapers and Magazines
 - Inside Plumbing and Sanitation Infrastructure

- Some Thought Experiments about the significance of the internet compared to some of the many spin-offs of the Great Inventions
 - Silicon valley dependent on electricity to do anything
 - The Houston experiment
 - The Minneapolis experiment
 - The ECB experiment

- Understanding the Internet
- Consumer Like to Get Something for Nothing, great contribution to consumer welfare, ease, convenience, cost of conducting *existing* activities (shopping, games, travel research)
- Businesses Cannot Produce Something for Nothing Forever
- Why do Firms Build Web Sites if the Web is not a fundamental creator of productivity?
 - 1. Protect Market Share (B&N vs. Amazon)
 - 2. Reduces Cost of Providing Information (airline web sites)
 - 3. Duplication: glorified mail order catalogue (an 1872 invention).
 - 4. Consumption on the job (shopping e-Bay at 11am from the office)

- Deeper reasons rooted in basic principles of economics, especially diminishing returns
 - What is unique about computer: radical decline in price and exponential growth in power
- Combining exponential growth in computer capabilities with a fixed factor: the human brain and human time
- My own declining output -to -capital ratio.

My 1983 computer: 1/100 memory, 1/60 speed

U. S. price index says my present computer = 28 times the real capital (\$70,100 in 1983 dollars vs. \$2,500)

- The High Productivity Uses of Computers Happened Decades Ago

- Bank Statements
- Telephone Bills
- Airline Reservations Systems
- Insurance Policies and Premiums
- Credit Card Statements
- ATM machines were invented in 1972

- 2. CW: "Even the most bearish analysts agree the microchip and Internet are changing almost everything in the economy." (*Wall Street Journal*, January 18, 2000).

CP: "Everything?" The computer is not everywhere; U. S. productivity revival is narrowly based in computer production; the revival is partly temporary; and MFP growth in the U. S. is not impressive compared to Europe.

- Why Computers are Not Everywhere
 - Hand and Eye Coordination
 - Commercial Airlines, trucks
 - Face-to-face Contact in the Services
 - Doctors, nurses, dentists, lawyers, investment bankers, management consultants, bartenders, wait staff, bus boys, flight attendants, barbers, beauticians, professors (easiest to replace?)
 - Face-to-object Contact in the Services
 - Grocery cashiers, grocery baggers, parking lot attendants, valet parkers, auto repair, lawn maintenance, restaurant chefs, almost every kind of home maintenance
 - That reassuring walk down the hotel corridor

- Understanding the productivity growth revival

1.42% annual (1972-95) to 2.86% (1995-2000)

Explains most of the acceleration of output growth

It must continue for the forecasts of individual business firms to be correct

See Figure 3.

Need to explain this acceleration of 1.44%

- Partly Transitory. Productivity always grows rapidly when output grows faster than potential
 - Mid-99 to mid-00, real GDP growth 6%
 - Mid-2000 level of productivity roughly 2% above its trend
 - How much of the actual growth in productivity since 1995 is cyclical? About 0.3. How much structural? About 2.6. (see Figure 4)

- Distinguishing Between Labor Productivity and Multi-factor Productivity (MFP). Figure 5.
 - Labor Productivity: output/hour
 - Multi-factor Productivity (MFP): output divided by a weighted average of capital and labor input
 - "Capital Deepening" is the effect of faster growth in capital input than in labor input. It is the difference between growth in output per hour and in MFP.

- Explaining the Post-1995 Productivity Growth Revival (see Figure 6)
 - Actual 1.5
 - Potential 1.2
 - Production of Computers 0.3
 - Using Computers 0.6
 - Miscellaneous measurement inconsistencies and slightly faster growth in labor quality 0.2
 - Virtually nothing left for structural acceleration in multi-factor productivity in the rest of the economy. Most of that was in durable manufacturing, not the service sector that is the biggest user of computers.
 - Implication: if output growth slows, productivity growth could slow for two reasons
 - Cyclical component goes away
 - Computer investment will stop growing so rapidly (1999-2000 "technological bubble")
 - Official projections of budget surplus are aggressively optimistic (Figure 7)

- Much of the productivity revival was based on an acceleration in the growth of computer investment from 20% per year pre-1995 to 40% per year post-1995, but that could not continue. Unsustainably high in 1999-2000 because of:
 - 1. The WWW could only be invented once
 - 2. Y2K artificially compressed replacement cycle
 - 3. Microsoft-Intel cycle didn't continue
 - 4. Dot-coms with no economic viability were buying hardware and software in 1999-2000, now brokers are selling hardware from bankrupt dot-coms.
 - 5. Much innovative software investment financed by VC and IPOs.
 - 6. Telecoms went heavily into debt to overinvest in fibre-optic cable networks
 - 7. Is the internet-enabled mobile phone the next "killer application?"

- 3. CW: The productivity growth revival accounts for everything good about the miracle U. S. economy of the late 1990s – low inflation, low unemployment, high profits, high stock market. The revival is structural, not cyclical, and will protect the economy through any temporary downturn.

CP: The productivity growth revival surely helped, but much else formed the foundation of the "Goldilocks economy". If part or all of that foundation crumbles away, so does the economic performance even if productivity growth remains strong.

- Other foundations of Goldilocks (low inflation with low unemployment)

- Figure 8: Falling real import prices (ended late 1999)
- Figure 9: Falling real energy prices (ended early 1999)
- Figure 10: Convergence of medical care inflation (ended late 1999)

Benefits inflation	1990	6.6%
	1998	2.4%
	2000:Q3	6.0%

- Figure 11: Faster decline in computer prices (ended late 1999)
- Figure 12: How Productivity Growth protected economy for labor cost acceleration
- Figure 13: CPI inflation has doubled since 1998, despite measurement improvements that have lessened inflation. Core CPI is starting to accelerate.
- Measurement improvements in CPI

- 4. CW: The main source of a U. S. economic slowdown is the stock market pullback that has already occurred. The "wealth effect" will reduce growth in consumption to a rate equal to income growth instead of greatly exceeding it. GDP growth will slow from maybe 5 to 3 percent, but that's it.

CP: Let's review the most important economics article written in 1940.

- This is Paul Samuelson's "Multiplier-Accelerator Model of Business Cycles"
 - Multiplier: layoffs that have already happened will have ripple effect. Consumption growth slowdown will have ripple effect (further auto plant closings, lost income)
 - Accelerator: *level* of investment depends on *growth rate* of income. Slower growth in output won't just cause investment growth to slow from double to single digits; one or more years of *negative* growth is possible
 - 1989-90, negative growth in computer investment
 - 1989-91, negative growth in equipment and software investment
 - 1989-92, negative growth in total fixed investment (equip, software, and structures)

- If investment growth can turn negative, so can profit growth
 - Why – wage, productivity squeeze.
 - Consistent cyclical evidence
- Stock market problem. Shiller thinks valuations are high, but even at present valuations, negative profit growth implies negative returns on market.
 - Previous valuations might have been rational at unlimited double-digit profit growth, but that implied profits/GDP approaching 100%.
- V shaped, U shaped, L shaped, sideways J?
 - Household job growth, real wage growth creates ongoing income gains that will fuel consumer spending on services and buffer the downturn.
 - Thus the "V" scenario is unlikely. Consumer services will buffer the downslope of the V, and continuing weakness in business investment will delay the emergence of the upside.

- Too pessimistic? Take the perpetual optimist James Glassman of Chase Securities, now JP Morgan
 - 04 Dec 00. Real GDP growth for 2001:Q1 – 3.3
 - 02 Jan 00. Real GDP growth for 2001:Q1 – 0.0.
- Could escape without a recession, but that terminology is irrelevant. If potential GDP is growing at 4 percent as Glassman suggests, then 6 quarters of 1 percent positive GDP growth would pull down the ratio of actual/potential GDP by 4.5 percent, e.g., from +2 to -2.5 percent. This would be as significant an event as 1990-91 recession, and sufficient to raise the unemployment rate by about $4.5/2$ or from 4.0 to 6.2.

- 5. CW: Alan Greenspan's immediate move to reduce short-term rates between FOMC meetings assures a soft landing.

CP: Monetary policy was not the cause of the boom and won't be the salvation of the slowdown. Monetary policy had less to do with both the boom and slowdown than in any business cycle since 1954.

- Yardeni: "The Fed will ease aggressively. The recession is over."
- Compare to 1981-82, 1989-90 in Figure 14. Notice the small volatility of the nominal Federal Funds rate since 1995.
- This slowdown isn't due to previous monetary tightness, so may not respond to subsequent ease.
- Monetary ease puts a limit on length and depth of any recession

Figure 1. Annual Growth Rate of Composition-Adjusted MFP, 1870-1999

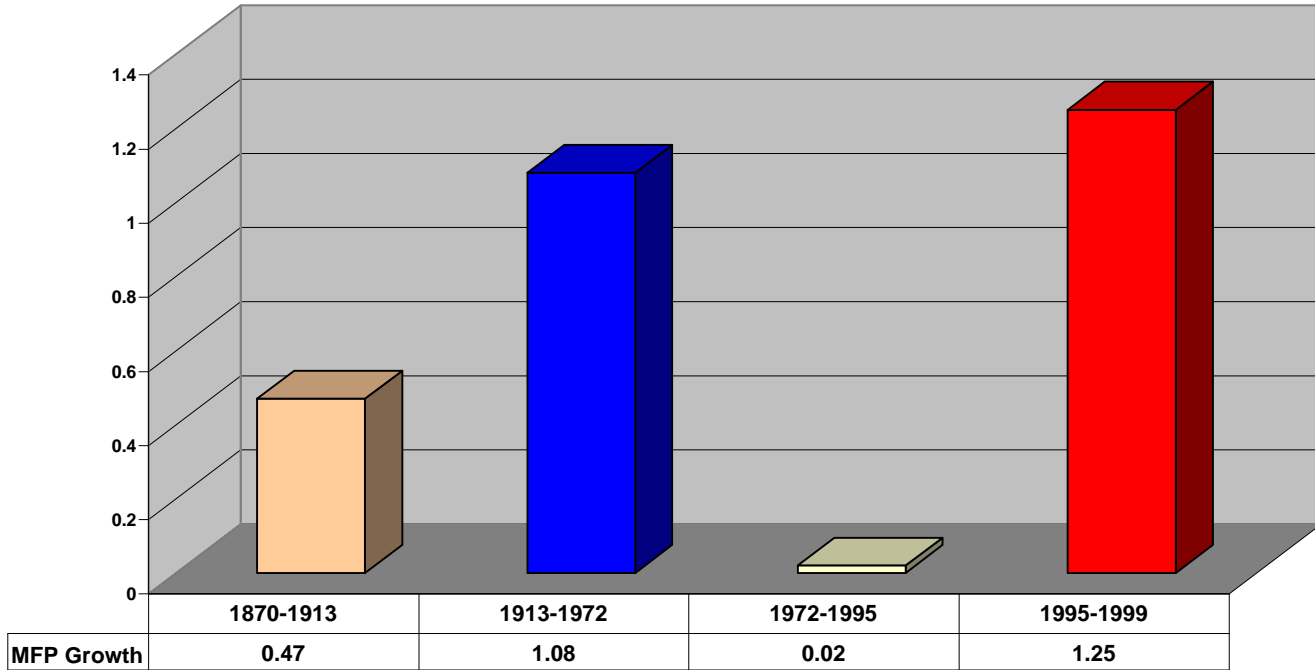


Figure 2. Percentage of Cumulative Log MFP Growth Occurring in Each Interval

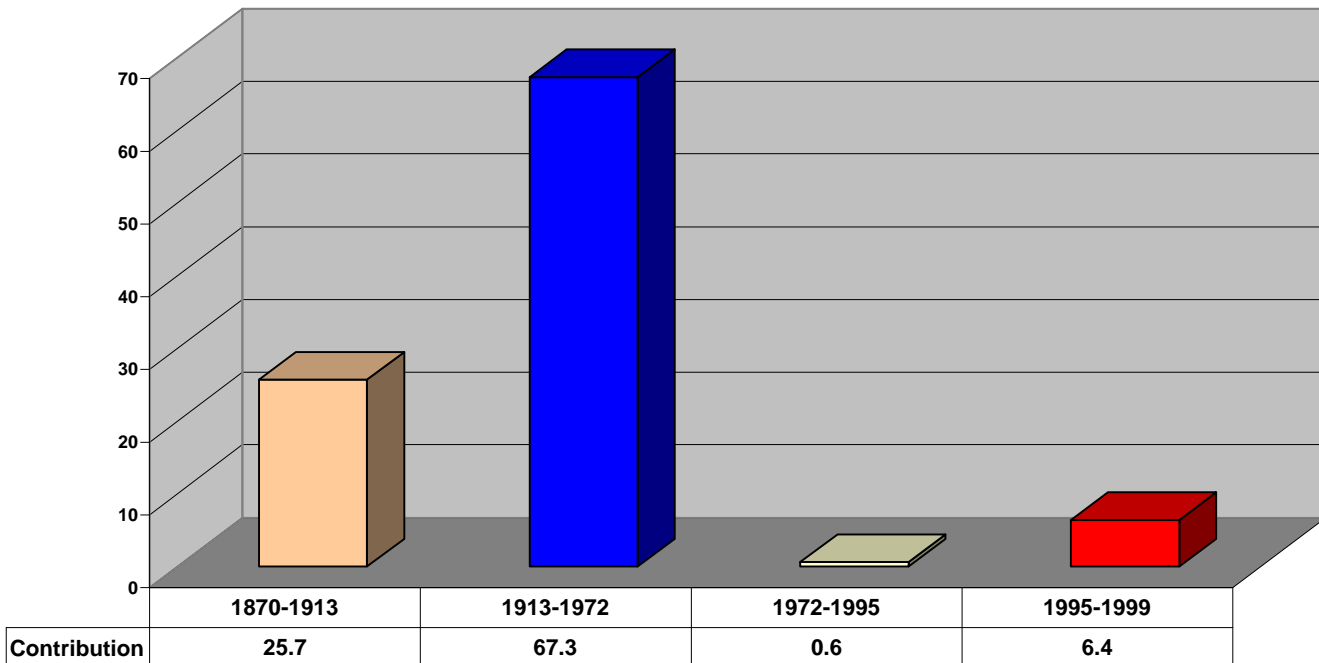
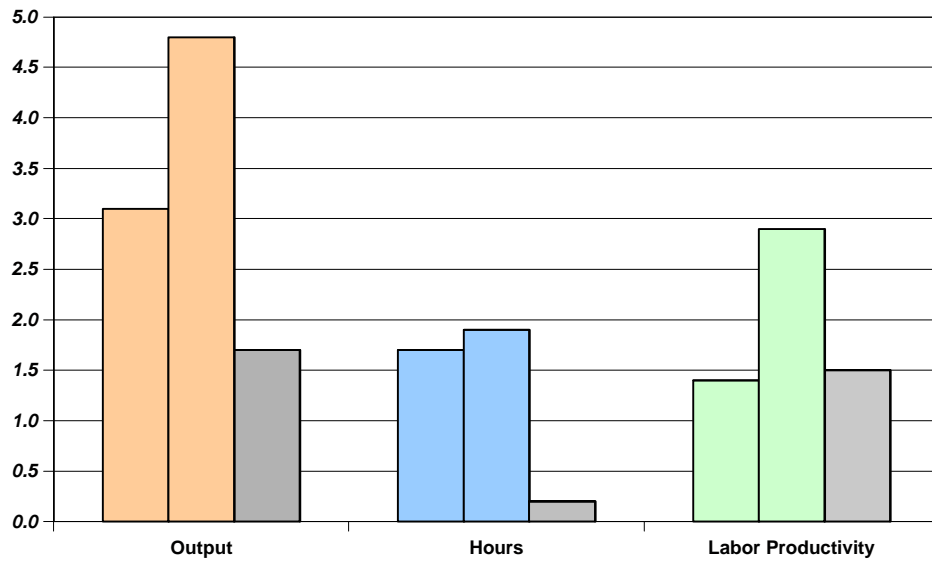
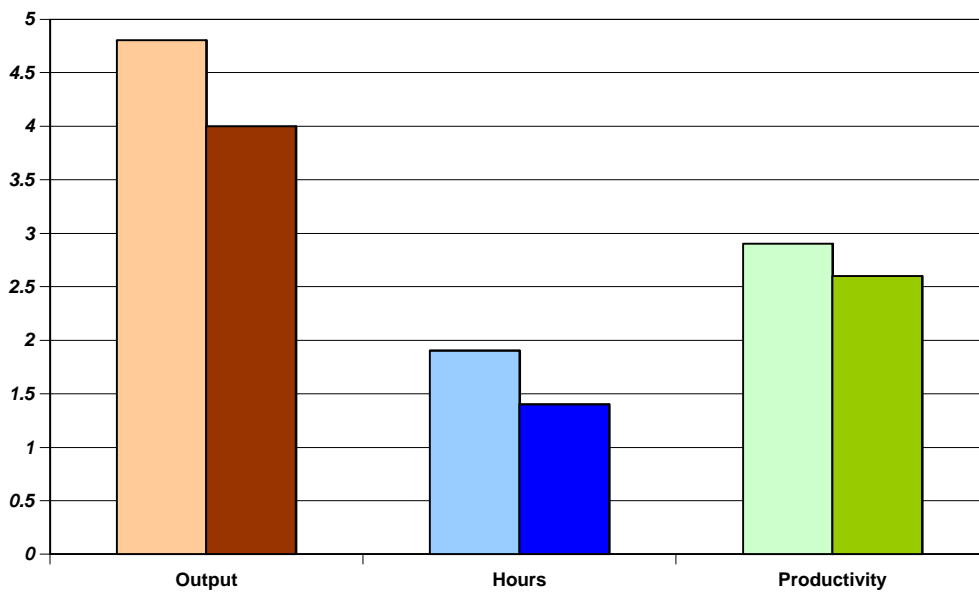


Figure 3. Acceleration of Labor Productivity Growth, 1972-95 to 1995-2000



	Output	Hours	Labor Productivity
1972-95	3.1	1.7	1.4
1995-2000	4.8	1.9	2.9
Acceleration	1.7	0.2	1.5

Figure 4. Actual vs. Potential Growth, Nonfarm Private Economy, 1995-2000



	Output	Hours	Productivity
Actual (lighter)	4.8	1.9	2.9
Potential (darker)	4.0	1.4	2.6

Figure 5. Relation of Potential Labor Productivity (Output per Hour) to Potential Multi-factor Productivity, Nonfarm Private Economy, Annual Growth Rates, 1995-2000

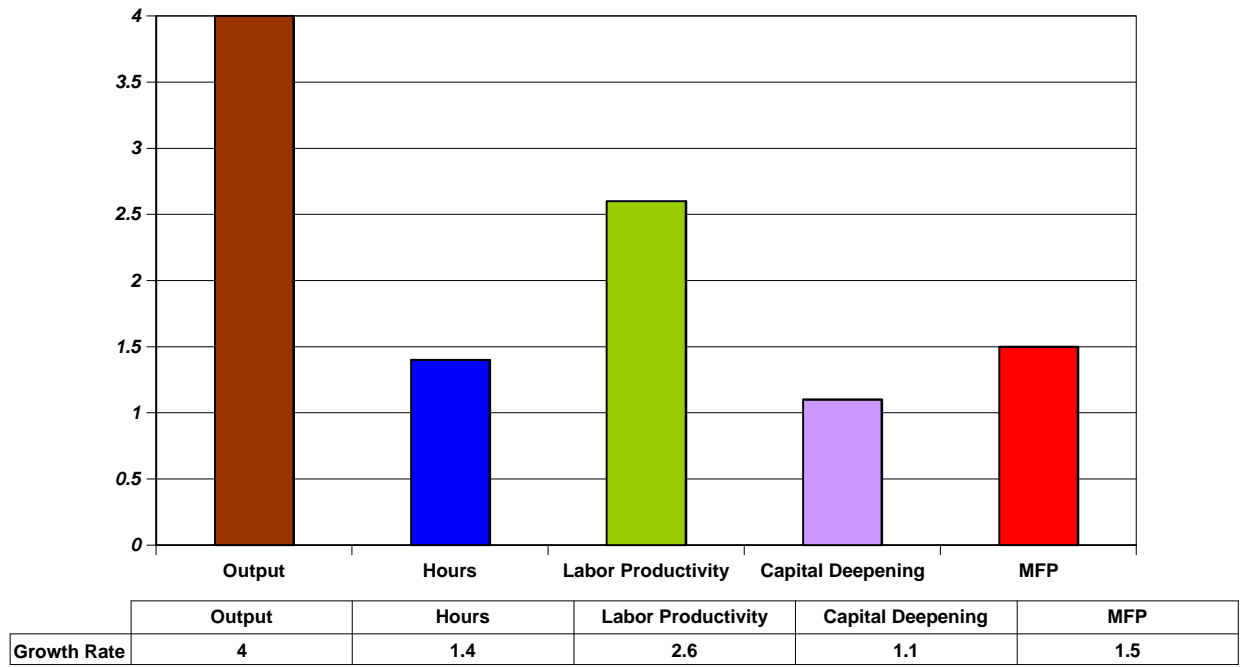


Figure 6. Decomposing the Acceleration in Labor Productivity, 1972-95 to 1995-2000

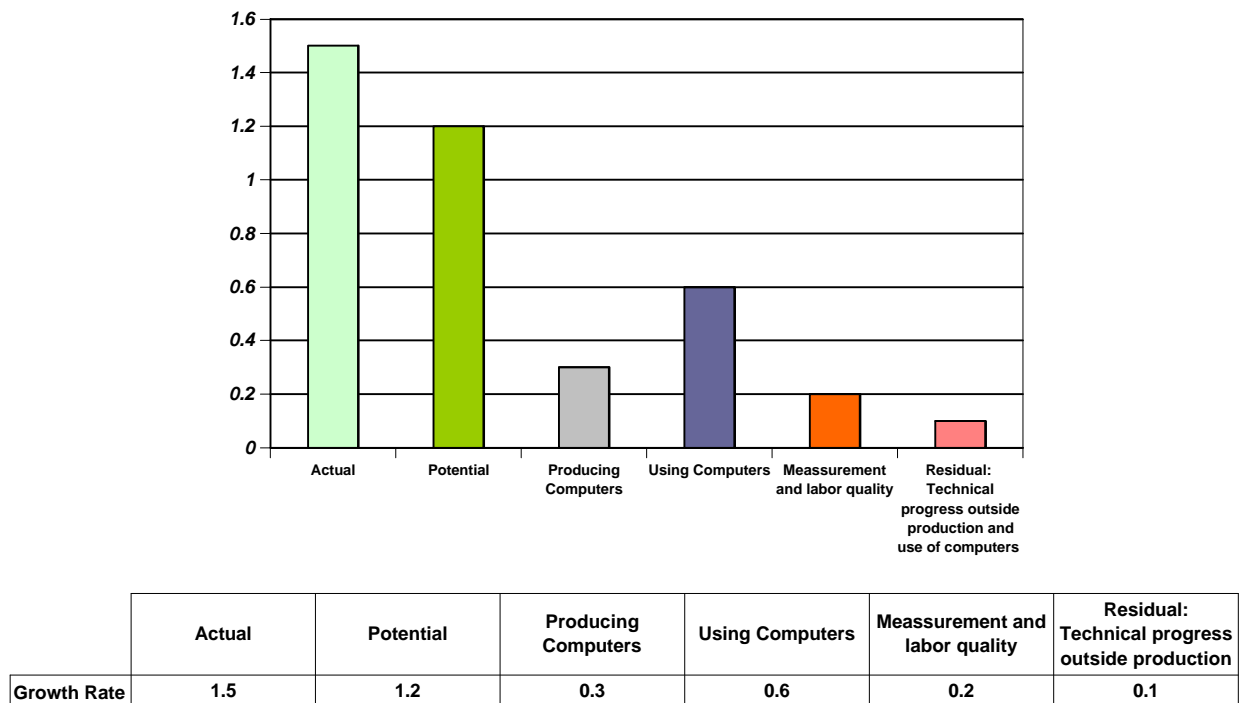
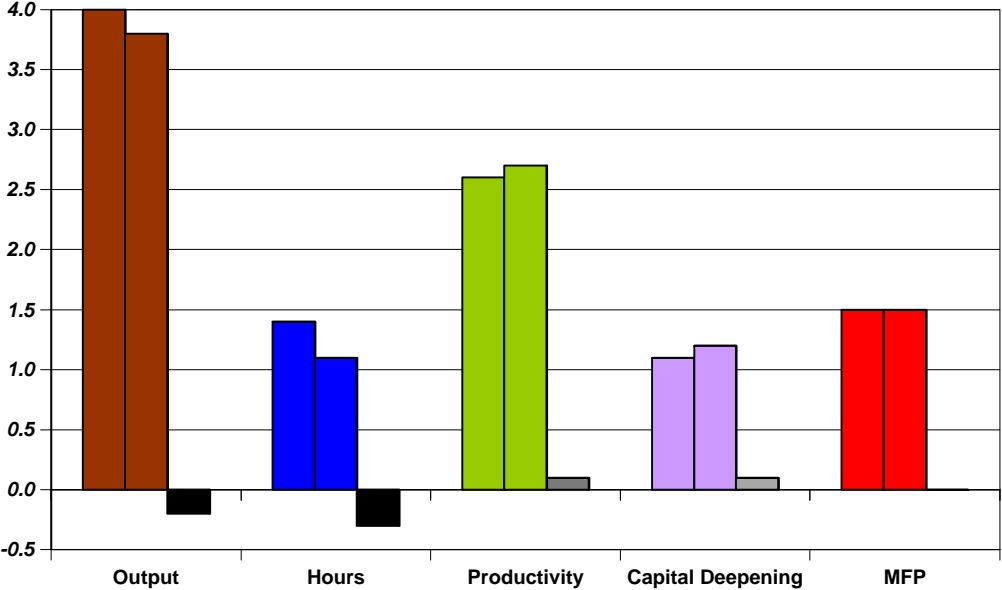
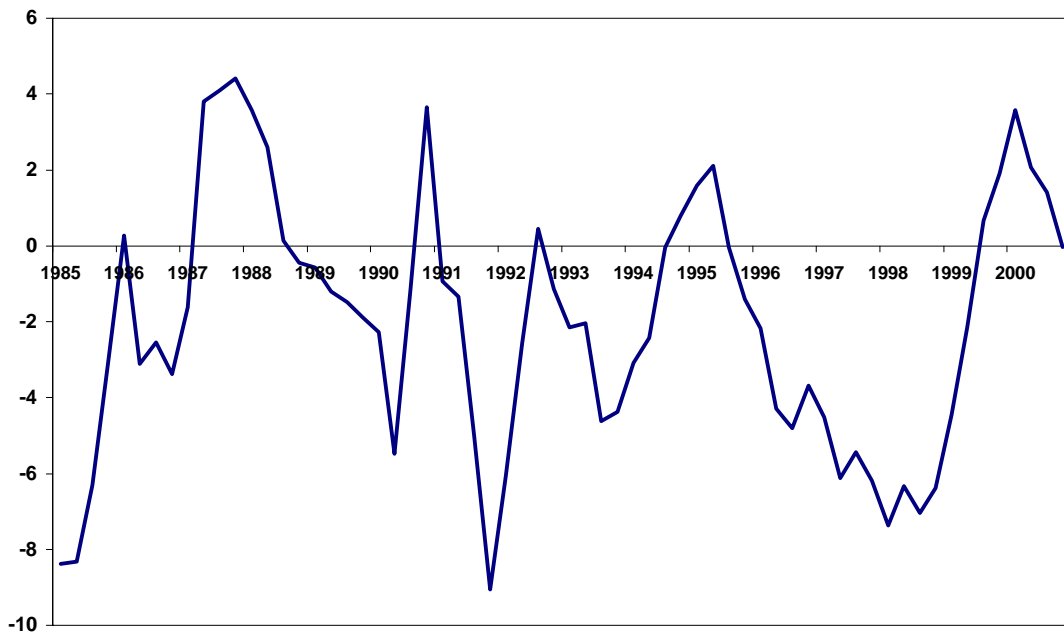


Figure 7. CBO predictions for 2001-2011, Nonfarm Private Business Sector, compared to 1995-2000

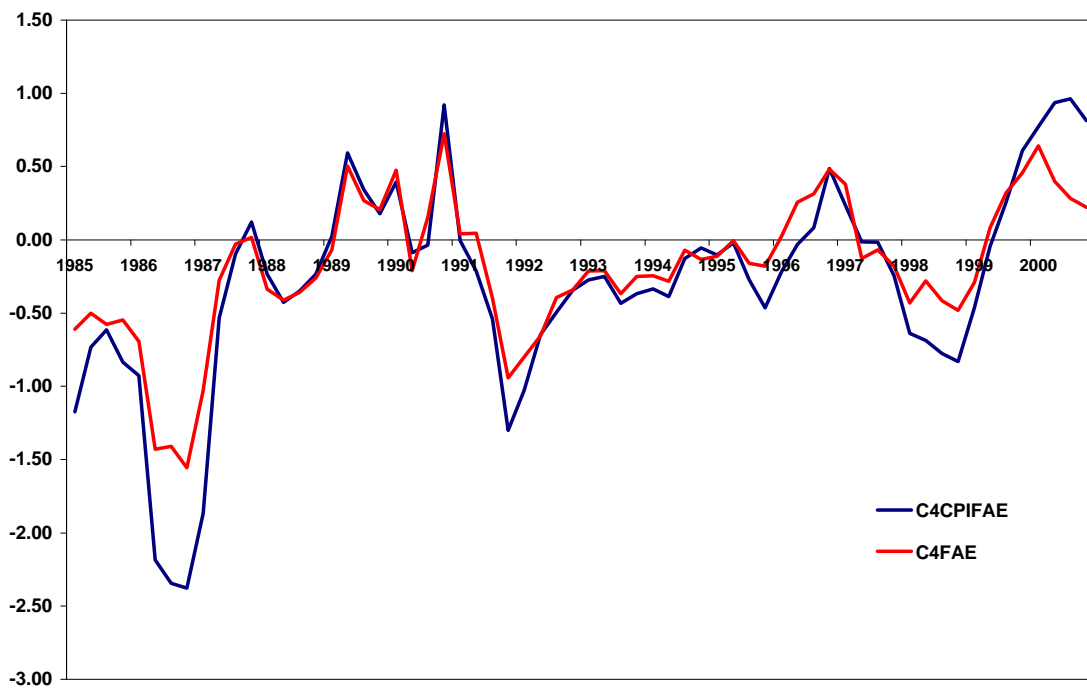


	Output	Hours	Productivity	Capital Deepening	MFP
1995-2000	4.0	1.4	2.6	1.1	1.5
2001-2011	3.8	1.1	2.7	1.2	1.5
difference	-0.2	-0.3	0.1	0.1	0.0

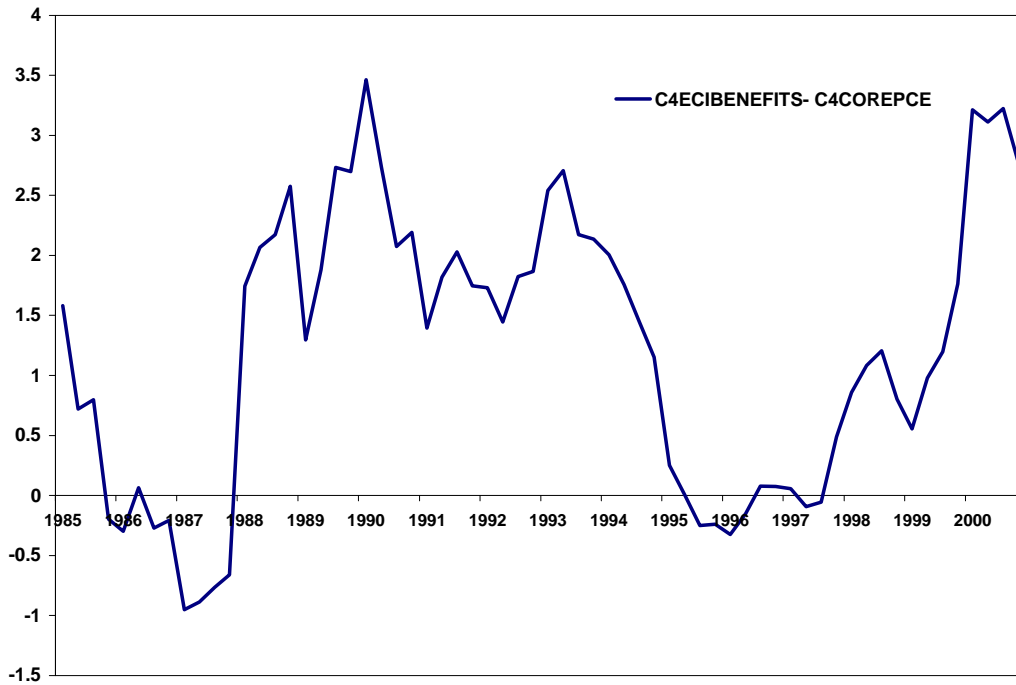
**Figure 8. Change in Real Import Prices,
four-quarter moving average of rate of change, 1985:1-2000:4**



**Figure 9. Effect of food and energy prices on Consumer
Prices, four-quarter moving average of rate of change,
1985:1-2000:4**



**Figure 10. Change in Employee Benefits,
four-quarter moving average of rate of change, 1985:1-2000:4**



**Figure 11. Change in real computer prices,
four-quarter moving average of rate of change, 1985:1-2000:4**

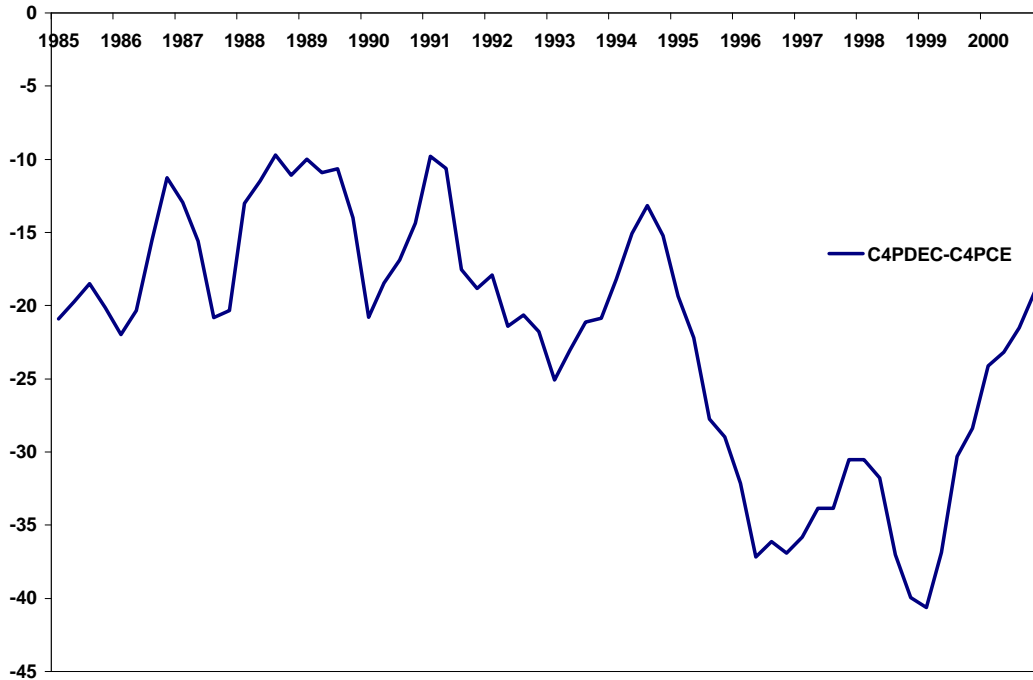


Figure 12. Effect of productivity growth on wage inflation, four-quarter moving average of rate of change, 1985:1-2000:4

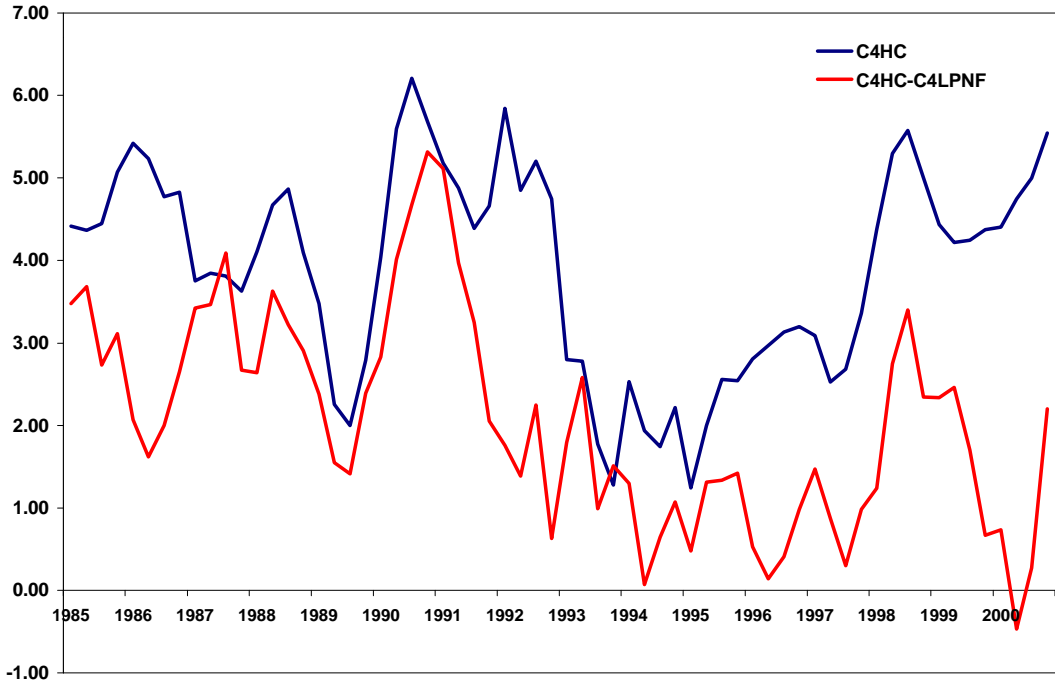


Figure 13. Four Quarter Moving average 12-month change in CPI and Core CPI

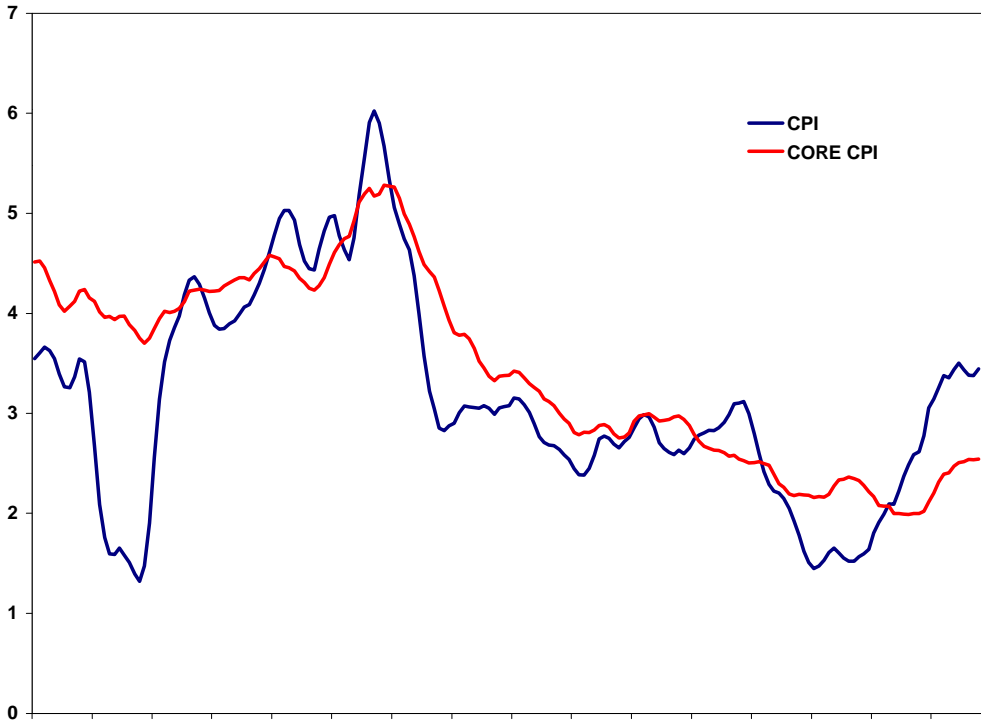


Figure 14. Level of the nominal and real Federal Funds rates

