Unsustainable Elements in the New Economy: Will a Future Economic Expansion Ever Match the Euphoria of the late 1990s?

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Main Theme: Why the late 1990s U. S. New Economy Boom was Unique and Won’t be Repeated

- Some Optimistic Forecasters think we are going back to 1995-2000
- Optimists About the Future are Led by Those Who Believe that Moore’s Law Has Gone from an 18 month cycle to a 12 month cycle.
- **IN CONTRAST**, There are two complementary approaches to why the late 90s were unique
Historical Analogies to the end of the late 90s IT Investment Boom

- Sir Edward Grey, August 3, 1914
  - “The lamps are going out all over Europe; we shall not see them lit again in our lifetime.”

- Will the Late 90s ICT Investment boom Occur Again in our Lifetime?
First Cluster of Unique Aspects: The “New Economy” ICT Boom Didn’t Happen in Isolation

- The “triangle approach”
  - Why the ICT investment boom and bust?
  - Stock market: causes and effects
  - Economy-wide factors: productivity growth, inflation, monetary policy
Second Cluster of Unique Aspects: Supply and Demand Came Together in the late 1990s

- Moore’s Law Cycle Time is About Supply, but Economics is About Supply and Demand

- Demand Fundamentals of the late 1990’s: One-time-only sources of ICT Demand
Triangle Side #1: The Investment Boom and the Bust

Real Computer Investment and Real Computer Deflator Growth, 1987-2002

Percent Change

Real computer investment

Real computer deflator
Falling Prices Doesn’t Mean that Real Investment will Rise
Triangle Side #2: What Fueled the Stock Market?

- Profit growth on top of rising P/E ratio
- Optimism, economy-wide boom
- Defined-contribution pension plans led to belief that all ancient P/E benchmarks were wrong
- Well-timed Warnings in March/April 2000:
  - Shiller’s “Irrational Exuberance”
  - Mandel’s “Coming Internet Depression”
  - RJG: “Does the `New Economy’ Measure up to the Great Inventions of the Past?”
Stock Market Effects

- Financed Hi-tech investment boom
- Caused a collapse in the personal saving rate
- Propelled consumption growth above income growth for 4 straight years
Stock Market reduced Saving and Boosted Consumption

Household Savings Rate and the Ratio of the S&P 500 to Nominal GDP

- Household savings rate
- S&P 500 / Nominal GDP
Triangle Side #3: Productivity/Inflation/Monetary Policy Nexus

- Productivity growth revival
  - Boosted sustainable GDP (income) growth
  - Inflation low partly because of productivity behavior
  - Four other beneficial supply shocks
Productivity Growth in the NFPB Economy: Actual and Trend
Durables Manufacturing: No Slowdown and late 1990s Explosion

![Graph showing Durables C6 Actual productivity growth and HP 6400 growth from 1960 to 2000](image-url)
NFNM: Much Less Impressive Compared to Kennedy Heyday

NFNM
C6 Actual productivity growth and HP 6400 growth
How Productivity Growth Revival Supported the Investment Boom

• Raised Potential Output and Income Growth

• At Given Saving Rate, Increases Consumption Growth

• If there is Inertia in Nominal Wage Behavior, Reduces Unit Labor Cost Growth and Holds Down Inflation
The Five Beneficial Supply Shocks that Held Inflation Down

- Productivity Growth Revival
- Appreciation of Dollar 1995-early 2002 reduced growth in Import Prices
- Energy Prices, trough in early 1998 fueled expansion
- Temporary Hiatus in Medical Care Prices
- Faster Computer Price Deflation ("New Economy")
The Benign Fed: Contrast with the Late 80s and Early 90s
Review: The Two Reasons why the late 1990s Won’t Happen Again

• Cluster of Reasons #1: Triangle of interconnections between investment boom, stock market, and temporary economy-wide beneficial supply shocks

• Cluster of Reasons #2: Moore’s Law Affects Supply, but Demand Doesn’t Automatically Keep Up
One-time-only Demand Elements in the late 1990s Hi-Tech Investment Boom

• (1) Today: the least controversial is the vast overbuilding of fiber-optic telecom capacity
  – Never before in economic history has supply ever outrun demand at a remotely similar pace
  – Many firms buying telecom investment goods were CLECs and other companies that soon went out of business

• (2) Similarly, much demand for computer hardware and software was created by dot.coms now out of business
Deeper One-time-only Reasons why the Investment Boom Couldn’t Last

• (3) The WWW could only be invented once
• (4) Y2K compressed the replacement cycle
• (5) MS is falling behind Intel -- the most profound reason of all?
• (6) Unsustainable slippage in accounting standards and corporate governance
Let’s put some numbers on these separate contributions of ICT

• 1995-2001 vs. 1972-95, how big was the productivity revival?
  – Biggest number, ERP Jan 2001, ~1.5
  – Now more like ~0.8

• Why the lower number?
  – Data revisions July 2001 and 2002
  – The cyclical effect really happened in 2001 as predicted
Current Decomposition, Productivity Growth 95-01 vs. 72-95

- Latest Numbers: Oliner and Sichel (August 2002 post rev)
- Top line: Acceleration of 0.8
- Faster MFP in IT Production: 0.3
- Capital Deepening in Use of IT: 0.5
- Left over for a Sustained Trend Acceleration in MFP not caused by Faster Growth of IT Investment: 0.0
- No cyclical effect, but can make this negative with subtle measurement inconsistencies
Reconciling the Evidence

- McKinsey, Bosworth-Triplett, Nordhaus point to healthy productivity growth in service sector
  - Led by wholesale, retail, securities

- Compatible with previous decomposition, most of 0.5 from Computer USE has occurred in wholesale, retail, securities
Looking to the Future, We Need to Understand Better the Cyclical Behavior of Productivity Growth

- Not Related to Timing of Recessions
- The Growth Rate of Productivity Depends Positively on the Growth Rate of Output
  - 1995:Q4-2000:Q2 Q=4.78, Q/H=2.59
  - 2000:Q2-2001:Q3 Q=-0.79, Q/H=0.6
Productivity Growth in the NFPB Economy: Actual and Trend

NFPB
C6 Actual productivity growth and HP 6400 growth

Percent Change


Actual

HP 6400
Notice Two Aspects of that Chart

- Actual 6-qtr moving average well above HP trend in 1999-2000
- When were big spurts of actual 6-qtr growth?
  - 1991-92
  - 1982-83
  - 1975-76
- Thus Cyclical Effect has Two Dimensions
  - Sensitivity to Output Growth
  - End-of-recession bubble
The Winter 2001-02 Productivity Bubble

• Bubble Growth, next 8 qtrs AAGR
  – 2001:Q3-2002:Q2   5.46   ????
  – 1991:Q1-1992:Q1   4.01   1.15

• Are NABE Forecasters Incorporating a Historical Interpretation of the Bubble into their Analysis?
Watch Out for the Next Two Years (2003, 2004)

- Historical Precedent for Below-trend Productivity Growth
- Which of 5 Beneficial Shocks Remain?
  - Productivity growth?
  - Import Prices?
  - Oil Prices?
  - Computer Prices, yes!
  - Medical Care Prices, no! (contrast 1996-98 when medical care prices converged while computer prices accelerated their rate of decline)
Understanding the Paradoxical Recovery

• When did recovery begin?
  – Real GDP is clear: Trough 2001:Q3
  – We now have three quarters of recovery

• Not an official view of NBER’s BCDC
  – We have to choose a month
  – September vs. November
Charts to Summarize the Differences: 1988-91 vs. 1999-2002
Durable Consumption: the Star Player

Consumption of Durable Goods

Average Annual Growth Rate

88Q4-90Q2  99Q2-00Q4  00Q4-01Q3  01Q3-02Q2

90Q2-91Q1  91Q1-91Q4
Nondurable and Services Consumption: Not Shabby

Consumption of Nondurables and Services

Average Annual Growth Rate

88Q4-90Q2
99Q2-00Q4
90Q2-91Q1
00Q4-01Q3
91Q1-91Q4
01Q3-02Q2
Fixed Investment: Here’s the Problem

![Graph showing the average annual growth rates for different quarters: 88Q4-89Q2, 99Q2-00Q4, 90Q2-91Q4, 00Q4-01Q3, 91Q1-91Q4, 01Q3-02Q2.]
Equipment Investment: Closer to the Problem

Equipment Investment including software

Average Annual Growth Rate

-90Q2-91Q1

-88Q4-90Q2

99Q2-00Q4

91Q1-91Q4

00Q4-01Q3

01Q3-02Q2
The Surprising Role of Nonresidential Structures

Nonresidential Structures

Average Annual Growth Rate

88Q4-90Q2
99Q2-00Q4
90Q2-91Q1
00Q4-01Q3
91Q1-91Q4
01Q3-02Q2
Consumer Durables’ Holy Twin: Residential Structures

Average Annual Growth Rate

-30 -25 -20 -15 -10 -5 0 5 10 15

Residential Structures

88Q4-90Q2 99Q2-00Q4 00Q4-01Q3 91Q1-91Q4 01Q3-02Q2

90Q2-91Q1
Bigtime Fiscal Stimulus: Federal Government Exp on G&S
Conclusion #1: Why There Won’t be a Double-dip

- Stock market loss-of-wealth on different footing than housing refinance which provides cash-in-pocket
- Refinance not over yet, I’ll be doing it next week for the second time this year
- Consumption, housing not fragile
- Double-dip arithmetic.  +3 → -3, -6, -12
Conclusion #2: The Economy’s Automatic Gyroscope

- Signs of Weakness? Bond Market yields tank
- A Housing Refinance Boom follows, money flows to consumer pockets, the economy is not weak after all
- Business Investment is a Wild Card, not controlled by Fed (flip side of textbooks)
But All is not Rosy

• Current weakness will continue: no chance for another late 90’s boom in IT investment

• State and local government: a lagging and dragging indicator

• Read up on 1991-93 and beware of 1994