The Unsustainable New Economy Boom and its Lessons for the next Economic Expansion

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Waiting for Godot, the Next Expansion

• Business Forecasters started saying one year ago: 3-4 percent growth forever starting “next quarter”

• Everyone now agrees 2002:Q4 = 1.0 %. But what then?

• CBO vs Consensus, startling difference
  – Next three quarters (02:Q4-03:Q2) only 1 percent growth each quarter
  – Why the difference?
The Paradox of ICT Investment and the Productivity Growth Revival

- Post-1995 productivity growth revival still going strong
- Keeps inflation low, allows Fed to promote growth without concern for inflation
- Current consensus; productivity revival *entirely* caused by late 90s investment boom
But Here’s the Paradox

- ICT Investment Boom Has Died, Bad News for Productivity
- Bad News vs. Good News, how can we make sense of this?
  - ICT Investment is the bad news
  - Continuing strong productivity the good news
- Why is productivity doing so well when ICT investment is doing so badly?
- Has the role of ICT Investment Been Exaggerated?
Four Components to the Talk

• Standard View: ICT Caused Productivity Revival

• Why the Standard View Exaggerates ICT’s Role (Good News)

• Why the ICT Boom Is Not Coming Back: the Macro and Micro Reasons (Bad News)

• Why Business Forecasters are Too Optimistic
The Post-1995 Productivity Growth Revival: What was ICT’s Contribution?

• 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
Table 4

Contributions to Growth in Labor Productivity by Source

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<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Labor Productivity</td>
<td>1.40</td>
<td>2.25</td>
<td>0.85</td>
</tr>
<tr>
<td>Contributions from:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Capital Deepening</td>
<td>0.71</td>
<td>1.17</td>
<td>0.46</td>
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<tr>
<td>Information Technology Capital</td>
<td>0.42</td>
<td>0.97</td>
<td>0.55</td>
</tr>
<tr>
<td>Other Capital</td>
<td>0.30</td>
<td>0.20</td>
<td>-0.10</td>
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<tr>
<td>Labor Quality</td>
<td>0.27</td>
<td>0.25</td>
<td>-0.02</td>
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<td>Multifactor Productivity</td>
<td>0.42</td>
<td>0.83</td>
<td>0.41</td>
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<tr>
<td>Information Technology Capital</td>
<td>0.30</td>
<td>0.73</td>
<td>0.43</td>
</tr>
<tr>
<td>Other Sectors</td>
<td>0.12</td>
<td>0.10</td>
<td>-0.02</td>
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<tr>
<td>Memo: Total IT Contribution</td>
<td>0.72</td>
<td>1.70</td>
<td>0.98</td>
</tr>
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That Takes us to 2001, What about the Productivity Boom of 2002?

- Two Parts to the Cyclical Effect
- 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
- The Early Recovery “Bubble”
Productivity Growth in the NFPB Economy: Actual and Trend

NFPB
C6 Actual productivity growth and HP 6400 growth

Percent Change

Actual

HP 6400
The Winter 2001-02 Productivity Bubble

• Bubble Growth, next 8 qtrs AAGR
  – 2001:Q3-2002:Q3  5.30  ???
  – 1991:Q1-1992:Q1  4.01  1.15

• Are Forecasters Treating the Bubble as Normal or Incorporating a Historical Interpretation into their Analysis?
Reasons for Skepticism about the Standard Decomposition

• Delay (analogy with electricity in the 1920s)
• Retailing in the 1990s: all the big boxes
• Europe: retail is where the gap is
• U. S. States: no role for ICT use
Table 5

Labor Productivity by Industry Group, U. S. vs. Europe,
1990-95 vs. 1995-2000, Annual Growth Rates in Percent

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th></th>
<th>European Union</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Total Economy</td>
<td>1.1 2.2</td>
<td>2.4 1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICT Producing Industries</td>
<td>6.1 6.5</td>
<td>6.0 8.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICT Using Industries</td>
<td>1.4 4.2</td>
<td>1.9 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-ICT Industries</td>
<td>0.4 0.4</td>
<td>2.4 1.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: van Ark et. Al. (2002, Table 5).
Why Won’t ICT Investment Come Back?

• This is the Bad News
  – For Productivity Growth (but ICT role exaggerated)
  – For the Economic Recovery

• Two Reasons
  – Macro (total economy)
  – Micro (special aspects of ICT Boom)
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?
The Macro Triangle: 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
Macro: the Short Version – A Positive Feedback Loop in the Late 1990s

- Stock Market

- Productivity Growth
  - Fed by ICT Boom, Held Down Inflation

- Inflation and Monetary Policy
Stock Market reduced Saving and Boosted Consumption

![Graph showing Household Savings Rate and the Ratio of the S&P 500 to Nominal GDP from 1970 to 2005. The graph displays the household savings rate (light blue line) and the S&P 500 to Nominal GDP ratio (pink line). The household savings rate remains relatively stable with occasional peaks and troughs, while the S&P 500 to Nominal GDP ratio shows a notable increase and peak around 2000.]
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

Federal Funds Rate and the Output Ratio, 1984-2002

- Federal Funds Rate
- Output Ratio
The Micro Side: Does Supply Create its Own Demand?

• 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

- Real computer investment
- Real computer deflator
Falling Prices Doesn’t Mean that Real Investment will Rise

Ratio of Computer Investment to Nominal GDP
1960-2002
The Micro Reasons why the ICT Investment Boom Won’t Come Back

• Least Controversial: Telecom Equipment
• The WWW Could Only be Invented Once
• Legacy of the Failed Dot-Coms
• Most Controversial: Software Falling Behind Hardware
Macro + Micro Implications

• We won’t have another five consecutive years with ~40% annual growth in computer investment

• Even if ICT investment goes back to 1995 rates, productivity growth will not

• That leaves the last topic: diagnosing the recovery
Something Fishy is Going On: the Forecasting Consensus

• 3+ percent growth forever starting next quarter
• Fixed Investment Starts Growing at Double Digits
  – CBO late 2003 Equip Investment +17
• Classroom:
  – GDP = Multiplier times a+I+G+NX
Well, let’s look at Autonomous Components of Spending

• Consumption
  – Auto Sale Payback
  – Overextended Consumer debt

• Government Spending
  – Today’s NYT Op-Ed: “Watching the S&L Finances Implode is like watching a multiple-car auto wreck happen in slow motion”
And the Rest?

• Net Exports?
  – Residual effect of strong dollar
  – No matter how slowly U. S. economy grows, forecast for foreign growth is slower

• That leaves Investment
  – Fixed investment $1992<1989$
Investment Pessimism?

• We’ve Already Seen: One-time-only aspects of late 1990s

• Capacity Utilization Rate: Historically Low

• Tight Credit Despite Alan Greenspan
If Everything is So Dire, How Come the Recovery Continues? The Bond Market 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
- So far, so good
The BCDC: Why Doesn’t it Declare the Trough?

• Inside-Committee Dissention: Employment vs. Output

• BCDC and Journalists don’t understand “double dip”
  – Business Cycle in LEVEL of GDP
  – Real GDP now 3.0% > trough in 2001:Q3
  – DD would require -12 in one quarter, -6 over two quarters
Finale: No Double Dip but Slow Recovery

• And Now, the Part of the Program You’ve all been Waiting For!

• The Other Panelists will tell us:

• WHAT ALL THIS MEANS FOR THE STOCK MARKET . . .