INFORMATION TECHNOLOGY AND PRODUCTIVITY: WHERE ARE WE NOW AND WHERE ARE WE GOING?*

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IS THE "NEW ECONOMY" DEAD?

- "Rest in peace, New Economy. It was fun while it lasted." *Goldman Sachs, August 14, 2002*.

- In fact, the productivity revival is alive and well.

- Need to distinguish the "fairy tale" economy from the more prosaic - but important – changes in the actual economy.

- Key question: Can you imagine going back to the way you did business in the mid-1990s?

ANALYTICAL FRAMEWORK

- View the economy from "30,000 feet" to characterize overall effects of information technology. Case studies complement our approach.

- Use a standard growth-accounting procedure to decompose labor-productivity growth into contributions from:

  - Greater use of capital (capital deepening)
    - Computer hardware
    - Computer software
    - Communications equipment
    - Other capital

  - Changes in labor quality

  - Multifactor productivity (MFP)
    - Producers of IT capital
    - Other industries

Contributions to Growth of Labor Productivity[1]

	1974-1995 (1)	1996-2001 (2)	Difference (2) Minus (1)
1. Growth of labor productivity[2]	1.40	2.25	.85
Contributions from:[3]			
2. IT capital deepening	.42	.97	.55
3. Other capital deepening	.30	.20	-.10
4. Labor quality	.27	.25	-.02
5. MFP in semiconductors	.09	.42	.31
6. MFP in other IT sectors	.21	.31	.10
7. MFP in rest of nonfarm business	.12	.10	-.02
8. Total IT contribution[4]	.72	1.70	.98

1. Unpublished update to Oliner and Sichel (2002) that includes the effect of the July 2002 revision of the National Income and Product Accounts.
2. In the nonfarm business sector. Measured as average annual log difference for years shown multiplied by 100.
3. Percentage points per year.
4. Equals the sum of lines 2, 5, and 6.

Note: Detail may not sum to totals due to rounding.

WHERE ARE WE GOING?

- Two key issues:
  - Will the pace of technical advance remain rapid in the tech sector?
  - Will ever-cheaper supply create end-user demand?

- Over the past several decades, no evidence of saturation in use of computing power:
  - Evident from stable to rising budget shares for different types of IT capital.
  - Also evident from examples of new uses of computing power over time:

    Military and space-flight applications
    Back-office record-keeping calculations
    Analysis of real-time data
    Desk-top computing
    Convergence of computers and telecom
    Hand-held devices

WHERE ARE WE GOING? (Continued)

- Oliner and Sichel (2002) take a relatively optimistic view.
  - Analyze a growth model with a rich characterization of the tech sector.
  - Under plausible scenarios, estimate labor-productivity growth to range from 2 percent to 2-3/4 percent (annual rate).
  - Estimates remain above slow 1973-95 pace because dynamic IT sector now a larger part of the economy.
  - Other analysts have obtained similar results.