

**The Resurgence of Growth in the Late 1990s:  
Is Information Technology the Story?**

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## **Introduction**

- Earlier work found only a modest influence of information technology on economic growth through the early 1990s.
- This paper examines the more recent period with the same neoclassical growth-accounting framework in earlier work.

## **Major Empirical Findings**

- The *use* of IT throughout the economy has made a large contribution to the acceleration of productivity since 1995.
- The *production* of computers and embedded semiconductors has also contributed importantly to this recent acceleration.
- Taken together, these two factors account for about two-thirds of the acceleration in labor productivity since 1995.

### **Measuring the Growth Contributions from the *use* and *production* of information technology**

- To measure *use* of information technology, we decompose productivity growth into contributions from use of information technology capital (hardware, software, and communication equipment), use of other capital, changes in labor composition, and multifactor productivity.
- For the *production* side, we further decompose multifactor productivity growth to extract the component related to efficiency gains in the production of computers and embedded semiconductors.
- As much as possible, we use standard data from the Bureau of Labor Statistics and the the Bureau of Economic Analysis. Where necessary, we augment these data from other sources.

| Decomposition of Productivity Growth                                                                                                                                                |         |         |        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|--------|
|                                                                                                                                                                                     | 1991-95 | 1996-99 | Accel. |
| 1. Growth rate of labor productivity <sup>a</sup>                                                                                                                                   | 1.53    | 2.57    | 1.04   |
| 2. Contributions from <sup>b</sup> :                                                                                                                                                |         |         |        |
| 3. Capital deepening                                                                                                                                                                | .62     | 1.10    | .48    |
| 4. Information technology                                                                                                                                                           | .51     | .96     | .45    |
| 5. Other capital                                                                                                                                                                    | .11     | .14     | .03    |
| 6. Labor quality                                                                                                                                                                    | .44     | .31     | -.13   |
| 7. Multifactor productivity                                                                                                                                                         | .48     | 1.16    | .67    |
| 8. Product. of computers and related semic                                                                                                                                          | .23     | .49     | .26    |
| 9. Other                                                                                                                                                                            | .25     | .67     | .41    |
| <p>Note: Detail may not sum to totals due to rounding.<br/> Source: Oliner and Sichel (2000).</p> <p><sup>a</sup>Percent per year.<br/> <sup>b</sup>Percentage points per year.</p> |         |         |        |

## CONCLUSION

- Both the *use* of information technology and the *production* of computers and embedded semiconductors have contributed importantly to the pickup in productivity growth in the second half of the 1990s.
- Of the roughly 1 percentage point acceleration in labor productivity growth, about two-thirds reflects use of IT capital or production of computers (and embedded semiconductors).
- There are upside and downside risks to these figures; but even a lower-bound estimate would imply a large role for information technology.
- Although the phrase “new economy” has many different definitions, one key ingredient is a sizable role for information technology.

For more information, see our paper at:

<http://www.federalreserve.gov/pubs/feds/2000/index.html>