
## Enhancing Productivity Growth in the Information Age: Measuring and Sustaining the New Economy (2007)

The New Economy refers to technological and structural changes in the U.S. economy as individuals capitalize on new technologies, new opportunities, and national investments in computing, information, and communications technologies. Faster, better, and cheaper semiconductors and computers have led, especially over the past decade, to the widespread adoption and use of modern information and communications technologies. The New Economy poses new challenges, requiring new approaches to economic measurement and policy analysis.

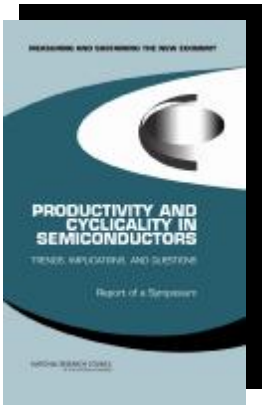
Beginning in 2000 the Board on Science, Technology, and Economic Policy (STEP Board) of the National Academies has held a series of workshops to better understand the New Economy and develop policies to sustain the positive contribution of modern information and communications technologies to U.S. growth and competitiveness. The proceedings of workshops on semiconductors, computers, software, and telecommunications have been published as separate volumes, along with a summary volume.

The challenge of the project was threefold: (1) to understand the diverse sources of these growth-enhancing productivity gains; (2) to better measure the contributions of different elements of the "new economy" story—that is to say, semiconductors, computers, software, and telecommunications; and (3) to develop policies to (i) meet the needs of these growth-enhancing industries and thereby benefit from their positive effects on the rest of the economy, and (ii) enable the United States to remain an attractive location for these industries within an increasingly competitive global economy.

Investments in information technology have significantly improved the nation's productivity, raising the trajectory of economic growth since the mid-1990s. New data revealed an acceleration of growth, accompanied by a transformation of economic activity in the information-technology producing sectors. Economic forecasters have had to "raise the speed limit" by revising intermediate-term projections of U.S. economic growth. The gain appears to be robust, having survived the dot-com crash of 2000, the short recession of 2001, and the tragedy of 9/11.

Today the structural change most associated with the New Economy is the transformation of the Internet from a communications medium to a platform for service delivery. This has led to the remarkable growth in the U.S. service economy, as companies like Google, eBay, and Amazon deliver services in new and innovative ways. Current data collection methods will have to be updated to stay relevant to new products, categories, and concepts.

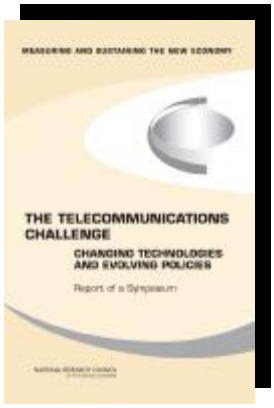
A second major theme of the project concerns public policies needed to sustain the New Economy. A major focus is on policies to sustain rapid development of the technologies that produce faster and more widely affordable computers and other productivity-enhancing equipment and software. The conferences examined the new challenges and opportunities for globalization emerging from new possibilities for sending voice and data at very low costs around the world and adding value in formerly remote locations.




***Productivity and Cyclicality in Semiconductors***
This symposium brought together leading technologists and economists to review technical challenges facing the semiconductor industry, the industry's business cycle, the interconnections between the two, and the implications of growth in semiconductors for the economy as a whole. Topics reviewed encompass the industry technology roadmap, challenges to be overcome to maintain the trajectory of Moore's Law, the drivers of the continued growth in productivity in the U.S. economy, and economic models for gaining a better understanding of this leading U.S. industry.


***Deconstructing the Computer***
This workshop brought together leading industrialists and academic researchers to explore the contribution of the different components of computers to improved price-performance and quality of information systems. The objective was to help understand the sources of the remarkable growth of American productivity in the 1990s, the relative contributions of computers and their underlying components, and the evolution and future contributions of the technologies supporting this positive economic performance.


***Software, Growth, and the Future of the U.S Economy***
This workshop convened academic experts and industry representatives from leading companies such as Google and General Motors to participate in a high-level discussion of the role of software and its importance to U.S. productivity growth; how software is made and why it is unique; the measurement of software in national and business accounts; the implications of the movement of the U.S. software industry offshore; and related policy issues.




***The Telecommunications Challenge***
The workshop drew together leading academics, national accountants, and innovators in the information technology sector to examine issues generated by the rapid technological change occurring in the telecommunications industry and the regulatory and policy challenges this creates. The workshop also presented new research relating to telecommunications pricing and developments in the industry such as the potential of and impediments to broadband.

***Enhancing Productivity Growth in the Information Age***
This summary volume describes the steps required to better measure and sustain the benefits of this "new economy" in the sectors examined:

Sustaining the New Economy

- Retain a Vibrant U.S. Information Technology Industry
- Expand Research Funding
- Invest in a Trained Workforce
- Foster Public-Private Partnerships
- Develop Industry Roadmaps
- Set International Standards
- Revise Outdated Telecom Regulation
- Develop a New Architecture for U.S. National Accounts

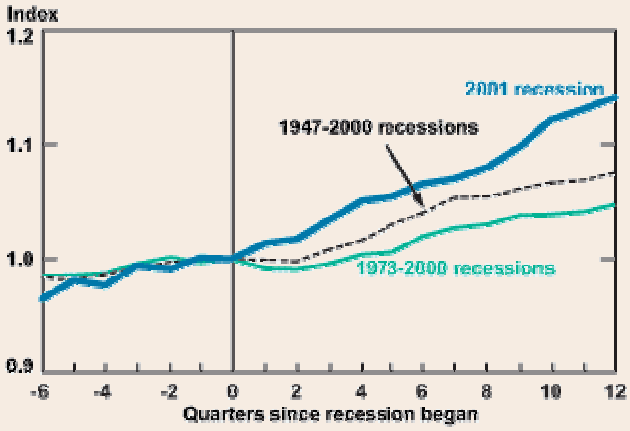
Measuring the New Economy

- Develop a Forecasting Model for the Semiconductor Industry
- Develop Constant Quality Price Indexes for Computers and Computer Components
- Develop Constant Quality Price Indexes for Software
- Develop Constant Quality Price Indexes for Telecommunications
- Gauge the Scope of Globalization

Taken together, the conference and final summary reports provide the most detailed and comprehensive picture of the New Economy now available. Although economic conditions have changed since this series was begun, the dynamics underpinning the New Economy have remained intact. Faster and cheaper computing and communications continue to have a momentous impact on productivity growth in the United States and around the world. Understanding the New Economy is a central task in developing the economic policies required to ensure future growth and prosperity.

> *"The New Economy is alive and well today. Recent figures indicate that since the end of the previous recession in 2001, productivity growth had been running about two-tenths of a percentage point higher than in any recovery of the post-World War II period. The challenge rests in developing evidence-based policies that will enable us to continue to enjoy the fruits of higher productivity in the future."*

**Productivity growth over the business cycle: 2001 recession compared with averages of earlier recessions.**




SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

NOTES: Productivity series are normalized to equal 1.0 at the beginning of each recession. The 1973-2000 line represents average productivity growth over the four recessions during that period; the 1947-2000 line represents average productivity growth over the nine recessions during that period.

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**For more Information**

Copies of the reports are available from The National Academy Press, (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area), or visit the NAP online at www.nap.edu. For inquiries about the Measuring and Sustaining the New Economy project, contact staff at (202) 334-1529 or visit the PGA website at www.nationalacademies.org/pga.