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Research Spotlight

New Approach to Measuring the Digital Economy

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Measuring the digital economy is a high priority for analysts of economic growth, and it is the focus of a recent working paper by Benjamin Bridgman, Tina Highfill, and Jon Samuels, all of the U.S. Bureau of Economic Analysis (BEA).

The digital economy affects almost every facet of daily life for individuals and almost all production decisions for businesses, but it is difficult to measure. Components of the digital economy often have characteristics that change over time (such as computing power or software functionality), and this requires price indexes that reflect these underlying changes in quality. Also, digital services are often provided without a price (such as an internet search) or are provided on own account, for example when a company produces and uses its own software or information technology hardware.

To help track advances in the digital economy, BEA produces a Digital Economy Satellite Account, which measures the role of the digital economy's contribution to U.S. gross domestic product (GDP) growth. The satellite account currently highlights production and spending for the digital economy that is already present in BEA's supply and use tables, which are the foundation of BEA's Industry Economic Accounts (IEAs). Digital economy production includes information and communication technologies hardware, software, e-commerce margins, digital services performed for a fee, and federal nondefense government agencies whose services are directly related to supporting the digital economy. The latest data show that the share of the U.S. digital economy in nominal GDP grew from 7.8 percent in 2005 to 10.3 percent in 2021. In real terms, the digital economy grew by 6.4 percent per year on average over that period, significantly faster than the overall U.S. growth rate of 1.7 percent per year.

In this paper, the authors augment the measures in the Digital Economy Satellite Account to include digital services provided by high-tech consumer durables. To do this, they introduce a new sector to the digital economy account that is analogous to the treatment of owner-occupied housing in the official GDP statistics. In the official BEA GDP statistics, the provision of owner-occupied housing is grouped within the real estate sector in the IEAs and in personal consumption of housing services in the National Income and Product Accounts. To measure owner-occupied housing, an imputation is made (using market rents) to account for the rent that would have been paid for owner-occupied homes so that measured GDP is isomorphic to how housing is financed. This paper introduces a similar imputation for the digital services provided by high-tech devices purchased by consumers. The authors' approach essentially treats consumer durables as a capital asset that yields a service flow over time.

The paper finds that including the service flow from digital consumer durables raises the growth rate of the digital economy between 2005 and 2021 from 6.4 percent per year to 6.9 percent per year. In nominal terms, within the augmented digital economy GDP, consumer durable services accounted for about 10 percent of digital economy GDP, and the provision of consumer durable services becomes one of the largest sectors tracked in the Digital Economy Satellite Account. While most household services are not digital, the household owns a significant part of the digital infrastructure. Many market digital services require the household to hold digital equipment. The paper's results show that the household's share of this infrastructure is quantitatively significant.

This *Research Spotlight* was prepared by *Survey of Current Business* staff. It uses language from the working paper "Introducing Consumer Durable Digital Services into the BEA Digital Economy Satellite Account" by Benjamin Bridgman, Tina Highfill, and Jon Samuels, published July 2023. The working paper is available in full on the BEA website.

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