Charting the Economy

Sharp Gains in Drilling Productivity over the Previous Decade Have Supported U.S. Oil and Gas Production

by: Jason P. Brown, David Rodziewicz and Colton Tousey

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U.S. oil and gas production has risen steadily over the past decade due in large part to increased drilling productivity. Typically, increases in production are thought to come from a higher number of active drilling rigs. However, for much of the past decade, the number of rigs (orange line) has remained below its 2000 level. Instead, the increase in production (green line) has been driven largely by improved drilling productivity (blue line). The number of barrels of oil produced per foot of drilling has more than doubled since 2014. To learn more, read our *Economic Bulletin*.

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Jason Brown is a Vice President and Economist in the Economic Research Department of the Federal Reserve Bank of Kansas City. In this role, he coordinates the regional and commodities research of the Bank and serves as liaison to regional and commodities researchers located in branch offices and in Kansas City. He conducts research on issues related to regional economic growth, emerging industries, natural resource development, and structural change in regional industry and labor markets. Prior to joining the Federal Reserve Bank of Kansas City, Jason was an economist at the USDA Economic Research Service in Washington, D.C. He holds a Ph.D. from Purdue University.

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David Rodziewicz is a senior economics specialist at the Denver Branch of the Federal Reserve Bank of Kansas City. His research focuses on energy economics, natural resource economics, climate change, and regional economics. His outreach efforts focus on the Rocky Mountain West region (Colorado, Wyoming, and northern New Mexico). Rodziewicz is also responsible for briefing the Kansas City Fed’s president—a member of the Federal Open Market Committee—on regional economic conditions as well as energy related issues. Prior to joining the Economic Research Department at the Bank in 2017, Rodziewicz was as an officer in the National Oceanic and Atmospheric Administration’s Commissioned Officer Corps, where he served as a deck watch officer in Alaska and database manager in Boulder. Earlier in his career, he worked in the financial services industry as a stock analyst, covering real estate investment trusts (REITs). Rodziewicz holds a master’s degree in Mineral and Energy Economics from Colorado School of Mines and a bachelor’s degree in Finance and Economics from University of Illinois.
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I joined the Federal Reserve Bank of Kansas City after receiving my BS degree in mathematics from the University of Kansas. Since joining the Kansas City Fed, I have had the honor to work with Jason Brown and Francisco Scott in their research. Currently, I am working on projects looking at the changes in trends in migration among urban areas in the United States as well as projects on transitions occurring in the energy sector. Recently, I have moved into a formal leadership role within the department, supervising new RAs and working on the development of RAs.

Notes: Productivity is measured as the number of barrels produced per foot of drilling. Production is measured in barrels of oil equivalent—a unit based on the approximate energy released by burning one barrel of crude oil and a way of combining both oil and gas production into a single measure. In recent years, oil and gas production has largely been driven by additional natural gas production. Gray bars denote National Bureau of Economic Research (NBER)-defined recessions.
Sources: Baker Hughes (Haver Analytics), Energy Information Administration, Enverus, NBER, and authors’ calculations.