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COVID-19 Unemployment Benefits Slowed Return to Work

During the COVID-19 pandemic, the US government instituted two policies that increased benefits for unemployed workers. The first, Pandemic Unemployment Assistance (PUA), expanded eligibility for state unemployment insurance (UI) to some workers who are not typically covered by these programs, including the self-employed and workers in the "gig economy." The second, the Federal Pandemic Unemployment Compensation (FPUC) program, added a \$300 weekly, federally funded supplement to standard UI benefits.

In **Did Pandemic Unemployment Benefits Reduce Employment? Evidence from Early State-Level Expirations in June 2021** (NBER Working Paper 29575), Harry Holzer, R. Glenn Hubbard, and Michael Strain find that these expanded benefits slowed workers' return to the labor market and prolonged unemployment spells during the summer of 2021.

Federal legislation authorized both PUA and FPUC through September 6, 2021, but

26 states chose to opt out of at least one program before that date. Eighteen states opted out of both programs in June 2021. The researchers estimate the impacts of the ben-

Washington, DC, that maintained both programs through September.

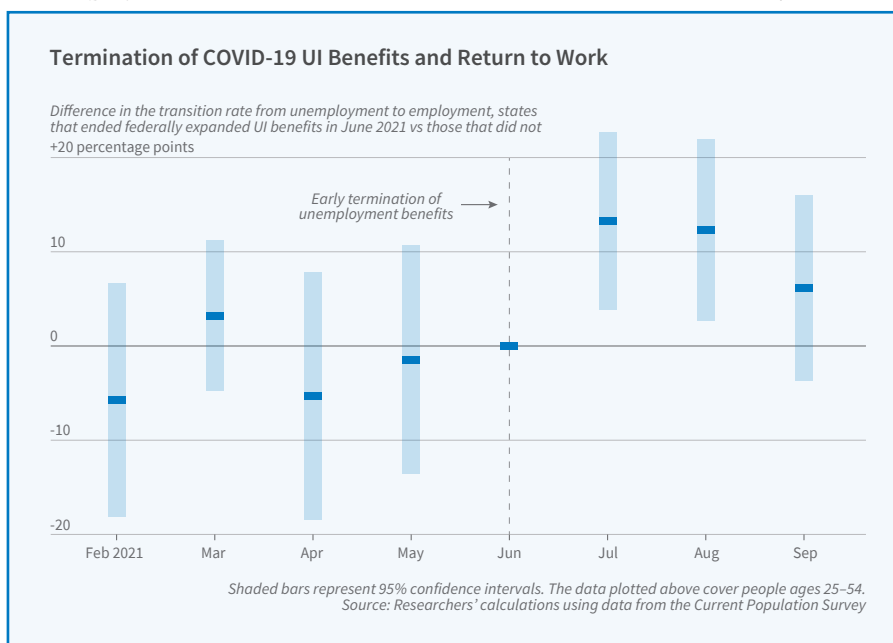
Using monthly data from the Current Population Survey, the researchers find that

Transitions from unemployment to employment increased in US states that opted out early from federal programs that expanded unemployment benefits during the pandemic; reports of difficulties meeting household expenses also rose.

efit programs by exploiting these early opt-outs, comparing unemployment trends in the 18 states that terminated PUA and FPUC in June 2021 with those in the 24 states and

in states that eliminated PUA and FPUC in June 2021, the share of 25-to-54-year-old unemployed workers who found employment rose by about 14.4 percentage points in July and August 2021 relative to the share in states that maintained both programs. This effect is about two-thirds of the baseline monthly flow of unemployed prime-age workers into employment from February through June 2021 in the early-exit states.

To provide further evidence on whether the cross-state disparity was due to the elimination of PUA and FPUC, the researchers compare trends in employment transitions month by



month from February to August 2021. There is no differential trend in unemployment exits across the two groups of states until July and August, when unemployment-to-employment flows in opt-out states rose 14 and 15 percentage points, respectively, above those in states that maintained PUA and FPUC. This gap disappeared again in September 2021, when all states had eliminated both programs.

The researchers also examine labor-market flows in Alaska, Florida, and Ohio, which terminated FPUC while leaving PUA's expanded eligibility in place. Transitions from unemployment to employment increased by

8.3 percentage points in these states relative to states maintaining both programs through September, which leads the researchers to conclude that both PUA's broader UI eligibility and FPUC's more generous benefits slowed workers' return to the labor market.

The researchers estimate that if the states that maintained benefits through September had eliminated PUA and FPUC in June, their July and August unemployment rates for 25-to-54-year-old workers would have fallen from 5.7 to 5.0 percent, reducing the nationwide unemployment rate by about 0.3 percentage points. The national employment-to-

population ratio would have been 0.1 or 0.2 percentage points higher.

The researchers posit that the employment effects of PUA and FPUC termination may have been attenuated by the run-up in household savings during the pandemic. The share of respondents in the Census Bureau's Household Pulse Survey reporting no difficulty in meeting household expenses fell by about 5 percentage points after states eliminated these programs, suggesting that the welfare effects of reducing unemployment benefits were mixed.

—Lucy E. Page

Work Schedules Adjusted to Pandemic-Induced Remote Work

The pandemic caused a large number of workers to shift from working at the office to working at home. The rise of remote work may outlast the pandemic, but it is not clear whether it is affecting when and how much employees work.

In **Labor Reallocation and Remote Work during COVID-19: Real-Time Evidence from GitHub** (NBER Working Paper 29598), researchers Grant R. McDermott and Benjamin Hansen analyzed the working patterns of 15 million users on GitHub, the world's largest platform for developing software code. They compared patterns in 2020 and the pre-pandemic 2015–19 period.

GitHub allows individuals and companies to manage versions of software and code by meticulously tracking individual code contributions. Because it includes a timestamp for code changes, the researchers were able to track when and how long code contributors

The move to remote work initially increased the average GitHub user's hourly work week by more than 15 percent and shifted work to nontraditional hours.

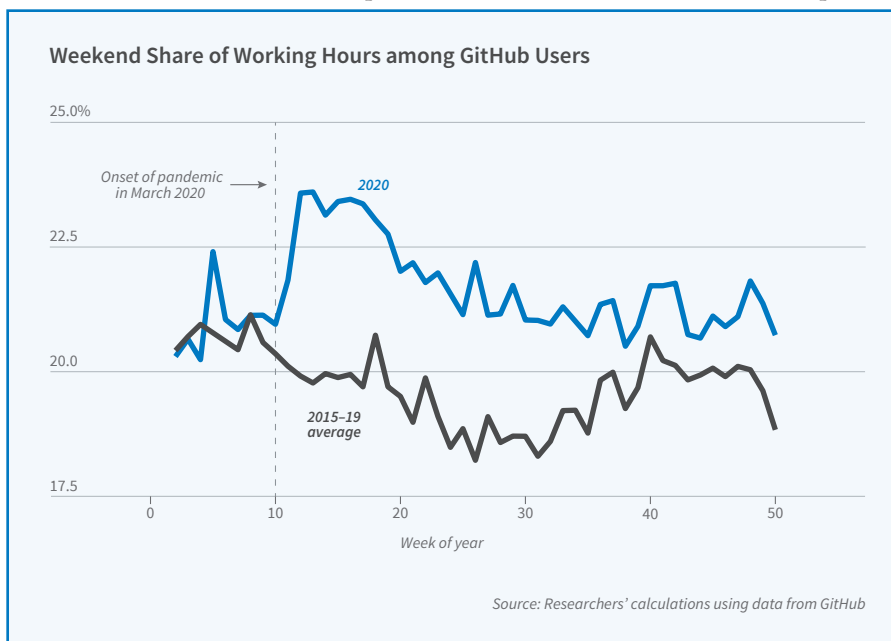
worked. They found a dramatic change in working hours as soon as the pandemic hit.

In the years before the pandemic, weekends accounted for about 20 percent of GitHub users' working hours. At the onset of the shift to remote work, this share jumped to more than 24 percent, an increase of about two

working hours each weekend. Later in 2020, weekend work patterns began to drift back to their pre-pandemic levels, although out-of-hours work (early morning and late evening) remained elevated in multiple locations.

In addition to changing working schedules, the pandemic initially caused GitHub users to work between 15 and 20 percent more on average, or about eight hours per week assuming a 40-hour initial work week. In some nations like India, the jump was even higher—30 to 40 percent. The overall increase in working hours didn't last, however. It trended back to pre-pandemic levels in most nations by July 2020.

The researchers also focus on six urban hubs—London, New York, San Francisco, Beijing, Bengaluru, and



Seattle. They found that the reallocation of working hours across these cities preceded the local lockdown orders in each jurisdiction by several weeks, suggesting spillover effects across networks and geographies. There was further variation across cities in the return to pre-pandemic work patterns.

London returned to trend by summer, coinciding with the lifting of lockdown restrictions, while Bengaluru remained above trend throughout 2020.

Men shifted their work schedules more quickly than women, suggesting that men may have benefitted more from the shift

to remote work. Women reallocated work more slowly at the beginning of the pandemic, a finding that is consistent with other research showing that women bore the brunt of housework and childcare when offices and schools closed.

—*Laurent Belsie*

The Influence of Grade Forgiveness on Students' Course Choices

Offering college students the opportunity to retake courses and to improve their grades changes course selection, according to [Xuan Jiang, Kelly Chen, Zeynep K. Hansen, and Scott Lowe](#) in [A Second Chance at Success? Effects of College Grade Forgiveness Policies on Student Outcomes](#) (NBER Working Paper 29493).

Grade forgiveness policies allow students to retake courses in which they are dissatisfied with their grades; only the most recent grade is included in their grade point average. To study the impact of such policies, the researchers looked at admission and transcript data from all entering cohorts at Boise State University between 1990 and 2017. This window presented a unique research opportunity because starting in 1988 the university offered a grade forgiveness option for all courses. In 1995, it switched to a policy of averaging the first-attempt grade and the repeat-attempt grades, and then, in 2001, it returned to grade forgiveness. It is possible to estimate the effects of grade forgiveness by comparing data from the three periods.

The researchers conclude that students were significantly more likely to repeat courses when grade forgiveness was in effect.

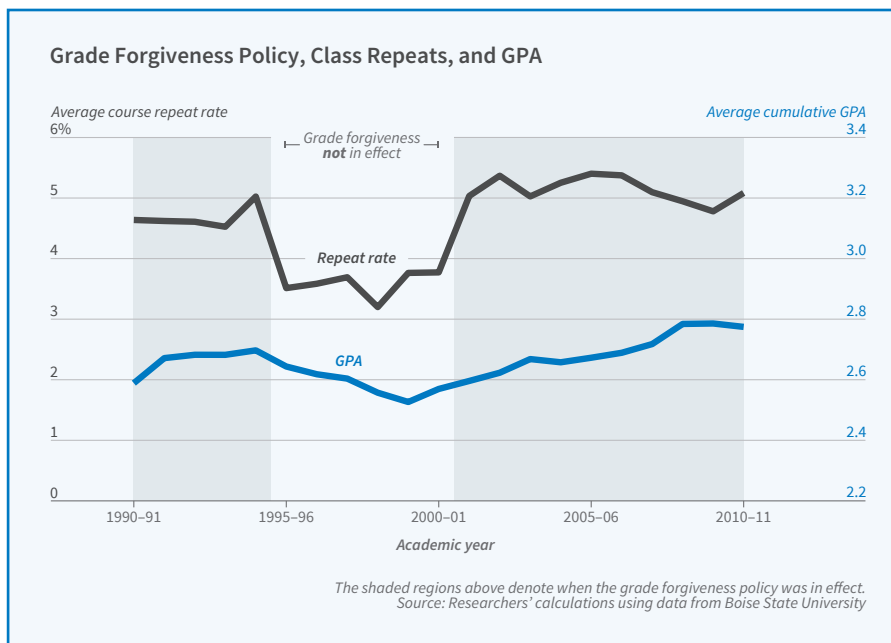
A Boise State University policy that gave students the option to retake a class and better their previous grade encouraged enrollment in more and in harder courses, especially in STEM.

They did so about 6 percent of the time, an increase of nearly two-thirds compared to the grade-averaging regime. Students receiving a D grade were 9.2 percent more likely to repeat the course under grade forgiveness. Those who failed were 5.97 percent more likely to repeat, and a small but significant fraction of C students also chose to repeat, suggesting some

Students challenged themselves more under grade forgiveness. They enrolled in more difficult courses and took classes with more stringent grading policies. They also took on heavier workloads: about 1.6 percent more courses and 1.9 percent more credits per semester. This was especially true with regard to Science, Technology, Engineering, and

Mathematics (STEM) courses. Enrollment in STEM courses increased 9.5 percent under grade forgiveness. For students who had not yet declared a major, the policy increased their likelihood of enrolling in a STEM course by 10.6 percent. More students graduated with STEM degrees when grade forgiveness was in effect.

Students who repeated a course were 22 percentage points more likely to take another course in the same subject as the repeated course. The repeater students were also about 30 percentage points less likely to get a D or an F in the subsequent same-subject course, suggesting that grade forgiveness encouraged on-the-



students repeat courses when they receive unsatisfying as well as failing grades. Students who withdrew from courses were significantly less likely to repeat them, and they withdrew from more courses under grade forgiveness.

margin students to persist and progress in challenging subjects.

For women, the impact of grade forgiveness on course selection was smaller than

for men, particularly with regard to STEM courses. Women were also less likely to repeat courses. The researchers suggest that the perceived cost of retaking a course — in

time, effort, reduced ability to take other courses, and mental costs — deterred more women than men.

—Brett M. Rhyme

Constructing Firm-Level Measures of Environmental Impact

Environmental, social, and governance (ESG) concerns have become increasingly important drivers of investor behavior, and a range of indices seek to guide this investment by tracking firms' performance on each dimension of sustainability. Measures of firms' carbon emissions are often cited in this context. In **Measuring Firm Environmental Performance to Inform Asset Management and Standardized Disclosure** (NBER Working Paper 29454), [Nicholas Z. Muller](#) finds that metrics that incorporate firms' emissions of local pollutants as well as of carbon dioxide (CO₂) provide a more accurate assessment of environmental impacts and also have greater predictive power for financial outcomes.

Muller defines an index of environmental performance based on firms' total pollution damages across eight pollutants: three greenhouse gases — CO₂, methane, and nitrous oxide — and five local air pollutants — fine particulate

matter, sulfur dioxide, nitrogen oxides, volatile organic compounds, and ammonia. Local pollutants are dwarfed in volume by carbon emissions, but their high per-ton health risks make them important components of many firms' environmental damages.

He then estimates this index for US utilities using facility-level emissions data collected by the Environmental Protection Agency in 2014 and 2017. To calculate firms' total pol-

While investor attention often focuses on carbon emissions, local pollutants are also important components of many firms' environmental damages.

lution damages, he first calculates each pollutant's impacts on health and well-being in dollar terms. For greenhouse gases, these damages equal the social cost of carbon multiplied by firms' carbon emissions. For local air pollutants, emissions damages are estimated using an integrated assessment model that trans-

lates emissions data into county-level pollution concentrations, converts these concentrations into excess mortality using epidemiological dose-response functions, and then values excess deaths using estimates of the willingness to pay for mortality risk reductions.

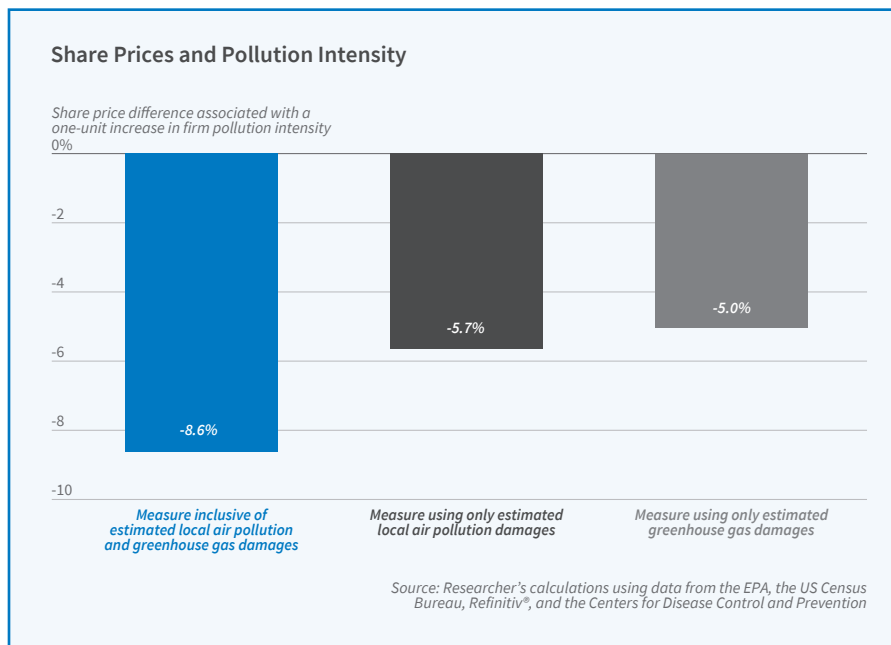
share of the industry's total market capitalization. In 2014, this metric ranged from 0.06 for American Water Works — its share of industry pollution damages was less than one-tenth of its share of industry market capitalization — to 5.81 for NRG Energy, a firm with a pollution damage share roughly six times greater than its market value share.

The eight-pollutant index reveals trends in utilities' aggregate environmental impacts that a focus on greenhouse gases alone would not capture. Muller calculates that total pollution damages from utilities fell by about 20 percent annually between 2014 and 2017, almost entirely driven by falling damages from local pollutants. Carbon emissions remained flat over this period.

In addition to providing a more compre-

hensive picture of firms' environmental damages, the eight-pollutant score is also more predictive of firms' financial outcomes during the 2014–17 period than the carbon-only measure.

Muller finds that between 2014 and 2017, firms that became more pollution intensive experienced share price declines. A one-unit increase in the eight-pollutant index value is associated with an 8.6 percent decrease in



lates emissions data into county-level pollution concentrations, converts these concentrations into excess mortality using epidemiological dose-response functions, and then values excess deaths using estimates of the willingness to pay for mortality risk reductions.

Finally, Muller converts firm-specific pollution damages into an index of relative pollution intensity by dividing each utility's share of the industry's total pollution damages by its

share price. By comparison, when studied in isolation, a one-unit increase in the carbon emission index was associated with a 5.0 percent decline. Focusing only on the latter would therefore underestimate the impact of firm-level environmental damages on prices.

The eight-pollutant score is also a better predictor of other investment outcomes.

For example, firms with increasing pollution intensity between 2014 and 2017 saw larger one-year gains in earnings per share (EPS), and they also saw higher earnings surprises — the gaps between analysts’ earnings forecasts and actual earnings. The eight-pollutant performance metric again predicts future EPS and EPS surprises better than

would an index based only on greenhouse gas emissions.

These stronger financial correlations suggest that a multipollutant index of environmental performance incorporates information that a measure focused only on greenhouse gas emissions may omit.

—Lucy E. Page

Exploring the “Hot Hand” in Basketball

When professional basketball players have a particularly successful game, hitting shot after shot, commentators often remark that they have a “hot hand.” The persistence of success, in basketball and other sports, has also attracted increasingly systematic study. In **The Hot Hand in the NBA 3-Point Contest: The Importance of Location, Location, Location** (NBER Working Paper 29468) Robert M. Lantis and Erik T. Nesson test for a “hot hand” by analyzing the performance of professional basketball players in the National Basketball Association (NBA) 3-Point Contest, in which players attempt 25 shots across five locations around the three-point line in one minute.

The researchers utilize data on 9,160 shots taken by players in contests between 1986 and 2019. Competitors in their sample made an average of 53 percent of the three-point shots they attempted. The researchers find a hot hand effect, but only when two consecutive shots are taken from the same shooting location. A successful shooting streak in another location does not increase a player’s probability of making his next shot when he moves to a new shooting position.

When all shots are analyzed together, players who make one shot are roughly 5 percentage points more likely to make their

In the NBA 3-Point Contest, a player who successfully makes a shot is more likely to make his next one when it is from the same location, but not otherwise.

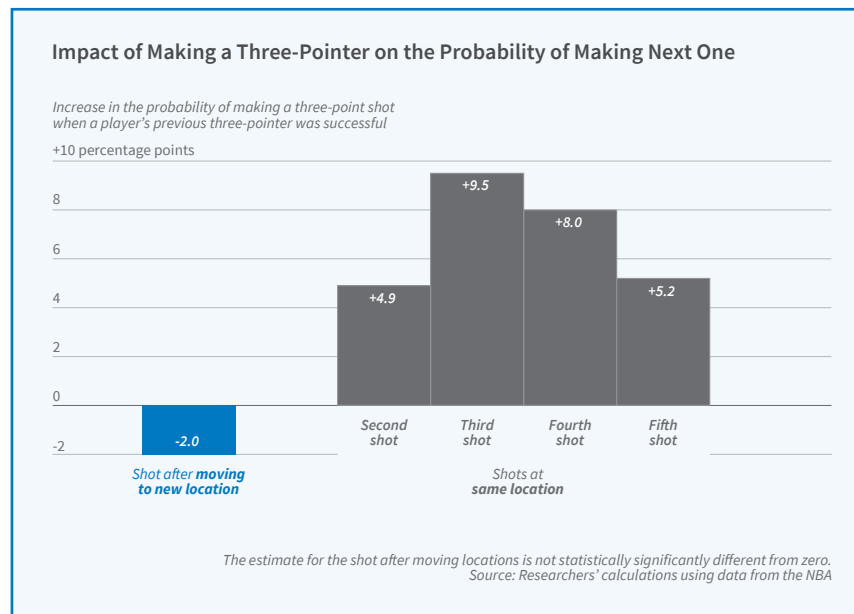
next one. But the researchers find that the effect of one shot on the next is completely attributable to a hot hand effect in the second through fifth shots that a player takes from a given location. The effect is largest for the third and fourth shots that a player takes from one place. For them, making the previous shot increases the probability of making the current one by 9.5 and 8 percentage

points. There is no hot hand effect even when players move between locations that are the same distance from the basket.

The hot hand effect is more pronounced, meaning that the chance of making the next shot conditional on making the last is greater, when the player has hit a string of consecutive three-pointers. This pattern is also evident only when the player is shooting from a single location. A player making three consecutive shots in one location exhibits an 8.1 percentage point higher probability of making his next shot. However, if he makes two shots in a row but misses the next one, his fourth shot is no more likely to be successful than if he had missed all of the first three.

The researchers conclude that because players are unlikely to have many opportunities to take repeated shots from the same location in actual games, it is unlikely that there is a hot hand effect in that setting.

—Aaron Metheny



points, respectively. This effect is also concentrated in the player’s last two shooting locations during the competition.

In contrast to the pattern when a player stays in the same spot on the court, making

Raising Medicaid Reimbursements Increased Primary Care Visits

Low-income elderly and disabled individuals are eligible for health insurance through both Medicare, which is federally funded and administered, and Medicaid, which receives some federal funding but is administered by the states. These “dual-eligible” beneficiaries account for less than one-fifth of the Medicare population, but they represent about one-third of spending because of their greater health needs.

Medicare patients who are not eligible for Medicaid must pay for part of the medical services they receive out of pocket. Dual-eligibles are not required to make such cost-sharing payments; they are covered by Medicaid. However, because many states limit the amount they will pay for health services provided to Medicaid beneficiaries, health care providers often receive less revenue when they serve dual-eligibles than when they provide the same services to other Medicare beneficiaries. This disparity creates an incentive for providers to prioritize care for Medicare beneficiaries who are not eligible for Medicaid.

In *The Impact of Provider Payments on Health Care Utilization: Evidence from Medicare and Medicaid* (NBER Working Paper 29471), Marika Cabral, Colleen Carey, and Sarah Miller show that provider behav-

ior is sensitive to the structure of payments under the two government insurance programs. They study a two-year increase in payments to providers serving dual-eligible patients.

An Affordable Care Act related increase in reimbursements for providers serving low-income Medicare beneficiaries increased this group’s access to medical care.

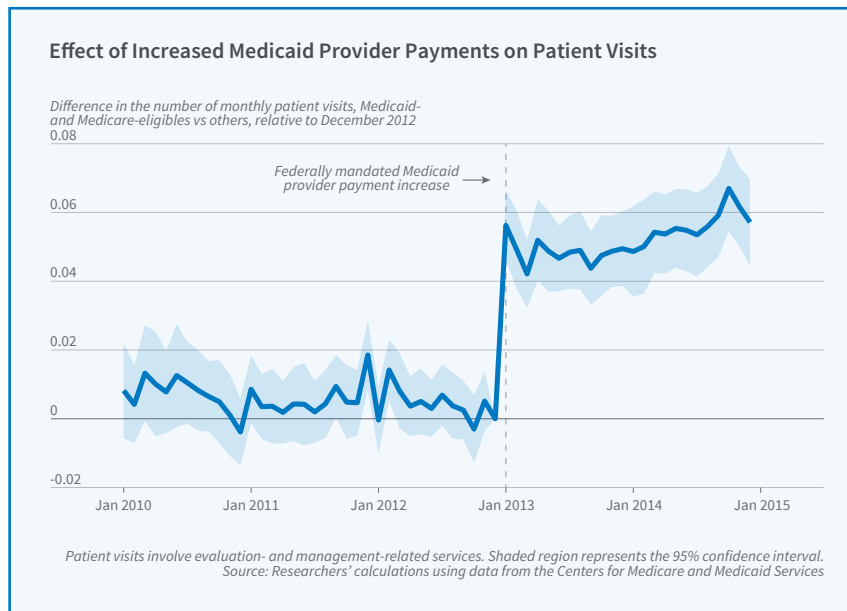
In 2013, under the Affordable Care Act, the federal government funded an increase in payments to Medicaid providers for selected primary care procedures, including all services coded Evaluation and Management (E&M). This category includes visits during which providers evaluate, diagnose, and manage patient conditions. This change applied to all Medicaid beneficiaries, including dual-eligibles. It expired at the end of 2014.

By comparing the dual and nondual Medicare patient populations during the two years of this reform and in the three years before it, the researchers document that Medicaid payments for Medicare cost-shar-

ing rose dramatically—by 13 percentage points in 2013. Total payments to E&M providers from Medicare and Medicaid increased by 6 percent, while there was a 6.3 percent rise in E&M services among dual-eligibles. The increase in E&M services arose from more frequent encounters in existing physician-patient relationships. The share of the low-income elderly population that had not had a single primary care visit in a year fell by 9 percent after the policy change, closing a gap in use of primary care between lower-income and higher-income Medicare beneficiaries.

The researchers conclude that unequal payments to providers for identical services contribute to the disparity in use of primary care between low-income and higher-income Medicare enrollees, and that boosting provider payments for dual-eligibles can reduce this gap.

—Laurent Belsie



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