

The Digest

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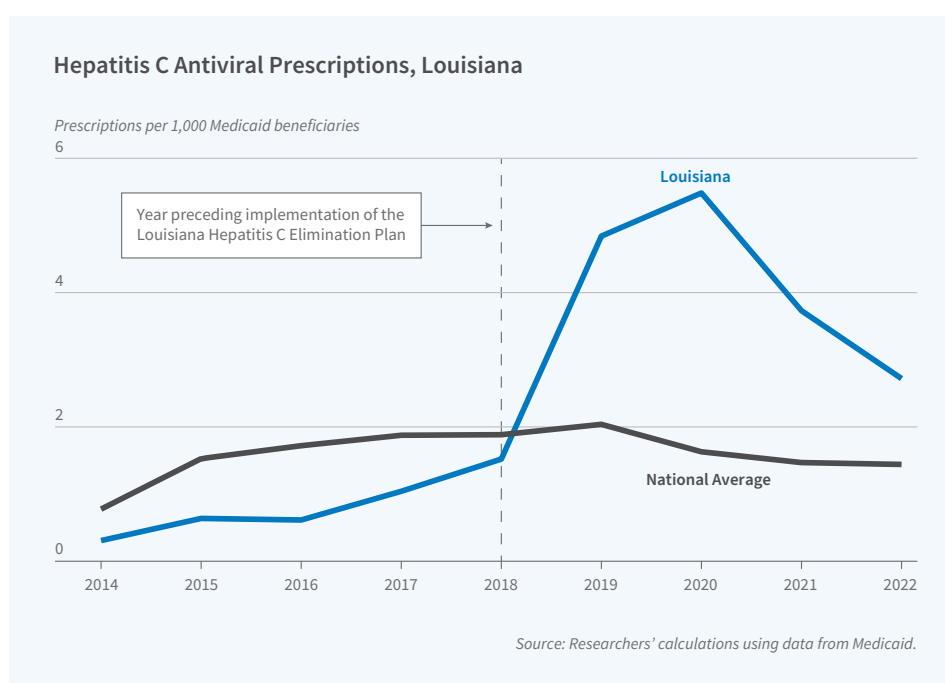
Federal Fiscal Aid to State and Local Governments and COVID-19 Mortality

Prescription Access and Public Health Outcomes

The hepatitis C virus (HCV) is a major public health concern due to its high infection and mortality rates. Recent pharmaceutical innovations known as direct-acting antivirals (DAAs) have the potential to cure HCV and can also generate positive health externalities through reduced transmission. However, the high cost of these drugs—with a sticker price of approximately \$84,000 for the course of treatment when initially introduced in 2013—creates substantial obstacles to their use under traditional reimbursement schemes and in cash-strapped Medicaid programs.

In [Subscriptions to Prescriptions: Lessons from Louisiana's Effort to Eliminate Hepatitis C](#) (NBER Working Paper 33617), [James M. Flynn](#), [Bethany I. Lemont](#), and [Barton Willage](#) evaluate the effects of the Louisiana Hepatitis C Elimination Plan (LAHCEP). This plan, adopted in 2019, involved an exclusive contract between the state and a pharmaceutical provider of a generic DAA treatment. In return for a fixed annual fee, the firm would provide DAA drugs at no marginal cost to individuals who were covered by the state's Medicaid program or who were incarcerated. The state's incentive in maximizing the value received for its payment was to increase the number of hepatitis C patients receiving DAAs. The stated objective was to diagnose 90 percent and treat 80 percent of the state's residents with HCV.

Using data from the Centers for Disease Control and Prevention, the researchers find that implementation of the LAHCEP in 2020 increased HCV diagnoses from 8 cases in 2019 to 281 in 2020, 308 in 2021, and 165 in 2022. Using the Centers for Medicare and Medicaid Services State Drug Utilization Data, they estimate that the plan raised



the number of DAA prescriptions per 1,000 Medicaid beneficiaries, which was 1.52 in 2018, by 211 percent in 2019, 270 percent in 2020, 165 percent in 2021, and 96 percent in 2022. By the end of the fourth year of the five-year program, Louisiana had treated over 30,000 patients—67 percent of the state's estimated HCV-positive population.

The researchers also examine patient-level data from the Scientific Registry of Transplant Recipients. They estimate that the LAHCEP reduced the number of liver transplants in Louisiana by 27 percent and improved the average liver function of wait-listed candidates by 6.5 percent. Data from the National Vital Statistics System show that HCV-related mortality declined by more than 11 percent in the first four years of this program, amounting to more than 300 fewer deaths. This implies that one

HCV-related death was avoided for roughly every 85 DAA prescriptions filled between 2019 and 2022. Because of the slow progression of HCV infection, these estimates likely understate the full extent of reduced mortality.

The researchers conduct a back-of-the-envelope calculation to estimate the marginal value of public funds (MVPF) from this program. This is difficult to do without precise data on the cost of surveillance, but they demonstrate that under very conservative assumptions about these costs, the program would pay for itself if each prescription prevented \$4,150 in lifetime medical expenses. Meanwhile, previous research has shown that each untreated HCV case leads to approximately \$16,000 in medical expenditures each year on average, which suggests the MVPF of this program is large.

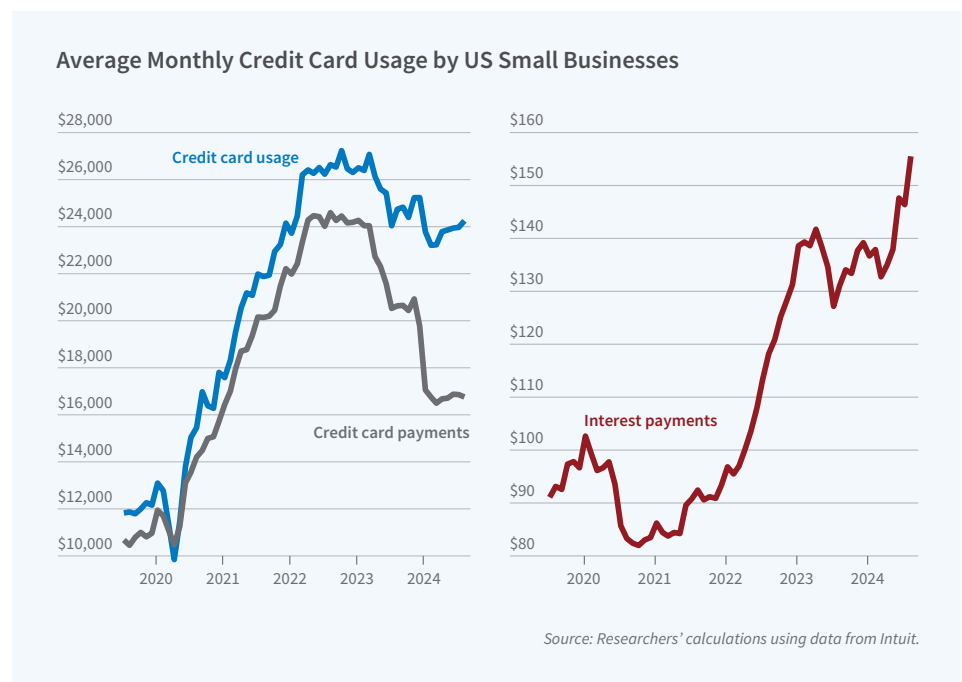
—Lauri Scherer

Credit Cards and the Financing of Small Businesses

Borrowing on credit cards is an important source of finance for many small businesses. In [Credit Card Entrepreneurs](#) (NBER Working Paper 33618), [Ufuk Akcigit](#), [Raman Singh Chhina](#), [Seyit M. Cilasun](#), [Javier Miranda](#), and [Nicolas Serrano-Velarde](#) study the experiences of small US businesses during the monetary policy tightening of 2022–23 to shed light on this important financing channel.

The researchers analyze transaction data from a sample of 1.6 million firms using Intuit QuickBooks, an accounting and payroll software platform for small businesses. Credit card payments (and usage) increased from \$10,000 per month in 2020 to \$24,000 (\$26,000) per month in April 2022, a much larger increase than for loan payments. However, the Federal Reserve interest rate hikes between March 2022 and May 2023 significantly impacted small business recovery. During this period, credit card usage remained elevated, but payments fell; interest payments rose by 60 percent, and delinquencies reached a high of 2.8 percent.

To understand what drives small business credit card use, the researchers link a survey of 4,500 platform users to their transaction data. They find that 55 percent used a corporate credit card in the past 12 months, compared to 27 percent for lines of credit and 26 percent for loans. In more than 61 percent of responses, firms underlined the financial benefits of relying on business credit cards, such as ease of access, emergency use, and repayment flexibility, while the main drawbacks were debt (23 percent) and high interest rates (18 percent). In particular, credit cards help firms absorb unexpected, firm-specific shocks—like tight



When the banks that issue credit cards used by small businesses cut back on credit card supply, these businesses see a decline in card balances, revenue growth, and employment growth.

financial conditions or overdue payments—by delaying repayment. Their use is more common among financially constrained firms unable to access loans.

After identifying the banking partners of firms, the researchers use variation in banks' exposure to interest rate shocks—measured by their "income gap"—to isolate the effect of credit card debt supply on small business performance. The income gap reflects a bank's interest rate risk, based on the mismatch in repricing timelines of assets and liabilities. Among small businesses whose banking partners were most exposed to interest-rate risk, the researchers estimate that a 5-percentage-point policy rate hike reduced credit card balances by 15.75 percent and employment growth by 1.5 percent.

The researchers develop a calibrated theoretical model to analyze

the role of credit cards under interest rate or loan supply shocks. The analysis reveals a dual effect. In the short run, credit cards expand borrowing capacity and act as a financial buffer, helping small businesses maintain liquidity when revenues fall and long-term financing is limited. However, this flexibility comes at a cost: high interest rates raise debt servicing burdens over time, gradually weakening cash flows and slowing recovery.

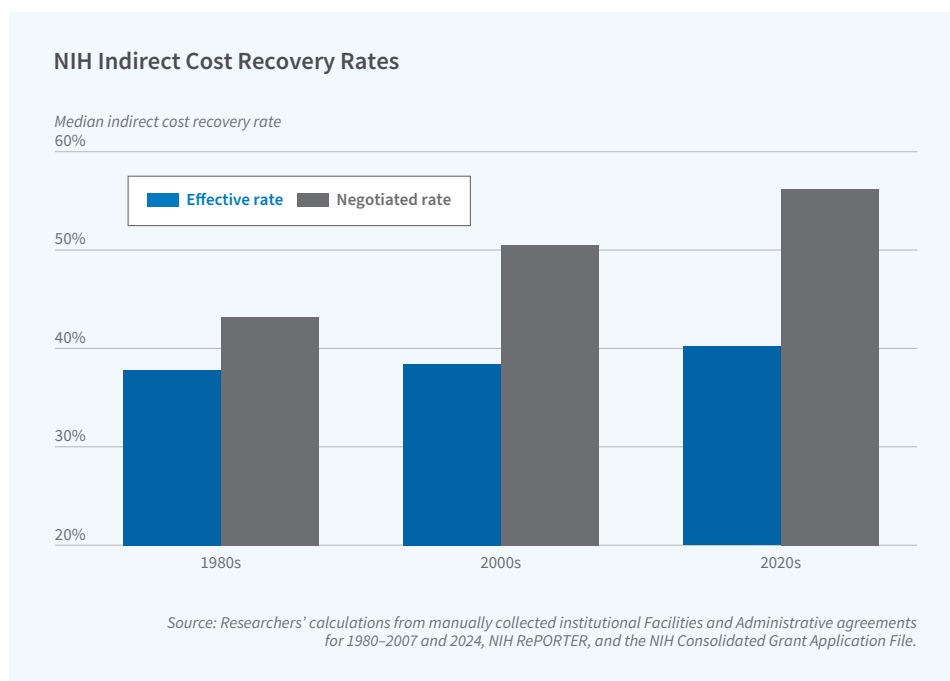
Overall, the paper shows that small businesses have been under increasing financial strain since the onset of interest rate hikes. Given that even today's superstar firms often began as small, young enterprises, inadequate access to financing not only weakens the current labor market—it might also jeopardize the emergence of the next generation of high-growth firms.

Indirect Cost Recovery in Research Funding

For more than 75 years, the federal government has been the largest funder of scientific research at US colleges and universities. Federal science funding includes both direct costs for specific research activities and indirect costs that support the facilities, equipment, and administrative expenses that are needed to conduct these activities.

Federal reimbursement for facilities and administrative (F&A) expenses was introduced during World War II as a way of compensating universities, hospitals, and companies conducting war-related research for expenses associated with lab space, shared instruments, and administrative staff supporting multiple research projects. During the war, the government implemented indirect cost funding at a flat 50 percent of direct costs for universities, and 100 percent for firms, in what was then seen as an imperfect but pragmatic solution to financing the overhead costs of research. After the war ended, federal research funding became a permanent feature of the US innovation system, and indirect cost recovery (ICR) policy evolved. Today, research organizations negotiate institution-specific ICR rates based on actual, audited F&A expenses associated with federal research divided by a direct cost base that excludes certain categories of costs (“modified total direct costs,” or MTDC), subject to some rate caps on specific categories of overhead.

In [Indirect Cost Recovery in US Innovation Policy: History, Evidence, and Avenues for Reform](#) (NBER Working Paper 33627), [Pierre Azoulay](#), [Daniel P. Gross](#), and [Bhaven N. Sampat](#) examine the role of ICR in US research policy. They focus on the National Institutes of Health (NIH), which is the largest funder of biomedical research in the world, and analyze data on 354 research institutions that received an annual average of at least \$1 million (in 2023 dollars) in research grants over



the 2005–23 period. These institutions account for 91 percent of NIH extramural funding in 2024. Universities comprise 69 percent of these institutions, independent hospitals and medical centers 18 percent, and independent research institutes 13 percent.

The researchers use these data to present several facts about ICR. Institutions' effective ICR rates, which are defined as the ratio of indirect cost payments to the total direct costs of research, are substantially lower than negotiated rates. The former averaged 42 percent in 2024, compared with 58 percent for negotiated rates. There is relatively little variation in effective rates across institutions. Universities typically receive indirect cost funding equal to about 40 percent of total direct costs, regardless of rank, endowment size, or research volume.

Effective rates have remained relatively stable for decades despite rising negotiated rates. In the 1980s, negotiated rates were only a few percentage points higher than effective rates, but today the difference is about 16 percentage points. The authors' evidence suggests that this growing gap is partially a

mechanical effect of an increasing share of total direct costs being excluded from the direct cost base on which ICR rates are calculated and applied: intuitively, as the direct costs on which ICR can be collected (MTDC) decline, the negotiated rate must rise in order to cover the same overhead costs.

Using data on current grants to the institutions in their sample, the researchers estimate that shifting to a fixed 15 percent ICR rate for all institutions would result in a 15 to 20 percent decline in NIH funding for most institutions. A dozen institutions would lose more than \$100 million annually; collectively, the 354 institutions studied in the paper would experience a loss of nearly \$7 billion annually if the policy were put into permanent effect. The institutions facing the largest potential cuts would be those with the strongest links to private sector innovation (as measured using citation-based links to commercial patents). Nearly all institutions with patents on multiple FDA-approved drugs since 2005, for example, have effective ICR rates of at least 30 percent and would experience substantial funding declines if a 15 percent rate were adopted.

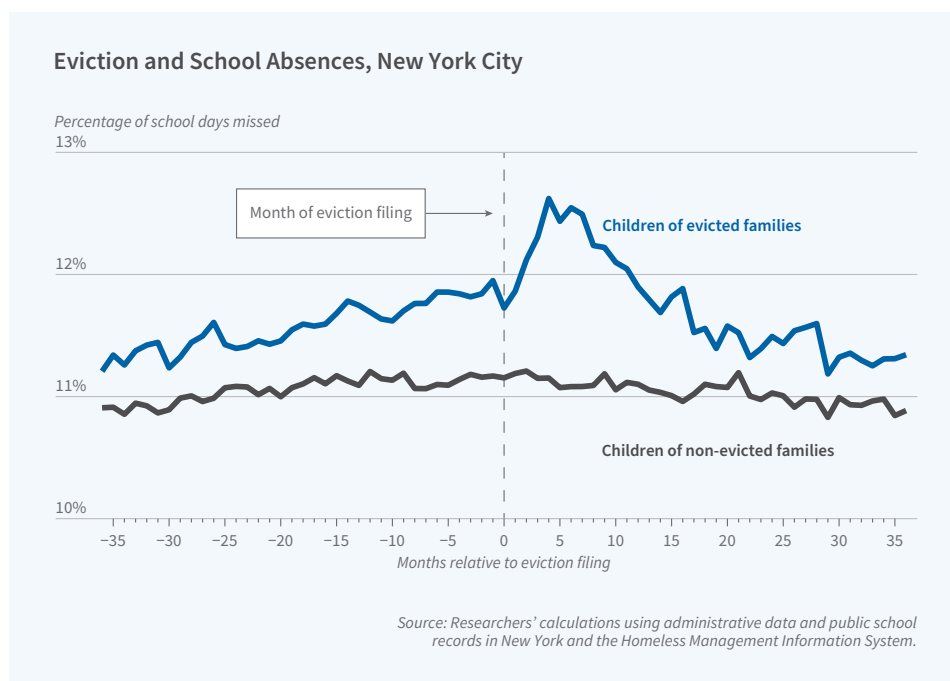
The researchers acknowledge support from the National Science Foundation under Grant No. 1735413 and Grant No. 2420824.

The Impact of Evictions on Children

Concern about children's welfare is often cited as a reason for strong tenant protection laws. In [The Effects of Eviction on Children](#) (NBER Working Paper 33659), [Robert Collinson](#), [Deniz Dutz](#), [John Eric Humphries](#), [Nicholas S. Mader](#), [Daniel Tannenbaum](#), and [Winnie van Dijk](#) provide new evidence on the causal impact of evictions on various measures of children's welfare.

Using data from Chicago and New York City, the researchers compare children of families who were randomly assigned a stricter judge in eviction court to children whose families were randomly assigned a more lenient judge to study the causal impacts of eviction on children. Children in evicted families are more likely to experience homelessness the following year (7 percentage points more likely in Chicago and 3.1 percentage points more likely in New York, relative to rates for non-evicted children of 0.9 percent and 2.3 percent, respectively). Eviction also leads to longer-term housing instability, with more moves in the next two years.

In Chicago, eviction increases the probability that a child will live in a multigenerational household by 13.2 percentage points. Similarly, children in evicted families are 16.9 percentage points more likely to live in a "doubled-up" household—one with more adults than just their parents—in the following year. Eviction does not reduce the likelihood that a child lives with their parents or in a higher-poverty neighborhood than before eviction, or that the child moves to a different school district.



Evicted children are more likely to be chronically absent from school, with eviction increasing absence rates by 2.4 percentage points or about 4.3 school days during a typical year. Eviction raises the likelihood of chronic absenteeism by 9 percentage points, a 21 percent increase over that for non-evicted peers.

Evicted children are 5.3 percentage points more likely to repeat at least one grade of school by the second year after the eviction filing. While evicted children do not have lower standardized test scores, they are more likely to miss tests, consistent with their higher absenteeism rates.

Additionally, eviction reduces high school credits completed by 14.4 percentage points in the first year after eviction and the likelihood of finishing high school. Students in families that have been evicted are 12.5 percentage points less likely to graduate than their

non-evicted peers in households that faced eviction proceedings. The graduation rate for students in the latter group of households is 68 percent. These effects are particularly negative for boys.

The researchers document substantial selection into eviction court, regardless of the eventual outcome. Children in families facing eviction cases were more likely to be chronically absent and more likely to have low scores in math and reading than the general public-school population in the year before their case was filed. Similarly, children in evicted households were more likely to be absent in the year before eviction than their peers from households that faced a threat of eviction but were not evicted. These patterns underscore the importance of the researchers' approach of using the decisions of randomly assigned judges to measure causal impacts.

— Greta Gaffin

The researchers gratefully acknowledge financial support from the National Science Foundation (SES-1757112, SES-1757186, SES-1757187), the Laura and John Arnold Foundation, the Spencer Foundation, the Kreisman Initiative for Housing Law and Policy, the Horowitz Foundation for Social Policy, the Robert Wood Johnson Foundation, the Becker Friedman Institute for Economics, and the Yale Tobin Center for Economic Policy.

Leadership Skills: Managing AI Agents vs. Humans

Leadership quality has a significant impact on firm productivity and can even affect national prosperity, but measuring individual leadership skills is difficult. Existing methods require observing prospective leaders working with multiple randomly assigned groups, an undertaking that can be both logistically complex and expensive.

In [Measuring Human Leadership Skills with AI Agents](#) (NBER Working Paper 33662), [Ben Weidmann](#), [Yixian Xu](#), and [David J. Deming](#) designed an experiment to test whether the task of managing AI agents could provide a viable alternative to managing human teams. The researchers found that leadership performance with AI agents strongly predicts leadership effectiveness with human teams, which suggests that measuring the former could offer a simpler, more cost-effective method of assessing leadership capabilities than existing approaches.

The researchers carried out a lab experiment in which human leaders completed a series of collaborative problem-solving tasks with two different types of teams: one composed of AI agents and another composed of humans. Each leader was randomly assigned to six different human teams, which allowed the researchers to isolate each leader's causal contribution to team performance. This was subsequently compared with performance when leading AI teams.

The experiment used a modified “Hidden Profile” task, where essential information is distributed among team members,



Managers who are more successful leading teams of AI agents are also more successful with human teams.

requiring effective communication and collaboration to solve problems. Leaders needed to gather information, manage team time, and synthesize collective knowledge into final decisions.

There was a strong positive correlation ($\rho = 0.81$) between leaders' performance with AI and human teams. This correlation remained strong ($\rho = 0.69$) even after controlling for “hard skills” like task-specific abilities and fluid intelligence, suggesting the AI assessment effectively captured leadership-specific “soft skills.”

In both the AI and human leadership assessments, leader quality explained more than half of the variation in team performance. Replacing an average leader with one who is 1 standard deviation above average in leadership quality increased team performance

by approximately 0.65 standard deviations.

Successful leaders, when working with either AI agents or humans, asked more questions, engaged in more conversational turn-taking, and used more plural pronouns (referring to “we” and “us”) than their less-successful peers. Demographic factors like gender, ethnicity, and education did not predict leadership performance in either setting.

The AI-based assessment was significantly more efficient, costing \$23 per participant compared to \$114 for the human version, while also eliminating the need to coordinate multiple participants simultaneously. This cost reduction could make leadership assessment more accessible and enable more rigorous evaluation of leadership development programs.

The researchers gratefully acknowledge the financial support of the Walmart Foundation.

Federal Fiscal Aid to State and Local Governments and COVID-19 Mortality

During the COVID-19 pandemic, the US federal government provided nearly \$1 trillion in fiscal assistance to state and local governments with the goal of supporting public health, public schools, and local economic recovery. In [Health Impacts of Federal Pandemic Aid to State and Local Governments](#) (NBER Working Paper 33699), [Jeffrey Clemens](#) and [Anwita Mahajan](#) investigate how federal fiscal assistance affected population health.

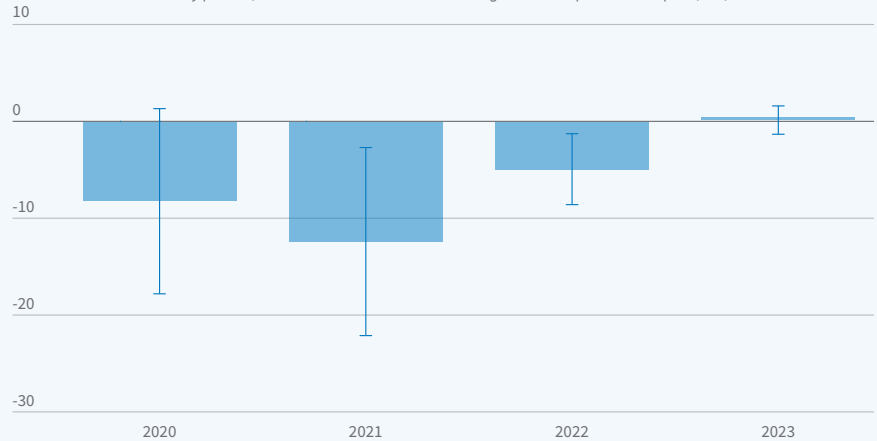
To address the potential endogeneity of aid, namely the possibility that more aid flowed to states that were harder-hit by COVID-19, the researchers leverage the fact that states with greater Congressional representation per capita received substantially more per capita federal funding in the COVID-19 relief bills. This political source of variation in federal aid provides an opening to measure the impact of this aid on public health.

The researchers estimate that each additional \$1,000 in federal aid per state resident led to 38 fewer deaths per 100,000 residents from all causes over the 2020–22 period. Approximately two-thirds of these reduced deaths (26 per 100,000) would have been specifically from COVID-19. Reductions in COVID-19 mortality were not offset by increases in deaths from other causes but were complemented by modest declines in non-COVID mortality, in particular from respiratory disease and hypertension.

Federal aid also reduced rates of COVID-19 hospitalizations and emergency department visits by

State Representation in Congress and COVID-19 Mortality

Effect on COVID-19 mortality per 100,000 residents of one additional congressional representative per 1,000,000 residents



Bars represent 95% confidence intervals.
Source: Researchers' calculations using data from the US Centers for Disease Control and Prevention.

An additional \$1,000 in federal aid per resident was associated with 26 fewer COVID-19 deaths per 100,000 residents.

approximately 214 and 1,170 per 100,000 residents, respectively. It did not, however, reduce the total number of COVID-19 cases detected, which may be driven by more expansive testing.

States receiving more aid conducted substantially more COVID-19 testing and administered more vaccinations, with an additional senator or representative per million residents predicting an additional 83,228 tests and 7,755 vaccinations per 100,000 residents. Increased vaccination rates may have accounted for about half of the reduction in COVID-19 mortality.

Federal funding had a larger positive impact on survival rates for

non-Hispanic Black Americans than for non-Hispanic White Americans. The researchers estimate that had states not received the last \$1,000 in aid per resident, the age-adjusted COVID-19 mortality ratio between Black and White Americans would have been 1.47. They estimate that this last \$1,000 in per capita federal aid reduced this ratio by 22 percent.

The researchers estimate that the last \$331 billion in aid to states and localities, which corresponds to the in-sample variation in the data, generated approximately \$591 billion in value based on their estimates of the number of lives saved and on conventional estimates of the value of a statistical life.

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