NBER | NATIONAL BUREAU *of* ECONOMIC RESEARCH

# The Digest

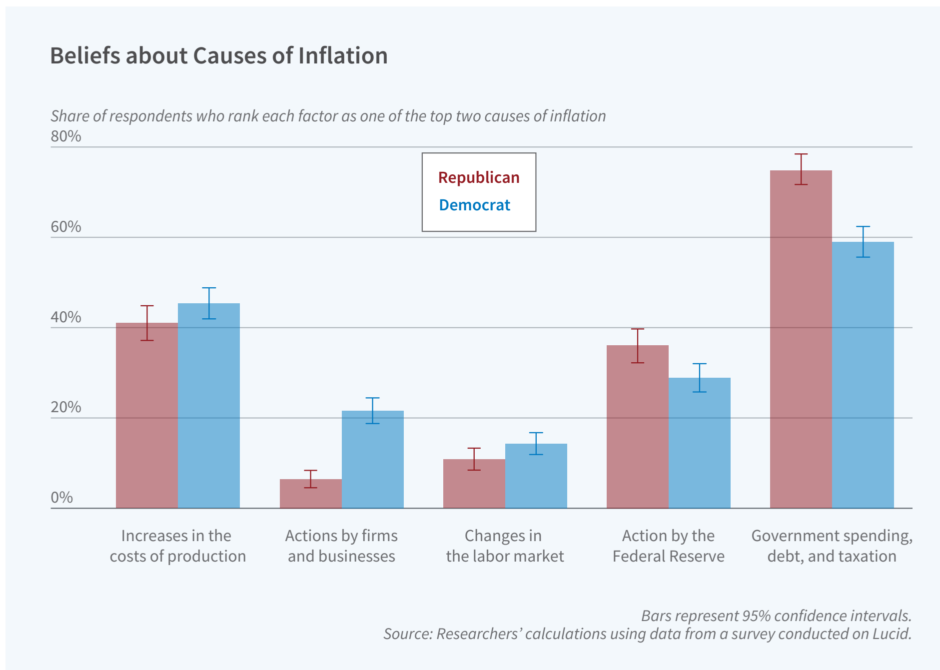
**September 2024**

## In This Issue



# Public Beliefs about Inflation

In People's Understanding of Inflation (NBER Working Paper 32497), Alberto Binetti, Francesco Nuzzi, and Stefanie Stantcheva present new survey results on the American public's views on inflation. The survey collected information about individuals' demographics, income, news sources, and voting habits as well as their opinions on the causes and distributional results of inflation. The survey was conducted between March and May 2024 using the Lucid internet platform. The sample was constructed to mirror the US population in 2022.




On average, respondents categorized inflation's effects as unambiguously negative, saying it was worse than unemployment and ranking it as a more important policy priority than healthcare, growth, and unemployment. They did not view managing inflation as requiring trade-offs such as reduced economic activity or increased unemployment. They identified government policy actions, higher production costs resulting from the COVID-19 pandemic, rising oil prices, and supply chain disruptions as major drivers of recent inflation. The most important harm from inflation, identified by 35 percent of respondents, was the increased complexity of daily household decisions.

*Americans dislike inflation and have diverse opinions, correlated with political affiliation, on its causes and solutions.*

The researchers also asked a series of qualitative questions about the relationship between inflation and economic activity. Nearly one-third of survey respondents thought inflation was more likely to emerge in a boom than in a recession, and about the same share thought that policies designed to reduce unemployment might increase inflation. Only 10 percent of survey participants associated inflation with a good economy, while 62 percent thought that reducing inflation requires reducing government debt.

The perceived causes of inflation differed across political party registration and news sources but not across income levels. Republicans were more likely to view inflation negatively and to attribute it to the government. Democrats tended to blame business for inflation and to associate adverse distributional effects with it. Republicans and Fox News viewers were less likely than Democrats and CNN viewers to blame firms and businesses for inflation.

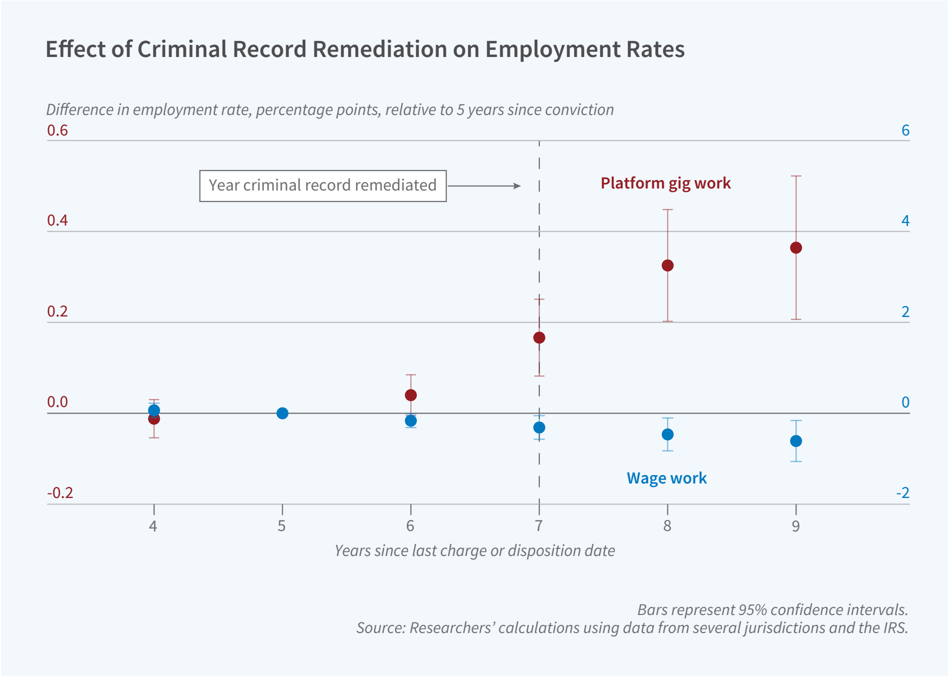
With regard to policy actions, many respondents held views that diverged from standard textbook prescriptions. Fifty percent of respondents supported *decreasing* interest rates to fight inflation and 60 percent (70 percent of Democrats and 52 percent of Republicans) supported reducing government debt by increasing taxes on high incomes. Decreasing the money supply was supported by 30 percent of respondents.

— *Linda Gorman*

# Does Remediation of Criminal Records Raise Job Prospects?

Criminal record remediation laws are partially designed to increase employment opportunities for individuals charged with crimes. More than a third of working-age American adults have a criminal record. At least two-thirds of employers perform background checks and they are less likely to hire a job applicant who has been charged with a crime, even if the individual was not convicted. This may limit these individuals' job market prospects and may be particularly damaging for men and communities of color, who have above-average rates of contact with the police.

In Can You Erase the Mark of a Criminal Record? Labor Market Impacts of Criminal Record Remediation (NBER Working Paper 32394), Amanda Y. Agan, Andrew Garin, Dmitri K. Koustas, Alexandre Mas, and Crystal Yang study a number of initiatives to remove certain criminal records from background checks in the US. There are multiple kinds of criminal record remediation laws, both at the federal and state levels. Some seal or prohibit the reporting of only non-convictions, such as cases that were dismissed, while others seal or prohibit the reporting of conviction records, generally after a specified length of time with no new offenses. The Pennsylvania Clean Slate Law, for example, automatically seals all non-convictions as well as some older minor convictions; since its passage, it has sealed the records of 1.2 million individuals. Some laws, like the federal Fair Credit Reporting Act, have additional restrictions. That act prohibits reporting non-convictions to employers after seven years for jobs paying less than $75,000. The Maryland Credit Reporting Law prohibits employers from requesting arrest or conviction records older than seven years for jobs that pay $20,000 or less.




***Being charged with a crime, even if not convicted, can reduce employment prospects.***

The researchers analyze data from Maryland, New Jersey, Pennsylvania, and Bexar County, Texas — the San Antonio metro area. With one exception, they do not find any noticeable increase in employment for individuals after their record is no longer reportable. The exception is an increase in gig platform work.

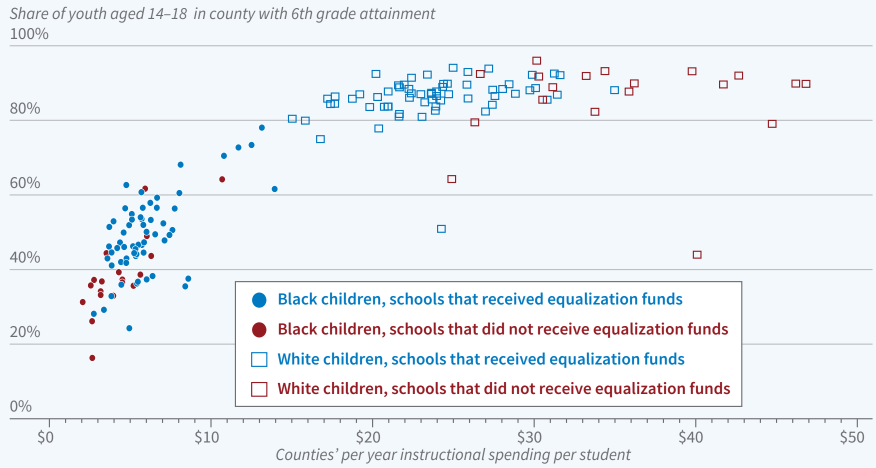
Being charged with a crime can reduce an individual's employment prospects even when records are sealed or nonreportable after a non-conviction. Criminal charges can lead to resume gaps due to time spent in the criminal legal process, employer reluctance to hire people with records, or possible time spent incarcerated. Job loss associated with charges, or loss of a professional license such as that required for realtors and teachers, can also reduce job prospects. Gig platform positions may be different because companies like Uber often screen job candidates based on their criminal records but do not examine their employment histories. The researchers' findings suggest that criminal records serve as a barrier to employment, but that their removal many years later is not sufficient to increase employment prospects on average, at least in traditional employment.

The researchers note that, even if it does not affect labor market outcomes, record remediation may have other positive effects on those charged with crimes, for example, improving access to housing.

*— Greta Gaffin*

# Returns to School Spending on Black Students

County Instructional Spending and Outcomes: Jim Crow–Era Mississippi




*A state equalization fund was introduced in Mississippi in 1920, providing need-based grants to participating districts.*
*Source: Researchers' calculations using data from multiple sources and surveys.*

***Modest increases in educational spending on Black students would have substantially improved their educational attainment and lifetime income.***

New evidence from a study of a school spending equalization program adopted by Mississippi in 1920 reveals the extent to which segregation disproportionately benefited White students. In School Equalization in the Shadow of Jim Crow: Causes and Consequences of Resource Disparity in Mississippi circa 1940 (NBER Working Paper 32496), David Card, Leah Clark, Ciprian Domnisoru, and Lowell Taylor analyze racial disparities in per-student spending during the interwar years.

Prior to the launch of the equalization program, schools were funded by local property taxes and per capita state grants based on the number of people aged 5 to 21 in a district. With Black students disenfranchised and attending segregated schools, local decision-makers disproportionately funded White schools. Indeed, the researchers write that "the per capita grant system converted local Black children into a *resource* for white schools"; local officials may have even exaggerated the number of Black students. As a result of the state grants, White students in predominantly Black districts enjoyed greater per capita funding than their counterparts in predominantly White districts. The equalization program was created to address that disparity.

Counties in the Mississippi Delta region were excluded from additional aid because existing funding was considered sufficient — at least for White students. About half of the state's Black residents lived in that region. The equalization program increased school spending for Black students in other parts of the state. The researchers use this change in per-student spending to analyze the link between school funding and later-life outcomes for Black students. The equalization program came with strings attached that encouraged participating districts to raise their property taxes and increase attendance rates, including those of Black students.

Using 1940 census data, the researchers estimate the impact of a $1 increase in annual educational spending per Black student from a base of $5 per year. They find that the fraction of students completing at least the sixth grade increased by 1.5 percentage points from a base of 45 percent. Extrapolating from the sample, they estimate that Black students would have completed two more years of education had districts spent the same on them as they had on Whites, $25 per year. Even greater potential gains emerge from comparisons of Black youth in equalization counties with their peers in otherwise similar bordering counties that did not participate in the program.

Additional educational spending had a lifelong impact. The researchers compare outcomes of matched respondents in the 1940 and 2000 censuses and find, in a sample of about 6,000 individuals, that a $1 increase in per capita spending on Black students in 1940 was associated with a 3 percent increase in family income in 2000.

The study finds that the equalization program had a negligible effect on the educational attainment of Whites. Given the wide racial disparity in spending, the researchers conclude that reallocating dollars between the races could have dramatically improved outcomes for Black students at little cost to White achievement.

*— Steve Maas*

# The Value of Improving Hurricane Forecasts

Hurricane forecasts are critical to government agencies that plan both pre- and post-landfall storm responses. More accurate forecasts enable these agencies to devote resources to the locations where they will matter most. In The Social Value of Hurricane Forecasts (NBER Working Paper 32548), Renato Molina and Ivan Rudik estimate how improvements in weather forecast accuracy between 2007 and 2020 affected the average cost of pre-landfall protective spending and post-landfall damages and recovery spending.

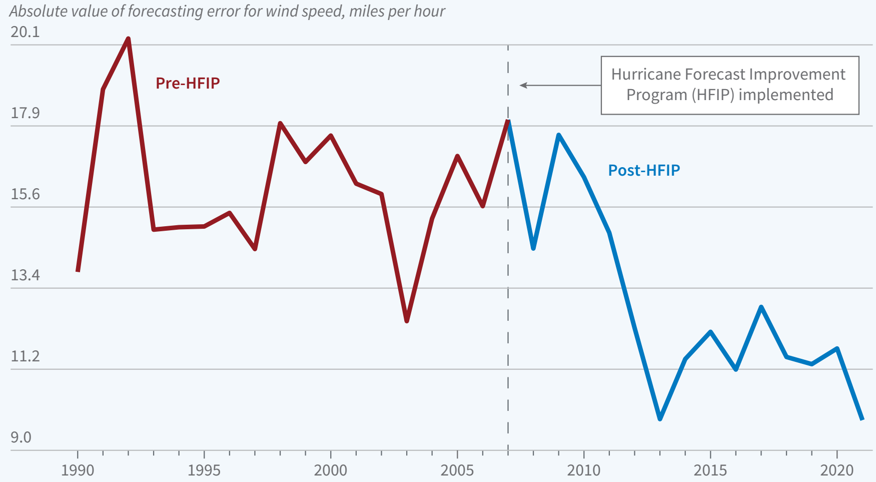
The researchers draw on data and prediction models from the US National Hurricane Center, analyzing both predicted and actual county-level wind speeds and precipitation levels for storms in the US between 2005 and 2020. They focus on storms that either registered as Category 3 or higher, or caused at least $20 billion in damage. Out of 29 hurricanes during this period, 18 met these criteria, accounting for more than 90 percent of the hurricane-caused deaths and property damage during this 16-year period. The researchers also analyze county-level pre-hurricane preparation expenditures from FEMA's Public Assistance Grant Program, and county-level hurricane damages from the Spatial Hazard Events and Losses Database for the United States.

The paper shows that federal emergency funding allocations are tied to wind speed predictions. A county that is predicted to experience hurricane-force winds receives $30 million more in such spending, on average, than one that is predicted to experience sub-hurricane-force winds. In addition, when forecasts underestimate actual wind speeds, damages are greater. For example, when forecasts call for a Category 1 storm but a Category 3 ultimately strikes a county, storm damages rise by roughly $500 million and post-storm federal spending rises by about $30 million.

The researchers estimate that for each 1 standard deviation improvement in the accuracy of wind-speed forecasting, there is a $30 million reduction in county-level spending per hurricane. This is driven entirely by spending reductions in counties that experienced hurricane-force winds. They also estimate that forecasting errors related to wind speed have fallen each year between 2007 and 2020 by about 0.21 meters per second, or about 3 percent. This translates into a reduction of nearly 50 percent in error rates over this period. These improvements imply an annual per-hurricane cost reduction of $700,000 per county, or $5 billion per hurricane — a reduction of 19 percent. The per-storm reduction in losses associated with these post-2007 forecasting improvements far exceeds total annual government spending on weather forecasting each year.

*— Emma Salomon*

## Hurricane Forecast Improvements since 2007




*Source: Researchers' calculations using data from the National Hurricane Center and Central Pacific Hurricane Center.*

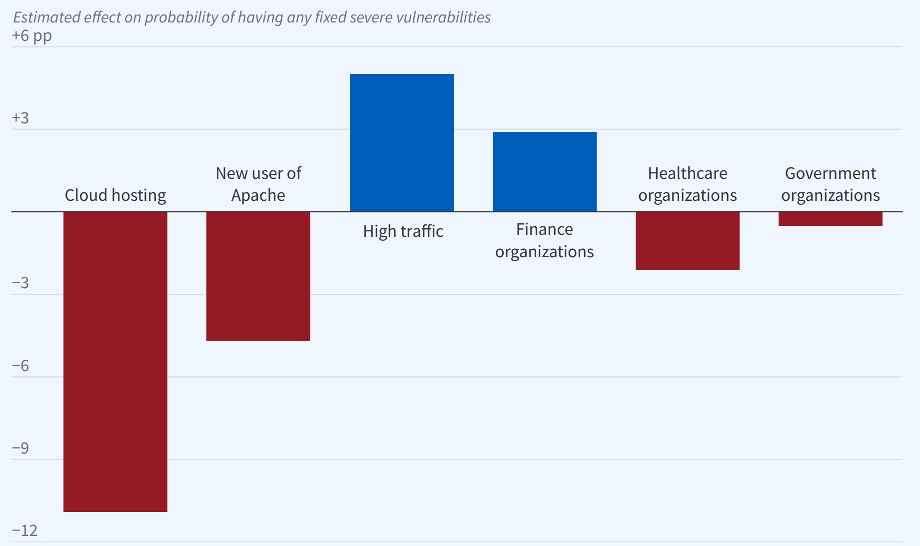
***The greater accuracy of hurricane forecasts in 2020 relative to 2007 saved about $5 billion, on average, in emergency funds and damages per hurricane.***

# Software Vulnerability Management

Firms and governments are increasingly concerned about cyberattack risks, in which malicious actors exploit software vulnerabilities. In Navigating Software Vulnerabilities: Eighteen Years of Evidence from Medium and Large US Organizations (NBER Working Paper 32696), Raviv Murciano-Goroff, Ran Zhuo, and Shane Greenstein document the widespread use of server software with known vulnerabilities and examine why organizations are slow to adopt updates.

The researchers focus on organizations using the Apache HTTP Server, a popular open-source web server software product. Users report potential vulnerabilities to Apache, which deploys a team of security experts to vet these reports. Once developers craft a fix, the vulnerability is publicly disclosed and the fix is released in a new version of Apache. Users must update their software to fix the vulnerability. During the period of study, 2000 to 2018, there were 158 vulnerabilities, of which 28 were severe, and 115 vulnerability-correcting software updates. These updates include information on corrected vulnerabilities and new features. Additionally, the Apache Software Foundation and the National Institute of Standards and Technology provide information on each vulnerability's severity, report date, public disclosure date, and update release date.

The researchers analyze organization-level information in the Bureau van Dijk Mint Global database. Each organization's URL is matched to the Internet Archive Wayback Machine's historical website information, which includes the host IP address, record date, and often the name of the server software and the software version number. In an average month, 68 percent of the organizations in the data sample operated with a known severe security vulnerability. This was usually due to failure to update: 57 percent used software with severe vulnerabilities even though updated,



*Source: Researchers' calculations using data that tracks server software used by medium to large US organizations.*

***Among organizations that use the Apache HTTP Server, in an average month, 68 percent are operating with known severe security vulnerabilities.***

secure versions were available. New users of Apache — who likely started by installing a recent version of the software — were almost 12 percent less likely to be using software with a severe vulnerability.

Cloud hosting can reduce an organization's costs of updating since the host usually offers various types of support for vulnerability and update management. Organizations that use cloud hosting, identified by a website IP address from Amazon Web Services, Microsoft Azure, or Google Cloud, exhibit between an 11 and 20 percent lower probability of having fixable severe vulnerabilities. Those that outsource IT operations, as recorded by Harte Hanks, are also less likely to have fixable vulnerabilities.

The researchers also study some organizational risk factors and find little relationship between these factors and the presence of severe vulnerabilities. High-traffic websites are more likely to have fixable severe vulnerabilities. There is no consistent relationship between an organization being in the finance, government, or healthcare sector, or in a state or industry that recently experienced a data breach, and vulnerabilities.

Organizations do update more quickly when there are more severe vulnerabilities in a new release. However, they update more slowly when releases address additional nonsevere vulnerabilities or contain feature changes. They appear to be more responsive to updates in minor than major version releases.

These findings suggest that quick and compulsory disclosure of all vulnerabilities may benefit malicious actors more than organizations with vulnerable software, given delays in updating, and that standalone patches for severe vulnerabilities may be adopted more quickly than patches that are bundled with other fixes or feature updates.

*— Whitney Zhang*

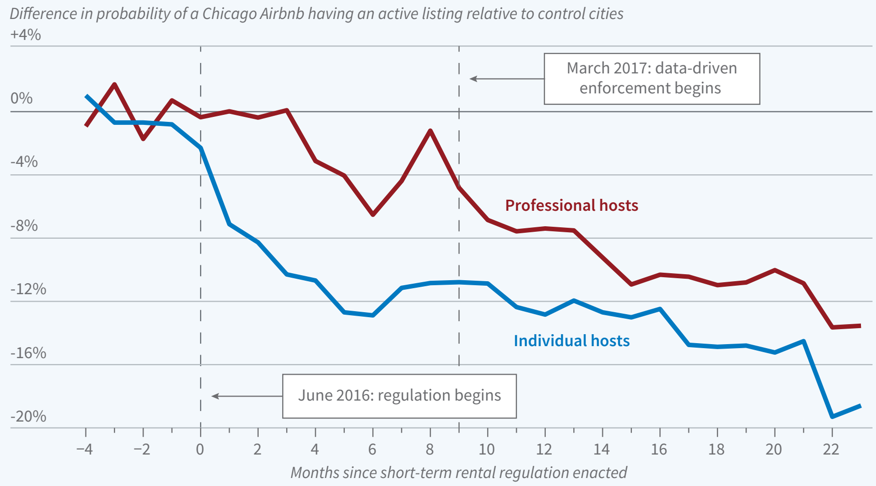
# Tracking the Impact of Short-Term Rental Regulation

The rapidly expanding home-sharing market has led to calls for new regulations to restrict activity in short-term rental (STR) markets. Debates about such regulations have identified potential benefits of an active STR market as well as potential costs. In The Effects of Short-Term Rental Regulation: Insights from Chicago (NBER Working Paper 32537), Ginger Zhe Jin, Liad Wagman, and Mengyi Zhong present a novel analysis of local regulation of an STR market.

The researchers study Chicago because it was one of the first large US cities to attempt to regulate STR activities in a comprehensive way. The city's STR ordinance aims to permit such rentals while addressing public safety, consumer protection, and affordable housing concerns. In particular, it requires hosts to register, follow strict guidelines, and heed locality-specific STR restrictions based on the varying needs of different communities. This approach differs from that of other large cities, such as New York City, which have adopted regulations that attempt to ban STR activities and that can be very difficult to enforce. Chicago's STR regulation also coincides with the adoption of a new 4 percent tax on STRs on top of the city's existing 17.4 percent hotel accommodation tax.

By comparing Airbnb listings in Chicago with those in three other large US cities from January 2016 to May 2018, the researchers estimate that the new regulation led to a 16.4 percent decline in the total number of active listings. The decline was only significant after regulators began receiving detailed data feeds on STR listings directly from platforms that facilitate this market. The drop in listings was driven by both a higher rate of exit by existing listings and a decline in the arrival rate of new listings. The researchers do not find any effect of the enactment or enforcement of Chicago's citywide STR regulation on the average before-tax price of an Airbnb listing or on the number of reservations per active Airbnb listing.

**Short-Term Rental Regulation in Chicago and Airbnb Activity**




Source: Researchers' calculations using data from AirDNA and the US Census Bureau.

***When short-term rental regulations were introduced in Chicago, Airbnb listings fell by 16 percent.***

The researchers study a range of other consequences of the STR regulation and find localized reductions in burglaries near buildings that prohibit STR listings as well as declining Airbnb revenues in areas with above-median hotel revenues. They highlight the important role that platform data feeds play in the enforcement of STR regulations, particularly with respect to professional hosts.

— *Lauri Scherer*