

The Digest

June 2025

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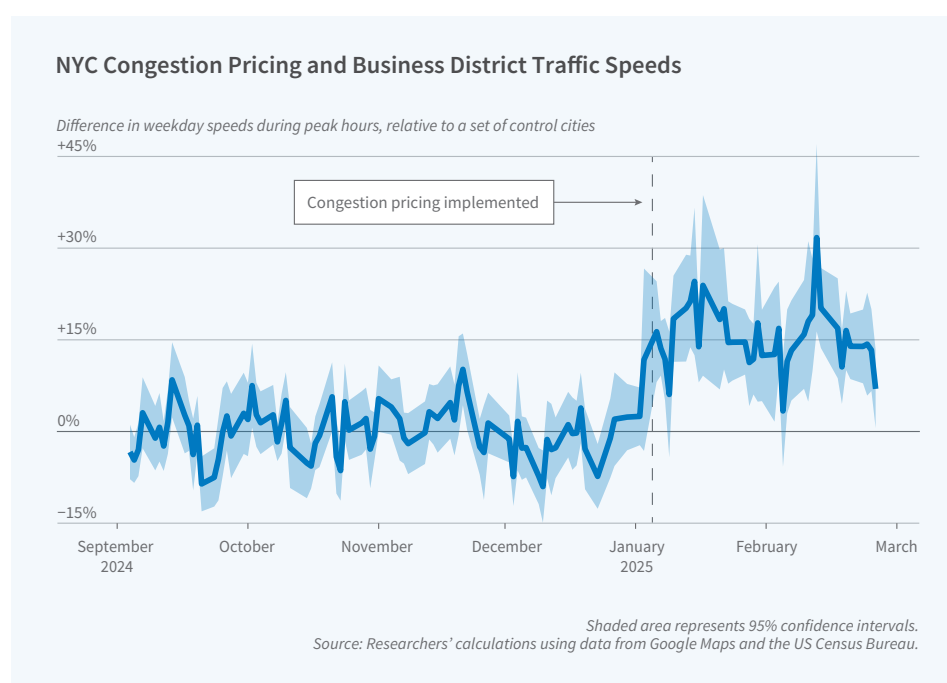
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Impact of New York City's Congestion Pricing Program

In January 2025, New York City (NYC) implemented the first cordon-based congestion pricing program in the United States. The program levies charges on vehicles entering Manhattan's central business district (CBD) during peak hours, 5 am–9 pm on weekdays and 9 am–9 pm on weekends. Passenger vehicles pay \$9 each day they enter during peak hours, motorcycles pay \$4.50, and trucks and buses pay between \$14.40 and \$21.60, depending on their size. For-hire vehicles are charged on a per-trip basis: \$0.75 for taxi trips and \$1.50 for rideshare trips that start, end, or pass through the CBD. In [The Short-Run Effects of Congestion Pricing in New York City](#) (NBER Working Paper 33584), [Cody Cook](#), [Aboudy Kreidieh](#), [Shoshana Vasserman](#), [Hunt Allcott](#), [Neha Arora](#), [Freek van Sambeek](#), [Andrew Tomkins](#), and [Eray Turkel](#) evaluate the policy's initial impacts on traffic conditions, travel times, and vehicle emissions.

The researchers analyze data from Google Maps Traffic Trends spanning September 2024 through February 2025 and compare NYC's traffic conditions to those of five similar cities: Philadelphia, Boston, Chicago, Atlanta, and Baltimore. They find that average speeds within the CBD increased from 8.2 to 9.7 mph following the implementation of the congestion charge, a 15 percent jump. These improvements were most pronounced during congested periods, with increases exceeding 20 percent during weekday afternoons between 1 pm and 7 pm and 25 percent during weekend evenings between 3 pm and 9 pm. The effects varied by road type, with highways experiencing 13 percent faster speeds, arterial roads 10 percent, and local roads 8 percent.

The benefits extended beyond the tolled zone, particularly to roads where



a high percentage of drivers traversing the segment prior to the congestion pricing policy eventually entered the CBD (defined as a segment's "co-occurrence" with the CBD). Road segments outside the CBD with co-occurrence over 80 percent—such as the Lincoln Tunnel and the Holland Tunnel—experienced a 16 percent increase in average speeds. Even on road segments with co-occurrence of under 20 percent, the implementation of congestion pricing increased average speeds by 4 percent. The improvement on different road segments depends, in part, on the level of congestion before the fee took effect. For example, while the Queensboro Bridge and Holland Tunnel experienced similar changes in traffic levels following the policy's implementation, the change in speeds was 5 mph larger on the Queensboro Bridge. Prior to the policy's implementation, the Queensboro

Bridge was operating on a steep part of its "congestion function," where even small changes in the number of cars can have large impacts on speeds.

The changes in road speeds translated to shorter total travel times for drivers. Car trips within or to the CBD became approximately 8 percent faster, while trips from the CBD to outside areas increased in speed by 2.5 percent. For a hypothetical commuter, this could result in an annual saving of more than 10 hours per year.

CO₂ emission rates per kilometer driven decreased by 2–3 percent for vehicles traveling in the CBD and on roads with high co-occurrence. However, the study did not find any statistically significant effect on ambient PM_{2.5} concentrations.

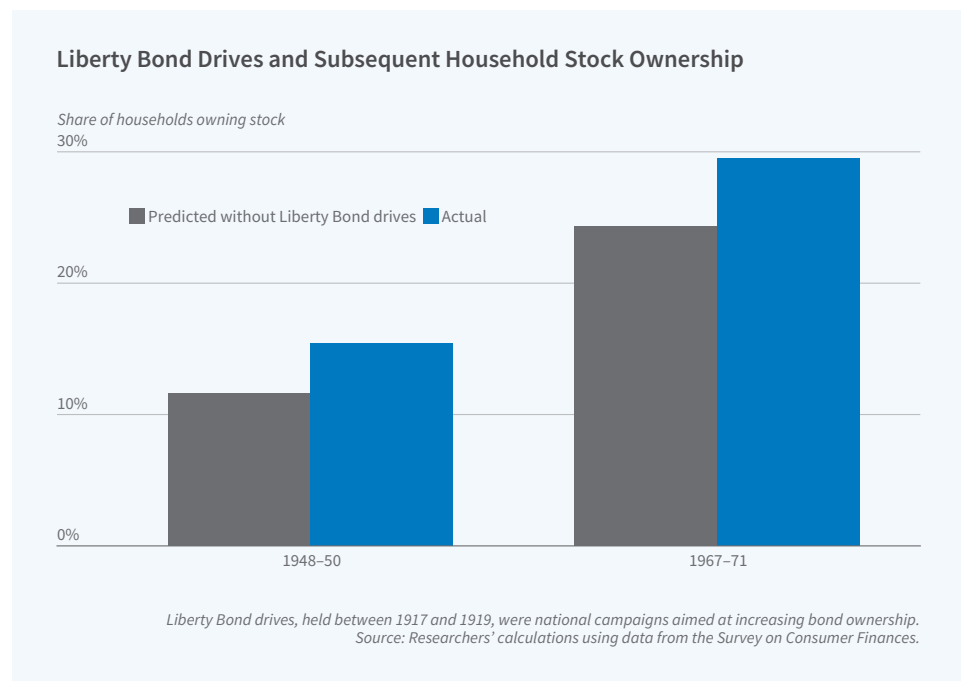
— Leonardo Vasquez

Liberty Bond Drivers Had Long-Lived Effects on Investor Behavior

Can early financial experiences affect lifelong investment decisions? A new study finds that one of America's largest financial literacy campaigns—the Liberty Bond drives of World War I—influenced household investment behavior long after the war bonds had been repaid.

In [‘Invest!’: Liberty Bonds and Stock Ownership over the Twentieth Century](#) (NBER Working Paper 33541), [Gillian Brunet](#), [Eric Hilt](#), and [Matthew S. Jaremski](#) study the nationwide Liberty Bond drives of 1917–19. These campaigns aimed to finance America's participation in World War I while increasing financial literacy. The government enlisted celebrities, investment banks, and millions of volunteers to sell bonds through door-to-door solicitations, parades, and public events. Schoolchildren were taught the basics of compound interest and saving while adults were exposed to messages associating investing with patriotism and financial security. For many Americans, Liberty Bonds were their first experience with a financial asset beyond a bank account.

To measure the long-term effects of these campaigns, the researchers use household-level data from the Survey of Consumer Finances from 1947 through 1971 matched with county-level data on Liberty Bond participation rates. These participation rates reflect varying levels of exposure to Liberty Bond drives across different counties. There were substantial idiosyncratic elements to the roll-out of bond campaigns



Areas with greater exposure to WWI Liberty Bond drives exhibited higher rates of stock ownership for decades afterward.

across counties, and these campaigns were not simply targeted at high-income or high-wealth areas.

In counties with higher Liberty Bond participation rates during WWI, the researchers find significantly higher rates of stock and bond ownership in 1947 and subsequent decades. This relationship emerges even after controlling for income, education, demographics, and homeownership. A 1 standard deviation increase in Liberty Bond participation raised the probability of owning stocks by 0.9 percentage points, bonds by 1.7 percentage points, and a bank account by 2 percentage points. To place these results in context, roughly 17 percent of households owned stocks, 40 percent bonds, and 78 percent bank accounts during the

1947–71 period studied. The asset ownership effects were present only among individuals who were at least school-age during WWI, and not among cohorts in the same counties who were too young to be exposed to the bond campaigns, suggesting that the findings are not attributable to persistent county characteristics.

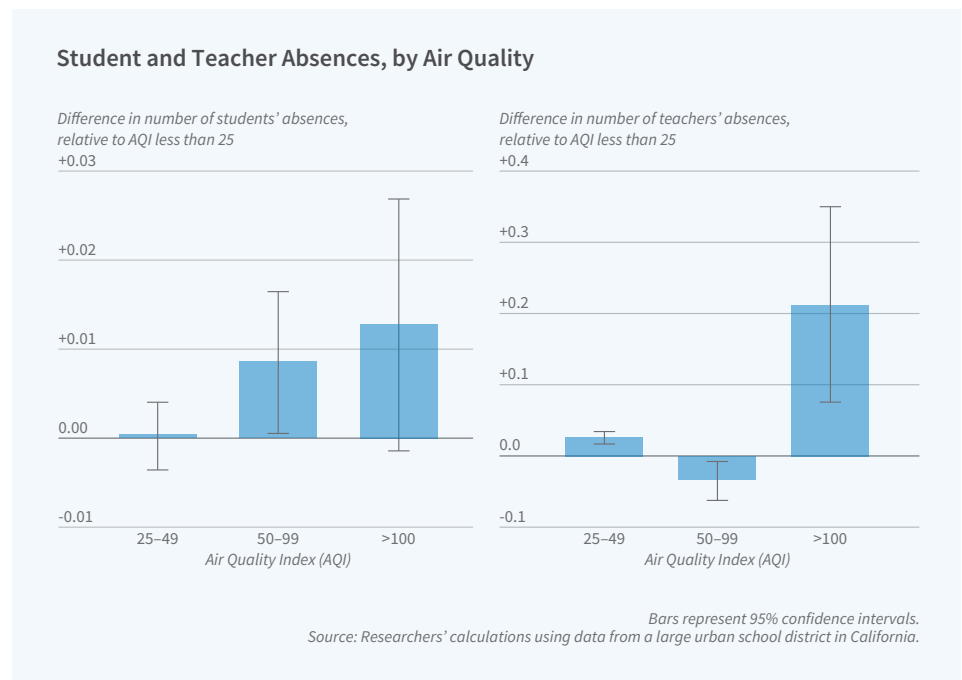
Beyond portfolio choices, the Liberty Bond campaigns also shaped attitudes toward investing. Households in counties with higher Liberty Bond participation were more likely to believe that it was wise to use extra money to invest in stocks rather than bonds, and they were also more likely to report saving for retirement or major purchases than for emergencies or other reasons.

Daily Air Pollution Exposure and Schooling

Over 6 million children in the United States attend public schools located within 250 meters of a major roadway. In [The Effects of Daily Air Pollution on Students and Teachers](#) (NBER Working Paper 33549), [Sarah Chung](#), [Claudia Persico](#), and [Jing Liu](#) examine how daily variation in ambient air pollution influences student and teacher behavior in school settings.

They study comprehensive administrative data from a large urban school district in California spanning 2003 to 2020. To address measurement error in pollution exposure and reduce concerns about endogeneity, such as the issue of schools in high-pollution areas potentially attracting students from disadvantaged backgrounds, the researchers implement an instrumental variables strategy using daily variation in wind direction. Specifically, daily wind direction serves as an instrument for local air pollution exposure, measured by $PM_{2.5}$ concentrations. On days when the wind blows from a nearby highway toward a school, for example, schools located downwind experience higher pollution exposure, while schools located upwind remain relatively unaffected.

The researchers find that a $10 \mu g/m^3$ increase in daily $PM_{2.5}$ concentration is associated with a 5.7 percent increase in full-day student absences over a three-day window beginning with the day of exposure. It also corresponds with a 28 percent rise in office discipline referrals, with particularly pronounced effects



Elevated air pollution levels increase student and teacher absenteeism as well as the number of disciplinary referrals.

on referrals for violent behavior, defiance, and interpersonal conflicts, and a 13.1 percent increase in teacher absences. The researchers estimate that a sustained $10 \mu g/m^3$ increase in $PM_{2.5}$ for the entire school year would result in approximately 4.9 additional absence days per student, or 355,647 absences across the district.

The research reveals significant heterogeneity in pollution effects across demographic groups. Black students experience the largest impacts. Specifically, a $10 \mu g/m^3$ increase in daily $PM_{2.5}$ leads to a 9.6 percent increase in full-day absences and a 32 percent increase in office referrals for violent behavior. Hispanic students and those from lower-income households also show

heightened sensitivity to pollution exposure. These disparities are reflected in school-level analyses: schools serving predominantly lower-income populations exhibit substantially larger effects on both absences and behavioral issues than schools serving higher-income students.

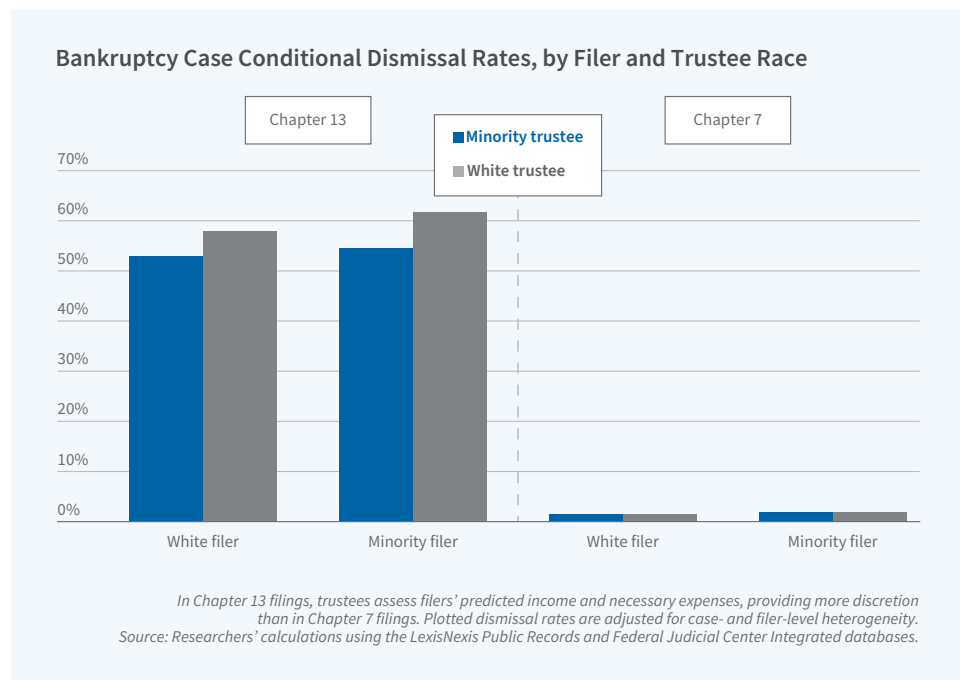
The researchers also identify a dose-dependent relationship between air pollution levels and educational outcomes. Days with Air Quality Index (AQI) values exceeding 100 are associated with the largest effects on both student and teacher absences and on disciplinary referrals. This nonlinear response to pollution intensity suggests that reducing pollution in urban areas might yield disproportionate benefits for school functioning.

Racial Disparities in Outcomes of Bankruptcy Filings

Filing for bankruptcy can allow heavily indebted individuals and households to start fresh without the burden of previous debt. However, many bankruptcy filings are denied, which means that filers' debt are not relieved. In [Racial Disparities and Bias in Consumer Bankruptcy](#) (NBER Working Paper 33575), [Bronson Argyle](#), [Sasha Indarte](#), [Benjamin Iverson](#), and [Christopher Palmer](#) document racial disparities in the rates of successful bankruptcy filings.

The researchers consider both Chapter 7 and Chapter 13 bankruptcy filings. In Chapter 7 bankruptcy, all debts are forgiven after the filer forfeits or pays the value of nonexempt assets, such as a second car or home equity over the state-exemption limit. In Chapter 13, filers retain their property and are granted debt relief after completing a repayment plan, typically lasting up to five years. Bankruptcy cases are administered by trustees, a court official whose duties include assessing the accuracy of filers' financial reporting, disbursing payments to creditors, and recommending dismissal to judges. Chapter 13 trustees generally exercise more subjectivity when deciding whether to dismiss a filer's case without debt relief. For example, Chapter 13 trustees can respond to nonpayment by either dismissing the case, requesting a modification of the plan, or seek an immediate discharge of debt.

Chapter 7 dismissal rates are much lower, 2.7 percent, than Chapter 13 dismissal rates, 61 percent. This contributes to large differences in overall bankruptcy filing dismissal rates across racial



Controlling for case characteristics, non-White Chapter 13 bankruptcy filers are 3.6 percentage points more likely to have their cases dismissed than White filers.

groups. While 46 percent of Black bankruptcy filers choose Chapter 13, only 23 percent of White filers do.

The researchers document substantial differences in the outcomes for White and non-White bankruptcy filers. Non-White Chapter 13 filers are 12.7 percentage points more likely to have their cases dismissed than White filers. These disparities are 13.4 percentage points for Blacks and 11.7 percentage points for Hispanics. For Chapter 7 bankruptcy, non-White filers are 2.3 percentage points more likely to have their cases dismissed. When the researchers control for observable case characteristics, such as the filer's income, ZIP code, and whether they are represented by an attorney, the Chapter 13 disparity declines to 3.6 percentage points and the

Chapter 7 disparity to 0.3 percentage points.

The researchers exploit the quasi-random assignment of bankruptcy cases to trustees to compare the dismissal rates when the trustees and filers belong to the same or different racial and ethnic groups. They find that when a non-White Chapter 13 filer is assigned to a White bankruptcy trustee, their case is 2.3 percentage points more likely to be dismissed than when the case is assigned to a non-White trustee. The researchers find no such differences in disparities in Chapter 7 dismissal rates when the trustee and filer are or are not members of the same racial or ethnic group, a finding that they attribute to the more limited discretion of Chapter 7 trustees.

— Greta Gaffin

The researchers acknowledge financial support from the Alfred P. Sloan Foundation, the MIT Racism Research Fund, The Wharton School's Jacobs Levy Equity Management Center for Quantitative Financial Research, and NSF CAREER Grant 1944138 (Palmer).

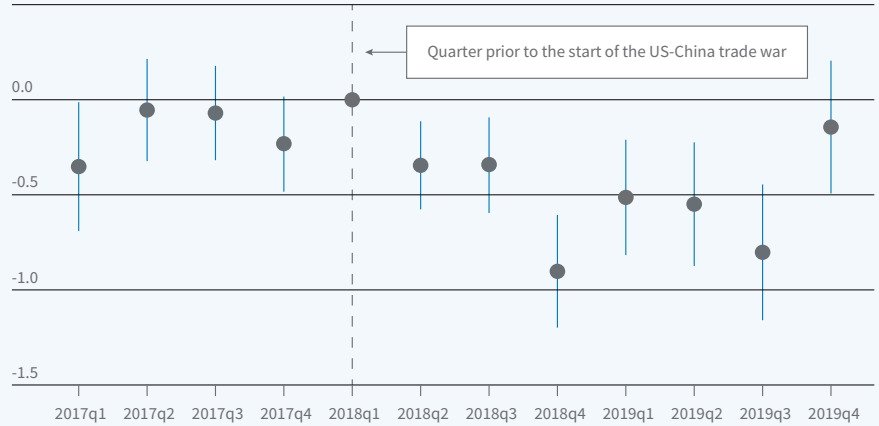
The Role of China's State-Owned Enterprises in the US-China Trade War

The United States and China have been embroiled in a trade war of varying intensity for the past seven years. Most attention has focused on tariffs, beginning with those imposed by the Trump administration in January 2018 and the retaliatory tariffs imposed by China shortly thereafter. However, tariffs are not the only tool that governments can use to influence trade flows. In particular, the Chinese government, with its array of large state-owned enterprises (SOEs), can directly reduce imports of American products. Such a move can have substantial impact: in 2015, purchases by SOEs made up 22 percent of Chinese imports from the US.

In [Beyond Tariffs: How Did China's State-Owned Enterprises Shape the US-China Trade War?](#) (NBER Working Paper 33599), [Felipe Benguria](#) and [Felipe Safie](#) investigate whether China's SOEs reduced imports from the US. There is little public evidence of possible instructions from the central government to SOEs. The researchers use confidential Chinese customs data that allow them to measure the SOE share of imports in each industry. They exploit cross-industry variation in the share of Chinese imports from the US accounted for by SOEs and test whether there were larger declines in Chinese imports from the US in industries where SOEs accounted for a larger share of imports prior to the trade war.

China's State-Owned Enterprises and US Exports, 2017–19

The coefficients in this figure are estimated from a regression based on US exports to China that captures the log difference in export growth between products with high versus low SOE import shares.



Bars represent 90% confidence intervals.
Source: Researchers' calculations using data from the US Census Bureau and China Customs.

China's state-owned enterprises reduced imports from the US during the trade war, effectively complementing tariff-based trade restrictions.

Industries with larger SOE import shares experienced larger declines in imports from the US. The researchers estimate that actions by SOEs caused a 4 percent decline in Chinese imports from the US. To place this in context, they also estimate that Chinese imports declined 8 percent as a result of retaliatory tariffs imposed on US goods. The effect of SOEs is largest in food and agricultural industries, where SOEs caused a 19.4 percent decline. Import-reducing actions by SOEs appear to have been targeted at industries located in Republican areas.

Actions by SOEs did not just reduce the quantities of different US goods imported by China. They also resulted in the cessation of imports of some goods, such as US crude petroleum, which were only imported by SOEs. The researchers find that SOE-driven reductions in imports peaked during the intermediate period after China had imposed a sequence of retaliatory tariffs. This suggests that reductions in SOE imports represented a second phase of retaliatory policy, after the imposition of tariffs.

— Shakked Noy

Government Procurement: There is Strength in Numbers

Public sector procurement practices are often criticized for paying more for goods and services than private sector buyers. In [The Benefits from Bundling Demand in K–12 Broadband Procurement](#) (NBER Working Paper 33498), [Gaurab Aryal](#), [Charles Murry](#), [Pallavi Pal](#), and [Arnab Palit](#) study an innovative procurement initiative in New Jersey that sought to improve efficiency and lower costs. The state's public schools teamed up to procure broadband internet services collectively rather than through separate bids.

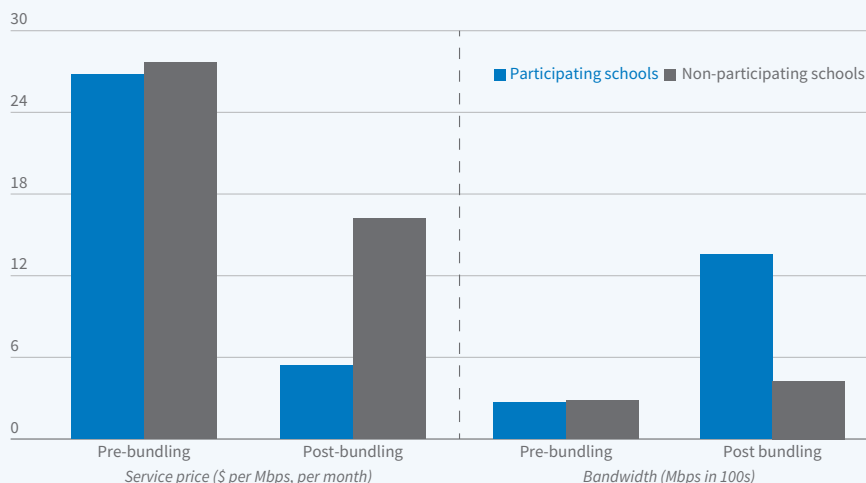
The backdrop to this state initiative is a federal program called E-Rate that subsidizes K–12 internet contracts if schools use competitive bidding to select providers. Subsidies are highest among schools in high-poverty and/or rural areas. In 2015, New Jersey implemented a program that bundled willing schools into four regional consortiums, allowing providers to bid on contracts for entire regions rather than individual schools.

The researchers compare contracts in 2014, the year before the program began, with those in 2015, the first year of the program. They estimate that the bids under the new program were lower—a monthly cost reduction of \$10.32 per megabits per second (Mbps) on a base of \$26.78, or 39 percent. In addition, the average internet speed tripled from 268 Mbps before the program to 978 Mbps afterward.

The primary explanation for the lower prices is greater confidence among bidders that, under the

Bundling of Bids for Schools' Internet Service

Schools were bundled into regional groups, requiring providers to bid for entire regions



Source: Researchers' calculations using data from the Educational Services Commission of New Jersey.

New Jersey's broadband procurement bundling program for public schools lowered costs and raised internet speeds.

bundling system, they would serve enough schools to cover their fixed costs, incentivizing them to bid lower than they would without bundling. This reduction in what is termed “exposure risk”—the chance of winning too few schools to cover fixed costs—leads to competitive bidding behavior. The auctions did not draw in a meaningfully greater number of bidders to explain the decrease in bids.

The researchers found that most of the benefit of bundling accrued to schools that receive “Category D” internet service, which is similar to that typically provided to businesses, as opposed to “Category A” service, which is akin to residential

retail service. Providing Category A service requires minimal investments, whereas delivering Category D service requires building regional data hubs.

The savings under the bundling program were comparable to the subsidies from the E-Rate program. The researchers conclude that “re-designing how public institutions purchase services may be as effective as traditional subsidies for achieving policy goals.” They also make a cautionary observation about the future: if consortiums consistently award contracts to a single internet provider, other potential providers may exit the market, reducing long-run competition.

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