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INSIDE THIS ISSUE

Firms' Inflation Expectations Show Little Evidence of Anchoring

Survey data suggest that most CEOs are unaware of the current rate of inflation and of the Fed's inflation goals and that their inflation expectations differ from those of households and professional forecasters.

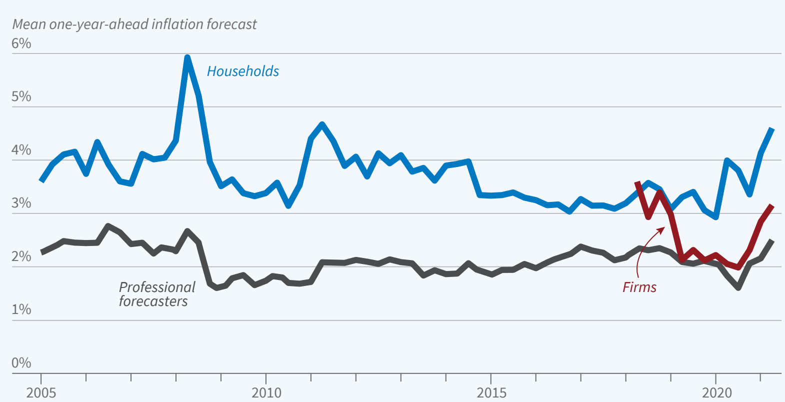
Firms' price- and wage-setting decisions are based, in part, on their expectations of future inflation. These decisions in turn shape future inflation outcomes. While firms' inflation expectations can therefore be important determinants of optimal monetary policy, central bankers' insight into these expectations has been limited by a lack of systematic data.

Bernardo Candia, Olivier Coibion, and Yuriy Gorodnichenko address this gap in **The Inflation Expectations of US Firms: Evidence from a New Survey** (NBER Working Paper 28836). They analyze the first nationally representative survey of inflation expectations among US firms and find that managers are strikingly inattentive both to recent inflation and to monetary policy.

The researchers introduce the Survey of Firms' Inflation Expectations (SoFIE), a module of questions on inflation appended to a leading preexisting private survey of CEOs and senior business leaders. As a part of that survey, the SoFIE has been collected quarterly since April 2018, with between 300 and 600 firms participating in each survey. To date, 1,198 firms have participated overall. The survey includes firms of all sizes and, for historical reasons, oversamples firms in manufacturing. In addition to CEOs' beliefs about inflation in the next year, the SoFIE also collects their expectations of average annual inflation over the coming five years, an important metric for how anchored inflation expectations are.

Firms' expectations about inflation in the year ahead differ markedly from those of both professional forecasters and households, underscoring the value of firm-specific data. Households and professional forecasters diverge substantially: households have reported expecting annual inflation of about 3.5 percent since the early 2000s, while professional forecasters have predicted inflation close to the Federal Reserve's target of 2 percent. Firms have fluctuated within this range since the SoFIE's inception. CEOs predicted inflation of over 3 percent in early 2018. Between early 2019

Inflation Expectations of Households, Firms, and Professional Forecasters



Household and firm responses that are greater than 15% or less than -2% are excluded.
Source: Researchers' calculations using data from the Michigan Survey of Consumers, the Survey of Professional Forecasters, and the Survey of Firms' Inflation Expectations

and the start of the COVID-19 pandemic, they predicted inflation of around 2 percent. In early 2021, managers' inflation expectations rose sharply, mirroring a pandemic-era rise of households' inflation expectations.

Firms' inflation expectations, like those of households, show little evidence of anchoring. Besides often being well above the Fed's 2 percent target set in 2012, CEOs' long-run expectations vary widely across firms. Moreover, CEOs are not especially confident in their predictions. Aggregating across all surveys since 2018, the researchers find that the CEOs believed there was a 25 percent chance that the year-ahead inflation rate would exceed 5 percent, an outcome that was sharply at odds with the views of professional forecasters during most of this period. CEOs' inflation expectations also are revised substantially from year to year, which again casts doubt on anchoring. The correlation between the revisions to the one-year and five-year inflation predictions is larger than the correlation that is consistent with the historical persistence of inflationary shocks. CEOs also display widely dispersed perceptions of inflation over the previous 12 months, even though that information is freely available. In short, the properties of managers' and households' inflation expectations are similar.

CEOs lack anchored expectations in part because they are uninformed about monetary policy. When asked to state the Fed's inflation target, about 65 percent of respondents said they didn't know or were not willing to provide an answer; fewer than 20 percent gave a value between 1.5 and 2.5 percent. CEOs also appear to have limited knowledge about recent inflation, with many managers understating or overstating inflation by more than 1 percentage point. Both of these forms of inattention help to explain the apparent lack of anchoring in firm expectations. CEOs' beliefs about recent inflation most strongly predict their short-run expectations, while beliefs about the Fed's inflation target predict their long-run expectations. Firms' inattention to inflation may be a reflection of the low and stable inflation of recent years, which has provided firms with little incentive to focus scarce attention on monetary policy and inflation dynamics.

—Lucy Elizabeth Page

The Value of Treatment Facilities in Fighting Opioid Abuse

Specialized drug abuse treatment facilities serve as less-costly alternatives to emergency rooms in providing care to opioid abusers.

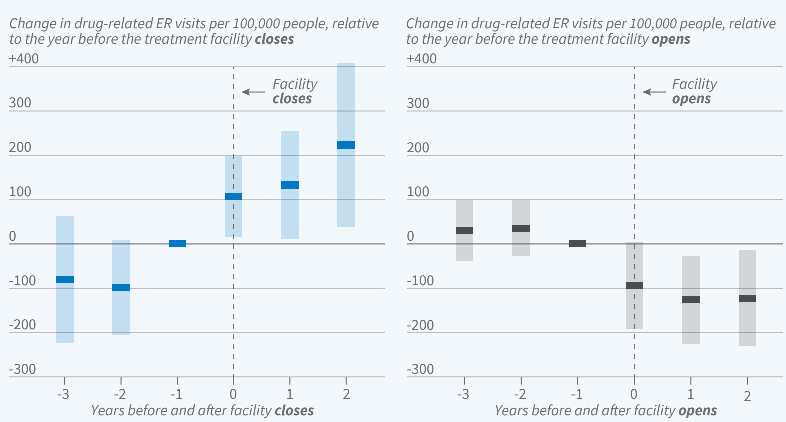
In the past 20 years, fatalities due to drug overdoses have tripled in the United States, dwarfing the tolls of previous drug epidemics and reducing American life expectancy. Most of those deaths have come from opioid abuse.

While this problem has elicited calls for expanded treatment, it is not clear what the best treatment option is. Data about the effectiveness of particular treatments are hard to come by because of privacy concerns and the stigma surrounding substance abuse. Moreover, there are no comprehensive data on the location and dates of operation of treatment facilities.

To examine these issues, Adriana Corredor-Waldron and Janet Currie construct their own database of more than 800 treatment facilities in New Jersey and study the relationship between the opening and closing of such facilities and emergency room visits involving substance abuse. In **Tackling the Substance Abuse Crisis: The Role of Access to Treatment Facilities** (NBER Working Paper 28862), they find that when a new clinic opens in an area that has no substance abuse treatment facility, local visits to the emergency room for substance abuse fall 9.5 percent. Conversely, when a treatment facility closes, drug-related visits to the ER rise 16.6 percent.

The relative effectiveness of particular treatments is harder to discern. There are three types of drug treatment: inpatient hospital care, outpatient clinics, and residential treatment centers. In New Jersey, there are so few inpatient hospitals with substance abuse treatment that it is hard to measure their effectiveness with any confidence. The share of substance abuse facilities that is residential fell from 17 percent in 2008 to 14.6 percent in 2015, mostly because of the growth in outpatient facilities. The researchers find that even when they focus only on the opening and closing of outpatient facilities, the correlation with ER visits is similar to that for the sample of all treatment facilities.

Substance Abuse Treatment Facility Openings/Closings and ER Visits



Openings correspond to the first treatment facility in a geographic area; closures are often in areas with other facilities that remain open. Shaded bars represent 95% confidence intervals.
Source: Researchers' calculations using data from the National Directories of Drug and Alcohol Abuse Treatment Centers and the New Jersey Uniform Billing Records

Proximity plays a key role. For every extra mile patients have to travel to reach a facility, the number of substance abuse cases handled by the local ER rises by 46.9 yearly visits per 100,000 individuals, a 1.85 percent increase. Distance to substance abuse clinics has little effect on mental health and all other types of ER visits.

Results also vary depending on demographics. Black people and individuals aged 15 to 24 are more likely than other groups to drop out of treatment at substance abuse facilities that are relatively far away. This effect is smallest for middle-aged individuals.

On average, when a facility closes, there are an extra 285 drug-related ER visits per 100,000 individuals. Using the average cost of an ER visit for opioid abuse of $528 in 2020 dollars, the researchers calculate that the total additional ER cost associated with a facility closure, again per 100,000 persons, is $150,480. They observe that in performing cost-benefit analysis on the value of a treatment facility, "…to the extent that successful treatment prevents loss of life due to drug overdose, reduces other outpatient and inpatient costs associated with substance abuse, and reduces social costs due to crime and lost wages as well, this figure is clearly an extreme lower bound."

—Laurent Belsie

The Rise of High-Skilled Workers as 'Human Capitalists'

Standard estimates of the recent decline in labor's share of national income are likely to overstate the drop by failing to account for a large fraction of compensation in the form of equity grants and stock options. In **Human Capitalists** (NBER Working Paper 28815), Andrea L. Eisfeldt, Antonio Falato, and Mindy Z. Xiaolan report on a new class of high-skilled workers who, since the 1980s, have seen equity-based compensation increase to 40 percent of their earnings. The researchers estimate that equity compensation now constitutes 7 percent of corporate value-added, up from under 1 percent in 1980.

The researchers find that 78 percent of equity-based pay now goes to employees below the level of the executive suite and that human capitalists own a 10 percent stake in the public companies analyzed. Including equity-based compensation reduces by nearly a third the decline in wage-only income as a share of value-added since the 1980s, they calculate. For high-skilled labor, counting equity-based compensation almost eliminates the decline.

Even after equity-based compensation is factored in, labor's share of corporate earnings has shrunk in recent decades. But the gap is far more evident among lower-skilled, wage-dependent workers. Augmented by stock options, capital gains, and dividends, the high-skill share of total labor income increased from 46 percent at the start of the 1980s to 58 percent today while the employment share of high-skilled workers remained flat at 30 percent.

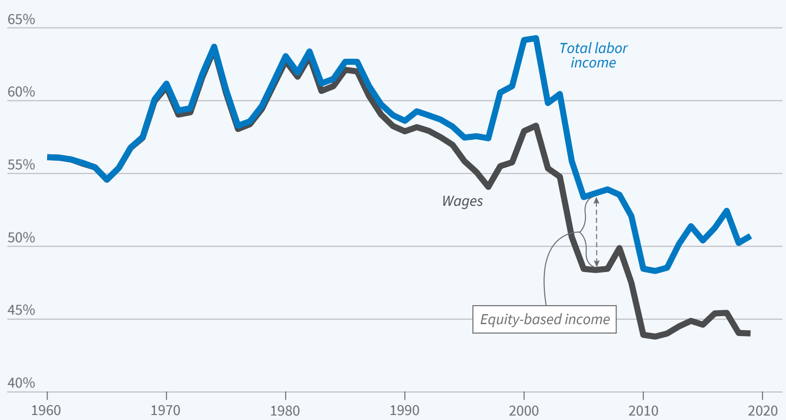
The increased prevalence of equity-based compensation has been a win-win for high-skill employees and their employers. These workers benefit from lower tax rates on capital gains after exercising stock options, and firms use the prospect of stock grants as an incentive for retaining prized employees. Further, substituting equity pay for wages historically reduced reported labor costs and boosted annual earnings. The researchers estimate that 91 percent of equity pay has been used to replace wages rather than as compensation for increased productivity.

Standard data sources, such as the Bureau of Labor Statistics, do not capture the majority of equity pay, much of which is taxed as long-term capital gains, not as ordinary income. Additionally, since stock options are not exercised immediately, they often do not show up in income data for the year in which they were granted.

> Labor's share of corporate earnings has shrunk in recent decades, but when equity-based payments are included in compensation, the decline for high-skill workers is almost entirely eliminated.

The researchers overcome the measurement hurdles by mining Securities and Exchange Commission filings on shares reserved for compensation reported by a broad range of firms in the manufacturing, health, consumer goods, and high-tech sectors from 1960 to 2019.

Their compensation calculations show that the greatest earnings gains go to human capitalists working in sectors that have experienced the largest declines in prices of investment goods. For example, as firms purchase cheaper and more powerful computers, they increase the productivity of high-skill workers. That complementary relationship between high-tech investment and high-skilled workers is not evident when wages alone are counted. By contrast, capital goods



Labor Share of Value Added in Manufacturing, 1960–2019

Total labor income is the sum of wages and equity-based income.
Source: Researchers' calculations using data from Compustat, RiskMetrics, the NBER, and the Bureau of Economic Analysis

investment is negatively correlated with wage-based, low-skilled workers, reflecting the substitution of machines for people.

While total compensation at the C-suite level appears to have peaked around the year 2000, the researchers find, equity-based compensation to a broader set of high-skilled labor continues to rise.

—Steve Maas

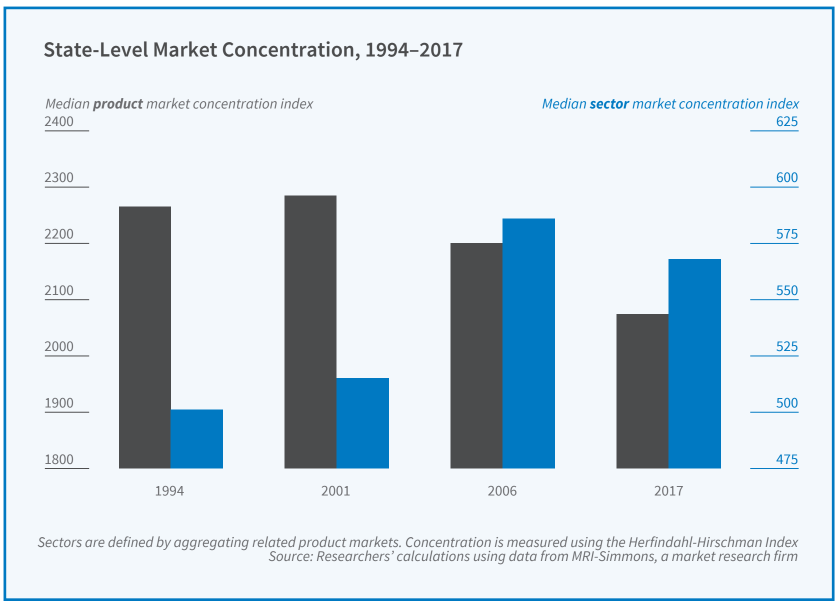
Market Concentration Has Declined from the Consumer Perspective

The extraordinary growth of companies like Alphabet, Amazon, and Apple, and high-profile mergers in fields such as airlines, hospitals, and media, have generated intense interest in the changing nature of competition in the United States. As megafirms have emerged in a number of industries, many studies have pointed to rising concentration as a possible explanation for the declining share of labor in national income, as well as low rates of corporate investment and productivity growth.

A study by C. Lanier Benkard, Ali Yurukoglu, and Anthony Lee Zhang suggests that determining whether concentration has been rising or falling depends critically on the boundaries one draws between different markets. From the producer's perspective, data on business sectors collected by the Census Bureau show clear evidence that concentration has risen. In **Concentration in Product Markets** (NBER Working Paper 28745), the researchers instead focus on concentration in product markets as experienced by consumers—the approach that antitrust regulators adopt—and estimate that concentration trends have been falling, rather than rising, for the past 25 years.

To illustrate the different perspectives, the researchers consider the case of metal cans. The Census Bureau puts all metal can production into a single category, including soda cans, aerosol cans, and paint cans. But these products are not substitutes for one another and do not compete in product markets. Meanwhile, soda cans can be replaced by glass or plastic bottles, goods that have their own, separate, Census categories.

The Census Bureau also defines industries nationally, even though many products are not transportable and compete only locally. That can lead to skewed conclusions. For instance, at the national level, concentration in cable TV has risen dramatically over the last few decades. But at the local level, in the market that matters to consumers, competition has increased and more consumers have multiple cable and satellite suppliers to choose from.



From the perspective of consumers, the researchers show that concentration fell across the board in the past quarter century. Herfindahl-Hirschman indices (HHI) are a common measure of market concentration. The median HHI decreased from 2,265 to 1,945 between the years 1994 and 2019, and the HHI at the 90th percentile dropped from 5,325 to 4,570. Industries with HHIs between 1,500 and 2,500 are considered moderately concentrated, while those with HHIs above 2,500 are thought of as highly concentrated. In 1994, 44.4 percent of all industries were highly concentrated; in 2019, the comparable value was 36.6 percent.

Viewed from the consumer's vantage point, 44.4 percent of all industries were highly concentrated in 1994, compared with 36.6 percent in 2019.

Many manufacturing sectors have seen HHI decreases, while most nonmanufacturing sectors have seen no substantive change. Some industries were exceptions to the general trend. In the car rental industry, for example, HHI rose from 1,937 to 3,677.

Industries with the largest decreases in concentration often saw a new brand enter the market. In 1999, for example, Gorilla Glue started challenging dominant brands Elmer's and Krazy, both of which are owned by the same company. By 2019, Gorilla had more than 30 percent of the market.

The researchers suggest that the dichotomy between increasing concentration at the sector level and decreasing concentration at the product level could be explained by declining costs of firms entering product markets that are adjacent to ones in which they already operate. In such a setting, efficient companies in a single-product market enter closely related product markets in which other firms are dominant. This process results in larger firms and higher concentration at the sector level and lower concentration at the product level. Overall production is more efficient, so if prices are determined primarily through product market competition, this process can benefit consumers.

—Laurent Belsie

Private Equity Investments and the Resolution of Bank Failures

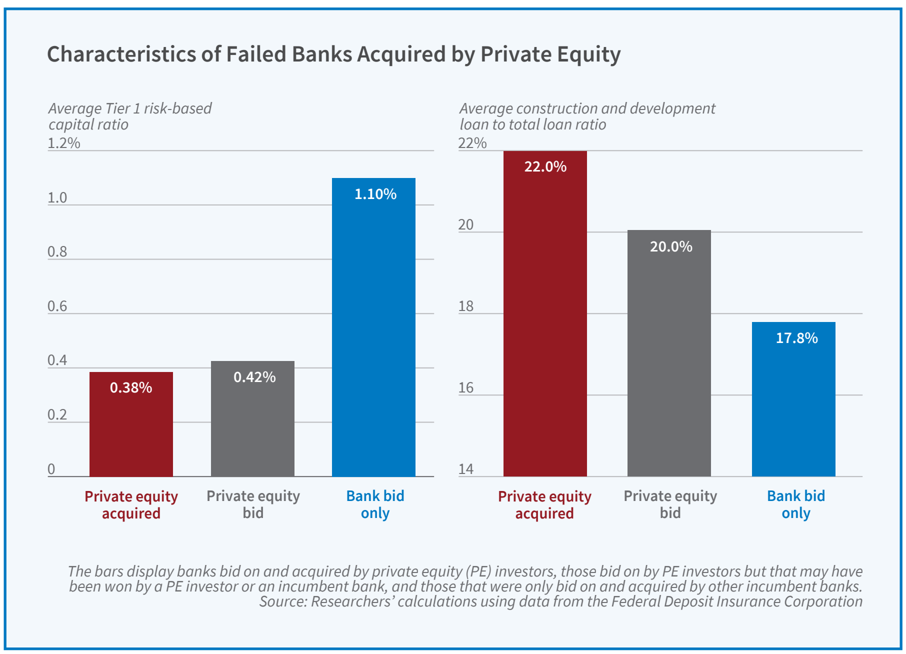
When a US bank fails, the Federal Deposit Insurance Corporation (FDIC) generates a list of potential bidders who might be interested in acquiring it. They submit sealed bids for the failed bank, and the FDIC chooses the bid that will resolve the bank failure at the lowest cost for the FDIC's Deposit Insurance Fund.

Historically, private investors had generally been barred from bidding on failed banks because they were not chartered banks, and there was no formal process in place to allow them to bid. In 2008, the Office of the Comptroller of the Currency began making it easier for nonbank private equity investors to participate in failed-bank auctions by offering what are called "shelf" charters, provided they met a variety of regulatory requirements. In **Private Equity and Financial Stability: Evidence from Failed Bank Resolution in the Crisis** (NBER Working Paper 28751), Emily Johnston-Ross, Song Ma, and Manju Puri estimate that private equity bidders reduced Deposit Insurance Fund costs by $3.6 billion, about 5 percent of the overall $73 billion cost generated by failed banks during the financial crisis. A total of 482 bank failures were resolved by the FDIC in that period. Private equity investors purchased 62 of them.

Generally operating in consortia staffed by experienced bankers specializing in the management of turnarounds and troubled and distressed assets, private equity investors tended to acquire banks that were too risky for purchase by incumbent banks. Data on the patterns of bids for failed banks suggest that traditional banks limited their bidding to healthier failed banks and that private equity investors were less active in that segment. Private equity purchasers assumed more risk by purchasing larger, less capitalized, less profitable banks. They thus injected new capital in regions where banks were on average in deeper distress. When multiple banks failed in the same region, a failed bank was more likely to be acquired by a private equity investor. Though a neighboring bank is often considered the most likely acquirer of a failed bank, the researchers report, other banks in the same region may be weakened by the same economic stressors that caused a particular bank to fail, and they may not be able to bid for it.

Regulators' decision to facilitate nonbank private equity investors bidding for failed banks is estimated to have saved the Federal Deposit Insurance Corporation $3.6 billion after the global financial crisis.

How did private equity-acquired failed banks perform after the resolution? Using FDIC data on bank failures, bids, acquisitions, Deposit Insurance Fund cost analyses, and how loans acquired from a failed bank performed over time, the researchers constructed a quasi-random sample of similar banks so that they could compare the effects of acquisition by traditional banks to the effects of acquisition by private equity. Their sample included only failed banks for which the winning bid was within 5 percent of the losing bid and both types of purchasers submitted bids.



The bars display banks bid on and acquired by private equity (PE) investors, those bid on by PE investors but that may have been won by a PE investor or an incumbent bank, and those that were only bid on and acquired by other incumbent banks.
Source: Researchers' calculations using data from the Federal Deposit Insurance Corporation

Using a variety of benchmarks, the researchers show that private equity-acquired failed banks performed better than bank-acquired failed banks and had positive real effects. Bank branches were more likely to be preserved in private equity-acquired banks. The average three-year post-acquisition deposit growth rate for private equity-acquired failed banks was 35.6 percentage points higher than that for bank-acquired failed banks. The research also documents a real effect on local economic recovery post crisis, when private equity acquired local failed banks. Failed banks acquired by private equity extended more Small Business Administration loans and at an average interest rate 32 basis points lower than their failed bank counterparts that were acquired by banks. This was accompanied by mild positive effects on local business creation and personal income. After controlling for the riskiness of the banks acquired, the researchers find that private equity deals involving loss-sharing arrangements with the FDIC did not appear to cost the FDIC any more than similar deals with other acquirers.

The researchers conclude that private equity investors filled "the capital gap in scenarios where the natural local bank buyers are themselves distressed or capital constrained," and helped to stabilize the financial system in the years that followed the Great Recession.

—Linda Gorman

The IT Revolution and Labor Market Activity of Older Workers

The revolution in the use of workplace computers that began in the 1980s took a toll on older workers who were not tech-savvy. They faced pay cuts, early retirement, and transfers to less intensive jobs.

In **Computerization, Obsolescence, and the Length of Working Life** (NBER Working Paper 28701), Péter Hudomiet and Robert J. Willis study how computerization affected older workers between 1984 and 2017. They find that the computer knowledge gap between older and younger US workers peaked in the 1980s and early 1990s, and then began to decline. It had disappeared by the mid-2010s.

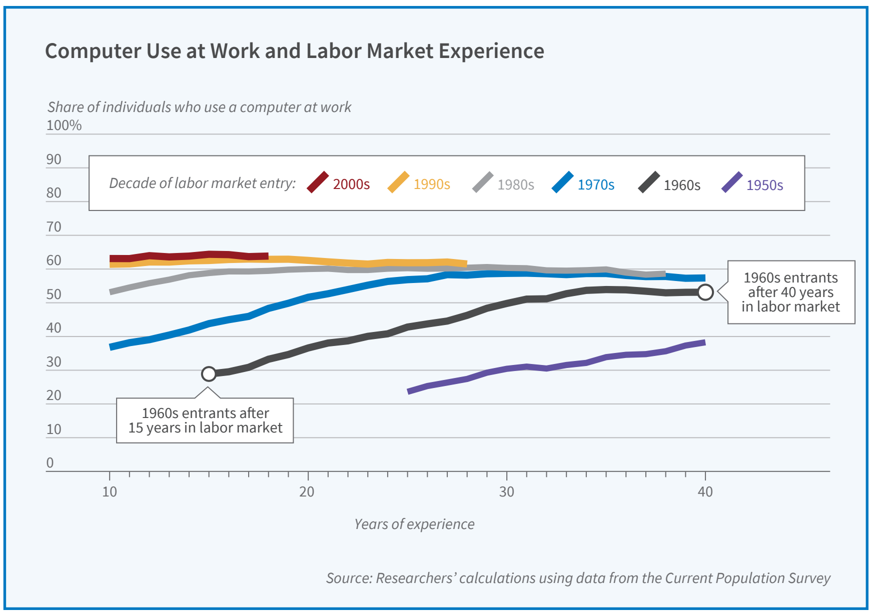
The researchers use responses to a number of government surveys to calculate the probability that workers over age 50 were equipped with the computer skills called for in their occupations. Their measure of the knowledge gap captures the extent to which workers fall short of computer literacy. For example, if 70 percent of secretaries aged 40–49 in 1992 used word processors rather than typewriters, while 60 percent of secretaries over the age of 50 did so, the knowledge gap would be 10 percentage points.

The researchers estimate that computer knowledge gaps increased the likelihood that older workers — ages 50–69 — would retire by 1 to 1.4 percentage points per year. This raised the retirement rate for this age group from about 8 percent to over 9 percent per year. They also estimate that a 10-percentage-point knowledge gap reduced annual wages by at least 2.5 percent, and perhaps as much as 7 percent.

Limited skill with workplace computing raised the retirement rate for older workers by more than 1 percentage point a year when computers were introduced to jobs after 1984; these differentials began to disappear after 2000.

Four subgroups of the population were particularly hard hit by knowledge gaps: women, workers in office jobs, workers with some college education, and workers between the ages of 60 and 64. Women may have been more affected because they were less likely to learn to use computers than men. Office workers such as bookkeepers may have seen computers replace their jobs altogether. More highly educated workers may have had greater opportunity to find non-computer-intensive work. And for older workers in general, companies may have decided that it was not worth retraining those who were already near the end of their careers.

The impact of computers on a worker's prospects was associated with his or her education. Among high school dropouts, the fraction of computer users at work remained low throughout the study period. Among high school graduates, computer use in the workplace became significant during the 1990s.



For some occupations, such as maintenance and food service, computer use remained negligible. Older workers in moderately skilled occupations, such as property management, sales, and factory floor supervision, lagged behind their younger peers in computer knowledge well into the current century.

— *Steve Maas*

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