

January 2019

## INSIDE THIS ISSUE

- e-Commerce and the Pricing Behavior of Traditional Retailers
- Early Retirement and Mortality Rates of Blue-Collar Men
- DoD Contractor Mergers Increased Use of No-Bid, Cost-Plus Deals
- Long-Term Effects of Children's Neighborhood Environs
- As Visa Lines Lengthen, STEM PhDs Look Homeward

## When the Fed Lowers U.S. Rates, Emerging Market Loans Soar

Roughly 80 percent of cross-border loans to emerging market economies are estimated to be denominated in U.S. dollars. Dollar-denominated credits make up 60 percent of Europe's emerging market economies' cross-border lending and over 90 percent of foreign banks' loans to emerging market economies in Africa, Asia, and the Americas. Foreign bank loans account for about half of all emerging market economies' external liabilities.

In **U.S. Monetary Policy and Emerging Market Credit Cycles** (NBER Working Paper No. 25185), [Falk Bräuning](#) and [Victoria Ivashina](#) find that when the Federal Reserve lowers U.S. interest rates, there is an increase in cross-border loan volumes by global banks, particularly with regard to emerging market economies. Studying the 1980-2015 period, even after accounting for differences in GDP growth, inflation, and forecast future economic performance, they find that a 4 percentage point cut in the Federal Reserve's target interest rate (a typical decrease during an easing cycle) increased loan volumes in emerging markets by 32 percent

relative to the volumes in developed markets.

Using data from the Thompson Reuters DealScan database on global syndicated cor-

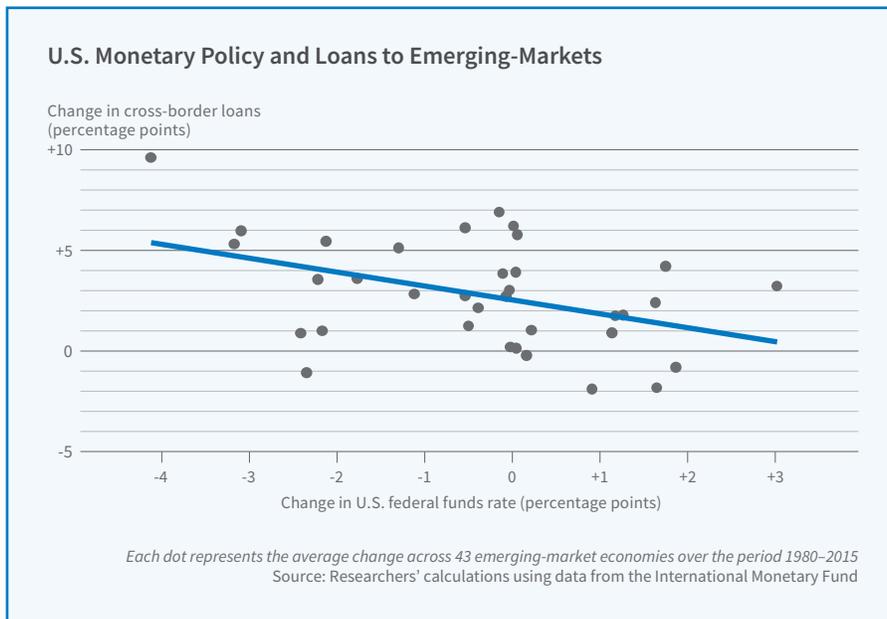
non-tradable industries and those in countries having little trade linkage with the United States.

Reductions in the target interest rate are associated with sharp increases in dollar-denominated loan volumes in emerging markets relative to developed markets.

porate loan issues, the researchers show that the result holds for non-U.S. banks and for banks with portfolios that have little exposure to the United States. Controlling for individual borrowers, their home countries, loan amounts, currency, maturity, interest rates, and lenders in the loan syndicate shows that the results apply to borrowers in

Loan volumes also respond to the yield spread—the difference between the 10-year U.S. Treasury yield and the federal funds rate. As the spread narrows and banks rebalance their lending portfolios toward riskier assets, a 1 percent decrease in the U.S. spread increases emerging market economy lending volumes by about 16 percent. This effect was particularly relevant earlier this decade, when the Federal Reserve kept the federal funds rate at zero and eased monetary policy through unconventional measures that directly impacted long-term rates.

Monetary policy easing also is associated with higher loan volumes to riskier firms. In response to a 25 basis point decrease in the U.S. federal funds rate, firms with a 1 percentage point higher borrowing cost than their country average enjoy a 1 percent



higher increase in loans than that afforded to average borrowers.

When U.S. monetary policy tightens, loan volumes from foreign banks fall. Increases in the federal funds rate of 25 basis points were associated with a 4.2 percentage point larger overall decline in dollar credit for emerging

market firms than for developed market firms. Local bank lenders do not offset a contraction in foreign bank credit. Rather, local dollar credit also contracts. A 25 basis point increase in the federal funds rate leads to a 3.5 percentage point drop in local credit.

Changes in eurozone rates affect the vol-

ume of euro-denominated cross-border lending of U.S. banks to non-euro borrowers, but they do not affect the volume of dollar-denominated credits. The researchers conclude that “foreign monetary policy is relevant only for the loans in the corresponding foreign currency.”

—Linda Gorman

## e-Commerce and the Pricing Behavior of Traditional Retailers

As online retailers such as Amazon have increased the frequency with which they adjust prices, perhaps due to their use of dynamic pricing algorithms, traditional retailers are following suit. In **More Amazon Effects: Online Competition and Pricing Behaviors** (NBER Working Paper No. 25138), [Alberto Cavallo](#) analyzes data on retail prices for both multi-channel retailers—those that sell online and in brick-and-mortar stores—and Amazon. He finds that the frequency of price changes at multi-channel retailers increased from 15 percent per month in 2008–10 to almost 30 percent in 2014–17.

The change in the frequency of price changes was greater in sectors in which online retailers are especially competitive, such as electronics, and weaker in sectors such as food and non-alcoholic beverages. The period of time over which prices remained stable in the food and beverages sector, for example, started falling in 2015, around the time that Amazon started competing aggressively in this sector.

To identify a causal link between online competition and multi-channel retailer pricing behavior, the study also examines a smaller subsample of products sold on Walmart’s website between 2016 and 2018. Price durations were about 20 percent shorter for Walmart products that were easily found on Amazon.

This was most pronounced in the clothing and footwear sector, where Amazon and Walmart compete aggressively. The findings “are consis-

tent with intense online competition, characterized by the use of algorithmic or ‘dynamic’ pricing strategies and the constant monitoring of competitors’ prices,” Cavallo writes.

He also examines retailer pricing practices for identical goods sold at multiple locations. In general, online retailers tend to charge consumers the same price for a given product in all locations. To assess whether this practice influ-

Best Buy. For Amazon, prices across zip codes are identical 91 percent of the time. For the three multi-channel retailers, they are the same

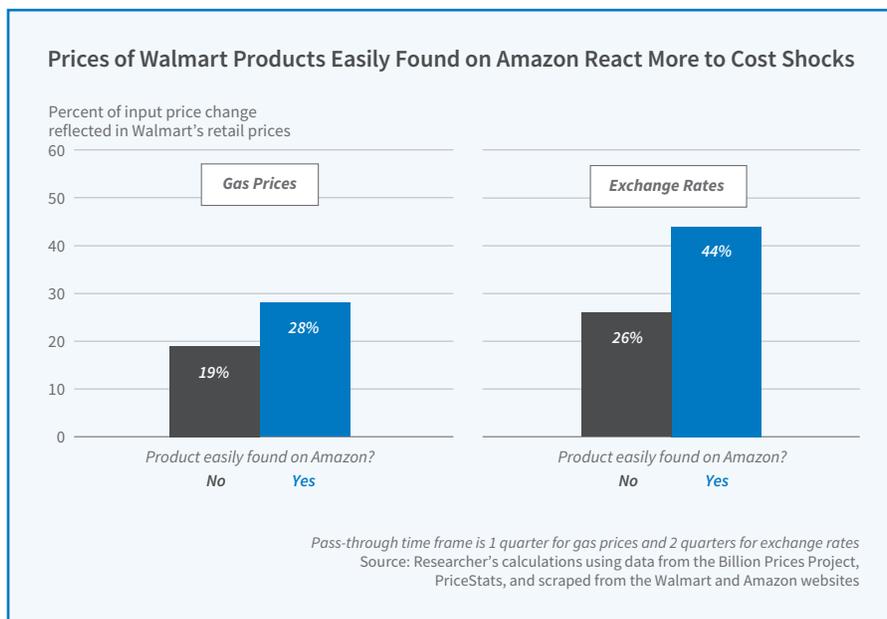
---

The frequency of price changes at multi-channel retailers has increased, particularly in sectors with high levels of on-line competition.

---

78 percent of the time. Almost all of the geographic pricing variation occurs in the food and beverages category. Prices for electronics have nearly uniform pricing for all three retailers. Walmart products that are easily found on Amazon are more likely to be uniformly priced, which suggests that competition from online retailers is leading traditional retailers to adopt more uniform pricing across locations.

Cavallo argues that the combination of higher frequency price changes and uniform pricing is affecting the way traditional retailers respond to nationwide economic shocks such as fluctuations in gasoline prices and nominal exchange rates. For exchange rate shocks, the pass-through at Walmart is 26 percent for goods that are not easily found on Amazon, and 44 percent for those that are. For gasoline price movements, the analogous magnitudes are 19 and



ences the pricing strategies of multi-channel retailers, he compares prices across multiple zip codes for Amazon and three large multi-channel researchers—Walmart, Safeway, and

28 percent. Using a larger sample of retailers, Cavallo finds that both the short- and long-run effect of exchange rates on online price indices have increased over time, especially in sectors

such as electronics with more competition from online retailers. This evidence “suggests that online competition is making U.S. retail prices

far more sensitive to exchange rates than in the past,” the researcher concludes. More generally, the acceleration in the rate at which retail prices

react to macroeconomic shocks may affect the dynamics of economy-wide inflation.

—Dwyer Gunn

## Early Retirement and Mortality Rates of Blue-Collar Men

Many workers dream of retiring as early as possible to pursue travel, leisure, sport, and other pursuits. But the research findings in **Fatal Attraction? Extended Unemployment Benefits, Labor Force Exits, and Mortality** (NBER Working Paper No. 25124), a study by [Andreas Kuhn](#), [Stefan Staubli](#), [Jean-Philippe Wüellrich](#), and [Josef Zweimüller](#), suggest that some individuals, particularly men, might want to postpone retirement if possible. Studying a temporary change in unemployment insurance rules in Austria which allowed workers to retire early, they find that men who retired before the normal retirement age experienced an increased risk of premature death. They do not find any statistically significant effect of early retirement on women.

Many nations are grappling with aging populations and the strains that pension and medical-care obligations place on government budgets. Some are considering changes to retirement programs, such as raising the age of eligibility or reducing benefits. The effect of such changes on the health and well-being of the elderly is a subject of ongoing debate.

To shed light on this question, the researchers analyze a unique public program in Austria in the late 1980s and early 1990s that was adopted when that nation’s steel sector underwent dramatic downsizing. The shock affected tens of thousands of workers and their family members, and to cushion the economic blow to older workers, the Austrian government implemented the Regional Extended Benefits Program (REBP).

This program effectively allowed workers to take early retirement via disability insurance or old-age pension programs. The program was only available in some regions of the country.

For blue-collar male workers in Austria, an extra year of early retirement, induced by a policy change, was associated with an increase in the probability of death before age 73 of 1.85 percentage points.

Using information from the Austrian Social Security Database, the researchers were able to compare the employment histories, incomes, gender, age, retirement dates, and age at death of those who took early retirement and those who

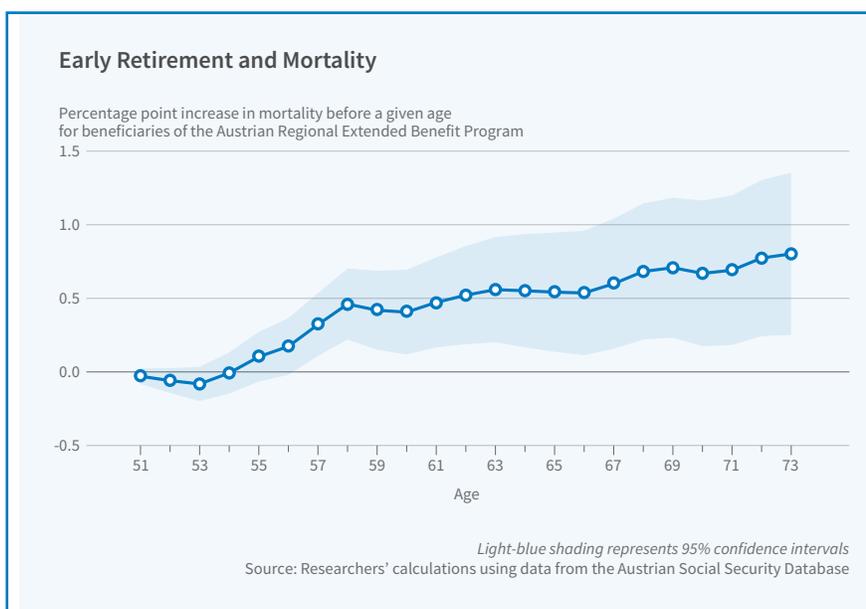
were not associated with elevated mortality, a finding that is in line with previous research by others.

Men in blue-collar occupations, men with low-work experience, and men who had some

pre-existing health impairment displayed higher mortality effects than men in white-collar occupations. An additional year in early retirement increased the probability of death before age 73 by 1.91 percentage points for blue collar men, 3.45 percentage points among men who have spent some time on sick leave, and by 2.42 percentage points among men with low work experience.

To check the robustness of their findings, the researchers analyzed data from before and after the early retirement program and found no differences in mortality and early retirement trends between those two periods. They also found that the changes in lifetime income associated with early retirement were negligible, particularly when generous government old-age benefits were counted, and that they could not explain the increased mortality among certain groups of the population. The researchers suggest that lifestyle changes may explain the study’s mortality findings.

—Jay Fitzgerald



were eligible but did not. They ultimately compiled information on 310,440 men and 144,532 women—excluding those from the steel sector—and compared data from REBP-eligible regions and nearby non-REBP regions.

The program induced a significant increase in early retirement. When the researchers examined the mortality rates of those who took early retirement, they found that an additional year in early retirement increased a man’s

probability of death before age 73 by 1.85 percentage points—equivalent to a relative increase of 6.8 percent—and reduced the age at death by 0.2 years. For women, early retire-

## DoD Contractor Mergers Increased Use of No-Bid, Cost-Plus Deals

Market concentration in the defense industry has increased in the last three decades, leading to less competitive bidding and to more contracts that require the federal government to pay the contractor for all costs incurred, plus a mark-up.

In **The Impact of Industry Consolidation on Government Procurement: Evidence from Department of Defense Contracting** (NBER Working Paper No. 25160), [Rodrigo Carril](#) and [Mark Duggan](#) study mergers among defense contractors to investigate how market structure impacts competition and costs.

Consolidation and mergers between firms can create efficiency gains, but it can also enable rent-seeking, since large firms can leverage their dominance to increase their bargaining power vis-à-vis buyers.

The Department of Defense (DoD) awards nearly two-thirds of all federal contract spending. The researchers analyze publicly available data documenting contracting arrangements between the DoD and private contractors, focusing on contracts awarded from 1985 through 2001. They investigate how the major mergers of the mid-1990s affected the bidding process, the types of contracts awarded, and the costs of goods and services provided.

The Defense Contract Action Data System (DCADS) contains administrative records of all non-classified DoD contracts awarded that had a value of \$25,000 or more. The researchers look at “contract actions,” which include the awarding of a contract as well as subsequent changes if the contract is modified

to include additional services. The average contract action was worth \$830,000 in 2016 dollars. With roughly 250,000 contract actions annually, the 17-year sample period yielded 4.3 million obser-

five largest DoD contractors rose nearly 45 percent, from 21.7 percent in 1990 to 31.3 percent in 2000.

The researchers note that when the merging firms’ strengths are in different

The share of contract dollars awarded to the five largest DoD contractors rose from 21.7 percent in 1990 to 31.3 percent in 2000.

variations reflecting total spending of more than \$3.5 trillion.

The DCADS data do not specify acquisition costs, quantities, or other performance metrics. To analyze those features of federal contracts, the researchers turn to a second, much smaller data set, Selected Acquisition Reports (SARs), which the DoD submits to Congress to

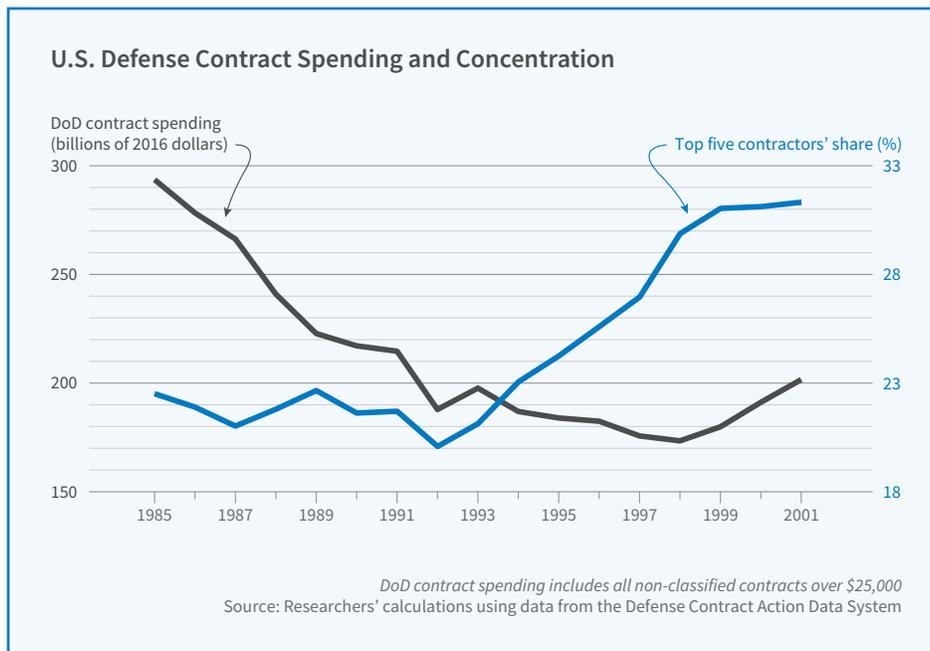
products — one might be a leader in aircraft components, another, a top supplier of ammunition — the merger has less impact than in the case where both firms are big players in the same market. They argue that this variation across products can help to identify the causal effect of consolidation on procurement outcomes.

The researchers find that higher con-

centration leads to an increase in the award of noncompetitive contracts, also known as “no-bid” or “single-bid” contracts. Higher concentration at the product-market level decreases the use of fixed-price contracts, the government’s preferred contract type, and increases the reliance on cost-plus contracts, a method of billing that shifts the risk of cost overruns onto the government.

Although increased market concentration meant less competition, the researchers do not find any evidence that it increased total acquisition costs. They suggest that the government’s position as a monopsonistic buyer and the long-term, repetitive nature of the contracting relationship may have kept merged defense firms from exercising their newfound market power to generate additional rents.

—Anna Louie Sussman



## Long-Term Effects of Children’s Neighborhood Environs

Where an individual grows up can shape many aspects of life, including economic success in adulthood. To better understand the linkages between a neighborhood’s attributes and the later-life outcomes of the children who live there, [Raj Chetty](#), [John N. Friedman](#), [Nathaniel Hendren](#), [Maggie R. Jones](#), and [Sonya R. Porter](#) create a searchable database of average adult outcomes for children from every neighborhood in the United States.

In **The Opportunity Atlas: Mapping the Childhood Roots of Social Mobility** (NBER Working Paper No. 25147), they focus on census tracts — geographic areas that somewhat resemble neighborhoods. They follow almost every individual born in the United States between 1978 and 1983 by analyzing individuals’ tax records and the tax records of their parents. These records include residential addresses, which the researchers use to construct tract-level averages for earnings, incarceration rates on April 1, 2010 (the date of the U.S. Census that year), and teenage birth rates.

They find significant variation in outcomes across census tracts, even for children with parents who earn equivalent incomes, and even when they consider different tracts within the same county or school district. In collaboration with the U.S. Bureau of the Census, the researchers have created an **Opportunity Atlas**, an online visualization tool which can be used to select various economic outcomes and to filter by race, gender, and parental income.

To illustrate the disparities across neighborhoods, the researchers highlight differences across two Los Angeles-area tracts that

are less than three miles apart: one neighborhood in the city of Compton, the other a neighborhood in the Watts area of Los Angeles. The researchers then look at the long-term outcomes of children with parents at the 25th percentile of the income distri-

growing up around employed adults and a larger fraction of two-parent households predicts children’s improved future earnings, but local availability of jobs does not.

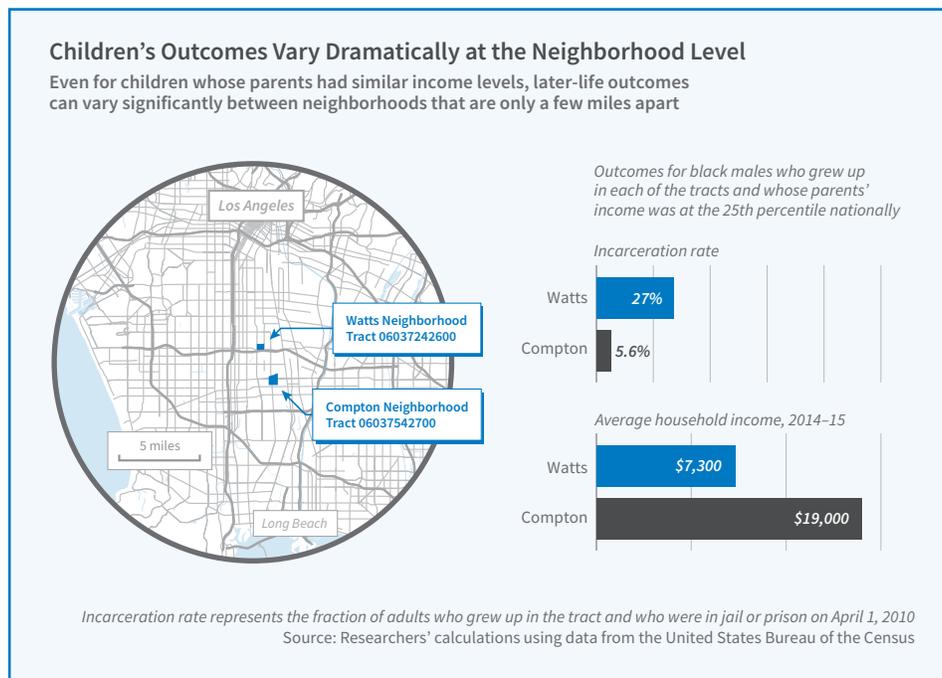
The researchers also show that moving to a tract with a higher likelihood of

Growing up around adults who are employed is predictive of higher earnings when children reach adulthood, but availability of jobs in neighborhoods where children grow up is not.

bution — designated here as “low-income.” Low-income black men who grew up in the Watts neighborhood earn just \$7,000 a year, while similar men in the Compton neighborhood earn nearly three times as much. The men from Watts were also nearly five times

upward mobility causes improved outcomes for children, particularly when those moves occur before adolescence, even when the new tract is within the same county. Specifically, the lifetime income for child from a low-income family living in a tract at the 25th

percentile of upward mobility is about \$200,000 lower than that of a similar family living in a tract at the 75th percentile of upward mobility. This is without accounting for the average cost of living in the new tract, but the researchers find that many areas exist with better upward mobility at similar costs. To illustrate the mobility point, the researchers highlight the Chicago neighborhoods of Hyde Park and Alsip, which both



more likely to be incarcerated on the day of the census. Among black men born to the lowest-income parents in the Watts neighborhood, more were incarcerated (44 percent) than were employed (39 percent). The data also show significant differences between groups within the same neighborhood. For instance, low-income Hispanic men in the same Watts neighborhood grew up to earn \$34,000 on average with an incarceration rate of just 4.5 percent. The researchers find that

had median rents of about \$1,000 in 1990. Average income in adulthood for children from low-income families from Hyde Park was at the 24th percentile, while comparable individuals from Alsip reached the 47th percentile, equivalent to an additional \$24,000 in annual income. The researchers’ data can illuminate areas with better upward mobility, at similar costs of living, within the city where a family already lives.

—Morgan Foy

# As Visa Lines Lengthen, STEM PhDs Look Homeward

In some science and engineering fields, foreign students earn most of the PhDs awarded by U.S. universities. Many of these students stay in the United States and work in fields critical to the country's economic competitiveness. China and India are the leading sources of such high-skilled workers.

Since 2005, however, the fraction of Chinese and Indian PhDs who have chosen to stay has declined. In **The Impact of Permanent Residency Delays for STEM PhDs: Who Leaves and Why** (NBER Working Paper No. 25175) Shulamit Kahn and Megan MacGarvie link this trend to U.S. immigration laws. Limits on the number of green cards for PhDs from any single nation cause applications for permanent residency visas to be delayed, and the longer that delay, the less likely foreign PhDs in STEM fields are to stay. The researchers identify a second reason for the trend: increases in scientific output and in support for science in the graduates' home countries.

Every year, many U.S. companies try to attract PhD STEM workers from abroad by sponsoring them for permanent residency. The U.S. offers 40,040 EB-2 visas—green cards—annually for foreigners holding advanced degrees or with exceptional abilities. Country quotas apply once all the employment-based green cards have been applied for. Since late 2005, employment-based

green cards have been fully subscribed, which means that these quotas are operative and that no more than 25,620 visas can be available to citizens of any single country. When a nation reaches

A two-year delay in granting permanent residency reduces by almost 5 percentage points the fraction of Chinese STEM PhDs from U.S. universities who stay.

its quota, subsequent applicants are placed in a queue, which delays the granting of a visa. Only nationals of China and India have been affected, and they have been limited for that entire period.

were permanent residents. Most of the rest were still temporary residents.

The longer the delay of citizenship for temporary residents, the less likely they are to remain

in the U.S., when compared to otherwise similar doctoral recipients of foreign origin. For Indian PhDs, the relative stay rate is almost 9 percentage points lower for those facing delays of at least 5.5

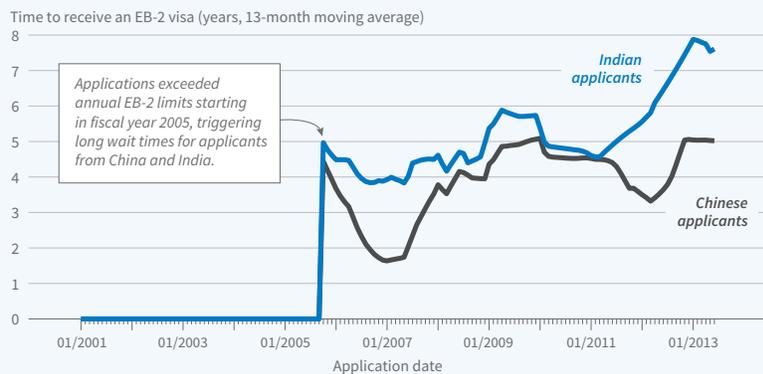
years. For Chinese graduates, the relative stay rate declines by 2.4 percentage points for every year of delay. Almost all STEM PhDs who leave the U.S. because of visa delays return home, rather than moving to a third country.

Although visa delays are important, other factors may also have influenced Chinese and Indian stay rates. For example, in 2011 China started the “Thousand Talents Program,” aiming to bring back STEM experts. The researchers exclude scientists who might be affected by this program, and still find similar

results about the effects of visa policy on stay rates in the U.S. They do find, however, a substantial effect from the strengthening of a home country's scientific base. For every 1 percent rise in citations per scientific article—a measure of national scientific prowess—the probability of remaining in the U.S. falls by 0.16 percentage points.

—Laurent Belsie

Expected Wait Time for Permanent Resident Visas for Recent U.S. STEM PhDs



Wait times are calculated as the time between application date and the application date of those currently being processed EB-2 visas are employment-based permanent visas granted to workers that hold advanced degrees or exceptional abilities Source: Researchers' calculations using data from the U.S. Department of State Bureau of Consular Affairs, Visa Bulletin

## NBER

The National Bureau of Economic Research is a private non-profit research organization founded in 1920 and devoted to objective quantitative analysis of the American economy. Its officers are:

James M. Poterba—President & Chief Executive Officer

Karen N. Horn—Chair

John Lipsky—Vice Chair

The NBER Digest summarizes selected Working Papers recently produced as part of the Bureau's program of research. Working Papers are intended to make preliminary research results available to economists in the hope of encouraging discussion and suggestions for revision. The Digest is issued for similar informational purposes and to stimulate discussion of Working Papers before their final publication. Neither the Working Papers nor the Digest has been reviewed by the Board of Directors of the NBER.

The Digest is not copyrighted and may be reproduced freely with appropriate attribution of source. Please provide the NBER's Public Information Department with copies of anything reproduced.

Individual copies of the NBER Working Papers summarized here (and others) are available online free of charge to affiliates of subscribing organizations, such as universities and colleges, and to employees of NBER corporate associates. For others, there is a charge of \$5 per downloaded paper or \$10 per hard copy paper. Outside of the United States, add \$10 per hard copy order for postage and handling. To order, email the NBER Subscriptions Department at [subs@nber.org](mailto:subs@nber.org) or call (617) 588-1405; please have the Working Paper number(s) ready.

A full subscription to the NBER Working Papers entitles the subscriber to all new papers, recently more than 1,100 per year. The

online standard rate for a full digital subscription is \$2,550; the online academic rate is \$1,180. Subscriptions are free for corporate associates. The standard rate for hard-copy subscribers is \$14,500 per year and the academic rate is \$11,200. Higher rates apply for international hard-copy orders.

Partial Working Paper subscriptions, by program, are available. For further information, see our website, or write: NBER 1050 Massachusetts Avenue, Cambridge, MA 02138-5398.

Digest subscriptions, changes of address, and cancellations may be sent to Digest, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398 (please include the current mailing label), or emailed to [subs@nber.org](mailto:subs@nber.org). Print copies of the Digest are only mailed to subscribers in the U.S. and Canada; those in other nations may request electronic subscriptions at [www.nber.org/drsunsubscribe/](http://www.nber.org/drsunsubscribe/).