

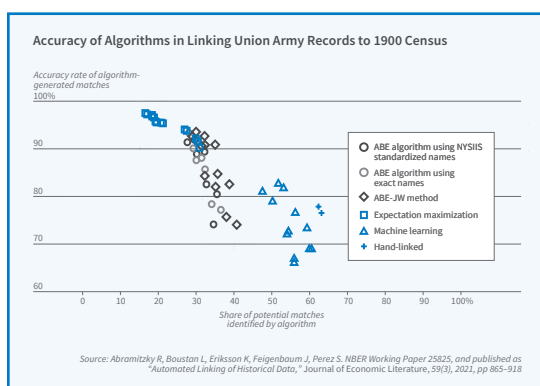
NBER Reporter

NATIONAL BUREAU OF ECONOMIC RESEARCH

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Program Report

The Economics of Aging

Jonathan Skinner*

When the NBER's Program on the Economics of Aging began in 1986 under the direction of David Wise, the baby-boom generation was between the ages of 22 and 40. Long-run projections at the time forecast that the United States would transition to an older population distribution. Today, with baby boomers ranging in age from 58 to 76, that projected future is the ongoing reality of our nation. One-fifth of the population will be age 65 or older in the next decade.

Since its inception, the Economics of Aging Program's underlying focus has been the study of the health and financial well-being of people as they age and the larger implications of a population that is increasingly composed of older people. The program continues this broad focus as new and ongoing challenges emerge and evolve.

To illustrate the wide and multidisciplinary scope of research by program affiliates, I briefly describe ongoing work in four areas: the widening health disparities across education and region, a rising number of patients and caregivers struggling with Alzheimer's disease, the impact of the COVID-19 pandemic on the elderly, and the continuing evolution of the financial, physical, and mental health of retirees. This review is only a partial summary of the wide-ranging research carried out by program affiliates. Since the last program report, in 2014, more than 600 working papers related to the Economics of Aging Program have been distributed. Researchers

**Jonathan Skinner, the director of the NBER's Economics of Aging Program, is a research professor in economics at Dartmouth College and a professor at the Geisel School of Medicine's Institute for Health Policy and Clinical Practice. Aging and Health Care Program Administrator Richard Woodbury assisted in the preparation of this report.*

NBER Reporter

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have also published dozens of studies on aging in scientific and clinical journals, precluding inclusion in the NBER working paper series.

Widening Inequality in Mortality by Education and Place

Research by Anne Case and Angus Deaton illustrates the far-reaching effects of “deaths of despair” arising from drug overdoses, suicide, and alcoholism, and the very close association of these deaths with education.¹ These deaths have not only continued to rise, but have largely been among those without a four-year college degree — the majority of American adults.² As a consequence, mortality in the US is falling for the college-educated and rising for those without a degree — something not seen in other rich countries. One explanation for this US exceptionalism is the health-care system and the associated approach to financing health care. Another contributor is the drug epidemic and the explosion of prescription opioids after 1996, followed by an epidemic of illegal drug use, including use of diverted prescription drugs, heroin, and fentanyl. Abby Alpert, William Evans, Ethan Lieber, and David Powell find that the introduction and marketing of OxyContin explain a substantial share of overdose deaths over the last two decades.³

Hannes Schwandt, Janet Currie, and a team of research collaborators drawn from many nations analyze mortality rates in the US and other high-income countries. They compare high-income and low-income regions in the US with similarly high- and low-income regions in nine European countries. This enables them to estimate separately the income gradient of mortality by country; in the US they estimate separate gradients for Blacks and Whites of all ages.⁴ While in 1990 White Americans and Europeans in rich areas had similar overall life expectancy, since then even rich White Americans have lost ground relative to Europeans. As shown in Figure 1, on the next page, there was a reduction in the midlife life expectancy gap between Black Americans and Europeans, but life expectancy for both Black and White Americans

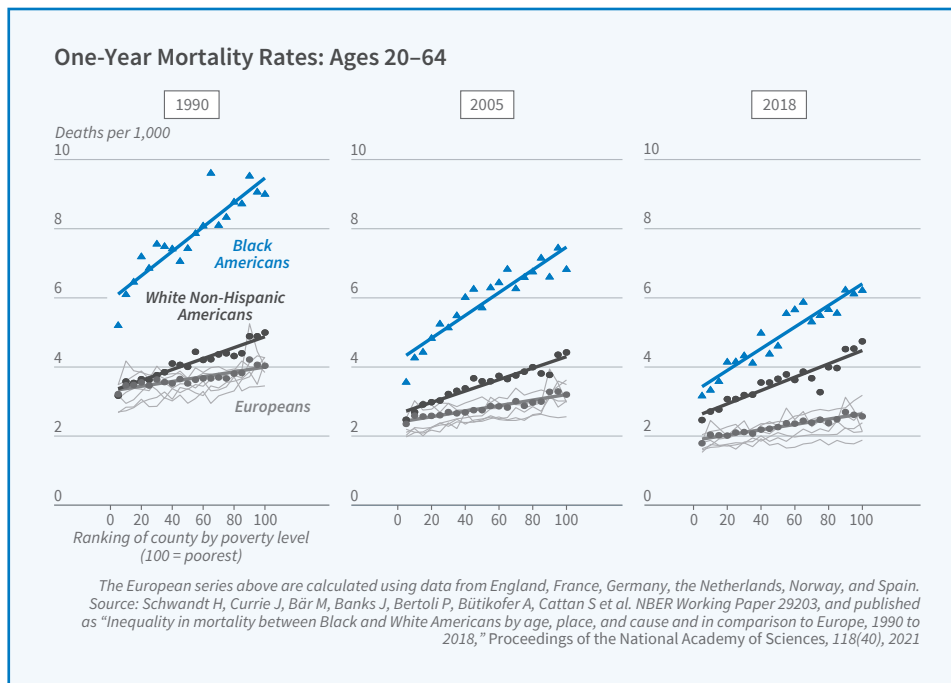


Figure 1

plateaued or slightly declined after 2012. The comparison with European countries suggests that substantial improvements in mortality rates of both Black and White Americans are still feasible in both high-income and low-income areas.

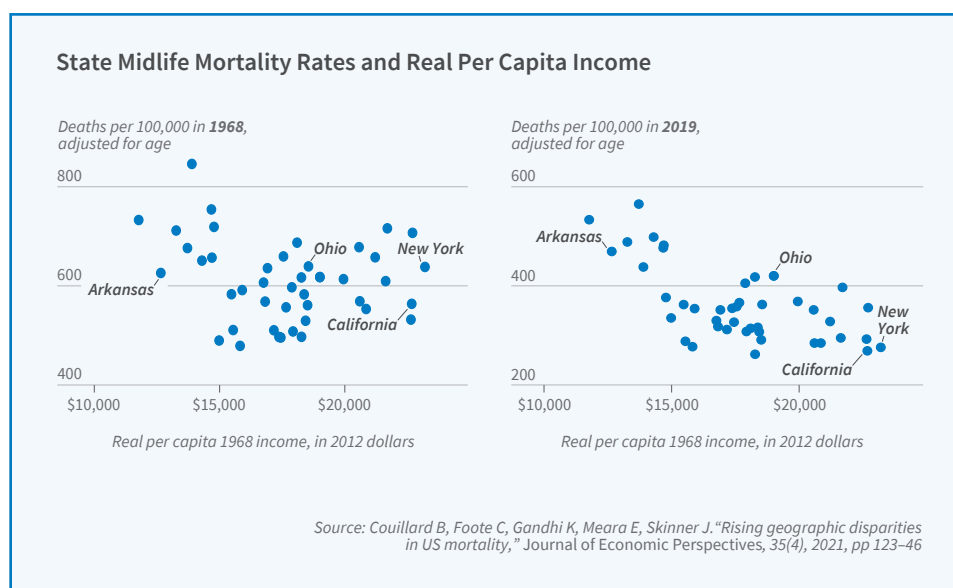
There are widening geographic disparities in mortality within the US. Benjamin Couillard, Christopher Foote, Kavish Gandhi, Ellen Meara, and I find that geographic inequality in mortality for midlife Americans increased by about 60 percent between 1992 and 2016.⁵ This was not simply because states like New York or California benefited from having a high fraction of college-educated residents who enjoyed the largest health gains during the last several decades. Nor was higher dispersion in mortality caused entirely by the increasing importance of deaths of despair or by rising regional income inequality during the same period. Instead, over time, state-level mortality has become increasingly correlated with state-level income. In 1992, income explained only 3 percent of mortality inequality, but by 2016 state-level income explained 58 percent. Figure 2 illustrates this

growing association. These mortality patterns are consistent with high-income states during the twentieth century being better able to enact public health strategies and adopt behaviors that, over the next quarter century, resulted in pronounced relative declines in mortality in some but not all states.

The role of place — the set of health factors associated with

one's state, city, or town — has also been a topic of ongoing research. Remarkably, "place" seems to matter even when people aged 65 or older move. Tatyana Deryugina and David Molitor follow Medicare cohorts living in New Orleans to study the long-run effects of Hurricane Katrina.⁶ They find that even after including the storm's initial effects on mortality, the hurricane improved eight-year survival by 2.07 percentage points, with migration to lower-mortality regions explaining most of this increase. Migrants' mortality is lower in destinations with healthier behaviors and higher incomes; the quality and quantity of health care in a locality appears unimportant.

One advantage of studying those who move is that most individuals' health does not change much around the time of the move, so it allows for a reliable estimate of the influence of place on health. Amy Finkelstein, Matthew Gentzkow, and Heidi Williams study Medicare movers at the national level and find substantial effects of current location. Moving from a 10th to a 90th percentile location is predicted to increase life expectancy at age 65 by 1.1 years.⁷ Places with favorable life



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Figure 2

expectancy are associated with higher quality and quantity of health care, less extreme climates, lower crime rates, and higher socioeconomic status.

Alzheimer's Disease, Cognition, and Aging

With support from the National Institute on Aging, research by program affiliates has increasingly focused on the economic and behavioral consequences of Alzheimer's disease, which affects approximately one in 10 people aged 65 or older and is the most costly disease in the United States. Alzheimer's is a central concern for patients, caregivers, and healthcare policymakers. Amitabh Chandra, Courtney Coile, and Corina Mommaerts emphasize the defining features of the economics of the disease, including the challenges of choices by cognitively impaired patients that affect their health and financial well-being and the potential importance of dynamic contracts between patients and caregivers that are difficult to enforce.⁸ They suggest high returns to focusing on innovation in Alzheimer's prevention, treatment, and care, given the enormous social cost and present lack of understanding of its causes.

While much of the research on Alzheimer's has focused on the costs of the late-stage disease, emerging research suggests an important impact of cognition more generally—even prior to diagnosis—on financial health. For example, John Ameriks, Andrew Caplin, Minjoon Lee, Matthew Shapiro, and Christopher Tonetti find that cognitive decline, often unnoticed, can delay the transfer of control over financial matters to someone else in the family, often with important adverse effects on financial well-being.⁹

Other research has focused on factors that can potentially increase the likelihood of Alzheimer's later in life. Kelly Bishop, Jonathan Ketcham, and Nicolai Kuminoff find that long-term

exposure to fine-particulate air pollution (PM_{2.5}) increases the risk of developing Alzheimer's disease and related dementias.¹⁰ Using the expansion of the Clean Air Act as a shock to the level of fine particulates, they find relatively large effects of reducing PM_{2.5} rates. They estimate that federal regulations associated with the Clean Air Act led to nearly 182,000 fewer people with dementia.

The Impact of COVID-19 on Older Americans

It is well understood that COVID-19 led to more than one million lives lost, but it is difficult to measure all deaths that were a consequence of the pandemic, not just deaths caused by the virus. To answer the broader question, Christopher Ruhm analyzes death data from March 2009 through February 2021. He estimates that there were nearly 700,000 excess deaths during the first year of the pandemic, with 83 percent of these attributed directly to COVID-19 and the remainder arising from cardiovascular deaths, motor vehicle accidents, drug overdoses, and homicides.¹¹

Marcella Alsan, Chandra, and Kosali Simon document the dramatic inequality associated with the health shocks of the early pandemic.¹² They find that in 2020, Hispanic and Black Americans experienced 39.5 and 25 percent increases respectively in excess mortality relative to trend, compared to a less than 15 percent increase for Whites. Losses in potential years of life were three to four times larger among Hispanics and Blacks than among Whites. Individual-level data from a commercially insured population show that otherwise similar Black and Hispanic enrollees were hospitalized due to COVID-19 at a higher rate than White enrollees. Lauren Gilstrap, Weiping Zhou, Alsan, Anoop Nanda, and I also find higher excess mortality for Medicare enrollees age 65 or older. Mortality rose 26 percent for people with Alzheimer's disease and related dementias (ADRD) in 2020 compared to 2019; this contrasts with an increase of just 12 percent for a comparably aged group without ADRD.¹³ In regions with little reported COVID-19 during the

pandemic's early months, mortality declined 2 percent for those without ADRD but increased 6 percent for people with ADRD. Christopher Cronin and Evans offer a potential explanation for this puzzling finding. They discover that mortality rates rose in low-COVID-19 regions for high-quality nursing homes, whose lockdowns were effective in reducing the spread of COVID-19 but may have also increased non-COVID-19 mortality. This may have been particularly true for ADRD patients, who comprise a large fraction of nursing home residents, because their normal caregivers may not have been available.¹⁴

Relatively little is currently known about educational differences in mortality during the pandemic. Because those without a college degree are likely to have been exposed disproportionately to COVID-19 through employment, one might have expected the education mortality gap to have widened since 2019. However, Case and Deaton find that mortality rates increased in 2020 over 2019 in roughly equal proportions for those with and without a college degree, irrespective of age, sex, or race/ethnicity.¹⁵ A college degree was strongly associated with a longer life span before the COVID-19 pandemic, and it continued to be protective in the first wave of the pandemic as well.

It is well known that nursing homes were hit hard in the first year of the pandemic, but why is less clear. Was it simply because nursing home patients were older and more susceptible, or were there other factors that elevated nursing home mortality? Using novel approaches relying on data from more than 30 million US smartphones, M. Keith Chen, Judith Chevalier,

Massachusetts Nursing Home

Connections via shared staff identified by cellphone geolocation data

Facility position in network

- Hub
- Neighbors
- Neighbors' neighbors

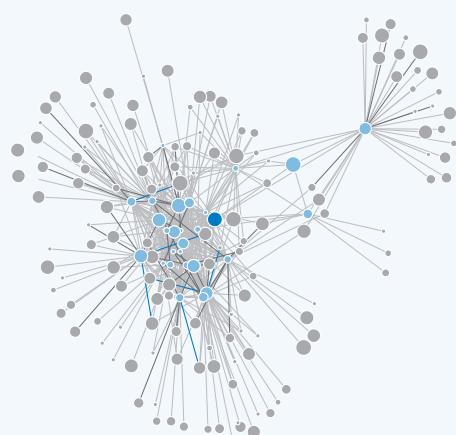
COVID cases per facility

- 0 cases
- 10 cases
- 100 cases

Contacts between facilities

- 1 contact
- 2 contacts
- 3+ contacts

Home Connections via Shared Staff



Source: Chen M, Chevalier J, Long E. NBER Working Paper 27608, and published as "Nursing home staff networks and COVID-19," *Proceedings of the National Academy of Sciences*, 118(1), 2020

Figure 3

and Elisa Long find that nursing homes with staff working at multiple facilities were more likely to experience outbreaks of COVID-19 than those without such links.¹⁶ They track 510,000 phones that were observed to have been in at least one nursing home over the six-week period after March 13, when a nationwide lockdown on nursing homes went into effect; about 7 percent were observed in at least two facilities. Homes with no documented cases of COVID-19 had an average of 11.8 connections to other homes, where a connection means a cell-phone observed at that home was also observed in another home. By comparison, homes with confirmed or suspected COVID-19 cases averaged 17.3 connections. The researchers estimate that eliminating staff overlap among nursing homes could have reduced coronavirus cases in nursing homes by as much as 44 percent.

Financial, Mental, and Physical Well-Being during Retirement

Researchers have studied the shift from defined benefit to defined contribution retirement plans and the impact of this shift on retirement security and preretirement behavior. Recent research finds that large groups of Americans have been left behind by this shift. For example, Kai Yuan Kuan, Mark Cullen, and Sepideh Modrek examine 401(k) saving behavior of continuously employed workers over an eight-year period at a single, geographically diverse employer. They find that both Black and Hispanic employees are less likely to participate in the 401(k) plan, and that conditional on partici-

pation, Black employees contribute a lower proportion of their income to their 401(k) plan on average, tend to draw down their 401(k) balances more often, and favor safer assets within their plan options.¹⁷ These combined effects have a large impact on 401(k) balances and hence overall wealth accumulation.

Financial literacy—having a basic understanding of aspects of investing such as the power of compound interest—also

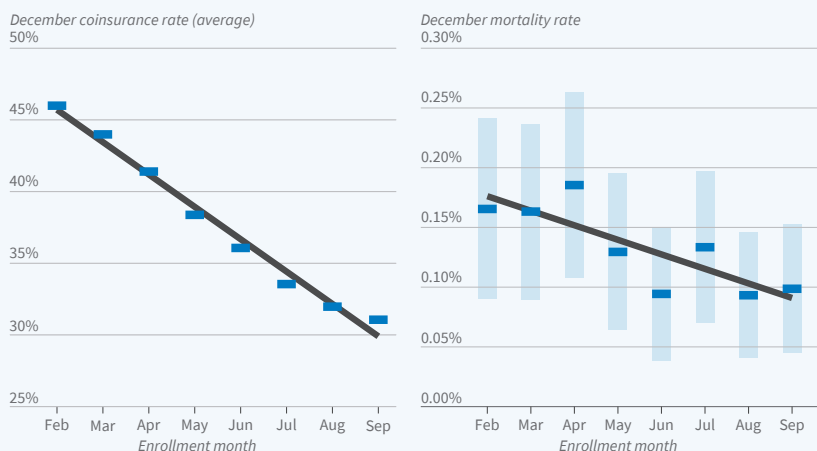
impacts wealth accumulation. Marco Angrisani, Jeremy Burke, Annamaria Lusardi, and Gary Mottola find that financial literacy has significant predictive power for future financial outcomes, even after controlling for baseline outcomes and a wide set of demographics and individual characteristics that influence financial decision-making.¹⁸

There are clear racial and ethnic disparities in wealth accumulation. Research has also explored differences in earnings and work capacity. Benjamin Berger, Italo Lopez Garcia, Nicole Maestas, and Kathleen Mullen study how functional abilities and potential earnings evolve as individuals age.¹⁹ They find that average functional abilities and potential earnings decline only slightly with age, and that work capacity differences by race, ethnicity, and gender are small. These results imply that health is not a major driver of observed earnings disparities. The researchers find, however, that gaps in work capacity by education are large and increase with age.

Program affiliates have not only analyzed how government incentives affect financial preparedness for retirement, but also how government programs affect the health of retirees. For example, Chandra, Evan Flack, and Ziad Obermeyer examine Medicare's prescription drug benefit program and find that an increase of approximately \$10.40 in out-of-pocket costs per drug prescription leads to a 23 percent drop in total drug consumption and a 33 percent increase in monthly mortality.²⁰ The mortality effect appears to be the consequence of cut-backs in life-saving medicines like statins and anti-hypertensives, for which clinical trials show large mortality benefits.

The researchers use the month during which Medicare enrollees become eligible for Medicare Part D as a natural randomization for whether they fall into a gap in coverage, which typi-

Cost-Sharing and Mortality in Medicare Part D



Both graphs are constructed using data on individuals with predicted annual spending, absent cost-sharing, in percentiles 71 through 97 of the population distribution. Source: Chandra A, Flack E, Obermeyer Z. NBER Working Paper 28439

Figure 4

cally occurs after spending \$2,500 on prescription drugs. People who turn 65 later in the year are less likely to end up in the coverage gap simply because they experience fewer months of Part D spending. The first panel in Figure 4 shows this; by December, coinsurance rates are highest for those born in February and fall by an average of 2.3 percentage points in each subsequent enrollment month. The second panel of Figure 4 shows a similar pattern for mortality rates in this group. On average, each month of later enrollment reduces December mortality by 0.0113 percentage points, a 9 percent decrease. The findings suggest that enrollees respond to incentives regarding coinsurance for drug purchases, but do so in ways that may have unintended private and social costs.

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Research Summaries

The Promise of Linked Historical Census Data

Katherine Eriksson

Individual records from the 1950 US Census were publicly released on April 1, 2022. Economic historians had been waiting for this day for 10 years. This data source, like the individual-level data from earlier censuses, makes it possible to locate the information reported by a specific person.

I found the records for my grandparents along with those for my mother, who was born in December 1949. They lived in rural Lincoln County, Kentucky. My grandfather, Bernard Camenisch, born in Kentucky to a Swiss father, worked 92 hours the previous week as a dairy farmer. A decade earlier, in the 1940 Census, he was living with his father, also a farmer; he worked 60 hours the week prior to answering that census survey. My grandmother Dorothy was a “sample line respondent,” and so answered questions asked to only one in five individuals.

My research program, with a range of coauthors, uses publicly available census data with names and other identifying information to create large panel datasets. This research follows men—who are easier than women to track from one census to the next—across decades in the US and other countries. These linked datasets enable us to answer a range of questions about the impact of early-life shocks on adult outcomes. For example, what was the effect of closing schools during the 1918 flu pandemic on children’s later-life outcomes? What did the arrival in Southern counties of the boll weevil, a cotton-boll-eating beetle, do to children’s school enrollment, and ultimately, educational attainment? What

effect did the huge negative shock to family wealth of Emancipation have on the later-life economic standing of children of slave-holding families? How does migration feature in individual adjustments to environmental or immigration shocks?

Creating Linked Datasets

The digitization of the 1950 Census—its transformation from scanned images to a machine-readable database—is ongoing. This process was only completed in the past decade for US decadal censuses from 1850 through 1940. Researchers can access names, birthplaces, ages, occupations, and many other rich variables for every person enumerated in a specific census. Methods to link individuals across any combination of censuses rely on the fact that name, birth year, and birthplace do not change, for men at least, across decades.

Any linking method that uses these fixed characteristics to match observations across time faces some challenges. First, names are often spelled differently in different censuses by the time the data reaches researchers. The name could have been written incorrectly in the original source, the handwriting may be difficult to read, or there could be a basic transcription error. My grandfather’s first name is listed as “Benard” in 1940. That is incorrect, but the handwriting is difficult to read. Second, not everyone remembers or knows their age. Particularly in a period when many people did not have birth certificates or had not gone to school for more than a few years, ages tend to be “heaped”—individuals are more likely to report mul-



Katherine Eriksson is a research associate in the NBER’s Development of the American Economy Program and an associate professor of economics at the University of California, Davis. Prior to moving to UC-Davis, she was an assistant professor at California Polytechnic State University from 2013 to 2015. She serves on multiple editorial boards.

Eriksson’s research interests focus on questions related to labor economics and demography in US history. Almost all of her papers use large-scale panel datasets created with linked datasets. She has worked extensively on immigration to the United States, as well as on questions in health, education, and incarceration.

Eriksson received a BS in mathematics and philosophy from Virginia Polytechnic Institute in 2004 and a BA in philosophy, politics, and economics from the University of Oxford in 2006. She holds an MS in applied and agricultural economics from Virginia Tech and received her PhD in economics from the University of California, Los Angeles in 2013.

She lives in California with her husband and their four dogs, including Cleopatra, her soul mate in the form of a Chihuahua, and Louisa, a ridiculously tiny yet opinionated terrier. She has completed three Ironman triathlons and is contemplating a fourth.

tuples of 10 and five. Lastly, sometimes there are multiple individuals with the same characteristics. John Smith, born in Alabama in 1855, will never be linkable because there are too many records with the same information.

Ran Abramitzky, Leah Platt Boustan, James Feigenbaum, Santiago Perez, and I evaluate various linking methods in the face of such challenges.¹ One way to address the first problem is to standardize names using a phonetic spelling algorithm. For example, “Eriksson” and “Eriksen” become the same phonetic name. This wouldn’t help with my grandfather. Another is to calculate a Jaro-Winkler score, which measures how far apart two names are. In this case, the distance between “Benard” and “Bernard” is so small that it would likely count as close enough for a match.

To fix the problem of inaccurate dates of birth, researchers must trade off accuracy in the spelling of names with how close birth years are across sources. Sometimes we accept being a few years off if we are pretty sure they are the right person because of other characteristics. We use a range of methods that are more or less stringent in terms of how similar each variable has to be, as well as a range of strategies for assessing name similarity. Using what we call “ground truth” data—genealogical data similar to that for Bernard where we know the links are correct—we are able to assess the accuracy of each method. We consider two metrics: how often the algorithm actually picks up a match when it should, and how often it makes a correct match. Ideally one would maximize the first while minimizing the second, but there is a trade-off. Figure 1 shows what we consider to be the production possi-

bility frontier; it gives researchers an idea of how to choose between methods when they value a larger sample or a smaller false positive rate.² Our research also considers the trade-offs between computation time and accuracy.

Alas, there are always caveats in linked data. First, linking techniques almost entirely focus on men since until recent times women usually changed their names upon marriage. My grandmother, Dorothy, is in none of my linked samples. Second, match rates, or the likelihood of linking a given man across datasets, are quite low—anywhere between 10 percent and 40 percent depend-

Connecting Childhood Shocks to Adult Outcomes

A range of recent research, including much of my own, has used these linked datasets to look at the effect of childhood shocks on adult outcomes. My most recent study, with Philipp Ager, Ezra Karger, Peter Nencka, and Melissa Thomasson, examines the effects of school closures during the 1918 flu pandemic.³ Specifically, we ask if variation across cities in how long schools were shut in 1918–19 affected short-run school enrollment in 1920 as well as completed education by 1940, the first year the census asks about years

of school. Why do we need linked data to do this? Why not just study a sample of men in the 1940 Census and assign school closures in childhood to them, without linking, based for example on where they live? If individuals selectively move, this approach results in measurement error and incorrect conclusions. We find no effect—a precise zero effect—of school closures on enrollment in 1920 and on educational attainment in the long run, likely because the

school closures did not change behavior. Many schools were closed while the virus raged, and many students stayed home out of fear of an infectious virus.

In a recent paper, Richard Baker, John Blanchette, and I leverage linked data to examine the effect of the boll weevil, the beetle that crept across the South between 1895 and 1925, on children’s completed education.⁴ We argue that although the effect of this pest on school enrollment is theoretically ambiguous, the substitution effect—child labor became less productive as cotton productivity fell—dominated the income effect in this period, increasing school enrollment. Even though

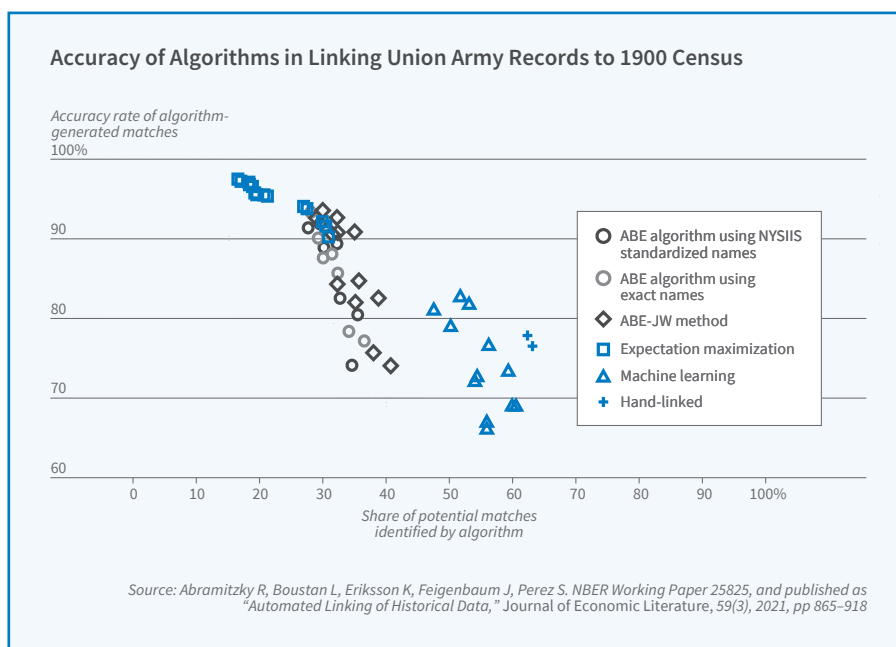


Figure 1

ing on the method, time horizon and time period, and population of interest. Match rates tend to be lower in the nineteenth century than in the twentieth. They are higher for White than for Black men. Lastly, linked samples are usually not entirely representative. Linked individuals are more likely to be of higher socioeconomic status because these individuals are more likely to report their names and ages correctly across time. Nonetheless, researchers can use sample sizes in the millions to achieve precise estimates, and our research provides recommendations on dealing with the drawbacks.

there was limited access to high schools for Black students, we find that those who were at early ages when the boll weevil arrived completed almost 0.4 years of additional school.

Ager, Boustan, and I link childhood shocks to adult outcomes looking at the effect of the emancipation of slaves after the Civil War on the sons of men who owned slaves in 1860, on the eve of the war.⁵ In this case, we must identify the exact wealth of fathers of sons whom we observe in censuses in 1880 and 1900, so linking is essential. Despite large hits to wealth, the sons of slaveowners were no worse off by 1900. We posit that the end of slavery had little effect on the relative position of groups in the South; sons of slaveowners still had their social networks and family connections even after losing a large amount of wealth.

Migration as an Adjustment Mechanism

Linked data allow us to study the mechanisms through which individuals adjust to economic and other shocks. Ager, Casper Worm Hansen, Lars Lønstrup, and I looked at the immediate and long-run effects of the San Francisco earthquake of 1906 on population and development in California, Nevada, and Oregon.⁶ We found that the population of more-affected areas grew slower than that of less-affected areas in the six decades following the earthquake. This appears to be because new migrants to California chose less-affected places as their destinations.

In 1854, the Know-Nothing, or American, Party swept into power across the Northeast on the heels of the collapse of the Second Party System and the dissolution of the Whig Party in 1852. The party's platform varied across the country, but it was largely a nativist, anti-immigrant platform in the Northeast. Party leaders called for restriction of voting and naturalization rights of immigrants and deportation of "paupers and criminals." The party's supporters, heavily drawn from mid-skilled workers, blamed falling real wages on the influx of low-skilled Irish immigrants. However, this was also a time of rapid industrialization in

the Northeast; mid-skilled jobs were quickly being replaced by low-skilled jobs as production moved into factories.

Marcella Alsan, Greg Niemesh, and I test these two competing claims about support for the Know-Nothings. Was it due to Irish labor market competition, or "de-skilling" due to industrialization?⁷ Using yearly gubernatorial vote shares at the town level in Massachusetts, we construct indices of potential labor market competition imposed on natives by Irish immigrants and of the lowering of the skill content of jobs due to the movement of production from small shops into factories. We use the local share of employment-indifferent industries, as well as state-level shifts in industrial composition, along the lines of research by David Autor and coauthors.⁸ We find that both variables positively predict Know-Nothing vote shares in the three years that the party won. To study how individuals in towns with more exposure to these shocks adjusted to them, we use linked data from 1850 to 1860 to track men who were more and less affected. We find that although wealth is lower in 1860 relative to 1850 for those affected by these shocks, this effect is somewhat tempered by migration. Leaving the county or state was more likely for those affected, and this led to smaller wealth losses.

The Future of Linked Data

Census linking has made great strides in the past decade due to newly available data and advances in computing technology. Hopefully, future work will allow women to be linked more successfully. Some studies are using marriage certificates, which include both birth and married surnames, to supplement census data. Researchers continue to access new data sources to enable linking across censuses and to add richness to the limited set of variables in the census data files. As more and more records become available from government and private sources, this linking can only grow.

¹ "Automated Linking of Historical Data," Abramitzky R, Boustan L, Eriksson K, Feigenbaum J, Perez S. NBER Working Paper 25825, May 2019, and *Journal of Economic Literature* 59(3), September

2021, pp. 865–918. For another assessment of linking methods, see "How Well Do Automated Linking Methods Perform?" Bailey M, Cole C, Henderson M, Massey C. *Journal of Economic Literature* 58(4), December 2020, pp. 997–1044.

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² Linked US Census samples using some of these methods are available at [CensusLinkingProject.org](#). More methods are being added over time.

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³ "School Closures during the 1918 Flu Pandemic," Ager P, Eriksson K, Karger E, Nencka P, Thomasson M. NBER Working Paper 28246, December 2020.

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⁴ "Long-Run Impacts of Agricultural Shocks on Education Attainment: Evidence from the Boll Weevil," Baker R, Blanchette R, Eriksson K. NBER Working Paper 25400, December 2018, and *Journal of Economic History* 80(1), March 2020, pp. 136–174.

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⁵ "The Intergenerational Effects of a Large Wealth Shock: White Southerners after the Civil War," Ager P, Boustan L, Eriksson K. NBER Working Paper 25700, September 2019, and *American Economic Review* 111(11), November 2021, pp. 3767–3794.

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⁶ "How the 1906 San Francisco Earthquake Shaped Economic Activity in the American West," Ager P, Eriksson K, Hansen C, Lønstrup L. NBER Working Paper 25727, April 2019, and *Explorations in Economic History* 77, July 2020.

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⁷ "Understanding the Success of the Know-Nothing Party," Alsan M, Eriksson K, Niemesh G. NBER Working Paper 28078, November 2020.

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⁸ For example, see "Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure," Autor D, Dorn D, Hanson G, Majlesi K. NBER Working Paper 22637, December 2017. Forthcoming in *American Economic Review*.

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Risk-Centric Macroeconomics

Ricardo J. Caballero and Alp Simsek

Financial markets are central banks' gateway to the economy. After the global financial crisis and the Great Recession, the Federal Reserve came to the rescue of financial markets with an aggressive mix of conventional and unconventional policies. During the COVID-19 shock, the Fed implemented similar policies even though this shock did not originate in financial markets. In both instances, asset prices rose rapidly in response to policy interventions. Rising asset prices were not a side effect of monetary policy, but instead a central pillar of the recovery strategy. Today, anticipation of the Fed raising rates has roiled financial markets and resulted in a decline in asset prices that is not just collateral damage, but a central component of Fed strategy to reduce aggregate demand and rein in inflation. Since central banks reach the economy through financial markets, understanding their policy actions requires a framework in which central banks closely interact with markets to achieve their objectives. In several recent papers, we develop a risk-centric macroeconomic framework to shed light on the complex links between monetary policy, financial markets, and business cycles.

Our framework builds on the observation that the productive capacity of an economy generates *two* related absorption problems. Figure 1 illustrates them: a *goods-absorption* problem emphasized

in macroeconomics (top row) and a *risk-absorption* problem emphasized in finance (bottom row). Aggregate asset prices (financial conditions) provide a bridge for spillovers across the two rows. In particular, asset prices are determined in risk markets, but affect aggregate demand. Higher stock and home prices increase consumer wealth and spending. Higher bond prices (lower interest rates) reduce the cost of capital and increase investment and spending on durables. Financial frictions strengthen this link: lower rate spreads (or higher collateral values) increase spending by the constrained firms and households.

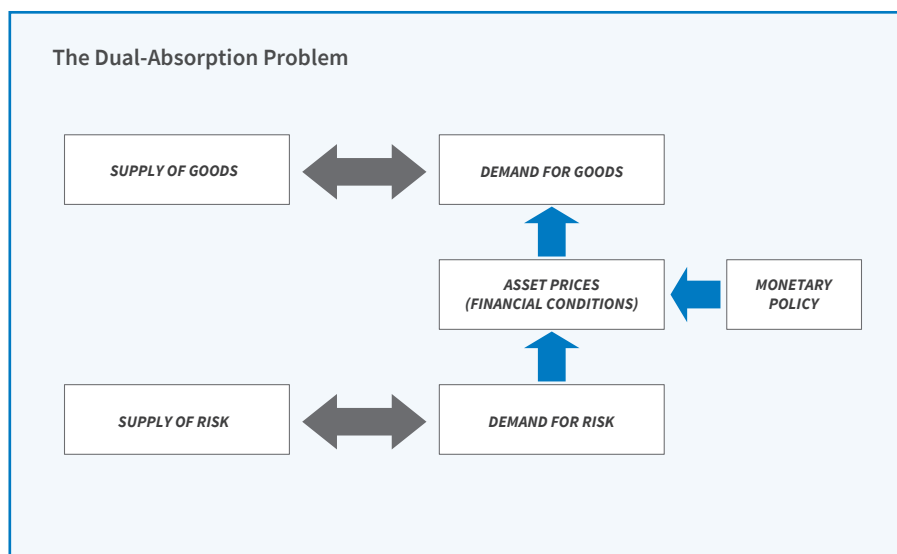


Figure 1

In our framework, as in practice, the central bank reaches the economy through financial markets. The central bank's objectives—to close the output gap and stabilize inflation—are in the top row, but its tools are in the bottom row. The central bank steers aggregate demand by influencing aggregate asset prices through both conventional and unconventional policies. Our framework is useful for understanding both why and how central banks affect asset prices.

Risk-Premium Shocks, Speculation, and Market Interventions

Our first paper addressing these issues establishes our risk-centric framework and shows that financial market phenomena such as time-varying risk premia and financial speculation can induce or exacerbate aggregate demand recessions.¹ To illustrate the key mechanisms in our model, consider a period of high asset prices, such as the run-up to the financial crisis and the Great Recession. Suppose asset val-

uations decline, perhaps because investors recognize risks that they previously overlooked and therefore demand a greater risk premium. The macroeconomic effect of this shock depends on the central bank's response. If the central bank is unconstrained, it cuts the interest rate enough to stabilize asset prices. This stabilizes aggregate demand and shields the economy from the risk-premium shock.

However, if the central bank is constrained, for example by an effective lower bound on nominal interest rates, then the risk-premium shock lowers asset prices. This reduces aggregate demand and exacerbates the recession. More subtly, financial speculation during the boom phase amplifies these effects.

Financial speculation is the trading of financial assets among high-valuation investors (optimists) and low-

valuation investors (pessimists). In boom years, optimists overexpose themselves to aggregate risks. When the bust arrives, optimists lose a disproportionate share of their wealth, and financial markets become dominated by pessimists. This compositional change further lowers asset prices and aggregate demand beyond the impact of the initial risk-premium shock. In this context, macroprudential policy that restricts speculation will mitigate the asset price decline during recessions and improve macroeconomic stability. Our analysis suggests that housing market speculation in the run-up to the financial crisis, along with the lack of macroprudential policies that could have countered its effects, exacerbated the subsequent

recession.²

The COVID-19 shock was mostly a real shock (to the top row): the virus and the lockdowns led to large declines in both aggregate demand and supply. Nonetheless, the shock also had a large impact on financial markets (the bottom row): financial distress indicators spiked and reached levels not seen since the financial crisis and recession. Equally dramatic was the fast reversal of financial distress once the Fed announced unprecedented financial market interventions. To explain this episode, we extend our framework to incorporate the pervasive heterogeneity in risk tolerance that we see in financial markets: we split investors into risk-tolerant agents (“banks”) and risk-intoler-

ant agents (“households”).³ In this environment, the “banks” naturally take on leverage and are more exposed to an aggregate shock. Thus, a sudden and large real shock such as the COVID pandemic disproportionately hits the “banks.” As these agents scramble to unload assets, the market’s effective risk tolerance falls. With a constrained central bank, the initial decline in risk tolerance triggers a downward spiral in asset prices and risk tolerance. In this context, a central bank’s purchase of risky assets is an extremely powerful tool since it reverses the downward spiral. Our results suggest that the Fed’s aggressive interventions early in the recession prevented a financial crisis and set the stage for the rapid recovery

Ricardo J. Caballero is the Ford International Professor of Economics at the Massachusetts Institute of Technology and an NBER research associate affiliated with the programs in Economic Fluctuations and Growth, International Finance and Macroeconomics, and Monetary Economics.

Caballero was the chair of MIT’s Economics Department, 2008–11. His teaching and research fields are macroeconomics and finance. He has an extensive list of publications in all major academic journals.

Alp Simsek is a professor of finance at the Yale University School of Management as of July 2022. Before joining Yale, he was an associate professor of economics at MIT and an assistant professor of economics at Harvard University. He is a research associate at the Centre for Economic Policy Research and at the NBER, where he is affiliated with the programs in Asset Pricing and Corporate Finance.

Simsek’s research focuses on the connections between financial markets and the macroeconomy, with an

emphasis on understanding the fluctuations driven by beliefs and speculation. Most recently, he has been analyzing the links between asset prices, monetary policy, and business cycles. He has published extensively in top economics and finance journals. He has been awarded several prizes in research and teaching, including the National Science Foundation CAREER award, the Brattle Group Prize for a distinguished paper in corporate finance, the Western Financial Association NASDAQ award for the best paper in



and a fellow of the American Academy of Arts and Sciences in April 2010.



asset pricing, and the best undergraduate and graduate teacher awards at the MIT Economics Department.

that followed.

Asset Price Overshooting and the Wall Street/Main Street Disconnect

Although the Fed's COVID response prevented a financial meltdown, it also led to a disconnect between the performance of the real economy and that of the financial markets. Figure 2 shows that by the end of 2020, US output was still significantly below its long-run potential, whereas stock, house, and bond prices vastly exceeded pre-pandemic levels. This robust recovery of asset markets was primarily due to aggressive monetary and fiscal policy support. By mid-2022, the disconnect between the real economy and the markets had disappeared. [See Figure 2.] A rapid recovery created inflationary pressures and induced the Fed to announce a gradual withdrawal of monetary policy support. This announcement led to a sharp decline in asset prices and reconnected the markets and the economy.

In recent work, we show that these patterns are consistent with our framework once we incorporate a realistic friction: aggregate demand inertia.⁴ At the microeconomic level, inertia can emerge from various adjustment costs faced by households and firms. At the macroeconomic level, inertia implies that aggregate

demand tends to stay at its current level and responds to asset prices slowly. In this context we show that when output is — or

financial markets and the real economy, but it also accelerates the recovery. As output recovers, the central bank gradually

raises interest rates and reverses the asset price overshooting, which reconnects the markets and the economy. The observed temporary disconnect and the subsequent reconnection between asset prices and the real economy are consistent with optimal monetary policy.

Policy Lags: Disagreements and “Mistakes”

In our baseline framework, an unconstrained central bank is very powerful. It perfectly knows the state of the economy, and it immediately affects aggregate demand by changing asset prices. This power contrasts with the well-known “long-and-variable” lags of monetary policy. With policy lags, the central bank's actions depend on its beliefs about future economic activity. The recent surge in inflation is a reminder that the central bank's beliefs matter for policy and macroeconomic outcomes. The Fed was reluctant to tighten policy in 2021, anticipating a rapid recovery in aggregate supply. However, the supply recovery was delayed and demand was more robust than the Fed anticipated, which led to high inflation.

Since the central bank's beliefs drive policy, there can be tension when the cen-

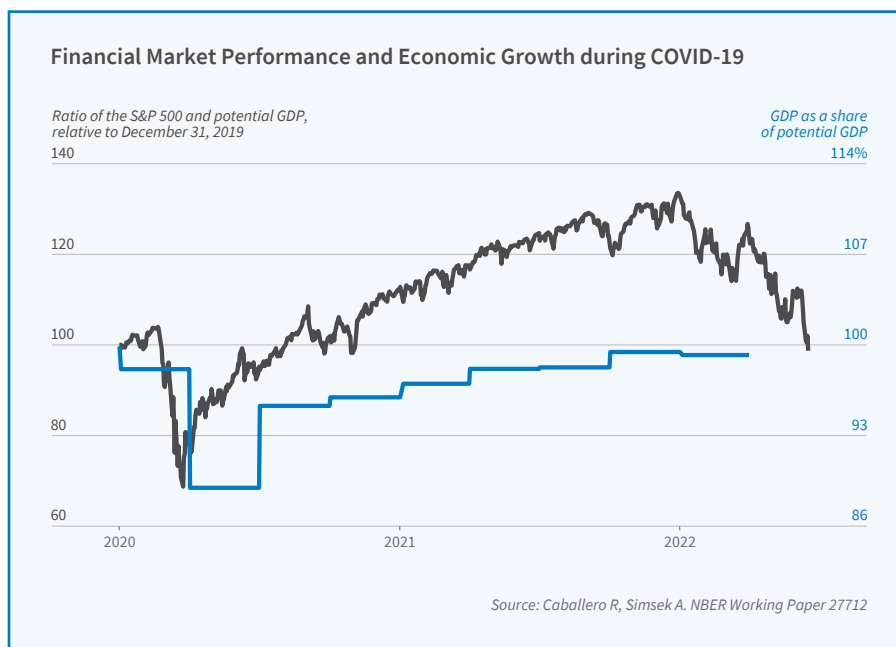


Figure 2

is expected to be — below its potential, monetary policy optimally induces asset price overshooting. The central bank tunes up the asset price signal to compensate for the inertial response of aggregate demand to asset prices. This policy creates a large, temporary disconnect between

perfectly knows the state of the economy, and it immediately affects aggregate demand by changing asset prices. This power contrasts with the well-known “long-and-variable” lags of monetary policy. With policy lags, the central bank's actions depend on its beliefs about

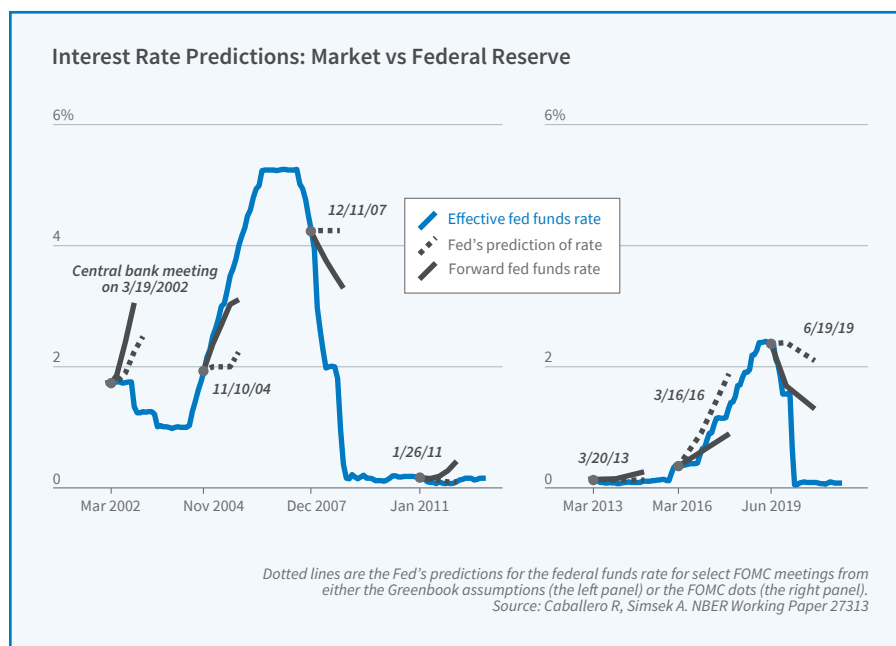


Figure 3

tral bank and the financial markets do not share the same beliefs. Figure 3 shows that the Fed and the markets routinely disagree about future interest rates. How should a central bank respond to these disagreements?

We address this question by building a model in which the central bank and the market disagree about future aggregate demand.⁵ The market considers the central bank's interest rate decisions that do not match its own belief to be mistakes. Optimal monetary policy incorporates these perceived mistakes: to minimize the output gap, the central bank sets a policy interest rate that partially reflects the market's view. The central bank expects to implement its view gradually: it waits for the market to adjust its belief toward the bank's before setting the ideal policy rate under the bank's view. In addition to influencing optimal policy, disagreements provide a microfoundation for monetary policy shocks. Policy announcements that reveal a surprise change in the central bank's belief affect financial markets like textbook policy shocks, even though they are optimal given the central bank's belief. More damaging tantrum shocks arise when the market misinterprets the central bank's belief and overreacts to its announcement. We find that uncertainty about tantrums can justify prudential gradualism and communication policies. The central bank talks to the market, not to persuade the market, which is opinionated, but to clarify its own beliefs and prevent misinterpretations.

Financial Markets and Central Banks: A Love-Hate Relationship

Our latest work unifies and extends the mechanisms described above to develop a monetary policy asset pricing model.⁶ A general theme underlying our research is a two-speed economy: a slow and unsophisticated macroeconomic side [top row in Figure 1], and a fast and sophisticated financial market side [bottom row]. We formalize the two speeds by separating the macroeco-

nomie and the financial market sides of the economy. Spending decisions are made by a group of agents ("households") that respond to aggregate asset prices, but with noise, delays, and inertia. Asset prices are determined by another group of agents ("the market"), who have their own beliefs, are forward looking, and immediately incorporate economic shocks and the likely monetary policy response to these shocks. The central bank mediates between these two sides to establish macroeconomic balance. It wants to influence the behavior of households, but it needs to go through the market.

Our analysis revolves around one idea: when the central bank is unconstrained and acts optimally, the needs of the macroeconomy as perceived by the central bank become key drivers of aggregate asset prices. The central bank stabilizes asset price fluctuations driven by risk-premium or belief shocks ("the Fed put/call"). The central bank's main concern with these types of financial shocks, which hit the bottom row in Figure 1, is preventing them from spilling into the real economy. On the other hand, the central bank destabilizes asset prices in response to aggregate demand or supply shocks that induce macroeconomic imbalances. When these types of real shocks hit the top row in Figure 1, the central bank uses asset prices to offset the shock's macroeconomic impact. Moreover, while the central bank controls asset prices, it also cooperates with the market to achieve its desired asset price level. We show that disagreements and "mistakes" not only affect the optimal policy rate, as in our previous papers, but also create a policy-risk premium and can lead to a behind-the-curve phenomenon in which the market expects the central bank to aggressively reverse its policy.

In summary, risk-centric macroeconomics is a framework that sheds light on the links between monetary policy, asset prices, and business cycles. While much work remains to be done, this framework can already explain the broad contours of the monetary pol-

icy response to the last two recessions, as well as the love-hate relationship between central banks and financial markets.

¹ "A Risk-Centric Model of Demand Recessions and Speculation," Caballero R, Simsek A. NBER Working Paper 23614, revised February 2020, and *The Quarterly Journal of Economics* 135(3), August 2020, pp. 1493–1566. See also "Prudential Monetary Policy," Caballero R, Simsek A. NBER Working Paper 25977, revised March 2020.

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² A growing empirical literature provides evidence that housing speculation amplified the Great Recession. See the concluding section of "The Macroeconomics of Financial Speculation," Simsek A. NBER Working Paper 28426, revised February 2021, and *The Annual Review of Economics* 13, 2021, pp. 335–369.

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³ "A Model of Endogenous Risk Intolerance and LSAPs: Asset Prices and Aggregate Demand in a 'COVID-19' Shock," Caballero R, Simsek A. NBER Working Paper 27044, revised March 2021, and *The Review of Financial Studies* 34(11), November 2021, pp. 5522–5580.

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⁴ "Monetary Policy and Asset Price Overshooting: A Rationale for the Wall/Main Street Disconnect," Caballero R, Simsek A. NBER Working Paper 27712, revised June 2022. See also "A Note on Temporary Supply Shocks with Aggregate Demand Inertia," Caballero R, Simsek A. NBER Working Paper 29815, March 2022.

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⁵ "Monetary Policy with Opinionated Markets," Caballero R, Simsek A. NBER Working Paper 27313, revised June 2022. Forthcoming in *American Economic Review*.

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⁶ "A Monetary Policy Asset Pricing Model," Caballero R, Simsek A. NBER Working Paper 30132, June 2022.

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US Environmental Policies, the Environment, and the Economy

Joseph S. Shapiro and Reed Walker

US environmental regulations have expanded dramatically since passage of the Clean Air Act, Clean Water Act, and similar laws a half century ago. Today, these policies face growing debate. While they have improved environmental quality, they also impose important costs. Moreover, their benefits and costs can have uneven impacts across racial and income groups.

Economists have long studied the effectiveness, efficiency, and equity of environmental policy, but three obstacles have impeded this research. One is a dearth of data on individual firms and households that could enable analysis of a broad range of policy impacts. Another

is the challenge of quantifying the stringency of regulation for different entities and in different years. A third is the complexity of combining data, econometric methods, and economic theory to infer impacts on hard-to-observe outcomes such as consumer and producer surplus and social welfare.

Our joint and independent recent work on how US regulation of air, water, and climate pollution has affected households and firms combines newly available administrative data with insights from research on trade, industrial organization, and public finance to help address these challenges. This summary reviews some of this work.

Administrative Data

Many government agencies routinely collect data to administer policies, and recent expansions in data access allow analysts to use these data for research. The availability of confidential microdata through the US Census Bureau's research data centers is particularly valuable. These data provide large sample sizes and spatial detail, which can enable better research designs than in past research. They also support new linkages across databases and new variables within existing data, expanding the range of feasible research.

For example, research often uses



Joseph S. Shapiro is an associate professor at the University of California, Berkeley in the Department of Agricultural & Resource Economics and the Department of Economics. He is associate editor of the *Journal of Political Economy*, coeditor of the *Journal of Public Economics*, and a research associate at the Energy Institute of Berkeley's Haas School of Business.

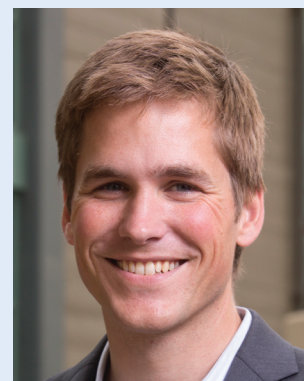
He is an NBER research associate affiliated with the Environment and Energy Economics Program and the International Trade and Investment Program.

Reed Walker is the Transamerica Professor of Business Strategy and an associate professor of economics at the University of California, Berkeley. His research explores the social costs of environmental externalities such as air pollution and how regulations to limit these externalities contribute to gains and/or losses to the economy.

Walker is the faculty codirector of UC Berkeley's Opportunity Lab Climate and Society Initiative. He is also a research associate at the Energy Institute at Berkeley's Haas

School of Business and a research associate affiliated with the NBER's Environment and Energy Economics Program.

Walker received a Sloan Research Fellowship and an IZA Young Labor Economist Award. His work has been supported by the US Environmental Protection Agency, the National Science Foundation, the Robert Wood Johnson Foundation, the Sloan Foundation, and the Smith Richardson Foundation. He received his PhD in economics from Columbia University.



industry-level aggregates, since they are publicly available, and many environmental policies apply to an industry rather than to a firm or establishment. Plants and firms within industries, however, differ in ways that may be important to consider when designing policy or determining the overall welfare effects of existing policies. Our work with Eva Lyubich uses the Census Bureau's plant-level information on energy and other intermediate goods to assess the importance of heterogeneous firm externalities for environmental policy design *within* industries.¹ The analysis measures both plant-level CO₂ emissions and emissions from the plant's unique supply chain. It finds vast heterogeneity in output produced per unit of energy used within even narrowly defined industries. For example, given \$1 of energy input, a plant at the 90th percentile of a given industry's distribution of energy productivity produces 580 percent more output than a plant at the 10th percentile of the same industry. Heterogeneity in output per unit of energy input substantially exceeds heterogeneity in other standard productivity measures.

As another example, researchers and policymakers have long been concerned about who ultimately bears the burden of Pigouvian taxes, taxes which, like a carbon tax, are levied on households or firms to internalize the cost of pollution emissions and other activities that generate externalities. However, little is known about the ability of fossil fuel-intensive firms and industries to pass these costs through to consumers, as public data provide little information on firm prices or marginal costs. The Census Bureau, however, collects data on plant-level production quantities and unit

prices for a few homogeneous industries. Our work with Sharat Ganapati uses this price data to study how shocks to energy input prices affect firms' product prices.² These estimates of cost pass-through help inform the incidence of a future carbon tax, as they shed light on firms' ability to pass energy costs along to consumers. We find that the pass-through of energy prices in the short to medium run is incomplete, which implies that the share of the welfare cost that consumers bear relative to producers is smaller than is often assumed.

A final example of research enabled by

employment. Workers in newly regulated establishments experience substantial and persistent earnings penalties, largely due to long-run costs of job loss and lower future wages in subsequent employment [Figure 1].

Data from Open Record Requests and Private Firms

Quantifying regulatory stringency is a challenge in research on energy and environmental policy. Just one environmental policy, for example, can fill hundreds of pages of legal text. Newly

collected data on subsidies and regulated pollutants have enabled analysis of policies that previously had received limited research attention.

David Keiser and Shapiro study \$650 billion in total expenditures due to grants the federal government gave cities through the Clean Water Act to improve municipal treatment of water pollution.⁴ Their analysis links detailed data on 35,000 individual Clean Water

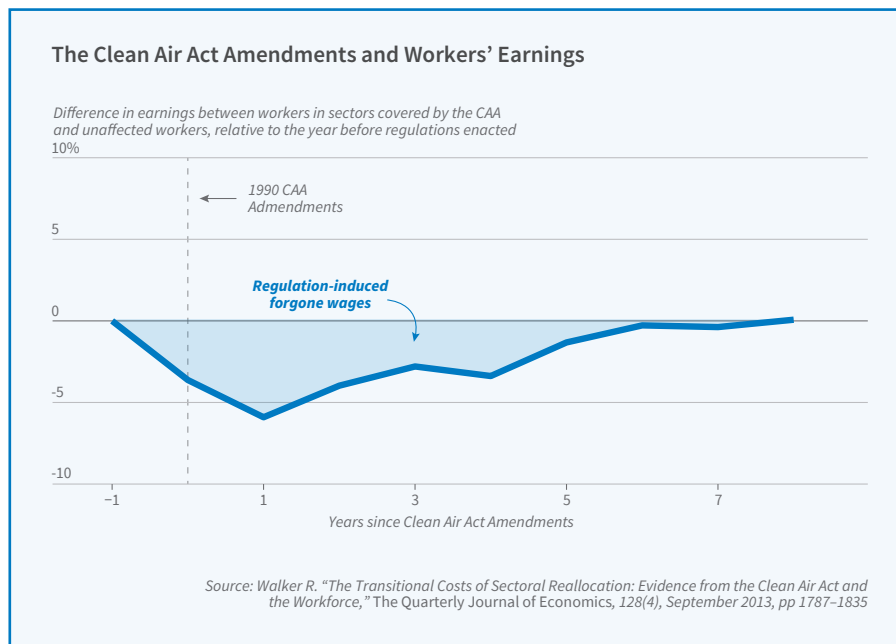


Figure 1

newly available administrative data uses linkages between establishment characteristics and worker earnings histories to shed light on the labor market implications of environmental policy. For example, how do Clean Air Act (CAA) regulations affect the labor force? Walker uses these linked data to follow workers over time, before and after the 1990 Clean Air Act Amendments which regulated polluting industries in polluted counties.³ Focusing on workers rather than industries helps reveal the long-run earnings losses from regulation-induced job transitions and nonemployment, both of which are unobservable in publicly available data on industry wages or

Act grants, obtained from Freedom of Information Act requests, to information on water quality at millions of points along a network model of all US streams and rivers. The research finds that these grants were associated with substantially decreased water pollution for at least 25 years, though their impact on nearby home values was smaller than their costs.

Another example concerns the CAA, which has created almost 500 local emissions markets for air pollution. Due to a lack of publicly available data, these markets have received little attention from researchers, even though transactions in these markets can help

identify the overall efficiency of existing regulation. Under the CAA, a polluting firm may only open or expand a plant in a polluted city if an existing plant permanently decreases its emissions of the same pollutant in that city. An incumbent must certify these emissions reductions with a regulator and can then sell these “offsets” to the entrant. We obtained records of these transactions and used them to determine the marginal costs of cleaning up pollution.⁵ By comparing offset prices to estimates of the marginal benefits of cleaning up air pollution, we found that the marginal benefits of additional pollution regulation are on average 10 times greater than the marginal costs of emission reductions, though the ratio varies by market.

Market intelligence firms also provide increasingly important databases for research. One illustration arises in the study of how environmental damage leads to adverse health outcomes, including deaths. It is widely understood that individuals can undertake defensive investments to protect themselves from the adverse effects of pollution. These defenses represent a cost of the pollution, but can be difficult to quantify.

Olivier Deschenes, Michael Greenstone, and Shapiro use data from healthcare interactions for employees and dependents of many large firms to study the importance of medication expenditures, such as for asthma inhalers, which represent one important defense against pollution.⁶ They study a cap-and-trade market that began in 2003 and regulated pollution in the summer months for 19 Eastern states [Figure 2]. The decrease in medication costs associated with the operation of these markets almost alone offsets the market’s costs. Accounting for

prevented premature mortality would make the benefits even larger.

Data from Remote Sensing and Satellite Imagery

Increasingly available remote sensing data have greatly expanded the set of questions researchers can answer. Between 1990 and 2015, for example, only 40 percent of 3,143 US counties had any Environmental Protection Agency (EPA) monitors for air pollutants regulated under the CAA. With so few monitors, it is difficult to know the overall burden of pollution exposure in the US, or how burdens differ between racial groups. Janet Currie, John Voorheis, and Walker

satellite-based data to assess the extent to which EPA monitors over- or underestimate true exposure to PM_{2.5} pollution.⁸ Official monitors miss much spatial variation in pollution within a region. Because US regulation depends on ambient concentrations, this measurement error can lead to both over- and underregulation. Surprisingly, however, redesigning policies to capture more spatially resolved measures of pollution exposure is not guaranteed to improve health outcomes overall.

Connecting Theory to Data

Many important questions involve concepts that data cannot directly report, such as the marginal willingness to pay for environmental goods or the effects of counterfactual policies. Some recent work develops methods to study how actual and counterfactual environmental policies affect such outcomes.

In a recent study, we model how firms trade off producing goods and emitting pollution.⁹ Pollution in many high-income countries has declined in recent decades. Several factors could explain this, including outsourcing dirty pro-

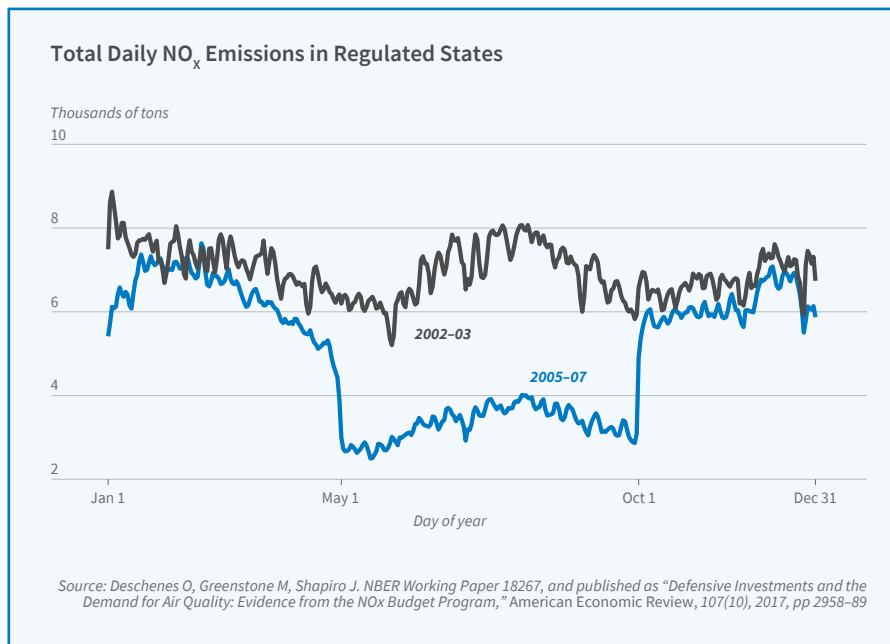


Figure 2

use new satellite-based measurements of ambient PM_{2.5} exposure in the entire US to explore trends in racial inequality in pollution exposure and the drivers of these gaps over time.⁷ The analysis confirms that African Americans disproportionately live in polluted areas. This Black-White gap in mean pollution exposure, however, has closed substantially since 2000. Spatially targeted CAA regulations are the largest contributor to this convergence.

In related work, Meredith Fowlie, Edward Rubin, and Walker leverage these

production to low-income countries, productivity growth, or environmental regulation. We use plant-level data from the Census Bureau to construct empirical analogs to the concepts in our model. The model analyzes how environmental and economic policies affect firm abatement and production decisions. We invert the model to use observed data on firm abatement and production decisions to infer what types of environmental and economic policies firms faced over the past few decades. We then use the model to learn how counterfactual policies would

affect outcomes and find that environmental regulation, rather than productivity growth or changes in trade, accounts for most of the decrease in pollution.

A related study examines how trade policies affect climate change. Countries have proposed imposing tariffs proportional to the carbon emissions embodied in traded goods to prevent relocation of dirty production abroad (“leakage”) as a result of climate change policies. In a recent paper, Shapiro studies existing tariffs and other trade policies like quotas to see if countries already impose higher trade protection on dirty goods. Such protection would be an implicit carbon tariff.¹⁰ Data across countries, years, and policies, however, consistently show the opposite: countries have greater protection on clean goods and lower protection on dirty goods, which constitutes an implicit subsidy to climate change embodied in trade policy. The paper models trade and the environment to predict how changing tariffs and nontariff trade barriers on clean versus dirty goods would affect the environment and the economy. It indicates that harmonizing trade policy between clean and dirty goods would substantially decrease global emissions, without decreasing GDP.

A final example of research that uses administrative data comes from air pollution exhaust standards for vehicles, the centerpiece of the CAA’s regulation of transportation. Mark Jacobsen, James Sallee, Shapiro, and Arthur van Benthem examine comparable microdata on the pollution emissions of every make, model, and trim of new passenger vehicle sold in the US in the last half century, the exhaust standards for these vehicles, and over 60 million vehicle pollution readings.¹¹ This analysis finds that the emissions per mile of new US vehicles have fallen by more than 99 percent since the

setting of exhaust standards began in the 1960s. Exhaust standards caused a majority of that decline. A quantitative model of the new and used vehicle fleets highlights that standards are not cost-effective because they exempt the large share of pollution from older used vehicles.

Taken together, our research suggests that environmental policy can have large but unequal environmental benefits and economic costs that, even a half century after passage of many environmental laws, we are still working to understand.

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³ “The Transitional Costs of Sectoral Reallocation: Evidence from the Clean Air Act and the Workforce,” Walker WR. *The Quarterly Journal of Economics* 128(4), 2013, pp. 1787–1835.

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⁵ “Is Air Pollution Regulation Too Stringent?” Shapiro JS, Walker R. NBER

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⁶ “Defensive Investments and the Demand for Air Quality: Evidence from the NOx Budget Program,” Deschenes O, Greenstone M, Shapiro JS. NBER Working Paper 18267, August 2012, and *American Economic Review* 107(10), 2017, pp. 2958–2989.

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Cultural Transmission in Education

David Figlio, Paola Giuliano, and Paola Sapienza



David Figlio is Gordon Fyfe Professor of Economics and Education and provost at the University of Rochester. He is an NBER research associate affiliated with the programs on Children and on the Economics of Education.

Figlio previously was Orrington Lunt Professor and dean of the School of Education and Social Policy at Northwestern University. He has also served on the faculties of the University of Florida and the University of Oregon. He was founding editor of *Education Finance and Policy* and editor of the *Journal of Human Resources* from 2015 to 2021, before which he was coeditor from 2012 to 2015. He has served as an editorial board member of numerous scholarly journals and is a past president of the Association for Education Finance and Policy.

Figlio has written extensively on a range of topics such as school accountability, school choice, economics of higher education, immigrants in education, and the relationship between early health, family background, and educational outcomes. Representative recent papers include “What’s in a Grade? School Report Cards and the Housing Market,” with Maurice E. Lucas; “The Effects of Poor Neonatal Health on Children’s Cognitive Development” with Jonathan Guryan, Krzysztof Karbownik, and Jeffrey Roth; and “Family Disadvantage and the Gender Gap in Behavioral and Educational Outcomes,” with David Autor, Karbownik, Roth and Melanie Wasserman.

In recent decades, economists have studied how beliefs and preferences are formed and updated, and how cultural and social norms affect economic decisions.¹ In a series of papers, together with our collaborators, we investigate how vertical and horizontal cultural transmission of preferences may affect educational outcomes.

Long-Term Orientation and Educational Outcomes

In our work with Umut Özek, we study the relevance of one specific cultural value—long-term orientation, the ability to delay gratification and exert self-control.² This trait has been associated with physical, emotional, and educational outcomes.

We consider the vertical transmission of this cultural value from parents to children and its effect on children’s school performance. To isolate the importance of cultural values, we study first- and second-generation immigrants attending public schools in Florida, one of the states with

the largest fraction of immigrants in the United States. Immigrants are almost ideal subjects for the study of vertical transmission because they face the same educational environment as the native born in Florida’s schools but they bring with them the cultural attitudes of their countries of origin. We attribute to each student the long-term orientation of their country of origin by using a well-known cross-country measure.³

We also analyze a large administrative dataset from the Florida Departments of Education and Health containing information on educational outcomes of K-12 students who attended Florida public schools in 2002–03 and 2011–12. School records are merged with birth vital records, which allow for the identification of first- and second-generation immigrants and contain important family background information, such as maternal education.

Figure 1 presents the raw correlations between long-term orientation and one of the educational outcomes studied in the paper, standardized math scores.

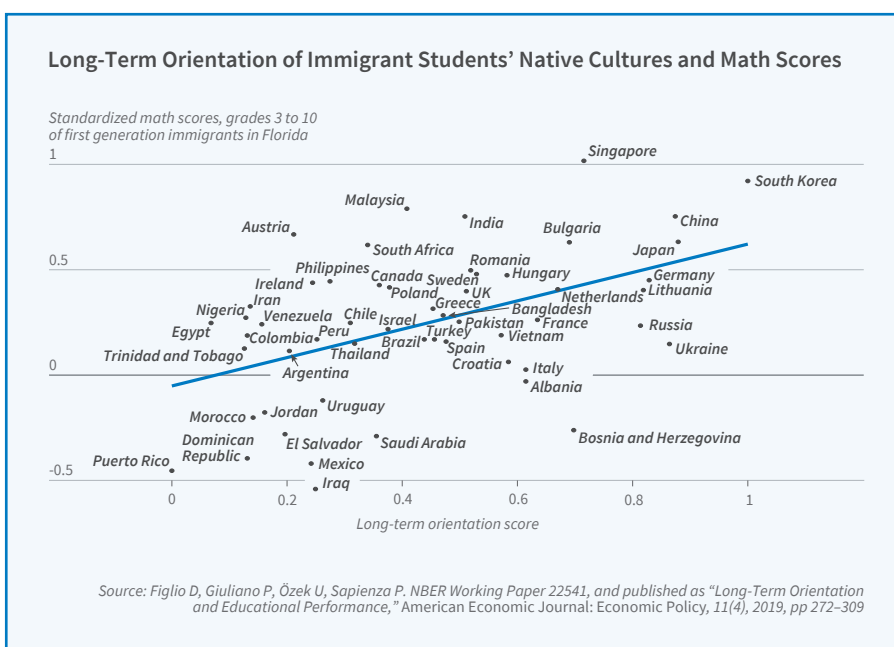
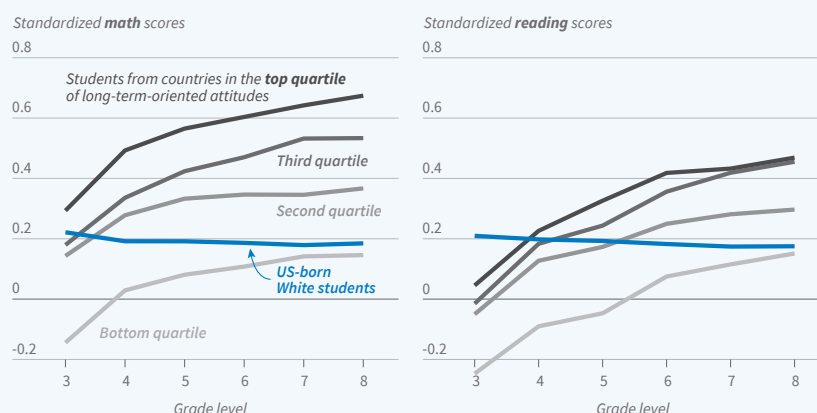


Figure 1

We find that students who immigrate from countries that emphasize the importance of long-term orientation perform better than immigrants from countries where delayed gratification is not an important cultural value. We control for individual characteristics and school fixed effects. We find not only differences in levels, but also an improvement over time in standardized test scores in mathematics and reading for students from long-term oriented cultures. These students also have fewer absences and disciplinary incidents, they are less likely to repeat a grade, more likely to graduate from high school in four years, and more likely to take advanced-level classes while in high school.

In comparison, Figure 2 plots the average standardized test scores in mathematics and reading by grade of White, US-born students and first-generation immigrants grouped by quartiles of long-term orientation. The performance over time of all the

Long-Term Orientation and Academic Outcomes



Source: Figlio D, Giuliano P, Özek U, Sapienza P. NBER Working Paper 22541, and published as "Long-Term Orientation and Educational Performance," *American Economic Journal: Economic Policy*, 11(4), 2019, pp 272–309

Figure 2

students, including the US-born, is ranked monotonically based on long-term orientation quartiles; the US measure of long-term orientation is 0.26, close to the bottom quartile of the immigrants' distribution. Also, while the performance of immigrants continues to increase as they progress in school, the performance of US-born students remains flat during their school careers.

Our work emphasizes the role of parents in transmitting cultural values, but also the role of social learning in reinforcing those values. Parents from long-term

oriented countries choose higher-rated schools and their children are more likely to join programs for gifted students, controlling for initial conditions. Being in a school with immigrants speaking the same language reinforces the effect of culture.

These results are confirmed with student-level data from a large set of countries using the Programme for International Student Assessment, suggesting that, independent of the school system and the country of destination, the relative performance of

immigrants relates to the long-term orientation of the country of origin and it matters for educational outcomes.

Gender Role Attitudes and the Gender Gap in Mathematics

This evidence suggests the importance of upbringing and social environment in shaping individuals' preferences and beliefs. Since societal gender attitudes have been correlated with a differential performance of boys and girls in

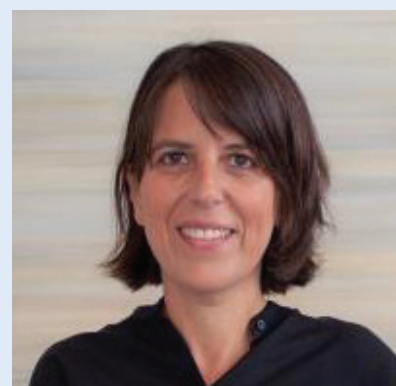
Paola Giuliano is a professor of economics and the Chauncey J. Medberry Chair in Management at the UCLA Anderson School of Management. She is a research associate in the Political Economy Program of the NBER, a research affiliate at the Centre for Economic Policy Research (London) and a research fellow at the Institute for the Study of Labor (Bonn). Giuliano's main areas of research are culture and economics, and political economy.

Giuliano's research focuses on factors that shape differences in the evolution of culture across societies. Her research addresses questions such as: What role do differences in the distri-

bution of social preferences and beliefs play in explaining economic outcomes, at the level of countries, social groups or over time? Where do these differences come from? How do they interact with institutions?

Giuliano has published studies on the importance of a wide range of factors that are crucial for economic development, including gender norms, family structures, support for democracy, and preferences for redistribution.

Giuliano holds a BA from Bocconi University (Milan) and a PhD in economics from the University of California, Berkeley. She received the Young Economist Award from the European



Economic Association in 2004 and was a coeditor of the *Journal of the European Economic Association* from 2015 until 2021.

mathematics,⁴ a natural next step is to investigate how much the gender attitudes transmitted by parents can affect the math performance of their daughters. In two papers with Gaia Dossi, we correlate parental gender role attitudes and the academic performance of girls in mathematics using the aforementioned matched birth-school records data from Florida as well as the National Longitudinal Survey of Youth.⁵

We proxy parental gender preferences by exploiting differential fertility patterns across families. Previous studies have uncovered parental preferences for boys over girls by showing that the number of children in the US is significantly higher in families where the firstborn is a girl.⁶ In line with previous results for the US, we confirm the existence of a preference for sons over daughters in Florida: many parents who desire to have a male child continue having children until a boy is born. We then identify families with a preference for boys as those who display a fertility stopping behavior in favor of sons.⁷ We find that girls born in such families perform worse on average on standardized tests in mathematics than girls from other types of families.

Girls raised in “boy-biased” families have around 3 percent of a standard deviation lower math scores than those raised in other families. To put this figure in perspective, this coefficient is around one-quarter the size of the differ-

ence between children of mothers who graduated from high school and mothers who did not. Since these preferences are measured before the girls enter school, it is implausible that they reveal a reverse causality from academic performance to preferences for boys.

Next, we investigate whether the transmission of biased preferences is more prevalent among affluent families, in line with the evidence that the gender gap in mathematics is more pronounced in socioeconomically advanced school districts and in families with higher maternal education.⁸ We use race as a proxy for socioeconomic status because Black students are disproportionately from low-income families compared to White students in the Florida public school system. In the 2010 US Census, the average family income of Black students going to public school was 61 percent of the average income of White students’ families. White girls raised in “boy-biased” families have around 3.5 percent of a standard deviation lower math scores than those raised in other families. These differences are not present among Black girls, where the effect of gender bias is null. We find consistent results when we compare the correlation between parental gender bias in families that receive free or reduced-cost lunches and those that are more affluent.

We validate that gender norms transmitted within the family correlate with

daughters’ performance in mathematics by using the National Longitudinal Survey of Youth, in which parental gender attitudes are measured through survey instruments.

Horizontal Transmission in School

Given the importance of culture for educational outcomes and the persistence of attitudes of immigrants across cultures, independent of the institution of destination, a logical next question is whether the attitudes and behaviors of immigrant students affect US-born students. In a paper with Riccardo Marchingiglio and Özek,⁹ we investigate how cumulative exposure to immigrants over the students’ school career influences the academic achievement of US-born students.

Academic research about the impact of immigrants on the educational outcomes of native-born students faces two empirical challenges due to the selection of both immigrants and native-born students. First, immigrants do not randomly select into schools and are more likely to enroll in schools with students of comparatively disadvantaged background. Second, native-born students, especially those from relatively affluent families, tend to move when immigrant students arrive in their schools—the

Paola Sapienza is the Donald C. Clark/HSBC Professor of Finance at the Kellogg School of Management of Northwestern University. She is a research associate in the Corporate Finance and Political Economy programs of the NBER, a research affiliate of the Centre for Economic Policy Research (London), and a Fellow of the European Corporate Governance Institute.

Sapienza’s research interests span cultural economics, economic development, financial economics, and political economy. Her work on culture investigates how preferences and beliefs are formed, trans-

mitted across generations, and influence economic decisions. Her topics include the effect of social capital and trust on the use and availability of financial contracts, how cultural biases affect economic exchanges among nations, whether lack of trust explains limited stock market participation, and the impact of gender norms and stereotypes on economic outcomes. She also has published research on the role of governmental institutions in financial markets, lobbying, risk preferences, corporate culture, and corporate governance.

She grew up in Italy, where she studied economics at Bocconi University, and



received her PhD in economics from Harvard University.

so-called “native-flight” phenomenon. While previous research has addressed the nonrandom selection of immigrants into schools, data limitations have precluded researchers addressing the nonrandom selection of native-born students.

We address both selection issues using the unique features of the matched birth-school records data from Florida: the longitudinal nature of the data allows us to calculate the cumulative exposure to immigrants during the students’ school life, while the link with the birth certificates enables us to identify siblings and control for all the observable and unobservable family life-cycle characteristics. Our identification therefore comes from within-family, across-siblings variation. The inclusion of the family fixed effect is especially important because research that does not address the nonrandom selection of native-born students is more likely to find a negative correlation between immigrant exposure and native-born students.

Figure 3 presents the results for the overall sample of US-born students speaking English at home, the subsample of White/Black and free lunch/non-free-lunch students, and for two different specifications, with and without the inclusion of family-year fixed effects. The model commonly used in the extant literature, in which school fixed effects only control for the nonrandom assignment of immigrants, yields a significant, small in magnitude, negative correlation between cumulative exposure to immigrants and the academic performance of US-born students. When we include family life-cycle changes, the estimated relation-

ship becomes positive. Accounting for family characteristics is therefore crucial to explain the impact immigrants have on the academic performance of US-born students.

In our study, we also find that sorting is concentrated among White and affluent students, whereas students from lower socioeconomic backgrounds do not move away when immigrants arrive. Looking at different subsamples further indicates that being exposed to immigrant students

not proxy for demographic and SES school-cohort composition and cannot be explained by different levels of school resources, diversity of the school body, or class segregation. Our results could instead be explained by immigrants always performing better than the US-born students going to school with them or by difficult-to-measure attributes of immigrants such as hard work and resilience. We find that immigrants do not always perform above their US-born peers. Immigrants

going to school with Black or low SES students, those benefiting the most from the presence of immigrants, have, on average, better performance and fewer disciplinary incidents than their US-born classmates. However, immigrants going to school with US-born White and affluent students, who are unaffected by them, have lower performance and more disciplinary incidents. Our results are robust to different classifications of students

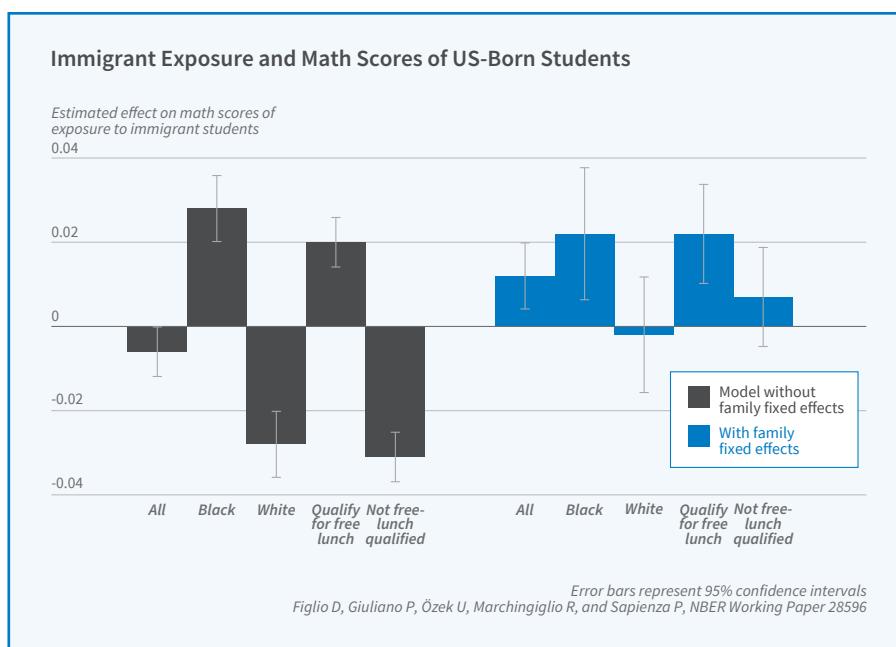


Figure 3

in school is particularly beneficial for Black and low socioeconomic status (SES) students.

In the sample, moving from the 10th to the 90th percentile of the distribution of cumulative exposure to foreign-born students — 1 percent and 13 percent, respectively — increases the score in mathematics and reading by 2.7 percent and 1.7 percent of a standard deviation, respectively. This effect corresponds to 8.5 percent of the difference in scores between children whose mother has a high school diploma and those whose mother has not completed high school. This effect is twice as large for lower SES and Black students.

Our analysis further suggests that the presence of immigrants does

born in Puerto Rico, who are US citizens but are marginalized and often coded as “immigrant” in mainland US settings. Overall, our findings suggest that immigrant students who outperform US-born students have a positive impact on the native born, while immigrants with lower academic achievement do not negatively affect US-born students.

Future Directions

As economics in recent years has increasingly focused on the origin and persistence of cultural norms, our results open new avenues for further exploration. How do preferences change with assimilation and expo-

sure to other students? What roles do schools and teachers play in influencing preferences and beliefs, and how do institutional characteristics and policies interact with cultural upbringing? Future research might help us shed light on these questions.

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NBER Appoints 27 Research Associates, 47 Faculty Research Fellows

Following a call for nominations in January, the NBER has appointed 70 new affiliates: 23 research associates and 47 faculty research fellows. In addition, four faculty research fellows have been promoted to research associates.

The directors of the NBER's 20 research programs recommend appointments after consulting with steering committees made up of leading scholars.

Research associate appointments must be approved by the [NBER Board of Directors](#), while faculty research fellows are appointed by the NBER president. All new affiliates must hold primary academic appointments in North America; research associates must have tenure.

The newly appointed researchers serve on the faculties of 42 different colleges and universities. They received their graduate training at 29 different

institutions. The new appointments bring the total number of research associates to 1,363 and the number of faculty research fellows to 352. As of April 25, 2022, twenty-one of these affiliated researchers are on leave; most are serving in government policy roles.

The names and university affiliations of the newly appointed NBER affiliates and their primary NBER programs are listed below.

Research Associates

*Promoted from Faculty Research Fellow

Ama Baafrá Abeberese	Wellesley College	Development Economics
Andrew Barr	Texas A&M University	Children
George Bulman	University of California, Santa Cruz	Economics of Education
Lin William Cong	Cornell University	Asset Pricing
Claudio Ferraz	University of British Columbia	Political Economy
Caroline Flammer	Columbia University	Environment and Energy Economics
Neville Francis	University of North Carolina	Monetary Economics
Arya Gaduh	University of Arkansas	Development Economics
George-Levi Gayle	Washington University in St. Louis	Labor Studies
Lisa Gennetian	Duke University	Children
Laura Giuliano	University of California, Santa Cruz	Labor Studies
Rachel Glennerster	University of Chicago	Development Economics
Stephan Heblich	University of Toronto	Development of the American Economy
Matthew Kraft	Brown University	Economics of Education
Kurt Lavetti	The Ohio State University	Health Care
Lars Lochstoer	University of California, Los Angeles	Asset Pricing

Research Associates (continued)

*Promoted from Faculty Research Fellow

Ryan McDevitt	Duke University	Health Care
Katherine Micheltore	University of Michigan	Children
Edward Morrison	Columbia University	Law and Economics
* Ezra Oberfield	Princeton University	Economic Fluctuations and Growth
Luba Petersen	Simon Fraser University	Monetary Economics
* Alex Rees-Jones	University of Pennsylvania	Public Economics
Sebastian Sotelo	University of Michigan	International Trade and Investment
* Christopher Tonetti	Stanford University	Economic Fluctuations and Growth
* Venky Venkateswaran	New York University	Economic Fluctuations and Growth
Vikrant Vig	Northwestern University	Corporate Finance
Sarah Zubaity	Texas A&M University	Monetary Economics

Faculty Research Fellows

Claudia Allende	Stanford University	Industrial Organization
Christoph Boehm	University of Texas at Austin	Monetary Economics
Aaron Chalfin	University of Pennsylvania	Law and Economics
Yiqun Chen	University of Illinois Chicago	Health Care
Taha Choukhmane	Massachusetts Institute of Technology	Aging
Peter Christensen	University of Illinois Urbana-Champaign	Environment and Energy Economics
Emanuele Colonnelli	University of Chicago	Corporate Finance
Louphou Coulibaly	University of Wisconsin-Madison	International Finance and Macroeconomics
José Ignacio Cuesta	Stanford University	Industrial Organization
Winston Wei Dou	University of Pennsylvania	Asset Pricing
Florian Ederer	Yale University	Productivity, Innovation, and Entrepreneurship

Faculty Research Fellows (continued)

Paul Eliason	Brigham Young University	Health Care
Osea Giuntella	University of Pittsburgh	Health Economics
Paul Goldsmith-Pinkham	Yale University	Corporate Finance
Felipe Goncalves	University of California, Los Angeles	Law and Economics
John Grigsby	Princeton University	Economic Fluctuations and Growth
Jevay Grooms	Howard University	Health Economics
Jorge Guzman	Columbia University	Productivity, Innovation, and Entrepreneurship
Elaine Hill	University of Rochester	Health Economics
Charles Hodgson	Yale University	Industrial Organization
Akshaya Jha	Carnegie Mellon University	Environment and Energy
Zhengyang Jiang	Northwestern University	International Finance and Macroeconomics
Andrew Johnston	University of California, Merced	Public Economics
Maggie Jones	University of Victoria	Development of the American Economy
Karam Kang	Carnegie Mellon University	Political Economy
Chad Kendall	University of Southern California	Political Economy
Andreas Kostol	Arizona State University	Labor Studies
Jetson Leder-Luis	Boston University	Aging
Ernest Liu	Princeton University	International Trade and Investment
Adrien Matray	Princeton University	Productivity, Innovation, and Entrepreneurship
Diana Moreira	University of California, Davis	Political Economy
Kathleen Mullen	University of Southern California	Aging
Elena Pastorino	Stanford University	Economic Fluctuations and Growth
Evan Rose	University of Chicago	Labor Studies
Elizabeth Setren	Tufts University	Economics of Education
Bradley Setzler	Pennsylvania State University	Labor Studies
Jorg L. Spenkuch	Northwestern University	Political Economy

Faculty Research Fellows (continued)

Marco Tabellini	Harvard University	Development of the American Economy
Eric Taylor	Harvard University	Economics of Education
Sharon Traiberman	New York University	International Trade and Investment
Diana Van Patten	Yale University	International Trade and Investment
Silvia Vannutelli	Northwestern University	Public Economics
Atheendar Venkataramani	Yale University	Health Economics
Shaoda Wang	University of Chicago	Development Economics
Jonathan Weigel	University of California, Berkeley	Public Economics
Chenzi Xu	Stanford University	International Finance and Macroeconomics
Pinar Yildirim	University of Pennsylvania	Productivity, Innovation, and Entrepreneurship

Postdoctoral Fellowships Awarded for 2022–23 Academic Year

Eleven postdoctoral scholars, including two in new fellowship programs, have been awarded NBER fellowships for the 2022–23 academic year. The two new programs support fellows studying environmental and energy economics and racial and ethnic disparities in economic outcomes. In all cases, fellows are selected by review panels following widely disseminated calls for applications.



Arenberg

Samuel Arenberg, who received his PhD from the University of Texas at Austin, and Maggie Shi, who received her PhD from Columbia University, will hold postdoctoral fellowships in aging and health economics that are supported by the National Institute on Aging. Arenberg will study the relationship between place of birth and longevity in the United States. Shi studies how policy decisions shape provider and patient behavior, and the implications for healthcare cost and quality.



Shi



Kim

Olivia Kim, who received her PhD from MIT, has been selected for a postdoctoral fellowship for study of the aging workforce. This fellowship is sponsored by the Alfred P. Sloan Foundation. Kim will investigate how family considerations affect older workers' decisions about whether to retire, with particular attention to the role of self-employment.

Zhixiu Yu, who received her PhD from the University of Minnesota, has been awarded a postdoctoral fellowship in retirement and disability policy research funded by the Social Security Administration. She will investigate the interplay between social insurance programs and household-level decisions that bear on health outcomes in under-represented populations.



Yu



Slattery

Cailin Slattery, a University of Virginia PhD who is currently an assistant professor at Columbia University, and Tidiane Ly, who received his PhD from the University of Lyon, have been awarded postdoctoral fellowships for the study of interjurisdictional tax competition. Their fellowships are sponsored by Arnold Ventures. Slattery plans to study trade-offs among the various policy instruments that governments use to regulate business activity. Ly is investigating the welfare effect of tax havens by estimating models of how governments set tax rates in a competitive environment.



Ly



Armona

Luis Armona, who received his PhD from Stanford University, is the second holder of the NBER postdoctoral fellowship to support diversity in the economics profession. He is studying the market for online higher education as well as the design of student loan programs.

Ranae Jabri, a Duke University PhD, is the inaugural holder of a fellowship supported by the Alfred P. Sloan Foundation for the study of racial and ethnic disparities in economic outcomes. Her research focuses on the economic impact of disparities in the criminal justice system.



Jabri



Ricks

Michael Ricks, a University of Michigan PhD, has been awarded the first NBER postdoctoral fellowship in environmental and energy economics. This fellowship is also supported by the Alfred P. Sloan Foundation. Ricks' research explores the design of tax and subsidy programs in energy markets, with particular reference to alternative energy sources.



Popova

Two fellows — Irina Popova, who holds a PhD from Goethe University Frankfurt, and Anson Zhou, a PhD graduate of the University of Wisconsin — will be studying various aspects of long-term fiscal policy. Popova focuses on the fiscal implications of migration flows to developed economies, while Zhou studies the macroeconomic impacts of government policies that subsidize families with children. Their fellowships are sponsored by the Peter G. Peterson Foundation.



Zhou

Calls for fellowship applications are posted each fall at <https://www.nber.org/career-resources/calls-fellowship-applications>. Application closing dates are usually in early December. Those interested in receiving fellowship announcements can register for them at that webpage.

19 Graduate Students Win Support for Dissertation Research

Each year, the NBER provides fellowship support for the dissertation research of a number of doctoral students in economics and finance. Nineteen students have been awarded support for the 2022–23 academic year.

Two students, Menaka Hampole of Northwestern University and Xian Ng of the Wharton School of the University of Pennsylvania, are the inaugural fellows in a new program that supports dissertation research on consumer financial management. The fellowship program is supported by the Institute of Consumer Money Management. Hampole is studying how access to financial aid affects post-college earnings trajectories, while Ng is using lenders' requirements that borrowers purchase private mortgage insurance to study the determinants of household consumption and saving behavior.

Predocutorial fellowships to support dissertation writers in aging and health economics have been awarded to Aaron Berman, Geoffrey Kocks, and Anna Russo of MIT, Travis Donahoe, Chika Okafor, Ilana Salant, and Myles Wagner of Harvard University, and Matthew Zahn of Johns Hopkins University. These fellowships are sponsored by the National Institute on Aging.

Berman studies factors influenc-

ing the take-up of health care, particularly vaccines, in developed and developing countries. Kocks focuses on the impact of various policy interventions on educational and racial disparities in health outcomes. Russo investigates the efficiency and distributional consequences of capacity constraints and rationing in health care. Donahoe's research examines social and economic determinants of mortality, with an emphasis on harmful substance related deaths in the United States. Okafor studies health disparities arising from the criminal justice system as well as from the prospective impacts of climate change. Salant studies the industrial organization of healthcare providers, including effects of private equity on hospital markets and effects of vertical integration between providers and insurers. Wagner researches selection and policy design in health insurance markets. Zahn investigates how competition between payers and providers in healthcare markets affects health outcomes.

Dissertation fellowships in retirement and disability policy research sponsored by the Social Security Administration have been awarded to Johnny Huynh of the University of California, Los Angeles, Ari Ne'eman of Harvard, Cesia Sanchez of the

University of California, Berkeley, and Christiane Szerman of Princeton University. Huynh studies the impact of disability compensation on military veterans' well-being. Ne'eman is analyzing how changes in Medicaid policy affect the utilization of long-term services and supports as well as disability employment outcomes. Sanchez studies how economic shocks experienced by early career workers affect the retirement decisions of their parents. Szerman is studying the impact of affirmative action regulation on workers and firms.

John Conlon of Harvard and Mateo Velásquez-Giraldo of Johns Hopkins University won dissertation fellowships in behavioral macroeconomics supported by the Alfred P. Sloan Foundation. Conlon studies how expectation formation responds to information, particularly in the context of students' choices about education. Velásquez-Giraldo investigates how survey measures of macroeconomic beliefs can help explain life-cycle consumption and portfolio decisions.

The NBER's Gender in the Economy Project has awarded dissertation fellowships to Amy Burnett Cross of American University, Lisa Ho of MIT, and Dev Patel of Harvard. The fellowships are sponsored by the Bill &

Melinda Gates Foundation.

Cross will examine how women serving in combat beginning in 2016, and gender desegregation of the Army in 1977, affected women's participation in male-dominated civilian occupations. Ho is investigating the value of flexibility in location, hours, and

multitasking in increasing female labor force participation, and the role of part-time, at-home work as a stepping stone to full-time, away-from-home employment. Patel is exploring the impact of a World War II-era ban on female employment in India's mines on women's outcomes.

Calls for fellowship applications are posted each fall at <https://www.nber.org/career-resources/calls-fellowship-applications>.

Application closing dates are usually in early December. Those interested in receiving fellowship announcements can register for them at that webpage.

Oleg Itskhoki Wins John Bates Clark Medal

Oleg Itskhoki of the University of California, Los Angeles has won the John Bates Clark Medal, awarded biannually by the American Economic Association to an American economist under the age of 40 who has made a significant contribution to economic thought and knowledge.

Itskhoki has made path-breaking contributions to understanding of the dynamics of international trade and international finance. His research on trade has provided new insights on how expanding trade can affect within-country inequality. In international finance, he has developed new solutions to several long-standing exchange rate puzzles, including the uncovered interest parity puzzle and the purchasing power parity puzzle, and has studied the incomplete pass-through of exchange rates into prices.

The [full citation for his award](#) is on the AEA's website.

Itskhoki holds the Venu and Ana Kotamraju Endowed Chair in Economics at UCLA. He is a research associate in four NBER programs: International Trade and Investment, International Finance and Macroeconomics, Economic Fluctuations and Growth, and Monetary Economics.

An [article by Itskhoki on dominant and regional currencies](#) and currency choices in international trade appeared in the March 2022 edition of the *NBER Reporter*.



Oleg Itskhoki

Lisa D. Cook Confirmed to Board of Governors of the Federal Reserve

Lisa D. Cook, an NBER affiliate since 2018 in two programs, Development of the American Economy and Productivity, Innovation, and Entrepreneurship, has been confirmed by the US Senate to serve as a member of the Board of Governors of the Federal Reserve System. A professor of economics and international relations at Michigan State University, she is the first Black woman to serve on the

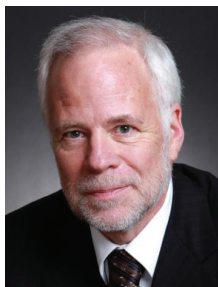
board in its 108-year history.

Cook's research interests include economic growth, financial institutions and markets, and racial and gender disparities among workers in innovation-related fields. She resigned from the NBER when she took up the new appointment.



Lisa D. Cook

NBER Research Associates Honored by AEA



Barry Eichengreen



James Poterba

Economics at MIT. He is affiliated with the NBER programs on the Economics of Aging, Corporate Finance, and Public Economics.

The American Economic Association has named NBER Research Associates Barry Eichengreen, James Poterba, and Carmen M. Reinhart distinguished fellows, and John Van Reenen a foreign honorary member. The association also honored Sadie T.M. Alexander posthumously as a distinguished fellow.

Eichengreen, a leading scholar of economic history and international macroeconomics, is the George C. Pardee and Helen N. Pardee Chair and Distinguished Professor of Economics and Political Science at the University of California, Berkeley. He is affiliated with the NBER programs on Development of the American Economy, International Finance and Macroeconomics (IFM), International Trade and Investment, and Monetary Economics (ME).

Poterba, a public finance economist whose work focuses primarily on tax policy and household finance, is the president of the NBER and the Mitsui Professor of

Reinhart, an expert on international finance and economic development, currently serves as senior vice president and chief economist of the World Bank. She is on leave from the Kennedy School of Government at Harvard University, where she is the Minos A. Zombanakis Professor of the International Financial System, and from the NBER, where she is an affiliate of the IFM and ME programs.

Alexander, the only economist ever to receive the distinguished fellow award posthumously, was the first African American to earn a PhD in economics in the United States. She was excluded from academic positions on account of her race and gender, completed a law degree after her PhD, and was a life-long advocate for civil rights and economic equality.

Van Reenen is the Ronald Coase Chair in Economics and School Professor at the London School of Economics. He is affiliated with the NBER Labor Studies and Productivity, Innovation, and Entrepreneurship programs.

The [AEA press release](#) provides further details on these awards.



Carmen M. Reinhart



John Van Reenen

Working Paper Series Crosses 30,000 Mark

The NBER working paper series reached a milestone in May with the distribution of the 30,000th paper. The series was launched in 1973 by labor economist Robert Michael to disseminate research prior to journal publication and to facilitate distribution of data appendices and related material. The first working paper was [Education, Information, and Efficiency](#) by Finis Welch.

The series began on a modest scale, a reflection of the then-small number of NBER affiliates, but quickly expanded to encompass a broad range of NBER research. There were 41 working papers in the first year, and it took 12 years to reach paper number 1000. Originally, working papers were printed and had bright yellow covers.

Packets of papers were mailed occasionally to libraries, leading economics departments, and research institutes. As the number of NBER researchers expanded, the volume of working papers rose too. Eventually, a shift to digital distribution became essential for accommodating the expanding number of studies.

In 2020, when many economists ratcheted up their research output to address the host of new questions posed by the COVID-19 pandemic, a record 1,713 working papers were distributed. The annual average for the last five years was 1,322. More than 25,000 subscribers receive the “New This Week” email each Monday, and there were nearly three million working paper downloads in 2021. Twitter

has become an increasingly important channel for calling attention to working paper content.

The evolution of the NBER working paper series provides some insights into the changing structure of economic research. For example, 60 percent of the working papers distributed during the series’ first decade had a single author, 35 percent were coauthored, and 5 percent had more than two authors. In the last decade, only 11 percent had a single author, while 56 percent had three or more. The number of working papers per NBER affiliate per year, which averaged more than 1.75 in 1980, has trended down. It was approximately 0.96 in 2000, and averaged 0.78 in the most recent five years, excluding 2020.

Conferences

Economics of Privacy

An NBER conference on the Economics of Privacy took place March 31 to April 1 in Washington, DC and online. Research Associates Avi Goldfarb of the University of Toronto and Catherine Tucker of the Massachusetts Institute of Technology organized the meeting, which was supported by Alfred P. Sloan Foundation grant #G-2020-12662. A keynote address was delivered by Elizabeth Goitein, codirector of the Liberty & National Security Program at the Brennan Center for Justice. These researchers' papers were presented and discussed:

- **Long Chen** and **Yadong Huang**, Luohan Academy; **Shumiao Ouyang**, Princeton University; and **Wei Xiong**, Princeton University and NBER, "[The Data Privacy Paradox and Digital Demand](#)" (NBER Working Paper 28854)
- **Yu Zhao**, University of Pennsylvania; **Pinar Yildirim**, University of Pennsylvania and NBER; and **Pradeep Chintagunta**, University of Chicago, "Privacy Regulations and Online Search Friction: Evidence from GDPR"
- **Martin Beraja**, Massachusetts Institute of Technology and NBER; **Andrew Kao**, Harvard University; **David Y. Yang**, Harvard University and NBER; and **Noam Yuchtman**, London School of Economics, "[AI-tocracy](#)" (NBER Working Paper 29466)
- **Daniel Goroff**, Alfred P. Sloan Foundation, and **Erica Groshen**, Cornell University, "Disclosure Avoidance and the 2020 Census: What Do Researchers Need to Know?"
- **Karlo Lukic** and **Bernd Skiera**, Goethe University, and **Klaus M. Miller**, HEC Paris, "The Impact of the General Data Protection Regulation (GDPR) on the Amount of Online Tracking"
- **Laura C. Derksen**, **Anita McGahan**, and **Leandro S. Pongeluppe**, University of Toronto, "Privacy at What Cost? Using Electronic Medical Records to Recover Lapsed Patients into HIV Care"
- **Raveesh Mayya**, New York University, and **Siva Viswanathan**, University of Maryland, "Delaying Informed Consent: An Empirical Investigation of Mobile Apps' Upgrade Decisions"
- **Vincent Lefrere**, Institut-Mines Télécom; **Logan Warberg** and **Alessandro Acquisti**, Carnegie Mellon University; **Cristobal Cheyre**, Cornell University; and **Veronica Marotta**, University of Minnesota, "The Impact of the GDPR on Content Providers"
- **Denis Nekipelov**, University of Virginia, and **Tatiana Komarova**, London School of Economics, "Identification and Formal Privacy Guarantees"
- **Simona Abis**, Columbia University; **Mehmet I. Canayaz**, Pennsylvania State University; **Ilja Kantorovitch**, EPFL (École polytechnique fédérale de Lausanne); **Roxana Mihet**, HEC Lausanne; and **Huan Tang**, London School of Economics, "Privacy Laws and Value of Personal Data"
- **Miremad Soleymanian**, Simon Fraser University; **Charles Weinberg**, University of British Columbia; and **Ting Zhu**, Purdue University, "Privacy Concerns, Economic Benefits, and Consumer Decisions: A Multiperiod Panel Study of Consumer Choices in the Automobile Insurance Industry"

- **Tania Babina**, Columbia University; **Greg Buchak**, Stanford University; and **Will Gornall**, University of British Columbia, “Customer Data Access and Fintech Entry: Early Evidence from Open Banking”
- **Dirk Bergemann**, Yale University, and **Alessandro Bonatti**, Massachusetts Institute of Technology, “Data, Competition and Digital Platforms”
- **Rajkumar Venkatesan**, University of Virginia, and **S. Arunachalam** and **Kiran Pedada**, Indian School of Business, “Short Run Effects of the Generalized Data Protection Act on Returns from AI Acquisitions”
- **Joseph R. Buckman**, Georgia State University; **Idris Adjerid**, Virginia Tech; and **Catherine Tucker**, “Privacy Regulation and Barriers to Public Health”

Summaries of these papers are at nber.org/conferences/economics-privacy-spring-2022

37th Annual Conference on Macroeconomics

The 37th Annual Conference on Macroeconomics took place March 31 to April 1 in Cambridge, MA and online. Research Associates Martin S. Eichenbaum of Northwestern University, Erik Hurst of the University of Chicago, and Valerie A. Ramey of the University of California, San Diego organized the meeting. A keynote address on the economic impact of trade sanctions was delivered by Lawrence Summers of Harvard University. These researchers’ papers were presented and discussed:

- **Rishabh Aggarwal**, Stanford University; **Adrien Auclert**, Stanford University and NBER; **Matthew Rognlie**, Northwestern University and NBER; and **Ludwig Straub**, Harvard University and NBER, “Excess Savings and Twin Deficits: The Transmission of Fiscal Stimulus in Open Economies”
- **Michael D. Bauer**, Universität Hamburg, and **Eric T. Swanson**, University of California, Irvine and NBER, “[A Reassessment of Monetary Policy Surprises and High-Frequency Identification](#)” (NBER Working Paper 29939)
- **Andrea L. Eisfeldt**, University of California, Los Angeles and NBER; **Antonio Falato**, Federal Reserve Board; and **Mindy Z. Xiaolan**, University of Texas at Austin, “[Human Capitalists](#)” (NBER Working Paper 28815)
- **Guido Menzio**, New York University and NBER, “[Stubborn Beliefs in Search Equilibrium](#)” (NBER Working Paper 29937)
- **Job Boerma**, University of Wisconsin-Madison, and **Loukas Karabarbounis**, University of Minnesota and NBER, “Persistent Racial Wealth Gaps”

Summaries of these papers are at nber.org/conferences/37th-annual-conference-macroeconomics-2022

CEPRA/NBER Workshop on Aging, Cognitive Ability, and Decision-Making

A joint CEPRA/NBER Workshop on Aging and Health took place April 1–2 in Lugano, Switzerland. Fabrizio Mazzonna of the Università della Svizzera italiana and Research Associates Kathleen M. McGarry of the University of California, Los Angeles and Jonathan S. Skinner of Dartmouth College organized the meeting. These researchers' papers were presented and discussed:

- **Jannis Stöckel**, **Pieter Bakx**, and **Bram Wouterse**, Erasmus University Rotterdam, “Staying Sick but Feeling Better? The Impact of Health Shocks on Health Perceptions and Behaviors”
- **Maarten Lindeboom**, Vrije Universiteit Amsterdam; **Fabrizio Mazzonna** and **Mariya Melnychuk**, Banco de España (the central bank of Spain), “Mental Health and Retirement”
- **Zarek C. Brot-Goldberg**, University of Chicago; **Timothy Layton**, Harvard University and NBER; **Boris Vabson**, Harvard University; and **Adelina Yanyue Wang**, NBER, “[The Behavioral Foundations of Default Effects: Theory and Evidence from Medicare Part D](#)” (NBER Working Paper 28331)
- **Amitabh Chandra**, Harvard University and NBER; **Evan Flack**, Stanford University; and **Ziad Obermeyer**, University of California, Berkeley and NBER, “[The Health Costs of Cost-Sharing](#)” (NBER Working Paper 28439)
- **Daniel Reck**, London School of Economics, and **Arthur Seibold**, University of Mannheim, “The Welfare Economics of Reference Dependence”
- **John Ameriks**, The Vanguard Group; **Andrew Caplin**, New York University and NBER; **Minjoon Lee**, Carleton University; **Matthew D. Shapiro**, University of Michigan and NBER; and **Christopher Tonetti**, Stanford University and NBER, “[Cognitive Decline, Limited Awareness, Imperfect Agency, and Financial Well-Being](#)” (NBER Working Paper 29634)
- **Michaela Pagel**, Columbia University and NBER, and **Arna Olafsson**, Copenhagen Business School, “Retirement Puzzles: New Evidence from Personal Finances”
- **Kathleen M. McGarry**, “The International Long-Term Care Project”
- **Jing Li**, University of Washington; **Amy Kelley**, Mount Sinai School of Medicine; **Kathleen M. McGarry**; **Lauren H. Nicholas**, Colorado School of Public Health; and **Jonathan S. Skinner**, “Dementia and Long-Run Trajectories in Household Finances”
- **Axel H. Börsch-Supan**, Max Planck Institute for Social Law and Social Policy and NBER; **Michael D. Hurd**, RAND Corporation and NBER; **Susann Rohwedder**, RAND Corporation; and **Luca Salerno**, Max Planck Institute Munich Center for the Economics of Aging, “Saving Regret in the US, Singapore and Europe: Failures of Individual Planning in Different Welfare Systems”
- **Yeongmi Jeong** and **Meghan Skira**, University of Georgia; **Nicholas W. Papageorge**, Johns Hopkins University and NBER; and **Kevin Thom**, University of Wisconsin at Milwaukee, “Genetic Endowments, Alzheimer’s Disease, and Economic Outcomes”

Summaries of some of these papers are at nber.org/conferences/cepranber-workshop-aging-cognitive-ability-and-decision-making-spring-2022

Trade and Trade Policy in the 21st Century

An NBER conference on Trade and Trade Policy in the 21st Century took place April 8–9 in Cambridge and online. Research Associates Stephen J. Redding of Princeton University and Robert W. Staiger of Dartmouth College organized the meeting, which was supported by Smith Richardson Foundation grant #2018-1811. Ngozi Okonjo-Iweala, the director-general of the World Trade Organization, delivered a keynote address. These researchers' papers were presented and discussed:

- **Lu Han**, University of Liverpool, and **Meredith Crowley** and **Thomas Prayer**, University of Cambridge, “The Pro-competitive Effects of Trade Agreements”
- **David Atkin**, Massachusetts Institute of Technology and NBER; **Joaquin Blaum**, Boston University; **Pablo Fajgelbaum**, Princeton University and NBER; and **Augusto Ospital**, University of California, Los Angeles, “Protectionism Unchained: Determinants and Consequences of Discretionary Trade Policy in Argentina”
- **Davin Chor**, Dartmouth College and NBER, and **Bingjing Li**, The University of Hong Kong, “[Illuminating the Effects of the US-China Tariff War on China's Economy](#)” (NBER Working Paper 29349)
- **Sharon Traiberman**, New York University and NBER, and **Martin Rotemberg**, New York University, “Precautionary Protectionism”
- **Emanuel Ornelas**, São Paulo School of Economics, and **John Turner**, University of Georgia, “The Costs and Benefits of Rules of Origin in Modern Free Trade Agreements”
- **T. Renee Bowen** and **Marc-Andreas Muendler**, University of California, San Diego and NBER, and **J. Lawrence Broz**, University of California, San Diego, “The World Trade Organization and US Domestic Politics”
- **Gene M. Grossman**, Princeton University and NBER; **Elhanan Helpman**, Harvard University and NBER; and **Hugo Lhuillier**, Princeton University, “[Supply Chain Resilience: Should Policy Promote Diversification or Reshoring?](#)” (NBER Working Paper 29330)
- **Hanwei Huang**, City University of Hong Kong; **Frank Pisch**, Technical University of Darmstadt; and **Kalina Manova** and **Oscar Perello**, University College London, “Firm Heterogeneity and Imperfect Competition in Global Production Networks”
- **Ernest Liu**, Princeton University and NBER, and **Song Ma**, Yale University and NBER, “[Innovation Networks and Innovation Policy](#)” (NBER Working Paper 29607)
- **Mary Amiti**, Federal Reserve Bank of New York; **Sang Hoon Kong**, Columbia University; and **David Weinstein**, Columbia University and NBER, “[Trade Protection, Stock-Market Returns, and Welfare](#)” (NBER Working Paper 28758)

Summaries of these papers are at nber.org/conferences/trade-and-trade-policy-21st-century-conference-spring-2022

New Developments in Long-Term Asset Management

An NBER conference on New Developments in Long-Term Asset Management took place April 9 in Chicago and online. Research Associates Luis M. Viceira of Harvard University and Annette Vissing-Jorgensen of the Federal Reserve Board organized the meeting, which was supported by Norges Bank Investment Management grant #NFI 2969-39117. A [keynote address](#) was delivered by Stijn Van Nieuwerburgh of Columbia University and the NBER.

- **Ludovic Phalippou**, University of Oxford; **Elise Gourier**, ESSEC Business School; and **Mark Westerfield**, University of Washington, “Capital Commitment”
- **Lauren Cohen**, Harvard University and NBER; **Umit Gurun**, University of Texas at Dallas; and **Quoc Nguyen**, DePaul University, “[The ESG-Innovation Disconnect: Evidence from Green Patenting](#)” (NBER Working Paper 27990)
- **Valentin Haddad**, University of California, Los Angeles and NBER; **Paul Huebner**, University of California, Los Angeles; and **Erik Loualiche**, University of Minnesota, “How Competitive Is the Stock Market? Theory, Evidence from Portfolios, and Implications for the Rise of Passive Investing”
- **Alexander Michaelides** and **Yuxin Zhang**, Imperial College London, “Strategic Asset Allocation for Sovereign Wealth Funds”
- **Xiang Fang** and **Yang Liu**, University of Hong Kong, and **Nikolai Roussanov**, University of Pennsylvania and NBER, “Getting to the Core: Inflation Risks within and across Asset Classes”
- **Lorenzo Bretscher** and **Varun Sharma**, London Business School; **Lukas Schmid**, University of Southern California; **Ishita Sen**, Harvard University; and **Varun Sharma**, London Business School, “Institutional Corporate Bond Pricing”

Summaries of these papers are at nber.org/conferences/new-developments-long-term-asset-management-spring-2022

Megafirms and the Post-COVID Economy

An NBER conference on Megafirms and the Post-COVID Economy took place April 22 in Cambridge and online. Research Associates Chad Syverson of the University of Chicago and John Van Reenen of the London School of Economics organized the meeting, which was supported by Smith Richardson Foundation grant #2018-1897. A [keynote address](#) was delivered by Jean Tirole of the Toulouse School of Economics. These researchers’ papers were presented and discussed:

- **Hendrik Döpper** and **Joel Stiebale**, Heinrich-Heine University Düsseldorf; **Alexander MacKay**, Harvard University; and **Nathan H. Miller**, Georgetown University, “Rising Markups and the Role of Consumer Preferences”
- **Maarten C. De Ridder**, London School of Economics, “Market Power and Innovation in the Intangible Economy”
- **Bo Cowgill** and **Andrea Prat**, Columbia University; and **Tommaso Valletti**, Imperial College London, “Political Power and Market Power”
- **Ginger Zhe Jin**, University of Maryland and NBER; **Mario Leccese**, University of Maryland; and **Liad Wagman**, Illinois Institute of Technology, “[How Do Top Acquirers Compare in Technology Mergers? New Evidence from an S&P Taxonomy](#)” (NBER Working Paper 29642)
- **Florian Ederer**, Yale University, and **Bruno Pellegrino**, University of Maryland, “[A Tale of Two Networks: Common Ownership and Product Market Rivalry](#)” (NBER Working Paper 30004)

- **Renjie Bao** and **Jan Eeckhout**, Universitat Pompeu Fabra, and **Jan De Loecker**, Katholieke Universiteit Leuven and NBER, “[Are Managers Paid for Market Power?](#)” (NBER Working Paper 29918)
- **Hanwei Huang**, City University of Hong Kong; **Frank Pisch**, Technical University of Darmstadt; and **Kalina Manova** and **Oscar Perello**, University College London, “Firm Heterogeneity and Imperfect Competition in Global Production Networks”
- **Spencer Yongwook Kwon**, Harvard University; **Yueran Ma**, University of Chicago and NBER; and **Kaspar Zimmermann**, Leibniz Institute for Financial Research SAFE, “100 Years of Rising Corporate Concentration”

Summaries of these papers are at nber.org/conferences/megafirms-and-post-covid-economy-spring-2022

Investments in Early Career Scientists

An NBER conference on Investments in Early Career Scientists took place April 29 in Washington, DC and online. Research Associates Donna K. Ginther of the University of Kansas, Bruce A. Weinberg of The Ohio State University, and Kaye Husbands Fealing of the Georgia Institute of Technology organized the meeting, which was supported by Alfred P. Sloan Foundation grant #G-2020-14066. Keynote addresses were delivered by Michael Lauer, deputy director for extramural research at the National Institutes of Health, and by Nikolay Ogryzko of UK Research and Innovation. These researchers’ papers were presented and discussed:

- **Joshua L. Rosenbloom**, Iowa State University and NBER, “What Explains Science’s Expanded Reliance on Postdoctoral Researchers?”
- **Stephanie D. Cheng**, Edgeworth Economics; **Elisabeth Perlman** and **Joseph Staudt**, US Census Bureau; and **Wei Yang Tham**, Harvard University, “The Effect of Funding Delays on the Research Workforce: Evidence from Tax Records”
- **Marc J. Lerchenmueller** and **Leo Schmallenbach**, University of Mannheim, and **Karin Hoisl**, Max Planck Institute for Innovation and Competition, “The Effect of Mentor Gender on the Evaluation of Protégés”
- **Breno Braga**, Urban Institute; **Gaurav Khanna**, University of California, San Diego; and **Sarah Turner**, University of Virginia and NBER, “Minimum Wages for the Scientific Workforce: How a Fair Labor Standards Proposal Impacted Postdoctoral Researchers”
- **Ina Ganguli**, University of Massachusetts Amherst, and **Raviv Murciano-Goroff**, Boston University, “Price Shocks and Scientific Production: Evidence from Minimum Wages and University Procurement Contracts”
- **Xuan Jiang**, The Ohio State University; **Joseph Staudt**; and **Bruce A. Weinberg**, “A Tale of Two Markets? Knowledge, Skill, and STEM Career Outcomes”

Summaries of some of these papers are at nber.org/conferences/investments-early-career-scientists-spring-2022

Economics of Culture and Institutions

An NBER conference on the Economics of Culture and Institutions took place April 29–30 in Cambridge and online. Research Associates Alberto Bisin of New York University and Paola Giuliano of the University of California, Los Angeles organized the meeting. These researchers' papers were presented and discussed:

- **Anjali Adukia**, University of Chicago and NBER; **Alex Eble**, Columbia University; and **Emileigh Harrison, Hakizumwami B. Runesha**, and **Teodora Szasz**, University of Chicago, “What We Teach About Race and Gender: Representation in Images and Text of Children’s Books”
- **Saumitra Jha** and **Anna Dagherret**, Stanford University; **Julia Cagé**, Sciences Po; and **Pauline Grosjean**, University of New South Wales, “Heroes and Villains: The Effects of Heroism on Autocratic Values and Nazi Collaboration in France”
- **Paola Giuliano** and **Marco Tabellini**, Harvard University, “[The Seeds of Ideology: Historical Immigration and Political Preferences in the United States](#)” (NBER Working Paper 27238)
- **Humberto Ladares**, University of Geneva, and **Felipe Valencia Caicedo**, University of British Columbia, “Tordesillas, Slavery and the Origins of Brazilian Inequality”
- **Jean-Paul Carvalho**, University of Oxford; **Bary Pradelski**, Université Grenoble-Alpes, CNRS; and **Cole R. Williams**, University of Vienna, “Affirmative Action with Multidimensional Identities”
- **Paula Calvo**, Yale University; **Ilse Lindenlaub**, Yale University and NBER; and **Ana Reynoso**, University of Michigan, “[Marriage Market and Labor Market Sorting](#)” (NBER Working Paper 28883)
- **Jonathan P. Beauchamp** and **Jonathan Schulz**, George Mason University, and **Duman Bahrami-Rad** and **Joseph Henrich**, Harvard University, “Kin-Based Institutions and Economic Development”

Summaries of these papers are at nber.org/conferences/economics-culture-and-institutions-spring-2022

Emerging and Frontier Markets: Capital Flows, Resiliency, Risks, and Growth

An NBER conference on Emerging and Frontier Markets: Capital Flows, Resiliency, Risks, and Growth took place May 9–10 in Cartagena, Colombia. Research Associates Mark A. Aguiar of Princeton University and Şebnem Kalemli-Özcan of the University of Maryland, and Cristina Arellano of the Federal Reserve Bank of Minneapolis, organized the meeting, which was supported by the NBER, the Latin American Reserve Fund, and Banco de la República (the central bank of Colombia). These researchers' papers were presented and discussed:

- **Enrique G. Mendoza**, University of Pennsylvania and NBER, and **Vincenzo Quadrini**, University of Southern California, “Global Demand for Financial Assets, Falling Real Interest Rates and Macroeconomic Instability”
- **Manuel Amador**, University of Minnesota and NBER, and **Javier Bianchi**, Federal Reserve Bank of Minneapolis, “[Bank Runs, Fragility, and Credit Easing](#)” (NBER Working Paper 29397)
- **Haonan Zhou**, Princeton University, “Open Economy, Redistribution, and the Aggregate Impact of External Shocks”

- **Oleg Itskhoki**, University of California, Los Angeles and NBER, and **Dmitry Mukhin**, London School of Economics, “Optimal Exchange Rate Policy”
- **Ina Simonovska**, University of California, Davis and NBER; **Felipe Saffie**, University of Virginia; and **Bryan Hardy**, Bank for International Settlements, “Economic Stabilizers in Emerging Markets: The Case for Trade Credit”
- **Bryan Hardy**; **Karen K. Lewis**, University of Pennsylvania and NBER; and **Xiang Fang**, University of Hong Kong, “Who Holds Sovereign Debt and Why It Matters”
- **Liliana Varela**, London School of Economics; **Laura Alfaro**, Harvard University and NBER; and **Mauricio Calani**, Central Bank of Chile, “[Currency Hedging: Managing Cash Flow Exposure](#)” (NBER Working Paper 28910)
- **Lawrence Christiano**, Northwestern University and NBER; **Hüsnü Dalgic**, University of Mannheim; and **Armen Nurbekyan**, Central Bank of Armenia, “[Financial Dollarization in Emerging Markets: Efficient Risk Sharing or Prescription for Disaster?](#)” (NBER Working Paper 29034)
- **Yasin Kürşat Önder**, Ghent University, and **Maria Alejandra Ruiz-Sanchez** and **Mauricio Villamizar-Villegas**, Banco de la República, “Debt Moratorium: Theory and Evidence”
- **Andrea Fabiani**, Bank of Italy; **Martha Lopez**, Banco de la República; **José-Luis Peydró**, Imperial College London; and **Paul Soto**, Federal Deposit Insurance Corporation, “Capital Controls, Corporate Debt, and Real Effects”
- **Juan C. Hatchondo**, University of Western Ontario; **Leonardo Martinez**, International Monetary Fund; and **César Sosa-Padilla**, University of Notre Dame and NBER, “[Sovereign Debt Standstills](#)” (NBER Working Paper 28292)

Summaries of these papers are at nber.org/conferences/emerging-and-frontier-markets-capital-flows-resiliency-risks-and-growth

Economic Perspectives on Water Resources, Climate Change, and Agricultural Sustainability

An NBER conference on Economic Perspectives on Water Resources, Climate Change, and Agricultural Sustainability took place May 12–13 online. Research Associate Gary D. Libecap of the University of California, Santa Barbara and Ariel Dinar of the University of California, Riverside organized the meeting, which was supported by US Department of Agriculture grant #59-3000-7-0102/3. These researchers’ papers were presented and discussed:

- **Ellen M. Bruno** and **Arthur R. Wardle**, University of California, Berkeley, and **Nick Hagerty**, Montana State University, “The Regulatory Cost and Political Economy of Managing California’s Groundwater”
- **Nicole Karwowski**, University of Wisconsin, “[Estimating the Effect of Easements on Agricultural Production](#)” (NBER Working Paper 30156)
- **Daniel C. Cooley** and **Steven M. Smith**, Colorado School of Mines, “[Center Pivot Irrigation Systems as a Form of Drought Risk Mitigation in Humid Regions](#)” (NBER Working Paper 30093)

- **Kent Kovacs**, USDA Economic Research Service, and **Shelby Rider**, University of Arkansas, “Estimating the Demand for In Situ Groundwater for Climate Resilience: The Case of the Mississippi River Alluvial Aquifer in Arkansas”
- **Jonathan R. McFadden**, USDA; **David J. Smith**, Environmental Protection Agency; and **Steven Wallander**, USDA-ERS, “[Weather, Climate, and Technology Adoption: An Application to Drought-Tolerant Corn in the United States](#)” (NBER Working Paper 30121)
- **Joey Blumberg**, **Chris Goemans**, and **Dale Manning**, Colorado State University, “[Producer Beliefs and Conservation: The Impact of Perceived Water Scarcity on Irrigation Technology Adoption](#)” (NBER Working Paper 30080)
- **Fengxia Dong**, USDA-ERS, “Cover Crops, Drought, Yield, and Risk: An Analysis of US Soybean Production”
- **Eric C. Edwards** and **Wally N. Thurman**, North Carolina State University, “Coordinating Institutions and Adaptation: Agricultural Drainage in the United States”
- **Levan Elbakidze** and **Yuelu Xu**, West Virginia University; **Philip W. Gassman**, Iowa State University; **Jeffrey G. Arnold**, USDA-ERS; and **Haw Yen**, Auburn University, “[Climate Change and Downstream Water Quality in Agricultural Production: The Case of Nutrient Runoff to the Gulf of Mexico](#)” (NBER Working Paper 30153)
- **Konstantinos Metaxoglou**, Carleton University, and **Aaron Smith**, University of California, Davis, “[Nutrient Pollution and US Agriculture: Causal Effects, Integrated Assessment, and Implications of Climate Change](#)” (NBER Working Paper 30124)
- **Charles A Taylor**, Columbia University, “Irrigation and Climate Change: Long-Run Adaptation and Its Externalities”
- **Robert A. Hrozencik**, **Nicholas A. Potter**, and **Steven Wallander**, USDA-ERS, “A National Estimate of Irrigation Canal Lining and Piping Water Conservation”

Summaries of these papers are at

nber.org/conferences/economic-perspectives-water-resources-climate-change-and-agricultural-sustainability

Environmental and Energy Policy and the Economy

An NBER conference on Environmental and Energy Policy and the Economy took place May 19 in Washington, DC and online. Research Associates Tatyana Deryugina of the University of Illinois at Urbana-Champaign, Matthew Kotchen of Yale University, and James H. Stock of Harvard University organized the meeting, which was supported by Alfred P. Sloan Foundation grant #G-2021-16792. The meeting included a panel discussion on the social cost of carbon featuring Richard Newell of Resources for the Future and Richard Revesz of New York University. These researchers’ papers were presented and discussed:

- **E. Mark Curtis**, Wake Forest University, and **Ioana Marinescu**, University of Pennsylvania and NBER, “Green Energy Jobs in the US: What Are They and Where Are They?”
- **Gilbert E. Metcalf**, Tufts University and NBER, “[The Distributional Impacts of a VMT-Gas Tax Swap](#)” (NBER Working Paper 30129)
- **Severin Borenstein**, University of California, Berkeley and NBER, and **Ryan Kellogg**, University of Chicago and NBER, “Carbon Pricing, Clean Electricity Standards, and Clean Electricity Subsidies on the Path to Zero Emissions”

- **Danae Hernandez-Cortes**, Arizona State University; **Kyle C. Meng**, University of California, Santa Barbara and NBER; and **Paige Weber**, University of North Carolina at Chapel Hill, “Decomposing Trends in Air Pollution Disparities from US Electricity”
- **Sarah E. Anderson** and **Andrew Plantinga**, University of California, Santa Barbara; and **Matthew Wibbenmeyer**, Resources for the Future, “Unequal Treatments: Federal Wildfire Fuels Projects and Socioeconomic Status of Nearby Communities”
- **David Weisbach**, University of Chicago; **Samuel S. Kortum**, Yale University and NBER; **Michael Wang**, Northwestern University; and **Yujia Yao**, The World Bank, “Trade, Leakage, and the Design of a Carbon Tax”

Summaries of these papers are at nber.org/conferences/environmental-and-energy-policy-and-economy-conference-spring-2022

Labor Market for Older Workers

An NBER conference on the Labor Market for Older Workers took place May 19–20 in Cambridge, MA and online. Research Associates Robert L. Clark of North Carolina State University, Kevin S. Milligan of the University of British Columbia, and Joseph P. Newhouse of Harvard University organized the meeting, which was supported by Alfred P. Sloan Foundation grants #G-2018-10089 and #G-2017-8870. A [keynote address](#) was delivered by former Council of Economic Advisers Chair Jason Furman of the Harvard Kennedy School. These researchers’ papers were presented and discussed:

- **Rahi Abouk**, William Paterson University; **Keshar M. Ghimire**, University of Cincinnati - Blue Ash; **Johanna Catherine Maclean**, Temple University and NBER; and **David Powell**, RAND Corporation, “Pain Management and Work Capacity: Evidence from Marijuana Legalization”
- **Ian Burn**, University of Liverpool; **Daniel Firoozi** and **Daniel Ladd**, University of California, Irvine; and **David Neumark**, University of California, Irvine and NBER, “Stereotyped Language in Job Ads and Decisions by Older Workers to Apply for a Job: A Field Experiment”
- **Gopi Shah Goda**, Stanford University and NBER; **Emilie Jackson**, Michigan State University; **Lauren H. Nicholas**, Colorado School of Public Health; and **Sarah Stith**, University of New Mexico, “The Impact of COVID-19 on Older Workers’ Employment and Social Security Spillovers: Evidence from Year 2”
- **Laura Quinby**, **Matthew S. Rutledge**, and **Gal Wettstein**, Boston College, “How Has COVID-19 Affected the Labor Force Participation of Older Workers?”
- **Eric French**, University of Cambridge; **Attila S. Lindner** and **Tom Zawisza**, University College London; and **Cormac O’Dea**, Yale University and NBER, “Labor Supply and the Pension Contribution-Benefit Link”
- **Yulya Truskinovsky**, Wayne State University; **Nicole Maestas**, Harvard University and NBER; and **Matt Messel**, Social Security Administration, “Caregiving and Labor Force Participation: New Evidence from Administrative Data”
- **Anikó Bíró**, Centre for Economic and Regional Studies; **Reka Branyiczki** and **Lili Márk**, Central European University; **Attila S. Lindner**; and **Daniel Prinz**, Institute for Fiscal Studies, “Firm Heterogeneity and the Impact of Payroll Taxes”
- **Zhixiu Yu**, University of Minnesota, “Why Are Older Men Working More? The Role of Social Security”
- **Steven G. Allen** and **Ting Wang**, North Carolina State University, “Forever Young: Where Older Workers Keep On Working”

Summaries of some of these papers are at nber.org/conferences/labor-market-older-workers-spring-2022

Inflation Expectations: Determinants and Consequences

An NBER conference on Inflation Expectations: Determinants and Consequences took place May 19 online. Francesco D'Acunto of Boston College, Faculty Research Fellow Michael Weber of the University of Chicago, and Research Associate Jing Cynthia Wu of the University of Notre Dame organized the meeting. A [keynote address](#) was delivered by former Federal Reserve Chair Ben Bernanke, now at the Brookings Institution. These researchers' papers were presented and discussed:

- **Ángelo Gutiérrez-Daza**, Universitat Pompeu Fabra, “Business Cycles When Consumers Learn by Shopping”
- **Elias Albagli** and **Emiliano E. Luttini**, Central Bank of Chile, and **Francesco Grigoli**, International Monetary Fund, “Inflation Expectations and the Supply Chain”
- **Jeremy Rudd**, Federal Reserve Board, “Why Do We Think That Inflation Expectations Matter for Inflation? (And Should We?)”
- **Laura V. Gáti**, European Central Bank, “Monetary Policy and Anchored Expectations - An Endogenous Gain Learning Model”
- **Jonas Fisher** and **Leonardo Melosi**, Federal Reserve Bank of Chicago, and **Sebastian Rast**, De Nederlandsche Bank (the central bank of the Netherlands), “Anchoring Long-Run Inflation Expectations in a Panel of Professional Forecasters”
- **Peter Andre**, University of Bonn; **Ingar K. Haaland**, University of Bergen; **Christopher Roth**, University of Cologne; and **Johannes Wohlfart**, University of Copenhagen, “Narratives about the Macroeconomy”
- **Frédérique Savignac** and **Erwan Gautier**, Banque de France (the central bank of France); **Yuriy Gorodnichenko**, University of California, Berkeley and NBER; and **Olivier Coibion**, University of Texas at Austin and NBER, “[Firms' Inflation Expectations: New Evidence from France](#)” (NBER Working Paper 29376)

Summaries of these papers are at nber.org/conferences/inflation-expectations-determinants-and-consequences-spring-2022

New Directions in Transportation Economics

An NBER conference on New Directions in Transportation Economics took place May 25 online. Research Associates Edward L. Glaeser of Harvard University, James M. Poterba of the Massachusetts Institute of Technology, and Stephen J. Redding of Princeton University organized the meeting, which was supported by the US Department of Transportation through an interagency agreement with the National Science Foundation, grant #1559013. A [keynote address](#) was delivered by Alexander Budzier of the University of Oxford. These researchers' papers were presented and discussed:

- **David S. Rapson**, University of California, Davis, and **Erich Muehlegger**, University of California, Davis and NBER, “[The Economics of Electric Vehicles](#)” (NBER Working Paper 29093)
- **Giulia Brancaccio**, New York University and NBER; **Myrto Kalouptsi**, Harvard University and NBER; and **Theodore Papageorgiou**, Boston College, “Transport Markets, Port Infrastructure, and World Trade”
- **Valentin Bolotnyy**, Stanford University, and **Shoshana Vasserman**, Stanford University and NBER, “Scaling Auctions As Insurance: A Case Study in Infrastructure Procurement”
- **George A. Alessandria**, University of Rochester and NBER, and **Kim J. Ruhl**, University of Wisconsin-Madison and NBER, “Mitigating International Supply-Chain Risk with Inventories and Fast Transport”

- **Elaine Buckberg**, General Motors, “Supply Chain Bottlenecks and Vehicle Production during the COVID-19 Pandemic”
- **Christopher R. Knittel**, Massachusetts Institute of Technology and NBER; **Shanjun Li**, Cornell University and NBER; and **James H. Stock**, Harvard University and NBER, “Policies for Electrifying the Light-Duty Vehicle Fleet in the US”
- **Jeffrey B. Liebman**, Harvard University and NBER, “Improving Procurement Outcomes: Lessons from US Cities, Counties, and States”

Slides for these presentations are at nber.org/conferences/new-directions-transportation-economics-spring-2022

Trans-Atlantic Public Economics Seminar: Economic Behavior and Inequality

An NBER conference, Trans-Atlantic Public Economics Seminar: Economic Behavior and Inequality, took place June 6–8 in Copenhagen. Research Associate Hilary W. Hoynes of the University of California, Berkeley and Claus Thustrup Kreiner of the University of Copenhagen organized the meeting, which was supported by the Center for Economic Behavior and Inequality at the University of Copenhagen. Keynote addresses were delivered by Hoynes and by Richard Blundell of University College London. These researchers’ papers were presented and discussed:

- **Chloe N. East**, University of Colorado Denver; **Sarah Miller**, University of Michigan and NBER; **Marianne E. Page**, University of California, Davis and NBER; and **Laura Wherry**, New York University and NBER, “Multigenerational Impacts of Childhood Access to the Safety Net: Early Life Exposure to Medicaid and the Next Generation’s Health”
- **Antoine Ferey**, University of Munich and CESifo; **Benjamin Lockwood**, University of Pennsylvania and NBER; and **Dmitry Taubinsky**, University of California, Berkeley and NBER, “[Sufficient Statistics for Nonlinear Tax Systems with General Across-Income Heterogeneity](#)” (NBER Working Paper 29582)
- **Sarah Eichmeyer**, University of Munich, and **Christina A. Kent**, Stanford University, “Parenthood in Poverty”
- **Sydnee Caldwell**, University of California, Berkeley; **Scott T. Nelson**, University of Chicago; and **Daniel C. Waldinger**, New York University and NBER, “Tax Refund Uncertainty: Evidence and Welfare Implications”
- **William Boning**, US Department of the Treasury; **Nathaniel Hendren**, Harvard University and NBER; and **Ben Sprung-Keyser** and **Ellen M. Stuart**, Harvard University, “The Heterogeneous Welfare Impacts of Tax Enforcement”
- **Søren Leth-Petersen** and **Johan Saeverud**, University of Copenhagen, **Andrew Caplin**, New York University and NBER; and **Eungik Lee**, New York University, “Communicating Social Security Reform”
- **Petra G. Cavalca**, **Mette Ejrnaes**, and **Mette Gørtz**, University of Copenhagen, “Health, Education, and Crime of Children in Out-of-Home Care”
- **Daniel K. Fetter**, Stanford University and NBER; **Lee Lockwood**, University of Virginia and NBER; and **Paul Mohnen**, University of Pennsylvania, “Long-Run Intergenerational Effects of Social Security”
- **Peter Andre**, briq - Institute on Behavior & Inequality, “Shallow Meritocracy”

- **Tatiana Homonoff**, New York University and NBER; **Eric Giannella** and **Gwen Rino**, Code for America; and **Jason Somerville**, Federal Reserve Bank of New York, “Removing Barriers to Program Enrollment: Experimental Evidence from SNAP”

Summaries of some of these papers are at

nber.org/conferences/trans-atlantic-public-economics-seminar-economic-behavior-and-inequality-2022

Program and Working Group Meetings

Environment and Energy Economics

Members of the NBER’s Environment and Energy Economics Program met March 24–25 in Cambridge and online. Program Director Christopher R. Knittel of the Massachusetts Institute of Technology and Faculty Research Fellow Lint Barrage of the University of California, Santa Barbara organized the meeting. These researchers’ papers were presented and discussed:

- **Yuanming Liang**, Peking University; **Ivan J. Rudik**, Cornell University; and **Eric Zou**, University of Oregon and NBER, “[Economic Production and Biodiversity in the United States](#)” (NBER Working Paper 29357)
- **Nolan H. Miller** and **David Molitor**, University of Illinois at Urbana-Champaign and NBER, and **Eric Zou**, “A Causal Concentration-Response Function for Air Pollution: Evidence from Wildfire Smoke”
- **Thomas R. Covert**, University of Chicago and NBER, and **Richard Sweeney**, Boston College, “Winds of Change: Estimating Learning by Doing without Cost or Input Data”
- **Luis Gonzales**, Pontificia Universidad Católica de Chile; **Koichiro Ito**, University of Chicago and NBER; and **Mar Reguant**, Northwestern University and NBER, “The Value of Infrastructure and Market Integration: Evidence from Renewable Expansion in Chile”
- **Ishan B. Nath**, Princeton University, “Climate Change, the Food Problem, and the Challenge of Adaptation through Sectoral Reallocation”
- **Stefano Carattini** and **Givi Melkadze**, Georgia State University, and **Garth Heutel**, Georgia State University and NBER, “[Climate Policy, Financial Frictions, and Transition Risk](#)” (NBER Working Paper 28525)
- **Mark Buntaine**, University of California, Santa Barbara; **Michael Greenstone**, University of Chicago and NBER; **Guojun He**, University of Hong Kong; **Mengdi Liu**, University of International Business and Economics; **Shaoda Wang**, University of Chicago; and **Bing Zhang**, Nanjing University, “Citizen Participation and Government Accountability: National-Scale Experimental Evidence from Pollution Appeals in China”
- **Jeffrey G. Shrader Jr.**, Columbia University; **Laura A. Bakkensen**, University of Arizona; and **Derek Lemoine**, University of Arizona and NBER, “Fatal Errors: The Mortality Value of Accurate Weather Forecasts”
- **Robyn Meeks** and **Zhenxuan Wang**, Duke University, and **Arstan Omuraliev** and **Ruslan Isaev**, Kyrgyz State Technical University, “Impacts of Electricity Quality Improvements: Experimental Evidence from Infrastructure Investments”
- **Eyal G. Frank** and **Anant Sudarshan**, University of Chicago, “The Social Costs of Keystone Species Collapse: Evidence from the Decline of Vultures in India”

Summaries of these papers are at nber.org/conferences/environment-and-energy-economics-program-meeting-spring-2022

Development of the American Economy

Members of the NBER's Program on the Development of the American Economy met March 26 in Cambridge and online. Program Directors Leah Platt Boustan of Princeton University and William J. Collins of Vanderbilt University organized the meeting. These researchers' papers were presented and discussed:

- **Dora Costa**, University of California, Los Angeles and NBER, "[Health Shocks of the Father and Longevity of the Children's Children](#)" (NBER Working Paper 29553)
- **Lee J. Alston**, Indiana University and NBER; **Marie Duggan**, Keene State College; and **Julio A. Ramos Pastrana**, Pennsylvania State University, "Keeping the Faith: Spanish Missions and Their Impact on Native Americans in the Southwest and California"
- **Samuel Bazzi**, University of California, San Diego and NBER; **Andreas Ferrara**, University of Pittsburgh; **Martin Fiszbein**, Boston University and NBER; **Thomas P. Pearson**, Boston University; and **Patrick A. Testa**, Tulane University, "[The Other Great Migration: Southern Whites and the New Right](#)" (NBER Working Paper 29506)
- **Innessa Colaiacovo**, Harvard University; **Daniel P. Gross**, Duke University and NBER; and **Jorge Guzman**, Columbia University and NBER, "The Development of the American Entrepreneurial Economy"
- **Michela Giorcelli**, University of California, Los Angeles and NBER, and **Bo Li**, Tsinghua University, "[Technology Transfer and Early Industrial Development: Evidence from the Sino-Soviet Alliance](#)" (NBER Working Paper 29455)
- **Hoyt Bleakley** and **Paul Rhode**, University of Michigan and NBER, "The Economic Effects of American Slavery: Tests at the Border"

Summaries of these papers are at nber.org/conferences/development-american-economy-program-meeting-spring-2022

Organizational Economics

Members of the NBER's Organizational Economics Working Group met April 1–2 in Cambridge and online. Working Group Director Robert S. Gibbons of the Massachusetts Institute of Technology organized the meeting. These researchers' papers were presented and discussed:

- **Gary Hamel**, London Business School, "Reinventing Management: Lessons from the Vanguard"
- **Bo Cowgill** and **Patryk Perkowski**, Columbia University; **Jonathan M. V. Davis**, University of Oregon; and **Pablo Montagnés**, Emory University, "Matchmaking Principals: Theory and Evidence from Internal Labor Markets"
- **Alain de Janvry** and **Elisabeth Sadoulet**, University of California, Berkeley; **Guojun He**, University of Hong Kong; **Shaoda Wang**, University of Chicago; and **Qiong Zhang**, Renmin University of China, "Subjective Performance Evaluation, Influence Activities, and Bureaucratic Work Behavior: Evidence from China"
- **Florian Englmaier**, University of Munich; **Stefan Grimm**, **Dominik Grothe**, and **Simeon Schudy**, LMU Munich; and **David Schindler**, Tilburg University, "The Value of Leadership: Evidence from a Large-Scale Field Experiment"

- **Xiang Ding**, Georgetown University; **Teresa C. Fort**, Dartmouth College and NBER; **Stephen J. Redding**, Princeton University and NBER; and **Peter K. Schott**, Yale University and NBER, “[Structural Change within versus across Firms: Evidence from the United States](#)” (NBER Working Paper 30127)
- **Elena Paltseva**, Stockholm School of Economics, and **Gerhard Toews** and **Marta Troya-Martinez**, New Economic School, “I’ll Pay You Later: Relational Contracts in the Oil Industry”
- **Erik Snowberg**, University of Utah and NBER, and **Michael Ting**, Columbia University, “An Organizational Theory of State Capacity”
- **Albert Choi**, University of Michigan, and **Kathryn E. Spier**, Harvard University and NBER, “Liability for Non-disclosure in Equity Financing”
- **Weijia Li**, Monash University; **Gérard Roland**, University of California, Berkeley and NBER; and **Yang Xie**, University of California, Riverside, “Hobbesian War and Democracy”
- **Mariagiovanna Baccara** and **SangMok Lee**, Washington University in St. Louis, and **Leeat Yariv**, Princeton University and NBER, “[Task Allocation and On-the-Job Training](#)” (NBER Working Paper 29312)
- **Florian Ederer**, Yale University, and **Bruno Pellegrino**, University of Maryland, “[A Tale of Two Networks: Common Ownership and Product Market Rivalry](#)” (NBER Working Paper 30004)
- **Michael Haylock** and **Patrick Kampkötter**, University of Tübingen, and **Michael Kosfeld** and **Ferdinand von Siemens**, Goethe University Frankfurt, “Helping and Antisocial Behavior in the Workplace”
- **Robert Akerlof**, University of Warwick; **Anik Ashraf**, LMU Munich; **Rocco Macchiavello**, London School of Economics; and **Atonu Rabbani**, University of Dhaka, “Layoffs and Productivity at a Bangladeshi Sweater Factory”
- **Ingrid Haegele**, University of California, Berkeley, “Talent Hoarding in Organizations”

Summaries of these papers are at nber.org/conferences/organizational-economics-working-group-spring-2022

Asset Pricing

Members of the NBER’s Asset Pricing Program met April 8 in Chicago and online. Research Associates Arvind Krishnamurthy and Monika Piazzesi, both of Stanford University, organized the meeting. These researchers’ papers were presented and discussed:

- **Mark L. Egan**, Harvard University and NBER, and **Alexander MacKay** and **Hanbin Yang**, Harvard University, “[What Drives Variation in Investor Portfolios? Evidence from Retirement Plans](#)” (NBER Working Paper 29604)
- **Mikhail Chernov** and **Lars A. Lochstoer**, University of California, Los Angeles and NBER, and **Dongho Song**, Johns Hopkins University, “[The Real Channel for Nominal Bond-Stock Puzzles](#)” (NBER Working Paper 29085)
- **Niels Joachim Gormsen**, University of Chicago, and **Kilian Huber**, University of Chicago and NBER, “Discount Rates: Measurement and Implications for Investment”
- **Svetlana Bryzgalova**, **Anna Pavlova**, and **Taisiya Sikorskaya**, London Business School, “Retail Trading in Options and the Rise of the Big Three Wholesalers”

- **Lubos Pastor**, University of Chicago and NBER; **Robert F. Stambaugh**, University of Pennsylvania and NBER; and **Lucian A. Taylor**, University of Pennsylvania, “[Dissecting Green Returns](#)” (NBER Working Paper 28940)

Summaries of these papers are at nber.org/conferences/asset-pricing-program-meeting-spring-2022

Race and Stratification

Members of the NBER’s Working Group on Race and Stratification met April 8 in Cambridge and online. Working Group Director Trevon Logan of The Ohio State University; Research Associates Rodney Andrews of the University of Texas at Dallas and Lisa D. Cook of Michigan State University; and Faculty Research Fellow Conrad Miller of the University of California, Berkeley organized the meeting. These researchers’ papers were presented and discussed:

- **Phillip B. Levine**, Wellesley College and NBER, and **Dubravka Ritter**, Federal Reserve Bank of Philadelphia, “The Racial Wealth Gap, Financial Aid, and College Access”
- **Rahul Goravara**, Yale University, “Racial Disparities in Housing Evictions”
- **Alex Chan**, Stanford University, “Discrimination and Quality Signals: A Field Experiment with Healthcare Shoppers”
- **Andrew Butters**, **Daniel W. Sacks**, and **Boyoung Seo**, Indiana University, “Racial Differences in Prices Paid”
- **Vicki Bogan**, **Katya Potemkina**, and **Scott E. Yonker**, Cornell University, “What Drives Racial Diversity on US Corporate Boards?”
- **Robynn J. A. Cox**, University of Southern California; **Jamein P. Cunningham**, Cornell University; and **Alberto Ortega**, Indiana University, “The Impact of Affirmative Action Litigation on Police Killings of Civilians”
- **Ying Shi** and **Maria Zhu**, Syracuse University, “Model Minorities’ in the Classroom? Positive Bias towards Asian Students and Its Consequences”

Summaries of these papers are at nber.org/conferences/working-group-race-and-stratification-spring-2022

Corporate Finance

Members of the NBER’s Corporate Finance Program met April 8 in Chicago and online. Research Associates Giorgia Piacentino of Columbia University and Michael R. Roberts of the University of Pennsylvania organized the meeting. These researchers’ papers were presented and discussed:

- **Samuel Antill**, Harvard Business School, “Are Bankruptcy Professional Fees Excessively High?”
- **Gordon M. Phillips**, Dartmouth College and NBER, and **Gerard Hoberg**, University of Southern California, “Scope, Scale, and Competition: The 21st Century Firm”
- **Guangqian Pan**, University of Sydney; **Zheyao Pan**, Macquarie University; and **Kairong Xiao**, Columbia University, “The Shadow Cost of Collateral”

- **Kristoph Kleiner** and **Niklas Huether**, Indiana University, “Are Judges Randomly Assigned to Chapter 11 Bankruptcies? Not According to Hedge Funds”
- **Raghuram Rajan** and **Luigi Zingales**, University of Chicago and NBER, “What Purpose Do Corporations Purport? Evidence from Letters to Shareholders”
- **Sasha Indarte**, University of Pennsylvania, “Bad News Bankers: Underwriter Reputation and Contagion in Pre-1914 Sovereign Debt Markets”
- **Adriano A. Rampini** and **S. Vish Viswanathan**, Duke University and NBER, “Collateral and Secured Debt”
- **Anthony A. DeFusco**, Northwestern University and NBER; **Huan Tang**, London School of Economics; and **Constantine Yannelis**, University of Chicago and NBER, “[Measuring the Welfare Cost of Asymmetric Information in Consumer Credit Markets](#)” (NBER Working Paper 29270)

Summaries of these papers are at nber.org/conferences/corporate-finance-program-meeting-spring-2022

Behavioral Finance

Members of the NBER’s Behavioral Finance Working Group met April 9 in Chicago and online. Working Group Director Nicholas C. Barberis of Yale University organized the meeting, which was supported by Fuller and Thaler Asset Management and Bracebridge Capital. These researchers’ papers were presented and discussed:

- **Sheridan Titman**, University of Texas at Austin and NBER, and **Lin Peng**, **Muhammed Yonac**, and **Dexin Zhou**, Baruch College, “Social Ties and Predictable Returns”
- **Pedro Bordalo**, University of Oxford; **Katherine B. Coffman**, Harvard University; **Nicola Gennaioli**, Bocconi University; and **Andrei Shleifer**, Harvard University and NBER, “Imagining the Future: Memory, Simulation, and Beliefs about COVID”
- **Taha Choukmane**, Massachusetts Institute of Technology and NBER, and **Tim de Silva**, Massachusetts Institute of Technology, “What Drives Investors’ Portfolio Choices? Separating Risk Preferences from Frictions”
- **Alan Kwan**, Hong Kong University; **Yukun Liu**, University of Rochester; and **Ben Matthies**, University of Notre Dame, “Institutional Investor Attention”
- **Sebastian Hillenbrand** and **Odhrain McCarthy**, New York University, “Heterogeneous Investors and Stock Market Fluctuations”
- **Emanuele Colonnelli**, University of Chicago and NBER; **Niels Joachim Gormsen**, University of Chicago; and **Timothy McQuade**, University of California, Berkeley, “Selfish Corporations”

Summaries of these papers are at nber.org/conferences/behavioral-finance-working-group-meeting-spring-2022

Public Economics

Members of the NBER's Public Economics Program met April 21–22 in Cambridge and online. Faculty Research Fellows Ellora Derenoncourt of Princeton University and Eric Zwick of the University of Chicago and Research Associate Neale Mahoney of Stanford University organized the meeting. These researchers' papers were presented and discussed:

- **Jonathan M. Colmer** and **Brennan Williams**, University of Virginia, and **John L. Voorheis**, US Census Bureau, “Air Pollution and Economic Opportunity in the United States”
- **Jonas Kolsrud**, Uppsala University, and **Camille Landais**, **Johannes Spinnewijn**, and **Daniel Reck**, London School of Economics, “Retirement Consumption and Pension Design”
- **Aria Golestani**, University of California, Irvine, “Silenced: Consequences of the Nuisance Property Ordinances”
- **Katy Bergstrom**, The World Bank; **William Dodds**, Tulane University; and **Juan Rios**, Uber, “Welfare Analysis of Changing Notches: Evidence from Bolsa Familia”
- **Ithai Lurie**, US Department of the Treasury; **Elena Patel**, University of Utah; and **Shanthi Ramnath**, Federal Reserve Bank of Chicago, “Inducing Labor: The Impact of Health Insurance on Postnatal Labor Supply”
- **Thomas Blanchet**, University of California, Berkeley, and **Emmanuel Saez** and **Gabriel Zucman**, University of California, Berkeley and NBER, “Real-Time Inequality”
- **Ursina M. Schaele**, University of Zurich, and **Ville Mankki**, University of Turku, “Quota versus Quality? Long-Term Gains from an Unusual Gender Quota”
- **Sarah Robinson**, University of California, Santa Barbara, and **Alisa Tazhitdinova**, University of California, Santa Barbara and NBER, “What Drives Tax Policy? Political, Institutional, and Economic Determinants of State Tax Policy in the Past 70 Years”
- **Motohiro Yogo**, Princeton University and NBER; **Andrew Whitten**, US Department of the Treasury; and **Natalie Cox**, Princeton University, “Financial Inclusion across the United States”
- **Kevin A. Roberts**, Duke University; **E. Mark Curtis**, Wake Forest University; **Eric C. Ohn**, Grinnell College; **Juan Carlos Suárez Serrato**, Duke University and NBER; and **Daniel G. Garrett**, University of Pennsylvania, “[Capital Investment and Labor Demand](#)” (NBER Working Paper 29485)
- **George Bulman**, University of California, Santa Cruz; **Sarena Goodman**, Federal Reserve Board; and **Adam Isen**, US Department of the Treasury, “The Effect of Wealth on Homeownership, Marriage, and Fertility: Evidence from State Lotteries”
- **Matias Giacobasso**, University of California, Los Angeles; **Brad C. Nathan** and **Alejandro Zentner**, University of Texas at Dallas; and **Ricardo Perez-Truglia**, University of California, Berkeley and NBER, “[Where Do My Tax Dollars Go? Tax Morale Effects of Perceived Government Spending](#)” (NBER Working Paper 29789)
- **Rebecca Diamond**, Stanford University and NBER, and **Enrico Moretti**, University of California, Berkeley and NBER, “[Where Is Standard of Living the Highest? Local Prices and the Geography of Consumption](#)” (NBER Working Paper 29533)
- **Nirupama L. Rao**, University of Michigan, and **Max Risch**, Carnegie Mellon University, “How Do Small Firms Accommodate Minimum Wage Increases? Evidence from Matched Employer-Employee Tax Returns”

- **Andrew Garin**, University of Illinois at Urbana-Champaign; **Emilie Jackson**, Michigan State University; **Dmitri K. Koustas**, University of Chicago; and **Alicia Miller**, Internal Revenue Service, “The Evolution of Platform Gig Work, 2012–2020”

Summaries of some of these papers are at nber.org/conferences/public-economics-program-meeting-spring-2022

Economics of Aging

Members of the NBER’s Economics of Aging Program met April 22 in Cambridge and online. Research Associate Kathleen M. McGarry of the University of California, Los Angeles and Program Director Jonathan S. Skinner of Dartmouth College organized the meeting. These researchers’ papers were presented and discussed:

- **Engy Ziedan**, Tulane University; **Kosali I. Simon**, Indiana University and NBER; and **Coady Wing**, Indiana University, “Mortality Effects of Healthcare Supply Shocks: Evidence Using Linked Deaths and Electronic Health Records”
- **Courtney Coile**, Wellesley College and NBER, and **Haiyi Zhang**, Massachusetts Institute of Technology, “Recessions and Retirement: New Evidence from the COVID-19 Pandemic”
- **Zhuoer Lin** and **Xi Chen**, Yale University, “The Short- and Long-Term Impacts of Dementia on Preventive Care Utilization and Health Behaviors”
- **Taha Choukhmane**, Massachusetts Institute of Technology and NBER; **Jorge Colmenares**, Harvard University; **Lawrence Schmidt**, Massachusetts Institute of Technology; **Cormac O’Dea**, Yale University and NBER; and **Jonathan L. Rothbaum**, US Census Bureau, “Who Benefits from Retirement Saving Incentives in the US? Evidence on Racial Gaps in Retirement Wealth Accumulation”
- **Kuan-Ming Chen**, NBER, and **Ming-Jen Lin**, National Taiwan University, “Understanding Adult Children’s Labor Supply Responses to Parents’ Long-Term Care Needs”

Summaries of these papers are at nber.org/conferences/economics-aging-program-meeting-spring-2022

Chinese Economy

Members of the NBER’s Chinese Economy Working Group met April 22–23 in Cambridge and online. Working Group Director Shang-Jin Wei of Columbia University and Research Associates Nancy Qian of Northwestern University and Daniel Xu of Duke University organized the meeting. These researchers’ papers were presented and discussed:

- **Joris M. Mueller**, Northwestern University, “China’s Foreign Aid: Political Determinants and Economic Effects”
- **Jaya Wen**, Harvard University, “State Employment as a Strategy of Autocratic Control in China”
- **Shengmao Cao**, **Xuejie Yi**, and **Chuan Yu**, Stanford University, “Competitive Bidding in Drug Procurement: Evidence from China”
- **Lei Liu**, Chinese Academy of Social Sciences; **Guangli Lu**, Chinese University of Hong Kong - Shenzhen; and **Wei Xiong**, Princeton University and NBER, “[The Big Tech Lending Model](#)” (NBER Working Paper 30160)

- **Ying Bai** and **Jiaojiao Yang**, Chinese University of Hong Kong, and **Ruixue Jia**, University of California, San Diego and NBER, “The Web of Power: How Elite Networks Shaped War and China”
- **Loren Brandt** and **Gueorgui Kambourov**, University of Toronto; **Ruochen Dai**, Central University of Finance and Economics; **Kjetil Storesletten**, University of Minnesota; and **Xiaobo Zhang**, Peking University, “Serial Entrepreneurship in China”
- **Mark Buntaine**, University of California, Santa Barbara; **Michael Greenstone**, University of Chicago and NBER; **Guojun He**, University of Hong Kong; **Mengdi Liu**, University of International Business and Economics; **Shaoda Wang**, University of Chicago and NBER; and **Bing Zhang**, Nanjing University, “Citizen Participation and Government Accountability: National-Scale Experimental Evidence from Pollution Appeals in China”
- **Shang-Jin Wei**, **Jianhuan Xu**, Singapore Management University; and **Ge Yin** and **Xiaobo Zhang**, Peking University, “Losses from Trade: The Case of China’s Pro-innovation Subsidy Program”
- **Claire Yurong Hong**, Shanghai Advanced Institute of Finance; **Xiaomeng Lu**, Fudan University; and **Jun Pan**, Shanghai Jiao Tong University, “FinTech Platforms and Mutual Fund Distribution”

Summaries of these papers are at nber.org/conferences/chinese-economy-working-group-meeting-spring-2022

Economics of Education

Members of the NBER’s Economics of Education Program met April 28–29 at Stanford University and online. Program Director Caroline M. Hoxby of Stanford University organized the meeting. These researchers’ papers were presented and discussed:

- **David Johnson**, Wilfrid Laurier University, “Variation in High School Grading: Evidence from Alberta, Canada”
- **Andrew Johnston**, University of California, Merced and NBER, and **Jonah E. Rockoff**, Columbia University and NBER, “Pension Reform and Teacher Labor Supply”
- **Christina L. Brown**, University of Chicago, and **Tahir Andrabi**, Pomona College, “Subjective versus Objective Incentives and Employee Productivity”
- **William Arbour**, University of Toronto, and **Marlene Koffi** and **Philip Oreopoulos**, University of Toronto and NBER, “What Does a Good Teacher Sound Like? Using Machine Learning and Voice to Predict Teacher Effectiveness”
- **Zachary Bleemer**, Harvard University, and **Aashish Mehta**, University of California, Santa Barbara, “College Major Restrictions and Student Stratification”
- **Sandra E. Black**, Columbia University and NBER; **Jeffrey T. Denning**, Brigham Young University and NBER; **Lisa J. Dettling** and **Sarena Goodman**, Federal Reserve Board; and **Lesley J. Turner**, Vanderbilt University and NBER, “[Taking It to the Limit: Effects of Increased Student Loan Availability on Attainment, Earnings, and Financial Well-Being](#)” (NBER Working Paper 27658)
- **Andrés Barrios Fernández**, Massachusetts Institute of Technology; **Christopher Neilson**, Princeton University and NBER; and **Seth D. Zimmerman**, Yale University and NBER, “Elite Universities and the Intergenerational Transmission of Human and Social Capital”
- **Anjali Adukia**, University of Chicago and NBER; **Benjamin Feigenberg**, University of Illinois at Chicago; and **Fatemeh Momeni**, University of Chicago, “From Retributive to Restorative: An Alternative Approach to Justice”

- **Todd R. Jones**, Mississippi State University, and **Ezra Karger**, Federal Reserve Bank of Chicago, “School and Crime”
- **Josh Bleiberg**, Brown University and NBER, **Matthew A. Kraft**, Brown University; **Eric Brunner**, University of Connecticut; **Erica Harbatkin**, Michigan State University; and **Matthew Springer**, University of North Carolina, “The Effect of State Teacher Evaluation Reforms on Achievement and Attainment”
- **Joshua Angrist** and **Parag A. Pathak**, Massachusetts Institute of Technology and NBER; **Peter Hull**, Brown University and NBER; and **Christopher R. Walters**, University of California, Berkeley and NBER, “[Race and the Mismeasure of School Quality](#)” (NBER Working Paper 29608)
- **Nishith Prakash** and **Nathan Fiala**, University of Connecticut; **Kritika Narula**, Yale University; and **Ana Garcia-Hernandez**, University of Rosario, “Wheels of Change: Transforming Girls’ Lives with Bicycles”

Summaries of these papers are at nber.org/conferences/economics-education-program-meeting-spring-2022

Political Economy

Members of the NBER’s Political Economy Program met April 29 in Cambridge and online. Research Associates Oeindrila Dube of the University of Chicago and Leeat Yariv of Princeton University organized the meeting. These researchers’ papers were presented and discussed:

- **Eoin F. McGuirk**, Tufts University, and **Nathan Nunn**, Harvard University and NBER, “[Transhumant Pastoralism, Climate Change, and Conflict in Africa](#)” (NBER Working Paper 28243)
- **Saumitra Jha** and **Marcos Manuel Salgado**, Stanford University, and **Peter Koudijs**, University of Rotterdam, “Markets under Siege: How Differences in Political Beliefs Can Move Financial Markets”
- **Kei Kawai**, University of California, Berkeley and NBER, and **Takeaki Sunada**, University of Rochester, “[Estimating Candidate Valence](#)” (NBER Working Paper 29681)
- **Cédric Chambru**, University of Zurich, and **Emeric Henry** and **Benjamin Marx**, Sciences Po, “The Dynamic Consequences of State Building: Evidence from the French Revolution”
- **S. Nageeb Ali**, Pennsylvania State University; **Navin Kartik**, Columbia University; and **Andreas Kleiner**, Arizona State University, “Sequential Veto Bargaining with Incomplete Information”
- **Eleonora Guarnieri**, University of Exeter, “Cultural Distance and Ethnic Civil Conflict”
- **Kristoffer B. Hvidberg**, and **Claus Kreiner**, University of Copenhagen; and **Stefanie Stantcheva**, Harvard University and NBER, “[Social Positions and Fairness Views on Inequality](#)” (NBER Working Paper 28099)

Summaries of these papers are at nber.org/conferences/political-economy-program-meeting-spring-2022

Entrepreneurship and Innovation Policy and the Economy

The NBER hosted the annual Entrepreneurship and Innovation Policy and the Economy conference on May 3 in Washington, DC and online. Research Associates Benjamin Jones of Northwestern University and Josh Lerner of Harvard University organized the meeting, which was supported by Ewing Marion Kauffman Foundation grant #RG-202003-8269. Catherine Wolfram, the deputy assistant secretary for climate and energy economics at the US Department of the Treasury, delivered a keynote address. These researchers' papers were presented and discussed:

- **Jonathan Gruber** and **Simon Johnson**, Massachusetts Institute of Technology and NBER, and **Enrico Moretti**, University of California, Berkeley and NBER, "Place-Based Productivity and Costs in Science"
- **Daniel Hemel**, University of Chicago, and **Lisa L. Ouellette**, Stanford University, "The Generic Drug Trilemma"
- **Robert W. Fairlie**, University of California, Santa Cruz and NBER, and **David T. Robinson**, Duke University and NBER, "Racial Inequality in Capital Access for Innovative Firms"
- **Andrew W. Lo**, Massachusetts Institute of Technology and NBER; **Joseph Barberio**, **Jacob Becraft**, **Tasuku Kitada**, and **Kevin Shi**, Strand Therapeutics; and **Zied Ben Chaouch**, **Dimitris Bertsimas**, **Michael L. Li**, and **Qingyang Xu**, Massachusetts Institute of Technology, "Accelerating Vaccine Innovation for Emerging Infectious Diseases via Parallel Discovery"
- **Jacquelyn Pless**, Massachusetts Institute of Technology, "Divestment or Investment: A Framework for Directing Green Innovation"
- **Ramana Nanda**, Imperial College London, and **Silvia Dalla Fontana**, University of Lugano, "Innovating to Net Zero: Can Venture Capital and Startups Play a Meaningful Role?"

Summaries of some of these papers are at

nber.org/conferences/nber-entrepreneurship-and-innovation-policy-and-economy-meeting-spring-2022

Program on Children

Members of the NBER's Program on Children met May 12–13 in Cambridge and online. Program Directors Anna Aizer of Brown University and Janet Currie of Princeton University organized the meeting. These researchers' papers were presented and discussed:

- **Christopher S. Carpenter**, Vanderbilt University and NBER, and **Brandyn F. Churchill**, Vanderbilt University, "'There She Is, Your Ideal': Negative Social Comparisons and Health Behaviors"
- **Randall Akee**, University of California, Los Angeles and NBER; **Maggie R. Jones**, US Census Bureau; and **Emilia Simeonova**, Johns Hopkins University and NBER, "Tribal Casinos, Economic Well-Being, and Intergenerational Mobility"
- **Achyuta Adhvaryu**, University of Michigan and NBER; **N. Meltem Daysal**, University of Copenhagen; **Snaebjorn Gunnsteinsson**, University of Maryland; **Teresa Molina**, University of Hawaii at Manoa; and **Herdís Steingrimsdóttir**, Copenhagen Business School, "The Long Run Impacts of Child Health on Parents' Economic and Mental Well-Being"

- **Matthew Staiger**, Opportunity Insights, “The Intergenerational Transmission of Employers and the Earnings of Young Workers”
- **E. Jason Baron**, Duke University and NBER, and **Max Gross**, Mathematica, “[Is There a Foster Care to Prison Pipeline? Evidence from Quasi-randomly Assigned Investigators](#)” (NBER Working Paper 29922)
- **Anjali Adukia**, University of Chicago and NBER; **Benjamin Feigenberg**, University of Illinois at Chicago; and **Fatemeh Momeni**, University of Chicago, “From Retributive to Restorative: An Alternative Approach to Justice”
- **Todd R. Jones**, Mississippi State University, and **Ezra Karger**, Federal Reserve Bank of Chicago, “School and Crime”
- **Alex Eble**, Columbia University, and **Maya Escueta**, Duke University, “When Bootstraps Aren’t Enough: Demand, Supply, and Learning in a Very Low-Income Context”
- **Yotam Shem-Tov**, University of California, Los Angeles; **Steven Raphael**, University of California, Berkeley and NBER; and **Alissa Skog**, University of California, Berkeley, “Can Restorative Justice Conferencing Reduce Recidivism? Evidence from the Make-it-Right Program”
- **Peter Conner**, Karolinska Institutet; **Liran Einav**, Stanford University and NBER; **Amy Finkelstein**, Massachusetts Institute of Technology and NBER; and **Petra Persson** and **Heidi L. Williams**, Stanford University and NBER, “Targeting Precision Medicine: Evidence from Prenatal Screening”
- **Helena Svaleryd**, Uppsala University, and **Evelina Björkegren** and **Jonas Vlachos**, Stockholm University, “The Impact of the COVID-19 School Closure on Adolescents’ Use of Mental Healthcare Services in Sweden”
- **Ryan Cooper**, University of Chicago; **Joseph J. Doyle Jr.**, Massachusetts Institute of Technology and NBER; and **Andrés P. Hojman**, Pontificia Universidad Católica de Chile, “Legal Aid in Child Welfare: Evidence from a Randomized Trial of Mi Abogado”

Summaries of these papers are at nber.org/conferences/program-children-meeting-spring-2022

NBER Macroeconomics Annual 2021, Volume 36

Martin Eichenbaum and Erik Hurst, editors

<https://www.journals.uchicago.edu/toc/ma/2022/36>

The *NBER Macroeconomics Annual 2021* presents research on central issues in contemporary macroeconomics.

Robert Hall and Marianna Kudlyak examine unemployment dynamics during economic recoveries. They present new empirical findings and explore models in which the labor market gradually draws down the stock of unemployed workers in the aftermath of a downturn.

Titan Alon, Sena Coskun, Matthias Doepke, David Koll, and Michèle Tertilt show that increased childcare needs, which fell more heavily on women, and differences in occupations both contributed to the relative decline in the employment of women during the COVID-19 pandemic and the associated global recession. In the case of the US, however, each of these factors account for less than 20 percent of the gender gap in hours worked during the pandemic.

Richard Rogerson and Johanna Wallenius study the employment rates of older workers in OECD countries over the last 40 years. An expansion of institutions incentivizing retirement, concurrent with negative aggregate shocks between 1970 and 1995, led to falling employment rates. This trend started to reverse in the mid-1990s when many of these institutions, such as public pension programs, were cut back.

Michael Barnett, William Brock, and Lars Peter Hansen

explore the consequences of risk, ambiguity, and model misspecification in climate policy design. They consider carbon emissions pricing and the effects of different sources of uncertainty — such as future information

about environmental damage, uncertainties in carbon and temperature dynamics and damage functions, and the role of future green technologies — on policy design.

Michael Kremer, Jack Willis, and Yang You present new evidence suggesting a steady trend toward income convergence across countries since the late 1980s. They find convergence in various determinants of economic growth across countries and a flattening of the relationship between growth and these determinants. They challenge theories of growth arising after earlier rejections of the neoclassical growth model.



Tax Policy and the Economy, Volume 36

Robert Moffitt, editor

<https://www.journals.uchicago.edu/toc/tpe/2022/36>

This volume presents five new studies on current topics in taxation and government spending.

Natasha Sarin, Lawrence Summers, Owen Zidar, and Eric Zwick study how investors respond to taxes on capital gains, whether their incentives to invest are affected by those taxes, and whether that responsiveness has changed over time.

Ethan Rouen, Suresh Nallareddy, and Juan Carlos Suárez Serrato revisit the question of whether cuts to corporate taxes increase income inequality, bringing new data and new statistical techniques to generate fresh findings.

Alan Auerbach and William Gale investigate whether the advantages and disadvantages of different types of taxation are affected when interest rates stay low for long periods, as

has been the case in the United States for many years.

Nora Gordon and Sarah Reber study the distributional impact of emergency subsidies to schools made by the federal government during the recent COVID pandemic and whether those subsidies were sufficient to cover the increased school costs induced by the pandemic.

Jacob Goldin, Elaine Maag, and Katherine Michelmore investigate the fiscal cost of an expansion of the US child tax credit, which has been discussed extensively in policy circles recently. They take into account not only direct spending on the allowance but how cost is affected by the existence of work incentives and by possible beneficial effects on children's adult earnings.



Entrepreneurship and Innovation Policy and the Economy, Volume 1

Josh Lerner and Scott Stern, editors

<https://www.journals.uchicago.edu/toc/eipe/2022/1>

Entrepreneurship and innovation are widely recognized as key drivers of long-term economic growth. Understanding the forces that influence them is essential for policy design. Building on the 20-year legacy of the NBER *Innovation Policy and the Economy* series, *Entrepreneurship and Innovation Policy and the Economy* showcases recent research on entrepreneurship and entrepreneurship policy.

The volume reports on five research projects. First, leveraging detailed data from the Business Formation Statistics, John Haltiwanger documents a striking uptick in new business formation during the pandemic and considers the future economic impact of this renewed rate of business dynamism.

The next two chapters focus on disparities in the degree of inclusion of women and people of color in innovation and entrepreneurship. Lisa Cook, Janet Gerson, and Jennifer Kuan examine the history of unequal access to education, training, and the practice and commercialization of invention, and the subsequent loss in innovative capacity and productivity. They also consider the potential effects of policies that address these inequalities. Mercedes Delgado and Fiona Murray complement this analysis by characterizing and analyzing the gender

gap in patented innovation, including the substantial variation in inclusion of women across locations, industries, and individual firms.

The remaining chapters focus on the organization of research and commercialization. Chiara Franzoni, Paula Stephan, and Reinilde Veugelers consider the operation of current research-funding systems with regard to risky research projects and describe the consequences of documented biases against novelty in funding decisions in the context of research on mRNA technology. Drawing on historical lessons from World War II as well as current analysis of innovation policy during COVID-19, Daniel Gross and Bhaven Sampat consider the unique challenges that arise when a crisis necessitates unusually rapid innovation and the deployment, at scale, of research findings.



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1050 Massachusetts Avenue
Cambridge, Massachusetts 02138-5398
(617) 868-3900

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