NBER Reporter

NATIONAL BUREAU OF ECONOMIC RESEARCH

A quarterly summary of NBER research

No. 4, December 2022

Program Report

Health Economics

Kitt Carpenter

The NBER Health Economics Program has historically studied the determinants and consequences of differences in health outcomes, with a focus on education, health insurance coverage, obesity, and risky behaviors such as smoking and drinking. Since the last program report, in 2015, the program has evolved in several important ways. Most notably, Michael Grossman, distinguished professor emeritus at the City University of New York's Graduate Center, stepped down from directing the program in 2020 after nearly 50 years of impactful leadership.

When I became program director, there was a worldwide COVID-19 pandemic underway, an ongoing domestic opioid crisis, changing regulatory landscapes for marijuana and tobacco, and a renewed focus on the social determinants of health and health equity research. Given space constraints — and the fact that since the last program report nearly 1,300 NBER Health Economics working papers have been released — this report can only describe a small fraction of the interesting research in these key areas.

COVID-19

While the world is still emerging from the deadliest health event since the 1918 flu pandemic, health economists and NBER program members have been documenting the extent of COVID-19 and the impact of associated pharmaceutical and nonpharmaceutical interventions for health and well-being. More than 600 NBER working papers have presented pandemic-related research, much of which cuts across multiple program areas. The effects of COVID-19 on

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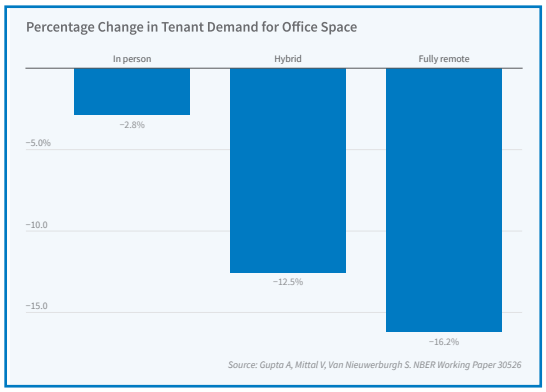

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older Americans were recently summarized in Jonathan Skinner's program report for the Economics of Aging.[1] A first-order issue is correctly documenting the extent and severity of the COVID-19 pandemic on mortality. In the context of the US, Christopher J. Ruhm describes two challenges for correctly accounting for the mortality impact of COVID-19: first, estimating how many deaths would have occurred had the pandemic not occurred; and second, estimating how many deaths that are not coded as COVID-19 deaths were actually indirectly related to COVID-19.[2] Ruhm estimates that there were 646,514 excess deaths in the US from March 2009 to February 2021, with 83.4 percent directly attributable to COVID-19. The pandemic imposed disparate health burdens on different subgroups of the population. For example, Joseph A. Benitez, Charles J. Courtemanche, and Aaron Yelowitz documented racial and ethnic disparities in confirmed COVID-19 cases across six large cities: Atlanta, Baltimore, Chicago, New York, San Diego, and St. Louis.[3] They found that higher percentages of Black and Hispanic residents in a particular ZIP code were associated with more COVID-19 cases per capita, and most of these disparities remain unexplained even after including detailed observable controls. Marcella Alsan, Amitabh Chandra, and Kosali I. Simon document that Hispanic and Black Americans saw 39.5 and 25 percent increases respectively in excess mortality relative to trend, versus less than 15 percent for Whites.[4] They also document within a commercially insured population that Black and Hispanic enrollees were hospitalized due to COVID-19 at higher rates than White enrollees, even after controlling for observable covariates.

Many studies have examined how COVID-19 closure policies affected both COVID-19-related and non-COVID-19-related health outcomes, with studies reaching a range of different conclusions. Early research on this question is reviewed by Sumedha Gupta, Simon, and Coady Wing; they also use event study approaches and conclude from their own studies and the existing literature that "there is fairly consistent evidence that the state social distancing policies have helped improve health outcomes as measured by cases and deaths."[5] Other studies have reached different conclusions, however. Virat

Agrawal, Jonathan H. Cantor, Neeraj Sood, and Christopher M. Whaley use event study methods and data from 43 countries and all US states to show that shelter-in-place (SIP) policies were unrelated to excess deaths.[6] In a related paper, Cantor, Sood, Dena Bravata, Megan Pera, and Whaley show that SIP policies significantly reduced use of preventive and elective care as well as weekly visits to physician offices and hospitals, though they also show that controlling for county-level exposure to COVID-19 weakens this relationship.[7] They argue that this pattern suggests significant reductions in mortality would have occurred even in the absence of the lockdown-related policies.

Health economists have also examined effects of COVID-19 on other important health outcomes. Lindsey Rose Bullinger, Jillian B. Carr, and Analisa Packham study the effects of stay-at-home orders on domestic violence, finding that such orders increased time spent at home and reduced total calls for police service, but increased domestic-violence-related calls for police service, with larger effects in areas with more renters.[8] In a different study using SafeGraph mobility data, Martin Andersen, Sylvia Bryan, and David Slusky find that state bans on elective medical procedures during COVID-19 — which in 13 states included surgical abortions — led to significant reductions in abortion clinic visits, with further reductions for states that imposed stay-at-home orders.[9] Overall, this reduced foot traffic reduced abortions by 7 percent in 2020 relative to 2019.

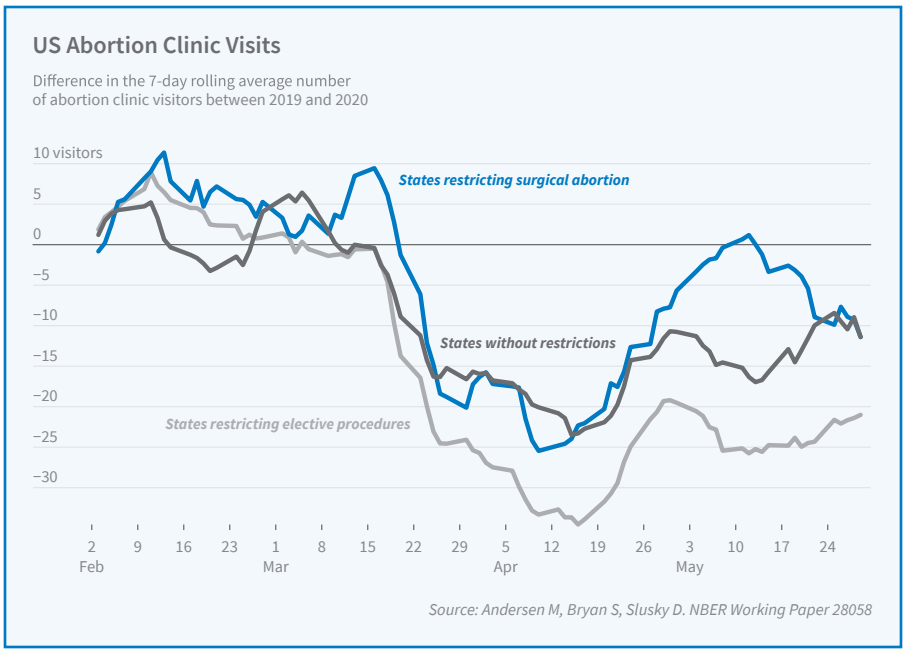

Figure 1

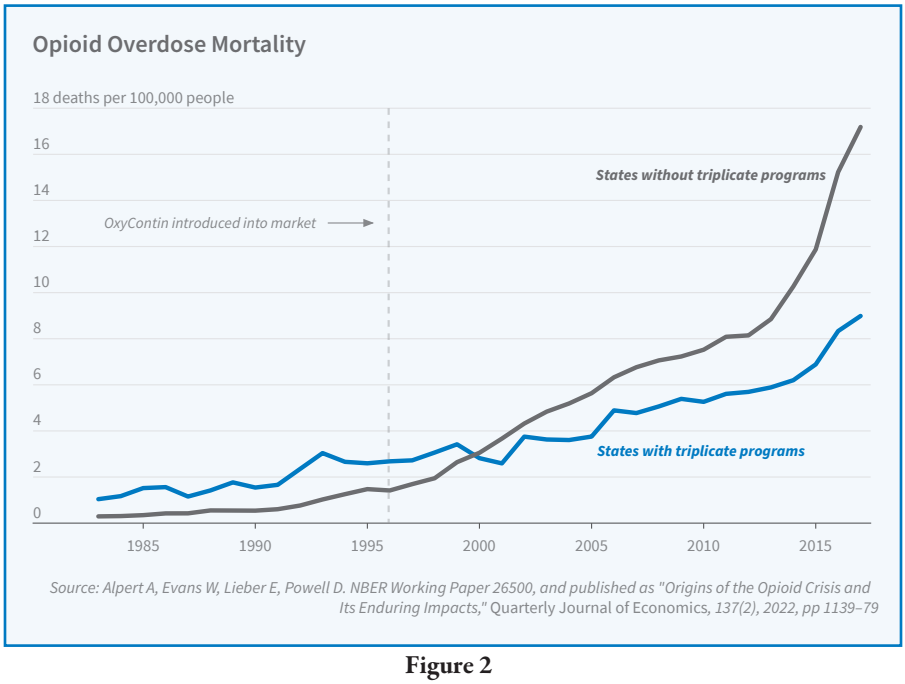

Figure 2

Opioid Crisis

Over the past decade, the central challenge of the opioid crisis changed from addressing lax prescribing and subsequent supply side restrictions to limiting access to lethal synthetic opioids such as fentanyl. Health Economics Program members have contributed significantly to our understanding of these phenomena, with excellent recent reviews by Johanna Catherine Maclean, Justine Mallatt, Ruhm, and Simon.[10]

One particularly novel and high-profile study documented the role of state regulatory stances toward prescribing behavior in driving the long-term path of the opioid epidemic. Abby E. Alpert, William N. Evans, Ethan M. J. Lieber, and David Powell use unsealed documents from Purdue Pharma to show that state-based triplicate prescription programs were seen as barriers to successful marketing of OxyContin, one of the most-prescribed opioids in the late 1990s.[11] Although states with triplicate programs had higher overdose death rates than states without such programs prior to the 1996 launch of OxyContin, this relationship reversed sharply after 1996, and the triplicate states had lower opioid-related overdose death rates even two decades after OxyContin's initial launch.

Other research has identified key factors contributing to the opioid epidemic. Powell, Rosalie Liccardo Pacula, and Erin Taylor find that Medicare Part D's drug benefit, which was introduced in 2006, led to larger increases in opioid utilization for individuals under age 65 in states with a larger share of older adults, consistent with a significant diversion.[12] Another study by Alpert, Powell, and Pacula, using variation across states prior to 2010 in the prescription opioid misuse rate, showed that the introduction of abuse-deterrent OxyContin in 2010 contributed to the heroin epidemic.[13] Evans, Lieber, and Patrick Power find a similar result using structural break techniques.[14]

In terms of policies to reduce opioid-related harms, Thomas C. Buchmueller and Colleen Carey use large samples of Medicare beneficiary data and difference-in-differences models to show that state-level "must access" prescription drug monitoring programs (PDMPs) were associated with significant reductions in various measures of opioid misuse, a finding consistent with doctor shopping and related behaviors.[15] Dhaval M. Dave, Anca M. Grecu, and Henry Saffer find a similar result for young adults using data from the Treatment Episode Data Set (TEDS).[16] Other research has examined the public health consequences of PDMPs. For example, Dave, Monica Deza, and Brady P. Horn find that PDMPs reduce both violent and property crime.[17] Engy Ziedan and Robert Kaestner find that when mothers use fewer opioids as a result of state policies such as PDMPs, infant health improves significantly.[18]

Changing Regulatory Environments for Substance Use

Research by Health Economics Program members has also advanced understanding of the effects of changing regulatory environments for tobacco and marijuana. For example, D. Mark Anderson and Daniel I. Rees, in a recent review article, summarize what is known about the public health effects of legalizing marijuana.[19] They argue that there is little credible evidence that medical marijuana laws (MMLs) increased youth marijuana use, though Pacula, Powell, Paul Heaton, and Eric L. Sevigny suggest that alternative ways of coding state MMLs — in particular accounting for home cultivation and legal dispensary provisions — do yield evidence that MMLs increase youth marijuana use.[20] Another key question is whether MMLs are associated with changes in opioid use and opioid-related harms. For example, Powell, Pacula, and Mireille Jacobson find that MMLs that permit dispensaries see reductions in opioid addictions and opioid overdose deaths relative to states without MMLs, while a simple MML indicator that does not account for dispensaries does not produce this effect.[21] Neil K. Mathur and Ruhm argue that most existing results in the growing literature on MMLs and opioid deaths are highly sensitive to model specification choices.[22]

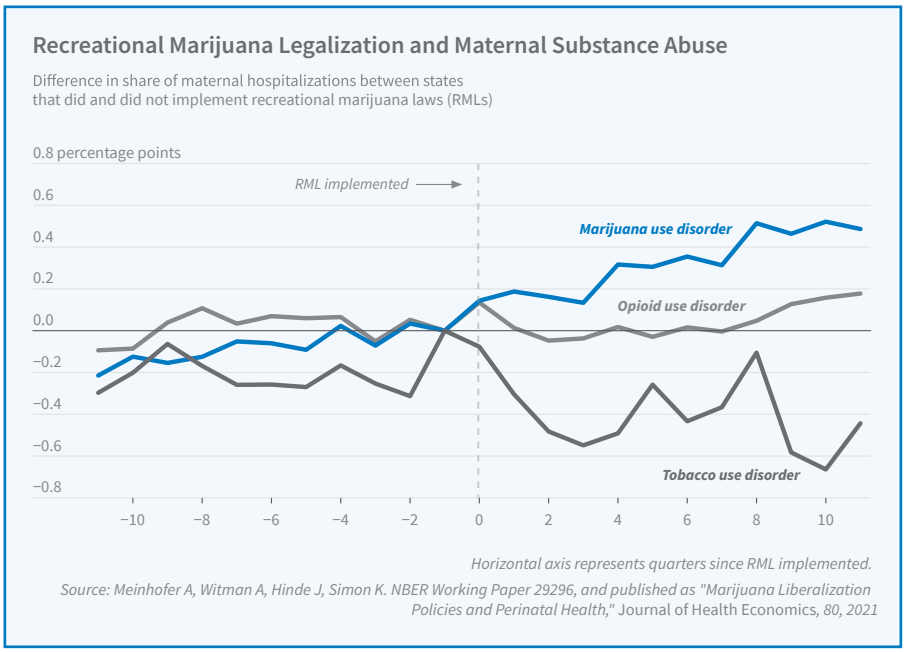

Figure 3

The other major trend in policy stance toward marijuana has been an increase in the number of states that have legalized marijuana for recreational use. Because these policies have been adopted relatively recently — and always following MMLs within states — there has been less research on their effects. Examining use of marijuana and other drugs, Joseph J. Sabia, Dave, Fawaz Alotaibi, and Rees find that while recreational marijuana laws (RMLs) increase adult marijuana use, there is no evidence that they change use of hard drugs.[23] Other studies examine how RMLs affect public health outcomes. Benjamin Hansen, Keaton S. Miller, and Caroline Weber use synthetic control models to study Colorado and Washington State, both of which legalized recreational marijuana in 2014. They find that comparison states saw similar changes in marijuana-related, alcohol-related, and overall traffic fatalities, suggesting that RML policy per se had no causal effect on traffic fatalities.[24] Angélica Meinhofer, Allison E. Witman, Jesse M. Hinde, and Simon estimate how MMLs and RMLs affect perinatal health, finding that although MMLs had no effects on outcomes, RMLs increased the share of maternal hospitalizations with marijuana use disorder and decreased maternal hospitalizations with tobacco use disorder, resulting in no net change in substance use disorder hospitalizations.[25]

In addition to investigating marijuana's impacts, health economists have also made important contributions to an understanding of the determinants of

combustible and e-cigarette use. Much of this work is summarized in a recent review by Philip DeCicca, Donald S. Kenkel, and Michael F. Lovenheim.[26] Regarding combustible cigarette smoking, scholars have studied the effects of state laws to set the minimum cigarette purchase age at 21, so-called T-21 laws. Calvin Bryan, Hansen, Drew McNichols, and Sabia find that state T-21 laws significantly reduce smoking participation among 18-to-20-year-olds and may also reduce e-cigarette use among some high school students.[27] Other research has examined the role of regulating flavors of combustible cigarettes. Hai V. Nguyen and I studied the experiences of Canadian provinces with banning menthol cigarette sales, showing that those policies reduced menthol cigarette smoking but increased nonmenthol cigarette smoking among youths. They also saw more adults buying menthols on First Nations reserves, where menthol bans are nonbinding.[28]

Much of the focus of recent smoking-related research has been on the role of electronic nicotine delivery systems (ENDS). There has been an active debate about whether and for whom ENDS are complements to or substitutes for combustible cigarettes. Studies often use variation in the effective price of ENDS induced by minimum legal sale ages, ENDS-specific taxes, or other vaping-related regulations. Rahi Abouk, Courtemanche, Dave, Bo Feng, Abigail S. Friedman, Maclean, Michael F. Pesko, Sabia, and Samuel Safford analyze large surveys of youths from the Monitoring the Future study and the Youth Risk Behavior Surveillance System and find that ENDS taxes reduce youth ENDS consumption but also significantly increase youth combustible cigarette smoking, suggesting economic substitution.[29] Similar patterns of results are obtained in NielsenIQ Retail Scanner data by Chad D. Cotti, Courtemanche, Maclean, Erik T. Nesson, Pesko, and Nathan Tefft.[30] In addition to ENDS taxes, other ENDS-related policies have also been studied. Jeffrey S. DeSimone, Daniel S. Grossman, and Nicolas R. Ziebarth examine the effects of the minimum age for legal e-cigarette purchase using regression discontinuity methods and find that federal and state setting of 18 as the minimum age reduced e-cigarette use by 15–20 percent.[31] Other ENDS-related research has focused on adults. Dave, Daniel Dench, Michael Grossman, Kenkel, and Saffer study the role of e-cigarette advertising using a variety of fixed-effects approaches that exploit arguably exogenous variation in advertisement placement for people who otherwise watch the same television shows or read the same magazines.[32] They find that e-cigarette advertising on television is associated with reductions in adult combustible cigarette smoking, with no such effect of e-cigarette advertising in magazines.

Social Determinants of Health and Health Equity

In addition to the numerous substantive and policy debates that have attracted the attention of health economists, there has been a noticeable shift to investigating social determinants of health and health equity topics. This includes research on key subpopulations, such as racial and ethnic minorities, LGBTQ+ people, and immigrants, as well as on the role of policy in contributing to differences in health outcomes across these groups. For example, Manasvini Singh and Atheendar Venkataramani try to understand racial disparities in hospital mortality. Using time-stamped electronic health record data from two large hospitals, they point to the role of capacity strain: when hospitals approach capacity, there is more in-hospital mortality of Black patients than of White patients, possibly attributable to biases in provider behavior and hospital processes.[33] Other studies have examined health economics topics relevant to other vulnerable populations such as LGBTQ+ people. For example, Dario Sansone and I examined the effects of cigarette taxes on smoking among sexual-minority adults, finding that higher cigarette taxes significantly reduced smoking for men and women in same-sex households, a substantial share of whom are sexual minorities in romantic relationships.[34] And in a separate study, Gilbert Gonzales Jr., Tara McKay, Sansone, and I studied how the 2010 Affordable Care Act's dependent coverage mandate affected health insurance coverage among young adults in same-sex couples. We found that age-eligible men in same-sex couples were significantly more likely to be covered by health insurance after 2010 relative to their slightly older age-ineligible counterparts.[35] Finally, while not directly studying LGBTQ+ people, Marcus Dillender documents the longer-term effects of arbitrary policy features that resulted in large funding differences across cities that were originally on parallel HIV/AIDS paths. He finds that policy-induced differences in funding per case contributed to uneven progress in combating the HIV/AIDS epidemic, which has disproportionately affected vulnerable communities.[36]

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Sabrina Howell is an associate professor of finance at New York University's Stern School of Business and a research associate at the NBER affiliated with the Productivity, Innovation, and Entrepreneurship Program. Her research focuses on entrepreneurial finance, innovation, private equity, fintech, and China.

A theme throughout Howell's work is a focus on analysis that is relevant for policymakers and practitioners. She is the author of articles published in journals such as *The Quarterly Journal of Economics*, *American Economic Review,* and *The Journal of Finance.* Howell received her BA from Yale University in 2008 and her PhD from Harvard University in 2015. In between, she worked as an energy consultant for Charles River Associates in Houston, and on energy security policy for the nonprofit, nonpartisan organization Securing America's Future Energy, in Washington DC. She is a recipient of the AQR Top Finance Graduate Award at Copenhagen Business School, the National Science Foundation Graduate Research Fellowship, the Kauffman Foundation Junior Faculty Fellowship, and the AQR Asset Management Institute Young Researcher Award.

Mechanisms and Impacts of Innovation Policy

Sabrina T. Howell

The importance of innovation to job creation and economic growth — especially in young, high-growth firms — is widely accepted among economists as well as members of the business and policy communities. There is also a recognition that, at least at some times or in certain settings, the private sector underinvests in innovation, creating an opportunity for the public sector to step into the breach.

The longstanding problem is *how*. What tools are most effective?

There are myriad opportunities for government programs to fail. For example, if a program subsidizes only the "best projects," those that would likely have gone forward with private capital regardless of government involvement, this is likely to be a poor use of taxpayer dollars. Alternatively, if only poor-quality projects are supported, they might fail even with government support.

In my research, I seek to understand the effects of, and mechanisms behind, common policy tools that subsidize high-growth entrepreneurship and innovation in the United States. In doing so, I hope to inform policymaking and shed light on the constraints and trade-offs of the innovation process.

Three key themes emerge in my work. First, program design appears to be more important than the amount of funding. For example, it is important to enable innovators to pivot and to control the commercialization pathway of their ideas. Second, effectiveness depends on which firms decide to apply for support. Programs need to target firms with the potential to benefit, and succeed in getting them to apply for support. Finally, direct federal funding plays an important role in our innovation ecosystem and is not always substitutable with private or privately intermediated alternatives.

The Evaluation Challenge

Economists have long been interested in evaluating government innovation programs, but it has been hard to identify causal effects. Program administrators are typically loath to run experiments. My work has addressed this challenge by employing several empirical approaches.

The most important of these methods is a regression discontinuity design (RDD) in which I compare winning and losing applicants within a competition for a grant or contract. I control for the rank that the program assigns to each applicant. Importantly, the cutoff decision determining which ranks win is exogenous to the ranking process. The key insight is that near the cutoff for winning, winners and losers should be similar, creating a natural experiment.

In other work, I use staggered program rollout designs, while addressing potential bias from pretreatment observations being considered by the model as controls. A final method is to instrument for funding using plausibly exogenous shocks. All three of these methods can be applied in many policy evaluation settings, and if carefully executed can reveal causal effects.

Design and Selection: Evidence from the SBIR Program

The US Small Business Innovation Research (SBIR) program, which was estab-

lished in 1982, is the main vehicle by which the federal government directly supports innovation at small firms and encourages them to enter the federal contracting pipeline. It is available at 11 federal agencies and always has two stages. Firms first apply to a subsector- or topic-specific Phase 1 competition for awards, usually about $150,000. Phase 1 winners may then apply nine months later for $1 million Phase 2 awards. The SBIR program has been imitated around the world, and thus represents a particularly important research setting.

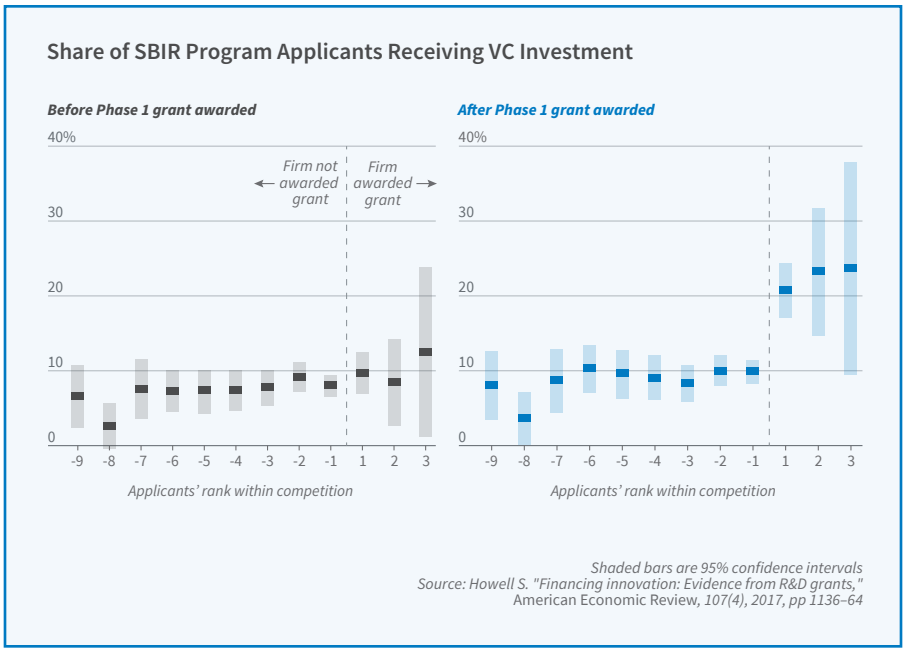

Figure 1

In a project using data from the SBIR program at the Department of Energy (DOE), I conducted the first quasi-experimental, large-sample evaluation of R&D grants to private firms.[1] Using the RDD approach, I found strong effects of the Phase 1 awards: they dramatically increased citation-weighted patenting, the chance of raising venture capital (VC) investment, revenue, and survival. On average, the early-stage grants did not crowd out private capital and instead enabled new technologies to go forward.

The picture was not so rosy for Phase 2. This larger grant had no measurable effect, except for a small positive effect on citation-weighted patents. I found evidence of adverse selection in Phase 2 applications. Almost 40 percent of Phase 1 winners did not apply to Phase 2, and these were disproportionately VC recipients. Phase 2 eligibility criteria, which include requirements that the firm not change its business strategy and not be more than 50 percent investor owned, apparently generated this adverse selection. This finding underscores the general theme that who decides to apply—i.e., selection—is a powerful force determining the effectiveness of a program.

Selection also plays a role in my work with John Van Reenen, Jason Rathje, and Jun Wong, which explores the design of public sector innovation procurement initiatives.[2] A key decision is whether to take a centralized approach where the desired innovation is tightly specified or to take a more open, decentralized approach where applicants are given leeway to suggest solutions. We compare these two approaches using a quasi-experiment conducted by the US Air Force SBIR program.

That program holds multiple competitions about every four months in which firms apply to develop military technologies. The Conventional Program approach is to hold competitions with highly specific topics such as "Affordable, Durable, Electrically Conductive Coating or Material Solution for Silver Paint Replacement on Advanced Aircraft." After 2018, the Air Force also included an Open Program competition that ran alongside the Conventional model, wherein firms could propose anything they thought the Air Force would need.

We found that winning an open topic competition had positive and significant effects on three outcomes desired by the program administrators: the chances of the military adopting the new technology, the probability of subsequent VC investment, and patenting and patent originality. By contrast, winning a Conventional award had no measurable effect on any of these outcomes. Nor were there any causal impacts of winning a Conventional award between 2003 and 2017, before the Open Program was introduced.

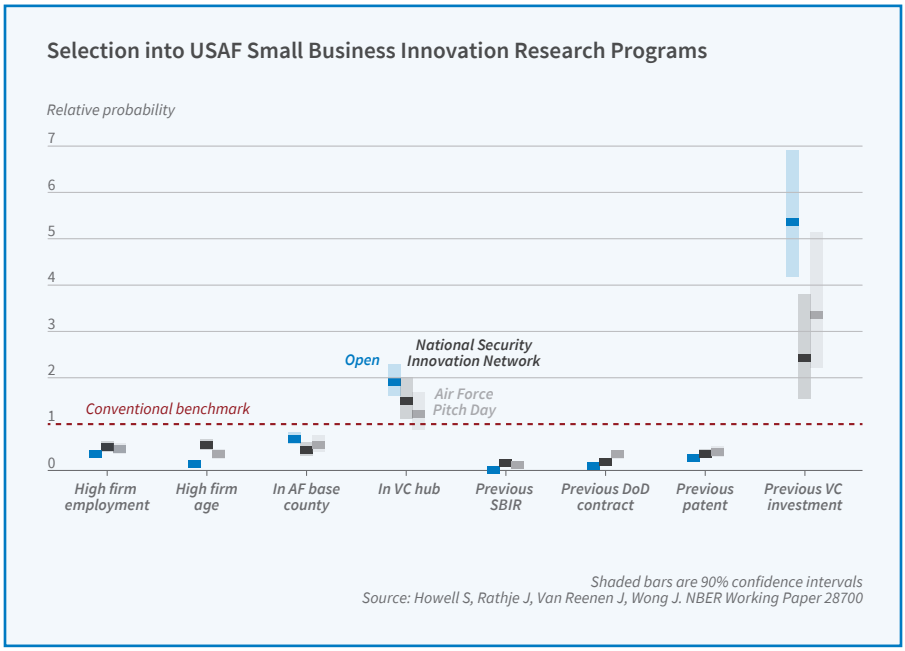

Figure 2

Both selection and

decentralization played a role in the Open Program's success. It reached firms with startup characteristics that were less likely to have had previous defense contracts — a selection effect. At the same time, however, we also found that openness matters. For example, there were significantly more positive effects of Open awards even among the firms that applied to both the Open and Conventional Programs. Also, when a Conventional topic was less specific and thus closer to the Open Program's approach, winning an award for that topic significantly increased innovation.

The Open Program seems to work in part because it provides firms with an avenue to identify technological opportunities of which the government is not yet fully aware, and it enables firms to pursue their private and government commercialization pathways simultaneously. These results are relevant beyond the Air Force, as governments and private firms increasingly turn to open or decentralized approaches to soliciting innovation.

We found that a negative federal funding shock nearly halved a researcher's chance of founding a high-tech startup, but doubled their chance of being an inventor on a patent. The shock also reduced the number of publications, especially those that are more basic, more cited, and in higher-impact journals.

What could explain these seemingly puzzling findings? We found evidence that they were in part driven by a shift from federal to private funders. While federal awards typically assert no property rights to research outcomes, private firms have incentives to appropriate research outputs, and for that reason employ complex legal contracts with researchers. As the composition of research funding shifts from federal to private sources, outputs are more often commercialized by the private funder, rather than disseminated openly in publications or taken to a startup by the researcher.

In all the programs discussed thus far, the government directly targets the operating firm or innovator. A popular alternative approach is to target financial intermediaries, such as VC funds — as is done in Israel, Canada, Singapore, China, and some other countries — or angel investors.

More than 14 countries and most US states offer angel investor tax credits. Matthew Denes, Filippo Mezzanotti, Xinxin Wang, Ting Xu, and I studied these credits.[4] They offer several promising features: no need for government to pick winners, low administrative burdens, and market incentives with investors retaining skin in the game.

Angel tax credits increase the number of angel investments by approximately 18 percent and the number of individual angel investors by 32 percent. Surprisingly, however, we found that angel tax credits do not appear to generate high-tech firm entry or job creation.

One reason for this outcome appears to be selection: additional investment flows to relatively low-growth firms. The angel investments appear to crowd out investment that would have happened otherwise, as common informal equity stakes — often made by insiders in the firm or family members of the entrepreneur — are labeled as "angel."

Another reason emerges from the theory of investment in early stage, high-growth firms. These investments have fat-tailed returns. We find that as the right tail grows fatter, professional investors become less sensitive to the tax credits. This limits the ability of the policy to reach its intended targets — potentially high-growth startups. In the words of one survey respondent explaining why angel tax credits do not affect decision-making, "I'm more focused on the big win than offsetting a loss."

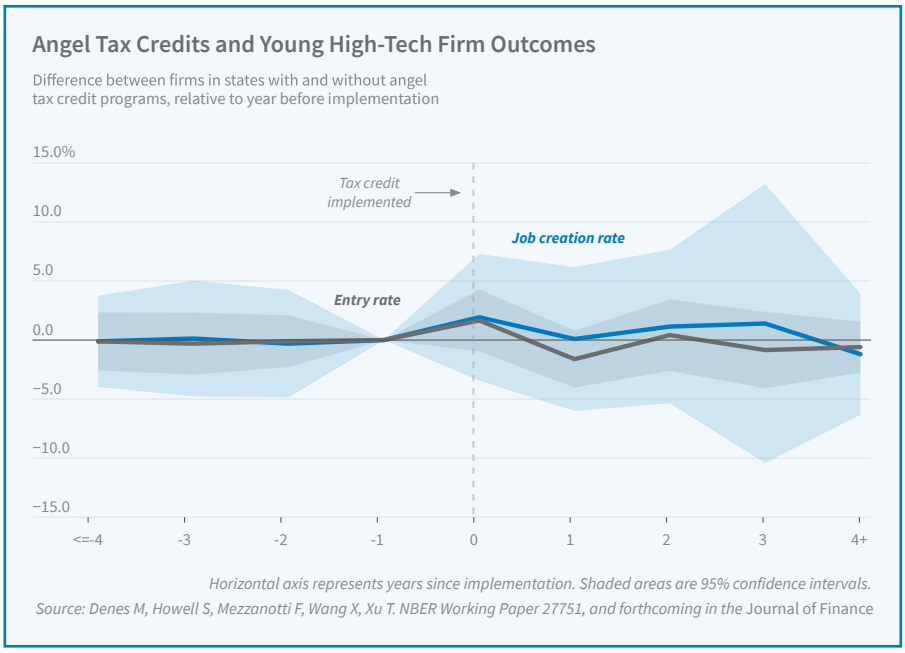

Figure 3

Incentives: Who Is Funding?

I also found benefits of openness in a different setting: university research. Unlike the two projects focusing on important government programs, this project explored what happened when federal funding declined, shedding light on substitutability with private funding.

Together with Tania Babina, Alex He, Elisabeth Perlman, and Joseph Staudt, I asked whether declines in federal R&D funding affected the innovation outputs of academic research.[3] We linked data on all employees of all grants at 22 universities to career outcomes of individuals in the US Census Bureau's IRS W-2 files, patent inventors, and publication authors in the PubMed database.

Spillovers and Financial Constraints

Both the university research and angel tax credit projects highlight the role of decision-maker incentives, which determine the projects that get funded and their pathways to commercialization.

While private funders and private intermediaries have attractive features, notably reducing the burden on government and costly taxpayer dollars, they have different incentive structures relative to government funders. In the programs I have studied, private sector actors have incentives to select projects with fewer knowledge spillovers.

My work also highlights that effective programs target financially constrained firms. The strong positive effects of the SBIR programs stem from awards to small, young firms that are new to SBIR and to government contracting. J. David Brown and I show that the small firms that benefit from SBIR awards use the funds in part to pay employees, especially those with long tenure at the firm.[5] These financially constrained firms appear to finance themselves in part by engaging in back-loaded wage contracts with their workers. By alleviating constraints, an effective program paves the way for future investment and growth.

In contrast, in both the DOE and Air Force settings, it seems that SBIR awards crowd out private investment among larger firms that win many such awards. Similarly, angel tax credit programs crowd out private activity because investors often use them in deals that would have occurred regardless of the program.

While money is of course fungible, my research suggests that the source of innovation funds and program design — especially design features that affect who applies to the program — matter a great deal.

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Real Estate Values in the Time of COVID

Stijn Van Nieuwerburgh

Real estate values capture the agglomeration benefits tied to the area where properties are located. Improvements to these locations, for example infrastructure investments, increase real estate values. Conversely, these values are vulnerable to reductions in local economic activity. My recent research uses changes in real estate values to measure the location-specific impact of the pandemic and to evaluate location-improving policies.

One branch of this work focuses on how the pandemic has affected residential real estate markets in US metropolitan areas. Arpit Gupta, Vrinda Mittal, Jonas Peeters, and I document the exodus from urban centers to suburban locations at the start of the pandemic.[1] Using cellphone ping data to determine location of residence, we find large outmigration from urban centers into suburban locations between late February and late March 2020. While cellphone data are suitable for measuring higher-frequency mobility, change-of-address data may be more appropriate for tracking persistent relocation. Data from Infutor confirm that outmigration rates were high from urban cores and low in the suburbs.

Not only did households move within metropolitan areas, they also moved between them. Data from the US Census Bureau, the Postal Service, and interstate moving companies reveal migration from large coastal metropolitan areas to smaller, lower-density cities and to nonmetropolitan areas. For example, cities with population above 1 million lost 0.16 percent of their population between July 2020 and July 2021, while smaller metropolitan areas grew 0.6 percent faster than before the pandemic and nonmetropolitan areas grew 0.25 percent faster, reversing a decade of shrinkage.[2]

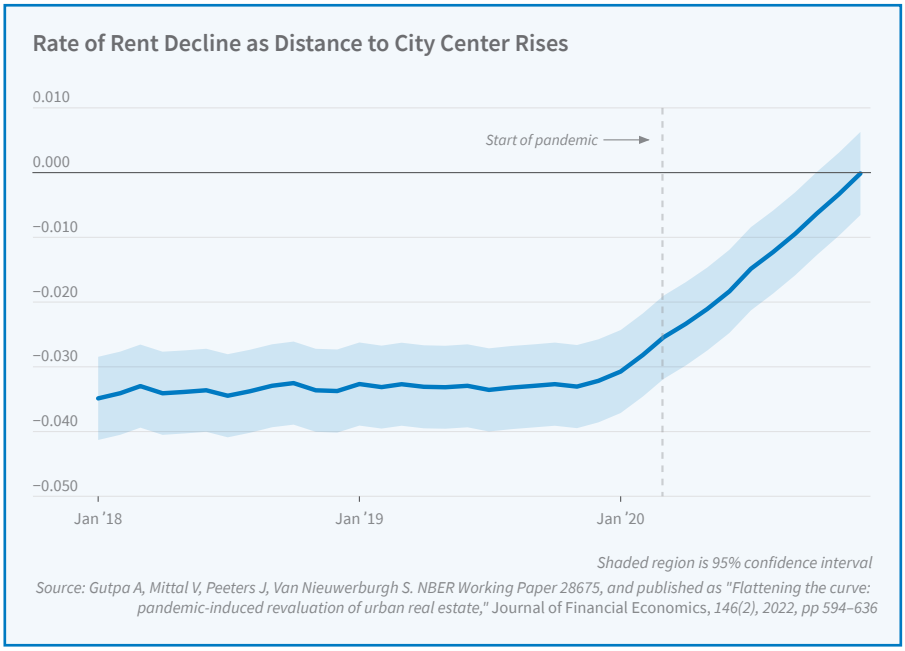

Figure 1

Outmigration rates from a city rose with the share of its jobs that could be done remotely, as measured by a teleworkability score as well as the initial level of rents and house prices.[3]

Before the pandemic, there was a higher price and rent premium for properties closer to the central business district (CBD) of a metropolitan area. However, over the course of 2020, this pattern was attenuated: rents and house prices increased substantially more in suburban than in urban areas. For rents, the premium for proximity to the CBD disappeared. The urban land gradient for rents, the difference between suburban and center-city rents, is plotted in Figure 1. It changed from negative — lower prices farther from the center — to zero. The gradient also increased for house prices, but not by as much as for rents.

To identify the determinants of these changes in the rent and price gradients, we used the cross-section of metropolitan statistical areas and ZIP codes. We find that the ability to work from home was the key driver of this change, more so than the restrictions COVID policies placed on the use of urban amenities.

What do the relative changes in urban-minus-suburban house prices and rents over the course of 2020 imply for the future evolution of rents? We use a present-value model inspired by previous work by John Y. Campbell and Robert J. Shiller to infer the market's expectations about future rent growth.[4] This inference depends on how persistent housing market participants believe pandemic-induced changes will be. We estimate this perceived persistence parameter using survey data from Pulsenomics. Informed by these data, the model predicts a substantial rebound in urban relative to suburban rents.

A related paper in this research agenda explores the impact of remote work on office valuations. Commercial real estate is a significant asset class that features prominently in the portfolios of pension funds and other large institutions. Commercial mortgages are important assets on the balance sheets of banks, especially medium-sized ones. Office buildings represent the largest share of these exposures. Gupta,

Mittal, and I investigate what impact remote work has had and is likely to have on office valuations.[5]

Office valuations are not easily extracted from market prices. While a limited number of office buildings are owned by publicly listed real estate investment trusts (REITs), the vast majority are privately held. Moreover, REITs specialize in the highest-quality segment of the market. Given minimal trade in average-quality private office assets since the onset of COVID-19, the valuation question does not have an easy answer.

We first analyze the cash flow shock to leasing revenues between the end of 2019 and May 2022. Using data from CompStak, we find an average 17 percent reduction in rent revenues from active leases across 105 office markets in the US, as well as much larger reductions in the number of newly signed leases, from 250 million square feet per year to about 60 million. The rent on newly signed leases also fell substantially in 2020 before partially rebounding in 2021. With fewer leases being signed than are coming to an end, contractual occupancy rates in the office market have fallen to record lows.

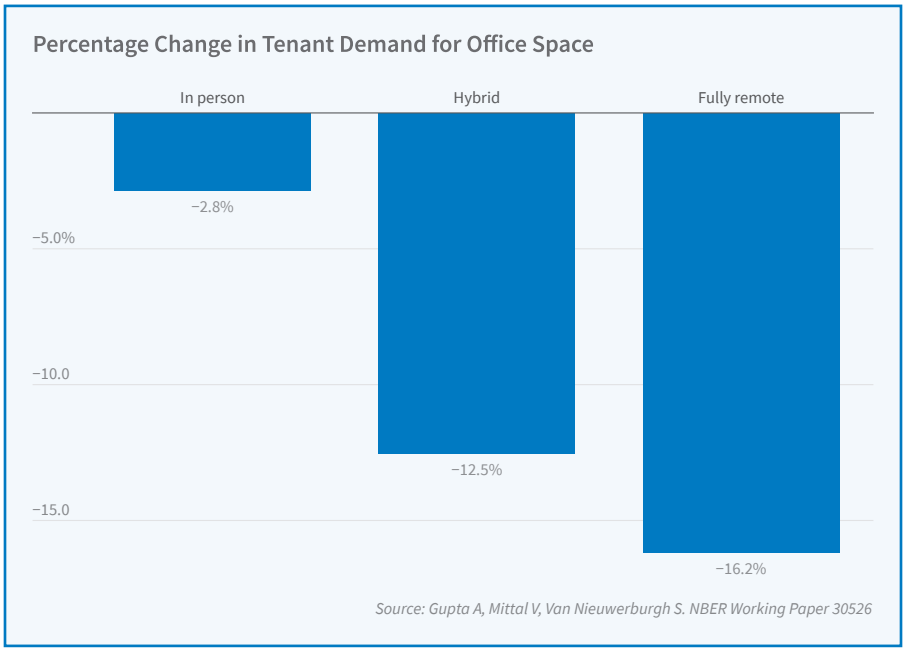

Figure 2

For example, the contractual office occupancy rate in San Francisco fell from 94.6 percent in the fourth quarter of 2019 to 77 percent in the third quarter of 2022.

These numbers understate the size of the shock for two reasons. First, physical occupancy is far lower than contractual occupancy. Only about 50 percent of employees go to the office on a typical day.[6] Second, because of the long-term nature of office leases, about two-thirds of office users have not had to make active space decisions yet. A large percentage of prepandemic leases will come up for renewal in the next few years, at a time of high vacancy and low market rents.

We estimate the connection between remote work practices and office demand. Using the fraction of job postings that are for remote positions as well as corporate announcements about remote work policies — in person, hybrid, or fully remote, as well as the number of days employees are required to be on site — we find much larger reductions in office space demand among tenants that do more work remotely. This is illustrated in Figure 2.

We then build an asset-pricing model to value office buildings, recog-

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His research lies in the intersection of housing, asset pricing, and macroeconomics. He studies the impact of remote work on real estate valuations, affordable housing policies, the impact of foreign buyers on the housing market, mortgage market design, regional house price inequality, and mortgage choice. Another strand of his research focuses on government debt and fiscal policy.

Professor Van Nieuwerburgh serves as president of the American Real Estate and Urban Economics Association and as board member of the American Finance Association. He is a research associate at the NBER, a fellow at the Center for European Policy Research, and a senior fellow at the Asian Bureau for Finance and Economics Research.

He is a former editor at the *Review of Financial Studies*. Van Nieuwerburgh was awarded the 15th Edition of the Bernácer Prize for his research on the transmission of shocks in the housing market to the macroeconomy and the prices of financial assets. In 2020, he won the TIAA Paul Samuelson Award for research on lifelong financial security for his work on combining life and health insurance.

He earned his PhD in economics (2003), Master's in financial mathematics (2001), and Master's in economics (2001) from Stanford University, and a BA in economics from the University of Ghent, Belgium (1998).

nizing that buildings are portfolios of overlapping long-term leases. The model also prices the risk facing office building investors, part of which is from traditional business cycle fluctuations in tenant office demand, market rents, and new office supply, and part of which is due to new factors such as the risk of persistent changes in work from home (WFH) practices.

We use the 2020 stock return of office REITs to infer, through the lens of the model, the persistence of remote work. This inference accounts for the fact that REITs hold the highest-quality assets, whose cash flows, we show, are more resilient to the pandemic shock — a "flight-to-quality" effect. We find an annual persistence parameter of 82 percent for the WFH regime. We calibrate the model to New York City (NYC) and solve for office valuation as a function of the state variables.

We use the model to simulate the evolution of office values as the economy transitions from a no-WFH expansion state in 2019 to a WFH recession state in 2020 to a WFH expansion state in 2021. We assume that the economy evolves stochastically after 2021. There are some future paths in which in-person work returns as the dominant form of work, and others in which remote work persists for years.

These simulations, shown in Figure 3, predict that the value of the entire NYC office stock should have fallen in value by 45 percent in 2020. They also predict that 10 years after the COVID shock, office values will remain, on average, about 39 percent below the valuation in 2019. On the path that assumes that the economy stays in the WFH state for at least 10 years, office values are nearly 60 percent lower in 2029 than in 2019. Our model also quantifies the uncertainty around the baseline estimates. The shaded areas show the range of possible scenarios, with darker colors representing more likely ones.

There is variation across cities in our estimated COVID-19 impact on the price of office buildings. NYC is not an outlier; nationally, we estimate value destruction of $414 billion.

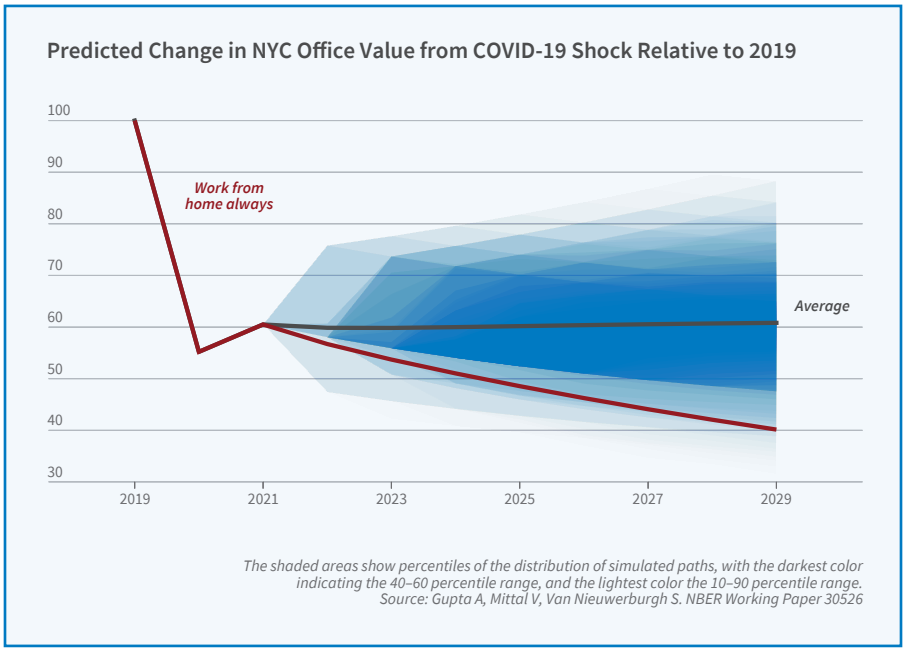

Figure 3

A loss of this magnitude would have severe consequences for real estate equity investors and could even affect debt values. This raises the specter of financial fragility for those banks with concentrated exposure to office loans. Declining commercial property values would also imply negative effects on local public finances since cities derive a substantial portion of tax revenue from property taxes on office buildings and urban retail real estate. Urban retailers have been at least as severely impacted by remote work as urban office building owners. To offset a revenue shortfall, cities would need to raise taxes or cut spending on local public goods. The latter strategy would reduce the quality of life in the city. Both possibilities risk outmigration, especially with remote work making it easier for residents to move. An "urban doom loop" of fiscal shortfalls, lower quality of life, and outmigration might ensue. This possibility might be judged to justify policy intervention.

The COVID era and the rise of WFH have raised difficult questions for real estate and urban economists. Questions about how remote work affects individual productivity, innovation, organizational culture, the climate, and other aspects of life are being actively explored across many fields of economics. I summarize this literature and discuss potential policy responses in a recent review article.[7]

The connection between real estate values and location policy also features in decisions about infrastructure spending in dense urban areas. Gupta, Kontokosta, and I focus on the expansion of the Second Avenue subway — the Q train — in New York City.[8] This project cost $4.5 billion to build. Was it worth it?

We use the change in house prices to extract a market-based measure of value creation. We find 8 percent price increases in the neighborhood newly served by the subway line, creating $6 billion in new property value. Figure 4 shows the change in house prices relative to the pre-2004 period. This estimate comes from various difference-in-difference estimation designs that are robust to exactly how the treatment and control areas are defined, and the timing of the before and after periods.

Using cellphone ping data to mea-

sure subway commuting times, we also show that they shorten, which is one plausible mechanism of value creation.

We estimate that while the overall real estate value created by the subway expansion exceeded the cost of construction, only about 30 percent of the benefit flows back to the government in the form of a higher present discounted value of property tax revenues. The remainder accrues to the private sector. But the fact that the investment created so much value suggests that there must be fiscal tools which might extract more of this value to finance large urban infrastructure projects.

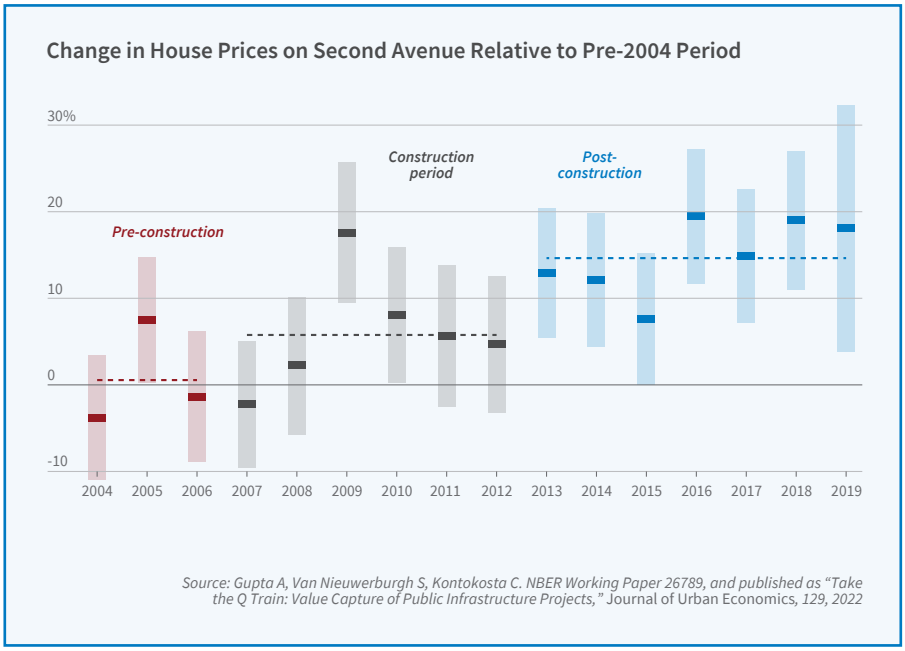

Figure 4

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Child Penalties and Gender Inequality

Henrik J. Kleven

The idea that parenthood has differential effects on women and men is not new. However, recent work has developed new and transparent ways of estimating the magnitude of child penalties — the negative effects of having children on the labor market outcomes of women relative to men. This research quantifies how much of gender inequality child penalties explain and studies their underlying drivers.

While this research agenda is ongoing, a clear picture is beginning to emerge: child penalties account for most of the remaining gender inequality in labor market outcomes, at least in developed countries, and they cannot be explained by traditional mechanisms rooted in biology, comparative advantage, or public policies. Rather, child penalties seem to reflect social norms about the roles of men and women, norms that vary strongly across space and demographic groups. Further reductions in gender inequality will require a reduction in child penalties, which in turn requires a change in gender norms. This view represents a strong departure from traditional research on gender inequality, which focused on human capital accumulation and discrimination. In this article, I present a nontechnical review of my recent work on child penalties.

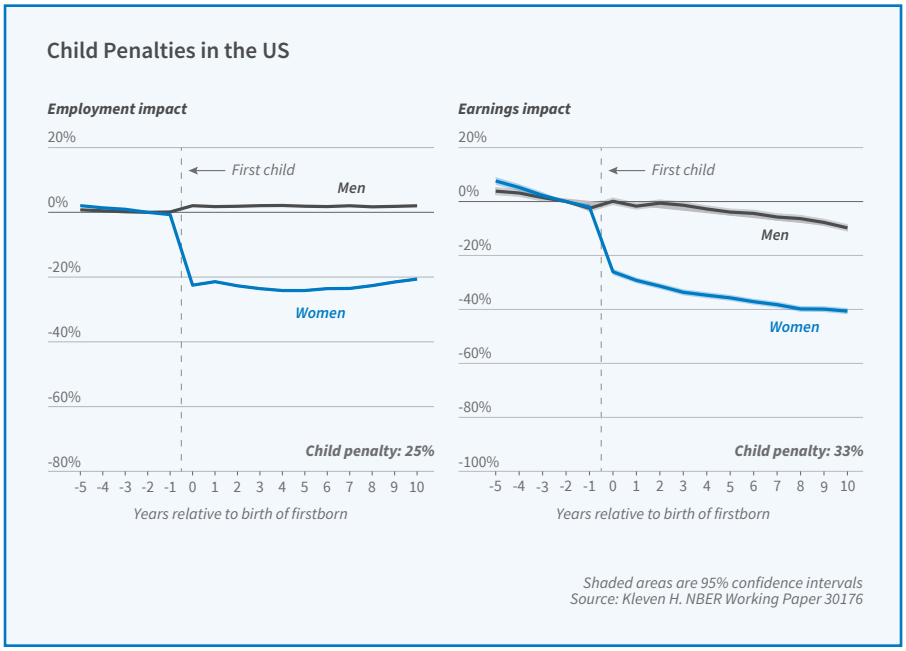

Figure 1

Child Penalties: The Facts

To set the scene, Figure 1 presents evidence on child penalties in the United States. The results are taken from my 2022 study,[1] and they are based on the event study approach I developed with Camille Landais and Jakob Egholt Søgaard.[2] The figure shows the evolution of employment and earnings for men (black lines) and women (blue lines) around the birth of a first child. The year of the first child's birth is indexed as event time $t = 0$, marked by the dashed vertical line. The outcomes of both men and women have been normalized to zero in a base year before a child's birth (specifically at $t = -2$), so that outcomes in any given year are measured relative to that pre-child base year. Changes relative to the base year are reported in percentages.

The findings are striking. The outcomes of men and women are almost perfectly parallel before childbirth, and diverge immediately and sharply after childbirth. Having a child is a nonevent for men, but leads to an immediate and persistent drop in employment and earnings for women. Parenthood reduces female employment by 25 percent and female earnings by 33 percent, relative to males. These estimates are obtained from event studies around the first child's birth and do not condition on the total number of children. As a result, the child-driven gap between men and women reflects the impact of subsequent children as well.[3] The size of the child penalty increases with the number of children.

The preceding estimates are based on data from 1968 to 2020. As shown in my 2022 study, US child penalties have declined significantly over time, but virtually all of this decline occurred prior to the mid-1990s. Since that time, child penalties have been stagnant, a finding that explains the observed slowdown of gender convergence in recent decades.

How does the US compare with other countries? My study with Landais and Søgaard provides evidence from Denmark, while another study with Landais, Johanna Posch, Andreas Steinhauer, and Josef Zweimüller provides evidence from a number of countries in Europe and North America.[4] In ongoing work, Landais, Gabriel Leite Mariante, and I are building a global database of child penalties.[5] The bottom line is that the qualitative patterns in Figure 1 apply to almost every country, but the quantitative magnitudes vary

greatly. As an illustration, Figure 2 provides evidence from two European countries: Denmark and Switzerland. Child penalties in Denmark are considerably smaller than in the US, whereas child penalties in Switzerland are much larger. For example, the earnings penalty varies from 24 percent in Denmark to a staggering 68 percent in Switzerland. Child penalties in other Scandinavian countries are similar to those in Denmark, while child penalties in other central European countries — such as Austria, Czech Republic, Germany, and Hungary — are similar to those in Switzerland.

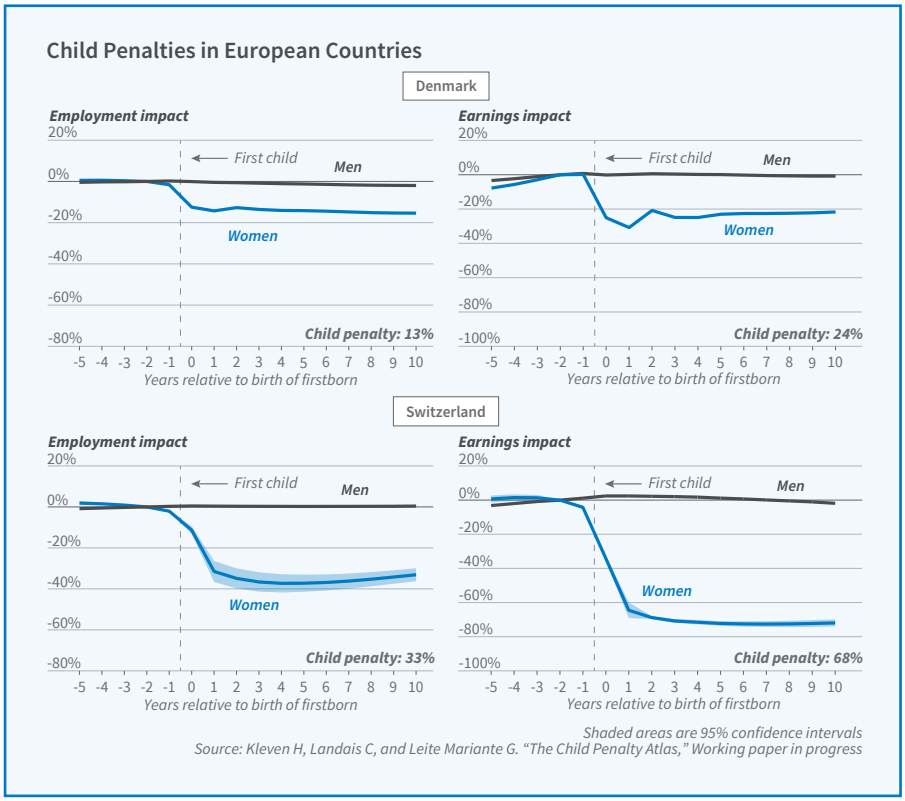

Figure 2

How can child penalties vary so strongly across countries, and even across countries at similar income levels and in close proximity? It is natural to consider factors that display large variation across otherwise similar countries. One such factor is gender norms. Indeed, child penalties correlate strongly with elicited gender norms from value surveys. Scandinavian countries are among the most gender progressive in the world, and central European countries are among the most gender conservative. A telling anecdote is that Switzerland did not grant women the right to vote until 1971 in national elections, and until 1990 in some local elections. The cross-country evidence is therefore consistent with an effect of social norms.

For studying the underlying mechanisms driving child penalties, it is useful to consider variation across space within countries. Strikingly, child penalties display as large a variation within countries as they do across countries. My 2022 study provides evidence for the United States. Figure 3 presents case studies of employment penalties in four US states: North Dakota, Texas, California, and Utah. The impact of childbirth on employment varies greatly in magnitude across these states. The child penalty is relatively small in North Dakota (similar to Scandinavia), intermediate in Texas and California (similar to the US overall), and extremely large in Utah (similar to Switzerland). Considering the entire country, my findings show that state-level variation in child penalties maps almost one for one with state-level variation in raw gender gaps. In other words, child penalties account for almost all of the variation in gender inequality across space.

To summarize, US child penalties are large overall, but they display massive variation across states and over time. Such within-country variation allows

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Kleven's research focuses on public economics and labor economics, including both theoretical and empirical work. He has been particularly active in studying dimensions of inequality, such as gender inequality, as well as the effects and optimal design of taxation, welfare, and family policies. His work has had policy impact in both developed and developing countries. His academic articles have been published in leading journals such as the *American Economic Review*, *Econometrica*, the *Journal of Political Economy*, *The Quarterly Journal of Economics*, and *The Review of Economic Studies*.

for a more compelling analysis of the relationship between child penalties and elicited gender norms. State-time variation in child penalties aligns closely with state-time variation in gender progressivity. The timing of the decline in child penalties mirrors the timing of the increase in gender progressivity, most of which occurred in the 1970s and 1980s, with a greater decline in child penalties in states where gender progressivity increased more. The granularity of this analysis is less vulnerable to some of the key concerns with interpreting the cross-country evidence discussed above.

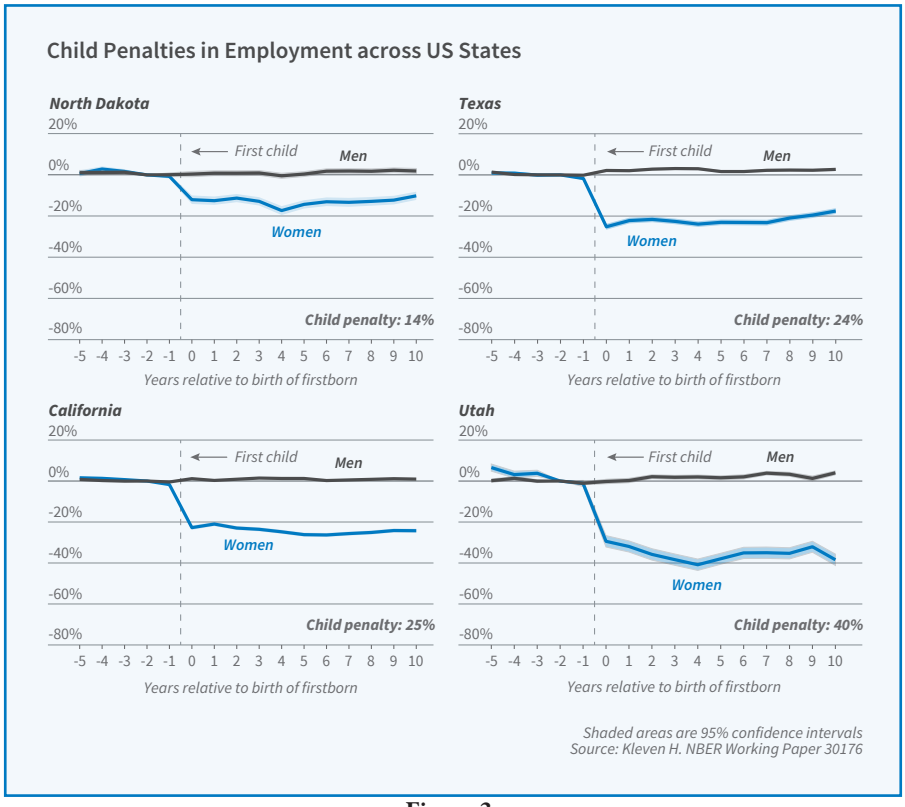

Figure 3

Child Penalties: Explanations

The fact that child care comes with a career cost is not surprising in itself, although the magnitudes documented above are perhaps surprising. The more intriguing question is why the career cost of children is so gendered even in modern societies. In other words, what explains the strength and persistence of the gendered homemaker-breadwinner institution? I have mentioned the possible role of social norms, but let me take a step back and consider a set of more traditional explanations.

The natural starting point is biology. Only women can bear and give birth to children, and only women can breastfeed. We would expect such factors to matter for the short-run impact of children, but they may also matter for the longer run due to labor market dynamics. For example, work interruptions around childbirth may have lasting effects through human capital accumulation and job market signaling. Studying the role of biology requires separating the effect of *having* a child from the effect of *giving birth* to a child. In a 2021 study, written together with Landais and Søgaard, we propose to do this by comparing child penalties in biological and adoptive families, adjusting for selection into adoption.[6] We find that short-run child penalties are slightly larger for biological mothers than for adoptive mothers, but that long-run child penalties are the same. These results suggest that biology is not a key driver of child-related gender inequality.

Another possible explanation focuses on comparative advantage. If the earnings potential of women is lower than the earnings potential of men, it may be optimal for parents to specialize in the way observed in the data. Although women in OECD countries are, on average, now more highly educated than men, women still choose education fields with lower earnings potential, such as non-STEM fields. Landais, Søgaard, and I investigate the earnings-potential explanation using Danish data. Earnings potential is estimated based on granular information on education level, education field, and labor market experience at the time of the first childbirth. Strikingly, our analysis shows zero heterogeneity in long-run child penalties by relative earnings potential. Even women with greater earnings potential than their spouses face child penalties similar to the rest of the population. Such patterns are virtually impossible to reconcile with quantitatively important effects of comparative advantage. My findings for the US are similar.

Yet another possible explanation considers the effect of public policies. For child penalties, it is natural to focus on the effect of family policies such as parental leave plans and child care subsidies. The cross-country evidence discussed above is not suggestive of important policy effects. For example, low-penalty countries in Scandinavia have very generous family policies, but so do a number of high-penalty countries in central Europe. The absence of major policy effects can be confirmed by quasi-experimental evidence from within countries. In a 2022 paper, Landais, Posch, Steinhauer, Zweimüller, and I investigate the long-run impact of family policies in Austria using policy experiments spanning more than half a century.[7] We find that the enormous expansion of paid parental leave and child care subsidies in Austria has had virtually no impact on child penalties and gender inequality.

A factor that does have an impact on gender gaps is labor market structure, and especially the temporal flexibility and family-friendliness of jobs.[8] Greater job flexibility lowers child penalties on women, all else equal. While this is an

interesting point, it is important to recognize that job flexibility effects operate through a general equilibrium channel. Such effects would affect mothers and fathers equally unless something else tilts childcare toward women. In other words, the lack of job flexibility serves as an important amplification mechanism, but it cannot explain child penalties and gender gaps on its own. It shifts the research question one level up: why does job flexibility matter for mothers, but not for fathers?

The preceding evidence and arguments speak against explanations rooted in gendered incentives. Incentives may matter, but their explanatory power seems relatively small in this context. This implies that child penalties are better understood through the lens of gendered preferences. What is more, the fact that child penalties vary greatly over time and across space points to endogenously formed preferences, influenced, for example, by social norms or culture. The strong correlation between child penalties and elicited gender norms from value surveys is suggestive, but not conclusive in itself.

To provide more conclusive evidence, my 2022 study presents epidemiological research on movers and immigrants in the US. The idea of this approach is to investigate whether variation in child penalties among movers and immigrants can be explained by variation in the child penalties of their birthplaces, even though they are no longer exposed to the labor market institutions and incentives of those birthplaces. Such effects are most naturally interpreted as effects of birthplace on preferences, for example through the transmission of social norms.

The empirical patterns are striking. For US-born movers, women born in high-penalty states such as Utah or Idaho have much larger child penalties than women born in low-penalty states such as the Dakotas or Rhode Island, conditional on where they reside when having children. Likewise, for immigrants, women born in high-penalty countries such as Mexico and the nations of the Middle East and central Europe have much larger child penalties than women born in low-penalty areas like China and Scandinavia.

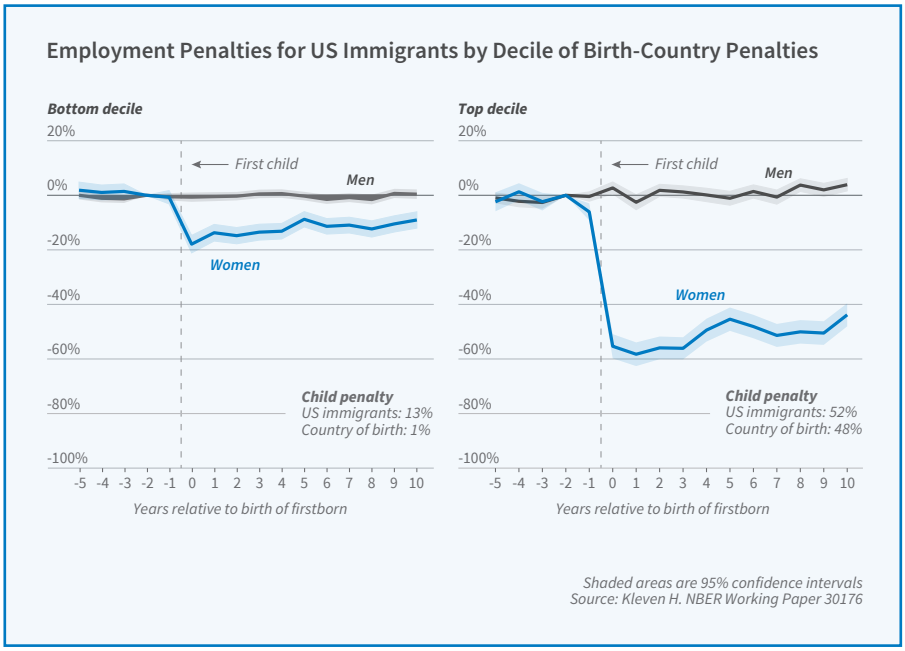

Figure 4

The findings for immigrants are illustrated in Figure 4. This figure compares employment penalties for US immigrants in the bottom and top deciles of birth-country penalties. The employment penalty is 13 percent for immigrants in the bottom decile (where the average birth-country penalty is 1 percent), while it is 52 percent for immigrants in the top decile (where the average birth-country penalty is 48 percent). The strong relationship between immigrant penalties and birth-country penalties is present in the full distribution of birth-country penalties, not just in the tails shown here. Additional evidence suggests that these effects are not driven by differential selection of immigrants from different places.

Conclusion

The idea that parenthood affects men and women differently is not new. Yet, for a long time, this issue played a relatively peripheral role in the literature on gender inequality. The research program summarized here has brought it to the forefront. This research has developed a transparent event study approach to estimating the impact of children on women relative to men — the child penalty — and to studying its underlying drivers. In developed countries, child penalties can explain most of the remaining gender inequality in the labor market. In other words, eliminating gender inequality is virtually synonymous with eliminating child penalties. While the existence of child penalties may seem obvious at first glance, say, because of biologically determined comparative advantage, the size and persistence of the effects are puzzling. Traditional explanations rooted in biology and comparative advantage matter mostly for infant childcare and cannot explain the long-run effects observed in the data.

I have argued that social norms are central to understanding the empirical patterns. If social norms explain child penalties and therefore gender inequality, the million-dollar question is how to change social norms. These norms vary considerably over time and across space, suggesting they are changeable. To an economist, especially a public economist, it is natural to ask if government policies can influence social norms. Experimental studies of government policy cannot capture general equilibrium effects such as those operating through social norms. Understanding whether social norms and preferences are shaped

by policy and other factors is an important topic for future research.

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[1] "The Geography of Child Penalties and Gender Norms: Evidence from the United States," Kleven H. NBER Working Paper 30176, September 2022.
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[2] "Children and Gender Inequality: Evidence from Denmark," Kleven H, Landais C, Søgaard J. NBER Working Paper 24219, January 2018, and *American Economic Journal: Applied Economics* 11(4), October 2019, pp. 181–209. This paper develops an event study approach using panel data, while Kleven (2022) develops a pseudo-event study approach using cross-sectional data. Both approaches consider the effects of having children, controlling flexibly for life-cycle trends (the effect of age) and time trends (the effect of calendar time).
Return to Text

[3] We use the term "child penalty" as opposed to the term "motherhood penalty." We are considering the effects of all children (within the event time horizon), not just the effect of the first child (motherhood).
Return to Text

[4] "Child Penalties across Countries: Evidence and Explanations," Kleven H, Landais C, Posch J, Steinhauer A, Zweimüller J. NBER Working Paper 25524, February 2019, and *AEA Papers and Proceedings* 109, May 2019, pp. 122–126.
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[5] "The Child Penalty Atlas," Kleven H, Landais C, Mariante G. Working paper, in progress.
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[6] "Does Biology Drive Child Penalties? Evidence from Biological and Adoptive Families," Kleven H, Landais C, Søgaard J. NBER Working Paper 27130, August 2020, and *American Economic Review: Insights* 3(2), June 2021, pp. 183–198.
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[7] "Do Family Policies Reduce Gender Inequality? Evidence from 60 Years of Policy Experimentation," Kleven H, Landais C, Posch J, Steinhauer A, Zweimüller J. NBER Working Paper 28082, September 2022, and *American Economic Journal: Economic Policy*, forthcoming.
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[8] "A Grand Gender Convergence: Its Last Chapter," Goldin C. *American Economic Review* 104(4), April 2014, pp. 1091–1119.
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Using Computational Linguistics to Identify Competitors and Competitive Interactions

Gordon M. Phillips

Identifying competitors and analyzing competitive interactions is difficult in many markets. For well-defined markets with well-defined products, many examinations of competitors and markets can be done with traditional methods. However, firms increasingly operate in multiple markets. A given firm's products may also differ sharply, both in their attributes and consumers, within markets. In addition, some firms may offer customized products or offer services along with physical products, increasing complexity. A firm's product choice thus can involve multiple dimensions such as product differentiation and product quality. For all these reasons, identification of any given firm's competitors and markets has become increasingly difficult.

Gerard Hoberg and I take a nonconventional approach to identifying and examining firm competitors and firm organization. We use natural language processing (NLP) of text to calculate firm pair-by-pair product similarity scores to build a new spatial, text-based network industry classification (TNIC).[1] This new spatial representation can capture both horizontal and vertical industry connections among firms. Using these new text-based competitor and industry classifications, we along with other coauthors, examine mergers and acquisitions, vertical integration, entry threats by new firms, covariation in the stock market, and competition among patenting firms.

In a sequence of articles, we use multiple sources of text, including the business and product descriptions in firms' 10-K annual reports filed with the Securities and Exchange Commission, product text in the input-output classifications from the Bureau of Economic Analysis (BEA), and patent text from US Patent and Trademark Office filings. Additional sources of text could also be incorporated into our network.

Text to Determine Competitors and Merger Synergies

We examine merging firms and their competitors in our early computational linguistics research.[2] We take an agnostic view of markets and examine firms' pairwise 10-K text-based product similarities to identify rival and complementary firms. Using NLP, we compute the product market similarity of each pair of firms using the product description text in firms' 10-Ks and produce ranked competitors for each firm. Our text-based similarity measure gives a continuous related score indicating the actual degree of product word similarity. The relatedness score changes each year as the firms' product descriptions change. Thus, the similarity scores are dynamic and continuous, capturing the degree of relatedness of two firms each year rather than just a "Yes/No" relatedness measure.

These relatedness measures are much better on multiple dimensions than Standard Industrial Classification (SIC) or North American Industry Classification System (NAICS) codes used extensively in economics, finance, and management. Hoberg and I show in our paper that in regressions of firm characteristics on industry grouping characteristics, our network codes can explain many accounting characteristics and outcomes such as merger relatedness significantly better than SIC and NAICS codes.[3]

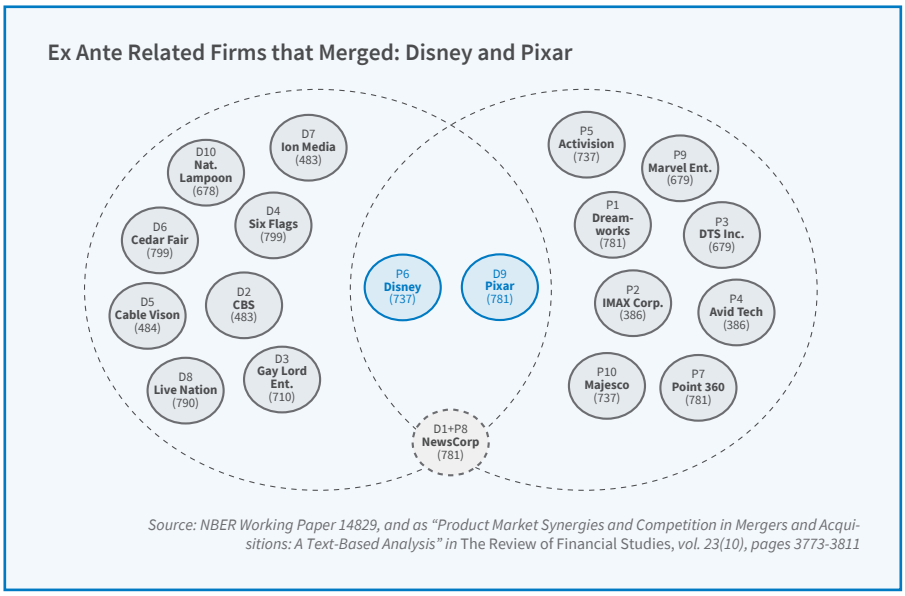
There are two reasons SIC codes and NAICs codes can have severe misclassification problems. First, SIC and NAICS codes do not capture how related firms are because the codes are primarily based on how a product is made, rather than the end customer of that product. Second, the codes are updated infrequently and may be based on historical designations. Our measure is a continuous relatedness measure allowing product similarity and differentiation to be measured. It is updated each year and is firm specific.

Gordon Phillips is a research associate in the NBER's Corporate Finance Program and part of the Conference on Research and Income and Wealth. He is currently the Laurence F. Whittemore Professor of Business Administration at Dartmouth College. He has been a visiting professor at Duke, Harvard, HEC, INSEAD, MIT, and Tsinghua University.

His research has focused on the interaction of finance with industrial organization and studies how financial decisions impact firms' strategic decisions and contracting in financial markets. Recent research has been on applying computational linguistics to firm financial statements and patent text to analyze merger synergies, dividends, and product market competition. His work also includes studies on how firms organize across multiple markets, Chapter 11 bankruptcy, and how leveraged buyouts and other forms of high debt influence firms' and rivals' investment decisions.

Phillips received his bachelor's degree in economics and mathematical methods in the social sciences (MMSS) from Northwestern University and his PhD from Harvard. His research has received support from multiple National Science Foundation grants. He grew up in the Chicago area and lives in Hanover, NH with his spouse. He has three children, with one in college and two recently graduated.

These product market similarities enable us to rank a given firm's closest product competitors to understand the incidence and outcomes of mergers and acquisitions. We show that firm pairs with very low or very high product similarity are both less likely to merge. The lower likelihood that we find for high-similarity firms possibly reflects rivals capturing some of the merger gains or antitrust concerns. Firms that are somewhat related are more likely to combine, and subsequently have more evidence of new product introductions, consistent with these firms having more opportunities for new products with product market synergies.

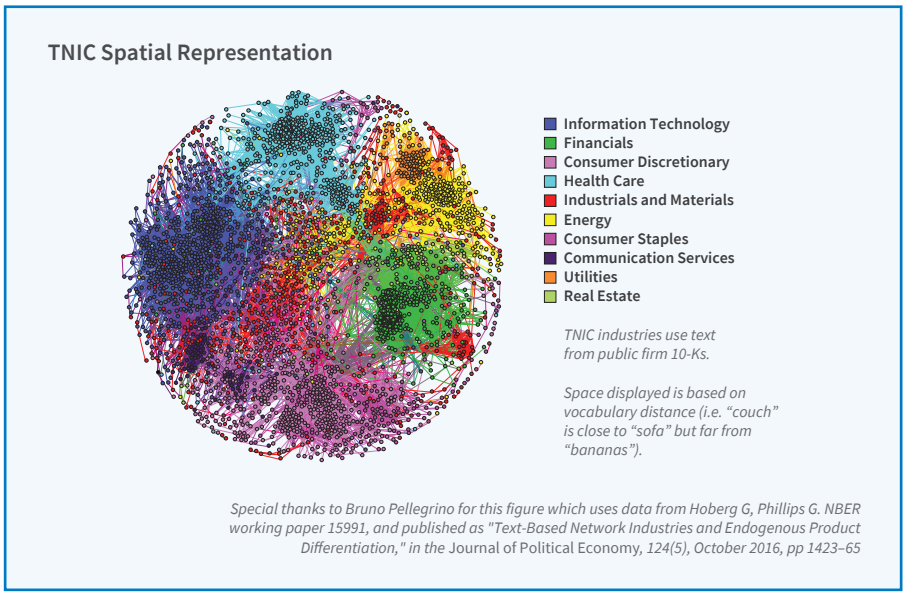


Source: NBER Working Paper 14829, and as "Product Market Synergies and Competition in Mergers and Acquisitions: A Text-Based Analysis" in The Review of Financial Studies, *vol. 23(10), pages 3773-3811*

Figure 1

An illustration of these similarities is given in Figure 1. This graph shows the competitors of Disney and Pixar before Disney acquired Pixar. The large dashed circles give a visual depiction of Disney's and Pixar's 10 closest rival firms. For example, D5 and P5 indicate the firms that are the fifth-closest competitors to Disney and Pixar, respectively, based on their product similarity. D1 and P1, NewsCorp and DreamWorks, are the closest competitors to these two firms. Parentheses underneath indicate the SIC code assigned to that firm.

Despite these firms being highly related as indicated by their textual similarity, the SIC codes at the bottom of each circle show that many SIC codes for these firms don't share similar first or second digits, and thus would not be considered competitors using traditional classifications. Disney acquired Pixar, and these firms were very related based on their products. Despite their intuitive similarities, this acquisition would have been classified as "unrelated" based on their SIC codes. Marvel Entertainment, which was later purchased by Disney, is classified by its SIC code as producing in 679, which is a miscellaneous investing code. However, all three merging firms make movies. We show that our text-based similarity scores classify related mergers much more accurately than SIC codes. Many mergers classified by SIC codes as between unrelated firms are actually between very related firms based on their product text.



Special thanks to Bruno Pellegrino for this figure which uses data from Hoberg G, Phillips G. NBER working paper 15991, and published as "Text-Based Network Industries and Endogenous Product Differentiation," in the Journal of Political Economy, *124(5), October 2016, pp 1423–65*

Figure 2

Text-Based Network Industry Classification (TNIC)

We continue this work by creating a novel system to define markets and place competitors dynamically into a novel industry classification. Our industry classification can be represented as a time-varying, firm-specific spatial network of competitors.[4] Our process uses the pairwise similarities from the product descriptions to produce an NxN matrix of firm i, firm j similarity scores θ_{ij} Each firm i has a score with every other firm j. Using a researcher decided cutoff competitors can be identified both close and far away. This comparative data can be visualized in a spatial format that shows clusters of firms making similar products, as well as concentrations of firms with less related products.

Spatial representation of the network allows us to plot these firms on the unit sphere in Figure 2. Using the similarity scores for one year, Figure 2 shows overlap with broad sector industry areas (these are presented in color in the online *NBER Reporter*). We show the concentrations with labels indicating the predominant area, but firms can be far away from the broad concentration if they produce multiple products. Within broad sectors there is large variation in relatedness. In addition, this spatial representation is dynamic, varying year by year as firms and their products change. The result is a time-varying representation of how close

firms are based on the products they sell.

Each year, we place firms into related text-based industry groups by assigning a given firm and its competitors to firm-specific networks based on minimum similarity scores between it and potential competitors. Competitors are thus firm specific and can be identified by their distance from one another in product vocabulary space.

We develop and test several implications of this spatial network. If there are too many firms close together, profits should be lower, because the firm has many competitors making similar products. If firms are far apart in their product text, we predict profits should be higher as they have more product differentiation. We test this prediction and indeed find that our measure of product differentiation based on text is a good predictor of corporate profits.

The text-based measure of product differentiation has also been used in many other studies to examine additional economic questions. Alexei Zhdanov and I show that R&D is higher in an active acquisition market, but innovation declines when potential acquirers are in concentrated markets as measured by TNIC market share consistent with the target's bargaining power being lower in concentrated markets.[5] Hoberg and I examine stock prices with these data, showing that stocks comove with their text-based industry competitors more than they do with regular SIC- or NAICS-code-based competitors.[6] We also find that shocks to less visible textual network industry relatedness classification peers propagate with a lag to firms creating industry momentum. Minwen Li, Yao Lu, and I examine how our 10-K measures of competitors can help gauge analyst industry knowledge and the accuracy of analysts' recommendations.[7]

Relative to existing classifications, these new text-based classifications offer economically large improvements in their ability to explain managerial discussions of competition and allow us to explain stock industry momentum and other accounting chrematistics, including profitability. They also allow us to identify more firms than managers mention as competitors. The underlying TNIC data and vertical integration data described here are available in the Hoberg-Phillips Data Library (http://hobergphillips.tuck.dartmouth.edu/), which has been visited by over 50,000 researchers since its inception.

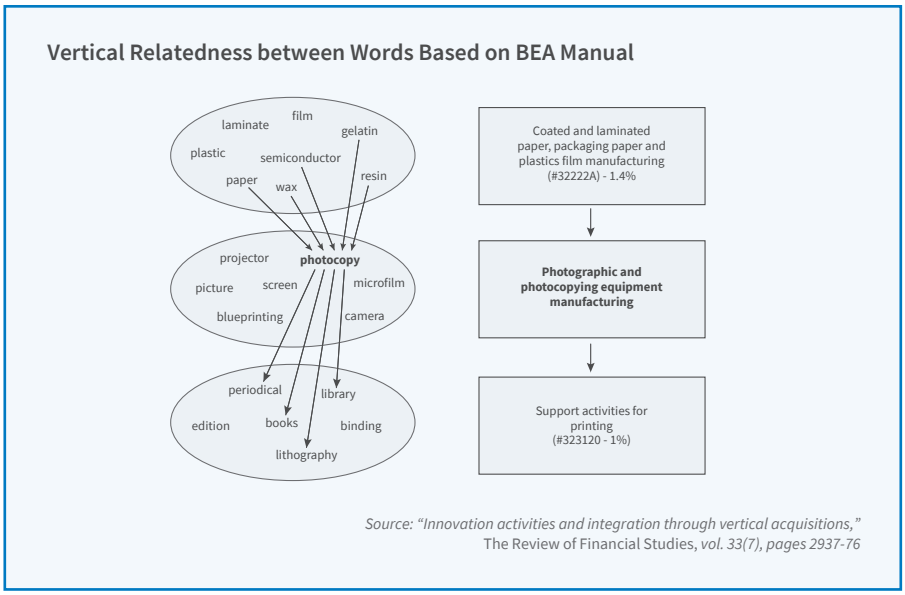


Figure 3

Many other researchers have used our approach to classifying firms to analyze additional economic questions. For example, Bruno Pellegrino develops a Generalized Hedonic-Linear (GHL) demand system and estimates it using our TNIC product similarities.[8] He shows that GHL elasticities align with state-of-the-art estimates from the empirical industrial organization literature and then nests this demand system in a general equilibrium model, where oligopolistic firms compete in a network of product rivalries. In this model, firm markups depend on a metric of centrality: in other words, a firm's centrality in the network of product rivalries signals its market power or lack of market power.

Measuring Entry Threats

Hoberg, Nagpurnanand Prabhala, and I develop a new measure of competitive threats facing firms using analysis of product text in addition to text from IPO firms and venture-capital-financed firms.[9] Our primary measure, product market fluidity, captures changes in rival firms' products relative to a given firm's products. The central idea is that when a firm operates in a market that is changing rapidly due to rivals' actions—a fluid market—it faces more competitive threats. We also use the similarity of venture-capital-financed and IPO firms' business descriptions and existing firms' business descriptions to measure the entry threat posed by both VC-financed and IPO firms. Consistent with firms' desire to preserve financial flexibility when competitive threats are high, increases in fluidity and entry threats reduce firms' propensity to make cash payouts, especially for those with less access to financial markets. These results are consistent with firms' financial policies being significantly shaped by product market threats and dynamics.

Constructing Measures of Vertical Integration

Laurent Frésard, Hoberg, and I examine vertical integration over time by mapping each firm's 10-K product text onto the input-output matrix product words from the BEA manual, to measure vertical relatedness between firm pairs at a granular level.[10] This method is illustrated in Figure 3.

Each firm can be mapped into this network, along with firms it at some point might vertically integrate with. Using this time-varying measure of vertical integration along with relatedness between firm pairs, we produce a time-varying measure of actual and potential vertical integration. We find that when innovative assets require further development, vertically related firms are less likely to merge, consistent with it being optimal to leave control to the firms whose

incentives are most important for innovation. When innovation is realized and protected by legally enforceable patents, however, incentives to invest in innovation by one party decline in importance, and we see vertical acquisitions that reallocate control to the other firm, thereby limiting holdup risk.

Analyzing Patent Text with Machine Learning

Recently, Utku Acikalin, Tolga Caskurlu, Hoberg, and I used NLP methods to examine the consequences of losing intellectual property (IP) protection.[11] We examined a broad swath of firms affected by a major Supreme Court decision, Alice Corp. vs. CLS Bank. This decision greatly weakened patent protection for some firms with patents similar to the Alice patent; over 30,000 patents applied for prior to the Alice decision were subsequently ruled ineligible for patent protection. Using these patents, we trained a machine learning model and used it to identify existing patents that may also suffer decreased patent protection. We identified more than 60,000 patents from over 600,000 patents that we predict would be ruled ineligible if examined post-Alice. These patents span many large industrial groups, including business methods, software, and bioinformatics.

We find that small firms with exposure to the Alice decision experience an erosion of their market power, and subsequently more competition as measured by increased product market similarity with competitors in their 10-K product text. Consistent with competition encouraging innovation, these small firms respond by increasing their R&D expenditures.

Larger firms with large market share benefit from area-wide invalidations as their sales and market values increase while their acquisitions of other existing patenting firms decrease. They also litigate less and face less litigation following losses in IP protection. These results are consistent with firms with large market shares having more technological, financial, and managerial resources with which to protect their product market positions independent of patents.

Product-Market Scope for Multi-industry Firms

In recent work, Hoberg and I develop new firm-year measures of product market scope using the 10-K product text.[12] We begin by classifying single-segment firms into industry vocabularies using multiple text-based tools as well as the NAICS products from the NAICS industry manual. Instead of using imperfect firm self-reported product segments, we assign larger firms to multiple industry areas using word overlaps with these industry vocabularies. We document that the average firm's scope in related industries has increased steadily and by a total of 71 percent during our sample period, 1989 to 2017. Moreover, firms have increased scope without increasing the number of operating segments they report.

We find that increases in firm scope are related to mergers and acquisitions, spending on R&D, and increased vertical integration. Our results are consistent with an ongoing process of asset redeployment across and within firms, which is reinforced by innovation that facilitates flexible and efficient redeployment of assets for multi-industry production. Overall, our results support the emergence of more dynamic, technology-supported, multiproduct firms starting in the 1990s and growing in prevalence to present day. By producing related products without increasing operating segments, these new-age conglomerates can avoid potential agency conflicts associated with the diversified conglomerates of the 1980s.

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1 "Text-Based Network Industries and Endogenous Product Differentiation," Hoberg G, Phillips G. NBER Working Paper 15991, May 2010, revised February 2012, and *Journal of Political Economy* 124(5), October 2016, pp. 1423–1465.
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2 "Product Market Synergies and Competition in Mergers and Acquisitions: A Text-Based Analysis," Hoberg G, Phillips G. NBER Working Paper 14289, August 2008, revised February 2012, and *The Review of Financial Studies* 23(10), October 2010, pp. 3773–3811.
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3 "Text-Based Network Industries and Endogenous Product Differentiation," Hoberg G, Phillips G. NBER Working Paper 15991, May 2010, revised February 2012, and *Journal of Political Economy* 124(5), October 2016, pp. 1423–1465.
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4 Ibid.
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5 "R&D and the Incentives from Merger and Acquisition Activity," Phillips G, Zhdanov A. NBER Working Paper 18346, August 2012, and *The Review of Financial Studies* 26(1), January 2013, pp. 34–78.
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6 "Text-Based Industry Momentum," Hoberg G, Phillips G. *Journal of Financial and Quantitative Analysis* 53(6), December 2018, pp. 2355–2388.
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7 "CEOs and the Product Market: When Are Powerful CEOs Beneficial?" Li M, Lu Y, Phillips G. *Journal of Financial and Quantitative Analysis* 54(6), December 2019, pp. 2295–2326.
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8 "Product Differentiation and Oligopoly: A Network Approach," Pellegrino B. University of Maryland Working Paper, 2019.
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9 "Product Market Threats, Payouts and Financial Flexibility," Hoberg G, Phillips G, Prabhala N. *The Journal of Finance* 69(1), February 2014, pp. 293–324.
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10 "Innovation Activities and Integration through Vertical Acquisitions," Frésard L, Hoberg G, Phillips G. *Review of Financial Studies* 33(7), July 2020, pp. 2937–2976.
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11 "Intellectual Property Protection Lost and Competition: An Examination Using Machine Learning," Acikalin U, Caskurlu T, Hoberg G, Phillips G. NBER Working Paper 30671, November 2022.
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12 "Scope, Scale and Concentration: The 21st Century Firm," Hoberg G, Phillips G. NBER Working Paper 30672, November 2022, and Tuck School of Business Working Paper 3746660, 2021.
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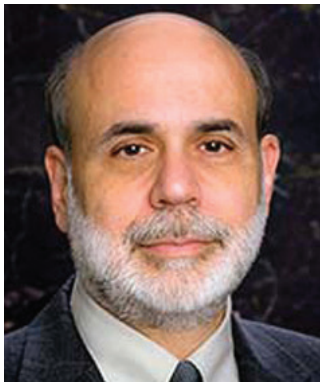
Bernanke, Diamond, and Dybvig Share 2022 Nobel Prize in Economic Science



Ben Bernanke

Douglas W. Diamond

Philip H. Dybvig

Former NBER Research Associate Ben S. Bernanke, current Research Associate Douglas W. Diamond, and Philip H. Dybvig have been awarded the 2022 Nobel Memorial Prize in Economic Sciences in recognition of their "research on banks and financial crises." In announcing the prize, the Royal Swedish Academy of Sciences explained that "modern banking research clarifies why we have banks, how to make them less vulnerable in crises, and how bank collapses exacerbate financial crises. [The laureates'] ... analyses have been of great practical importance in regulating financial markets and dealing with financial crises."

Bernanke is a Distinguished Senior Fellow in the Economic Studies Program at the Brookings Institution. He was affiliated with the NBER Economic Fluctuations and Growth and Monetary Economics Programs for more than two decades, when he was a faculty member at Stanford and Princeton, and he directed the Monetary Economics program. Diamond is the Merton H. Miller Distinguished Service Professor of Finance at the University of Chicago Booth School of Business, and a research associate in the NBER Corporate Finance Program. Dybvig is the Boatman's Bancshares Professor of Banking and Finance at Washington University in St. Louis.

The Academy released both a high-level summary of the laureates' contributions and a longer account of their work.

The laureates delivered their prize lectures on December 8, 2022.

- Ben S. Bernanke's prize lecture: "Banking, Credit, and Economic Fluctuations"
- Douglas W. Diamond's prize lecture: "Financial Intermediation and Financial Crises"
- Philip H. Dybvig's prize lecture: "Multiple Equilibria"

Reports on the prize announcement and the economists' work were featured in *The Wall Street Journal*, *The New York Times*, and *The Washington Post*.

With this year's awards, 37 current or past NBER research affiliates, and an additional seven current or past members of the NBER Board of Directors, have received the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel. Affiliates previously awarded the prize are Joshua Angrist, David Card, and Guido Imbens, 2021; Abhijit Banerjee, Esther Duflo, and Michael Kremer, 2019; William Nordhaus and Paul Romer, 2018; Richard Thaler, 2017; Oliver Hart and Bengt Holmström, 2016; Angus Deaton, 2015; Lars Hansen and Robert Shiller, 2013; Alvin Roth, 2012; Thomas Sargent and Christopher Sims, 2011; Peter Diamond, 2010; Paul Krugman, 2008; Finn Kydland, 2004; Robert F. Engle, 2003; Joseph E. Stiglitz, 2001; James J. Heckman and Daniel L. McFadden, 2000; Robert C. Merton and Myron S. Scholes, 1997; Robert E. Lucas, Jr., 1995; and the late Dale Mortensen, 2010; Edward C. Prescott, 2004; Robert W. Fogel, 1993; Gary S. Becker, 1992; George J. Stigler, 1982; Theodore W. Schultz, 1979; Milton Friedman, 1976; and Simon Kuznets, 1971. In addition to this group, the seven current or past members of the NBER Board of Directors who have received the prize are: George Akerlof, 2001; Christopher Sims, 2011; Robert Solow, 1987; and the late William Vickrey, 1996; Douglass North, 1993; James Tobin, 1981; and Paul Samuelson, 1970.

Austan Goolsbee

Austan D. Goolsbee Named President of Chicago Fed

Austan D. Goolsbee, a research associate in the NBER Public Economics Program and the Robert P. Gwinn Professor of Economics at the University of Chicago's Booth School of Business, has been named the next president of the Federal Reserve Bank of Chicago. He will take up this new role in January, and will be a voting member of the Federal Reserve Bank's Open Market Committee.

Goolsbee is an expert on macroeconomics and public finance who has taught at Chicago since 1995. He chaired the President's Council of Economic Advisers, 2010–11, and was a member of the Chicago Board of Education, 2018–19. He has served on the Economic Advisory Panel to the Federal Reserve Bank of New York, the Panel of Economic Advisers to the Congressional Budget Office, the US Census Advisory Committee, and as a special consultant for internet policy to the Antitrust Division of the Department of Justice.

Goolsbee received his undergraduate and master's degrees from Yale University and his PhD from MIT, all in economics. He was a Fulbright Scholar and Sloan Fellow, and became an NBER affiliate in 1997. He will resign his NBER affiliation when he takes up his new position.

Dean Karlan

Dean Karlan to Become Chief Economist of USAID

Dean Karlan, an affiliate of the NBER's Development Economics Program, is taking leave from the NBER to serve as Chief Economist of the United States Agency for International Development.

Karlan, the Frederic Esser Nemmers Distinguished Professor of Economics and Finance at Northwestern University, has carried out research on a wide range of issues that affect developing nations.

Arik Levinson

Arik Levinson Joins US Department of the Treasury

Arik Levison, an affiliate of the NBER's Environment and Energy Economics and Public Economics Programs, is taking leave from the NBER to serve as Deputy Assistant Secretary for Climate and Energy Economics in the US Department of the Treasury, a position previously held by NBER affiliate Catherine Wolfram. Levinson is a professor of economics at Georgetown University whose research has examined both tax policy and environmental economics issues.

Three NBER Researchers Join CEA and Treasury

Two NBER affiliates, Michael Sinkinson of the Industrial Organization Program and Randall Akee of the NBER Labor Studies Program and the Program on Children, have joined the Council of Economic Advisers as senior economists. Jacob Goldin, an affiliate of the Public Economics Program, has joined the US Department of the Treasury..

Michael Sinkinson

Randall Akee

Jacob Goldin

Sinkinson is an assistant professor of economics at the Yale School of Management. Akee is an associate professor at the University of California, Los Angeles in the Departments of Public Policy and American Indian Studies. He is also chair of the American Indian Studies Interdepartmental Program. Goldin is the Richard M. Lipton Professor of Tax Law at the University of Chicago.

All three researchers will be on leave from the NBER for the duration of their public service.

Sadun to Direct Working Group on Organizational Economics

Raffaella Sadun

Raffaella Sadun, the Charles Edward Wilson Professor of Business Administration at the Harvard Business School, will become the director of the NBER's Working Group on Organizational Economics at the start of 2023. She succeeds Robert Gibbons, who launched the working group in 2002.

Sadun, an NBER affiliate since 2010, is a research associate in the NBER Labor Studies and Productivity, Innovation, and Entrepreneurship Programs. Her work has focused on the managerial and organizational drivers of productivity in corporations and the public sector. Gibbons, who is the Sloan Distinguished Professor of Management and a professor of organizational economics at MIT, has studied the design and performance of "organized activities," including relational contracts, within firms and other organizations and between different entities. He has been an affiliate of the NBER Labor Studies Program since 1987.

NBER and Indian School of Business Launch Conference Series

The NBER and the Indian School of Business (ISB) inaugurated an annual meeting series on December 17–18 , 2022, with a conference on Entrepreneurship, Public Policy, and Economic Outcomes. The program, organized by Shilpa Aggarwal of ISB and Amit Seru of the Stanford University Graduate School of Business and the NBER, featured 10 papers addressing various aspects of small business creation and the role of new enterprises in India and North America.

NBER Board Chair John Lipsky and ISB Dean Madan Pillutla participated in the conference and delivered welcoming remarks. The conference was the first in what will be a yearly series of meetings focusing on topics of interest to research economists in both India and North America.

Conferences

Trade and Trade Policy in the 21st Century

A conference on Trade and Trade Policy in the 21st Century was held at the National Press Club in Washington, DC on September 29, 2022. Program Director Stephen J. Redding of Princeton University organized the meeting, which was supported by the Smith Richardson Foundation. These researchers' papers were presented and discussed:

- **Robert W. Staiger**, Dartmouth College and NBER, "Future of the World Trading System"
- **Pinelopi K. Goldberg**, Yale University and NBER, "Return to Protection and Global Trade Reallocation"
- **Gordon H. Hanson**, Harvard University and NBER, "Trade and Economically Distressed Regions"
- **Nitya Pandalai-Nayar**, University of Texas at Austin and NBER, "Global Value Chains (GVCs) and Supply Chain Resilience"

Chad Brown of the Peterson Institute for International Economics delivered a keynote address on "Vaccine Supply Chains."

Materials related to these papers may be found at www.nber.org/conferences/trade-and-trade-policy-21st-century-fall-2022

Economics of Innovation in the Energy Sector

A conference on the Economics of Innovation in the Energy Sector was held at the National Press Club in Washington, DC on September 30, 2022. Research Associates Ashley Langer of the University of Arizona and David Popp of Syracuse University organized the meeting, which was supported by the Alfred P. Sloan Foundation. These researchers' papers were presented and discussed:

- **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"
- **Sarah C. Armitage**, Environmental Defense Fund and Boston University, "Technology Adoption and the Timing of Environmental Policy: Evidence from Efficient Lighting"
- **Sarah Johnston**, University of Wisconsin-Madison, and **Chenyu Yang**, University of Maryland, "An Empirical Analysis of the US Generator Interconnection Policy"
- **Eugenie Dugoua**, London School of Economics; Todd Gerarden, Cornell University; **Kyle R. Myers**, Harvard University; and **Jacquelyn Pless**, Massachusetts Institute of Technology, "How DOEs Government Funding Fuel Scientists?"
- **Myriam Gregoire-Zawilski**, Syracuse University, and **David Popp**, "Do Technology Standards Induce Innovation in Grid Modernization Technologies?"

- **Anna Goldstein**, Prime Coalition, "The ARPA Approach to Screening Prospective Energy Technology Research Investments"

Sally Benson, Deputy Director for Energy at the Office of Science and Technology Policy, delivered a keynote address on "Systems Thinking to Guide a Rapid and Just Energy Transition."

Summaries of these papers can be found at www.nber.org/conferences/economics-innovation-energy-sector-fall-2022

Financial and Economic Decision-Making, Alzheimer's Disease, and Outcomes over the Lifecycle

A conference on Financial and Economic Decision-Making, Alzheimer's Disease, and Outcomes over the Lifecycle met at the Royal Sonesta Hotel, Cambridge, MA on October 7, 2022. Julie Bynum of the University of Michigan and Faculty Research Fellow Nicholas W. Papageorge of Johns Hopkins University organized the meeting, which was supported by the National Institute on Aging and the University of Michigan Center to Accelerate Population Research in Alzheimer's.

This conference was designed to support interaction between economists and medical researchers. It was structured around a number of presentations highlighting the latest Alzheimer's-related research by each group. The program, including the titles of all presentations, may be found at www.nber.org/conferences/financial-and-economic-decision-making-alzheimers-disease-and-outcomes-over-lifecycle-fall-2022

Economics of Transportation in the 21st Century

A conference on the Economics of Transportation in the 21st Century met over Zoom.us on October 14, 2022. Research Associates Stephen J. Redding of Princeton University, Edward L. Glaeser of Harvard University, and James M. Poterba of the Massachusetts Institute of Technology organized the meeting, which was supported by the US Department of Transportation through an interagency agreement with the National Science Foundation. These researchers' papers were presented and discussed:

- **Simon Fuchs**, Federal Reserve Bank of Atlanta, and **Woan Foong Wong**, University of Oregon, "Multimodal Transport Networks"

- **Pablo Fajgelbaum**, University of California, Los Angeles and NBER; **Cecile Gaubert**, University of California, Berkeley and NBER; **Nicole Gorton**, University of California, Los Angeles; **Eduardo Morales**, Princeton University and NBER; and **Edouard Schaal**, Pompeu Fabra University, "Political Economy of Transport Investments: Evidence from the California High-Speed Rail"

- **Giulia Brancaccio**, New York University and NBER; **Myrto Kalouptsidi**, Harvard University and NBER; and **Theodore Papageorgiou**, Boston College, "Understanding Port Performance and the Role of Infrastructure"

- **Michelle M. Marcus**, Vanderbilt University and NBER, and **Jamie Hansen-Lewis**, University of California, Davis, "Uncharted Waters: Effects of Maritime Emission Regulation" (NBER Working Paper 30181)

- **Panle Jia Barwick**, University of Wisconsin-Madison and NBER; **Christopher R. Knittel**, Massachusetts Institute of Technology and NBER; **Shanjun Li**, Cornell University and NBER; and **James H. Stock**, Harvard University and NBER, "Optimal Charging Infrastructure for Electric Vehicles"

- **Lee G. Branstetter**, Carnegie Mellon University and NBER, and **Beibei Li**, Carnegie Mellon University, "Using New Transportation Options to Drive Low-Income Citizens to Greater Success"

- **Matthew Freedman**, University of California, Irvine, and **David C. Phillips**, University of Notre Dame, "Eliminating Fares to Expand Opportunities: Experimental Evidence on the Impacts of Free Public Transportation on Economic Disparities"

- **Fiona Burlig**, University of Chicago and NBER; **James B. Bushnell**, University of California, Davis and NBER; and **David S. Rapson**, University of California, Davis, "Household Vehicle Portfolios and EV Demand"

- **Cecilia Moreira**, Stanford University; **Steven L. Puller**, Texas A&M University and NBER; and **Ini Umosen**, University of California, Berkeley, "Transportation as a Barrier to Education Access: Evidence from Chicago Public Schools"

Summaries of some of these papers can be found at www.nber.org/conferences/economics-transportation-21st-century-fall-2022

Business Taxation in a Federal System

A conference on Business Taxation in a Federal System met at the Stanford University Graduate School of Business, Stanford, CA on October 14, 2022. Research Associate Joshua Rauh of Stanford University and Research Associate Juan Carlos Suárez Serrato of Duke University organized the meeting, which was supported by the Smith Richardson Foundation. These researchers' papers were presented and discussed:

- **Jiajie Xu**, University of Iowa, "The Effect of Tax Incentives on Local Private Investments and Entrepreneurship: Evidence from the Tax Cuts and Jobs Act of 2017"

- **Katarzyna A. Bilicka**, Utah State University and NBER, and **Michael P. Devereux** and **Irem Güçeri**, University of Oxford, "Tax Policy, Investment and Profit Shifting"

- **Christine L. Dobridge**, Federal Reserve Board; **Patrick J. Kennedy**, University of California, Berkeley; **Paul Landefeld** and **Jacob Mortenson**, Joint Committee on Taxation, "The Efficiency-Equity Tradeoff of the Corporate Income Tax: Evidence from the Tax Cuts and Jobs Act"

- **Javier Garcia-Bernardo**, Utrecht University; **Petr Janský**, Charles University; and **Gabriel Zucman**, University of California, Berkeley and NBER, "Did the Tax Cuts and Jobs Act Reduce Profit Shifting by US Multinational Companies?" (NBER Working Paper 30086)

- **Yige Duan** and **Terry Moon**, University of British Columbia, "Tax Cuts, Firm Growth, and Worker Earnings: Evidence from Small Businesses in Canada"

- **Alina Arefeva** and **Minseon Park**, University of Wisconsin-Madison; **Morris Davis**, Rutgers University; and **Andra C. Ghent**, University of Utah, "The Effect of Capital Gains Taxes on Business Creation and Employment: The Case of Opportunity Zones"

- **Scott Dyreng**, Duke University; **Robert W. Hills**, Pennsylvania State University; and **Kevin S. Markle**, Michigan State University, "Tax Deficits and the Income Shifting of US Multinationals"

- **Christine L. Dobridge**, Federal Reserve Board**; Rebecca Lester**, Stanford University; and **Robert Whitten**, Department of the Treasury, "IPOs and Corporate Tax Planning"

- **Cameron LaPoint**, Yale University, and **Shogo Sakabe**, Columbia University, "Place-Based Policies and the Geography of Corporate Investment"

- **Alessandro Ferrari**, University of Zurich; **Sébastien Laffitte**, ENS Paris-Saclay; **Mathieu Parenti**, ECARES, Université Libre de Bruxelles; and **Farid Toubal**, University of Paris-Dauphine, "Profit Shifting Frictions and the Geography of Multinational Activity"

- **Kevin Corinth**, University of Chicago, and **Naomi E. Feldman**, Hebrew University of Jerusalem, "The Impact of Opportunity Zones on Commercial Investment and Economic Activity"

- **Roberto Gómez Cram** and **Marcel Olbert**, London Business School, "Measuring the Effects of the Global Tax Reform - Evidence from High-Frequency Data"

Summaries of these papers are available at www.nber.org/conferences/business-taxation-federal-system-fall-2022

Economics of Mobility

A conference on the Economics of Mobility met at the Royal Sonesta Hotel, Cambridge, MA and over Zoom.us on December 2, 2022. Research Associates Sandra E. Black of Columbia University and Jesse Rothstein of the University of California, Berkeley organized the meeting, which was supported by the Bill & Melinda Gates Foundation. These researchers' papers were presented and discussed:

- **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 Wellbeing, and Intergenerational Mobility"

- **Eric Chyn**, University of Texas at Austin and NBER; **Robert Collinson**, University of Notre Dame; and **Danielle Sandler**, US Census Bureau, "The Long-Run Effects of Residential Racial Desegregation Programs: Evidence from Gautreaux"

- **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"

- **Dubravka Ritter**, Federal Reserve Bank of Philadelphia, and **Phillip B. Levine**, Wellesley College and NBER, "The Racial Wealth Gap, Financial Aid, and College Access"

- **Lukas Althoff**, Princeton University, and **Hugo Reichardt**, London School of Economics, "Jim Crow and Black Economic Progress after Slavery"

- **Keith Finlay**, US Census Bureau; **Michael G. Mueller-Smith**, University of Michigan; and **Brittany Street**, University of Missouri, "Measuring Intergenerational Exposure to the US Justice System: Evidence from Longitudinal Links between Survey and Administrative Data"

Research Associate Stefanie Stantcheva of Harvard University delivered a keynote address on "Mobility: Facts, Perceptions, and Policy."

Summaries of these papers are available at www.nber.org/conferences/economics-mobility-fall-2022

Innovative Data in Household Finance: Opportunities and Challenges

A conference on Innovative Data in Household Finance: Opportunities and Challenges met at Le Méridien, Cambridge, MA and over Zoom.us on December 9, 2022. Faculty Research Fellows Scott R. Baker of Northwestern University and Jialan Wang of the University of Illinois Urbana-Champaign and Research Associate Stephen P. Zeldes of Columbia University organized the meeting, which was supported by the Alfred P. Sloan Foundation and the Vanguard Group. These researchers' papers were presented and discussed:

- **Rachel J. Nam**, Goethe University Frankfurt, "Open Banking and Customer Data Sharing: Implications for FinTech Borrowers"
- **Xavier Gabaix**, Harvard University and NBER; **Ralph S. J. Koijen**, University of Chicago and NBER; **Federico Mainardi** and **Sangmin Oh**, University of Chicago; and **Motohiro Yogo**, Princeton University and NBER, "Asset Demand of US Households"
- **Asger L. Andersen**, **Emil Toft Hansen**, and **Niels Johannesen**, University of Copenhagen; **Kilian Huber**, University of Chicago and NBER; and **Ludwig Straub**, Harvard University and NBER, "Disaggregated Economic Accounts" (NBER Working Paper 30630)
- **Shaun M. Gilyard** and **Scott Schuh**, West Virginia University, "New Evidence on Consumption and Income Dynamics from a Consumer Payment Diary"
- **Natalia Kovrijnykh**, Arizona State University; **Igor Livshits**, Federal Reserve Bank of Philadelphia; and **Ariel Zetlin-Jones**, Carnegie Mellon University, "Building Credit Histories"
- **Deniz Aydin**, Washington University in St. Louis, "Forbearance vs. Interest Rates: Tests of Liquidity vs. Strategic Default Triggers in a Randomized Debt Relief Experiment"
- **Peter Ganong**, **Pascal J. Noel**, and **Joseph S. Vavra**, University of Chicago and NBER; **Fiona E. Greig**, Vanguard; and **Daniel M. Sullivan**, JPMorgan Chase Institute, "Spending and Job-Finding Impacts of Expanded Unemployment Benefits: Evidence from Administrative Micro Data" (NBER Working Paper No. 30315)
- **Cameron LaPoint**, Yale University, and **Shogo Sakabe**, Columbia University, "Coming In at a Trickle: The Optimal Frequency of Public Benefit Payments"
- **Matteo Benetton**, University of California, Berkeley, and **Marianna Kudlyak** and **John A. Mondragon**, Federal Reserve Bank of San Francisco, "Dynastic Home Equity"
- **Marco Di Maggio**, Harvard University and NBER, and **Justin Katz** and **Emily Williams**, Harvard University, "Buy Now, Pay Later Credit: User Characteristics and Spending Patterns" (NBER Working Paper 30508)

Summaries of these papers are available at www.nber.org/conferences/innovative-data-household-finance-opportunities-and-challenges-fall-2022

Japan Project Meeting

A Japan Project meeting was held at the Asian Development Bank Institute, Tokyo, Japan on December 13–14, 2022. Shiro P. Armstrong of the Australian National University, Research Associate Charles Yuji Horioka of Kobe University, Takeo Hoshi and Tsutomu Watanabe of the University of Tokyo, and Research Associate David Weinstein of Columbia University organized the meeting, which was supported by the Asian Development Bank Institute. These researchers' papers were presented and discussed:

- **Hitoshi Shigeoka**, Simon Fraser University and NBER, and **Yasutora Watanabe**, University of Tokyo, "Yardstick Competition-Driven Political Cycles"
- **Sagiri Kitao** and **Minamo Mikoshiba**, University of Tokyo, "Why Women Work the Way They Do in Japan: Roles of Fiscal Policies"
- **Taiyo Fukai**, University of Tsukuba, and **Ayako Kondo**, University of Tokyo, "Access to Formal Childcare for Toddlers and Parental Employment and Earnings"
- **Cameron LaPoint**, Yale University, and **Shogo Sakabe**, Columbia University, "Place-Based Policies and the Geography of Corporate Investment"
- **Yoko Shibuya**, Duke University, "Firm Size and Complementarity between Geography and Products"
- **Atsushi Yamagishi**, Princeton University, and **Yasuhiro Sato**, University of Tokyo, "Measuring Discrimination in Spatial Equilibrium: 100 Years of Japan's Invisible Race"
- **Daisuke Miyakawa**, Hitotsubashi University, and **Koki Oikawa** and **Kozo Ueda**, Waseda University, "Misallocation under the Shadow of Death"
- **Kentaro Asai**, Paris School of Economics, and **Ryo Kambayashi**, Hitotsubashi University, "The Consequences of Hometown Regiment"

Summaries of these papers are available at www.nber.org/conferences/japan-project-meeting-fall-2022

Entrepreneurship, Public Policy, and Economic Outcomes

A conference on Entrepreneurship, Public Policy, and Economic Outcomes was held at the Indian School of Business, Hyderabad, India on December 17–18, 2022. Shilpa Aggarwal of the Indian School of Business and Research Associate Amit Seru of Stanford University organized the meeting. These researchers' papers were presented and discussed:

- **Jessica Bai**, Harvard University; **Shai Bernstein** and **Josh Lerner**, Harvard University and NBER; and **Abhishek Dev**, Yale University, "The Dance between Government and Private Investors: Public Entrepreneurial Finance around the Globe" (NBER Working Paper 28744)
- **Terry Moon** and **Yige Duan**, University of British Columbia, "Tax Cuts, Firm Growth, and Worker Earnings: Evidence from Small Business Deductions in Canada"
- **Aarushi Kalra**, Brown University, "Local Elections, Leader Identity, and Hate Speech in Rural India"

- **Lakshmi Naaraayanan**, London Business School, "Women's Inheritance Rights and Entrepreneurship Gender Gap"
- **Pulak Ghosh**, Indian Institute of Management Bangalore, and **Nishant Vats**, University of Chicago, "Safety Nets, Credit, and Investment: Evidence from a Guaranteed Income Program"
- **Sandhya Garg**, Institute of Economic Growth; **Samarth Gupta**, Ahmedabad University; and **Sushanta Mallick**, Queen Mary University of London, "Financial Access and Gender-Wise Entrepreneurship: Evidence from Rural India"
- **Sampreet Singh Goraya**, Stockholm School of Economics, "How Does Caste Affect Entrepreneurship? Birth versus Worth"
- **Anusha Chari**, University of North Carolina at Chapel Hill and NBER; **Lakshita Jain**, University of North Carolina at Chapel Hill; and **Nirupama Kulkarni**, CAFRAL, "The Unholy Trinity: Regulatory Forbearance, Government-Owned Banks and Zombie Firms" (NBER Working Paper 28435)
- **Ritam Chaurey**, Johns Hopkins SAIS; **Ryan Kim**, Johns Hopkins University; and **Pravin Krishna**, Johns Hopkins University and NBER, "Demonetization and Firm Exports"
- **Meera Mahadevan**, University of California, Irvine, "You Get What You Pay For: Electricity Quality and Firm Response"

Summaries of these papers are available at www.nber.org/conferences/entrepreneurship-public-policy-and-economic-outcomes-fall-2022

Program and Working Group Meetings

International Finance and Macroeconomics Program Meeting

An International Finance and Macroeconomics Program meeting was held at the Royal Sonesta Hotel, Cambridge, MA and over Zoom.us on October 14, 2022. Research Associate Wenxin Du of the University of Chicago and Research Associate Kei-Mu Yi of the University of Houston organized the meeting. These researchers' papers were presented and discussed:

- **Julian di Giovanni**, Federal Reserve Bank of New York;**Şebnem Kalemli-Özcan**, University of Maryland and NBER; **Alvaro Silva**, University of Maryland; and **Muhammed A. Yildirim**, Koç University, "Global Supply Chain Pressures, International Trade, and Inflation" (NBER Working Paper 30240)
- **Hyeyoon Jung**, Federal Reserve Bank of New York, "Real Consequences of Foreign Exchange Derivatives Hedging"
- **Leslie Sheng Shen**, Federal Reserve Bank of Boston, and **Tony Zhang**, Federal Reserve Board, "Risk Sharing and Amplification in the Global Financial Network"
- **Andrés Blanco**, University of Michigan; **Andrés Drenik**, University of Texas at Austin; and **Emilio Zaratiegui**, Columbia University, "Nominal Devaluations, Inflation, and Inequality"

- **Oleg Itskhoki**, University of California, Los Angeles and NBER, and **Dmitry Mukhin**, London School of Economics, "Sanctions and the Exchange Rate" (NBER Working Paper 30009)

- **Hamid Firooz**, University of Rochester, and **Mehran Ebrahimian**, Stockholm School of Economics, "The Implications of Financial Frictions with International Trade Barriers"

Summaries of these papers are available at www.nber.org/conferences/international-finance-and-macroeconomics-program-meeting-fall-2022

Chinese Economy Working Group Meeting

A Chinese Economy Working Group meeting was held at the Royal Sonesta Hotel, Cambridge, MA and over Zoom.us on October 21–22, 2022. Research Associates Hanming Fang of the University of Pennsylvania, Zhiguo He of the University of Chicago, Shang-Jin Wei of Columbia University, and Wei Xiong of Princeton University organized the meeting. These researchers' papers were presented and discussed:

- **Hanming Fang**; **Ming Li**, Chinese University of Hong Kong, Shenzhen; and **Zenan Wu**, Peking University, "Tournament-Style Political Competition and Local Protectionism: Theory and Evidence from China"

- **Shumiao Ouyang**, Princeton University, "Cashless Payment and Financial Inclusion"

- **Huiyan Zhang**, Carnegie Mellon University, "Patent Litigation, Patent Value, and the Direction of Innovation: Evidence from China"

- **Rubin Hao**, University of Macau; **Conghui Hu**, Beijing Normal University; **Xin Xu**, Guangdong University of Finance and Economics; and **Yu Zhang**, Ant Group, "Beyond Performance: The Financial Education Role of Robo-advising"

- **Christopher Clayton**, Yale University; **Amanda Dos Santos**, Columbia University; **Matteo Maggiori**, Stanford University and NBER; and **Jesse Schreger**, Columbia University and NBER, "Internationalizing like China" (NBER Working Paper 30336)

- **Ran Chang**, Shanghai Jiao Tong University, and **Lin William Cong**, Cornell University and NBER, "Blockchain without Crypto? Linking On-Chain Data Growth to Firm Fundamentals and Stock Returns"

- **Emanuele Colonnelli**, University of Chicago and NBER; **Ernest Liu**, Princeton University and NBER; and **Bo Li**, Tsinghua University, "Investing with the Government: A Field Experiment in China" (NBER Working Paper 30161)

- **Daron Acemoglu**, Massachusetts Institute of Technology and NBER; **David Y. Yang**, Harvard University and NBER; and **Jie Zhou**, Massachusetts Institute of Technology, "Power and the Direction of Research: Evidence from China's Academia"

- **Zhiguo He**; **Bibo Liu**, Tsinghua University; and **Feifei Zhu**, Central University of Finance and Economics, "Share Pledging in China: Funding Listed Firms or Funding Entrepreneurship?" (NBER Working Paper 29731)

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

Political Economy Program Meeting

A Political Economy Program meeting was held at the Royal Sonesta Hotel, Cambridge, MA and over Zoom.us on October 21, 2022. Research Associates Hülya Eraslan of Rice University, James M. Snyder Jr. of Harvard University, and Thomas Fujiwara of Princeton University organized the meeting. These researchers' papers were presented and discussed:

- **Oren Danieli** and **Roee Levy**, Tel Aviv University; **Shinnosuke Kikuchi**, Massachusetts Institute of Technology; and **Noam Gidron**, Hebrew University of Jerusalem, "Decomposing the Rise of the Populist Radical Right"
- **Andrea Bernini**, University of Oxford; **Giovanni Facchini** and **Cecilia Testa**, University of Nottingham; and **Marco Tabellini**, Harvard University and NBER, "Black Empowerment and Whites' Backlash: The Effect of the Voting Rights Act"
- **Jaya Wen**, Harvard University, "State Employment as a Strategy of Autocratic Control in China"
- **Juan Pablo Chauvin**, Inter-American Development Bank, and **Clemence Tricaud**, University of California, Los Angeles, "Gender and Electoral Incentives: Evidence from Crisis Response"
- **Alessandra Casella**, Columbia University and NBER; **Joseph Campbell**, **Lucas de Lara**, and **Victoria R. Mooers**, Columbia University; and **Dilip Ravindran**, Humboldt University Berlin, "Delegation under Liquid Democracy. Two Experiments"
- **Ricardo Alonso**, London School of Economics, and **Gerard Padró I Miquel**, Yale University and NBER, "Competitive Media Capture"

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

Insurance Working Group Meeting

An Insurance Working Group meeting was held at the Gleacher Center of the University of Chicago, Chicago, IL on October 21, 2022. Research Associates Benjamin R. Handel of the University of California, Berkeley and Motohiro Yogo of Princeton University organized the meeting. These researchers' papers were presented and discussed:

- **Alexandru Barbu**, INSEAD, "Ex-post Loss Sharing in Consumer Financial Markets"
- **Raymond Kluender**, Harvard University, "Pay-as-You-Go Insurance: Experimental Evidence on Consumer Demand and Behavior"
- **Xin Chen**, **Yi-Chun Chen**, **Jeong-Bon Kim**, and **Wenfeng Wang,** City University of Hong Kong, "Insurance Product Pricing in Anticipation of IFRS 17"
- **Edward Kong**, Harvard University, and **Timothy Layton** and **Mark Shepard**, Harvard University and NBER, "Adverse Selection Pricing and Unraveling of Competition in Insurance Markets"
- **Juan Pablo Atal** and **Eduardo M. Azevedo**, University of Pennsylvania, and **Sebastián Fleitas**, University of Leuven, "Static and Dynamic Incentives in Selection Markets"
- **Sangmin Oh**, University of Chicago, "Social Inflation"

Summaries of these papers are available at www.nber.org/conferences/insurance-working-group-meeting-fall-2022

Asset Pricing Program Meeting

An Asset Pricing Program meeting was held at the Intercontinental San Francisco, San Francisco, CA on October 28, 2022. Research Associates Anna Cieslak of Duke University and Valentin Haddad of the University of California, Los Angeles organized the meeting. These researchers' papers were presented and discussed:

- **Xavier Gabaix**, Harvard University and NBER; **Ralph S. J. Koijen**, University of Chicago and NBER; **Federico Mainardi** and **Sangmin Oh**, University of Chicago; and **Motohiro Yogo**, Princeton University and NBER, "Asset Demand of US Households"
- **Emil Siriwardane** and **Adi Sunderam**, Harvard University and NBER, and **Jonathan L. Wallen**, Stanford University, "Segmented Arbitrage" (NBER Working Paper 30561)
- **Zefeng Chen**, Guanghua School of Management, Peking University; **Zhengyang Jiang**, Northwestern University and NBER; **Hanno Lustig**, Stanford University and NBER; **Stijn Van Nieuwerburgh**, Columbia University and NBER; and **Mindy Z. Xiaolan**, University of Texas at Austin, "Exorbitant Privilege Gained and Lost: Fiscal Implications" (NBER Working Paper 30059)
- **Constantin Charles**, **Cary Frydman**, and **Mete Kilic**, University of Southern California, "Insensitive Investors"
- **Magnus Dahlquist**, Stockholm School of Economics; **Christian Heyerdahl-Larsen**, Indiana University; **Anna Pavlova**, London Business School; and **Julien Pénasse**, University of Luxembourg, "International Capital Markets and Wealth Transfers"

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

Corporate Finance Program Meeting

A Corporate Finance Program meeting was held at the Intercontinental San Francisco, San Francisco, CA on October 28, 2022. Research Associates Wei Jiang of Emory University and Amit Seru of Stanford University organized the meeting. These researchers' papers were presented and discussed:

- **Paul Gertler** and **Ulrike Malmendier**, University of California, Berkeley and NBER; **Sean Higgins**, Northwestern University; and **Waldo Ojeda**, Baruch College, The City University of New York, "Why Small Firms Fail to Adopt Profitable Opportunities"
- **Alex Edmans**, London Business School; **Doron Y. Levit**, University of Washington; and **Jan Schneemeier**, Indiana University, "Socially Responsible Divestment"
- **Martin Oehmke**, London School of Economics, and **Marcus Opp**, Stockholm School of Economics, "Green Capital Requirements"
- **Matteo Benetton**, University of California, Berkeley, and **Greg Buchak** and **Claudia Robles Garcia**, Stanford University, "Wide or Narrow? Competition and Scope in Financial Intermediation"
- **Toni Whited**, University of Michigan and NBER; **Yufeng Wu**, University of Illinois at Urbana-Champaign; and **Kairong Xiao**, Columbia University, "Will Central Bank Digital Currency Disintermediate Banks?"

- **John A. Mondragon**, Federal Reserve Bank of San Francisco, and **Johannes Wieland**, University of California, San Diego and NBER, "Housing Demand and Remote Work" (NBER Working Paper 30041)

- **Vincent Glode**, University of Pennsylvania, and **Guillermo Ordoñez**, University of Pennsylvania and NBER, "Technological Progress and Rent Seeking"

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

Economic Fluctuations and Growth Program Meeting

An Economic Fluctuations and Growth Program meeting was held at at the Gleacher Center of the University of Chicago, Chicago, IL and over Zoom.us on October 28, 2022. Research Associates Veronica Guerrieri of the University of Chicago and Giorgio Primiceri of Northwestern University organized the meeting. These researchers' papers were presented and discussed:

- **Martin Beraja**, Massachusetts Institute of Technology and NBER, and **Nathan Zorzi**, Dartmouth College, "Inefficient Automation" (NBER Working Paper 30154)

- **Ricardo J. Caballero**, Massachusetts Institute of Technology and NBER, and **Alp Simsek**, Yale University and NBER, "A Monetary Policy Asset Pricing Model" (NBER Working Paper 30132)

- **Hie Joo Ahn**, Federal Reserve Board; **Bart Hobijn**, Federal Reserve Bank of Chicago; and **Ayşegül Şahin**, University of Texas at Austin and NBER, "The Dual US Labor Market Uncovered"

- **Erik Hurst**, University of Chicago and NBER; **Patrick J. Kehoe** and **Elena Pastorino**, Stanford University and NBER; and **Thomas Winberry**, University of Pennsylvania and NBER, "The Distributional Impact of the Minimum Wage in the Short and Long Run" (NBER Working Paper 30294)

- **Michael D. Bauer**, Universität Hamburg, and **Eric T. Swanson**, University of California, Irvine and NBER, "An Alternative Explanation for the 'Fed Information Effect'" (NBER Working Paper 27013)

- **Julian di Giovanni**, Federal Reserve Bank of New York; **Şebnem Kalemli-Özcan**, University of Maryland and NBER; **Alvaro N. Silva**, University of Maryland; and **Muhammed A. Yildirim**, Koç University, "Global Supply Chain Pressures, International Trade and Inflation" (NBER Working Paper 30240)

Summaries of these papers are available at www.nber.org/conferences/economic-fluctuations-and-growth-program-meeting-fall-2022

Market Design Working Group Meeting

A Market Design Working Group meeting was held at the Stanford University Graduate School of Business, Stanford, CA on November 4–5, 2022. Research Associates Eric Budish of the University of Chicago and Jakub Kastl of Princeton University, and Marzena Rostek of the University of Wisconsin-Madison organized the meeting. These researchers' papers were presented and discussed:

- **Alex Chan**, Stanford University, and **Alvin E. Roth**, Stanford University and NBER, "Regulation of Organ Transplantation and Procurement: A Market Design Lab Experiment"
- **Ji Hee Yoon**, University College London, "Endogenous Market Structure: Over-the-Counter versus Exchange Trading"
- **Stephan Lauermann**, University of Bonn, and **Asher Wolinsky**, Northwestern University, "Auctions with Frictions"
- **Yeon-Koo Che**, Columbia University, and **Olivier Tercieux**, Paris School of Economics, "Optimal Queue Design"
- **Michael Ostrovsky**, Stanford University and NBER, and **Andrzej Skrzypacz**, Stanford University, "Pure-Strategy Equilibrium in the Generalized First-Price Auction"
- **John Asker**, University of California, Los Angeles and NBER; **Chaim Fershtman**, Tel Aviv University; and **Ariel Pakes**, Harvard University and NBER, "Artificial Intelligence and Pricing: The Impact of Algorithm Design" (NBER Working Paper 28535)
- **Yannai A. Gonczarowski**, Harvard University; **Ori Heffetz**, Cornell University and NBER; and **Clayton Thomas**, Princeton University, "Strategyproofness-Exposing Mechanism Descriptions"
- **Milena Almagro**, University of Chicago; **Felipe Barbieri** and **Juan Camilo Castillo**, University of Pennsylvania; **Nathaniel G. Hickok**, Massachusetts Institute of Technology; and **Tobias Salz**, Massachusetts Institute of Technology and NBER, "Optimal Urban Transportation Policy: Evidence from Chicago"
- **Dirk Bergemann**, Yale University; **Tibor Heumann**, PUC Chile; and **Stephen Morris**, Massachusetts Institute of Technology, "Screening with Persuasion"
- **Hulya Eraslan** and **Jeremy T. Fox**, Rice University and NBER, and **YingHua He** and **Yakym Pirozhenko**, Rice University, "Measuring the Welfare Gains from Cardinal-Preference Mechanisms in School Choice"
- **Eduardo Perez-Richet**, Sciences Po, and **Vasiliki Skreta**, University of Texas at Austin and University College London, "Fraud-Proof Nonmarket Allocation Mechanisms"
- **Marek Pycia**, University of Zurich, and **Kyle Woodward**, University of North Carolina at Chapel Hill, "Pollution Permits: Efficiency by Design"
- **Ravi Jagadeesan**, Stanford University, and **Alexander Teytelboym**, University of Oxford, "Matching and Prices"
- **Giovanni Cespa**, City University London, and **Xavier Vives**, IESE Business School, "Market Opacity and Fragility"
- **Jason Allen,** Bank of Canada, and **Milena Wittwer,** Boston College, "Intermediary Asset Pricing: Capital Constraints and Market Power"

Summaries of these papers are available at www.nber.org/conferences/market-design-working-group-meeting-fall-2022

Behavioral Finance Working Group Meeting

A Behavioral Finance Working Group meeting was held at the Royal Sonesta Hotel, Cambridge, MA and over Zoom.us on November 11, 2022. Research Associate 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:

- **Dmitriy Sergeyev**, Bocconi University, and **Chen Lian** and **Yuriy Gorodnichenko**, University of California, Berkeley and NBER, "The Economics of Financial Stress"
- **Zhengyang Jiang**, Northwestern University and NBER; **Hongqi Liu**, Chinese University of Hong Kong, Shenzhen; **Cameron Peng**, London School of Economics; and **Hongjun Yan**, DePaul University, "Investor Memory and Biased Beliefs: Evidence from the Field"
- **Pamela Giustinelli** and **Stefano Rossi**, Bocconi University, "The Coherence Side of Rationality: Rules of Thumb, Narrow Bracketing, and Managerial Incoherence in Corporate Forecasts"
- **Peter Maxted**, University of California, Berkeley, "Present Bias Unconstrained: Consumption, Welfare, and the Present-Bias Dilemma"
- **Svetlana Bryzgalova**, **Anna Pavlova**, and **Taisiya Sikorskaya**, London Business School, "Retail Trading in Options and the Rise of the Big Three Wholesalers"
- **Matthew Baron**, Cornell University; **Wei Xiong**, Princeton University and NBER; and **Zhijiang Ye**, Princeton University, "Measuring Time-Varying Disaster Risk: An Empirical Analysis of Dark Matter in Asset Prices"

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

Monetary Economics Program Meeting

A Monetary Economics Program meeting was held at the Royal Sonesta Hotel, Cambridge, MA and over Zoom.us on November 11, 2022. Research AssociatesAdam Guren of Boston University and Ayşegül Şahin of the University of Texas at Austin organized the meeting. These researchers' papers were presented and discussed:

- **Anna Cieslak**, Duke University and NBER; **Stephen Hansen**, Imperial College London; **Michael McMahon**, University of Oxford; and **Song Xiao**, London School of Economics, "Policymakers' Uncertainty"
- **Oliver Pfäuti**, University of Mannheim, and **Fabian Seyrich**, BSE Berlin and DIW Berlin, "A Behavioral Heterogeneous Agent New Keynesian Model"
- **Noémie Pinardon-Touati**, Columbia University, "The Crowding-Out Effect of Local Government Debt: Micro- and Macro-Estimates"
- **Francesco Bianchi**, Johns Hopkins University and NBER; **Sydney C. Ludvigson**, New York University and NBER; and **Sai Ma**, Federal Reserve Board, "Monetary-Based Asset Pricing: A Mixed Frequency Structural Approach" (NBER Working Paper 30072)

- **Andrés Drenik**, University of Texas at Austin; **Andrés Blanco**, University of Michigan; and **Christian Moser** and **Emilio Zaratiegui**, Columbia University, "A Theory of Non-Coasean Labor Markets"

A keynote address was presented by Richard Clarida of Columbia University, a former vice chair of the Federal Reserve Board of Governors.

Summaries of these papers are available at www.nber.org/conferences/monetary-economics-program-meeting-fall-2022

Labor Studies Program Meeting

A Labor Studies Program meeting was held at the Stanford Institute for Economic Policy Research and over Zoom.us on November 18, 2022. Program Directors David Autor of the Massachusetts Institute of Technology and Alexandre Mas of Princeton University organized the meeting. These researchers' papers were presented and discussed:

- **Andrew Caplin**, New York University and NBER; **Søren Leth-Petersen** and **Johan Sæverud**, University of Copenhagen; **Minjoon Lee**, Carleton University; and **Matthew D. Shapiro**, University of Michigan and NBER, "How Worker Productivity and Wages Grow with Tenure and Experience: The Firm Perspective"
- **Mary Ann Bronson**, Georgetown University, and **Peter Skogman Thoursie**, Stockholm University, "The Wage Growth and Within-Firm Mobility of Men and Women: New Evidence and Theory"
- **Kirill Borusyak**, University College London; **Rafael Dix-Carneiro**, Duke University and NBER; and **Brian K. Kovak**, Carnegie Mellon University and NBER, "Understanding Migration Responses to Local Shocks"
- **Costas Cavounidis** and **Raghav Malhotra**, University of Warwick; **Qingyuan Chai**, Boston University; and **Kevin Lang**, Boston University and NBER, "Obsolescence Rents: Teamsters, Truckers, and Impending Innovations"
- **Nicholas Bloom**, Stanford University and NBER; **Ruobing Han**, Stanford University; and **James Liang**, Peking University, "How Hybrid Working from Home Works Out" (NBER Working Paper 30292)
- **Ellora Derenoncourt**, Princeton University and NBER; **François Gerard**, Queen Mary University of London; **Lorenzo Lagos**, Brown University; and **Claire Montialoux**, University of California, Berkeley, "Racial Inequality, Minimum Wage Spillovers, and the Informal Sector"

Summaries of these papers are available at www.nber.org/conferences/labor-studies-program-meeting-fall-2022

Organizational Economics Working Group Meeting

An Organizational Economics Working Group meeting was held at the Royal Sonesta Hotel and over Zoom.us on December 2–3, 2022. Research Associate Robert S. Gibbons of the Massachusetts Institute of Technology organized the meeting. These researchers' papers were presented and discussed:

- **Ing-Haw Cheng**, University of Toronto, and **Alice Hsiaw**, Brandeis University, "Bayesian Doublespeak"
- **Stefano DellaVigna**, University of California, Berkeley and NBER; **Woojin Kim**, University of California, Berkeley; and **Elizabeth Linos**, Harvard University, "Bottlenecks for Evidence Adoption" (NBER Working Paper 30144)
- **Jeffrey Ely**, **George Georgiadis**, and **Luis Rayo**, Northwestern University, and **Sina Khorasani**, University of California, San Diego, "Optimal Feedback in Contests"
- **Diego Battiston**, **Jordi Blanes i Vidal**, and **Tom Kirchmaier**, London School of Economics, and **Katalin Szemeredi**, Corvinus University, "Peer Pressure and Manager Pressure in Organizations"
- **Jason Sandvik**, Tulane University; **Richard Saouma**, Michigan State University; **Nathan Seegert**, University of Utah; and **Christopher T. Stanton**, Harvard University and NBER, "Should Workplace Programs be Voluntary or Mandatory? Evidence from a Field Experiment on Mentorship" (NBER Working Paper 29148)
- **Silvia F. Castro** and **Florian Englmaier,** Ludwig Maximilian University of Munich; and **Maria Guadalupe**, INSEAD, "Fostering Psychological Safety in Teams: Evidence from an RCT"
- **Laura E. Boudreau**, Columbia University; **Sylvain Chassang**, Princeton University and NBER; **Ada Gonzalez-Torres**, Ben-Gurion University of the Negev; and **Rachel M. Heath**, University of Washington, Seattle, "Monitoring Harassment in Organizations"
- **John Joseph Wallis**, University of Maryland and NBER, "Organizations Not Atoms: Rules, Organizations, and Long-Term Development"
- **Mert Demirer**, Massachusetts Institute of Technology, and **Ömer Karaduman**, Stanford University, "Do Mergers and Acquisitions Improve Efficiency? Evidence from Power Plants"
- **Daron Acemoglu**, Massachusetts Institute of Technology and NBER; **Alex X. He**, University of Maryland; and **Daniel le Maire**, University of Copenhagen, "Eclipse of Rent Sharing: The Effects of Managers' Business Education on Wages and the Labor Share in the US and Denmark" (NBER Working Paper 29874)
- **Natalia Rigol**, Harvard University and NBER, and **Benjamin N. Roth**, Harvard University, "Loan Officers Impede Graduation from Microfinance: Strategic Communication in a Large Microfinance Institution"
- **Rocco Macchiavello**, London School of Economics; **Mario Bernasconi**, Tilburg University; **Miguel Espinosa**, Bocconi University; and **Carlos Suarez**, Pompeu Fabra University, "Market Transparency and Relational Collusion in the Colombia Electricity Market"
- **Mary Ann Bronson**, Georgetown University, and **Peter Skogman Thoursie**, Stockholm University, "The Wage Growth and Within-Firm Mobility of Men and Women: New Evidence and Theory"

Summaries of some of these papers are available at www.nber.org/conferences/organizational-economics-fall-2022

Development Economics Program Meeting

A Development Economics Program meeting was held at the Royal Sonesta Hotel, Cambridge, MA and over Zoom.us on December 2, 2022. Program Director Benjamin A. Olken of the Massachusetts Institute of Technology, Research Associates Lori A. Beaman and Nancy Qian of Northwestern University, and Research Associates Erica M. Field of Duke University, Asim Ijaz Khwaja of Harvard University, and Cristian Pop-Eleches of Columbia University organized the meeting. These researchers' papers were presented and discussed:

- **Karmini Sharma**, Stanford University, "Tackling Sexual Harassment: Short and Long Run Experimental Evidence from India"
- **Allan Hsiao**, Princeton University, "Educational Investment in Spatial Equilibrium: Evidence from Indonesia"
- **Gedeon J. Lim**, The University of Hong Kong, "Local Elites, Land Rents, and Incentives for Development: Evidence from Village Chiefs in Indonesia"
- **James Dzansi** and **Henry Telli**, International Growth Centre; **Anders Jensen**, Harvard University and NBER; and **David Lagakos**, Boston University and **NBER**, "Technology and Tax Capacity: Evidence from Local Governments in Ghana" (NBER Working Paper 29923)
- **Matthieu Chemin**, McGill University; **Daniel L. Chen**, Toulouse School of Economics; **Vincenzo Di Maro** and **Manuel Maqueda**, The World Bank; **Paul Kimalu**, Judiciary of Kenya; and **Momanyi Mokaya**, Conference Board of Canada, "Data Science for Justice: Evidence from a Randomized Judicial Reform in Kenya"
- **Michael Greenstone**, University of Chicago and NBER; **Rohini Pande** and **Nicholas Ryan**, Yale University and NBER; and **Anant Sudarshan**, University of Chicago, "Can Pollution Markets Work in Developing Countries? Experimental Evidence from India"
- **Jacob Moscona** and **Awa Ambra Seck**, Harvard University, "Age Set vs. Kin: Culture and Financial Ties in East Africa"
- **Suresh Naidu**, Columbia University and NBER; **Yaw Nyarko**, New York University and NBER; and **Shing-Yi Wang**, University of Pennsylvania and NBER, "The Benefits and Costs of Guest Worker Programs: Experimental Evidence from the India-UAE Migration Corridor"
- **Anjali Adukia**, University of Chicago and NBER; **Sam Asher**, Imperial College Business School; **Kritarth Jha**, Development Data Lab; **Paul Novosad**, Dartmouth College; and **Brandon Tan**, International Monetary Fund, "Residential Segregation and Unequal Access to Local Public Services in India: Evidence from 1.5 Million Neighborhoods"
- **Guthrie Gray-Lobe**, University of Chicago; **Anthony Keats**, Wesleyan University; **Michael Kremer**, University of Chicago and NBER; **Isaac Mbiti**, University of Virginia and NBER; and **Owen Ozier**, Williams College, "Can Education Be Standardized? Evidence from Kenya"
- **Sofia Amaral**, Ludwig Maximilian University of Munich; **Girija Borker**, The World Bank; **Nathan Fiala** and **Nishith Prakash**, University of Connecticut; and **Maria Micaela Sviatschi**, Princeton University and NBER, "Sexual Harassment in Public Spaces and Police Patrolling: Experimental Evidence from Urban India"
- **James Ji**, University of Florida; **Amanda Guimbeau**, Université de Sherbrooke; and **Zi Long** and **Nidhiya Menon**, Brandeis University, "Water, Water Everywhere, Nor Any Drop to Drink? Ocean Salinity, Early-Life Health, and Adaptation"

- **Oyebola Okunogbe**, World Bank Research Group, "Becoming Legible to the State: The Role of Detection and Enforcement Capacity in Tax Compliance"

Summaries of some of these papers are available at www.nber.org/conferences/development-program-meeting-fall-2022

International Trade and Investment Program Meeting

An International Trade and Investment Program meeting was held at the JW Marriott Hotel, Washington, DC on December 2–3, 2022. Program Director Stephen J. Redding of Princeton University organized the meeting. These researchers' papers were presented and discussed:

- **John Morgan**, University of California, Berkeley; **Justin Tumlinson**, University of Exeter; and **Felix Vardy**, International Monetary Fund, "Bad Trade: The Loss of Domestic Varieties"
- **Cem Çakmaklı**, **Selva Demiralp**, **Sevcan Yeşiltaş**, and **Muhammed A. Yıldırım**, Koç University; and **Şebnem Kalemli-Özcan**, University of Maryland and NBER, "The Economic Case of Global Vaccinations" (NBER Working Paper 28395)
- **Barthélémy Bonadio**, New York University Abu Dhabi; **Zhen Huo**, Yale University; **Andrei A. Levchenko**, University of Michigan and NBER; and **Nitya Pandalai-Nayar**, University of Texas at Austin and NBER, "Globalization, Structural Change, and International Comovement"
- **Emmanuel Dhyne**, National Bank of Belgium; **Ken Kikkawa**, University of British Columbia; **Toshiaki Komatsu**, University of Chicago; and **Magne Mogstad** and **Felix Tintelnot**, University of Chicago and NBER, "Foreign Demand Shocks to Production Networks: Firm Responses and Worker Impacts" (NBER Working Paper 30447)
- **Hamid Firooz**, University of Rochester, "The Pro-Competitive Consequences of Trade in Frictional Labor Markets"
- **Xiang Ding**, Georgetown University, "Industry Linkages from Joint Production"
- **Laura Alfaro**, Harvard University and NBER; **Maggie Chen**, George Washington University; and **Davin Chor**, Dartmouth College and NBER, "Can Evidence-Based Information Shift Preferences towards Trade Policy?"
- **Federico Huneeus**, Central Bank of Chile; **Kory Kroft**, University of Toronto and NBER; and **Kevin Lim**, University of Toronto, "Earnings Inequality in Production Networks" (NBER Working Paper 28424)
- **Jaedo Choi**, Federal Reserve Board, and **Andrei A. Levchenko**, "The Long-Term Effects of Industrial Policy" (NBER Working Paper 29263)
- **Kirill Borusyak**, University College London; **Rafael Dix-Carneiro**, Duke University and NBER; and **Brian K. Kovak**, Carnegie Mellon University and NBER, "Understanding Migration Responses to Local Shocks"

Summaries of these papers are available at www.nber.org/conferences/international-trade-and-investment-program-meeting-fall-2022

Entrepreneurship Working Group Meeting

An Entrepreneurship Working Group meeting was held at Le Méridien, Cambridge, MA on December 2, 2022. Research Associates Josh Lerner of Harvard University and David T. Robinson of Duke University organized the meeting, which was supported by the Ewing Marion Kauffman Foundation. These researchers' papers were presented and discussed:

- **Julia Fonseca**, University of Illinois at Urbana-Champaign, and **Jialan Wang**, University of Illinois at Urbana-Champaign and NBER, "How Much Do Small Businesses Rely on Personal Credit?"
- **Michael Roach**, University of Illinois at Urbana-Champaign, and **Henry Sauermann**, European School of Management and Technology, "Can Early-Stage Startups Hire Talented Scientists and Engineers? Ability, Preferences, and Employee Job Choice"
- **Mu-Jeung Yang**, University of Oklahoma; and **Nathan Seegert** and **Maclean Gaulin**, University of Utah, "Why Is Entrepreneurial Overconfidence (So) Persistent?"
- **Matthew R. Denes**, Carnegie Mellon University; **Spyridon Lagaras**, University of Pittsburgh; and **Margarita Tsoutsoura**, Washington University in St. Louis and NBER, "Entrepreneurship and the Platform Economy: Evidence from US Tax Returns"
- **Vojislav Maksimovic**, **Jing Xue**, and **Liu Yang**, University of Maryland, "Seizing Opportunities: Small Businesses, Social Capital, and Banks"
- **Pulak Ghosh**, Indian Institute of Management Bangalore, and **Nishant Vats**, University of Chicago, "Safety Nets, Credit, and Investment: Evidence from a Guaranteed Income Program"
- **Robert W. Fairlie**, University of California, Santa Cruz and NBER; **Javier Miranda**, Friedrich-Schiller University; and **Nikolas Zolas** and **Zachary Kroff**, US Census Bureau, "The Promise and Peril of Entrepreneurship: Job Creation and Survival among US Startups"
- **Yifei Mao**, Cornell University; **Xuan Tian**, Tsinghua University; **Jiajie Xu**, University of Iowa; and **Kailei Ye**, University of North Carolina at Chapel Hill, "Resurrecting Dead Capital: The Sharing Economy, Entrepreneurship, and Job Creation"

Summaries of these papers are available at www.nber.org/conferences/entrepreneurship-working-group-fall-2022

Innovation Information Initiative Technical Meeting

An Innovation Information Initiative Technical meeting was held at Le Méridien, Cambridge, MA and over Zoom.us on December 2–3, 2022. Research Associate Adam B. Jaffe of Brandeis University organized the meeting, which was supported by the Alfred P. Sloan Foundation through a subcontract with Code for Science and Society. These researchers' papers were presented and discussed:

- **Fabian Gaessler**, Pompeu Fabra University, and **Dietmar Harhoff** and **Lorenz Brachtendorf**, Max Planck Institute for Innovation and Competition, "Mapping Patents to Technology Standards"

- **Lee Fleming**, University of California, Berkeley, "Progress Report on an Inventor-Author Crosswalk"

- **Maya Durvasula** and **Lisa Larrimore Ouellette**, Stanford University; **Scott Hemphill**, NYU Law School; **Bhaven Sampat**, Columbia University and NBER; and **Heidi Williams**, Stanford University and NBER, "The NBER Orange Book Dataset: A User's Guide" (NBER Working Paper 30628)

- **Grigor Aslanyan** and **Ian Wetherbee**, Google, "Patents Phrase to Phrase Semantic Matching Dataset"

- **Jean-Marc Deltorn** and **Chenyin Wu**, University of Strasbourg; and **Dominique Guellec** and **Jiangyin Liu**, Observatoire des Sciences et Techniques, "Building a Corpus of 'Patent-Article Siblings'"

Summaries of these papers are available at www.nber.org/conferences/innovation-information-initiative-technical-working-group-meeting-fall-2022

Education Program Meeting

An Education Program meeting was held at the Royal Sonesta Hotel, Cambridge, MA and over Zoom.us on December 8–9, 2022. Program Director Caroline M. Hoxby of Stanford University 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" (NBER Working Paper 30490)

- **Michael Gilraine**, New York University and NBER; **Uros Petronijevic**, York University; and **John D. Singleton**, University of Rochester, "School Choice, Competition, and Aggregate School Quality"

- **Andrea Ichino**, European University Institute; **Aldo Rustichini**, University of Minnesota; and **Giulio Zanella**, University of Bologna, "College Education, Intelligence, and Disadvantage: Policy Lessons from the UK in 1960–2004"

- **Christopher Avery**, Harvard University and NBER; **Geoffrey Kocks**, Massachusetts Institute of Technology; and **Parag A. Pathak**, Massachusetts Institute of Technology and NBER, "Does a Common Application Increase Access? Theory and Evidence from Boston's Charters"

- **Sarah Cohodes**, Columbia University and NBER; **Helen Ho**, Harvard University; and **Silvia Robles**, Mathematica, "Diversifying the STEM Pipeline: Evidence from STEM Summer Programs for Underrepresented Youth"

- **Brian Jacob**, University of Michigan and NBER; **Damon Jones**, University of Chicago and NBER; and **Benjamin J. Keys**, University of Pennsylvania and NBER, "How Much Do Borrowers Value Student Debt Relief? Evidence from the Teacher Loan Forgiveness Program"

- **Damon Clark**, University of California, Irvine and NBER; **Paco Martorell**, University of California, Davis; and **Matthew J. Wiswall**, University of Wisconsin-Madison and NBER, "How Do Parents Choose Schools? Evidence from Choices and a Survey of Choosers"

- **Nicolás Ajzenman**, McGill University; **Gregory M. Elacqua** and **Luana Marotta**, Inter-American Development Bank; and **Anne Sofie Olsen**, Novo Nordisk, "Order Effects and Teachers' Labor Supply: A Nationwide RCT in Ecuador"

- **Riley K. Acton**, Miami University; **Wenjia Cao**, Michigan State University; **Emily E. Cook**, Tulane University; **Michael F. Lovenheim**, Cornell University and NBER; and **Scott A. Imberman**, Michigan State University and NBER, "The Effect of Vaccine Mandates on Disease Spread: Evidence from College COVID-19 Mandates" (NBER Working Paper 30303)

- **Esther Duflo**, Massachusetts Institute of Technology and NBER; **Pascaline Dupas**, Stanford University and NBER; **Mark P. Walsh**, Stanford University; and **Elizabeth Spelke**, Harvard University, "Intergenerational Impacts of Secondary Education: Experimental Evidence from Ghana"

- **Abhijeet Singh**, Stockholm School of Economics; **Mauricio Romero**, Instituto Tecnológico Autónomo de México; and **Karthik Muralidharan**, University of California, San Diego and NBER, "COVID-19 Learning Loss and Recovery: Panel Data Evidence from India" (NBER Working Paper 30552)

Summaries of some of these papers are available at www.nber.org/conferences/education-program-meeting-fall-2022

Health Economics Program Meeting

A Health Economics Program meeting was held at Le Méridien, Cambridge, MA and over Zoom.us on December 9, 2022. Program Director Christopher "Kitt" Carpenter of Vanderbilt University and Research Associate Laura Dague of Texas A&M University organized the meeting. These researchers' papers were presented and discussed:

- **Marika Cabral**, University of Texas at Austin and NBER; **Colleen Carey**, Cornell University and NBER; and **Sarah Miller**, University of Michigan and NBER, "The Impact of Provider Reimbursement on Health Care Utilization of Low-Income Individuals: Evidence from Medicare and Medicaid" (NBER Working Paper 29471)

- **Esra Kose**, Bucknell University; **Siobhan M. O'Keefe**, Davidson College; and **Maria Rosales-Rueda**, Rutgers University and NBER, "Does the Delivery of Primary Health Care Improve Birth Outcomes? Evidence from the Rollout of Community Health Centers" (NBER Working Paper 30047)

- **Stefanie J. Fischer** and **Corey D. White**, Monash University; and **Heather Royer**, University of California, Santa Barbara and NBER, "Health Care Centralization: The Health Impacts of Obstetric Unit Closures in the US" (NBER Working Paper 30141)

- **Mika Akesaka**, Kobe University, and **Hitoshi Shigeoka**, Simon Fraser University and NBER, "'Invisible Killer': Seasonal Allergy and Accidents"

- **Abby E. Alpert**, University of Pennsylvania and NBER; **Steve Schwab**, Baylor University; and **Benjamin D. Ukert**, Texas A&M University, "Opioid Use and Employment Outcomes: Evidence from the Military" (NBER Working Paper 30110)

- **Marcella Alsan**, Harvard University and NBER; **Joshua Schwartzstein**, Harvard University; **Heidi L. Williams**, Stanford University and NBER; **Maya Durvasula** and **Harsh Gupta**, Stanford University, "Representation and Extrapolation: Evidence from Clinical Trials" (NBER Working Paper 30575)

- **Jamein P. Cunningham**, Cornell University; **Angélica Meinhofer**, Weill Cornell Medicine; and **Adrian Rubli**, Instituto Tecnológico Autónomo de México, "State Recreational Cannabis Laws and Racial Disparities in the Criminal Justice System"

Summaries of these papers are available at www.nber.org/conferences/health-economics-program-meeting-fall-2022

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