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### NBER Profile

## Nicole Maestas

Nicole Maestas is an associate professor in the Department of Health Care Policy at Harvard Medical School.

She is a research associate in the NBER's aging and labor studies programs and the director of the NBER's Disability Research Center.

Dr. Maestas's research explores topics related to disability and health, insurance systems, and employment. Some of her past work has examined the effect of disability insurance benefits on employment decisions, the prevalence of labor force re-entry by older workers, and the relationship between population aging and economic growth. In current work, she is examining

(continued on page 2)

## The Protective Effect of Sunlight against Influenza

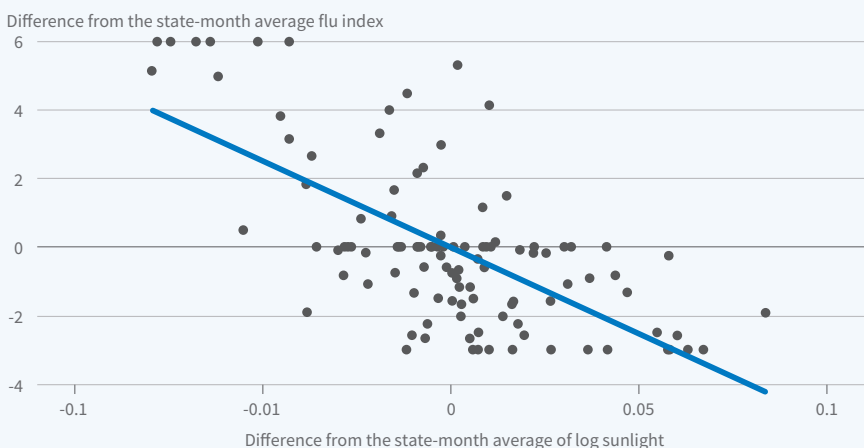
Influenza, a highly contagious viral infection, is a major public health hazard. Influenza and pneumonia (which may occur in severe cases of influenza) are among the top ten causes of death in the U.S. Even less severe cases of influenza can affect worker productivity and require substantial health care resources, while *in utero* exposure to influenza

is associated with an increased risk of serious health problems later in life.

Traditional options for combating influenza include vaccination and avoiding contact with sick persons. Reducing interpersonal contact more generally during flu season also reduces the spread of the disease. Ingesting vitamin D has emerged as another defense,

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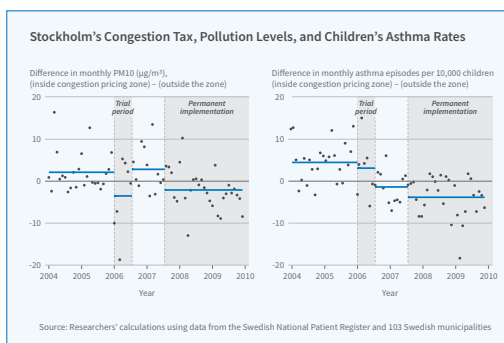
### Variation in Sunlight Exposure and Influenza Cases



Observations are for the month of September, 2008–2011  
Source: Researchers' calculations using data from the Centers for Disease Control and Prevention and the North America Land Data Assimilation System

### INSIDE:

- Health Benefits of Congestion Pricing
- The Effect of Wait Time Targets in Emergency Departments



Source: Researchers' calculations using data from the Swedish National Patient Register and 103 Swedish municipalities

- NBER Affiliates' Work Appearing in Medical Journals
- Selected Abstracts of NBER Working Papers

## Profile (from page 1)

preferences for working conditions and their relationship with employment, the effect of technological change on older workers, and the work capacity of disabled workers.

Professor Maestas recently served on the Committee on Health Care Utilization and Adults with Disabilities of the National Academies of Sciences, Engineering, and Medicine and previously served on the Disability Policy Panel of the Social Security Advisory Board. She is an editorial board member of the *Journal of Policy Analysis and Management* and the *Journal of Pension Economics and Finance*, and *Industrial Relations*. She has testified before Congress on two occasions.

Maestas earned a PhD in Economics and a Masters in Public Policy from the University of California at Berkeley as well as a BA from Wellesley College. Prior to joining the faculty at the Harvard Medical School, she worked at the RAND Corporation, where she served as director of the Economics, Sociology, and Statistics Research Department as well as in other leadership roles and taught in the Pardee RAND Graduate School.

In her free time, she hangs out with her kids, runs her dog in the woods, and enjoys craft food and drink with her husband.

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## Influenza (from page 1)

after a recent meta-study found that taking pills helps to protect against infection.

In **Sunlight and Protection Against Influenza** (NBER Working Paper No. 24340), researchers [David Slusky](#) and [Richard Zeckhauser](#) analyze an alternative mechanism for securing vitamin D: direct bodily production of vitamin D when exposed to sunlight. Relative to vitamin D absorbed through food sources such as fortified milk or ingested in pill form, passive sunlight exposure is a more effective source of vitamin D and poses no risk of toxicity at high concentrations.

The researchers investigate whether sunlight levels affect influenza incidence. They also examine the importance of herd immunity, in which one person's protection can help reduce risk to others. They hypothesize that herd immunity will be strongest in communities with medium population density, since sparsely populated areas may not be able to sustain the spread of an infectious disease while densely populated areas will require high levels of immunization for efficacy.

The researchers obtain flu data from the Center for Disease Control's flu index, sunlight data from the North American Land Data Assimilation System, and population data from the Census. They assemble data for 36 states for the period 2008 through 2011.

The researchers find that when a state receives more sunlight than is typical for that calendar month in that state, it also tends to experience less influenza than usual. Noting that some months experience minimal influenza activity, the researchers look at the relationship between sunlight and influenza by month. They find that the relationship is stron-

gest in September and apparent to a lesser extent in October as well. They estimate that in September, a ten percent increase in sunlight levels is associated with a three-point decrease in the flu index, where each point represents a one standard deviation increase in the share of outpatient visits that are due to influenza.

The researchers also show that the relationship between sunlight and influenza is strongest in states that are in the third quartile of population density. This is consistent with a scenario in which herd immunity is a powerful part of the protective effect of sunlight and is most effective in locations with medium population density.

A back of the envelope calculation suggests that if levels of sunlight in September were to rise by 10 percentage points in all states, or roughly the observed difference between lower-than-typical and higher-than-typical sunlight months, there would be approximately 30,000 fewer cases of influenza nationwide. Using public estimates of the cost of influenza, this 4.1 percent decrease in the number of annual cases is valued at \$3.6 billion.

Interestingly, the study's estimates are substantially higher than those obtained in recent randomized controlled trials of vitamin D supplements. The researchers point to herd immunity as the most likely explanation for the disparity. They note that giving a town extra sunlight would allow most of the community to produce vitamin D, "thereby conveying an externality of protection that triggers herd protection against influenza."

The researchers conclude that their study "reinforces the long-held assertion that vitamin D protects against acute upper respiratory infections." With sunlight serving "as an alternative, natural path through which humans can and do secure vitamin D," something as simple as a walk outdoors on a sunny day can offer protection against influenza.

# Health Benefits of Congestion Pricing

Traffic congestion is a serious problem in many cities around the world. While concerns about the effects of traffic on commute times, fuel consumption, and business activity often dominate the discussion, there is growing interest in the health effects of congestion.

In **Congestion Pricing, Air Pollution, and Children's Health** (NBER Working Paper No. 24410), researchers [Emilia Simeonova](#), [Janet Currie](#), [Peter Nilsson](#), and [Reed Walker](#)

examine the effects of implementing a congestion tax in Stockholm, Sweden on air pollution levels and the population health of local children.

Motor vehicle emissions are the leading cause of ambient air pollution in urban areas. Automobile exhaust contains a number of harmful pollutants, including particulate matter (PM10 and PM2.5), nitrogen dioxide (NO<sub>2</sub>), and carbon monoxide (CO). The medical literature has established that exposure to these pollutants has negative effects on lung development, asthma symptoms, and respiratory health. The effect of pollution on children's health is of particular interest because children spend more time being active outdoors and because childhood respiratory problems can cause permanent health deficits.

Sweden offers a compelling context in which to study the health effects of congestion due to policy changes that affected congestion levels. Congestion pricing was first introduced in central Stockholm on a trial basis in January

2006. Vehicles entering the congestion pricing zone (CPZ) were subject to a fee of 0 to 2.6 U.S. dollars, depending on time of day, and fees were collected automatically using license-scanning technology. During the trial period, traffic in the CPZ declined by 20 to 25 percent. The trial ended in July 2006, but the government re-implemented congestion pricing on a permanent basis in August 2007.

To study the effects of congestion

to pre-trial levels after the trial ended, and then fell again once congestion pricing was re-introduced. Ultimately, the decline in the levels of these two pollutants in the CPZ was between 5 and 20 percent.

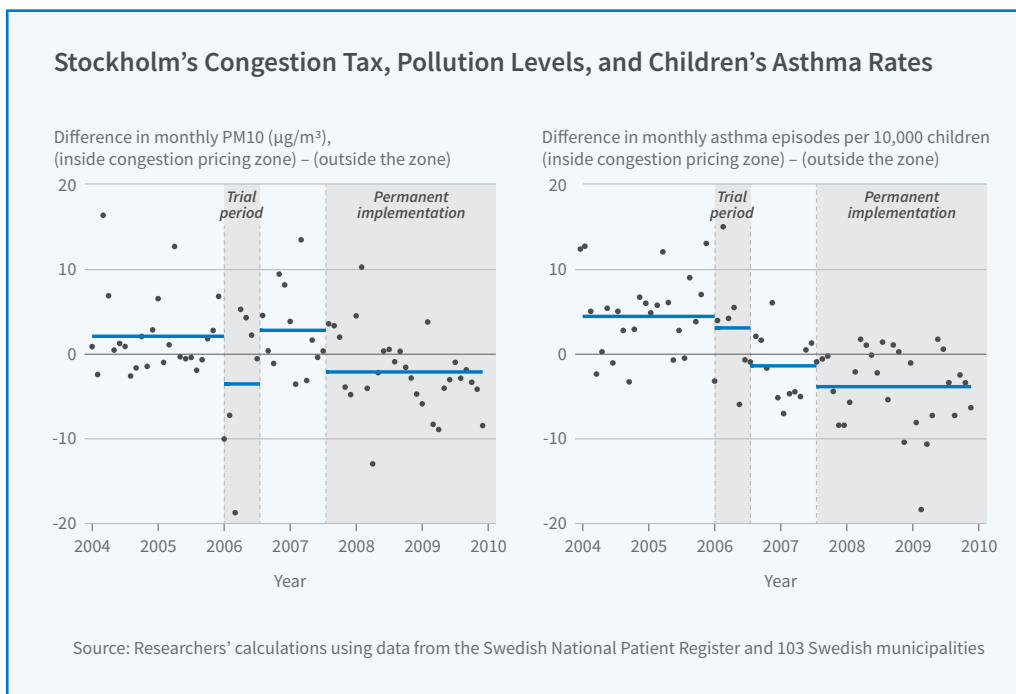
The pattern with respect to health effects is somewhat different, with a drop in asthma cases in the CPZ area that grew larger over time, even when congestion pricing was not in place. Comparing the permanent policy era

to the pre-trial era, asthma cases in the CPZ area fell by 8.7 per 10,000 children, a drop of nearly half the baseline rate. As the researchers note, their findings suggest "that congestion charges in large cities can have significant positive effects on health in the short-term, but even larger effects in the longer term as the stock of health evolves

to a new lower-pollution equilibrium level. This finding is consistent with our understanding of health as a stock that often changes relatively slowly over time."

The researchers conclude by noting that the initial pollution levels in Sweden are well below the current U.S. EPA standards, suggesting "reductions in pollution from traffic can have large positive effects on children's respiratory health in many settings."

*The researchers gratefully acknowledge support from Princeton's Center for Health and Wellbeing, the NIH, the Swedish Research Council, and IEAU (the Institute for Evaluation of Labor Market and Education Policy of the Swedish Ministry of Employment).*



pricing on pollution levels and child health, the researchers obtain emissions data from ambient air monitors in Stockholm and other Swedish municipalities from 2004 to 2010. They also assemble data on hospital inpatient and acute outpatient visits by residents of these cities over the same period, identifying visits with a primary complaint of asthma. The researchers focus on children under age six due to the higher probability of acute asthma episodes in this population.

The researchers first show that congestion pricing led to lower levels of air pollution. Relative to other areas, levels of PM10 and NO<sub>2</sub> in the CPZ area dropped during the trial, returned

## The Effect of Wait Time Targets in Emergency Departments

Emergency departments (EDs) face the complex challenge of serving patients who arrive with a wide array of problems, some life-threatening. ED nurses and physicians must quickly decide which patients must be seen immediately and which can wait. They must also decide which diagnostic tests and procedures to perform in the ED, as well as when to admit a patient to the hospital and when to send them back home.

Long ED wait times are an increasing focus of public attention. In some U.S. cities, there are digital billboards advertising current wait times at local EDs. Several nations have introduced financial rewards or penalties for providers based on ED wait times.

The effects of policies that encourage shorter ED wait times are not well understood. One concern is that such policies could lead providers to make decisions that compromise the quality of patient care. On the other hand, it is not clear whether providers fully take into account the effect of wait times on patient outcomes in the absence of these policies.

### In Saving Lives by Tying Hands: The Unexpected Effects of Constraining Health Care Providers

(NBER Working Paper No. 24445), researchers [Jonathan Gruber](#), [Thomas Hoe](#), and [George Stoye](#) explore the effect of the imposition of a “four-hour wait” policy in England.

Implemented in 2004, the policy required 98 percent (later 95 percent) of patients to be discharged, admitted as an inpatient, or transferred to another hospital within four hours of arrival. Meeting the target is a key factor in the evaluation of overall hospital performance, with managers at risk of being fired for poor compliance. Further, the financial penalty for missing the target is more than twice the average revenue of an ED patient, with total fines equaling one-

third of hospital deficits. To help them meet the target, EDs have adopted IT systems that track patient wait times and hired staff to monitor wait times and alert physicians when the four-hour threshold is approaching.

The analysis uses administrative records of 15 million visits to EDs at public hospitals from 2011 to 2013. These data include detailed information about ED visits and any subsequent care received during an inpatient stay, and are also linked to national mortality records.

There is a large spike in wait times at the four-hour mark, with a patient’s visit to the ED 2.5 times more likely to be completed in

(the “composition” effect) from that which results from changes in provider behavior (the “distortion” effect). The latter is the finding of interest.

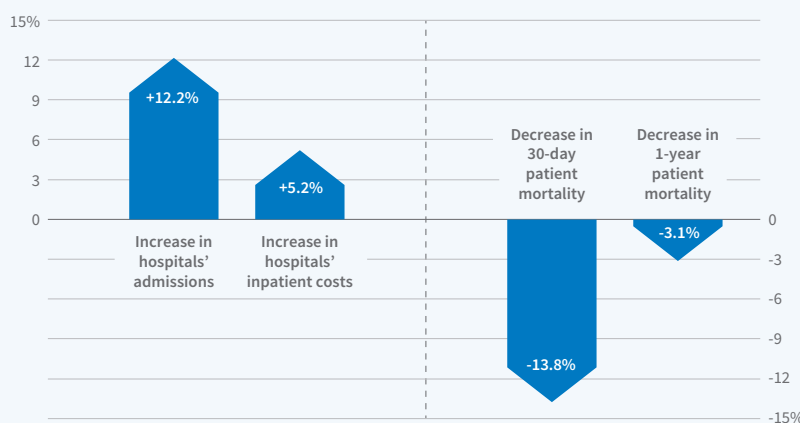
The researchers find that the policy leads to more intensive testing of patients in the ED and a modest increase in ED costs. The policy also leads to a 12 percent increase in the probability of inpatient admission and a corresponding decrease in discharges to home. While these marginal inpatients use relatively few resources during their stays, the extra visits are nonetheless associated with a 5 percent increase in payments from the government for inpatient services.

Interestingly, there are significant gains in patient outcomes from the policy—the 30-day mortality rate is estimated to fall by about 14 percent for patients affected by the policy, while the one-year mortality rate falls by about 3 percent. The researchers note that these effects are large relative to the effect on spending, suggesting a cost of extending life by one year of \$43,000.

Overall, the findings indicate that the policy induced EDs in England to reduce wait times and increase inpatient admissions, resulting in cost-effective mortality improvements. This suggests that provider decisions in the absence of the four-hour policy would not be optimal. Cautioning that their results might not apply in other contexts with different wait time limits or incentives for compliance, they conclude “more work is clearly needed to understand the proper set of rules and incentives for delivering cost-effective ED care.”

*Hoe and Stoye acknowledge financial support from the UK Economic and Social Research Council through the Centre for the Microeconomic Analysis of Public Policy (CPP) at IFS.*

Effects of Hospitals’ Reduced Emergency Department Wait Times



Source: Researchers' calculations using data from the Hospital Episode Statistics and the U.K. Office for National Statistics

the 10 minutes before the cutoff than in any other 10-minute window. The researchers use a “bunching estimator,” first developed to study the effect of tax rate thresholds, to estimate the counterfactual distribution of wait times that would exist in the absence of the four-hour policy. They find that the policy reduced wait times for impacted patients by nearly 20 minutes, or 8 percent.

Turning to how the policy affects treatment decision and outcomes, the researchers develop a method that allows them to distinguish the portion of the spike at the four-hour mark which results from providers treating sicker patients more quickly

## NBER Affiliates' Work Appearing in Medical Journals

### Motivating Cord Blood Donation with Information and Behavioral Nudges

*D. Grieco, N. Lacetera, M. Macis, and D. Di Martino*, *Scientific Reports*, 8(1), January 2018, p. 252.

### Drivers of Payment Variation in 90-Day Coronary Artery Bypass Grafting Episodes

*V. Guduguntla, J. D. Syrjamaki, C. Ellimoottil, D. C. Miller, R. L. Prager, E. C. Norton, P. Theurer, D. S. Likosky, and J. M. Dupree*, *JAMA Surgery*, 153(1), January 2018, pp. 14–9.

### The Social Genome of Friends and Schoolmates in the National Longitudinal Study of Adolescent to Adult Health

*B. W. Domingue, D. W. Belsky, J. M. Fletcher, D. Conley, J. D. Boardman, and K. M. Harris*, *Proceedings of the National Academy of Sciences*, January 2018, (Published online).

### ACA Marketplace Premiums and Competition among Hospitals and Physician Practices

*M. Polyakova, M. K. Bundorf, D. P. Kessler, and L. C. Baker*, *The American Journal of Managed Care*, 24(2), February 2018, pp. 85–90.

### Social Health Insurance for the Poor: Lessons from a Health Insurance Programme in Karnataka, India

*N. Sood and Z. Wagner*, *BMJ Global Health*, 3(1), February 2018, (Published online).

### Corrected U.S. Opioid-Involved Drug Poisoning Deaths and Mortality Rates, 1999–2015

*C. J. Ruhm*, *Addiction*, February 2018, (Published online).

### Mortality and Macrovascular Risk in Elderly with Hypertension and Diabetes: Effect of Intensive Drug Therapy

*A. P. Yashkin, J. Kravchenko, A. I. Yashin, and F. Sloan*, *American Journal of Hypertension*, 31(2), February 2018, pp. 220–7.

### The Great Recession Worsened Blood Pressure and Blood Glucose Levels in American Adults

*T. Seeman, D. Thomas, S. S. Merkin, K. Moore, K. Watson, and A. Karlamangla*, *Proceedings of the National Academy of Sciences*, 115(13), March 2018, pp. 3296–301.

### Nearly Half of Small Employers Using Tobacco Surcharges Do Not Provide Tobacco Cessation Wellness Programs

*M. F. Pesko, J. Bains, J. C. Maclean, and B. Lê Cook*, *Health Affairs*, 37(3), March 2018, (Published online).

### Opioid Prescribing for Opioid-Naive Patients in Emergency Departments and Other Settings: Characteristics of Prescriptions and Association with Long-Term Use

*M. M. Jeffery, W. M. Hooten, E. P. Hess, E. R. Meara, J. S. Ross, H. J. Henk, B. Borgundvaag, N. D. Shah, and M. F. Bellolio*, *Annals of Emergency Medicine*, 71(3), March 2018, pp. 326–36.e19.

### The Impact of Public and Private Research on Premature Cancer Mortality and Hospitalization in the United States, 1999–2013

*F. R. Lichtenberg*, *The American Economist*, March 2018, (Published online).

### Myth and Measurement — The Case of Medical Bankruptcies

*C. Dobkin, A. Finkelstein, R. Kluender, and M. J. Notowidigdo*, *The New England Journal of Medicine*, 378, March, 2018, pp. 1076–8.

### Association of the Hospital Readmissions Reduction Program with Surgical Readmissions

*T. Borza, M. K. Oerline, T. A. Skolarus, E. C. Norton, A. M. Ryan, C. Ellimoottil, J. B. Dimick, V. B. Shahinian, and B. K. Hollenbeck*, *JAMA Surgery*, 153(3), March 2018, pp. 243–50.

### Patterns and Predictors of Physician Adoption of New Cardiovascular Drugs

*T. S. Anderson, W. Lo-Ciganic, W. F. Gellad, R. Zhang, H. A. Huskamp, N. K. Choudhry, C. H. Change, S. Richards-Shubik, H. Guclu, B. Jones, and J. M. Donohue*, *Healthcare*, 6(1), March 2018, pp. 33–40.

### Frequency and Magnitude of Co-payments Exceeding Prescription Drug Costs

*K. Van Nuys, G. Joyce, R. Ribero, and D. P. Goldman*, *JAMA*, 319(10), March 2018, pp. 1045–7.

### Bias in Patient Satisfaction Surveys: A Threat to Measuring Healthcare Quality

*F. Dunsch, D. K. Evans, M. Macis, and Q. Wang*, *BMJ Global Health*, 3(2), March 2018, (Published online).

Many NBER-affiliated researchers publish some of their findings in medical journals that do not allow pre-publication distribution. This makes it impossible to include these papers in the NBER working paper series. This is a partial listing of recent papers in this category.

[Providing Level-of-Match Information to Perfectly Matched Unrelated Stem Cell Donors: Evaluating Acceptability and Potential Changes in Donor Availability](#)

G. E. Switzer, M. Macis, R. Fabi, L. Abress, D. Confer, J. Bruce, K. Howe, S. Fowler, M. McNulty, G. Pastorek, and M. A. Dew, *Biology of Blood and Marrow Transplantation*, March 2018, (Published online).

[Identifying the Causes of the Changes in the Prevalence Patterns of Diabetes in Older U.S. Adults: A New Trend Partitioning Approach](#)

I. Akushevich, A. P. Yashkin, J. Kravchenko, F. Fang, K. Arbeev, F. Sloan, and A. I. Yashin, *Journal of Diabetes and Its Complications*, 32(4), April 2018, pp. 362–7.

[The Complexity of Billing and Paying For Physician Care](#)

J. D. Gottlieb, A. H. Shapiro, and A. Dunn, *Health Affairs*, 37(4), April 2018, (Published online).

[A Sibling Method for Identifying vQTLs](#)

D. Conley, R. Johnson, B. Domingue, C. Dawes, J. Boardman, and M. Siegal, *PLOS ONE*, 13(5), April 2018, (Published online).

[Geographic Clustering of Polygenic Scores at Different Stages of the Life Course](#)

B. W. Domingue, D. H. Rehkopf, D. Conley, and J. D. Boardman, *The Russell Sage Foundation Journal of the Social Sciences*, 4(4), April 2018, pp. 137–149.

[The Generic Drug User Fee Amendments: An Economic Perspective](#)

E. R. Berndt, R. M. Conti, and S. J. Murphy, *Journal of Law and the Biosciences*, 5(1), May 2018, pp. 103–41.

## Abstracts of Selected Recent NBER Working Papers

w24229

[What Do Workplace Wellness Programs Do? Evidence from the Illinois Workplace Wellness Study](#)

**Damon Jones, David Molitor, and Julian Reif**

Workplace wellness programs cover over 50 million workers and are intended to reduce medical spending, increase productivity, and improve well-being. Yet, limited evidence exists to support these claims. We designed and implemented a comprehensive workplace wellness program for a large employer with over 12,000 employees, and randomly assigned program eligibility and financial incentives at the individual level. Over 56 percent of eligible (treatment group) employees participated in the program. We find strong patterns of selection: during the year prior to the intervention, program participants had lower medical expenditures and healthier behaviors than non-participants. However, we do not find significant causal effects of treatment on total medical expenditures, health behaviors, employee productivity, or self-reported health status in the first year. Our 95% confidence intervals rule out 78 percent of previous estimates on medical spending and absenteeism. Our selection results suggest these programs may act as a screening mechanism: even in the absence of any direct savings, differential recruitment or retention of lower-cost participants could result in net savings for employers.

w24231

[The Impact of Health on Labor Market Outcomes: Experimental Evidence from MRFIT](#)

**Melvin Stephens, Jr. and Desmond J. Toohy**

While economists have posited that health investments increase earnings, isolating the causal effect of health is challenging due both to reverse causality and unobserved heterogeneity. We examine the labor market effects of a randomized controlled trial, the Multiple Risk Factor Intervention Trial (MRFIT), which monitored nearly 13,000 men for over six years. We find that this intervention, which provided a bundle of treatments to reduce coronary heart disease mortality, increased earnings and family income. We find few differences in estimated gains by baseline health and occupation characteristics. Reductions in serious illnesses and work-limiting disabilities likely contributed to the observed gains.

w24267

### Targeting with In-kind Transfers: Evidence from Medicaid Home Care

**Ethan M.J. Lieber and Lee M. Lockwood**

Many of the most important government programs make transfers in kind as opposed to in cash. Making transfers in kind has the obvious cost that recipients would often prefer cost-equivalent cash transfers. But making transfers in kind can have benefits as well, including better targeting transfers to desired recipients or states of the world. In this paper, we develop a framework for evaluating this tradeoff and apply it to home care. Exploiting large-scale randomized experiments run by three state Medicaid programs, we find that in-kind provision of formal home care significantly reduces the value of benefits to recipients while targeting benefits to a small fraction of the eligible population that has greater demand for formal home care, is sicker, and has worse informal care options than the average eligible. Under a wide range of assumptions within a standard model, the targeting benefit of in-kind provision exceeds the distortion cost. This highlights an important cost of recent reforms that move toward more flexible, cash-like benefits.

w24277

### Does E-Cigarette Advertising Encourage Adult Smokers to Quit?

**Dhaval M. Dave, Daniel Dench, Michael Grossman, Donald S. Kenkel, and Henry Saffer**

Only recently introduced into the U.S. market, e-cigarettes have been aggressively promoted, and use is increasing rapidly among both adults and youths. At the heart of the regulatory debate are fundamental questions regarding whether e-cigarettes will draw cigarette smokers away from a dangerous habit or lure new initiates into tobacco use. We provide some of the first causal evidence on whether e-cigarette advertising on television and in magazines (which comprise about 90 percent of total media spending on e-cigarettes) encourage adult smokers to quit. We find that the answer to this question is a yes for TV advertising but no for magazine advertising. Our results indicate that a policy to ban TV advertising of e-cigarettes would have reduced the number of smokers who quit in the recent past by approximately 3 percent, resulting in roughly 105,000 fewer quitters in that period. On the other hand, if the FDA were not considering regulations and mandates that would likely eliminate many e-cigarette producers during our sample period, e-cigarette ads might have reached the number of nicotine replacement therapy TV ads during that period. That would have increased the number of smokers who quit by around 10 percent, resulting in an additional 350,000 quitters.

w24304

### Hospital Pricing and Public Payments

**Michael Darden, Ian McCarthy, and Eric Barrette**

A longstanding debate in health economics and health policy concerns how hospitals adjust prices with private insurers following reductions in public funding. A common argument is that hospitals engage in some degree of “cost-shifting,” wherein hospitals increase prices with private insurers in response to a reduction in public payments; however, evidence of significant cost-shifting is mixed, and the rationale for such behavior is unclear. We enter this debate by examining plausibly exogenous variation in Medicare payment rates generated by two policies under the Affordable Care Act: the Hospital Readmission Reduction Program (HRRP) and the Hospital Value Based Purchasing (HVBP) program. We merge rich hospital-level information to actual private-payer payment data from a large, multi-payer database. Our data include roughly 50 percent of inpatient prospective payment hospitals in the United States from 2010 to 2015. We find that hospitals that faced net payment reductions from HRRP and HVBP were able to negotiate 1.5 percent higher average private payments — approximately \$155 extra for the average acute care claim, or \$82,000 per hospital, based on an average hospital penalty of nearly \$146,000. We find the largest increases in payments for circulatory system (2.7 percent) and nervous system (3.2 percent) claims. We also find significant heterogeneity by payer mix, where cost-shifting is largest for hospitals with higher shares of private insurance patients.

w24316

### The Effect of Organized Breast Cancer Screening on Mammography Use: Evidence from France

**Thomas C. Buchmueller and Léontine Goldzahl**

In 2004, France introduced a national program of organized breast cancer screening. The national program built on pre-existing local programs in some, but not all, départements. Using data from multiple waves of a nationally representative biennial survey of the French population, we estimate the effect of organized screening on the percentage of women obtaining a mammogram. The analysis uses difference-in-differences methods to exploit the fact that the program was targeted at women in a specific age group: 50 to 74 years old. We find that organized screening significantly raised mammography rates among women in the target age range. Just above the lower age threshold, the percentage of women reporting that they had a mammogram in the past two years increased by over 10 percentage points after the national program went into effect. Mammography rates increased even more among women in their sixties. Estimated effects are particularly large for women with less education and lower incomes, suggesting that France’s organized screening program has reduced socioeconomic disparities in access to mammography.

w24347

[Effects of Expanding Health Screening on Treatment - What Should We Expect? What Can We Learn?](#)

**Rebecca Mary Myerson, Darius Lakdawalla, Lisandro D. Colantonio, Monika Safford, and David Meltzer**

Screening interventions can produce very different treatment outcomes, depending on the reasons why patients had been unscreened in the first place. Economists have paid scant attention to these complexities and their implications for evaluating screening programs. In this paper, we propose a simple economic framework to guide policy-makers and analysts in designing and evaluating the impact of screening on treatment uptake. We apply these insights to several salient empirical examples that illustrate the different kinds of effects screening programs might produce. Our empirical examples focus on contexts relevant to the top cause of death in the United States, heart disease. We find that currently undiagnosed patients differ from currently diagnosed patients in important ways, leading to lower predicted uptake of recommended treatment if these patients were diagnosed. Additionally, changes in the composition of diagnosed patients can produce misleading conclusions during policy analysis, such as spurious reductions in measured health system performance as screening expands.

w24392

[Dominated Options in Health-Insurance Plans](#)

**Chenyuan Liu and Justin R. Sydnor**

Recent studies have found that many people select into health plans with higher coverage (e.g., lower deductibles) even when those plans are financially dominated by other options. We explore whether having dominated options is common by analyzing data on plan designs from the Kaiser Family Foundation Employer Health Benefits Survey for firms that offered employees both a high-deductible (HD) health plan and a lower-deductible (LD) option. In 65 percent of firms the high-deductible option would result in lower maximum possible health spending for the employee for the year. We estimate that the HD plan financially dominates the LD plan at roughly half of firms across a wide range of possible health spending needs employees might anticipate. The expected savings from selecting the HD plan are typically over \$500 per year, often with no increase in financial risk. We present evidence that these patterns may arise naturally from employers passing through large average-cost differences between HD and LD plans to their employees. We discuss the implications of those dynamics for the nature of transfers between employees and the efficiency of health spending.

w24405

[The Retirement-Consumption Puzzle: New Evidence from Personal Finances](#)

**Arna Olafsson and Michaela Pagel**

This paper uses a detailed panel of individual spending, income, account balances, and credit limits from a personal finance management software provider to investigate how expenditures, liquid savings, and consumer debt change around retirement. The longitudinal nature of our data allows us to estimate individual fixed-effects regressions and thereby control for all selection on time-invariant (un)observables. We provide new evidence on the retirement-consumption puzzle and on whether individuals save adequately for retirement. We find that, upon retirement, individuals reduce their spending in both work-related and leisure categories. However, we feel that it is difficult to tell conclusively whether expenses are work related or not, even with the best data. We thus look at household finances and find that individuals delever upon retirement by reducing consumer debt and increasing liquid savings. We argue that these findings are difficult to rationalize via, for example, work-related expenses. A rational agent would save before retirement because of the expected fall in income, and dissave after retirement, rather than the exact opposite.

w24429

[The Return to Work and Women's Employment Decisions](#)

**Nicole Maestas**

It is well documented that individuals in couples tend to retire around the same time. But because women tend to marry older men, this means many married women retire at younger ages than their husbands. This fact is somewhat at odds with lifecycle theory that suggests women might otherwise retire at later ages than men because they have longer life expectancies, and often have had shorter careers on account of childrearing. As a result, the opportunity cost of retirement—in terms of foregone potential earnings and accruals to Social Security wealth—may be larger for married women than for their husbands. Using the Health and Retirement Study (HRS), I find evidence that the returns to additional work beyond mid-life are greater for married women than for married men. The potential gain in Social Security wealth alone is enough to place married women on nearly equal footing with married men in terms of Social Security wealth at age 70.