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NBER Profile: Jay Bhattacharya

Jay Bhattacharya is a professor at the Stanford University School of Medicine, as well as a professor (by courtesy) in the department of economics and the department of health research and policy at Stanford. He is a research associate in the NBER's Health Care and Health Economics programs.

Bhattacharya's research aims to understand the constraints that vulnerable populations face in making decisions that affect their health status, and in particular how government policies designed to benefit these populations actually affect the lives of people in such groups. More recently, his research has focused on the links between biomedical science and health. Some recent projects explore the use of "nudges" in exercise commitment contracts, the health consequences of population aging in Japan, the cost of treating highly complex patients in Medicare, and the incentives faced

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Do Drug Monitoring Programs Reduce the Misuse of Opioids?

While prescription opioids are an effective analgesic, their use presents a risk of addiction and overdose. Deaths from opioid poisoning in the United States quadrupled between 1999 and 2010, during a period when the use of prescription opioids rose by 300 percent.

The rising rate of opioid addiction and mortality has galvanized the attention of the public and spurred a number of policy responses, particularly at the state level. Nearly every state has created a Prescription Drug Monitoring Program (PDMP), which collects data on prescriptions for controlled substances to facilitate detection of suspicious prescribing and utilization.

In **The Effect of Prescription Drug Monitoring Programs on Opioid Utilization in Medicare** (NBER Working Paper No. 23148), researchers Thomas Buchmueller and Colleen Carey explore whether state monitoring programs have reduced the misuse of opioids in Medicare.

A PDMP allows authorized individuals to view a patient's prescribing history in order to identify patients who may be misusing opioids or diverting them to street sale for non-medical use. However, establishing a PDMP does not ensure that the data will be used. Some early state programs had provisions that limited provider access, and

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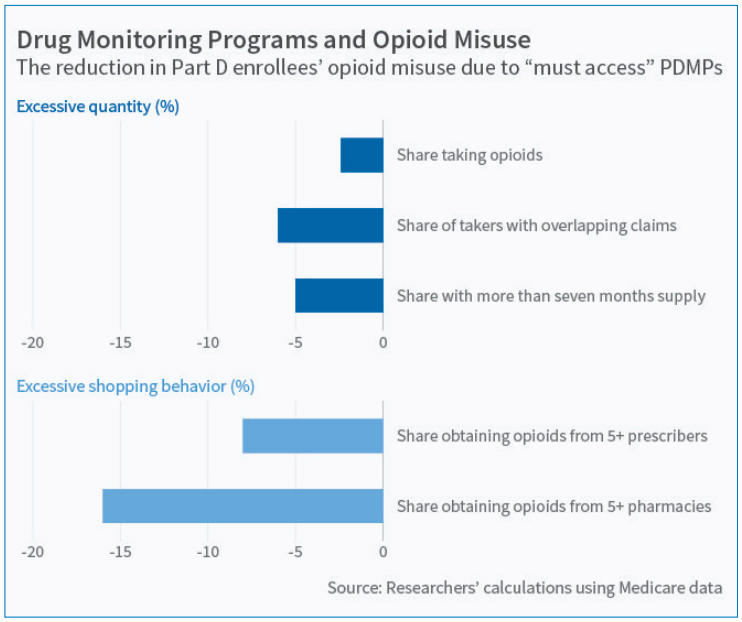

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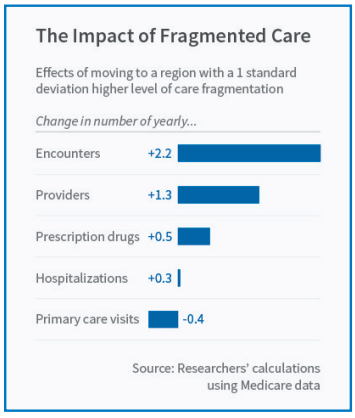

Profile (from page 1)

by biomedical scientists to try out new ideas in research.

Bhattacharya is a senior fellow at the Stanford Institute for Economic Policy Research and the Stanford Freeman Spogli Institute, and has been a research fellow at the Hoover Institution. Prior to joining the Stanford faculty, he was an economist at the RAND Corporation and taught classes in the economics department at UCLA.

Bhattacharya received his Ph.D. in economics, A.M., and A.B. degrees from Stanford. He is an M.D., also earned at Stanford.

He has served on numerous scientific review and advisory committees, including the Health Services Organization and Delivery review panel at the National Institutes of Health and an Institute of Medicine panel on the regulation of work hours by resident physicians. He has provided testimony to the California State Legislature. He is an associate editor at the *Journal of Human Capital* and an editorial board member of the *Forum for Health Economics and Policy*. He previously served as associate editor of the *Journal of Human Resources* and the *Economics Bulletin*. Bhattacharya has published a textbook, *Health Economics*, which he is preparing to revise for a second edition.

In his free time, Bhattacharya loves to spend time with his family, which typically involves losing to his kids in a wide variety of board games and video games. He exercises out of obligation, rather than love of bicycling.

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Opioids (from page 1)

even in states without such provisions, only a small share of providers have used them to access patient histories. Perhaps unsurprisingly, previous studies have found little effect of PDMPs on opioid use or health outcomes.

During the past decade, ten states have enacted laws requiring providers to access the PDMP prior to prescribing under certain circumstances. In this study, the researchers seek to improve on the past literature on PDMPs by distinguishing between the effects of programs with and without these "must access" requirements. They evaluate the effect of PDMPs on the prescription drug utilization of Medicare beneficiaries, using claims data for enrollees in Part D and traditional fee-for-service Medicare during the period 2007 to 2013.

Use of opioids is very common in this population — in any six-month period, 28 percent of beneficiaries fill at least one prescription for opioids. To distinguish between appropriate and inappropriate use of these drugs, the researchers develop several measures of misuse. A first set of measures is quantity-based, such as obtaining more than a seven-month supply of drugs over a six-month period, having multiple prescriptions for the same drug at the same time, or having prescriptions that translate to a "morphine-equivalent dosage" (MED) above a threshold established in provider guidelines. A second set of measures captures "shopping" behavior, such as visiting multiple prescribers or pharmacies to obtain opioids, using out-of-state pharmacies (whose prescriptions are not reported to the home state's PDMP), or having a large number of new patient visits (which may reflect opioid-seeking behavior). The researchers also look at the incidence of opioid poisonings, measured as cases where the diagnosis code "opioid-related overdose" appears on a medical claim.

The degree of misuse varies depending on the measure used. While 8.9 percent of opioid takers obtain more than a seven-month supply in six months and 9.2 percent have overlapping claims for the same drug, only 1.7 percent obtain an MED above the guideline. Some 2.3 percent of opioid users receive prescriptions from five or more providers during a six-month period, 0.6 percent use more than five pharmacies, and 1.3 percent have more than four new patient visits over six months. The rate of opioid poisonings is 0.2 percent.

The researchers first examine the effect of PDMPs that lack a "must access" requirement, comparing them to states without a PDMP. They fail to find any significant effect of these reporting programs on opioid misuse, consistent with the past literature and with the low usage of non-"must access" PDMPs by providers.

Next, they compare outcomes in states with "must access" PDMPs to those in states with non-"must access" reporting programs or without a program. They find that having a "must access" program is associated with a 2.4 percent decline in the share of Part D enrollees taking opioids, as well as with a 5 percent decline in the share with more than a seven-month supply and a 6 percent decline in the share with overlapping claims; there is no change in the share with prescriptions above the MED threshold. There is a substantial decline in shopping behavior, with an 8 percent drop in the share with prescriptions from five or more providers and a 16 percent drop in the share using five or more pharmacies. There is a 14 percent decrease in the share with more than four new patient visits, and the researchers estimate that having a PDMP in every state would save $350 million per year in charges for such visits. However, there is no evidence that PDMPs lower opioid poisonings.

The study's results suggest that "must access" PDMPs curb certain types of extreme utilization of opioids. At the same time, there is no evidence that PDMPs affect opioid poisonings. As the researchers suggest, one possible explanation for this finding is that Medicare beneficiaries who are misusing opioids may be able to find other ways to maintain consumption, such as street sources of prescription opioids or heroin. Another possibility is that "must access" PDMPs reduce the rate at which individuals become opioid misusers and will reduce poisonings in the future, beyond the study period. The researchers conclude by noting that changes to state-based opioid use registries, as well as new initiatives for Medicare beneficiaries by the Center for Medicare and Medicaid Services, make it important for researchers to continue to study these policies.

Fragmentation in the Delivery of Health Care

Having multiple providers involved in a patient's health care has both pros and cons. On the one hand, a patient may benefit from being referred to specialists with more expertise in treating the patient's medical conditions. On the other hand, as more providers are involved in care, the primary care provider may find it more difficult to coordinate among providers. Weak coordination makes it harder to clarify responsibilities for ongoing care, and to avoid redundant and unnecessary care.

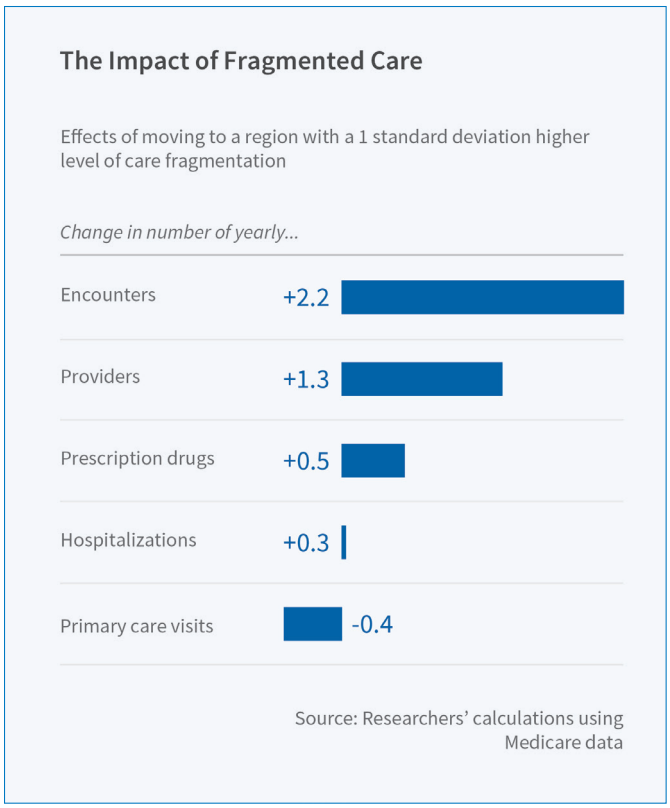
Care fragmentation occurs when the delivery of health care is spread across an excessively large number of poorly coordinated providers. Care fragmentation is considered to be a potentially important source of inefficiency in the U.S. health care system, yet its causes and consequences are not well understood.

Researchers Leila Agha, Brigham Frandsen, and James Rebitzer explore this issue in their new working paper, **Causes and Consequences of Fragmented Care Delivery: Theory, Evidence, and Public Policy** (NBER Working Paper No. 23078).

The researchers begin by building a model of health care fragmentation in which primary care providers balance the benefits to the patient of specialist care against the costs of more difficult care coordination. Getting this balance right is complicated by the presence of spillover effects: physicians who refer more to specialists get better at coordinating among specialists, while those who refer less get better at providing direct care to patients. These spillover effects cause regional differences in practice styles such that a patient who receives highly fragmented care in one region could experience much less fragmentation of care if they moved to another region.

In their empirical study of fragmentation, the researchers use Medicare claims data to construct a measure of how concentrated patient visits are across their various providers. An advantage of this measure over a simple count of providers is that a patient who gets most of her care from one or a few providers will have a low fragmentation score, even if she has seen many other providers in a limited way, such as for a single visit.

Using this measure, the researchers find that there are substantial regional differences in fragmentation and that these are strongly associated with differences in resource utilization. Consistent with their model of spillover effects, they also find that Medicare enrollees who move across regions find that the degree of care fragmentation they experience shifts strongly and immediately toward the style of care prevalent in their new region.



The researchers estimate that moving to a region with a one standard deviation higher level of regional fragmentation is also associated with a 10 percent increase in care utilization. Moves toward more fragmented regions are also associated with an increase in provider visits, fewer visits with primary care providers, and greater reliance on specialists whose scope of practice overlaps with primary care providers. The reverse happens when Medicare enrollees move to less fragmented regions. These findings suggest that "in more fragmented regions, specialists take on the management of conditions that could otherwise be treated by primary care providers."

In more fine-grained analyses, the researchers report that moving to regions where patient care is divided across many primary care providers markedly increases hospitalizations, suggesting that a consistent relationship with a primary care provider may reduce demand for hospital care. One explanation for this result is that primary care fragmentation causes deterioration in patients' health; alternatively, regions with fragmented primary care may rely more heavily on hospitalization for a given disease state. This association stands in contrast to the effect of moving to a region that makes heavier use of different types of specialist physicians; fragmentation of care driven by specialist use is not associated with greater use of hospitalization.

In the public policy realm, recent anti-fragmentation initiatives, such as Accountable Care Organizations, aim to reduce costly fragmentation by altering provider financial incentives. The spillover effects that cause regional differences in fragmentation patterns, however, complicate any analysis of the effects of these incentives. Using their theoretical model of care fragmentation, the researchers do find that better incentives may improve the delivery of health care — but only when fragmented care is also more costly. The paper concludes that "much more remains to be learned about effective public policy responses to fragmented care delivery."

How Nurses Affect Health Care Delivery and Patient Health

Nurses are the largest group of health professionals in the United States, with 3.4 million employed licensed nurses making up 30 percent of all health professionals. Nurses play key roles in the delivery of health care services in hospitals, primary care settings, and long-term care facilities. Yet because nurses are only one input in the provision of health care, it has long been difficult to quantify their contribution to patient health and their role in the efficient provision of health care.

Filling this gap is a new working paper by researchers Benjamin Friedrich and Martin Hackmann, **The Returns to Nursing: Evidence from a Parental Leave Program** (NBER Working Paper No. 23174).

The context for the new study is Denmark, where the introduction of a federally funded parental leave program in 1994 gave parents the opportunity to take up to a year of paid leave if they had a child under age eight. This policy was designed to lower stress on families following the birth of a child and to give unemployed people an opportunity to fill opening positions, thereby gaining valuable experience. The policy had an unintended negative effect on the market for nursing professionals, which is female-dominated and has strict licensing requirements. The researchers are able to identify the effect of nurses on patient health and care by examining what happened after this policy went into effect.

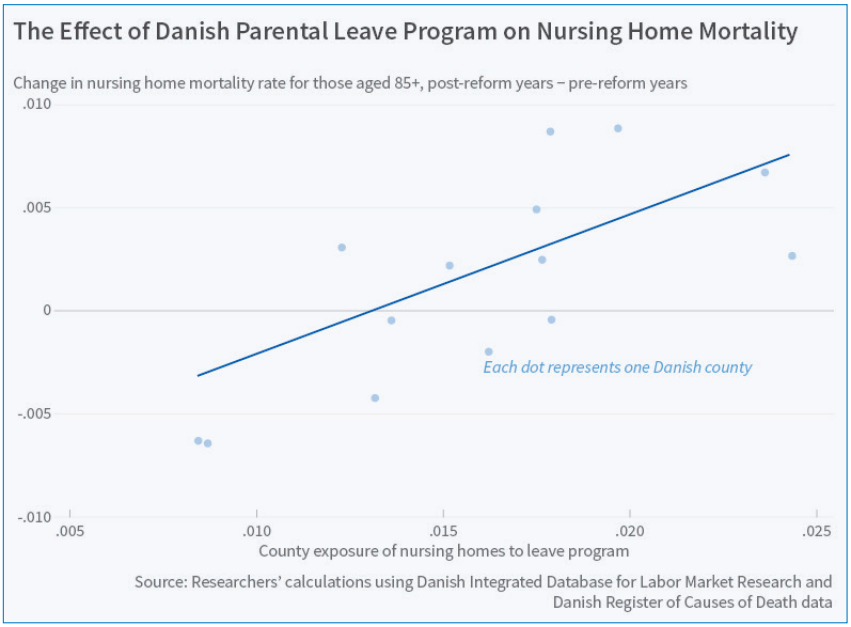
The researchers construct a dataset that combines the employment data of health care providers with individual patient records on diagnoses, procedures, and health outcomes for the full Danish population for the years 1990 through 2000. This unique dataset allows them to explore the mechanisms through which nurses affect patient health and the delivery of health care for different patient populations and in different settings.

The researchers begin by documenting the effect of the introduction of parental leave on the employment of health care professionals. There was high take-up of the program by nurses and nursing assistants — an additional 16 to 24 percent of nurses and nursing assistants with a child under age two were on leave after the program's introduction. By contrast, only an additional 2 percent of doctors with a child under age one were on leave.

The high take-up among nurses led to a 12 percent average decrease in the stock of working nurses. This drop differed by region and facility type (hospital vs. long-term care) due to imperfect mobility, which is helpful for identifying the policy's effects on patient care. By contrast, there was no reduction in the aggregate employment of nursing assistants, suggesting that health care providers were able to recruit nursing assistants from other sectors or hire newly trained assistants.

Turning to health outcomes, the researchers find that there was a 21 percent increase in readmission rates for all hospital inpatients and a 45 percent increase in newborn readmissions in the three years after the introduction of the parental leave program. A higher hospital readmission rate is commonly assumed to be a signal of negative hospital quality. However, the researchers fail to find an effect of the change in nurse staffing on the one-year mortality rate of hospital inpatients or newborns. Reconciling these findings, the presented evidence suggests that hospitals adjust their patient and staffing management in an effort to mitigate the negative effects on the sickest patients.

Patient outcomes in long-term care facilities were also affected. As seen in the figure, counties in which more nurses were eligible for parental leave experienced a larger increase in nursing home mortality after the program's implementation. Overall, the researchers estimate a 13 percent increase in nursing home mortality following the introduction of parental leave, an effect that persists for seven years (throughout the period under study).



The results suggest a larger return of nurses on the production of health care in long-term care facilities, which the researchers theorize is due to the greater responsibility of a nurse in this setting. They develop a model that predicts that lower nurse staffing levels negatively impact monitoring quality, which results in fewer hospitalizations of the neediest residents. The researchers find evidence for their prediction in the data, suggesting "a substantial fraction of nursing home deaths might have been postponed, had the needy residents had access to the hospital."

Overall, the stronger mortality impacts of the nursing staff reductions in nursing homes indicate that there may be a misallocation of nurses between the hospital and long-term care sectors. The researchers conclude "understanding how policy instruments, including minimum nurse-to-patient ratios or wage subsidies, can increase nurse employment in nursing homes in particular is therefore of policy interest in the context of an aging population and disproportionately growing demand for long-term care services."

NBER Affiliates' Work Appearing in Medical Journals

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 papers in this category.

Spending on Care after Surgery Driven by Choice of Care Settings Instead of Intensity of Services
L. M. Chen, E. C. Norton, M. Banerjee, S. E. Regenbogen, A. H. Cain-Nielsen, and J. D. Birkmeyer, Health Affairs*, 36(1), January 2017, pp. 83–90.*

The rising popularity of episode-based payment for surgery underscores the need to better understand the determinants of spending on postacute care, which is often used after surgery. In an examination of postacute care spending for fee-for-service Medicare beneficiaries after three common procedures, the researchers find significant variation in spending between hospitals. They show that the variation in spending is more strongly related to the postacute care setting, such as a skilled nursing facility or home health care, than it is to the intensity of care.

The Volume of TV Advertisements during the ACA's First Enrollment Period Was Associated with Increased Insurance Coverage
P. Karaca-Mandic, A. Wilcock, L. Baum, C. L. Barry, E. Franklin Fowler, J. Niederdeppe, and S. E. Gollust, Health Affairs*, 36(4), March 2017, pp. 747–54.*

The launch of the Affordable Care Act (ACA) was accompanied by major insurance information campaigns by the government, private insurers, and others. The researchers study the impact of these campaigns and find that counties with higher levels of television advertisements experienced larger declines in the share of the population without insurance. State-sponsored commercials were particularly effective, driving increases in Medicaid enrollment.

Health and Access to Care during the First 2 Years of the ACA Medicaid Expansions
S. Miller and L. R. Wherry, New England Journal of Medicine*, 376, March 2017, pp. 947–56.*

This study examines changes in coverage, utilization, and health outcomes for low-income adults in the two years after many states expanded Medicaid through the Affordable Care Act (ACA). The researchers find a reduction in uninsurance rates and in reports of financial strain or difficulty affording medical care for adults in the expansion states after implementation. However, they also find an increase in reports of longer wait times and difficulty securing appointments.

Deaths Attributable to Diabetes in the United States: Comparison of Data Sources and Estimation Approaches
A. Stokes and S. H. Preston, PLOS ONE*, 12(1), January 2017.*

Adjusting Risk Adjustment — Accounting for Variation in Diagnostic Intensity
A. Finkelstein, M. Gentzkow, P. Hull, and H. Williams, New England Journal of Medicine*, 376, February 2017, pp. 608–10.*

Antitrust and Accountable Care Organizations: Observations for the Physician Market
S. A. Kleiner, D. Ludwinski, and W. D. White, Medical Care Research and Review*, 74(1), February 2017, pp. 97–108.*

Screening Mammography for Free: Impact of Eliminating Cost Sharing on Cancer Screening Rates
A. B. Jena, J. Huang, B. Fireman, V. Fung, S. Gazelle, M. B. Landrum, M. Chernew, J. P. Newhouse, and J. Hsu, Health Services Research*, 52(1), February 2017, pp. 191–206.*

Housing Instability and Children's Health Insurance Gaps
A. Carroll, H. Corman, M. A. Curtis, K. Noonan, and N. E. Reichman, Academic Pediatrics*, February 2017 (published online).*

Nudging Leads Consumers in Colorado to Shop but Not Switch ACA Marketplace Plans
K. M. Marzilli Ericson, J. Kingsdale, T. Layton, and A. Sacarny, Health Affairs*, 36(2), February 2017, pp. 311–9.*

Variation in Physician Spending and Association with Patient Outcomes
Y. Tsugawa, A. K. Jha, and J. P. Newhouse, JAMA Internal Medicine*, March 2017 (published online).*

Per Capita Caps in Medicaid — Lessons from the Past
A. J. Goodman-Bacon and S. S. Nikpay, New England Journal of Medicine*, 376, March 2017, pp. 1005–7.*

Making Health Care Markets Work: Competition Policy for Health Care
M. Gaynor, F. Mostashari, and P. B. Ginsburg, JAMA*, 317(13), April 2017, pp. 1313–4.*

A Mixed Methods Study of Clinical Information Availability in Obstetric Triage and Prenatal Offices
C. Meyerhoefer, S. A. Sherer, M. E. Deily, S.-Y. Chou, L. Peng, T. Hu, M. Nihen, M. Sheinberg, and D. Levick, Journal of the American Medical Informatics Association*, 24(e1), April 2017, pp. e87–94.*

The High and Rising Costs of Obesity to the U.S. Health Care System
A. Biener, J. Cawley, and C. Meyerhoefer, Journal of General Internal Medicine*, 32(Suppl. 1), April 2017, pp. 6–8.*

Health and Health Care Use among Individuals at Risk to Lose Health Insurance with Repeal of the Affordable Care Act
P. Karaca-Mandic, A. B. Jena, and J. S. Ross, JAMA Internal Medicine*, 177(4), April 2017, pp. 590–3.*

Why the U.S. Science and Engineering Workforce Is Aging Rapidly
D. M. Blau and B. A. Weinberg, PNAS*, 114(15), April 2017, pp. 3879–84.*

Replacing the Affordable Care Act: Lessons from Behavioral Economics
J. S. Skinner and K. G. Volpp, JAMA*, April 2017 (published online).*

Drug Involvement in Fatal Overdoses
C. J. Ruhm, SSM - Population Health*, 3, December 2017, pp. 219–26.*

Submissions from 2016

Incorporating Environmental Outcomes into a Health Economic Model
K. Marsh, M. Ganz, E. Nørtoft, N. Lund, and J. Graff-Zivin, International Journal of Technology Assessment in Health Care*, 32(6), January 2016, pp. 400–6.*

How Smoking Affects the Proportion of Deaths Attributable to Obesity: Assessing the Role of Relative Risks and Weight Distributions
A. Stokes and S. Preston, BMJ Open*, 6(2), February 2016.*

Asymmetric Thinking about Return on Investment
D. A. Asch, M. V. Pauly, and R. W. Muller, New England Journal of Medicine*, 374, February 2016, pp. 606–8.*

Are Major Behavioral and Sociodemographic Risk Factors for Mortality Additive or Multiplicative in Their Effects?
N. Mehta and S. Preston, Social Science & Medicine*, 154, April 2016, pp. 93–9.*

Early-Life Exposure to the Great Smog of 1952 and the Development of Asthma
P. Bharadwaj, J. Graff Zivin, J. T. Mullins, and M. Neidell, American Journal of Respiratory and Critical Care Medicine*, 194(12), December 2016, pp. 1475–82.*

Abstracts of Selected Recent NBER Working Papers

w22984

A Structural Analysis of the Effects of the Great Recession on Retirement and Working Longer by Members of Two-Earner Households

Alan L. Gustman, Thomas L. Steinmeier, Nahid Tabatabai

This paper uses data from the Health and Retirement Study to estimate a structural model of household retirement and saving. It applies that model to analyze the effects of the Great Recession on the work and retirement of older couples who were both employed full-time at the beginning of the recession. We analyze the effects of job loss, changes in wealth, and changes in expectations. The largest overall effects of the Great Recession are observed for 2009 and 2010. In 2009, an additional 2.5 percent of all 55- to 59-year-old husbands were not working full-time as result of the Great Recession, amounting to a reduction of 3.2 percent in full-time work. In 2010, 2.8 percent of 55- to 59-year-old husbands were not working full-time as a result of the Great Recession, amounting to a 3.8 percent reduction in full-time work. For wives the reductions in full-time work due to the Great Recession were 1.7 percent and 2.2 percent of those who initially held a job, or reductions of full-time work of 2.3 and 3.0 percent respectively. For those 60 to 64, the reductions were 1.2 percent of men and 0.9 percent of women. Having been laid off in the last three years reduces full-time work by 30 percent. There also are lingering effects of layoff on the probability of working longer. Having been laid off three or more years in the past reduces full-time employment in the current year by about 12 percent. This reflects the reduced work incentives for full-time work arising from lower earnings due to the loss of job tenure with a layoff as well as the additional earnings penalty from a layoff. The effect on own work of a spouse having been laid off is much smaller. The reason is that, as found in the estimation of our structural model, having one spouse not working increases the value of leisure for the other. In contrast, when one member of the household loses their job, the value of consumption increases relative to leisure. For recent layoffs, these effects are roughly offsetting. All told, the effects of the Great Recession on retirement seem relatively modest. These findings are consistent with our earlier descriptive analyses.

w23044

The Effect of State Medicaid Expansions on Prescription Drug Use: Evidence from the Affordable Care Act

Ausmita Ghosh, Kosali Simon, Benjamin D. Sommers

This study provides a national analysis of how the 2014 Affordable Care Act (ACA) Medicaid expansions have affected aggregate prescription drug utilization. Given the prominent role of prescription medications in the management of chronic conditions, as well as the high prevalence of unmet health care needs in the population newly eligible for Medicaid, the use of prescription drugs represents an important measure of the ACA's policy impact. Prescription drug utilization also provides insights into whether insurance expansions have increased access to physicians, since obtaining these medications requires interaction with a health care provider. We use 2013–15 data from a large, nationally representative, all-payer pharmacy transactions database to examine effects on overall prescription medication utilization as well as effects within specific drug classes. Using a differences-in-differences (DD) regression framework, we find that within the first 15 months of expansion, Medicaid-paid prescription utilization increased by 19 percent in expansion states relative to states that did not expand; this works out to approximately seven additional prescriptions per year per newly enrolled beneficiary. The greatest increases in Medicaid prescriptions occurred among diabetes medications, which increased by 24 percent. Other classes of medication that experienced relatively large increases include contraceptives (22 percent) and cardiovascular drugs (21 percent), while several classes more consistent with acute conditions such as allergies and infections experienced significantly smaller increases. As a placebo test, we examine Medicare-paid prescriptions and find no evidence of a post-ACA effect. Both expansion and non-expansion states followed statistically similar trends in Medicaid prescription utilization in the pre-policy era, offering support for our DD approach. We did not observe reductions in uninsured or privately insured prescriptions, suggesting that increased utilization under Medicaid did not substitute for other forms of payment. Within expansion states, increases in prescription drug utilization were larger in geographical areas with higher uninsured rates prior to the ACA. Finally, we find some suggestive evidence that increases in prescription drug utilization were greater in areas with larger Hispanic and black populations.

w23104

Price-Linked Subsidies and Health Insurance Markups

Sonia P. Jaffe, Mark Shepard

Subsidies in many health insurance programs depend on prices set by competing insurers — as prices rise, so do subsidies. We study the economics of these "price-linked" subsidies compared to "fixed" subsidies set independently of market prices. We show that price-linked subsidies weaken price competition, leading to higher markups and subsidy costs for the government. We argue that price-linked subsidies make sense only if (1) there is uncertainty about costs/prices, and (2) optimal subsidies increase as prices rise. We propose two reasons why optimal health insurance subsidies may rise with prices: doing so both insures consumers against cost risk and indirectly links subsidies to market-wide shocks affecting the cost of "charity care" used by the uninsured. We evaluate these tradeoffs empirically using a structural model estimated with data from Massachusetts' health insurance exchange. Relative to fixed subsidies, price-linking increases prices by up to 5%, and by 5–10% when we simulate markets with fewer insurers. For levels of cost uncertainty that are reasonable in a mature market, we find that the losses from higher prices outweigh the benefits of price-linking.

w23107

Direct and Spillover Effects of Middle School Vaccination Requirements

Christopher S. Carpenter, Emily C. Lawler

We study the direct and spillover effects of state requirements that middle school youths obtain a tetanus, diphtheria, and pertussis (Tdap) booster prior to middle school entry. These mandates increased vaccine take-up by 29 percent and reduced pertussis (whooping cough) incidence in the population by a much larger 53 percent due to herd immunity effects. We also document cross-vaccine spillovers: the mandates increased adolescent vaccination for meningococcal disease and human papillomavirus (which is responsible for 98 percent of cervical cancers) by 8–34 percent, with particularly large effects for children from low-SES households.

w23139

Did Medicaid Expansion Reduce Medical Divorce?

David Slusky, Donna Ginther

Prior to the Affordable Care Act, many state Medicaid eligibility rules had maximum asset levels. This was a problem when one member of a couple was diagnosed with a degenerative disease requiring expensive care. Draining the couple's assets so that the sick individual could qualify for Medicaid would leave no resources for the retirement of the other member; thus divorce and separating assets was often the only option. The ACA's Medicaid expansion removed all asset tests. Using a difference-in-differences approach on states that did and did not expand Medicaid, we find that the expansion decreased the prevalence of divorce by 5.6% among those 50-64, strongly suggesting that it reduced medical divorce.

w23171

With a Little Help from My Friends: The Effects of Naloxone Access and Good Samaritan Laws on Opioid-Related Deaths

Daniel I. Rees, Joseph J. Sabia, Laura M. Argys, Joshua Latshaw, Dhaval Dave

In an effort to address the opioid epidemic, a majority of states have recently passed some version of a Naloxone Access Law (NAL) and/or a Good Samaritan Law (GSL). NALs allow lay persons to administer naloxone, which temporarily counteracts the effects of an opioid overdose; GSLs provide immunity from prosecution for drug possession to anyone who seeks medical assistance in the event of a drug overdose. This study is the first to examine the effect of these laws on opioid-related deaths. Using data from the National Vital Statistics System multiple cause-of-death mortality files for the period 1999–2014, we find that the adoption of a NAL is associated with a 9 to 11 percent reduction in opioid-related deaths. The estimated effect of GLSs on opioid-related deaths is of comparable magnitude, but not statistically significant at conventional levels. Finally, we find that neither NALs nor GSLs increase the recreational use of prescription painkillers.

w23192

Macroeconomic Conditions and Opioid Abuse

Alex Hollingsworth, Christopher J. Ruhm, Kosali Simon

We examine how deaths and emergency department (ED) visits related to use of opioid analgesics (opioids) and other drugs vary with macroeconomic conditions. As the county unemployment rate increases by one percentage point, the opioid death rate per 100,000 rises by 0.19 (3.6%) and the opioid overdose ED visit rate per 100,000 increases by 0.95 (7.0%). Macroeconomic shocks also increase the overall drug death rate, but this increase is driven by rising opioid deaths. Our findings hold when performing a state-level analysis, rather than county-level; are primarily driven by adverse events among whites; and are stable across time periods.

w23218

School Lunch Quality and Academic Performance

Michael L. Anderson, Justin Gallagher, Elizabeth Ramirez Ritchie

Improving the nutritional content of public school meals is a topic of intense policy interest. A main motivation is the health of school children, and, in particular, the rising childhood obesity rate. Medical and nutrition literature has long argued that a healthy diet can have a second important impact: improved cognitive function. In this paper, we test whether offering healthier lunches affects student achievement as measured by test scores. Our sample includes all California (CA) public schools over a five-year period. We estimate difference-in-difference style regressions using variation that takes advantage of frequent lunch vendor contract turnover. Students at schools that contract with a healthy school lunch vendor score higher on CA state achievement tests, with larger test score increases for students who are eligible for reduced-price or free school lunches. We do not find any evidence that healthier school lunches lead to a decrease in obesity rates.

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