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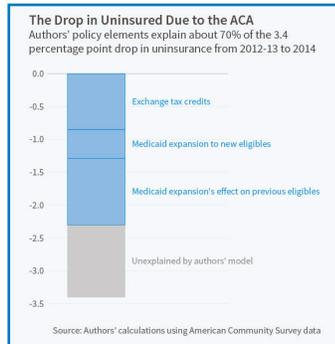
Bulletin on Aging and Health

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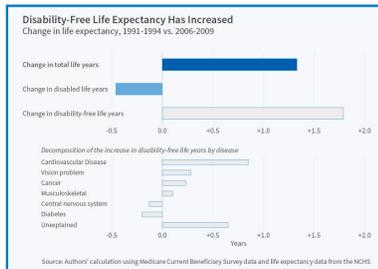
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Professor of Finance, Yale School of Management

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Population Aging and Economic Growth

As the U.S. population becomes older than ever before, how will this affect our standard of living? The share of the U.S. population age 60 and above is expected to rise by 40 percent between 2010 and 2050. This historic shift may affect economic growth by altering the size and productivity of the labor force.

While a number of studies have forecast the potential effects of aging on economic growth, there are few empirical studies based on an economy's actual experience with aging. Researchers [Nicole Maestas](#), [Kathleen Mullen](#), and [David Powell](#) attempt to fill this void in their new study **The Effect of Population Aging on Economic Growth, the Labor Force, and Productivity** (NBER Working Paper No. 22452).

Population aging has been underway for some time in the U.S., but the rate of aging has varied substantially across states. For example, six states saw the share of the population age 60 and above rise by over 30 percent between 1980 and 2010, a rate of growth similar to that expected for the U.S. as a whole from 2010 to 2040, while three states saw their older populations shrink during this period.

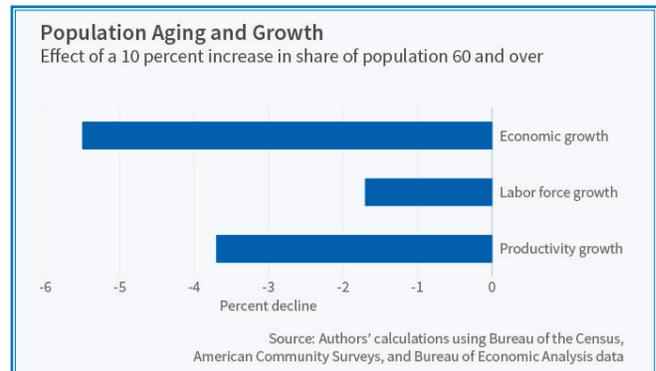
The authors leverage these differences to explore the effect of aging on economic growth. One concern with using the actual rate of population aging in each state is that it could be affected by economic growth if younger people tend to move to fast-growing states. To surmount this issue, the authors construct a measure of population aging based on the state's age structure ten years earlier, capturing

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the part of aging that is pre-determined by historical demographic patterns.

The study uses population and labor force data from the decennial census and economic output from the Bureau of Economic Analysis for the period 1980 to 2010. The authors construct ten-year rates of growth in population, labor force, and productivity by state.

The authors find that a 10 percent increase in the share of the population that



is age 60 and above decreases growth in GDP per capita by 5.5 percent. GDP per capita can be decomposed into its component parts, GDP per worker and the employment-population ratio. The authors estimate that the former declines by 3.7 percent and the latter by 1.7 percent in response to a 10 percent increase in the older population. Thus, two-thirds of the slowdown in economic growth resulting from population aging is due to slower productivity growth, while one-third is due to slower labor force growth.

As the authors note, "this runs counter to predictions that population aging will affect economic growth primarily through its impact on labor force participation, with little effect on average productivity." In fact, the authors find that population aging is

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associated with slower earnings growth across the age distribution, suggesting that aging leads to declines in the productivity of workers in all age groups. The authors interpret this as indicating that older and younger workers are complements in production, so the productivity of the older work force affects the productivity of younger workers. It might reflect a loss of positive spillovers from older to younger workers if more productive older workers are more likely to exit the labor force.

The study's findings can be used to estimate the contribution of population aging to economic growth. From 1980 to 2010, the share of the population age 60 and over rose by 17 percent. This implies that GDP per capita was 9.2 percent lower than it would have been in the absence of population aging, corresponding to a 0.3 percentage point decrease in the annual rate of growth, during a period when this rate averaged 1.8 percentage points. Projecting forward, the share of the older population is due to rise even more rapidly, by 21 percent from 2010 to 2020 and by 11 percent from 2020 to

2030. This suggests that aging will lower the growth rate by 1.2 percent per year this decade and 0.6 percent next decade.

The authors caution that their study design does not account for national effects that might occur when aging happens in many states at once, which could either mitigate or exacerbate the effects of population aging. They conclude, "our findings foretell a further slowdown in productivity growth reflecting not only compositional differences in the workforce but also real productivity losses among individuals across the age spectrum. At the same time, greater investment in human capital development through the life cycle coupled with policies and practices that encourage employment at older ages could prevent these losses to some degree."

The authors acknowledge funding from the Alfred P. Sloan Foundation Working Longer program. At least one coauthor has disclosed a financial relationship of potential relevance for this research. Further information is available at <http://www.nber.org/papers/w22452.ack>

Profile: James Choi

James Choi is a Professor of Finance at the Yale School of Management. Choi is also an associate director of the NBER's Retirement Research Center and a research associate in the NBER's Aging Program.

Professor Choi's research spans behavioral finance, behavioral economics, household finance, capital markets, health economics, and sociology. His work on default options has led to changes in 401(k) plan design at many U.S. corporations and has influenced pension legislation in the United States and abroad. In other papers, he has investigated topics such as the influence of racial, gender, and religious identity on economic preferences, investor ignorance of mutual fund fees, the effect of deadlines and peer information on savings choices, how retail investor sentiment in China affects stock returns, and the use of subtle planning prompts to increase vaccination rates.

Professor Choi is a recipient of



the TIAA-CREF Paul A. Samuelson Award for outstanding scholarly writing on lifelong financial security. He is also a member of the FINRA Investor Issues Committee, a TIAA-CREF Institute Fellow, and an associate editor of *Management Science*. He received his A.B. in applied mathematics from Harvard University and a Ph.D. in economics from Harvard University.

In his free time, Choi serves as an elder at Trinity Baptist Church in New Haven and hacks away at golf balls.

Why Did the Affordable Care Act Raise Coverage?

Over the past forty years, the share of U.S. residents lacking health insurance coverage has been high and rising. Concern about this issue ultimately led to the passage of the Affordable Care Act (ACA) in 2010, the most significant expansion of health care coverage in the U.S. since the introduction of Medicare and Medicaid in 1965.

A number of national surveys confirm that the rate of uninsurance has dropped sharply since the ACA's main components went into effect in 2014. But which of the ACA's provisions are most responsible for this change? In **Premium Subsidies, the Mandate, and Medicaid Expansion: Coverage Effects of the Affordable Care Act** (NBER Working Paper No. 22213), researchers [Molly Frean](#), [Jonathan Gruber](#), and [Benjamin Sommers](#) take up this question.

The ACA features a number of core elements designed to help raise insurance coverage, including an overhaul of private insurance market regulation, the introduction of an individual mandate, and the inclusion of policies to make health care more affordable. Among the latter, the most significant are a major expansion of Medicaid (for individuals with incomes below 138 percent of the federal poverty line) and the introduction of premium subsidies for purchase of health insurance on new insurance exchanges (for individuals with incomes up to 400 percent of the poverty line). A 2012 Supreme Court decision made the expansion of Medicaid voluntary, and to date 31 states and the District of Columbia have chosen to expand their programs.

To study the effect of the law on coverage, the authors make use of variation in how the law's provisions impacted different groups. For Medicaid, eligibility depends on year (before vs. after the ACA) and state (expanding vs. non-expanding states), as well as on age, income, disability, and parental status. Premium subsidies depend on year, family income, and state (as eligibility differs slightly in expanding vs. non-expanding states). The tax penalty for noncompliance with the mandate varies by family income and local insurance premiums (as

there are no penalties if premiums would exceed 8 percent of income).

The authors focus on the period 2012–14, which spans the implementation of key ACA provisions, and use data from the American Community Survey. They gather all households in the survey that have the same income level and family type—for example, single adults with income between 50 and 100 percent of the poverty line—and then calculate the share of this group that would be eligible for Medicaid if they lived in a given metro area and year. By using this measure rather than actual eligibility, they avoid the concern that eligibility could be correlated with

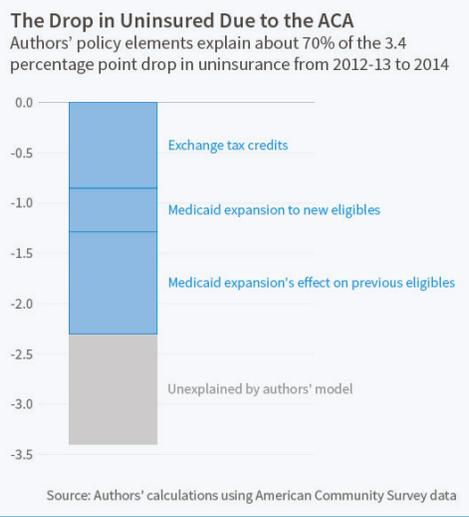
How did insurance coverage change after the ACA was fully implemented? The share uninsured in the sample in 2014 was 3.4 percentage points lower than in 2012–13. By source of coverage, there was a 1.6 percentage point increase in Medicaid, a 0.4 percentage point increase in employer-sponsored insurance, and a 1.0 percentage point increase in non-group private coverage.

Next, the authors turn to the key question of interest, the role of different provisions of the ACA in explaining the rise in coverage. To do so, they first estimate the relationship between the Medicaid eligibility, premium subsidies, and tax penalties experienced by those with a given family type, income level, metro area, and year and the coverage rate for that group. They then combine these estimates with the average effect of the law on Medicaid eligibility, premium subsidies, and tax penalties to project the law's effect nationally.

The study's key result is that the ACA's premium subsidies led to a 0.85 percentage point increase in coverage, while the expansion of Medicaid to newly eligible individuals led to a 0.44 point increase. Interestingly, there was an additional 1.0 percentage point increase in coverage due to greater take-up of Medicaid among those who were previously eligible, which the authors refer to as the “woodwork effect.” The tax penalties had a negligible effect. Overall, the policy variables in the authors' model can explain a 2.3 percentage point increase in coverage, or nearly 70 percent of the total 3.4 percentage point increase in coverage observed during this period.

The authors caution that their results are based on only one year of full ACA implementation. Moreover, if some responses to the law occurred during the course of that year, the law's impact at the end of 2014 would be greater than what is estimated here, since the data used in the analysis was collected continuously throughout the year. They note that several previous insurance expansions “took several years to reach steady-state and the ACA is likely to be no exception.” They conclude, “how these patterns evolve over time will remain worthy of continuing study.”

The authors acknowledge funding from the Agency for Healthcare Research and Quality (grant #K02HS021291).



coverage rates for reasons unrelated to the ACA. The authors similarly construct measures of the average premium subsidy and average tax penalty for different kinds of families by metro area and year.

Beginning with some key statistics, the authors report that 14 percent of the sample was uninsured in 2014, although this rate was lower among couples and families with children (9 to 10 percent) and higher among single adults (25 percent). The authors estimate that roughly one-quarter of the population was Medicaid-eligible before 2014 and that an additional 5 percent became eligible that year. They calculate that 64 percent of the sample is subject to tax penalties for noncompliance with the mandate. They find that the average unsubsidized premium is around \$8,000 and the average premium subsidy is nearly \$1,400, or 16 percent of the total cost.

Understanding Changes in Healthy Life Spans

Although it has long been known that life expectancy at older ages is increasing, it is less clear whether people are living healthier as well as longer lives. While researchers who focus on disease prevalence find that people are spending more years living with disease, those who focus on disability reach the opposite conclusion. Even less is known about why these changes in healthy life span are occurring.

In **Understanding the Improvement in Disability-Free Life Expectancy in the U.S. Elderly Population** (NBER Working Paper No. 22306), researchers [Michael Chernew](#), [David Cutler](#), [Kaushik Ghosh](#), and [Mary Beth Landrum](#) take up these issues.

The authors use disability as their measure of health. One reason to focus on disability rather than disease is that some chronic diseases can be effectively managed with medication or lifestyle changes; indeed, research suggests that disability conditional on disease has declined over time. Disability is defined here as having difficulty with any Activity of Daily Living or Instrumental Activity of Daily Living, which include functions such as walking and bathing (ADLs) and doing housework and managing money (IADLs).

The authors' first goal is to estimate changes over time in disabled and non-disabled life expectancy, which is the number of years a 65-year-old person can expect to live with and without any disability. To do so, the authors use data from Medicare Current Beneficiary Survey (MCBS) for two periods, 1991–94 and 2006–09. For each period, they estimate models that relate disability to age, sex, and time until death. They then use the results to predict the probability of disability for each individual and average these predictions by single year of age. Finally, they match these age-specific disability rates to life tables in 1992 and 2008 to estimate years of disabled and non-disabled life expectancy.

In 1992, total life expectancy at age 65 was 17.5 years. This was divided nearly

evenly into an expected 8.9 years without disability and 8.6 years with disability. By 2008, total life expectancy had increased by 1.3 years, to 18.8 years. But disability-free life years increased by even more, 1.8 years, while disabled life years shrank by 0.5 years. Thus, whether one focuses on the number of years or on the share of remaining life expectancy, disability is being compressed into the period just before death.

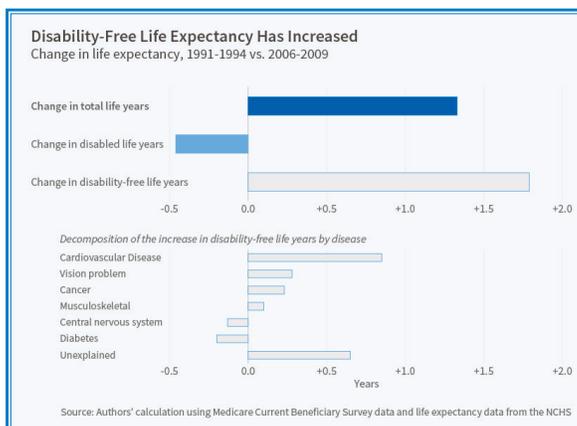
A second key goal is to estimate the contribution of various diseases to the change in disabled and non-disabled life expectancy. Here the authors first estimate models for each period relating disability to the presence of various diseases, demographic characteristics, and time until death. The authors then replace the actual

of the rise in disability-free life expectancy can be explained by increases in the use and efficacy of medical treatments. The authors focus on cardiovascular disease and vision problems, the two conditions that contributed the most to the overall increase. It is particularly challenging to estimate the impact of treatment on outcomes because treatment is non-random, with those patients who are sicker being more likely to receive medical care. To surmount this difficulty for cardiovascular disease, the authors use a well-established model that estimates the contribution of treatments and risk factors to mortality, along with data on changes in the use of medical treatment and risk factors over time. For vision problems, the authors estimate models relating disability to the use of cataract surgery.

Describing these results as more speculative, the authors conclude that roughly half of the mortality reduction from cardiovascular disease results from improved medical treatments, which translates into about 0.26 years, or 15 percent, of the overall increase in disability-free life expectancy. For vision problems, they estimate that one-quarter of the reduction in disability due to vision problems is due to greater use of cataract surgery, which equates to about 0.08 years, or 5 percent, of the increase in non-disabled life.

The authors note that one limitation of their study is that their data do not allow them to explore the role of mental health and musculoskeletal issues, which have been shown to be important contributors to disability. Recent work has also highlighted a slowdown or reversal in health gains among the near elderly as well as the concentration of health gains among those with high socioeconomic status. Further work exploring all of these issues would greatly inform our understanding of how healthy life spans are evolving for the elderly.

The authors acknowledge funding from the National Institute on Aging (P01 AG005842) and Pfizer. At least one coauthor has disclosed a financial relationship of potential relevance for this research. Further information is available at <http://www.nber.org/papers/w22306.ack>



incidence of each disease and the estimated relationship between that disease and disability that existed in the earlier period with those from the later period and calculate the impact of this switch on life expectancy.

Changes in cardiovascular disease are responsible for nearly half of the overall increase in disability-free life expectancy over this 15-year period—0.85 of the 1.8 years. Reductions in the incidence of vision problems and in the probability of disability among cancer survivors are responsible for further increases of 0.28 and 0.23 years of disability-free life expectancy, respectively. By contrast, increases in the prevalence of diabetes and in both the incidence and disabling impact of central nervous system diseases such as Alzheimer's and Parkinson's have reduced disability-free life expectancy.

A final central question is how much

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The Association between Income and Life Expectancy in the United States, 2001–14

R. Chetty, M. Stepner, S. Abraham, S. Lin, B. Scuderi, N. Turner, A. Bergeron, and D. Cutler, *Journal of the American Medical Association*, 315(16), April 2016, pp. 1750–66.

This paper examines inequality in life expectancy using 1.4 billion anonymous earnings and mortality records covering the U.S. population from 1999–2014. The authors present four main findings: Higher income is associated with greater longevity throughout the income distribution; inequality in life expectancy has increased in recent years at the national level; life expectancy varies substantially across areas, especially for low-income individuals; and differences in life expectancy across areas for low-income individuals are highly correlated with differences in health behaviors such as smoking, obesity, and exercise.

Note to Readers

Many NBER-affiliated researchers publish some of their findings in medical journals that preclude pre-publication distribution. This makes it impossible to include these papers in the NBER working paper series. Beginning with this issue, the *Bulletin on Aging and Health* will include a list of recent papers by NBER researchers in medical journals.

Patient Choice in Opt-In, Active Choice, and Opt-Out HIV Screening: Randomized Clinical Trial

J. C. C. Montoy, W. H. Dow, and B. C. Kaplan, *BMJ*, 352(h6895), January 2016.

This paper studies how opt-out, opt-in, and active choice testing schemes impact patient likelihood of accepting an HIV screening. Those randomly assigned to the opt-out group accepted the test 66% of the time, compared to 51% for the active choice group and 38% for the opt-in group. Higher risk patients were more likely to accept the test than low risk patients across all groups.

Health Investment Behaviours and Oral/Gingival Health Condition in Swedish 19-Year Olds

J. S. Ericsson, J. L. Wennström, B. Lindgren, M. Petzold, A.-L. Östberg, and K. H. Abrahamsson, *Acta Odontologica Scandinavica*, 74(4), 2016.

Affordable Care Act Medicaid Expansion Reduced Uninsured Hospital Stays in 2014

S. Nikpay, T. Buchmueller, and H. G. Levy, *Health Affairs*, 35(1), January 2016, pp. 106–10.

Drug Poisoning Deaths in the United States, 1999–2012: A Statistical Adjustment Analysis

C. J. Ruhm, *Population Health Metrics*, 14(2), January 2016.

Cohort Effects in the Genetic Influence on Smoking

B. W. Domingue, D. Conley, J. Fletcher, and J. D. Boardman, *Behavior Genetics*, 46(1), January 2016, pp. 31–42.

Impact of Health Insurance for Tertiary Care on Postoperative Outcomes and Seeking Care for Symptoms: Quasi-Experimental Evidence from Karnataka, India

N. Sood and Z. Wagner, *BMJ Open*, 6(1), January 2016.

The Value of Surrogate Endpoints for Predicting Real-World Survival across Five Cancer Types

J. Shafrin, R. Brookmeyer, D. Peneva, J. Park, J. Zhang, R. A. Figlin, and D. N. Lakdawalla, *Current Medical Research and Opinion*, 32(4), January 2016, pp. 731–39.

Exploring Why Costa Rica Outperforms the United States in Life Expectancy: A Tale of Two Inequality Gradients

L. Rosero-Bixby and W. H. Dow, *Proceedings of the National Academy of Sciences of the United States of America*, 113(5), February 2016, pp. 1130–37.

Association between having a Highly Educated Spouse and Physician Practice in Rural Underserved Areas

D. O. Staiger, S. M. Marshall, D. C. Goodman, D. I. Auerbach, and P. I. Buerhaus, *Journal of the American Medical Association*, 315(9), March 2016, pp. 939–41.

Economic Benefits of Investing in Women's Health: A Systematic Review

K. H. Onarheim, J. H. Iversen, and D. E. Bloom, *PLOS ONE*, 11(3), March 2016.

Medicare Letters to Curb Overprescribing of Controlled Substances Had No Detectable Effect on Providers

A. Sacarny, D. Yokum, A. Finkelstein, and S. Agrawal, *Health Affairs*, 35(3), March 2016, pp. 471–79.

Impacts of Classifying New York City Students as Overweight

D. Almond, A. Lee, and A. E. Schwartz,

Proceedings of the National Academy of Sciences of the United States of America, 113(3), March 2016, pp. 3488–91.

Applying Appropriate-Use Criteria to Cardiac Revascularisation in India

N. Sood, A. P. Ugargol, K. Barnes, and A. Mahajan, *BMJ Open*, 6(3), March 2016.

The Impact of Repeat HIV Testing on Risky Sexual Behavior: Evidence from a Randomized Controlled Trial in Malawi

A. Delavande, Z. Wagner, N. Sood, *Journal of AIDS & Clinical Research*, 7(3), March 2016, pp. 549.

Cost-Sharing Obligations, High-Deductible Health Plan Growth, and Shopping for Health Care: Enrollees with Skin in the Game

A. D. Sinaiko, A. Mehrotra, and N. Sood, *JAMA Internal Medicine*, 176(3), March 2016, pp. 395–7.

The Effect of Functional Status on Nursing Home Admission among Patients with Advanced Parkinson's Disease

T. Shih, J. Sullivan, K. Sail, Y. Jalundhwala, E. van Eijndhoven, T. Marshall, C. Zadikoff, and D. Lakdawalla, *Neurology*, 86(16), April 2016.

Outcomes Associated with Primary and Secondary Nonadherence to Cholesterol Medications

J. S. Lee, G. Joyce, and J. McCombs, *American Journal of Pharmacy*, 8(2), April 2016, pp. 54–60.

Genetic Variants Associated with Subjective Well-Being, Depressive Symptoms, and Neuroticism Identified through Genome-Wide Analyses

A. Okbay, B. M.L. Baselmans, J.E. De Neve, P. Turley, M. G. Nivard, M. A. Fontana, S.F. W. Meddens, R. K. Linnér, C. A. Rietveld, J. Derringer, J. Gratten, J. J. Lee, J. Z. Liu, R. de Vlaming, ..., J. Yang, D. Conley, George D. Smith, A. Hofman, M. Johannesson, D. I. Laibson, S. E. Medland, M. N. Meyer, J. K. Pickrell, T. Esko, R. F. Krueger, J. P. Beauchamp, P. D. Koellinger, D. J. Benjamin, M. Bartels, and D. Cesarini, *Nature Genetics*, 48, April 2016, pp. 624–33.

A Cost-Effectiveness Analysis of Over-The-Counter Statins

C. Stomberg, M. Albaugh, S. Shiffman, and N. Sood, *American Journal of Managed Care*, 22(5), May 2016, pp. 294–303.

Adding a Spending Metric to Medicare's Value-Based Purchasing Program Rewarded Low-Quality Hospitals

A. Das, E. C. Norton, D. C. Miller, A. M. Ryan, J. D. Birkmeyer, and L. M. Chen, *Health Affairs*, 35(5), May 2016, pp. 898–906.

Estimating the Future Burden of Cardiovascular Disease in China and the Potential Value of Universal Lipid and Blood Pressure Control

W. Stevens, D. Peneva, J. Z. Li, L. Z. Liu, G. G. Liu, R. Gao, and D. N. Lakdawalla, *Value in Health*, 19(3), May 2016, pp. A54.

The Social Value of Immunotherapy in Non-Small Cell Lung Cancer

J. Sullivan, A. S. Ward, B. Korytowsky, D. Peneva, J. Benner, D. N. Lakdawalla, B. Bolinder, R. A. Figlin, and A. B. Jena, *Value in Health*, 19(3), May 2016, pp. A167.

Estimating the Lifetime Price of Pharmaceuticals: What Are the Long-Term Costs to Society?

D.N. Lakdawalla, J.P. MacEwan, A. Towse, M. Berdud, K.D. Westrich, and R.W. Dubois, *Value in Health*, 19(3), May 2016, pp. A273.

Does Patient Cost Sharing for HCV Drugs Make Sense?

D. N. Lakdawalla, M. T. Linthicum, and J. Vanderpuye-Orgle, *American Journal of Managed Care*, 22(6 Spec No.), May 2016.

Costs and Spillover Effects of Private Insurers' Coverage of Hepatitis C Treatment

G. A. Moreno, K. Mulligan, C. Huber, M. T. Linthicum, D. Dreyfus, T. Juday, S. E. Marx, Y. Sanchez Gonzalez, R. Brookmeyer, and D. N. Lakdawalla, *American Journal of Managed Care*, 22(6 Spec No.), May 2016.

The Wider Public Health Value of HCV Treatment Accrued by Liver Transplant Recipients

A. B. Jena, W. Stevens, Y. Sanchez Gonzalez, S. E. Marx, T. Juday, D. N. Lakdawalla, and T. J. Philipson, *American Journal of Managed Care*, 22(6 Spec No.), May 2016.

Estimating the Future Burden of Cardiovascular Disease and the Value of Lipid and Blood Pressure Control Therapies in China

W. Stevens, D. Peneva, J. Z. Li, L. Z. Liu, G. G. Liu, R. Gao, and D. N. Lakdawalla, *BMC Health Services Research*, 16(1), May 2016.

Competing Risks: Investing in Sickness Rather Than Health

D. P. Goldman, É. Gaudette, and W.-H. Cheng, *American Journal of Preventive Medicine*, 50(5), May 2016, pp. S45–S50.

Genome-Wide Association Study Identifies 74 Loci Associated with Educational Attainment

A. Okbay, J. P. Beauchamp, M. A. Fontana, J. J. Lee, T. H. Pers, C.A. Rietveld, P. Turley, G. Chen, V. Emilsson, S.F. W. Meddens, S. Oskarsson, J. K. Pickrell, K. Thom, P. Timshel, R. de Vlaming, ..., J. Yang, M. Johannesson, P. M. Visscher, T. Esko, P. D. Koellinger, D. Cesarini, and D. J. Benjamin, *Nature*, 533, May 2016, pp. 539–42.

Vaccination Rates Are Associated with Functional Proximity but Not Base Proximity of Vaccination Clinics

J. Beshears, J. J. Choi, D. I. Laibson, B. C. Madrian, and G. I. Reynolds, *Medical Care*, 54(6), June 2016, pp. 578–83.

Rejection Odds and Rejection Ratios: A Proposal for Statistical Practice in Testing Hypotheses

M. J. Bayarri, D. J. Benjamin, J. O. Berger, and T. M. Sellke, *Journal of Mathematical Psychology*, 72, June 2016, pp. 90–103.

Differences in Incomes of Physicians in the United States by Race and Sex: Observational Study

D. P. Ly, S. A. Seabury, and A. B. Jena, *BMJ*, 353(i2923), June 2016.

When Doctors Go to Business School: Career Choices of Physician-MBAs

D. Ljuboja, B. Powers, B. Robbins, R. S. Huckman, K. Yeshwant, and S. H. Jain, *American Journal of Managed Care*, 22(6), June 2016, pp. 196–198.

Assortative Mating and Differential Fertility by Phenotype and Genotype across the 20th Century

D. Conley, T. Laidley, D. W. Belsky, J. M. Fletcher, J. D. Boardman, and B. W. Domingue, *Proceedings of the National Academy of Sciences of the United States of America*, 113(24), June 2016, pp. 6647–52.

Early Coverage, Access, Utilization, and Health Effects Associated with the Affordable Care Act Medicaid Expansions: A Quasi-Experimental Study

L. R. Wherry and S. Miller, *Annals of Internal Medicine*, 164(12), June 2016, pp. 795–803.

The Impact of State AIDS Drug Assistance Policies on Clinical and Economic Outcomes of People with HIV

J. T. Snider, D. P. Goldman, L. Rosenblatt, D. Seekins, T. Juday, Y. Sanchez, Y. Wu, D. Peneva, and J. A. Romley, *Medical Care Research and Review*, 73(3), June 2016.

Value of Improved Lipid Control in Patients at High Risk for Adverse Cardiac Events

A. B. Jena, D. M. Blumenthal, W. Stevens, J. W. Chou, T. G.N. Ton, and D. P. Goldman, *American Journal of Managed Care*, 22(6), June 2016, pp. 199–207.

Impact of Type 2 Diabetes Medication Cost Sharing on Patient Outcomes and Health Plan Costs

J. Thornton Snider, S. Seabury, J. Lopez, S. McKenzie, Y. Wu, and D. P. Goldman, *American Journal of Managed Care*, 22(6), June 2016, pp. 433–40.

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Leemore Dafny, Kate Ho, Robin Lee

The Price Effects of Cross-Hospital Mergers

So-called “horizontal mergers” of hospitals in the same geographic market have garnered significant attention from researchers and regulators alike. However, much of the recent hospital industry consolidation spans multiple markets serving distinct patient populations. We show that such combinations can reduce competition among the merging providers for inclusion in insurers’ networks of providers, leading to higher prices. The result derives from the presence of “common customers” (i.e. purchasers of insurance plans) who value both providers, as well as (one or more) “common insurers” with which price and network status is negotiated. We test our theoretical predictions using two samples of cross-market hospital mergers, focusing exclusively on hospitals that are bystanders rather than the likely drivers of the transactions in order to address concerns about the endogeneity of merger activity. We find that hospitals gaining system members in-state (but not in the same geographic market) experience price increases of 6–10 percent relative to control hospitals, while hospitals gaining system members out-of-state exhibit no

statistically significant changes in price. The former group are likelier to share common customers and insurers. This effect remains sizeable even when the merging parties are located further than 90 minutes apart. The results suggest that cross-market, within-state hospital mergers appear to increase hospital systems’ leverage when bargaining with insurers.

22171

David Howard, Guy David, Jason Hockenberry

Selective Hearing: Physician-Ownership and Physicians’ Response to New Evidence

Physicians, acting in their role as experts, are often faced with situations where they must trade off personal and patient welfare. Physicians’ incentives vary based on the organizational environment in which they practice. We use the publication of a major clinical trial, which found that a common knee operation does not improve outcomes for patients with osteoarthritis, as an “informational shock” to gauge the impact of physicians’ agency relationships on treatment decisions. Using a 100% sample of procedures in Florida from 1998 to 2010, we find that publication of the trial reduced procedure volume, but

the magnitude of the decline was smaller in physician-owned surgery centers. Incentives affected physicians’ reactions to evidence.

22194

Eric Helland, Seth Seabury
Are Settlements in Patent Litigation Collusive? Evidence from Paragraph IV Challenges

The use of “pay-for-delay” settlements in patent litigation—in which a branded manufacturer and generic entrant settle a Paragraph IV patent challenge and agree to forestall entry—has come under considerable scrutiny in recent years. Critics argue that these settlements are collusive and lower consumer welfare by maintaining monopoly prices after patents should have expired, while proponents argue they reinforce incentives for innovation. We estimate the impact of settlements to Paragraph IV challenges on generic entry and evaluate the implications for drug prices and quantity. To address the potential endogeneity of Paragraph IV challenges and settlements we estimate the model using instrumental variables. Our instruments include standard measures of patent strength and a measure of settlement legality based on a

split between several Circuit Courts of Appeal. We find that Paragraph IV challenges increase generic entry, lower drug prices and increase quantity, while settlements effectively reverse the effect. These effects persist over time, inflating price and depressing quantity for up to 5 years after the challenge. We also find that eliminating settlements would result in a relatively small reduction in research and development (R&D) expenditures.

22199

Janet Currie, Hannes Schwandt
Mortality Inequality: The Good News from a County-Level Approach

Analysts who have concluded that inequality in life expectancy is increasing have generally focused on life expectancy at age 40 to 50. However, we show that among infants, children, and young adults, mortality has been falling more quickly in poorer areas with the result that inequality in mortality has fallen substantially over time. This is an important result given the growing literature showing that good health in childhood predicts better health in adulthood and suggests that today's children are likely to face considerably less inequality in mortality as they age than current adults. We also show that there have been stunning declines in mortality rates for African-Americans between 1990 and 2010, especially for black men. The fact that inequality in mortality has been moving in opposite directions for the young and the old, as well as for some segments of the African-American and non-African-American populations argues against a single driver of trends in mortality inequality, such as rising income inequality. Rather, there are likely to be multiple specific causes affecting different segments of the population.

22249

Norma Coe, Jing Guo, R. Tamara Koneczka, Courtney Harold Van Houtven
What is the Marginal Benefit of Payment-Induced Family Care?

Research on informal and formal long-term care has centered almost solely on costs; to date, there has been very little attention paid to the benefits. This study exploits the randomization in the Cash and

Counseling Demonstration and Evaluation program and instrumental variable techniques to gain causal estimates of the effect of family involvement in home-based care on health care utilization and health outcomes. We find that family involvement significantly decreases Medicaid utilization. Importantly, we find family involvement significantly lowers the likelihood of urinary tract infections, respiratory infections, and bedsores, suggesting that the lower utilization is due to better health outcomes.

22277

Liran Einav, Amy Finkelstein, Maria Polyakova
Private Provision of Social Insurance: Drug-specific Price Elasticities and Cost Sharing in Medicare Part D

Standard theory suggests that optimal consumer cost-sharing in health insurance increases with the price elasticity of demand, yet publicly-provided drug coverage typically involves uniform cost-sharing across drugs. We investigate how private drug plans set cost-sharing in the context of Medicare Part D. We document substantial heterogeneity in the price elasticities of demand across more than 150 drugs and across more than 100 therapeutic classes, as well as substantial heterogeneity in the cost-sharing for different drugs within privately-provided plans. We find that private plans set higher consumer cost-sharing for drugs or classes with more elastic demand. Our findings suggest that benefit design may be more efficient in privately rather than publicly provided insurance.

22288

Carlos Dobkin, Amy Finkelstein, Raymond Kluender, Matthew Notowidigdo
The Economic Consequences of Hospital Admissions

We examine some economic impacts of hospital admissions using an event study approach in two data sets: survey data from the Health and Retirement Study, and hospital admissions data linked to consumer credit reports. We report estimates of the impact of hospital admissions on out-of-pocket medical spending, unpaid medical bills,

bankruptcy, earnings, income (and its components), access to credit, and consumer borrowing. The results point to three primary conclusions: non-elderly adults with health insurance still face considerable exposure to uninsured earnings risk; a large share of the incremental risk exposure for uninsured non-elderly adults is borne by third parties who absorb their unpaid medical bills; the elderly face very little economic risk from adverse health shocks.

22338

Kurt Lavetti, Kosali Simon
Strategic Formulary Design in Medicare Part D Plans

The design of Medicare Part D causes most Medicare beneficiaries to receive fragmented health insurance, whereby prescription drugs and other medical care are covered by separate insurance plans. Fragmentation of insurance plans is potentially inefficient since separate insurers maximize profits over only one component of healthcare spending, despite many complementarities and substitutabilities between types of healthcare. Fragmentation of some plans but not others can also lead to market distortions due to differential adverse selection, as integrated plans may use drug formulary designs to induce enrollment by patients who are profitable under Parts A & B, while stand-alone drug plans have no such incentive. We study whether the design of insurance plans in Medicare Part D reflects these two differences in incentives using data on the universe of Part D plan formularies, drug prices, and Medicare claims data. We find evidence consistent with both hypotheses. Relative to fragmented plans, integrated plans systematically design their drug formularies to encourage enrollment by beneficiaries with medical conditions that are profitable under Parts A & B. However, integrated plans also more generously cover drugs that have the potential to causally reduce medical costs. These large differences in incentives and plan design between integrated and fragmented plans are likely the precursors of substantial differential selection of enrollees, and the basic design of Medicare Part D abets this covert selection.

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