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NBER NATIONAL BUREAU OF ECONOMIC RESEARCH

BULLETIN ON AGING AND HEALTH

The Economics of “Pay-or-Play” Mandates

With over 46 million non-elderly Americans currently lacking health insurance coverage, many policy makers are calling for reforms to reduce the ranks of the uninsured. One popular option is the “pay-or-play” mandate, in which employers are required to either provide health insurance for their employees or pay a penalty to offset costs the government incurs to provide health care for the uninsured. Massachusetts’ recently enacted health care reform includes a small financial penalty for employers who do not provide insurance, while other states such as California are contemplating larger penalties.

Proponents of these mandates argue that they could significantly reduce the ranks of the uninsured, since the vast majority of the uninsured—over 70 percent, according to a recent Kaiser Family Foundation study—are in families with at least one full-time worker. Many of these are low-income families, suggesting that mandates may be a useful mechanism for providing insurance for the working poor.

One concern about pay-or-play mandates, however, is that they may have a negative effect on employment, particularly for low-income workers. Most economists believe that employers will respond to the mandate by passing the cost of insurance on to workers in the form of reduced wages, and that workers will be willing to accept this as long as they value the insurance. But in the case of workers at or near the minimum wage, wages will not be able to fall to offset the cost of insurance. Employers thus may respond by laying workers off if the workers’ total compensation (wages plus insurance) exceeds their productive value to the firm.

The costs and benefits of pay-or-play mandates are evaluated in two new papers by NBER researchers. In “**Employer Health Insurance Mandates and the Risk of Unemployment**,” (NBER Working Paper 13528), **Katherine Baicker** and **Helen Levy** estimate the potential job loss from health insurance mandates.

Several factors affect the extent to which an employer mandate will cause unemployment. The first is the cost of the insurance, which will depend on the specifics of the mandate—for example, whether the insurance must cover prescription drugs and what share of premiums employers must pay. The second is how much of the cost of coverage will be passed on to workers via lower wages—as noted above, the consensus is that workers generally bear the full cost. The third is how many uninsured workers have earnings so close to the minimum wage that their wages cannot be reduced enough to offset the cost of the new coverage, and how employers respond to the implied increase in compensation for these workers.

To conduct their analysis, the authors use data from the March Current Population Survey and the Medical Expenditure Panel Survey for 2000 through 2006. The former provides information on employment, demographics, and insurance coverage for a large sample of respondents, while the latter is used to calculate the cost of insurance.

The authors find that 15 percent of full-time workers (those working 20 or more hours per week) have no health insurance coverage. The share of workers who are not offered insurance by their employer may actually be higher or lower than this, since some workers decline coverage and end up unin-

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sured while others are not offered coverage but obtain it from another source. Relative to their insured counterparts, uninsured workers are more likely to be high-school dropouts, members of a minority racial or ethnic group, under age 35, and unmarried.

The authors calculate the average cost of a health insurance plan to be about \$9,000 for family coverage during their sample period, or \$3.66 per hour for a full-time worker. Assuming that a mandate required employers to provide coverage similar to the average plan and to pay 80 percent of premiums, wages would need to fall by \$3 per hour to fully offset the cost of the mandate.

The authors estimate that one-third of all uninsured workers, or 5.5 million U.S. private sector workers, have earnings within \$3 of the minimum wage. How many of these workers are likely to lose their jobs as the result of a pay-or-play mandate? The authors first calculate the implied increase in compensation required by the mandate for each

worker—for example, the wage of a worker earning \$6 per hour can fall by 85 cents to the \$5.15 federal minimum wage, so the rest of the cost of insurance would be an increase in compensation. Next, assuming that a ten percent increase in compensation results in a one percent decrease in employment (a fairly conservative estimate, based on existing studies of the minimum wage), the authors estimate that the implied increase in compensation resulting from the mandate would cause 224,000 workers to lose their jobs. The affected workers would be disproportionately low-education, minority, and female.

The authors conclude “the risk of unemployment should be a crucial component in the evaluation of both the effectiveness of these policies in reducing the number of uninsured and their broader effects on the well-being of low-wage workers.”

In “**Who Gets What from Employer Pay or Play Mandates?**” (NBER Working Paper 13578), **Richard Burkhauser** and **Kosali Simon** take a closer look at how effective health insurance mandates might be

in providing health insurance for the working poor.

The authors use the 2005 Current Population Survey for their analysis. They consider the effect of a mandate requiring firms to provide health insurance if the firm has 25 or more employees and if the employee earns less than \$15 per hour. This mandate is similar to one that was proposed recently in New York State.

The authors’ first key finding is the mandate would still leave more than half (54 percent) of uninsured workers without coverage. The results are similar (46 percent) for workers in the poorest families, those with family income below the poverty line. The primary reason for the relatively modest effect of the mandate is that many uninsured workers (at all family income levels) are employed at small firms, making them exempt from the mandate.

A second key finding is that many of those who will gain coverage from the mandate are not poor—for example, the authors estimate that fewer than half of newly insured

workers are in families with income less than twice the poverty line. This is the case even though the mandate only applies to relatively low-wage workers (those earning less than \$15 per hour). This finding highlights the fact that many low-wage workers are not in low-income families.

A third key finding is that a significant number of workers who would be affected by a mandate already received health insurance as a dependent on a family member’s policy, thus the mandate exposes them to the risk of unemployment without changing their health insurance status.

Overall, the authors conclude that pay-or-play mandates of the type they examine are “a blunt instrument for providing health insurance for the working poor,” since many poor uninsured workers would not gain coverage and many of those who would gain coverage are not poor.

Both papers were presented at a Cornell University Symposium on Health Care Reform, “The Economics of ‘Pay-or-Play’ Mandates,” which was funded by a grant from the Employment Policies Institute.

Comparing the U.S. and Canadian Health Care Systems

In discussions of health care reform, the Canadian system is often held up as a possible model for the U.S. The two countries’ health care systems are very different—Canada has a single-payer, mostly publicly-funded system, while the U.S. has a multi-payer, heavily private system—but the countries appear to be culturally similar, suggesting that it might be possible for the U.S. to adopt the Canadian system.

Much of the appeal of the Canadian system is that it seems to do more for less. Canada provides universal access to health care for its citizens, while nearly one in five non-elderly Americans is uninsured. Canada spends far less of its GDP on health care (10.4 percent, versus 16 percent in the U.S.) yet performs better than the U.S. on two commonly cited health outcome measures, the infant mortality rate and life expectancy.

In “**Health Status, Health Care, and Inequality: Canada vs. the U.S.,**” (NBER Working Paper 13429) **June O’Neill** and **Dave M. O’Neill** take a closer look at the performance of the U.S. and Canadian health care systems. The authors examine whether the Canadian system delivers better health outcomes and distributes health resources

more equitably than the U.S. system.

The authors begin by examining the evidence on health outcomes. They note that the infant mortality rate and life expectancy are affected by many factors other than the health care system. For example, low birthweight—a phenomenon known to be related to substance abuse and smoking—is more common in the U.S. For babies in the same birthweight range, infant mortality rates in the two countries are similar. In fact, if Canada had the same proportion of low birthweight babies as the U.S., the authors project that it would have a slightly higher infant mortality rate. Thus, the authors conclude that differences in infant mortality have more to do with differences in behavior than with the health care systems.

A similar argument may be made for life expectancy. The gap in life expectancy among young adults is mostly explained by the higher rate of mortality in the U.S. from accidents and homicides. At older ages much of the gap is due to a higher rate of heart disease-related mortality in the U.S. While this could be related to better treatment of heart disease in Canada, factors such as the U.S.’s higher obesity rate (33 percent of U.S.

women are obese, vs. 19 percent in Canada) surely play a role.

To compare how the countries perform on other health outcome measures, the authors use the Joint Canada/U.S. Survey of Health, a survey of about 9,000 residents of the two countries conducted in 2002–2003. The authors begin by comparing self-reported health status. While this measure is subjective and may be influenced by factors outside the health care system, it is widely used by researchers. They find that self-reported health status is similar in the two countries—if anything, more people report themselves to be in excellent health in the U.S.

Next, the authors examine three other outcome measures: an index of overall health, a depression index, and a pain indicator. Focusing on whites (to sidestep differences in the racial composition of the two populations and the problem of racial disparities in health outcomes), they find that the two countries score similarly on the overall health index and pain indicator, while the U.S. has a slightly higher incidence of depression.

The final health status measure exam-

ined is the incidence of chronic conditions like high blood pressure, heart disease, and asthma. These measures are less subjective, but also are known to be influenced by behavior and other factors outside of the health care system. The authors find that the incidence of these conditions is somewhat higher in the U.S. However, respondents with these conditions are somewhat more likely to be treated in the U.S.—in the case of emphysema, the treatment rate is twenty percentage points higher in the U.S.

Turning their attention to the availability of health care resources, the authors examine the use of cancer screenings including mammograms and PAP smears (for women), PSA screenings (for men), and colonoscopies. They find that the use of these tests is more frequent in the U.S.—for example, 86 percent of U.S. women ages 40 to 69 have had a mammogram, compared to 73 percent of Canadian women. The U.S. also is endowed with many more MRI machines and CT scanners per capita. The authors find evidence of the possible effectiveness of higher levels of screening and equipment by examining mortality rates in both countries for five types of cancer that could be affected by early detection and treatment. Because the incidence of cancer may differ for reasons other than the health care system, they compare the ratio of the mortality rate to the incidence rate—a

lower ratio corresponds to a lower death rate for those with the disease. They find that the ratio is lower in the U.S. for all types of cancer except cervical cancer, suggesting that the U.S. health care system is generally more successful in the detection and treatment of cancer.

The authors also examine wait times, which are often cited as a problem in Canada. Though comparative information is limited, available data indicate much longer waits in Canada than in the U.S. to consult a specialist and to have non-emergency surgery like knee replacements. The authors can also draw some inferences from a question about unmet medical needs. While the incidence of unmet needs is slightly lower in Canada (11 percent, vs. 14 percent in the U.S.), it is interesting to note that waiting time is cited as the reason by over half of Canadians who report unmet needs. By contrast, cost is cited as the reason by over half of Americans. The importance of long waits in Canada was recently highlighted by the Chaoulli case in Quebec which successfully challenged the government ban on private provision of medical services covered by the Canadian system. Private services are expected to alleviate shortage of facilities under the system and reduce wait times. Cases are being brought in other provinces.

In the final section of their paper, the authors consider several measures of the suc-

cess of the two health care systems. The first and perhaps simplest measure is the level of satisfaction reported by patients. Americans are more likely to report that they are fully satisfied with the health services they have received and to rank the quality of care as excellent.

Finally, the authors examine whether Canada has a more equitable distribution of health outcomes, as might be expected in a single-payer system with universal coverage. To do so, they estimate the correlation across individuals in their personal income and personal health status and compare this for the two countries. Surprisingly, they find that the health-income gradient is actually more prominent in Canada than in the U.S.

The authors conclude that while it is commonly supposed that a single-payer, publicly-funded system would deliver better health outcomes and distribute health resources more fairly than a multi-payer system with a large private component, their study does not provide support for this view. They suggest that further comparisons of the U.S. and Canadian health care systems would be useful, for example to explore whether the higher expenditures in the U.S. yield benefits that are worth their cost.

The authors acknowledge financial support from the Achelis Foundation and the Weismann Foundation.

The Lifetime Costs and Benefits of Medical Technology

Over the past fifty years, medical expenditures have increased very rapidly, from 5 percent of GDP in 1960 to 16 percent today. It is widely believed that technological change is the main driver of these expenditure increases, bearing responsibility for at least half of the growth.

While the adoption of a new medical technology results in an immediate increase in medical expenditures, that is only part of the story. What improvements in longevity or quality of life result from the use of the new technology, and how do we put a monetary value on these benefits? While this question is clearly a difficult one, answering it is necessary in order to determine whether the new technology is worth its cost. In addition, how will the use of the new technology today affect medical spending in future years? In theory, the new technology

may either raise future spending by extending patients' lives or reduce it by making patients healthier. A full assessment of the cost-effectiveness of a new medical technology will incorporate costs (or cost savings) that occur in the future as well as costs that are incurred today.

In “**The Lifetime Costs and Benefits of Medical Care**” (NBER Working Paper 13478), **David Cutler** evaluates the long-term costs and benefits of one specific medical technology. The technology he examines is therapeutic surgical care after a heart attack, or revascularization, a term that encompasses both bypass surgery and angioplasty. These are relatively common and expensive medical treatments whose value has been a matter of debate in the literature.

One significant challenge in estimating the costs and benefits of revascularization

is that those who receive the treatment are unlikely to be a random subset of all patients who experience heart attacks. The sickest patients may be too weak to withstand the treatment, while the healthiest patients may not need it. As a result, the sample of treated patients could be healthier or less healthy on average than the sample of untreated patients, and any differences in health outcomes or subsequent medical costs of the two groups may reflect underlying differences in their health rather than the effect of revascularization per se.

The author's solution to this problem is to use the “differential distance”—that is, the difference between the distance to the nearest revascularization hospital and the distance to the nearest hospital of any type—to predict the probability that each patient will receive revascularization, and

then to use the predicted probability of treatment rather than actual treatment status in the analysis. The predicted probability will be related to actual treatment status but unrelated to the patient's unobservable health status, and thus not subject to the concern raised above.

The data for the analysis are the Medicare claims records for a sample of 125,000 beneficiaries who were admitted to a hospital with a heart attack in 1986–1988. The data includes information on the beneficiaries' medical costs and survival outcomes for a 17-year period following their heart attack, long enough to ensure that virtually all of them will have died during the period.

The author first verifies that his differential distance measure is related to actual treatment status. It is: people who live closer to a revascularization hospital (have a differential distance below the median) are 3 percentage points more likely to be revascularized than people who live further from such

a hospital (have a differential distance above the median).

Next, the author employs the strategy described above to estimate the effect of revascularization on survival and medical expenditures. He finds that receiving revascularization is associated with an additional 1.1 years of life expectancy, and that the cost of this gain is \$38,000. Accordingly, the cost of an additional year of life obtained through revascularization is about \$33,000. As the commonly accepted value of a year of life in good health is \$100,000, these results suggest that revascularization is highly cost-effective.

The benefits of revascularization could be even larger than what is estimated here, since any improvements in the quality of life have not been incorporated into this calculation. On the other hand, the additional year of life gained from revascularization might be of less than good quality, due to the age and health of beneficiaries, so \$100,000 may

not be the appropriate benchmark for the cost-effectiveness assessment.

One unresolved issue in the interpretation of these results is whether the benefits flow from the revascularization procedure per se, or from the receipt of other services associated with being admitted to a hospital with revascularization capacity. For example, hospitals that offer revascularization may also have better cancer care, and once a patient receives treatment at a particular hospital for a heart attack he may return to receive treatment for his other health conditions. If this is the case, the benefits of revascularization will be lower than what has been estimated, but so will the costs, so it is likely that revascularization will remain a highly cost-effective procedure. The author concludes "separating the impact of high tech care from other care is a topic worthy of future research."

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NBER Profile: Axel Börsch-Supan

Axel Börsch-Supan is a Research Associate at the NBER, affiliated with the NBER's program on Aging.

Börsch-Supan is Professor of Macroeconomics and Public Policy at the University of Mannheim in Mannheim, Germany, where he is also the Founding and Executive Director of the Mannheim Research Institute for the Economics of Aging (MEA), Speaker of the Collaborative Research Center on Behavioral Economics, and a past Dean of the Faculty of Economics. Börsch-Supan is a Member of the Board and Research Professor at the Center for European Economic Research (ZEW), a Fellow at the Center for Economic Policy Research in London, and Adjunct Faculty at the RAND Corporation in Santa Monica. He has previously held faculty positions at the John F. Kennedy School of Government at Harvard University and at the University of Dortmund.

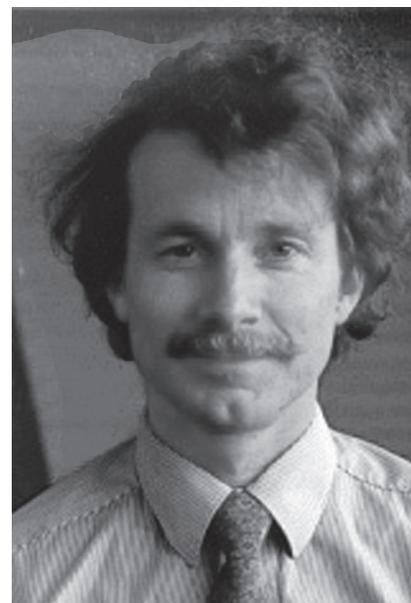
Professor Börsch-Supan is the Coordinator of the Survey of Health, Aging, and Retirement in Europe (SHARE), a cross-national database of micro data on the health, socio-economic status, and social and family networks of

individuals aged 50 or over. The survey, which is modeled on the U.S. Health and Retirement Study (HRS), is in its third wave of data collection and now includes 15 countries as participants.

Börsch-Supan has served in an advisory capacity to numerous German government agencies, including as Chair of the Scientific Advisory Board at the Federal Ministry of Economics and Technology, as member of the German President's Commission on Demographic Change, and as an advisor to the Federal Ministry for Family and Seniors. He has also advised the Organization for Economic Cooperation and Development and the World Bank.

Professor Börsch-Supan's current research addresses numerous issues in the economics of aging, including the political economy of pension reform, the effect of pension incentives on retirement behavior, and the effect of demographic change on labor and capital markets.

He received a B.A. in economics and mathematics from the University of Munich, a M.A. in mathematics and econometrics from the University of Bonn, and a Ph.D. in economics from the



Massachusetts Institute of Technology.

Axel Börsch-Supan is married and has three children, now students themselves.

He loves the mountains: skiing, climbing, trekking, and is a dedicated photographer.

Abstracts of Selected Recent NBER Working Papers

13191

Sumit Agarwal, John C. Driscoll, Xavier Gabaix, David Laibson

The Age of Reason: Financial Decisions Over the Lifecycle

The sophistication of financial decisions varies with age: middle-aged adults borrow at lower interest rates and pay fewer fees compared to both younger and older adults. We document this pattern in ten financial markets. The measured effects cannot be explained by observed risk characteristics. The sophistication of financial choices peaks around age 53 in our cross-sectional data. Our results are consistent with the hypothesis that financial sophistication rises and then falls with age, although the patterns that we observe represent a mix of age effects and cohort effects.

13301

Joseph J. Doyle, Jr

Returns to Local-Area Health Care Spending: Using Health Shocks to Patients Far From Home

Health care spending varies widely across markets, yet there is little evidence that higher spending translates into better health outcomes, possibly due to endogeneity bias. The main innovation in this paper compares outcomes of patients who are exposed to different health care systems that were not designed for them: patients who are far from home when a health emergency strikes. The universe of emergencies in Florida from 1996–2003 is considered, and visitors who become ill in high-spending areas have significantly lower mortality rates compared to similar visitors in lower-spending areas. The results are robust across different types of patients and within groups of destinations that appear to be close demand substitutes.

13304

Mary Beth Landrum, Kate A. Stewart, David M. Cutler

Clinical Pathways to Disability

This paper examines the pathways by which individuals transition from healthy to disabled. Because of the high prevalence and costs associated with disability, understanding these pathways is critical to developing interventions to prevent or minimize disability. We compare two estimates of disabling conditions: those observed in medical claims and conditions indicated by the disabled individual. A small number of conditions explain about half of incident disability: arthritis, infectious disease, dementia, heart failure, diabetes, and stroke. These conditions show up in medical claims and self reports. A large number of elderly also attribute disability to old age and various symptoms. Because so many of the most disabling conditions do not have clear medical treatments, the outlook for major reductions in disability might be limited.

13333

Gary Becker, Kevin Murphy, Tomas Philipson

The Value of Life Near its End and Terminal Care

Medical care at the end of life, which often is estimated to contribute up to a quarter of US health care spending, often encounters skepticism from payers and policy makers who question its high cost and often minimal health benefits. It seems generally agreed upon that medical resources are being wasted on excessive care for end-of-life treatments that often only prolong minimally an already frail life. However, though many observers have claimed that such spending is often irrational and wasteful, little explicit and systematic analysis exists on the incentives that determine end of life health care spending. There exists no positive theory that attempts to explain the high degree of end-of-life spending and why differences across individuals, populations, or time occur in such spending. This

paper attempts to provide the first rational and systematic analysis of the incentives behind end-of-life care. The main argument we make is that existing estimates of the value of a life year do not apply to the valuation of life at the end of life. We stress the low opportunity cost of medical spending near one's death, the importance of keeping hope alive in a terminal care setting, the larger social value of a life than estimated in private demand settings, as well as the insignificance in quality of life in lowering its value. We derive how an ex-ante perspective in terms of insurance and R&D alters some of these conclusions.

13347

Douglas Almond, Lena Edlund, Marten Palme

Chernobyl's Subclinical Legacy: Prenatal Exposure to Radioactive Fallout and School Outcomes in Sweden

Japanese atomic bomb survivors irradiated 8–25 weeks after ovulation subsequently suffered reduced IQ [Otake and Schull, 1998]. Whether these findings generalize to low doses (less than 10 mGy) has not been established. This paper exploits the natural experiment generated by the Chernobyl nuclear accident in April 1986, which caused a spike in radiation levels in Sweden. In a comprehensive data set of 562,637 Swedes born 1983–1988, we find that the cohort in utero during the Chernobyl accident had worse school outcomes than adjacent birth cohorts, and this deterioration was largest for those exposed approximately 8–25 weeks post conception. Moreover, we find larger damage among students born in regions that received more fallout: students from the eight most affected municipalities were 3.6 percentage points less likely to qualify to high school as a result of the fallout. Our findings suggest that fetal exposure to ionizing radiation damages cognitive ability at radiation levels previously considered safe.

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13358

Baoping Shang, Dana P. Goldman
Prescription Drug Coverage and Elderly Medicare Spending

The introduction of Medicare Part D has generated interest in the cost of providing drug coverage to the elderly. Of paramount importance—often unaccounted for in budget estimates—are the salutary effects that increased prescription drug use might have on other Medicare spending. This paper uses longitudinal data from the Medicare Current Beneficiary Survey (MCBS) to estimate how prescription drug benefits affect Medicare spending. We compare spending and service use for Medigap enrollees with and without drug coverage. Because of concerns about selection, we use variation in supply-side regulations of the individual insurance market—including guaranteed issue and community rating—as instruments for prescription drug coverage. We employ a discrete factor model to control for individual-level heterogeneity that might induce bias in the effects of drug coverage. Medigap prescription drug coverage increases drug spending by \$170 or 22%, and reduces Medicare Part A spending by \$350 or 13% (in 2000 dollars). Medigap prescription drug coverage reduces Medicare Part B spending, but the estimates are not statistically significant. Overall, a \$1 increase in prescription drug spending is associated with a \$2.06 reduction in Medicare spending. Furthermore, the substitution effect decreases as income rises, and thus provides support for the low-income assistance program of Medicare Part D.

13438

Jeffrey R. Brown

Guaranteed Trouble: The Economic Effects of the Pension Benefit Guaranty Corporation

This paper examines the economic rationale for, historical experience of, and current pressures facing the Pension Benefit Guaranty Corporation (PBGC). The PBGC is the government entity which partially insures participants in private-sector defined benefit pension plans against the loss of pension benefits in the event that the plan sponsor experiences financial distress and has an under-funded pension plan. The paper discusses three major flaws of the PBGC, namely, that the PBGC has: 1) failed to properly price insurance and thus encouraged excessive risk-taking by plan sponsors; 2) failed to promote adequate funding of pension obligations; and 3) failed to promote sufficient information disclosure to market participants. The paper then discusses potential ways to reform the PBGC so that it operates more in concert with basic economic principles.

13539

David Cutler, Winnie Fung, Michael Kremer, Monica Singhal
Mosquitoes: The Long-term Effects of Malaria Eradication in India

We examine the effects of malaria on educational attainment by exploiting geographic variation in malaria prevalence in India prior to a nationwide eradication program in the 1950s. Malaria eradication resulted in gains in literacy and primary school completion rates of approximately 12 percentage points. These estimates imply that the eradication of malaria can explain about half of the gains in these measures of educational attainment

between the pre- and post-eradication periods in areas where malaria was prevalent. The effects are not present in urban areas, where malaria was not considered to be a problem in the pre-eradication period. The results cannot be explained by convergence across areas. We find gains for both men and women as well as for members of scheduled castes and tribes, a traditionally disadvantaged group.

13585

Jonathan Gruber, David Rodriguez
How Much Uncompensated Care do Doctors Provide?

The magnitude of provider uncompensated care has become an important public policy issue. Yet existing measures of uncompensated care are flawed because they compare uninsured payments to list prices, not to the prices actually paid by the insured. We address this issue using a novel source of data from a vendor that processes financial data for almost 4000 physicians. We measure uncompensated care as the net amount that physicians lose by lower payments from the uninsured than from the insured. Our best estimate is that physicians provide negative uncompensated care to the uninsured, earning more on uninsured patients than on insured patients with comparable treatments. Even our most conservative estimates suggest that uncompensated care amounts to only 0.8% of revenues, or at most \$3.2 billion nationally. These results highlight the important distinction between charges and payments, and point to the need for a re-definition of uncompensated care in the health sector going forward.

NBER

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