

- Does Health Insurance Affect Health Care Utilization and Health?
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Does Health Insurance Affect Health Care Utilization and Health?

Over 43 million Americans, or some 17% of the non-elderly population, lacked health insurance in 2002. Previous research has established that the uninsured have worse health outcomes, but the causal effect of insurance on health outcomes is more difficult to ascertain. For example, if insured and uninsured persons differ systematically in various behaviors that affect health, such as diet, smoking, and exercise, then observed differences in health outcomes might not be due solely to differences in insurance coverage.

In **The Impact of Nearly Universal Insurance Coverage on Health Care Utilization and Health: Evidence from Medicare** (NBER Working Paper 10365), **David Card, Carlos Dobkin, and Nicole Maestas** use the onset of

eligibility for the Medicare program at age 65 to estimate the effect of insurance coverage on health care utilization and health outcomes.

As the authors show, insurance coverage jumps at age 65, from 90 percent to 98 percent for the population as a whole. The authors assume that absent this jump, outcome measures such as the number of hospitalizations should evolve smoothly with age, so that any observed discontinuous jump at age 65 can be attributed to the effect of increased insurance coverage. As the rise in coverage is particularly large for less educated minorities — the authors find that the coverage gap between this group and educated whites falls from 20 percent before age 65 to 5 percent after — the authors are especially interested

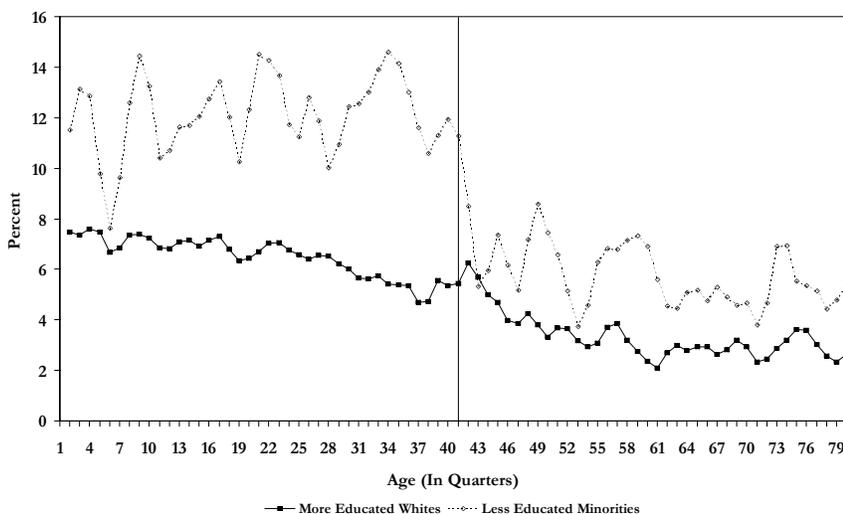
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in examining whether inter-group disparities in utilization and outcomes narrow at age 65.

The authors use multiple data sources for their analysis, including the National Health Interview Survey, the Behavioral Risk Factor Surveillance System, the Multiple Cause of Death file, and hospital discharge records from California and Florida. The authors first look for evidence of an age-65 discontinuity in access to medical care. As Figure 1 illustrates, the fraction of individuals reporting that they delayed medical care in the past year for cost reasons falls dramatically at age 65 for less educated minorities, while there is no significant break in the long-term trend for educated whites.

Similarly, the authors find that the probability of having seen a doctor in the past year rises significantly at age 65 for less educated minorities, while it is flat for educated whites. The finding that the group with the largest gain in insurance coverage at age 65 also has the largest increase in self-reported access to care and doctors' visits suggests that insurance coverage

Figure 1: Percent Who Delayed Medical Care Last Year for Cost Reasons



does affect health care utilization.

Next, the authors look at the effect of Medicare on hospital stays. They find that the number of hospital admissions jumps by 5 to 10 percent at age 65. Interestingly, admissions remain at the new higher level after age 65, suggesting that the increase is not primarily due to individuals delaying hospital care until age 65. In stark contrast to the earlier findings, the increase in hospital admissions is greater for whites than for minorities. The authors also show that the increase is greater for elective admissions such as joint replacement surgery than for emergency admissions. Taken as a whole, the results suggest that changes in admissions are not due to increases in insurance coverage at age 65 per

se, but rather to some other aspect of Medicare. For example, relative to many private insurance plans, Medicare may more readily cover a broader array of procedures, but require larger copayments. High socio-economic status individuals may be more likely to increase hospital admissions after age 65 because they can more easily afford these copayments or have secondary insurance to cover them.

Finally, the authors examine changes in health behaviors and outcomes at age 65. They find no evidence that the probability of smoking, exercising, or being overweight changes significantly at age 65. The evidence on health outcomes is mixed — self-reported health status rises modestly at age

65 for less educated minorities, eliminating 15 percent of the gap between their health status and that of the population as a whole, but there is no evidence that Medicare eligibility has an immediate impact on an individual's probability of dying. The authors conclude that their findings point to “a significant but relatively modest impact of health insurance on health.”

Funding for this research was provided by a National Institute on Aging Grant through the Center for the Economics and Demography of Aging at UC Berkeley, and by the Center for Labor Economics at UC Berkeley (grant P30-AG12839-09). This research was summarized by Courtney Coile.

Investing 401(k) Balances in Company Stock

The recent corporate scandals at several large, publicly traded firms such as Enron and WorldCom were particularly devastating for many employees of these firms, who had invested their retirement assets heavily in company stock. Such behavior is a clear violation of diversification principles — one study finds that the additional risk associated with investing in company stock has an average cost equivalent to 42 percent of the stock's value. Yet despite the risks, such behavior is common — more than 50 percent of retirement assets are invested in company stock at many firms, and more than 80 percent at some large firms including Procter & Gamble, Anheuser-Busch, and Pfizer.

Many firms encourage employees to hold company stock by making matched contributions to retirement accounts, or 401(k)s, in stock and in some cases by restricting employee's rights to sell this stock for some period of time. Yet employees ultimately determine the role of company stock in their portfolio via two decisions — how to allocate their own contributions across the available investment

options (including company stock) and whether to reallocate their 401(k) holdings at any point in time.

In **Employees' Investment Decisions about Company Stock** (NBER Working Paper 10228), **James Choi, David Laibson, Brigitte Madrian, and Andrew Metrick** focus on one factor that is likely to affect employees' investment decisions: past returns on the company's stock. Specifically, the authors ask whether plan participants are momentum investors, who invest more in company stock when the stock has recently done well and less when it has done poorly, or contrarian investors, who do the opposite. The authors use changes in stock returns at three large firms from 1992 to 2000 to identify the effect of returns on the investment decisions of 94,000 plan participants.

The authors begin by offering a snapshot of the average plan participant at these firms. This employee has a 401(k) balance of \$89,000, of which 18 percent is invested in company stock and 46 percent is invested in other equities. The employee makes a voluntary contribution of 8.7 percent of salary to the 401(k)

plan, and one-tenth of that contribution is directed to company stock. Six years after enrolling in the plan, 80 percent of participants have changed the allocation of their contribution among the various asset classes or made a reallocation of their assets between asset classes (a “trade”). Very few participants make more than one trade every two years.

The authors first examine participants' decisions to allocate part of their payroll contributions to company stock when they first join the plan. They find that a higher return on company stock over the past year is associated with allocating more of the contribution to company stock and less to other equities, with the amount allocated to all equities unchanged. Thus, company stock returns have a mostly compositional effect on overall equity contributions. Interestingly, higher returns on the S&P 500 Index have a very similar effect.

Next, the authors examine participants' decisions to change the allocation of their payroll contributions. They find that higher returns on company stock lead participants to shift more of their contribution

into both company stock and other equities. By contrast, higher returns on the S&P 500 Index lead participants to reduce their contribution to company stock and raise their contribution to other equities, with the total share in equities rising. Overall, the authors conclude that participants are momentum investors when making decisions about investment flows.

Finally, the authors examine participants' decisions to rebalance their portfolios by making trades among the various asset classes. They find that high returns on company stock induce participants to

sell company stock and buy other equities. Thus participants are contrarian investors when making trading decisions, rebalancing their portfolio away from company stock when the stock has done well.

Persistent high returns on company stock over time will result in a 401(k) account that is heavily weighted towards company stock, absent action by the plan participant to rebalance the portfolio. The authors' findings suggest that this concentration of 401(k) assets in company stock will be exacerbated by participants' tendency to increase the share of their contributions

allocated to company stock when the stock is doing well, but is also mitigated by participants' tendency to rebalance their portfolio away from company stock.

Laibson and Madrian acknowledge financial support from the National Institute on Aging (grants R01-AG-16605, R29-AG-013020 and R01-AG-021650). Choi acknowledged financial support from a National Science Foundation Graduate Research Fellowship, National Institute on Aging Grant T32-AG00186, and the Mustard Seed Foundation. Laibson also acknowledges financial support from the Sloan Foundation.

The Effect of Air Pollution on Infant Health

The passage of the landmark Clean Air Act in 1970 launched an era of tightening standards for air pollutants. This process continues today and can be quite contentious. For example, the Environmental Protection Agency (EPA) issued new standards for ozone and particulate matter in 1997, but they were held up by legal challenges until a Supreme Court decision in 2001. Just last month, the EPA moved towards enforcing the new standards by announcing the names of 500 counties — containing more than half the US population — that violate or contribute to violations of the new ozone standards.

One of the primary motivations for stricter standards is to prevent pollution-related illness and premature mortality. Yet there is still much to learn about the effects of air pollution on health. Researchers **Janet Currie** and **Matthew Neidell** explore one aspect of this subject in **Air Pollution and Infant Health: What Can We Learn from California's Recent Experience?** (NBER Working Paper 10251).

The authors concentrate on infants because there is significant scientific uncertainty about the health effects of pollution for infants and a strong interest in protecting these vulnerable members of society. The authors focus on the

recent experience of California because the pollution levels are lower than those examined in many past studies and thus more relevant to the current debate over appropriate pollution levels.

The authors use the California Birth Cohort files and the California Ambient Air Quality Data for 1989 to 2000. From these sources, they construct a data set containing information on infant outcomes such as low birth weight or mortality, on the mother's background and use of prenatal care, and on the level of four criteria pollutants in the mother's zip code — ozone, carbon monoxide, particulate matter, and nitrogen dioxide — for 70 percent of the births in the state over this period.

This rich data set allows the authors to rely on changes in pollution levels in a given zip code over time to identify the effects of pollution on health. The authors include the mother's zip code in the model to control for time-invariant factors such as poverty that are geographically concentrated and may be associated with poor infant outcomes. They also include variables such as the mother's education to control for individual differences between mothers that may affect birth outcomes.

The authors' findings differ from some of the previous epidemi-

ological literature. For example, the authors find little average effect of prenatal pollution exposure on the probability of low birth weight, short gestation, or fetal death after including the mother's zip code in the model. However, they do find that living in a very high-pollution area is associated with a higher risk of fetal death, suggesting that pollution may be harmful above a certain threshold level.

By contrast, the authors find significant effects of carbon monoxide and particulate matter levels on infant mortality. In the authors' preferred estimates, reductions in these two pollutants during the 1990s are estimated to have saved over 1,000 infant lives in California. Assuming a \$4.8 million value per life saved, these health benefits would be valued at \$5.1 billion. As the authors note, these estimates do not incorporate other potential improvements in infant health, such as reduced respiratory disease, and so are lower-bound estimates of the total health benefits of pollution reduction to infants.

This research was supported by the Center for Health and Well-Being at Princeton University and by the Center for Integrating Statistical and Environmental Science at the University of Chicago. It was summarized by Courtney Coile.

NBER Profile: *Dora Costa*

Dora Costa is a Research Associate in the NBER's Programs on Aging and the Development of the American Economy. She was a Fellow of the NBER's Aging Program in the 1995-96 academic year.

Costa is a Professor of Economics at the Massachusetts Institute of Technology. Costa's 1998 book, *The Evolution of Retirement: An American Economic History, 1880-1990*, was awarded the Economic History Association's Alice Hanson Jones Book Prize and the TIAA-CREF Paul A. Samuelson Award for Outstanding Writing on Lifelong Financial Security. Costa is a past recipient of an Alfred P. Sloan Research Fellowship and a current recipient of a Robert Wood Johnson Investigator Award and has been a Fellow at the Center for Advanced Study in the Behavioral and Social Sciences and a Visiting Scholar at the Russell Sage Foundation.

Costa received her Ph.D in Economics from the University of

Chicago and her B.A. in Economics and Mathematics from the University of California at Berkeley. She joined the MIT faculty in 1993.

Much of Costa's recent work revolves around her role as Project Leader and Senior Investigator on Early Indicators of Later Work Level, Disease, and Death, an ambitious project funded by the National Institute of Aging (grant AG-10120) that links vast amounts of information for a sample of Union Army veterans to allow researchers to study their aging process and compare it to that of later cohorts. Costa is particularly interested in analyzing changes in chronic disease and mortality and understanding the role of public health in explaining improvements in older age health and morbidity. She has begun to work on long-run trends in health by race using the Union Army records and plans to examine trends in living arrangements and retirement by race as well.

Dora Costa is married to Matthew Kahn, an Associate



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Professor at the Fletcher School at Tufts University. They have written papers together on locational choice, social capital, and the economics of emotion. They are also research assistants to Alexander Harry Costa Kahn, who will be three in October.

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