

- The Market for Stand-Alone Prescription Drug Insurance
- The Labor Supply Effects of SSI
- How Health Declines with Age



NATIONAL BUREAU OF ECONOMIC RESEARCH

**BULLETIN ON AGING AND HEALTH**

## The Market for Stand-Alone Prescription Drug Insurance

Prescription drugs play an increasingly important role in treating both chronic and acute health conditions, yet many Americans lack insurance coverage for prescription drugs. Medicare, the government health insurance program for seniors and the disabled, provides no coverage for prescription drugs. As a result, one in four seniors has no drug coverage and many others are underinsured. Roughly one-quarter of non-elderly Americans also have no drug coverage, a figure somewhat higher than the share of this population without health insurance.

One possible solution is for insurance companies to offer stand-alone prescription drug insurance plans for purchase by individuals. Like all insurance, prescription drug insurance is potentially plagued by adverse selection, the tendency of those who know they are at higher

risk of making a claim to be more likely to purchase the insurance. In extreme cases, the presence of adverse selection can trigger a death spiral, where only the worst risks purchase coverage and the private insurance market collapses. This problem can be avoided if insurers charge higher premiums to high-risk individuals, but insurers may lack the necessary data to determine an individual's risk level or may be prohibited from charging different rates on this basis.

In **Adverse Selection and the Challenges to Stand-Alone Prescription Drug Insurance** (NBER Working Paper 9919), **Mark Pauly** and **Yuhui Zeng** explore the extent to which adverse selection poses a problem in the case of stand-alone prescription drug insurance. Adverse selection is more likely to be a problem if there are large differences in

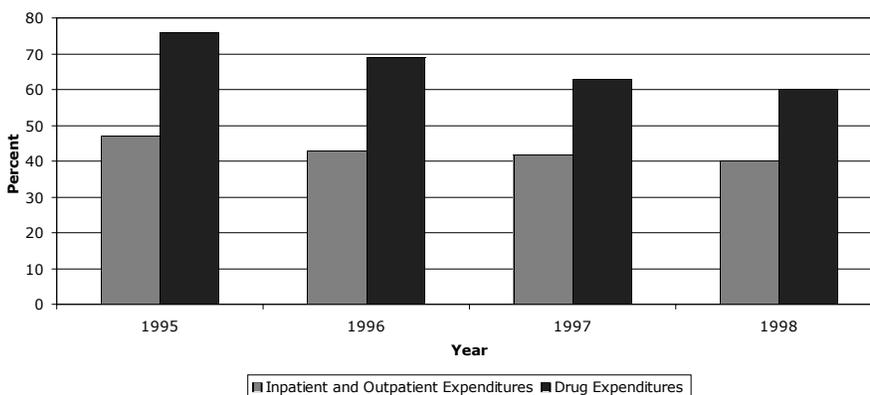
The NBER Bulletin on Aging and Health summarizes selected Working Papers recently produced as part of the Bureau's program of research in aging and health economics. The Bulletin is intended to make preliminary research results available to economists and others for informational purposes and to stimulate discussion of Working Papers before their final publication. The Bulletin is produced by David Wise, Area Director of Health and Aging Programs, and Courtney Coile, Bulletin Editor. To subscribe electronically to the Bulletin, please send a message to: [ahb@nber.org](mailto:ahb@nber.org).

expenditures across people and some persistence in expenditures over time, so that individuals know whether they are at high risk for having large expenditures in the future.

The authors examine the distribution and persistence of drug expenditures using a database of claims for 140,000 insured, non-elderly persons during the 1994-1998 period assembled by the MEDSTAT Group. They find that drug expenditures are highly skewed; in 1994, individuals in the top quintile of the sample (that is, the 20 percent of individuals with the highest drug expenditures) spent 3.9 times as much the average person in the sample.

Even more interestingly, the authors find strong persistence in drug expenditures from year to year. As Figure 1 illustrates, 76 percent of individuals who were in the top quintile of drug expenditures in 1994 were also in the top quintile the following year, and 60 percent were still in the top quintile four years later. The degree of persist-

Figure 1: Percent of Those in Highest Expenditure Quintile in 1994 Who Remained in Highest Quintile After 1994



ence in drug expenditures is substantially higher than that in inpatient and outpatient expenditures, suggesting that adverse selection is likely to be more of a problem for stand-alone prescription drug insurance than for health insurance. Moreover, the authors find that persistence in drug expenditures rises with age, suggesting that adverse selection is more of a problem for prescription drug insurance plans aimed at seniors.

Finally, the authors undertake a simulation exercise to explore whether a death spiral is likely to occur in the market for stand-alone prescription drug insurance. The exercise involves first predicting an individual's expected health expenditures for the next year based on their age, gender, and current expenditures and calculating the uncer-

tainty surrounding this estimate. The authors then estimate what each individual would be willing to pay for insurance to eliminate the uncertainty in expenditures and determine which individuals would choose to purchase insurance.

The findings from this exercise are striking. When drug coverage is offered as part of a total health insurance plan, virtually all individuals choose to purchase insurance. When stand-alone drug coverage is offered, a death spiral occurs and only very high-risk individuals choose to purchase insurance. The logic for this finding is simple — for a low-risk individual, the premium is much higher than the expected expenditures next year, and because prescription drug expenses are relatively predictable, the individual is not willing to pay much to eliminate

the small risk of high expenditures and opts out of the insurance. By contrast, health insurance expenditures as a whole are less predictable, so the individual is willing to pay more to eliminate the risk and chooses to buy the insurance.

The authors conclude that subsidies for stand-alone prescription drug plans, a potential solution sometimes mentioned in the current discussion of how to extend drug coverage to the Medicare population, would need to be on the order of 70-90 percent of the premium to entice most seniors to join such plans.

---

*This research was supported by the Merck Company Foundation, but reflects only the views of the authors, not of the Merck Company Foundation. The research was summarized by Courtney Coile.*

## The Labor Supply Effects of SSI

The Supplemental Security Income (SSI) program, which guarantees a minimum level of income for elderly, blind, and disabled individuals, provides a crucial safety net for the low-income elderly. In 2000, the 1.3 million beneficiaries of the aged component of the program received \$4.8 Billion in benefits, or an average monthly benefit of over \$300. For more than one-third of these beneficiaries, SSI was their only source of income.

The SSI program is means-tested, so that benefits are reduced as family income and assets rise — specifically, most families lose fifty cents in benefits for every dollar in labor earnings and one dollar in benefits for every dollar in non-labor income. For low-income families, the means-testing can discourage work after age 65, the age at which individuals become eligible for SSI. However, SSI can also discourage work before age 65, as one of the reasons to continuing working is to increase future Social Security and pension benefits, and these higher benefits are exactly offset by a reduction in SSI benefits.

In **The Effects of Changes in State SSI Supplements on Pre-**

**Retirement Labor Supply**, (NBER Working Paper 9851), **David Neumark** and **Elizabeth Powers** explore whether SSI affects the labor supply of likely future SSI participants at ages 62-64. In their analysis, the authors make use of the substantial differences in SSI benefit levels across states that result from differences in the state supplements to the uniform federal SSI benefit. For example, the maximum SSI benefit for an elderly couple in 2000 ranged from a low of \$769 in the twenty-five states with no supplement to a high of \$1,297 in Alaska.

The authors use 1980-2001 data from the Current Population Survey. In their simplest analysis, they compare the labor supply of likely future SSI participants aged 62-64 in high-SSI and low-SSI states. They find no significant difference, but this approach is potentially flawed — workers in different states may work more or less for reasons other than SSI, such as the availability of jobs in their state.

The authors have several clever strategies to get around this problem. The first is to use a control group of workers whose labor supply should be unaffected by SSI,

such as younger workers, to measure any difference in labor supply in high-SSI and low-SSI states that is due to other factors and to remove this from their estimate. The new results suggest that SSI does discourage work — a \$100 increase in monthly SSI benefits is associated with a 2.8% reduction in the employment rate of likely future SSI participants.

Sensitive to the potential critique that the control group may be less than perfect, the authors also present an analysis that makes use of changes to the level of state supplements over time. Specifically, they test whether the labor supply of likely future SSI participants changes by more in states that increase their benefits than in states that do not. This analysis suggests an even larger effect of SSI on work — a \$100 increase in SSI benefits is associated with a 5 percent reduction in the employment rate.

The authors caution that their results do not necessarily imply that generous SSI benefits constitute poor public policy. Rather, this study highlights the tradeoffs inherent in any social insurance program — providing more generous bene-

fits to help those in need encourages others to alter their behavior so as to become eligible for the program. The authors suggest that the negative labor supply effects of SSI may be heightened by the low

income and asset cut-offs for program eligibility. The authors conclude “it is probably worth thinking about alternative ways of structuring SSI that would increase incentives to accumulate economic resources

without generating large and costly increases in eligibility for SSI.”

*This research was supported by the National Institute on Aging. It was summarized by Courtney Coile.*

## How Health Declines with Age

It is a fact of life that health declines with age. When people are asked to rank their health status on a 5-point scale (where 1 is excellent and 5 is poor), the average response

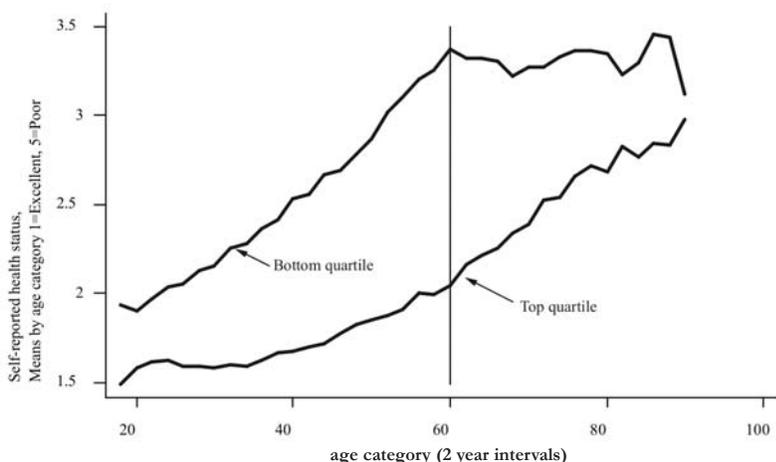
The authors suspect that this may be explained in part by occupation — manual work involves more wear and tear on the body, so the health of manual workers may

decline more rapidly than that of non-manual workers. To test this, the authors estimate the effect of occupation on the 5-point self-reported health index. They find that having a manual occupation such as machine operator or food service person raises one’s health index by about 0.15 points relative to being an executive.

The analysis controls for income, so this is the effect of a manual occupation on health above and beyond the effect that comes from having a lower income. Income and education both have protective effects on health. Interestingly, the effect of having a manual occupation on health is very similar for men and women, suggesting that any occupation-related differences in health between men and women are due to the allocation of men and women across occupations, not from differences by sex within occupations.

As the authors are primarily interested in the effect of occupation on the age profile of health, they next examine this directly. They find that having a manual

Figure 1: Self-reported health status by age and income quartile, Men, NHIS 1986-01



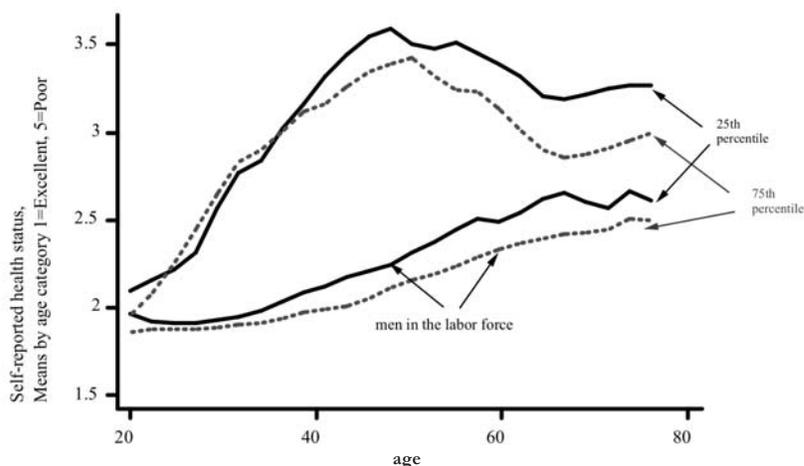
for men rises from 1.75 at age 20 to 2.5 at age 60. For women, there is a similar but somewhat smaller increase, from 2 to 2.5.

This initial finding from **Broken Down by Work and Sex: How Our Health Declines** (NBER Working Paper 9821) motivates authors **Anne Case** and **Angus Deaton** to explore further the age profile of health. They use data from sixteen waves of the National Health Interview Survey to generate a sample of about 700,000 persons aged 18-60 during the 1986-2001 period.

The authors begin by pointing out an intriguing fact: when the age profile of health is disaggregated by income group, as is shown for men in Figure 1, it is apparent that health declines much more rapidly during the working years for those at the bottom of the income distribution than for those at the top.

decline more rapidly than that of non-manual workers. To test this, the authors estimate the effect of

Figure 2: Self-reported health status by age at the 25th and 75th percentile of the income distribution By Labor Force Status, Men, NHIS 1986-01



occupation is associated not only with a higher level of the self-reported health index but also with a larger increase in the index as the worker ages. Again, the results control for income and education and are similar for men and women.

One issue complicating the effort to study the links between income, occupation, and health is that workers in manual occupations may be more likely to exit the labor

force for health-related reasons. Figure 2 explores this by showing the age profile of health for men at the 25th and 75th percentile of the income distribution by labor force status. While the health of working men at the 25th percentile worsens slightly faster with age than that of working men at the 75th percentile, this difference is swamped by the effect of being out of the labor force. This suggests that the rela-

tionship between income and the age profile of health shown in Figure 1 is largely driven by health-related withdrawal from the labor force reducing income, rather than by low income causing poor health.

---

*This research was funded by a grant from the National Institute on Aging to the NBER and was summarized by Courtney Coile.*

---

## NBER Profile: Janet Currie

---



Janet Currie is a Research Associate in the NBER's Programs on Labor Studies, Children, and Education. She has been affiliated with the NBER since 1991 and served as Director of the Children's Program in 1997-1998.

Currie is a Professor of Economics at the University of California at Los Angeles. She is currently on the editorial board of the *Quarterly Journal of Economics* and is an Associate Editor of the *Journal of Public Economics*. She also serves on the Board of the Committee for the Status of Women in the Economics Profession.

Currie received her Ph.D. from Princeton University and her Masters and Bachelors degrees in Economics from the University of

Toronto. She held faculty positions at UCLA and at MIT before returning to UCLA in 1993.

Her recent work focuses on the effects of public programs on poor children. In particular, she has studied the effect of Medicaid (health insurance), Head Start (preschool), and nutrition programs such as the National School Lunch Program and WIC programs on child outcomes.

Currie is married to W. Bentley MacLeod, a Professor of Law and Economics at the University of Southern California. They have two young children. The family enjoys visiting the many museums and gardens in Los Angeles, eating out, day trips exploring Southern California, and camping.

---

## NBER

---

*The National Bureau of Economic Research is a private nonprofit research organization founded in 1920 and devoted to objective quantitative analysis of the American economy. Its officers are:*

*Martin Feldstein — President and Chief Executive Officer*

*Susan Colligan — Vice President for Administration and Budget*

*Michael H. Moskow — Chairman*

*Elizabeth E. Bailey — Vice Chairman*

*Contributions to the National Bureau are tax deductible. Inquiries concerning the contributions may be addressed to Martin Feldstein, President, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398.*

*The NBER Bulletin on Aging and Health summarizes selected Working Papers recently produced as part of the Bureau's program of research. Working Papers are intended to make preliminary research results available to economists in the hope of encouraging discussion and*

*suggestions for revision. The Bulletin is issued for similar informational purposes and to stimulate discussion of Working Papers before their final publication. Neither the Working Papers nor the Bulletin has been reviewed by the Board of Directors of the NBER.*

*The Bulletin is not copyrighted and may be reproduced freely with appropriate attribution of source. Please provide the NBER's Public Information Department with copies of anything reproduced.*

*Individual copies of the NBER Working Papers summarized here (and others) are available free of charge to Corporate Associates. For all others, there is a charge of \$5.00 per downloaded paper or \$10.00 per hard copy paper. Outside of the United States, add \$10.00 per order for postage and handling. Advance payment is required on all orders. To order, call the Publications Department at (617) 868-3900 or visit [www.nber.org/papers](http://www.nber.org/papers). Please have the Working Paper Number(s) ready.*

*Subscriptions to the full NBER Working Paper series include all 500 or more papers published each year. Subscriptions are free to Corporate Associates. For others within the United States, the standard rate for a full subscription is \$2200; for academic libraries and faculty members, \$1275. Higher rates apply for foreign orders. The on-line standard rate for a full subscription is \$1560 and the on-line academic rate is \$630.*

*Partial Working Paper subscriptions, delineated by program, are also available. For further information, see our Web site, or please write: National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398.*

*Requests for Bulletin subscriptions, changes of address, and cancellations should be sent to Bulletin, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398. Please include the current mailing label.*