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BULLETIN ON AGING AND HEALTH

Trends in Health Behaviors and Health Outcomes

Along with factors such as genetics and medical care, health behaviors can directly affect health outcomes. Healthy behaviors such as exercising and eating sensibly lower the risk of conditions like heart disease and diabetes, while unhealthy behaviors such as smoking and excessive drinking raise the risk of conditions like lung cancer and liver disease.

Mortality rates in the U.S. have fallen in recent years—for example, the mortality rate for adults aged 45 to 54 fell by over a quarter between 1979 and 1998. Is healthier behavior responsible for this drop? Or has the drop occurred in spite of an increase in unhealthy behaviors, as a result of other trends like improved medical care? Distinguishing the role of behavioral factors from that of medical care is important, since they have different implications for future health care costs and disease burden.

In “**Is the U.S. Population Behaving Healthier?**” (NBER Working Paper 13013), researchers **David Cutler, Edward Glaeser,** and **Allison Rosen** examine trends in health behaviors and estimate their effect on mortality rates.

The data for the analysis come from the National Health and Nutrition Examination Survey, a unique data set that combines data from interviews and physical examinations. In order to examine changes in health behaviors over time, the authors use data for two sample periods, 1971–75 and 1999–2002.

In their analysis, the authors examine three “behavioral risk factors”: smoking, obesity, and excessive drinking. Each of these accounts for tens of thousands of deaths in the U.S. each year. They also con-

sider two “biological risk factors” that are the product of other behaviors: high blood pressure and high cholesterol. The authors note that there are other important risk factors such as diabetes status that they are unable to explore due to data limitations.

There have been both positive and negative changes in health behaviors over the past thirty years. On the positive side, smoking and drinking have both declined—the share of the population that currently smokes fell from 40 percent to 25 percent, while the share that drinks heavily fell from 7 percent to 4 percent. Blood pressure and cholesterol have also improved markedly—the share of the population with hypertension dropped by two-thirds over this period, while the share with high cholesterol dropped by over one-third. However, there has also been a dramatic increase in obesity, as the share of the population considered overweight or obese has increased from 49 percent to 68 percent.

Given these disparate changes in health behavior, what has been their overall effect on mortality? To answer this question, the authors first use the 1971–75 data to estimate how risk factors relate to whether survey respondents are still alive ten years after the survey. As expected, risk factors have important effects on mortality. For example, being a smoker more than doubles the risk of death in the next ten years. Having hypertension raises the risk by about fifty percent, as does being obese, though the latter effect is smaller and not statistically significant in models that control for blood pressure and cholesterol.

The next step is to use the results of this analysis to estimate mortality risk for each

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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 to the Bulletin, please send a message to: ahb@nber.org.

person in the 1971–75 and 1999–2002 surveys. The authors find that mortality risk fell significantly between the two surveys—the average probability of death within ten years for the adult population (aged 25 to 74) fell from 9.8 percent in the earlier survey to 8.4 percent in the later survey, a drop of 1.4 percentage points or 14 percent.

The authors find that the decline in smoking and high blood pressure were the two most important causes of this drop, accounting for 0.9 points and 0.6 points of the drop, respectively. The increase in obesity caused a 0.3 point increase in mortality risk, but this effect was swamped by the positive changes. When the authors convert their results into life expectancies, they find that on net the changes in health behavior over the past thirty years have added 1.8 years to life expectancy at age 25 and 1.4 years to life expectancy at age 65.

Finally, the authors use their estimates to predict what mortality rates might be in

the early 2020s if current trends in health behaviors continue. They note that this is not necessarily a “best guess” of what the future will hold, since trends in health behaviors may change, but nonetheless provides some insight as to where we may be headed.

In their simulations, the share of the population that are current smokers falls from 25 to 15 percent and the share that are overweight and obese rises from 68 percent to 79 percent. Projecting the effect of changes in risk factors on mortality, they find that the drop in smoking would lead to a 0.7 point drop in mortality rates, while

the increase in obesity would lead to a surprisingly large 1.1 point increase in mortality rates. The latter result is due to a jump in the share of the population projected to be obese (as opposed to simply overweight), where health risks are particularly severe. The authors also show that when weight gain is accompanied by good control of blood pressure and cholesterol, it has no effect on mortality.

The authors conclude that changes in health behaviors have contributed to a drop in mortality rates over the past thirty years, but caution that future increases in obesity may reverse this trend. Since much

of the impact of obesity occurs through hypertension and high cholesterol, better control of these conditions through medication can help blunt the effects of rising obesity. Evaluating the effect of strategies for improving utilization of and adherence to recommended medications, such as pay-for-performance systems to reward physicians or greater use of information technology, is a “high research priority,” the authors note.

This research was supported by the U.S. Social Security Administration through grant #10-P-98363-2 to the National Bureau of Economic Research.

Retirement Wealth in Defined Benefit and Defined Contribution Pension Plans

It is often said that a comfortable retirement rests on the “three-legged stool” of Social Security, employer-provided pensions, and personal savings. Significant changes to any of these three components may either enhance or threaten the financial security of retired workers.

Over the past two decades, there has been a striking shift in employer-provided pensions from defined benefit (DB) to defined contribution (DC) plans. In a DB plan, a worker’s benefit is determined by his work history and the specifics of his employer’s plan, while in a DC plan, a worker’s benefit is determined by his own and his employer’s contributions and by asset returns.

The shift from DB to DC plans may affect not only the average value of retirement wealth but also the distribution of possible outcomes, since DB and DC plans are subject to different types of risk. In DC plans, workers face financial market risk, while in DB plans, workers face the risk of unexpected shocks to earnings, job changes, and early retirement. Without careful study, it is difficult to gauge the relative risk of these two types of plans.

In “**Defined Contribution Plans, Defined Benefit Plans, and the Accumulation of Retirement Wealth**” (NBER Working Paper 12597), authors **James Poterba, Joshua Rauh, Steven Venti, and David Wise** take up this question. The authors simulate both the average level of retirement wealth and its distribu-

tion under DB and DC plans. They do so using actual pension plans that cover respondents in the Health and Retirement Study (HRS) and the actual earnings histories of these individuals, as well as historical data on asset returns. This enables them to incorporate both financial market risk and earnings history risk into their analysis and to compare their relative importance.

The authors begin with a sample of married couples from the HRS. To simulate DC plan balances, each worker is first randomly assigned a contribution rate based on the observed distribution of rates in the HRS. The typical combined employer and employee contribution is 7.7 percent of salary, but the rate ranges from 3 percent at the 10th percentile to 15 percent at the 90th percentile. Next, workers are assumed to invest in three assets — corporate stock, nominal long-term government bonds, and inflation-indexed long-term bonds (TIPS); simulations are conducted for seven portfolios involving different combinations of these assets. Finally, asset returns for each year are drawn from the empirical return distribution. To obtain a distribution of wealth values, DC balances are simulated 50,000 times for each worker in the sample.

The authors then turn to their simulation of DB plan balances. The authors use the earnings histories and detailed pension plan descriptions collected by the HRS to calculate the stream of future DB pension benefits for each worker, assuming that he is assigned to a randomly selected DB plan

for each of his jobs. Using information on mortality rates and discount factors, these future benefits are converted into an expected present discounted value of DB pension wealth.

The authors have several key findings. First, mean wealth in DC plans is somewhat higher than mean wealth in private sector DB plans — \$177,000 vs. \$156,000 for a worker with a high school education — even when DC balances are invested conservatively in an all-TIPS portfolio. When DC balances are invested in corporate stock, the disparities are far greater — the mean wealth in an all-stock portfolio is \$919,000. Public sector DB plans compare somewhat more favorably to DC plans, as the mean wealth for a high school graduate under these plans is \$327,000.

Comparing the full distribution of outcomes under the two plans, DC balances exceed private sector DB balances except at the very low end of the distribution. However, when the authors reduce the rate of return on corporate stock by 300 basis points to allow for the possibility that future returns may be lower than past returns, DB and DC wealth values are much closer.

While the risk of obtaining a lower wealth level in a DC plan is relatively small, workers might still prefer the DB plan if they are sufficiently risk averse. To get at this question, the authors compute certainty equivalents, which measure the amount of certain wealth that would make the worker as well off as being in the DB or DC plan

with all the associated risks. They find that the certainty equivalent for DC plans greatly exceeds that for DB plans for plausible levels of risk aversion. The only case where DB plans have a higher certainty equivalent is for a risk-averse individual in the public sector when future equity returns are lower than past returns.

The authors note that there are a num-

ber of simplifications in their analysis. For example, in their analysis workers never withdraw DC balances as a lump sum distribution when changing jobs, though in reality many workers do this, reducing their DC wealth at retirement. Further, their analysis does not allow the length of the worker's career or the worker's wages to depend on his pension plan arrangements. They note

that further insights on these issues "are essential for understanding the long-run effect of the ongoing transition from DB to DC pension plans."

The authors gratefully acknowledge funding from the National Institute on Aging (Grant P01 AG005842).

Designing Health Insurance for the Elderly

Expenditures on health care for the elderly are high and rising rapidly. In 2006, Medicare benefit payments totaled \$374 Billion, accounting for 12 percent of federal government spending and 20 percent of the nation's total health care spending. Including supplemental insurance policies and out-of-pocket spending, the elderly consume more than one-third of all health care in the U.S., despite being only 13 percent of the population. Looking ahead, Medicare expenditures are projected to rise by 8 percent annually over the next ten years.

The federal government has employed several strategies to restrain the growth in Medicare spending, including prospective payment for hospitals and reduced payments for providers. Yet the rise in Medicare spending has continued unabated. As a result, there is increasing interest in using demand-side policies to control costs. These policies would pass more costs on to patients in the form of copayments and deductibles in order to induce them to use less health care.

Such policies could be effective in reducing Medicare expenditures, but there are two potential stumbling blocks. First, the elderly may not be sensitive to price in their consumption of health care. Second, increased cost sharing may lead patients to skip efficacious preventative care, resulting in expensive hospitalizations that negate the initial cost savings (the "offset" effect).

Surprisingly little is known about these two issues. The best evidence comes from the RAND health insurance experiments of the 1970s, which randomly assigned patients to plans with different coinsurance rates. The RAND study found that consumers are somewhat responsive to price—a 10 percent increase in price is associated with a 2 percent decrease in health care use—and that there is no offset effect. However, it is not clear if those results apply to the

Medicare program today, as the elderly were excluded from the RAND study and there have been many changes in the health care landscape in the last thirty years.

In "**Patient Cost-Sharing, Hospitalization Offsets, and the Design of Optimal Health Insurance for the Elderly**" (NBER Working Paper 12972), researchers **Amitabh Chandra, Jonathan Gruber, and Robin McKnight** provide new evidence on these questions.

The authors use a recent policy change in the California Public Employees Retirement System (CalPERS), a program that provides insurance to 1.2 million workers, retirees, and their dependents. The policy change involved staggered copayment increases that affected different patient populations—those enrolled in a Health Maintenance Organization, or HMO, and those enrolled in a Preferred Provider Organization, or PPO—at different times. The authors examine the effect of copayment increases on health care utilization, using patients that did not experience the increase as a control group. The data for the analysis are medical utilization records for 70,000 persons enrolled in a CalPERS Medicare supplemental insurance ("Medigap") plan.

The authors find that elderly patients are quite price sensitive in their health care consumption. A \$10 increase in the office visit copayment reduces utilization by 0.13 visits per member per month, a decline of nearly 20 percent. In their preferred estimate, the authors find that a 10 percent increase in price is associated with a 14 percent decline in utilization, a far greater effect than that found in the RAND study. However, the authors caution that the comparison may be misleading, since their study is based on copayments as opposed to coinsurance rates, and patients may be unaware of how one translates into the other.

The authors also examine the price sensitivity of prescription drug use. They find that a modest (\$7 to \$8) increase in the average drug copayment reduces drug utilization by 20% for HMO patients and by 6% for PPO patients. The stronger response among HMO patients may be due to the fact that their copayment increase affected both generic and branded drugs, while the increase for PPO patients affected branded drugs only.

Next, the authors ask whether the reduction in prescription drug utilization is due primarily to reduced use of drugs that affect quality of life, such as drugs to control allergies or acne, or whether there is also reduced use of drugs that control acute life-threatening conditions and chronic conditions. They find that the demand for all types of drugs is quite sensitive to price.

This finding highlights one possible pathway for the offset effect—when patients decrease their use of life-saving drugs in response to increased cost sharing, they may become sicker and need additional hospital care. Examining the effect of the policy change on hospitalizations, the authors find that higher office visit and drug copayments for HMO patients lead to a 6 percent increase in their probability of spending any days in the hospital. There is no significant effect for PPO patients.

Thus there is evidence of a modest offset effect, but how far do the cost increases from the additional hospitalizations go towards offsetting the cost savings from fewer office visits and prescriptions? The authors estimate that on average they offset 20 percent of the savings. However, the results are not uniform across patients. Patients with chronic illnesses have a very large offset effect, while the effect is near zero for those without them. This suggests that there are more severe health consequences from

dissuading sicker patients from consuming office visits and prescription drugs.

It is important to note that CalPERS and Medicare are affected quite differently by the increase in cost sharing. Since the majority of CalPERS's expenditures are on office visits and prescription drugs and the majority of Medicare's expenditures are on hospital services, the savings from increased cost sharing accrue primarily to CalPERS, while the costs of increased hospitalizations

accrue primarily to Medicare.

The study's results have several interesting policy implications. First, they suggest that the "doughnut hole" in the new Medicare prescription drug benefit could increase Medicare's costs — as chronically ill patients are faced with paying the full cost of their medications, some will reduce drug use and end up being hospitalized down the road. More generally, the results suggest that in the optimal health insurance plan,

cost sharing would be tied to health status, with chronically ill patients facing lower cost sharing.

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NBER Profile: Mark V. Pauly

Mark V. Pauly is a Research Associate at the NBER. He is affiliated with the NBER's program on Health Care.

Pauly is the Bendheim Professor and Professor of Health Care Systems, Business and Public Policy, Insurance and Risk Management, and Economics at the Wharton School of the University of Pennsylvania. Before coming to the University of Pennsylvania, Pauly held a faculty appointment at Northwestern University.

Pauly currently serves as the co-editor-in-chief for the *International Journal of Health Care Finance and Economics*, and as an advisory editor for the *Journal of Risk and Insurance*. Professor Pauly has been a member of several scientific panels, including the Medicare Technical Advisory Panel, the National Advisory Council for the Agency for Healthcare Research and

Quality, and the Committee on Evaluation of Vaccine Purchase Financing in the United States at the National Academy of Sciences. Pauly has also served as a consultant for pharmaceutical companies, health care organizations, and public policy think tanks.

Professor Pauly's current research includes projects that explore health care reform, conceptual foundations for cost-benefit analysis of drugs, and incentives in managed care.

He received an A.B. from Xavier University, an M.A. from the University of Delaware, and a Ph.D. in economics from the University of Virginia.

His current interests include keeping the rate of restoration of his century-old Victorian house ahead of the rate of deterioration, and doting on his granddaughter. He is interested in traveling to Africa and



Eastern Europe for both economic and historical reasons.

Abstracts of Selected Recent NBER Working Papers

WP 12762

Beth J. Soldo, Olivia S. Mitchell, Rania Tfaily, John F. McCabe

Cross-Cohort Differences in Health on the Verge of Retirement

Baby Boomers have left a unique imprint on US culture and society in the last 60 years, and it

might be anticipated that they will also put their own stamp on retirement, the last phase of the life cycle. Yet because Boomers have not all fully retired, we cannot yet judge how they will fare as retirees. Instead, we focus on how this group compares with prior groups on the verge of retirement, that is, at ages 51–56. Accordingly,

this chapter evaluates the stock of health which Early Boomers bring to retirement and compare these to the circumstances of two prior cohorts at the same point in their life cycles. Using three sets of responses from the Health and Retirement Study, we find some interesting patterns. Overall, the raw evidence indicates that Boom-

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ers on the verge of retirement are in poorer health their counterparts 12 years ago. Using a summary health index designed for this study, we find that those born 1948 to 1953 share health risks with the War Baby cohort. This suggests that most of the health decline instead began before the late 1940's. A more complex set of health conclusions emerges from the specific self-reported health measures. Boomers indicate they have relatively more difficulty with a range of everyday physical tasks, but they also report having more pain, more chronic conditions, more drinking and psychiatric problems, than their HRS earlier counterparts. This trend portends poorly for the future health of Boomers as they age and incur increasing costs associated with health care and medications. Using our health index, only those at the 75th percentile or higher are likely to be characterized as having good or better health.

WP 12764

Dhaval Dave, Robert Kaestner

Health Insurance and Ex Ante Moral Hazard: Evidence from Medicare

Basic economic theory suggests that health insurance coverage may cause a reduction in prevention activities, but empirical studies have yet to provide evidence to support this prediction. However, in other insurance contexts that involve adverse health events, evidence of ex ante moral hazard is more consistent. In this paper, we extend the analysis of the effect of health insurance on health behaviors by allowing for the possibility that health insurance has a direct (ex ante moral hazard) and indirect effect on health behaviors. The indirect effect works through changes in health promotion information and the probability of illness that may be a byproduct of insurance-induced greater contact with medical professionals. We identify these two effects and in doing so identify the pure ex ante moral hazard effect. This study exploits the plausibly exogenous variation in health insurance as a result of obtaining Medicare coverage at age 65. We find limited evidence that obtaining health insurance reduces prevention and increases unhealthy behaviors among elderly persons. There is more robust evidence that physician counseling is successful in changing health behaviors.

WP 12803

Allan Begosh, John Goldsmith, Ed Hass, Randall W. Lutter, Clark Nardinelli, John A. Vernon

Black Box Warnings and Drug Safety: Examining the Determinants and Timing of FDA

Warning Labels

Comparing the safety of prescription drugs over time is difficult due to the paucity of reliable quantitative measures of drug safety. Both the academic literature and popular press have focused on drug withdrawals as a proxy for breakdowns in the drug safety system. This metric, however, is problematic because withdrawals are rare events, and they may be influenced by factors beyond a drug's safety profile. In the current paper, we propose a new measure: the incidence and timing of Black Box Warnings (BBWs). BBWs are warnings placed on prescription drug labels when a drug is determined to carry a significant risk of a serious or life-threatening adverse event. Using a unique data set, one that includes all new molecular entities (NMEs) submitted to the FDA between May 1981 and February 2006, and subsequently approved and marketed, we analyze the timing and incidence of BBWs. Our analyses also use data on several drug characteristics likely to affect the probability a new drug will receive a BBW. We draw several conclusions from our analyses. For example, drugs receiving priority FDA review are more likely to have BBWs at the time of approval than NMEs receiving standard review. We also find that early prescription volume and orphan drug status are associated with an increased likelihood of receiving a BBW. We do not, however, find a significant difference in the rate of BBWs across time cohorts. A comparison of NMEs approved before and after the 1992 Prescription Drug User Fee Act (PDUFA), which authorized the payment of user fees from drug manufacturers to the FDA in an effort to expedite new drug application (NDAs) review times, did not reveal a statistically significant difference in the rate of BBWs. Critics of PDUFA maintain that reduced FDA-approval times under PDUFA have compromised drug safety. We do not find empirical support for this contention.

WP 12805

Alan J. Auerbach, Ronald Lee

Notional Defined Contribution Pension Systems in a Stochastic Context: Design and Stability

Around the world, Pay-As-You-Go (PAYGO) public pension programs face serious long-term fiscal problems due primarily to actual and projected population aging, and most appear unsustainable as currently structured. Some have proposed the replacement of such plans with systems of fully funded private or personal Defined Contribution (DC) accounts, but the difficulties of transition to funded systems have

limited their implementation. Recently, a new variety of public pension program known as "Notional Defined Contribution" or "Non-financial Defined Contribution" (NDC) has been created, with the objectives of addressing the fiscal instability of traditional plans and mimicking the characteristics of funded DC plans while retaining PAYGO finance. Using different versions of the system recently adopted in Sweden, calibrated to US demographic and economic parameters, we evaluate the success of the NDC approach in achieving fiscal stability in a stochastic context. (In a companion paper, we will consider other aspects of the performance of NDC plans in comparison to traditional PAYGO pensions.) We find that the basic NDC scheme is effective at preventing excessive debt accumulation, but does little to prevent significant asset accumulation along many trajectories and on average. With adjustment, however, the NDC approach can be made more stable.

WP 12820

M. Kate Bundorf, Melinda Henne, Laurence Baker

Mandated Health Insurance Benefits and the Utilization and Outcomes of Infertility Treatments

During the last two decades, the treatment of infertility has improved dramatically. These treatments, however, are expensive and rarely covered by insurance, leading many states to adopt regulations mandating that health insurers cover them. In this paper, we explore the effects of benefit mandates on the utilization and outcomes of infertility treatments. We find that use of infertility treatments is significantly greater in states adopting comprehensive versions of these mandates. While greater utilization had little impact on the number of deliveries, mandated coverage was associated with a relatively large increase in the probability of a multiple birth. For relatively low fertility patients who responded to the expanded insurance coverage, treatment was often unsuccessful and did not result in a live birth. For relatively high fertility patients, in contrast, treatment often led to a multiple, rather than a singleton, birth. We also find evidence that the beneficial effects on the intensive treatment margin that have been proposed in other studies are relatively small. We conclude that, while benefit mandates potentially solve a problem of adverse selection in this market, these benefits must be weighed against the costs of the significant moral hazard in utilization they induce.

WP 12837

Rodrigo R. Soares

On the Determinants of Mortality Reductions in the Developing World

This paper presents and critically discusses a vast array of evidence on the determinants of mortality reductions in developing countries. We argue that increases in life expectancy between 1960 and 2000 were largely independent from improvements in income and nutrition. We then characterize the age and cause of death profile of changes in mortality and ask what can be learned about the determinants of these changes from the international evidence and from country-specific studies. Public health infrastructure, immunization, targeted programs, and the spread of less palpable forms of knowledge all seem to have been important factors. Much of the recent debate has revolved around antagonistic approaches, which are not supported by the evidence discussed here. Finally, the paper suggests that the evolution of health inequality across and within countries is intrinsically related to the process of diffusion of new technologies and to the nature of these new technologies (public or private).

WP 12842

Jeffrey R. Brown, Scott J. Weisbenner Who Chooses Defined Contribution Plans?

This paper provides new evidence on what types of individuals are most likely to choose a defined contribution (DC) plan over a defined benefit (DB) plan. Making use of administrative data from the State Universities Retirement System (SURS) of Illinois, we study the decisions of nearly 50,000 new employees who

make a one-time, irrevocable choice between a traditional DB plan, a portable DB plan, and an entirely self-managed DC plan. Because the SURS-covered earnings of these employees are not covered under the Social Security system, their choices provide insight into the DB vs. DC preferences of individuals with regard to a primary source of their retirement income. We find that a majority of participants fail to make an active decision and are thus defaulted into the traditional DB plan after 6 months. We also find that those individuals who are most likely to be financially sophisticated are most likely to choose the self-managed DC plan, despite the fact that, given plan parameters, the DC plan is inferior to the portable DB plan under reasonable assumptions about future financial market returns. We discuss both rational and behavioral reasons that might explain this finding.

WP 12858

Jonathan Gruber, Kosali Simon Crowd-Out Ten Years Later: Have Recent Public Insurance Expansions Crowded Out Private Health Insurance?

The continued interest in public insurance expansions as a means of covering the uninsured highlights the importance of estimates of “crowd-out”, or the extent to which such expansions reduce private insurance coverage. Ten years ago, Cutler and Gruber (1996) suggested that such crowd-out might be quite large, but much subsequent research has questioned this conclusion. We revisit this issue by using improved data and incorporating the research approaches that have led to varying estimates. We focus in particular on the public insurance expansions of the 1996–2002 period. Our results

clearly show that crowd-out is significant; the central tendency in our results is a crowd-out rate of about 60%. This finding emerges most strongly when we consider family-level measures of public insurance eligibility. We also find that recent anti-crowd-out provisions in public expansions may have had the opposite effect, lowering take-up by the uninsured faster than they lower crowd-out of private insurance.

WP 12870

Dana Goldman, Tomas Philipson Integrated Insurance Design in the Presence of Multiple Medical Technologies

The classic theory of moral hazard concerns the insurance of a single good and predicts that co-insurance is larger when the elasticity of demand is higher and when small risks are insured. We extend this analysis to the insurance of multiple goods; for example, the simultaneous insurance of medical services and prescription drugs. We show that when multiple goods are either complements or substitutes—so that a change in co-insurance for one service affects the demand of others—the classic moral hazard results do not hold. For example, the single good model would predict high co-payments for prescription drugs since drug demand is elastic and of modest financial risk. However, a model of multi-good insurance suggests such drug coverage may optimally involve zero or even negative co-insurance when it is a substitute to other services insured such as hospital care or physician services. We summarize some of the empirical evidence in support of markets adopting optimal integrated pricing structures rather than individually optimal pricing structures.

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