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The Role of Social Sciences in Public Health

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Thank you for the opportunity to testify about “The Role of Social Sciences in Public Health.” I am convinced that the social sciences in general, and economics in particular, have much to offer to help improve our Nation’s health. Nobel Prize-winning economist Gary Becker has argued that: “Economic theory is not a game played by clever academicians but it a powerful tool to analyze the real world.” To inform public health policy, empirical health economists like myself combine economic theory with the careful analysis of data to try to quantify the impact of various influences on individual health behaviors.

Health economics is a relatively young sub-field of economics, and in its early days was sometimes instead called “medical economics” or “health care economics.” Even today, many health economists continue to focus on the financing and delivery of health care. These economists explore important questions about physician behavior, the hospital industry, and private and public health insurance, to name just a few areas of health care sector research.

However, many key health behaviors are outside the health care sector. Current estimates suggest that almost half of all deaths in the U.S. can be traced to cigarette smoking, sedentary lifestyles and obesity, and alcohol consumption. An exciting and productive line of research uses the tools of economics to better understand the determinants of these health behaviors. To give an idea of how productive: my colleague John Cawley and I recently co-edited a collection of the most important and interesting papers in the economics of health behaviors.¹ The collection runs to three volumes and includes 85 academic studies written by health economists from the U.S. and across the world.

Another way to view the field of health economics is that health care sector economics is mainly about “cure,” while the economics of health behaviors is mainly about “prevention.” There is an old saying that an ounce of prevention is worth a pound of cure. Health economists have not been able to quantify the benefits of prevention quite so precisely. In fact, investing in prevention will not necessarily reduce aggregate health care spending. But our public policy goal is not simply to contain health care costs, but to spend our health care dollars well. Preventing deaths due to smoking, obesity, and other unhealthy behaviors can help the U.S. get the most value from the societal resources we invest in health.

The economic approach to human behavior emphasizes that people respond to incentives. The consequences for their health can provide people with strong incentives to quit an unhealthy behavior like smoking or to start a healthy behavior like regular exercise. However, the health consequences only matter if people know about them. I’ve contributed to a line of health

¹Cawley, John and Donald Kenkel, co-editors (2008). *The Economics of Health Behaviours, Volumes I - III*. The International Library of Critical Writings in Economics, An Elgar Reference Collection. Edward Elgar Publishing: Northampton, MA.

economics research that studies how health information shapes health behaviors. The history of smoking in the U.S. is a good example. Since the 1964 Surgeon General's Report on the health consequences of smoking, the prevalence of smoking among U.S. adults has fallen from over 40 percent to about 21 percent.² Econometric studies suggest that improved consumer information about the risks of smoking led to part of this drop: when they learned smoking was unhealthy, many people quit smoking, and others didn't start in the first place. These studies exploit information "shocks" – discrete events like the publication of the 1964 Surgeon General's Report that provided people with more health information. International studies suggest that similar information shocks also reduced smoking in other countries.³ In a study I completed earlier in my career, I found that information appears to be an important incentive to adopt healthier behaviors related to smoking, drinking, and exercise.⁴

My colleagues and I recently completed an empirical study of the impact of pharmaceutical industry advertising on smoking cessation decisions.⁵ Although many smokers quit 'cold turkey' without assistance, medical research shows that smokers are more likely to successfully quit if they use a pharmaceutical smoking cessation product such as a nicotine

²Rock, V.J., A. Malarcher, J.W. Kahende, et al. (2007). "Cigarette Smoking Among Adults – United States, 2006." *Morbidity and Mortality Weekly Report* 56 (44): 1157 - 1161.

³The U.S. and international studies are reviewed in: Kenkel, Donald and Likwang Chen (2000). "Consumer Information and Tobacco Use." In: Jha P and FJ Chaloupka, Editors. *Tobacco Control in Developing Countries*. Oxford University Press, pp. 177-214.

⁴Kenkel, Donald (1991). "Health Behavior, Health Knowledge, and Schooling," *Journal of Political Economy* 99 (2): 287-305.

⁵Avery, Rosemary, Donald Kenkel, Dean Lillard, and Alan Mathios (2007). "Private Profits and Public Health: Does Advertising Smoking Cessation Products Encourage Smokers to Quit?" *Journal of Political Economy* 115 (3): 447-481.

replacement therapy. The cessation product industry's estimated retail sales are nearly \$1 billion annually. In recent years the industry has spent between \$100 to \$200 million annually advertising these products. In other health-related markets, producer advertising has been shown to be an important source of health information that leads to changes in dietary fiber and fat consumption.⁶ Similarly, we find that the more magazine advertisements smokers see for products like the nicotine patch, the more likely they are to try to quit smoking and to be successful. Based on our results, we estimate that if the smoking cessation product industry increases its average annual expenditures on magazine advertising by 10 percent, the result would be about 225,000 new attempts to quit and 80,000 successful quits each year.

The prices consumers have to pay for health-related goods also provide important incentives that influence health behaviors. Literally hundreds of econometric studies estimate the price-responsiveness of demand for alcoholic beverages and cigarettes. I've contributed to both lines of research. In research funded by the National Institute on Alcohol Abuse and Alcoholism, I found evidence that even heavy drinking falls when alcoholic beverage prices increase, although there may be a subset of very heavy drinkers who are not responsive.⁷ This is consistent with other research that shows that higher prices reduce alcohol-related consequences including liver cirrhosis death rates and drunk driving. Research funding from the National

⁶Ippolito, Pauline M. and Alan Mathios (1990) "Information, Advertising and Health Choices: A Study of the Cereal Market." *RAND Journal of Economics* 21 (3):459-480. Ippolito, P. and Mathios, A., (1995) "Information and Advertising: The Case of Fat Consumption in the United States," *American Economic Review: Papers and Proceedings*, 85 (2) May.

⁷Kenkel, Donald (1993). "Drinking, Driving, and Deterrence: The Effectiveness and Social Costs of Alternative Policies," *Journal of Law and Economics*, pp. 877-913. Kenkel, Donald (1996). "New Estimates of the Optimal Tax on Alcohol," *Economic Inquiry* 34: 296-319.

Cancer Institute helped my colleagues and I launch a series of studies on the effects of higher cigarette prices on youth smoking.⁸ Higher cigarette prices potentially reduce smoking through three channels: by preventing youth from starting; by encouraging smokers to quit; and by encouraging smokers to cut down their daily consumption. Our research, and research in several other countries, call into question whether higher prices are really very effective in preventing youth from starting. Although our findings are still controversial, they tend to suggest that the main effect of higher prices is through encouraging smokers to either quit or to cut down.

By providing new insights about what influences health behaviors, health economics research helps shape public policies such as marketing restrictions or taxes that have broad effects on consumers and thus on public health. In contrast, other social and behavioral sciences study more targeted interventions, such as an individual-level intervention to help smokers quit, or a school-level intervention to prevent adolescents from abusing alcohol. Targeted interventions play an important role in public health and can yield highly visible success stories of individuals whose health was improved. Broad public policies can also yield important health improvements, but the success stories are found in data that might show that the population rate of smoking cessation increased over time, or that the population rate of drunk driving fell.

Health economics research on the role of health information has important implications for public policy. In addition to directly providing information, other policies such as marketing

⁸DeCicca, Philip, Donald Kenkel, and Alan Mathios (2002). "Putting Out the Fires: Will Higher Taxes Reduce the Onset of Youth Smoking?" *Journal of Political Economy* 110 (1): 144-169. DeCicca, Phillip, Donald Kenkel, Alan Mathios, Yoon-Jeong Shin, and Jae-Young Lim (2008). "Youth Smoking, Cigarette Prices, and Anti-Smoking Sentiment." *Health Economics* 17 (6): 733-749. DeCicca, Philip, Donald Kenkel, and Alan Mathios (2008). "Cigarette Taxes and the Transition from Youth to Adult Smoking: Smoking Initiation, Cessation, and Participation." *Journal of Health Economics* 27 (4): 904-917.

regulations affect the flow of health information to consumers. Our study of smoking cessation product advertising is part of a growing body of evidence that direct-to-consumer ads increase consumer demand for a variety of pharmaceutical products. The U.S. and New Zealand are the only countries that allow DTC advertising of prescription pharmaceutical products. Even in these two countries, DTC ads are strictly regulated. In the US this had led to an ironic situation: in some ways, ads for prescription pharmaceutical products for smoking cessation have been more heavily regulated than cigarette advertisements. Food and Drug Administration (FDA) regulations require prescription smoking cessation product ads in magazines to include at least an extra page of disclosures about side effects and contra-indications; cigarette ads are only required to carry a short warning label. Easing regulations on ads for smoking cessation products could exploit more fully the profit incentives to promote public health. Ads for other pharmaceutical products, such as statins to treat high cholesterol, have similar potential. Because the potential gains and harms from advertising vary widely across products, it might make sense for the FDA to adopt a more flexible approach to regulate advertising.

More generally, when crafting public policy it is important to keep in mind the private incentives to improve public health. People want to live healthier and longer lives, and private sector firms can earn profits helping them do so. Public policies should be structured to facilitate rather than impede the public health gains enjoyed when firms pursue private profits.

As mentioned above, many econometric studies estimate the price-responsiveness of consumer demand for alcoholic beverages and cigarettes. Because prices can be manipulated by imposing excise taxes, these estimates have implications for public health policy. The National Institute on Alcohol Abuse and Alcoholism's Special Reports to Congress on Alcohol and

Health and the Surgeon General's Reports on Tobacco and Health regularly review econometric studies of the price- or tax-responsiveness of alcohol and cigarette demand.

Health economics research takes on hard research questions about the impact of public policies on health behaviors. Typically we use observational data and try to identify natural quasi-experiments created, for example, by events or changes in policies. While I believe health economics research provides useful guidance for policy, it is important to keep these limitations in mind. For example, over the past few decades the federal government and the States have launched massive and varied public policy campaigns to reduce smoking. As various policies have been enacted, smoking rates have fallen and public anti-smoking sentiment has grown. Yet teasing out the direction of causality and the contribution of specific policies is extremely difficult. An example is the controversy I mentioned earlier about the price-responsiveness of youth smoking. Youth smoking rates remain higher in the tobacco-producing states, which until recently have rarely increased cigarette taxes. Are youth smoking rates high because cigarette taxes are low? Or are cigarette taxes low because smoking is more popular in these states?

Social science research also contributes to public policy when it reminds us of the wisdom of the comment: "It ain't so much the things we don't know that get us into trouble, it's the things we do know that just ain't so."⁹ This in turn reminds me of the almost inevitable comment at the end of academic papers: "More research is needed." This academic comment is not an admission of failure, but reflects how science progresses. Answers to hard research questions are re-examined and probed, leading to new questions and better answers.

Because it is still a young field, it is not surprising that basic research questions on the

⁹Attributed to Artemus Ward, American humorist, 1834-1867.

economics of health behaviors remain unanswered. Recently, some of the questions receiving the most attention concern health disparities related to socioeconomic status. Again, smoking provides a stark example – it is increasingly true that smokers are more likely to have lower incomes and less schooling. For example, in 2006 about 35 percent of high school dropouts smoked, compared to only about 10 percent of college graduates and less than 7 percent of those with graduate degrees. Why is this the case? One hypothesis is that people with more schooling are better able to gather and process information about the health risks of smoking. This explanation is supported by the fact that prior to research establishing the health risks of smoking, college graduates were about as likely to smoke as those with less schooling. But this explanation is hard to reconcile with the persistence of differences in smoking related to schooling nearly 50 years later, when virtually everyone understands that smoking kills. Health economists are exploring other explanations, such as the idea that there are other hard-to-observe differences between people with different levels of schooling.

Understanding the schooling-smoking link might provide a case study for understanding the links between schooling and health more generally. If schooling helps people make healthier choices, investments in schooling could also pay off in the form of reductions in obesity or other health problems. If other hard-to-observe factors are the root causes of both low schooling attainment and unhealthy choices, investments in more schooling may not be enough.

Research on the economics of health behaviors requires data on health behaviors and on the factors that influence them. Federal and state government's data collection efforts are a very valuable resource for this research, including the National Health Interview Survey, the Behavioral Risk Factor Surveillance Surveys, the Youth Risk Behavior Surveillance System, and

the Tobacco Use Supplements to the Current Population Survey. Federal support for ongoing longitudinal studies – including the Panel Study of Income Dynamics, the National Longitudinal Surveys of Youth, and the National Longitudinal Study of Adolescent Health – provides especially useful data to follow individual health behaviors over time. Health economists often use data from ongoing collections to study health behaviors before and after a natural quasi-experiment in policy or circumstances.

The National Institutes of Health and the National Science Foundation also provide important resources for health economics research through supporting investigator-initiated data collection. The National Institute of Health’s data sharing policy “expects and supports the timely release and sharing of final research data from NIH-supported studies for use by other researchers.” Data sharing is essential for the scientific process. With data sharing, NIH and NSF support help not only the funded investigators, but can also prompt other researchers to replicate and extend the original data analysis, and to use the data in new ways to ask different questions.

An applied field like health economics relies on insights from economic theory and uses tools and methods developed in econometric theory. NSF support for even seemingly esoteric research topics in economic and econometric theory improves health economics research over time. The NIH provides support for many economics projects with more immediate significance for public health. Unfortunately, sometimes important research falls in between the cracks. For example, developing new econometric methods for the analysis of data on health behaviors might seem “too applied” to NSF reviewers but at the same time seem “too theoretical” to NIH reviewers. Educating NSF and NIH reviewers about each other’s missions could help better

integrate federal funding for health economics research.

Another source of missed research opportunities is the gap between economists and the social and behavioral scientists who design, implement, and evaluate public health interventions. It is increasingly common for health economists to be involved near the end of these research projects, when they conduct cost-effectiveness analyses of the interventions. This is an encouraging trend, and the results of cost-effectiveness analyses help to maximize the health benefits from limited budgets. As social scientists, however, economists could also be usefully involved earlier in the research design. For example, some emerging research is exploring the use of monetary incentives to reduce smoking and illicit drug use. Behavioral economists integrate insights from psychology into standard economic models of consumer behavior. Data from intervention research could provide a rich source to testing predictions from behavioral health economics.

Biography of

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Donald S. Kenkel is a Professor in the Department of Policy Analysis and Management at Cornell University, and a Research Associate of the National Bureau of Economic Research. His expertise is in areas of health economics and public sector economics. Broadly speaking, most of his research is on the economics of disease prevention and health promotion. He is the author of the chapter on "Prevention" in the *Handbook of Health Economics*. He has conducted a series of studies on the economics of public health policies, including: alcohol taxes and other policies to prevent alcohol problems (*Journal of Applied Econometrics* 2001, *American Economic Review Papers & Proceedings* 2005); cigarette taxes to prevent youth smoking (*Journal of Political Economy* 2002); and advertising to promote smoking cessation (*Journal of Regulatory Economics* 2007 and *Journal of Political Economy* 2007). Another area of research and teaching interest is in cost-benefit analysis of public policies, especially policies that affect health. His research has been funded by the National Institute on Alcohol Abuse and Alcoholism, the National Cancer Institute, the National Institute on Child Health and Development, as well as private foundations.