

Health Statistics and the Economy

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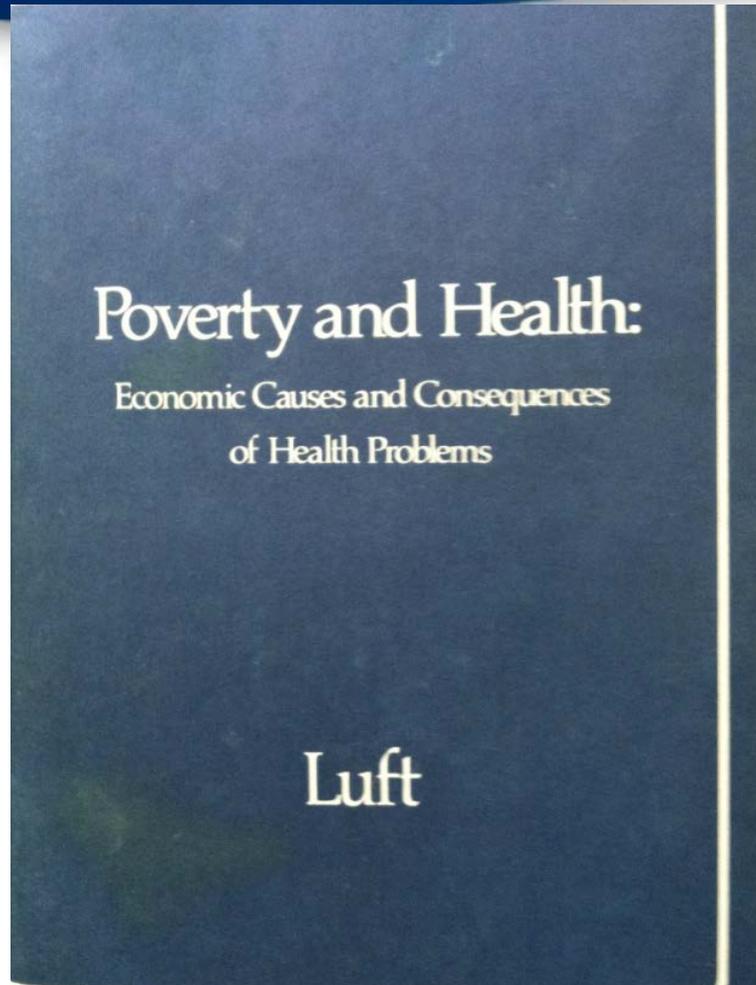
Disclaimers

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Overview

- The “Back Story”
- Causality (in micro and macro economics)
- The need for better data (and research) to address the harder questions
- State-level data—challenges and opportunities

The “Back Story”



- 1972 dissertation
- 1978 book publication
- Includes 2.5 pages of references to NCHS Series 1-20 (in paper, aka the Rainbow series)
- For sale today on Amazon for prices ranging from \$6.92 to \$89.49!

Lessons from Mentor/Pioneers



Paul M. Densen, DSc, 1912-2012



Anne A. Scitovsky, MA, 1916-2012

CHANGES IN THE COSTS OF TREATMENT OF
SELECTED ILLNESSES, 1951-65

By ANNE A. SCITOVSKY*

The idea of a medical care price index based on the average costs of treatment of specific illnesses rather than on the prices of selected items of medical care as is the Bureau of Labor Statistics medical care price index has been in the air for quite a while. Some years ago, the writer gave a paper describing how such an index could be constructed and discussing its advantages over the present index [2, pp. 128-42]. The research project some of whose results this paper analyzes was the direct outcome of this discussion and had a twofold purpose: (1) to explore if it was feasible to estimate average costs of treatment of specific illnesses, and (2) if it was feasible, to estimate the average costs of treatment of a number of illnesses in two different periods and compare their cost changes with the price changes indicated by the medical care price index. The present paper is limited to this second point and concentrates on the principal factors that explain at least to some extent why the cost figures we obtained show a considerably greater increase than the medical care price index shows. To sum up the findings regarding feasibility, the cost-per-episode-of-illness approach was found workable by and large, although some illnesses lend themselves better to it than others. However, it is probably a considerably more costly method than that used by the BLS. An index of this type should therefore not be considered a substitute for the present medical care price index but a possible additional index that would be prepared every few years for purposes of comparison and evaluation of the present index.

To give a brief description of the study, it was carried out under the auspices of the Palo Alto Medical Research Foundation, and the patients studied were treated by physicians of the Palo Alto Medical Clinic in Palo Alto, California, a group practice of about 100 physi-

* The author is senior research associate at the Palo Alto Medical Research Foundation, Palo Alto, California. The research on which this paper is based was supported by U.S.P.H.S. grant No. CH00066 from the Division of Community Health Services. In a somewhat different form the paper was presented at a meeting of the American Public Health Association November 1966. The author wishes to express her thanks to Dr. Marcus A. Krupp, Director of the Palo Alto Medical Research Foundation, for his interest, encouragement and many helpful suggestions; to Mrs. Jeanne LeBrun and Mrs. Kirsten Berg who were responsible for the collection of the data; and to Julius Margolis and Bernard Safran for their valuable comments and criticisms of the manuscript in various stages of completion.

- “Changes in the Cost of Treatment of Selected Illnesses, 1951-65”
- Anne A. Scitovsky
- American Economic Review, vol 57:5 (Dec 1967) 1182-95
- Arose from her dissatisfaction with how price indices for medical care were calculated
- Instead, she focused on costs of treating various illnesses
- She collected data from the paper charts of ~100 MDs at Palo Alto Medical Clinic
- Paper was published within 2 years of the last patient visit!

Initial Lessons

- Nearly all the data we derive from others may have some hidden biases
- Some people (but few economists) have the skills, time, and resources to collect the data they truly need to address the questions they want to answer
 - But even then, there are problems with the data
 - (e.g., enrollees in the Framingham study sample had lower age-sex mortality than those not enrolled)

Economic Causes and Consequences of Health Problems: Causality and Policy Implications

- Health problems clearly impact income and wealth via disability, time, and other factors
 - This wasn't very new, or especially policy relevant
 - Undergirds the notion of the “deserving poor”
 - Health, moreover, should be a goal, independent of its impact on productivity and income
- Economic causes of health problems, however, are more complex to assess and attack than the effects of health on income

Economic “Causes”

- Various economic causes of health problems
 - Some may be via mediators, e.g., environment
 - poor people live in neighborhoods with more risk factors, near toxic dumps, or with lead paint
 - Income may constrain the ability to get timely care
 - but, this is really a *medical care* or *insurance* question
 - Income *inequality* may be a separate factor
 - but, this may be a social or psychological, rather than a classically defined economic issue

Beyond Associations to Causes

- Importantly, economic status (income and/or wealth) is itself certainly an endogenous, or *dependent, variable*
 - Determinants of income may directly affect health without “going through” income
 - e.g., smoking and education (and income) may all be determined by underlying future orientation
- Truly understanding the determinants of economic status, and its potential impact on health, is thus very complex
 - And this should inform one’s analytic perspective

Micro vs. Macro Economic Perspectives

- Economics is split between micro and macro
- Microeconomics focuses on consumers and firms
 - One typically assumes the unit of observation (e.g., the person or firm) is simply responding to external factors
 - These may be policy or other “exogenous” changes
- Macroeconomics focuses on the economy as a whole
 - “Big picture” measures, e.g., GDP, unemployment, CPI
 - There still may be external “shocks,” but one assumes the system can (and probably will) respond in complex ways
 - These may, or may not, be modeled in formal ways

Macro Effects are More than Just the Sum of Many Measured Micro Effects

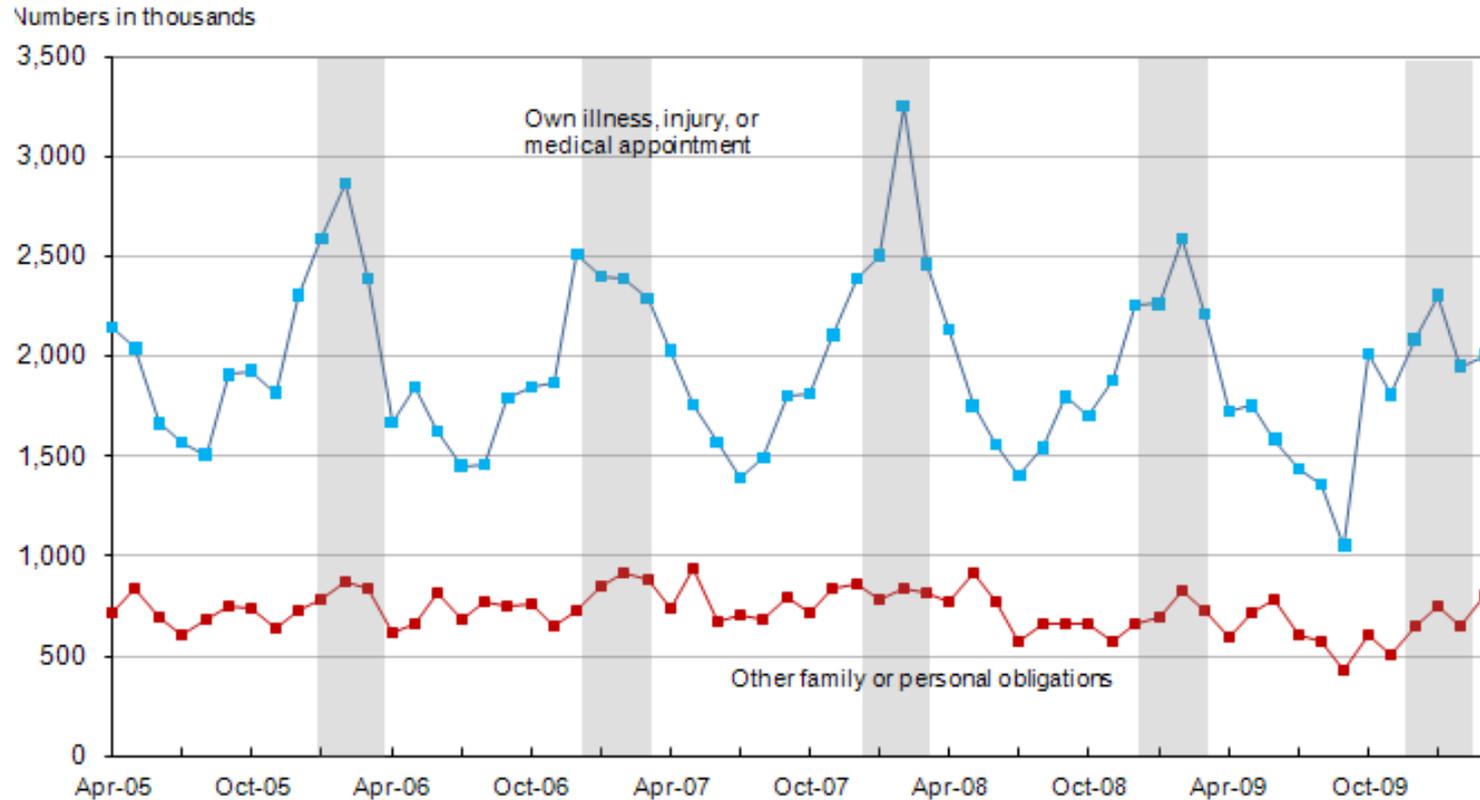
- In micro, one can simply look at the effects of independent variables—policies, prices, etc., on the behavior of people, firms, etc.
 - The “units of observation” may react in various ways, but those reactions cannot (or do not *measurably*) affect the policies, prices, etc., that are of interest
- In macro, however, one should consider (and test) whether the reactions of people, firms, etc., affect others, and can collectively impact prices, etc.
 - To do this well this imposes much greater demands on models and data (and the analysts)

A Health-Focused Example

- Flu (and flu-like symptoms) clearly impact an individual's health, ability to function, and demand for medical care
- Epidemiologists understand (and focus on) the spread of flu among individuals
- They may try to model the spread of the epidemic in any given year
- A large flu outbreak may even impact macro-economic measures, such as employment

Work Absences (and Flu)

Chart 1. Persons who usually work full time, but worked less than 35 hours during the survey reference week, by reason for absence, April 2005–March 2010



NOTE: Peak flu season—the months from December through March—are shaded for clarity.
SOURCE: Bureau of Labor Statistics, Current Population Survey.

A Macroeconomic-like View Adds Consideration of Interactions

- Increased illness may lead to increased need for medical care; increased health expenditures affect GDP
 - That is the “demand” side of the equation
- What we observe, however, is actual use—the intersection of demand and supply
- Increased demand for visits *due to flu* may not be met fully because of supply constraints, or because increased prices (waiting time) discourage visits
- Hence, a macro view might predict sick days to go up with a bad flu season, but that there may be not quite as much of an increase in visits
 - ...and to look for spikes in ED use due to access problems

Lessons from the Flu Case

- Consider what is exogenous vs. endogenous
 - New flu strains coming from Asia or elsewhere
 - Rapidity and extent of how a flu strain spreads
 - Answers depend on timeframe, state of knowledge, etc.
 - Protective measures that were undertaken
 - For now, assume these are exogenous
- Plausibly endogenous things to examine
 - Employer reactions to the flu outbreak
 - They might schedule “light” loads for flu season
 - Provider responsiveness
 - Increase staffing in urgent care, etc., to meet demand

...But there are Limitations in this Analysis (and thus Opportunities)

- Go beyond McMenamin's charts
- Flu is a seasonal event, as are other things
- Variability in flu severity across years allows one to estimate flu vs. other seasonal effects
- BLS's Current Population Survey reports focus on just one week per month (i.e., measurement errors)
- CDC tracking is quite precise (weekly) and could add confidence to the assessment of causality
- As would examining the effects on a regional or state basis with differing rates of flu each week

Better Data (and Research) Are Needed to Answer Harder Questions

- Are there ways to increase the amount of data and their value for answering the hard questions?
- Audience Warning: This is a transition point from observations to recommendations

Increasing the Value of the Data

- More data are critical for new research
 - A noble end, but funds for data are difficult to justify
 - When budgets are tight, researchers will usually argue for more support for analysis, rather than for more data
- More data, and making it more accessible, however, can increase its value, and the willingness of people to fight for further increases for data collection
 - This statement would seem to fly in the face of standard economic principles
 - Increased supply typically leads to lower prices, i.e., reductions in perceived value!
- Simply looking at prices, however, may be misleading
 - Remember 1) Scitovsky, 2) the prices for my book

“Sutton’s Law”

- Willie Sutton was a bank robber in the 1930’s
- The story goes:
 - When asked why he kept robbing banks, Willie answered, “Because that’s where the money is.” *
- With an adaptation, Sutton’s Law is applicable to a large fraction of research

* In a book he later co-authored, however, Sutton denied making that statement.

Consider a New Researcher's Critical Early Choices

- With time pressure to establish a reputation, concerns about funding his/her own salary, and limited support for additional staff, the researcher should...
 - Choose an exciting new topic doable “on the cheap”
 - Preferably one with a reasonable chance of success
- Readily available and easily accessible data is the analog to banks in the 1930's, although
 - Banks have reasons to restrict access to their assets
 - Data generators, however, gain by enhancing access

The Back Story, Revisited

- I shifted from *health* to *medical* economics
 - The former had good NCHS data (on paper then, and soon to be on tape), but...
- Adequately addressing causality in health issues seemed too hard a path for a young health economist
 - This is not to say there is no good work in this field
 - And the data have gotten better
 - But it is still markedly under-researched
- Medical care, however, had (and has) lots of readily accessible data (Sutton's Law)

Can Supply Create Demand?

- Most economists would agree that supply does *not* create demand
- But, increased supply generally does lower price, which increases the consumption of of the good or service observed
- How does this apply to our discussion of health data, for example, that from NCHS, which is typically available free of charge?

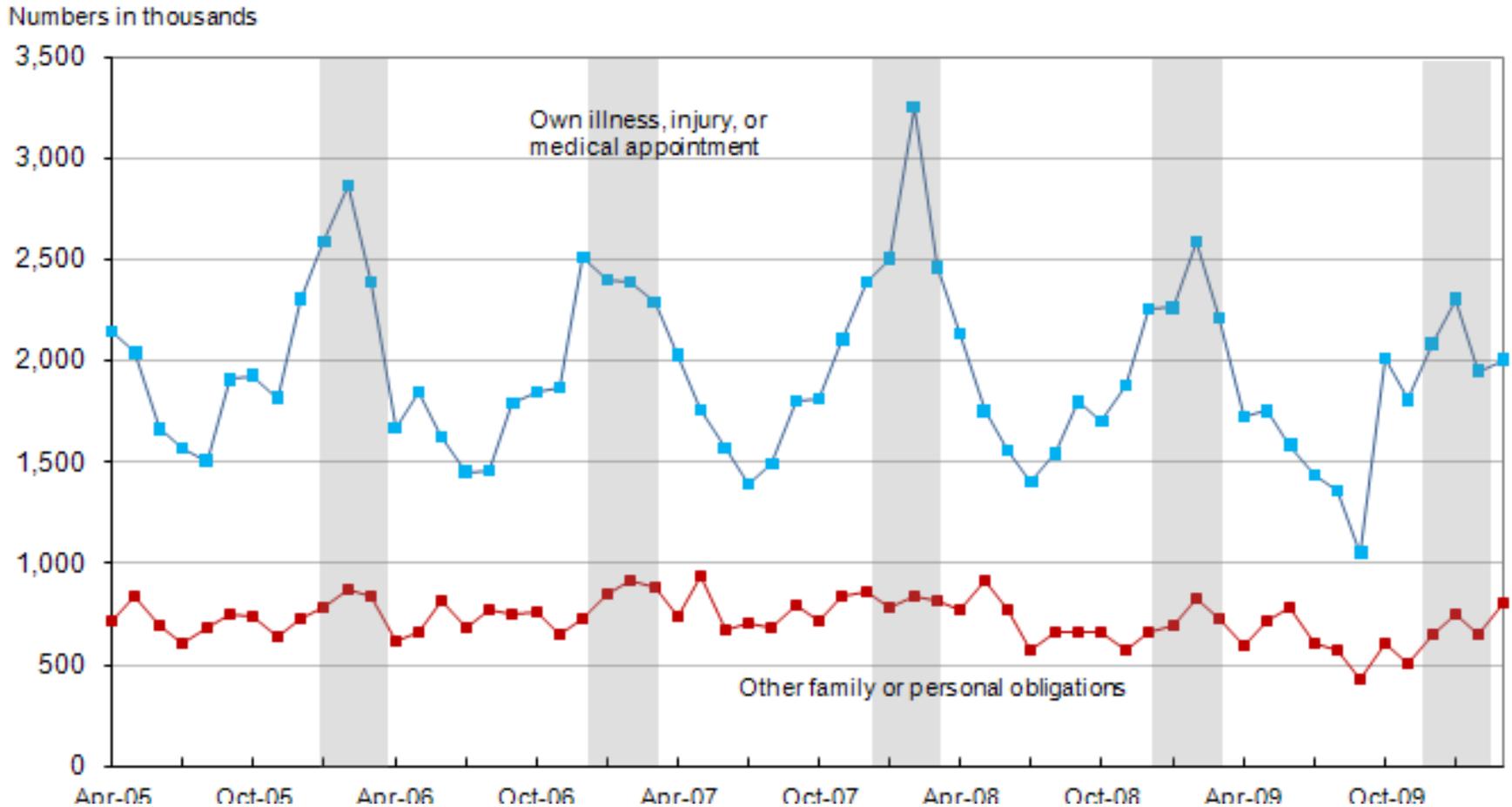
But are NCHS Data Free?

- The full cost of data to the prospective researcher includes the time (hours spent and months elapsed) in obtaining an analysis-ready data set
- Costs may include the need to learn new software or going to a data enclave
- Being the first to access data for a new question is high risk because who knows how challenging it will be?
 - This also may directly affect the likelihood of funding
 - New investigators are usually risk-averse
- Pioneering may be worth the risk *if* there is reason to believe the data will yield really important findings

A Back of the Envelope Approach to a Research Project

- Suppose you were interested in estimating the effects of flu on CPS measures
- The BLS CPS data on work-loss are suggestive
- We could further test this by aligning those data with actual CDC measures of reported flu cases
 - not just the typical months of flu season in the chart)
- Explore the availability of CPS data by state
 - or at least regions, to align them with the flu data
 - can the CPS reporting “week” be extracted from the underlying survey and be used?
 - if special runs are needed, contact McMenamin

Work Absences (and Flu)



McMenamin, Illness-related work absences during flu season. 2012,
http://www.bls.gov/opub/ils/summary_10_06/Illness_related_work_absences.htm#chart1

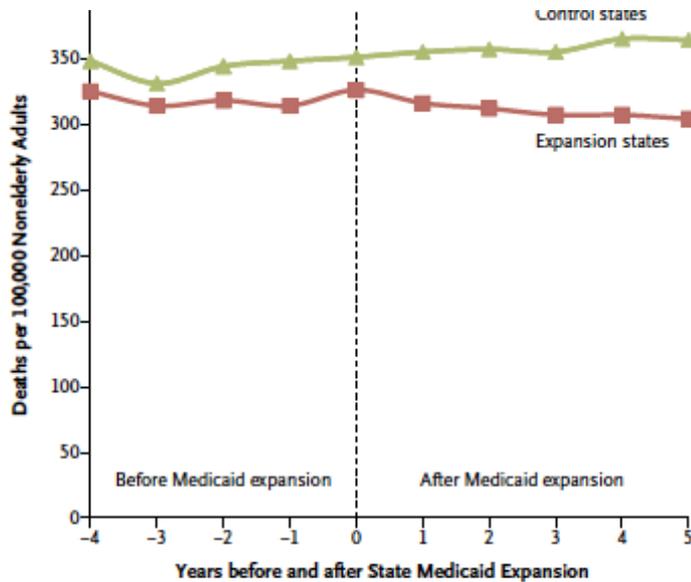
Low Cost Exploratory Analyses

- In this example, without doing any data collection
 - Simply subcategorizing the available information by week and state/region would help
- The back of the envelope approach creates the “preliminary study” to suggest something of interest will be found
- By encouraging prospective researchers, new work may begin, which increases use of the data
- Increased use increases the value of the data

Causality and Policy

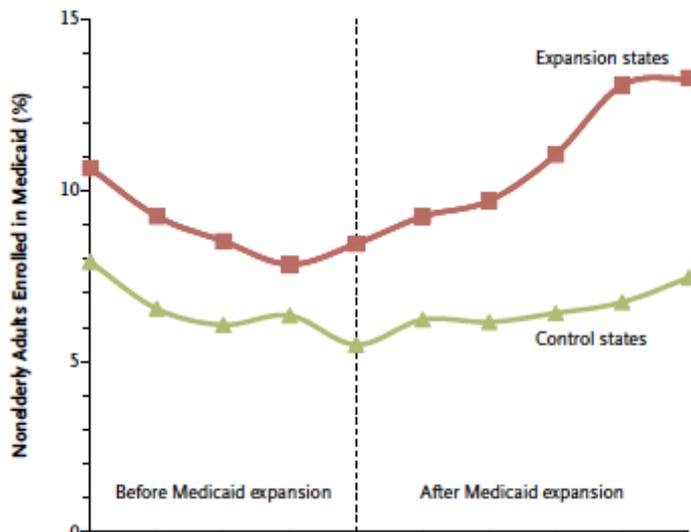
- Increased research use of data is good
- Use of the data for policy purposes, however, is even better for making the “value case”
- As mentioned, being even moderately sure of causality in the realm of health/economics is hard
- Nearly everything seems to be endogenous
- Some policy changes are plausibly exogenous, however, (at least with respect to certain issues)
- This is especially true at the state level

Mortality and Access to Care among Adults after State Medicaid Expansions



- NY, ME, AZ expanded Medicaid coverage after 2000
- Compare mortality and Medicaid enrollment in those states with PA, NH, (NV, NM)
- Used CDC Mortality Files, county, CPS, and BRFSS data

B Medicaid Enrollment



Sommers, Baicker, Epstein, NEJM, 25 July 2012

A Macro vs. Micro Approach with NHIS Data (Focusing on Coverage and Use)

- “A Comparison of Two Approaches to Increasing Access to Care: Expanding Coverage versus Increasing Physician Fees”
- by Chapin White
- Health Services Research (June 2012) 47:3 pp. 963-983

Building, then Analyzing, Data Aggregates

- White used restricted versions of the NHIS to get **state-specific estimates of coverage and use by income and education**
(White works here in the Washington area)
- States typically alter their Medicaid and SCHIP policies based on their budgetary status
- This allowed an assessment of the impact of plausibly exogenous policy changes in eligibility and physician fees on coverage and use
- The results of this macro approach differed from micro studies that cannot account for provider responses

State-Level Data is Critical

- Our Federal system, with substantial state independence in policy-making, fosters (purposefully or not) the variability needed to assess policy at the macro level
- This will help our understanding of policy options, however, only if state-level data are readily available for researchers
- But, there are statistical, logistical, fiscal, and political problems in getting more state-level data

Statistical Problems

- The most obvious barrier is that states vary enormously in size
 - Sampling rates acceptable for California will not work for Wyoming
- “One-size fits all” data sets clearly are not optimal
- It is certainly better to have good data on many, but not all, states than on none
- Even with 100% samples, health care data from “small” states may need to be interpreted differently due to rural and cross-border issues

Logistical (and Legal) Problems

- HIPAA has changed the way many researchers think about accessing data
- The ANPRM has a promising approach with respect to IRB review of limited data sets (LDS)
- *Organizations* are comfortable with rules prohibiting re-identification of data, with enforceable DUAs
- What would it take to apply such rules to some (not necessarily all) the NCHS restricted files?
- Access to sensitive data is often needed only for a short preparatory period—if revisits are possible

Fiscal (Budgetary) Problems

- Increasing the number of observations is costly
 - Increased use may gain budget advocacy support
- Switching to electronic data feeds may reduce costs for some surveys, e.g., NAMCS
- Encouraging re-use of derived data sets
 - Researchers add substantial value by processing data, especially getting restricted data to a “street-safe” or fully de-identified level
 - And in linking variables or creating new constructs
- Collectively, we can create incentives for sharing “documented, as-is, but not NCHS-certified” data

Political Problems

- On July 18th, the House Labor, Health and Human Services, Education, and Related Agencies subcommittee reported out an appropriations bill eliminating AHRQ and prohibiting funding for patient-centered outcomes research NIH, etc.
 - Targeting appropriations-vulnerable aspects of the ACA
- On May 9th, the House voted to kill the Census Bureau's American Community Survey (ACS)
 - “We’re spending \$70 per person to fill this out. That’s just not cost effective,” he continued, “especially since in the end this is not a scientific survey. It’s a random survey.”
—Representative Daniel Webster, R-Fla.

But, the Value of Data is Becoming More Obvious

- There has been, in response, substantial corporate pressure for funding the American Community Survey
- There have always been extremists (*cf.* the American, aka, the Know Nothing, party of the 1850s)
- Data are valuable, however, for making arguments on all ends of the political spectrum
- ...and for making real-world decisions
- Getting and using data is becoming faster and cheaper, thereby increasing effective demand for data
- We hope our challenge will be keeping up with demand

Thank You



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