Lecture 10: Health Insurance

Stefanie Stantcheva

Fall 2019
MOTIVATION

Despite the huge benefits reaped from the U.S. health care system, all is not completely well: (a) US health care is very expensive (17% of GDP relative to 9% in other OECD countries), (b) growing too fast, (c) significant fraction of population is uninsured.

There are enormous disparities in medical outcomes across demographic groups in the US.

Before Obamacare, the United States was the only major industrialized nation that did not provide universal access to health care for its citizens.

Recent Obamacare law is reducing drastically the number of uninsured from 50m (in 2013) to 25m (in 2017+).
With increases in health spending in line with overall economic growth, health expenditure as a share of GDP has remained stable in recent years. This is in contrast to the years preceding the economic crisis, when health spending outpaced the rest of the economy. In 2013, health spending (excluding investment) as a share of GDP was 8.9\%, ranging from 5.1\% in Turkey to 16.4\% in the United States (Figure 2).

A third of OECD countries saw health spending fall in 2013. Many countries continue to see health spending below 2009 levels. Since 2009, there has been a difference of health spending growth between European Union countries and the rest of the OECD. While both groups of countries showed similar levels of growth prior to the crisis, many European countries faced dramatic reductions in health spending from 2010 onwards with some subject to ongoing contraction over a number of years. Average health spending growth across the EU members of the OECD climbed just above zero in 2013 after three successive years of reductions. Across the rest of the OECD, average health spending growth also fell significantly in 2010 (from 3.3\% in 2009 to 1.6\% in 2010), but since then has averaged between 2\% and 3\% each year.

Greece, Italy and Portugal saw further reductions in per capita health spending in 2013 (Table 1). For Greece, the 2.5\% drop in real terms signalled a fourth consecutive fall in health spending, leaving per capita levels at around 75\% of those in 2009. Portugal and Italy have both seen health spending contract for three years in a row. Preliminary estimates for Italy also suggest a further fall in spending occurred in 2014. Austria and the Netherlands posted real term drops in health spending for the first time in 2013. In all, per capita health spending fell in 10 OECD countries (out of the 30 OECD countries reporting 2013 figures), all in Europe but New Zealand.

Figure 2. Health spending (excluding investment) as a share of GDP, OECD countries, 2013

Source: OECD Health Statistics 2015
There was a pause in midlife mortality decline in the 1960s, largely explicable by historical patterns of smoking (13). Otherwise, that these upward trends after 1998. Midlife increases in suicides and drug poisonings have historically and geographically unique, at least since 1950. The turn-around is not a simple cohort effect; Americans born between 1945 and, for comparison, changes for black non-Hispanics and for Hispanics. The white non-Hispanic men and women ages 45–54 and, for context, Fig. 2 also presents changes in mortality rates for white non-Hispanics, namely suicide, drug poisonings, and an overall increase in chronic liver diseases and cirrhosis. All three increased year-on-year, with some college, but no bachelor degree or less (37% of this subpopulation over this period), those panics by three broad education groups: those with a high school degree (31%), and those with a BA or more education saw death rates fall by 57 per 100,000. Although all three educational groups saw increases in mortality from suicide and poisonings, and an overall increase in all-cause mortality for white non-Hispanics was driven primarily by increasing death rates for those with a high school degree or less. The mortality rate from poisonings rose more than fourfold for this group, from 13.7 to 58.0, and mortality from chronic liver diseases and cirrhosis rose by 50%. The final two rows of the table show increasing educational gradients from 1999 to 2013. Those with college education less than a BA saw little change in all-cause mortality over this period; those with a BA or more education saw death rates fall by 57 per 100,000.

Fig. 1. All-cause mortality, ages 45–54 for US White non-Hispanics (USW), US Hispanics (USH), and six comparison countries: France (FRA), Germany (GER), the United Kingdom (UK), Canada (CAN), Australia (AUS), and Sweden (SWE). Source: Case and Deaton (2015)
UNIVERSAL HEALTH INSURANCE

All OECD countries (except the US) provide universal health care insurance funded by taxation:

Individuals who get sick can have health care paid for by the government.

Government either directly controls doctors/hospitals (like National Health Service in the UK) or government reimburses private health care providers (like in France).

Government controls costs and limits health-care over-consumption through:

1) Regulation (govt picks allowed treatments based on cost effectiveness, bargains for prices, rations care)

2) Patient co-payments (patients share part of the cost)
US HEALTH INSURANCE

US has a mix of public and private insurance: As of 2015

1) Government provided insurance [35% of population]
   (a) Medicare for the elderly (65+) = 14% of pop
   (b) Medicaid for the poor = 20% of pop
   (c) Other (mostly veterans benefits) = 2% of pop

2) Privately provided insurance [55% of population]
   (a) Employer provided health insurance = 49%
   (b) Individual purchases (mostly Obamacare exchanges) = 7%

3) Uninsured [10% of pop.] (17-18% before Obamacare)
WHY EMPLOYERS PROVIDE PRIVATE INSURANCE

1) risk pooling: The goal of all insurers is to create large insurance pools with a predictable distribution of medical risk.

2) tax incentive: employer provided health insurance is a non-taxable form of compensation for employees (not subject to payroll taxes or individual income tax)

⇒ Fiscally advantageous to get insurance through employer (non-taxable) than to purchase it directly as an individual (with after-tax income)
NONGROUP INSURANCE

Nongroup direct insurance market: The market through which individuals or families buy insurance directly rather than through a group, such as the workplace.

The nongroup insurance market was not a well-functioning market before Obamacare

Those in the worst health (pre-existing conditions) were often unable to obtain coverage (or obtain it only at an incredibly high price)

Even without pre-existing conditions, there was adverse selection

Obamacare exchanges are changing drastically the nongroup market by forbidding pricing/discrimination based on preexisting conditions and mandating health insurance
MEDICARE

Started in 1965 as a universal health insurance system for the elderly and nonelderly on disability insurance.

Federal program that provides health insurance to all people over age 65 or disabled.

Every citizen who has worked for 10 years (or their spouse) is eligible.

Financed with an uncapped payroll tax totaling 2.9%.

Physician reimbursement fairly generous (but not as high as private insurance).
MEDICAID

Provides health care for the poor (means-tested benefit)

Financed from general revenues

Targets welfare recipients, low income kids and elderly (for non-Medicare costs such as long-term care)

70% of recipients are mothers/kids but 66% of expenditure goes to long-term care for elderly/disabled.

Doctor reimbursement low $\Rightarrow$ some docs refuse Medicaid

Big variation across states in Medicaid generosity (costs are shared between state/feds)

Program eligibility criteria have been expanded over time (higher incomes allowed): Obamacare substantially expands Medicaid to reduce the fraction uninsured [but not all states do it]
The Medicare Program

The largest public health insurance program in the United States is Medicare.

<table>
<thead>
<tr>
<th>TABLE 16-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaid and Medicare</td>
</tr>
<tr>
<td>Medicaid</td>
</tr>
<tr>
<td>Eligibles</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Premiums</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Deductibles/copayments</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Services excluded</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Provider reimbursement</td>
</tr>
</tbody>
</table>

Medicaid provides health insurance for low-income individuals, covering a wide range of health services at little cost to those individuals. Medicare provides health insurance for those age 65 and over, covering many, though not all, health services at some cost to those individuals.
OBAMACARE (AFFORDABLE CARE ACT, ACA)

Three tier system starts in 2014

1) Bans pre-existing conditions exclusion, health-based pricing

2) Mandate: forces individuals (and large employers with 50+ employees starting in 2015/6) to buy health insurance [else they pay a tax]

3) Free/subsidized insurance for low-income families: (a) Medicaid expansion up to 138% of poverty line and (b) subsidized health insurance in Obamacare exchanges up to 400% of poverty line [graph]

Funded with surtax on rich, insurance and health providers, mandate tax (very progressive)

Starts trying to control costs [indeed costs increases have slowed down in recent years]
ACA Subsidy by Income and Age

Note: Subsidy calculated for single person in 2015 for all scenarios.
LEGAL CHALLENGES TO OBAMACARE

1) Is the mandate constitutional? [July 2012]

Ruling: yes, but Feds cannot force States to expand Medicaid $\Rightarrow$ Many states (including TX, FL) decided to opt-out of the Medicaid expansion [even though Fed was paying 90%]

Consequence: There is a coverage gap in many States because people below 100% of poverty cannot access subsidized Obamacare exchanges [States seem to be moving to accept Medicaid expansion]

2) Can the Feds set up exchanges if states don’t do it themselves? [Ruling: yes, July 2015]
THE UNINSURED

Fraction of individuals uninsured should fall by 50% with Obamacare [from 1/6 of population in 2013 down to 1/12 eventually]. Remaining uninsured:

1) Undocumented immigrants (no access to Medicaid, Obamacare subsidized exchanges) ≃ 10m

2) Low income people who don’t qualify for Medicaid and Obamacare insurance subsidies in states that did not expand Medicaid [possible that more states with expand in 2017+]

3) People who did not sign up for Obamacare exchange (and will pay the fine), poor people who qualify for Medicaid but haven’t taken up benefits
The uninsured rate has fallen 6.2 percentage points from 17.1% in the fourth quarter of 2013. This was just before the implementation of the Affordable Care Act's individual mandate, which compels American to carry health insurance or incur a fine. The highest uninsured rate that Gallup has measured since 2008 was 18.0% in the third quarter of 2013, before the health insurance exchange opened on Oct. 1 of that year.

The 2016 fourth-quarter results are based on approximately 43,000 interviews with U.S. adults aged 18 and older from Nov. 1 to Dec. 30, conducted as part of the Gallup-Healthways Well-Being Index. Gallup and Healthways ask 500 randomly selected U.S. adults daily whether they have health insurance, allowing for trended measurement of the share of Americans who have health insurance over time.

Low-Income Adults and Hispanics See Largest Change
The largest decline in the uninsured rate since the individual mandate took effect have been among two groups with the highest uninsured rate at that time -- low-income (now at 20.8%) and Hispanic (27.4%) adults. While uninsured rate among both groups have declined about 10 percentage points between the fourth quarter of 2013 and 2016, the latter maintain the highest.
Coverage Gains Vary by State

<table>
<thead>
<tr>
<th>State</th>
<th>% Uninsured 2013</th>
<th>% Uninsured 2015</th>
<th>Expanded Medicaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>21.6</td>
<td>11.8</td>
<td>Yes</td>
</tr>
<tr>
<td>Colorado</td>
<td>17.0</td>
<td>10.3</td>
<td>Yes</td>
</tr>
<tr>
<td>Florida</td>
<td>22.1</td>
<td>15.7</td>
<td>No</td>
</tr>
<tr>
<td>Illinois</td>
<td>15.5</td>
<td>8.7</td>
<td>Yes</td>
</tr>
<tr>
<td>Kentucky</td>
<td>20.4</td>
<td>7.5</td>
<td>Yes</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>4.9</td>
<td>3.5</td>
<td>Yes</td>
</tr>
<tr>
<td>New York</td>
<td>12.6</td>
<td>8.6</td>
<td>Yes</td>
</tr>
<tr>
<td>Oregon</td>
<td>19.4</td>
<td>7.3</td>
<td>Yes</td>
</tr>
<tr>
<td>Texas</td>
<td>27.0</td>
<td>22.3</td>
<td>No</td>
</tr>
<tr>
<td>Virginia</td>
<td>13.3</td>
<td>12.6</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: Gallup-Healthways Well-Being Index
Is Universal Health Care Desirable?

People face different health risks (pre-existing conditions) ⇒ Those facing high health risks face very high insurance costs in private market.

Should the government insure people for health risks? Yes if health risks outside people’s control (age, genetics). Not necessarily if health risks due to choices (diet, exercise).

Virtually all OECD countries answer yes and provide universal health care.

Not providing universal health care creates another big issue: adverse selection if private insurers cannot observe risks or cannot charge based on risks ⇒ Even those with low risks cannot get actuarially fair insurance.

In all cases (private and public), health insurance needs to deal with moral hazard (over-provision, over-consumption).
Optimal Health Insurance: Consumer Side

As with other insurance, optimal generosity determined by the trade off between consumption-smoothing benefit and moral hazard cost.

Consumption when sick $= c_s < c_h =$ consumption when healthy

Insurance raises $c_s$ and lowers $c_h \Rightarrow$ higher expected utility if risk averse.

Moral hazard: overconsumption of healthcare because insured individual pays only a fraction of health care costs when he/she is sick. Fraction paid by individual is called the co-payment
Moral Hazard Costs of Health Insurance for Patients

Price of visit

Deadweight loss

Supply = social marginal cost

Demand = social marginal benefit

Private marginal cost

$100

0

10

100

0

Q1

Q2

Number of visits to doctor’s office
How Elastic Is the Demand for Medical Care?  
The RAND Health Insurance Experiment

The best evidence on the elasticity of demand for medical care comes from one of the most ambitious social experiments in U.S. history: the RAND Health Insurance Experiment (HIE) in late 1970s

$150m expenditure involving 6000 people tracked over 3 years

Random assignment of health plans with different co-payment parameters: Copayment rates from 0% to 95%.

All families given $1000 to participate, so no one was made worse off from the experiment.
The RAND Health Insurance Experiment: Results

Medical care demand is somewhat price sensitive: individuals who were in the free care plan used 46% more care than those paying 95% of their medical costs.

Overall, 10% rise in the price of medical care to individuals ⇒ use 2% less care (elasticity = .2). Medical utilization not very sensitive to price but distortion still large due to very low co-payment rates in most insurance programs.

Those who used more health care due to the lower price did not, on average, see a significant improvement in their health.

For those who are chronically ill and don’t have sufficient income to easily cover co-payments, there was some deterioration in health.
Oregon Medicaid Health Insurance Experiment

- In 2008, Oregon had a limited Medicaid budget ⇒ used lottery to select individuals on waitlist to be given a chance to apply for Medicaid insurance coverage

- 30,000 “lottery winners” (treatment group) out of 90,000 participants (lottery losers are control group)

Not all winners received coverage (didn’t send back application or deemed ineligible). Some non-winners later received insurance on their own.

But it is still the case that winning the lottery increases probability of having health insurance by 29 percentage points

- Finkelstein et al. (2012) use lottery as instrument to estimate causal effect of insurance coverage itself.
Oregon Medicaid Health Insurance Experiment

Two way to report the results:

ITT (intention to treat): just compare winners and losers

LATE (local average treatment effect): Inflating estimates by $1/\text{difference in fraction insured between winners and losers} = 1/0.29 = 3.5$
Oregon Medicaid Health Insurance Experiment

• Data sources: admin data from hospitals, credit reporting data, and survey responses regarding utilization, health, and financial outcomes

• Key results: winning the Medicaid lottery leads to:

1) higher health care utilization (including primary and preventive care as well as hospitalizations)

2) lower out-of-pocket medical expenditures and medical debt (including fewer bills sent to collection agencies for unpaid debt)

3) better self-reported physical and mental health
### Table V: Health Care Utilization (Survey Data)

<table>
<thead>
<tr>
<th></th>
<th>Extensive Margin (Any)</th>
<th>Total Utilization (Number)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control Mean</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2) (3)</td>
</tr>
<tr>
<td>Prescription drugs currently</td>
<td>0.637</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>(0.481)</td>
<td>(0.0083)</td>
</tr>
<tr>
<td>Outpatient visits last six months</td>
<td>0.574</td>
<td>0.062</td>
</tr>
<tr>
<td></td>
<td>(0.494)</td>
<td>(0.0074)</td>
</tr>
<tr>
<td>ER visits last six months</td>
<td>0.261</td>
<td>0.0065</td>
</tr>
<tr>
<td></td>
<td>(0.439)</td>
<td>(0.0067)</td>
</tr>
<tr>
<td>Inpatient Hospital admissions last six months</td>
<td>0.072</td>
<td>0.0022</td>
</tr>
<tr>
<td></td>
<td>(0.259)</td>
<td>(0.0040)</td>
</tr>
<tr>
<td><em>Standardized treatment effect</em></td>
<td></td>
<td>0.050</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.011)</td>
</tr>
<tr>
<td><em>Annual spending</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Finkelstein et al. 2012
### Table VIII: Financial Strain (Survey Data)

<table>
<thead>
<tr>
<th></th>
<th>Control Mean</th>
<th>ITT</th>
<th>LATE</th>
<th>p-values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Any out of pocket medical expenses, last six months</td>
<td>0.555</td>
<td>-0.058</td>
<td>-0.200</td>
<td>[&lt;0.0001]</td>
</tr>
<tr>
<td></td>
<td>(0.497)</td>
<td>(0.0077)</td>
<td>(0.026)</td>
<td>{&lt;0.0001}</td>
</tr>
<tr>
<td>Owe money for medical expenses currently</td>
<td>0.597</td>
<td>-0.052</td>
<td>-0.180</td>
<td>[&lt;0.0001]</td>
</tr>
<tr>
<td></td>
<td>(0.491)</td>
<td>(0.0076)</td>
<td>(0.026)</td>
<td>{&lt;0.0001}</td>
</tr>
<tr>
<td>Borrowed money or skipped other bills to pay medical bills, last six</td>
<td>0.364</td>
<td>-0.045</td>
<td>-0.154</td>
<td>[&lt;0.0001]</td>
</tr>
<tr>
<td></td>
<td>(0.481)</td>
<td>(0.0073)</td>
<td>(0.025)</td>
<td>{&lt;0.0001}</td>
</tr>
<tr>
<td>Refused treatment be of medical debt, last six months</td>
<td>0.081</td>
<td>-0.011</td>
<td>-0.036</td>
<td>[0.01]</td>
</tr>
<tr>
<td></td>
<td>(0.273)</td>
<td>(0.0041)</td>
<td>(0.014)</td>
<td>{0.01}</td>
</tr>
<tr>
<td>Standardized treatment effect</td>
<td>-0.089</td>
<td>-0.305</td>
<td></td>
<td>[&lt;0.0001]</td>
</tr>
<tr>
<td></td>
<td>(0.010)</td>
<td>(0.035)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Finkelstein et al. 2012
Table IX: Health

<table>
<thead>
<tr>
<th></th>
<th>Control Mean</th>
<th>ITT</th>
<th>LATE</th>
<th>p-values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Panel A: Administrative data</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alive</td>
<td>0.992</td>
<td>0.00032</td>
<td>0.0013</td>
<td>[0.638]</td>
</tr>
<tr>
<td></td>
<td>(0.092)</td>
<td>(0.00068)</td>
<td>(0.0027)</td>
<td></td>
</tr>
<tr>
<td>Panel B: Survey Data</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self reported health good / very good / excellent (not fair or poor)</td>
<td>0.548</td>
<td>0.039</td>
<td>0.133</td>
<td>[&lt;0.0001]</td>
</tr>
<tr>
<td></td>
<td>(0.498)</td>
<td>(0.0076)</td>
<td>(0.026)</td>
<td></td>
</tr>
<tr>
<td>Self reported health not poor (fair, good, very good, or excellent)</td>
<td>0.86</td>
<td>0.029</td>
<td>0.099</td>
<td>[&lt;0.0001]</td>
</tr>
<tr>
<td></td>
<td>(0.347)</td>
<td>(0.0051)</td>
<td>(0.018)</td>
<td></td>
</tr>
<tr>
<td>Health about the same or gotten better over last six months</td>
<td>0.714</td>
<td>0.033</td>
<td>0.113</td>
<td>[&lt;0.0001]</td>
</tr>
<tr>
<td></td>
<td>(0.452)</td>
<td>(0.0067)</td>
<td>(0.023)</td>
<td></td>
</tr>
<tr>
<td># of days physical health good, past 30 days*</td>
<td>21.862</td>
<td>0.381</td>
<td>1.317</td>
<td>[0.019]</td>
</tr>
<tr>
<td></td>
<td>(10.384)</td>
<td>(0.162)</td>
<td>(0.563)</td>
<td>{0.018}</td>
</tr>
<tr>
<td># days poor physical or mental health did not impair usual activity, past 30 days*</td>
<td>20.329</td>
<td>0.459</td>
<td>1.585</td>
<td>[0.009]</td>
</tr>
<tr>
<td></td>
<td>(10.939)</td>
<td>(0.175)</td>
<td>(0.606)</td>
<td>{0.015}</td>
</tr>
<tr>
<td># of days mental health good, past 30 days*</td>
<td>18.738</td>
<td>0.603</td>
<td>2.082</td>
<td>[0.001]</td>
</tr>
<tr>
<td></td>
<td>(11.445)</td>
<td>(0.184)</td>
<td>(0.64)</td>
<td>{0.003}</td>
</tr>
<tr>
<td>Did not screen positive for depression, last two weeks</td>
<td>0.671</td>
<td>0.023</td>
<td>0.078</td>
<td>[0.001]</td>
</tr>
<tr>
<td></td>
<td>(0.470)</td>
<td>(0.0071)</td>
<td>(0.025)</td>
<td>{0.003}</td>
</tr>
<tr>
<td>Standardized treatment effect</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.059</td>
<td>0.203</td>
<td></td>
<td>[&lt;0.0001]</td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td>(0.039)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Finkelstein et al. 2012
<table>
<thead>
<tr>
<th>Panel A: Access to care</th>
<th>Control Mean (1)</th>
<th>ITT (2)</th>
<th>LATE (3)</th>
<th>p-values (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have usual place of clinic-based care</td>
<td>0.499 (0.500)</td>
<td>0.099 (0.0080)</td>
<td>0.339 (0.027)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Have personal doctor</td>
<td>0.490 (0.500)</td>
<td>0.081 (0.0077)</td>
<td>0.280 (0.026)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Got all needed medical care, last six months</td>
<td>0.684 (0.465)</td>
<td>0.069 (0.0063)</td>
<td>0.239 (0.022)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Got all needed drugs, last six months</td>
<td>0.765 (0.424)</td>
<td>0.056 (0.0055)</td>
<td>0.195 (0.019)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Didn't use ER for non-emergency, last six months</td>
<td>0.916 (0.278)</td>
<td>-0.0011 (0.0043)</td>
<td>-0.0037 (0.015)</td>
<td>0.804</td>
</tr>
</tbody>
</table>

*Standardized treatment effect* | 0.128 (0.0084) | 0.440 (0.029) | <0.0001 |

Source: Finkelstein et al. 2012
Consumption-Smoothing Benefits

Consumption-smoothing benefits bigger for large shocks

Some events, like a check-up, are minor and predictable

Others, like a heart attack, are expensive and unpredictable.

Insurance is much more valuable for expensive, unpredictable events

Small shocks lead to small fluctuations in marginal utility

Also less moral hazard for large, unpredictable shocks

⇒ Optimal policy: large deductibles and very generous coverage for “catastrophes”

But Obamacare exchanges experience shows that people dislike plans with high deductibles (such as $3K/year) in part bc they don’t have much control on health expenses

Brot-Goldberg et al. (2017) show that high deductible plan leads to large and likely inefficient cuts in health care utilization
Application: Medicare Prescription Drug Benefit


In return for a monthly premium, this program pays for

0% of the drug costs up to $250

75% of the costs for the next $2,250

0% of the costs for the next $3,600 ("donut hole")

95% of the costs above $5,100

Middle bracket with 75% refund: exactly opposite of optimal design!
Application: Medicare Prescription Drug Benefit (cont.)

Rationale: political. Help the most people in this way (but do not maximize expected welfare).

Obamacare eliminated the “donut hole”

Einav, Finkelstein, Schrimpf (2013) show that individuals bunch at kink where 75% subsidy stops ⇒ Moral hazard response
The figure displays the distribution of total annual prescription drug spending in 2008 for our baseline sample. Each bar represents the set of people that spent up to $100 above the value that is on the x-axis, so that the first bar represents individuals who spent less than $100 during the year, the second bar represents $100-200 spending, and so on. For visual clarity, we omit from the graph the 3% of the sample whose spending exceeds $6,500. The kink location (in 2008) is at $2,510. N =1,251,969.

Source: Einav, Finkelstein, Schrimpf (2013)
Estimating Health Benefits

Another approach of evaluating benefits of a health insurance program: look directly at health outcomes instead of consumption-smoothing benefit.

How to implement this?

Simply comparing those enrolled in Medicaid to those not enrolled will suffer from bias.

Factors such as income and health status will bias the results.

Series of studies by Currie and Gruber: use Medicaid expansions and diff-in-diff strategy to evaluate value of programs.

Would you compare children aged 13 vs. aged 0 in D.C.? In 1982 relative to 2000?
Effect of Medicaid Expansions on Health

Currie and Gruber find that these reductions in the number of uninsured had positive effects on health outcomes in pregnancies.

1) Utilization of health services increased: Early prenatal care visits rose by more than 50%.

2) Health care outcomes improved: Infant mortality declined by 8.5% due to the expansions in Medicaid for pregnant women.

⇒ Highly cost-effective policy.
## Costs Per Life Saved of Various Regulations

<table>
<thead>
<tr>
<th>Regulation concerning ...</th>
<th>Year</th>
<th>Agency</th>
<th>Cost per life saved ($ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childproof lighters</td>
<td>1993</td>
<td>CPSC</td>
<td>$0.1</td>
</tr>
<tr>
<td>Food labeling</td>
<td>1993</td>
<td>FDA</td>
<td>0.4</td>
</tr>
<tr>
<td>Reflective devices for heavy trucks</td>
<td>1999</td>
<td>NHTSA</td>
<td>0.9</td>
</tr>
<tr>
<td>Medicaid pregnancy expansions</td>
<td>1996</td>
<td>Currie &amp; Gruber</td>
<td>1.0</td>
</tr>
<tr>
<td>Children’s sleepware flammability</td>
<td>1973</td>
<td>CPSC</td>
<td>2.2</td>
</tr>
<tr>
<td>Rear/up/should seatbelts in cars</td>
<td>1989</td>
<td>NHTSA</td>
<td>4.4</td>
</tr>
<tr>
<td>Asbestos</td>
<td>1972</td>
<td>OSHA</td>
<td>5.5</td>
</tr>
</tbody>
</table>

### Value of statistical life

<table>
<thead>
<tr>
<th></th>
<th>1987</th>
<th>OSHA</th>
<th>7.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzezene</td>
<td>1987</td>
<td>OSHA</td>
<td>22</td>
</tr>
<tr>
<td>Asbestos ban</td>
<td>1989</td>
<td>EPA</td>
<td>78</td>
</tr>
<tr>
<td>Cattle feed</td>
<td>1979</td>
<td>FDA</td>
<td>170</td>
</tr>
<tr>
<td>Solid waste disposal facilities</td>
<td>1991</td>
<td>EPA</td>
<td>100,000</td>
</tr>
</tbody>
</table>

Source: Chetty Undergraduate Slide
Effect of Medicare on Health

Medicare becomes available when you turn 65 ⇒ Can do a regression discontinuity design to see what happens when you cross age 65 threshold. Two recent papers use this strategy:


Examines impacts across groups; with an interest in evaluating impacts on inequality in utilization


Examines impacts on outcomes (mortality following hospital admission)

Basic idea is to draw graphs of outcomes based on age for various groups

The discontinuity at 65 captures short-term changes in health care utilization and mortality from shift from < 65 to > 65
First stage: sharp increase in coverage; more for disadvantaged
(From NHIS; age measured in quarters) FIGURE 1

Hospital discharge data (CA, FL, NY 1992-2002), ages 60-70

Increase is driven by discretionary medical care, diagnostic heart treatments.

Nontrivial decrease in mortality.

Effects of Medicare on Health

1) Big increase in health insurance coverage, especially for disadvantaged groups

2) Big increase in health care utilization

3) Visible decrease in mortality after admission for conditions requiring Emergency Room (ER) immediate hospitalization (so that likelihood of going to hospital is the same before 65 and after 65)

⇒ Medicare health insurance does save lives
Effects of Insurance on Health Outcomes

Medicaid and Medicare results contrast with those of RAND experiment, which found no impact on health outcomes?

How to reconcile the two results?

1) The studies examine different parts of the “medical effectiveness curve.”

2) Moving individuals from uninsured to having some insurance has an important positive effect on health

3) Adding to the generosity of current insurance, does not seem to cause significant changes in health

US health insurance system leaves many uninsured but provides overly generous care to the insured
15.2

The “Flat of the Curve”

![Graph showing the health effectiveness curve with points A, B, and C.]
Optimal Health Insurance: Provider Side

Preceding analysis of optimal insurance assumes patient makes entire healthcare decision:

This assumed a passive doctor, in the sense that doctor provides whatever treatment patient requested

Clearly reality is closer to the opposite!

Incorporating supply side issues is critical in understanding health insurance

Question: choice of payment schemes for physician

Retrospective (fee-for-service) vs. prospective (diagnosis based fixed payments)
Optimal Health Insurance: Provider Side

Intuition: if patient doesn't choose level of care, healthcare may be inefficiently high

If physician is compensated for all costs ⟹ it is in his interest to do lots of procedures (e.g. too many C-section births)
Optimal Health Insurance: Provider Side Model

Payment for physician services is $P = \alpha + \beta \cdot c$

$\alpha=$ fixed cost payment for a given diagnosis

$\beta=$ payment for proportional costs $c$ (tests, nurses)

Various methods of payment $(\alpha, \beta)$:

1. Fee-for-service $(\alpha = 0, \beta > 1)$: No fixed payment for practice, but insurance company pays full cost of all visits to doctor + a surcharge.

2. Diagnosis based payment $(\alpha > 0, \beta = 0)$: varying by type and # of patients but not services rendered
Optimal Health Insurance: Provider Side

General trend has been toward higher $\alpha$, lower $\beta$

Private market has shifted from FFS to HMO (Health Maintenance Organizations) capitation schemes [where insurer pays a fixed amount per patient no matter what the health costs are].

Example, Kaiser receives a flat amount per person enrolled based on age/gender

Medicare/Medicaid shifted in 1980s to a prospective payment scheme.

Tradeoff: lower $\beta$ provides incentives for doctors to provide less services. But they may provide too little!

$\Rightarrow$ Lower costs, but complaints of lower quality of care
Evidence: Payment Schemes and Physician Behavior

1) In 1983, Medicare moved from retrospective reimbursement to prospective reimbursement.

2) **Prospective payment system (PPS)** is Medicare’s system for reimbursing hospitals based on nationally standardized payments for specific diagnoses.

All diagnoses for hospital admissions were grouped into Diagnosis Related Groups (DRGs).

Government reimbursed a fixed amount per DRG. More severe DRGs received higher reimbursement.
Evidence: Payment Schemes and Physician Behavior

Cutler (1993) finds that PPS led to:

1. A reduction in treatment intensity. For example, the average length of hospital stay for elderly patients fell by 1.3 days.

2. No adverse impact on patient outcomes despite the reduction in treatment intensity.

Evidence that doctors put some weight on profits

Suggests they are practicing “flat of the curve” medicine: too much treatment before.

3. Cost growth slowed dramatically in the five years after PPS but then accelerated again (also: DRG “creep”).
Technology Growth and Health Care Growth

1) Health care technology contributes to rising life expectancy

2) Many new technologies have modest health effects and are very costly and yet are adopted because Medicare/Private insurance accept any health effective treatment

⇒ fuels the development of new technologies, especially testing which leads to growing costs and over-treatment

3) Countries which are the most successful at containing costs choose to use only the cost effective new treatments: reduces costs while having very little effect on health outcomes

4) US health care system spends too much on the insured (where marginal value of care is small) and spends too little on the uninsured (where marginal value of care is high)

Key US health policy challenges is to: (a) cover more of the uninsured, (b) reduce non-cost effective health spending
REFERENCES


Case, Anne and Angus Deaton. “Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century”, PNAS 112(49), 2015. (web)


