Undergraduate Public Finance: Health Insurance

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Motivation

Health care is costly, and everybody needs it.

Low-income families could not afford health care insurance on their own.

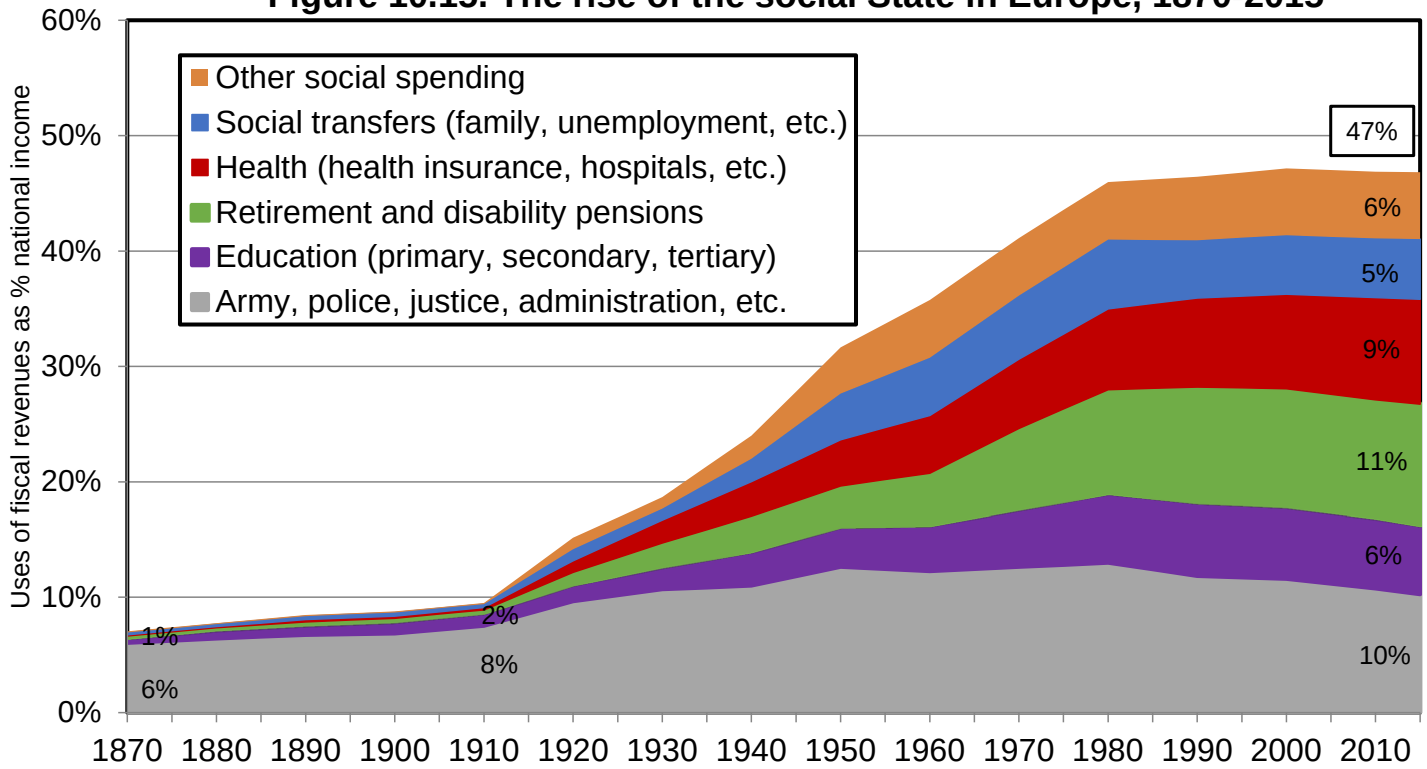
$\Rightarrow$ In all countries, the government plays a major role in funding healthcare.

The US healthcare system has significant issues:

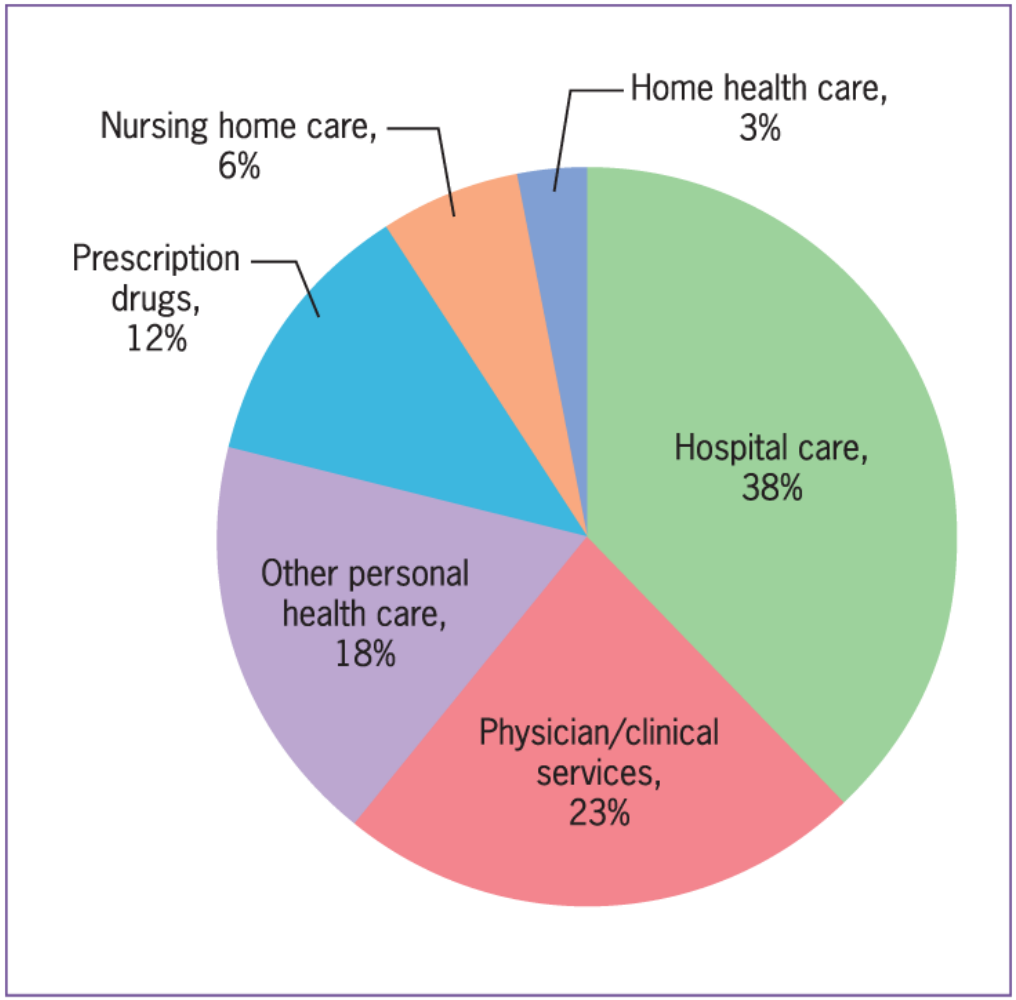
(a) US health care is very expensive: 17% of the GDP relative to 9% on average in other OECD countries.

(b) A significant fraction of the population is uninsured ($\simeq$ 10%).

Figure 10.15. The rise of the social State in Europe, 1870-2015



Interpretation. In 2015, fiscal revenues represented 47% of national income on average in Western Europe et were used as follows: 10% of national income for regalian expenditure (army, police, justice, general administration, basic infrastructure: roads, etc.); 6% for education; 11% for pensions; 9% for health; 5% for social transfers (other than pensions); 6% for other social spending (housing, etc.). Before 1914, regalian expenditure absorbed almost all fiscal revenues. **Note.** The evolution depicted here is the average of Germany, France, Britain and Sweden (see figure 10.14). Sources and séries: see piketty.pse.ens.fr/ideology.



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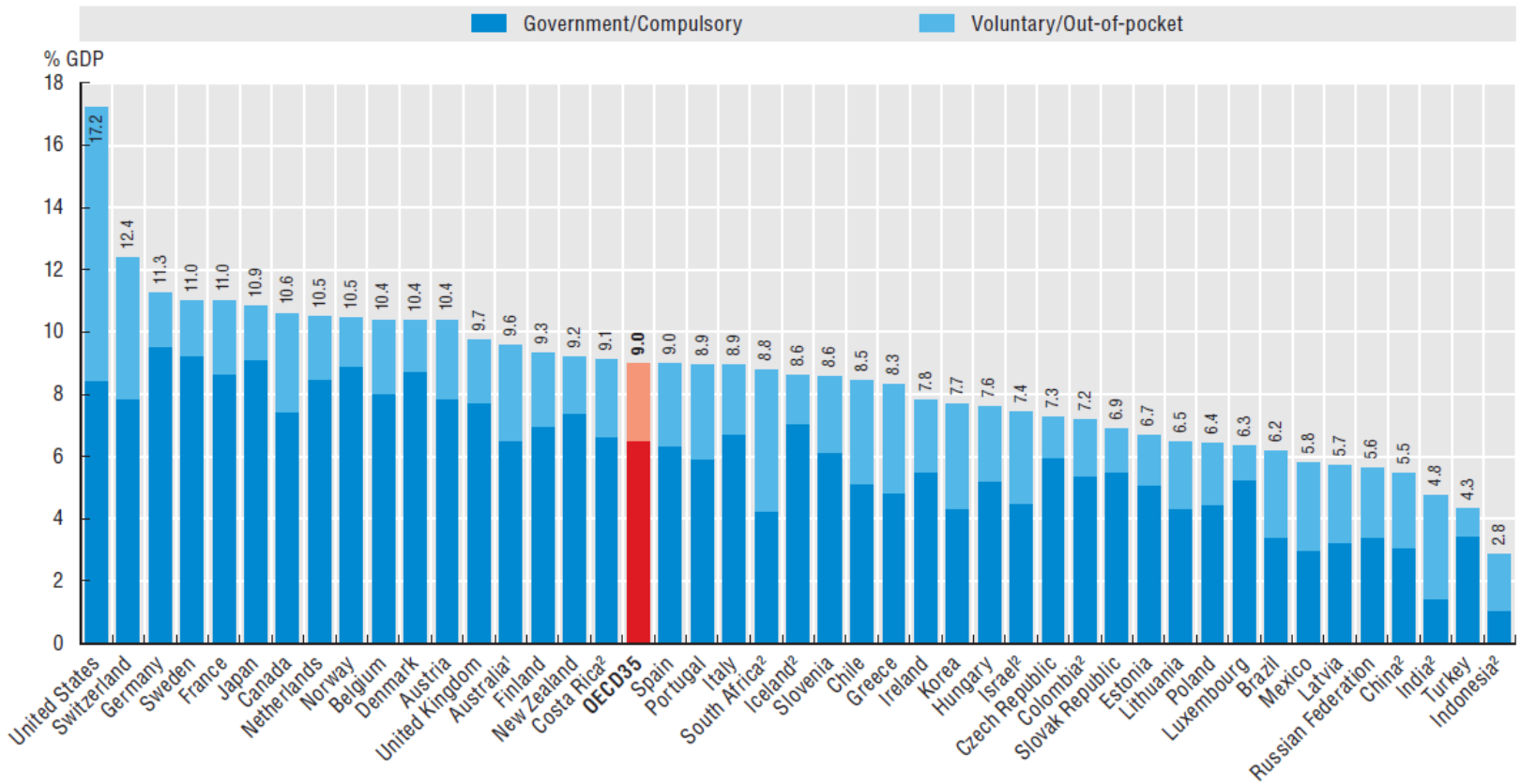
Health spending was 9% of GDP on average in the OECD, ranging from 4.3% in Turkey to 17.2% in the United States

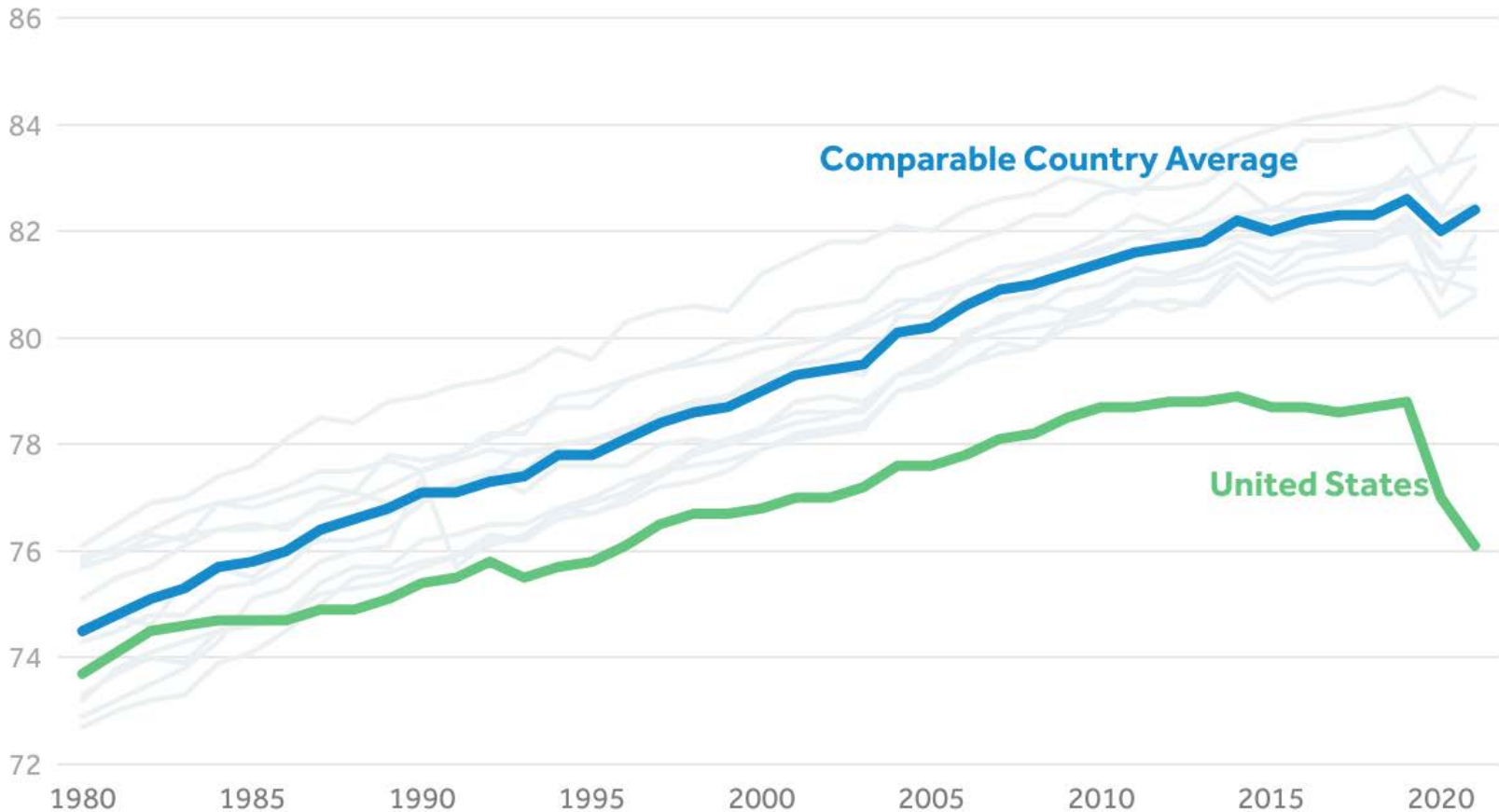
Health expenditure as a share of GDP, 2016 (or nearest year)



Note: Expenditure excludes investments, unless otherwise stated.
1. Australian expenditure estimates exclude all expenditure for residential aged care facilities in welfare (social) services.
2. Includes investments.

***Source*: Health at a Glance 2017.**

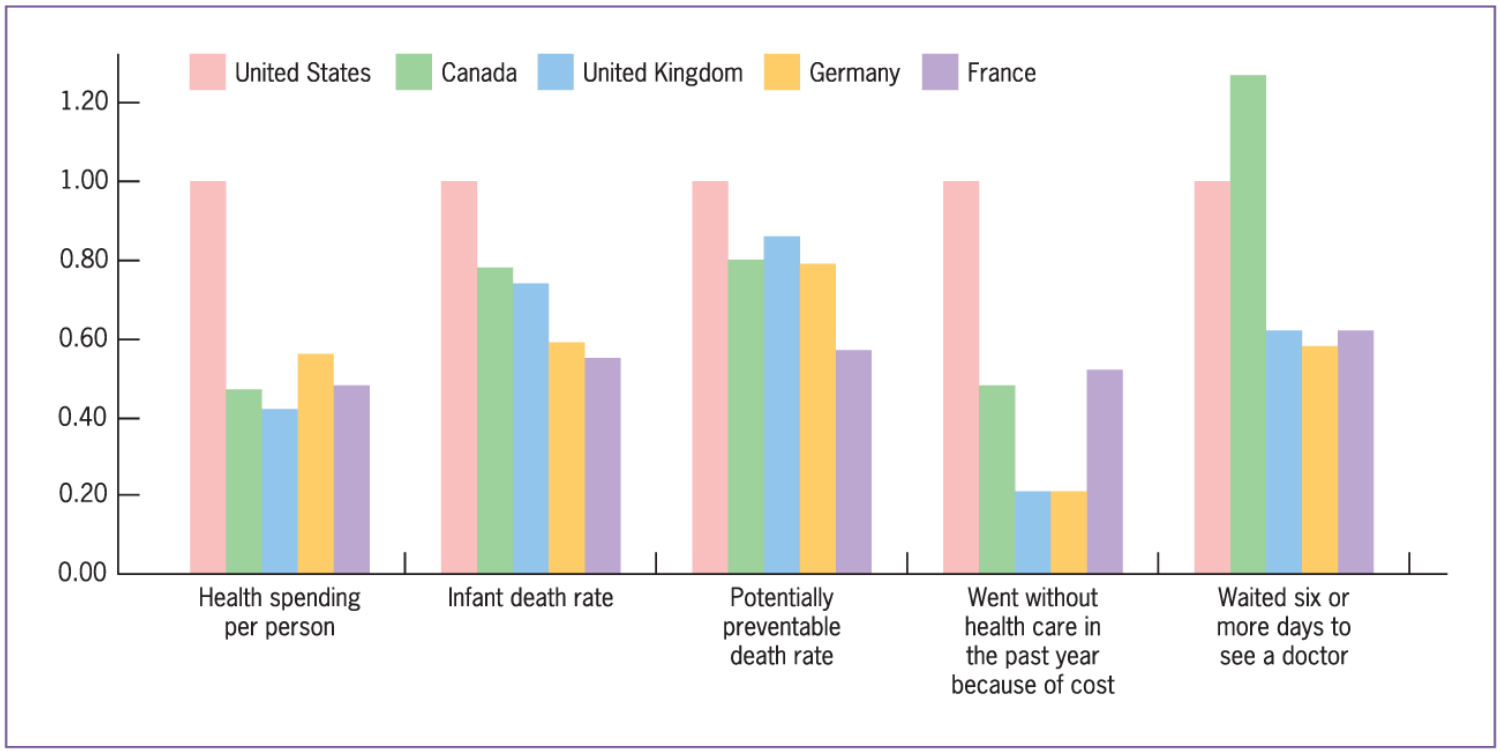
Life expectancy at birth in years, 1980-2021



Notes: Comparable countries include: Australia, Austria, Belgium, Canada (except for 2021), France, Germany, Japan, the Netherlands, Sweden, Switzerland, and the U.K. See Methods section of "How does U.S. life expectancy compare to other countries?"

Source: KFF analysis of CDC, OECD, Japanese Ministry of Health, Labour, and Welfare, Australian Bureau of Statistics, and UK Office for Health Improvement and Disparities data

Peterson-KFF
Health System Tracker



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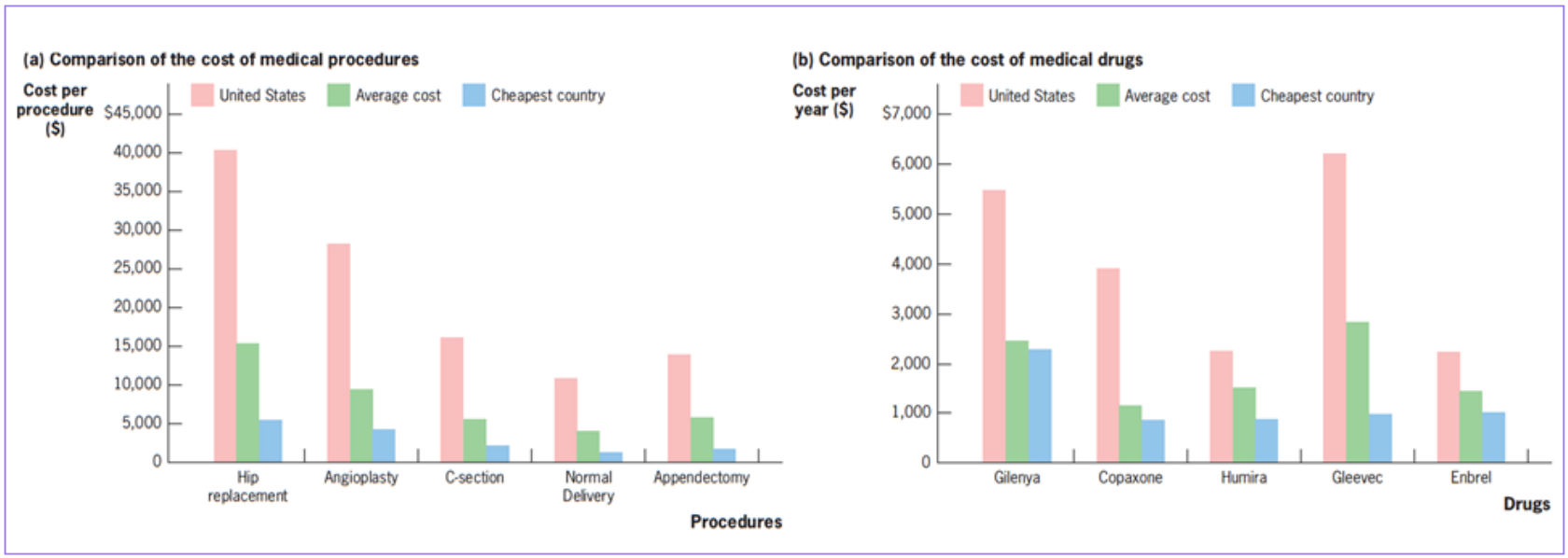

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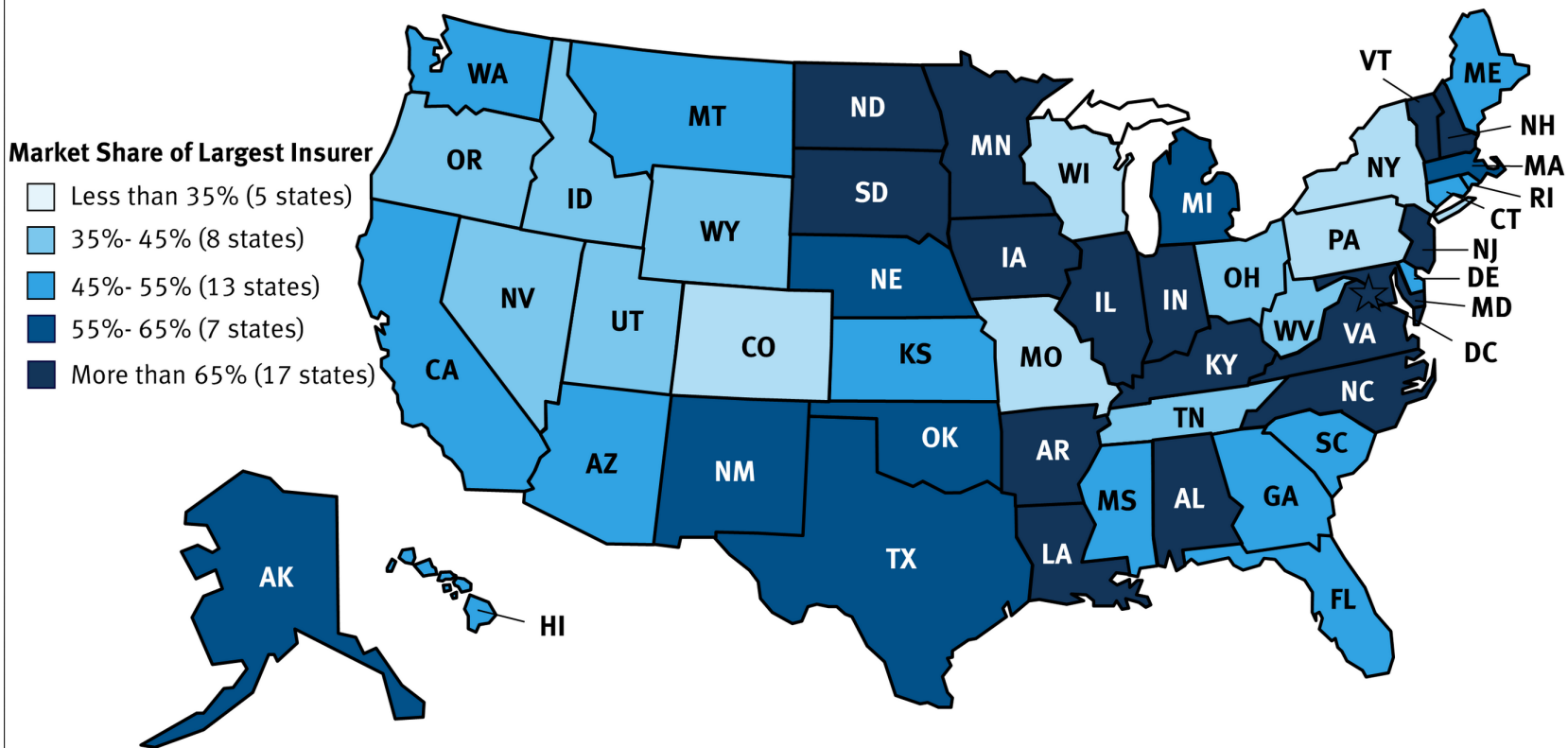
Market Share of Largest Insurance Carrier in the Individual Insurance Market, 2010



SOURCE: Kaiser Family Foundation analysis of 2010 insurer filings to the National Association of Insurance Commissioners and the California Department of Managed Health Care using the Mark Farrah Associates Health Coverage Portal TM. Market share was calculated as the percent of the state's individual insurance market enrollment accounted for by each parent company (measured in member months)

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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.

The government either directly controls doctors/hospitals or reimburses private health care providers.

The government controls costs and limits healthcare overconsumption via:

(1) Regulation (i.e., the government picks allowed treatments based on cost-effectiveness, bargains for prices, rations care in some cases)

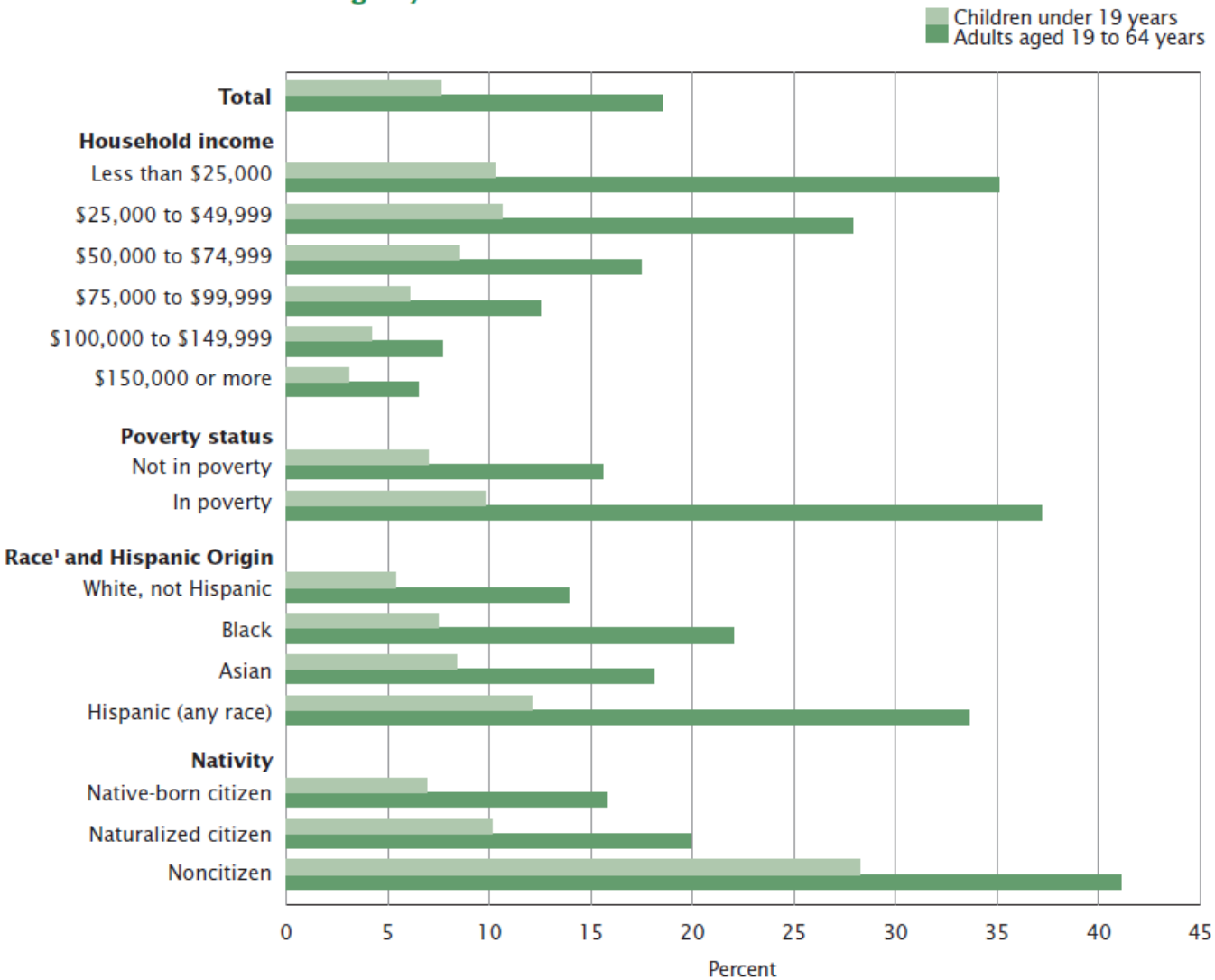
(2) Patient co-payments (i.e., patients share part of the cost)

US Health Insurance

The US has a mix of public and private insurance:

1. **Government provided insurance**
   - Total: 35% of the population
   - Medicare for the elderly (65+) = 14% of the population
   - Medicaid for the poor = 20% of the population
   - Other (mostly veterans benefits) = 1% of the population
2. **Privately provided insurance**
   - Total: 56% of the population
   - Employer-provided health insurance = 50%
   - Individual purchases (mostly Obamacare exchanges) = 6%
3. **Uninsured**
   - Total: 9% of the population, but used to be 15-16% before Obamacare!

Children Under 19 Years of Age and Adults Aged 19 to 64 Years Without Health Insurance Coverage by Selected Characteristics: 2013



Employer Provided Insurance

Covers half of the US population (mandatory for large employers since Obamacare). Started after WW2 when healthcare costs were low.

Employer-level insurance allows risk pooling across employees.

But the cost has grown enormously: $15K/covered worker in 2022.

Workers ultimately bear the cost in the form of reduced wages because employers care about total labor cost = wage + benefits.

Nongroup Insurance

Nongroup direct insurance market: The market through which individuals or families buy insurance directly rather than through a group.

The nongroup insurance market was not a well-functioning market before Obamacare due to adverse selection.

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

Obamacare is changing the nongroup market drastically by forbidding pricing 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 65+ or disabled.

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

Financed with an uncapped payroll tax of 2.9%.

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

Medicaid

Provides health care for the poor (i.e., a means-tested benefit).

Financed from general revenues by Federal and state governments.

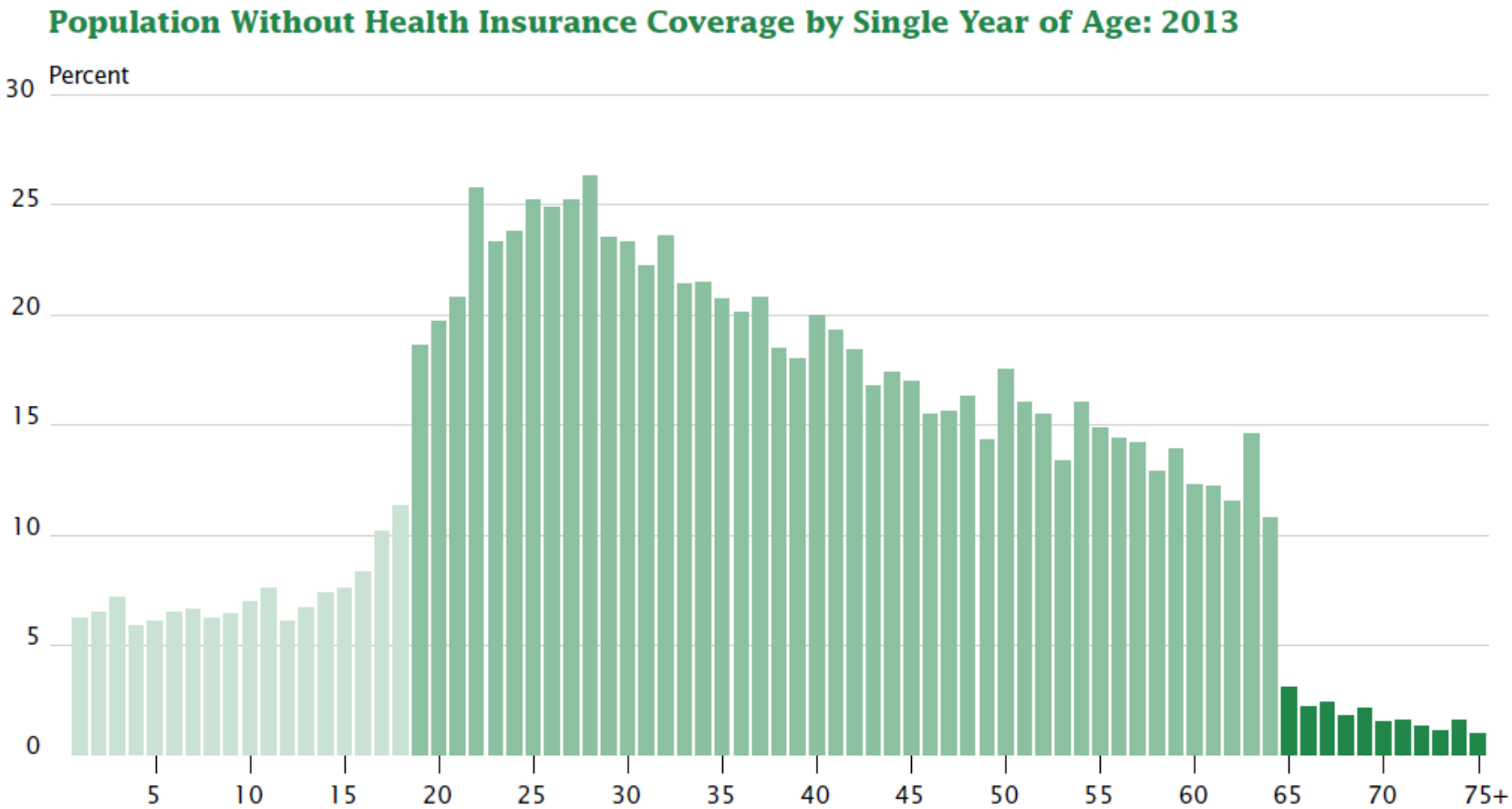
Targets welfare recipients, low-income kids, and the elderly (for non-Medicare costs such as long-term care).

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

Doctor reimbursement is low. $\Rightarrow$ Some docs refuse Medicaid.

There are big variations across states in Medicaid generosity.

Program eligibility criteria have been expanded over time: Obamacare substantially expands Medicaid to reduce the fraction of uninsured.


Population Without Health Insurance Coverage by Single Year of Age: 2013
Percent
30
25
20
15
10
5
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75+

Obamacare (Affordable Care Act of 2010, ACA)

The tier system started in 2014:

1. It bans pre-existing conditions exclusion and health-based pricing.
2. It forces individuals (and large employers with 50+ employees) to buy health insurance or pay a fine.
    - Individual fines were dropped in 2019.
3. Free/subsidized insurance for low-income families.
    - Medicaid expansion up to 138% of the poverty line
    - Subsidized health insurance purchases in Obamacare exchanges up to 400% of the poverty line

$\Rightarrow$ Funded primarily with a surtax on the rich.

Figure 4.

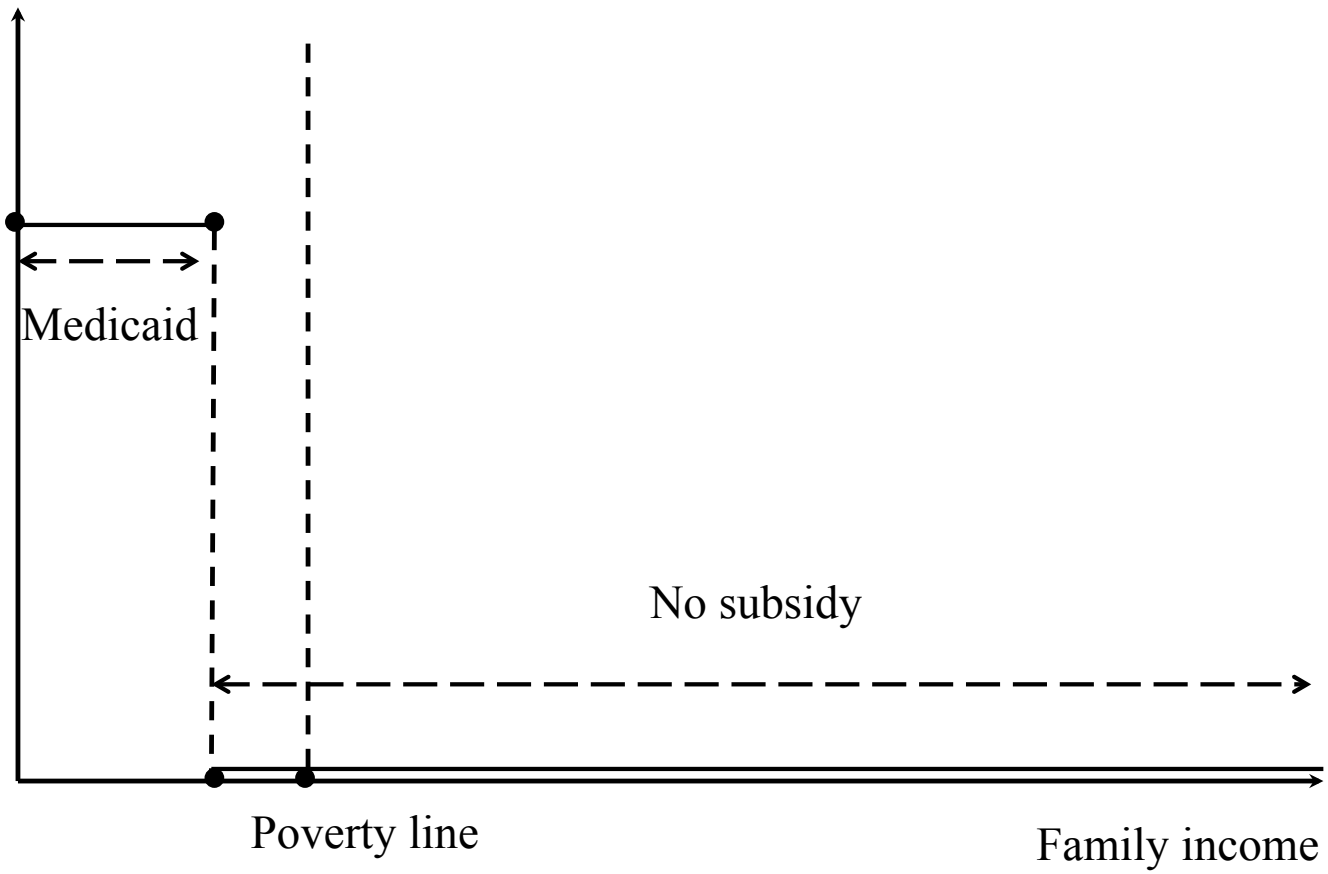
Uninsured Rate by Single Year of Age: 2013 and 2014

(Civilian noninstitutionalized population)

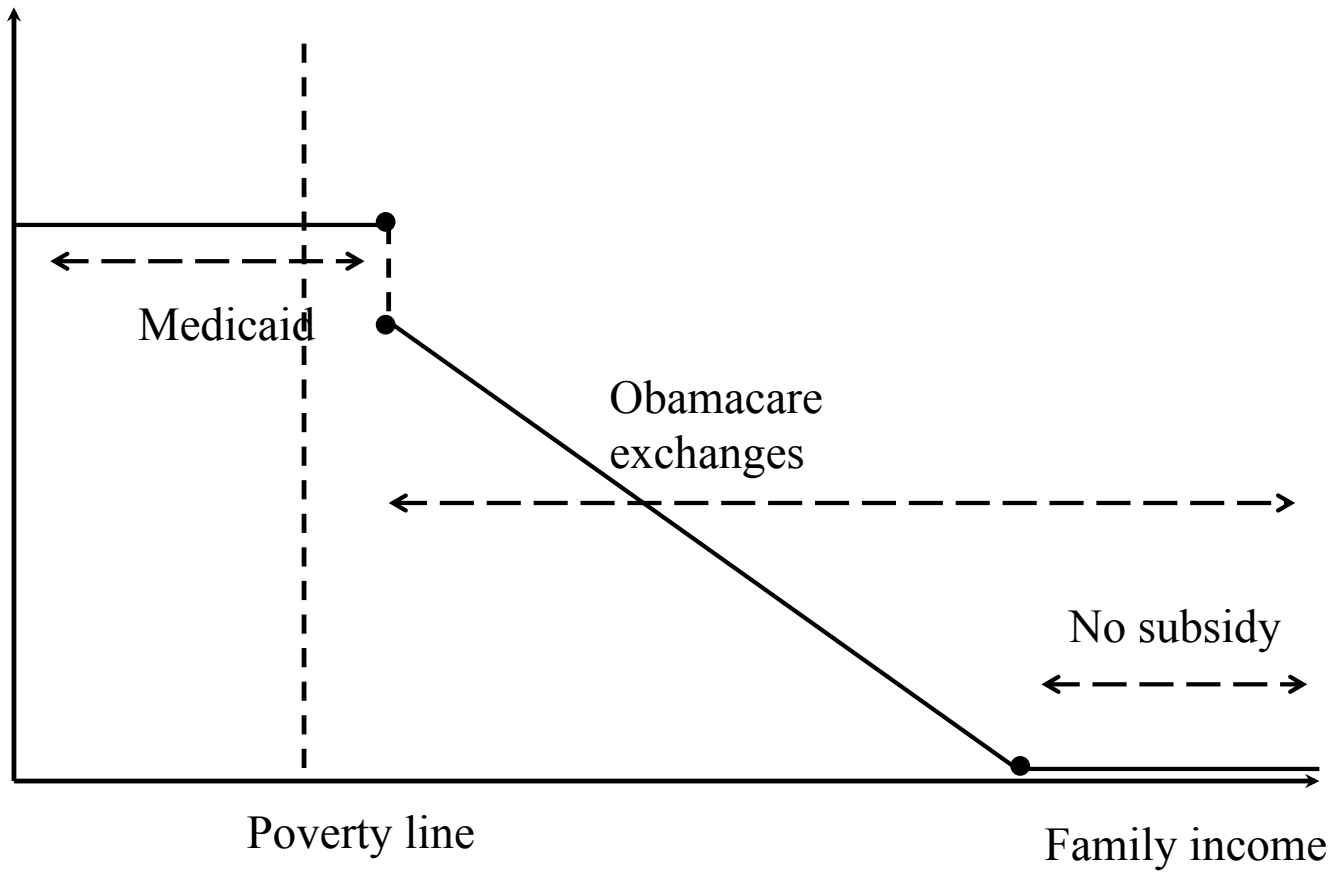
For information on confidentiality protection, sampling error, nonsampling error, and definitions in the American Community Survey, see <www2.census.gov/programs-surveys/acs/tech_docs/accuracy/ACS_Accuracy_of_Data_2014.pdf>.

Source: U.S. Census Bureau, 2013 and 2014 1-Year American Community Surveys.

Health subsidy BEFORE Obamacare



Health subsidy after Obamacare in Medicaid Expansion States



Legal Challenges to Obamacare

Is the mandate constitutional? [July 2012]

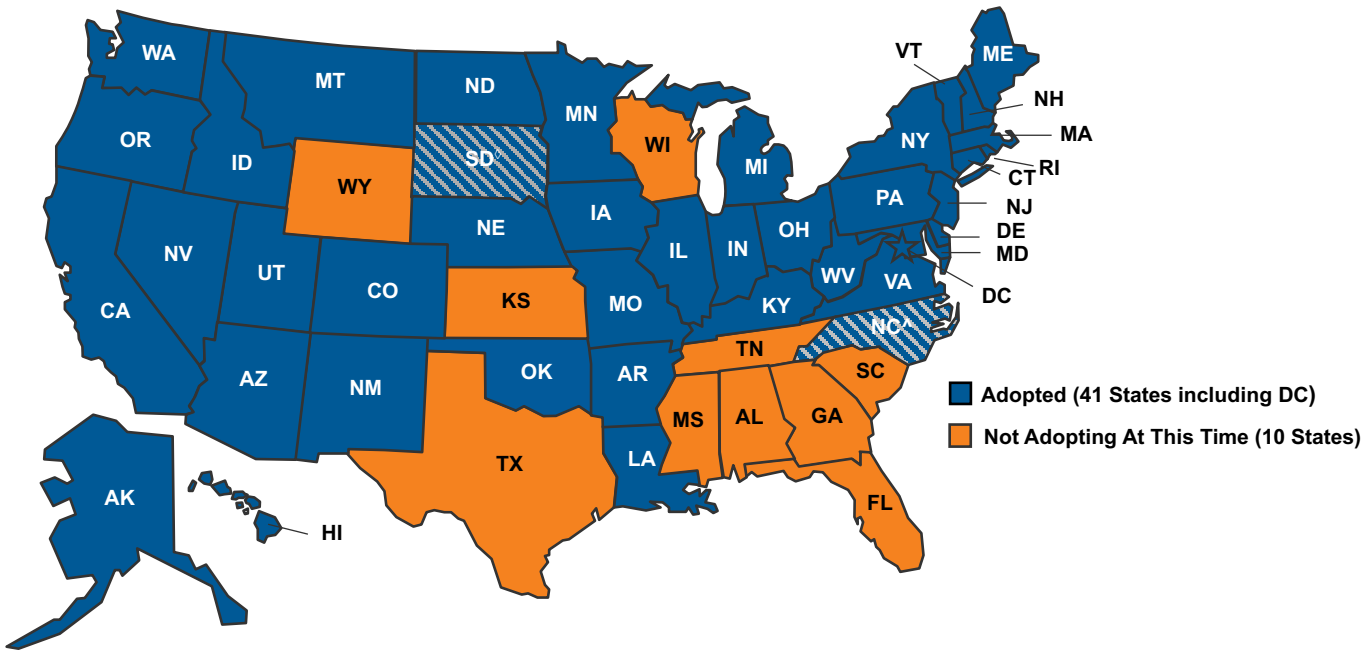
Ruling: Yes, but Feds cannot force States to expand Medicaid

$\Rightarrow$ Many states decided to opt out of the Medicaid expansion (even though the Fed government pays 90%!).

Consequence: There is a coverage gap because people below 100% of poverty cannot access subsidized Obamacare exchanges.

States moving slowly to accept Medicaid expansion through referenda, ten holdouts as of 2023 (see here).

Status of State Medicaid Expansion Decisions



NOTES: Current status for each state is based on KFF tracking and analysis of state activity. ◊Expansion is adopted but not yet implemented in SD. ^Implementation of Medicaid Expansion is contingent on appropriations in the SFY 2023-2024 biennial budget in NC. See link below for additional state-specific notes.

SOURCE: "Status of State Action on the Medicaid Expansion Decision," KFF State Health Facts, updated March 27, 2023. https://www.kff.org/health-reform/state-indicator/state-activity-around-expanding-medicaid-under-the-affordable-care-act/

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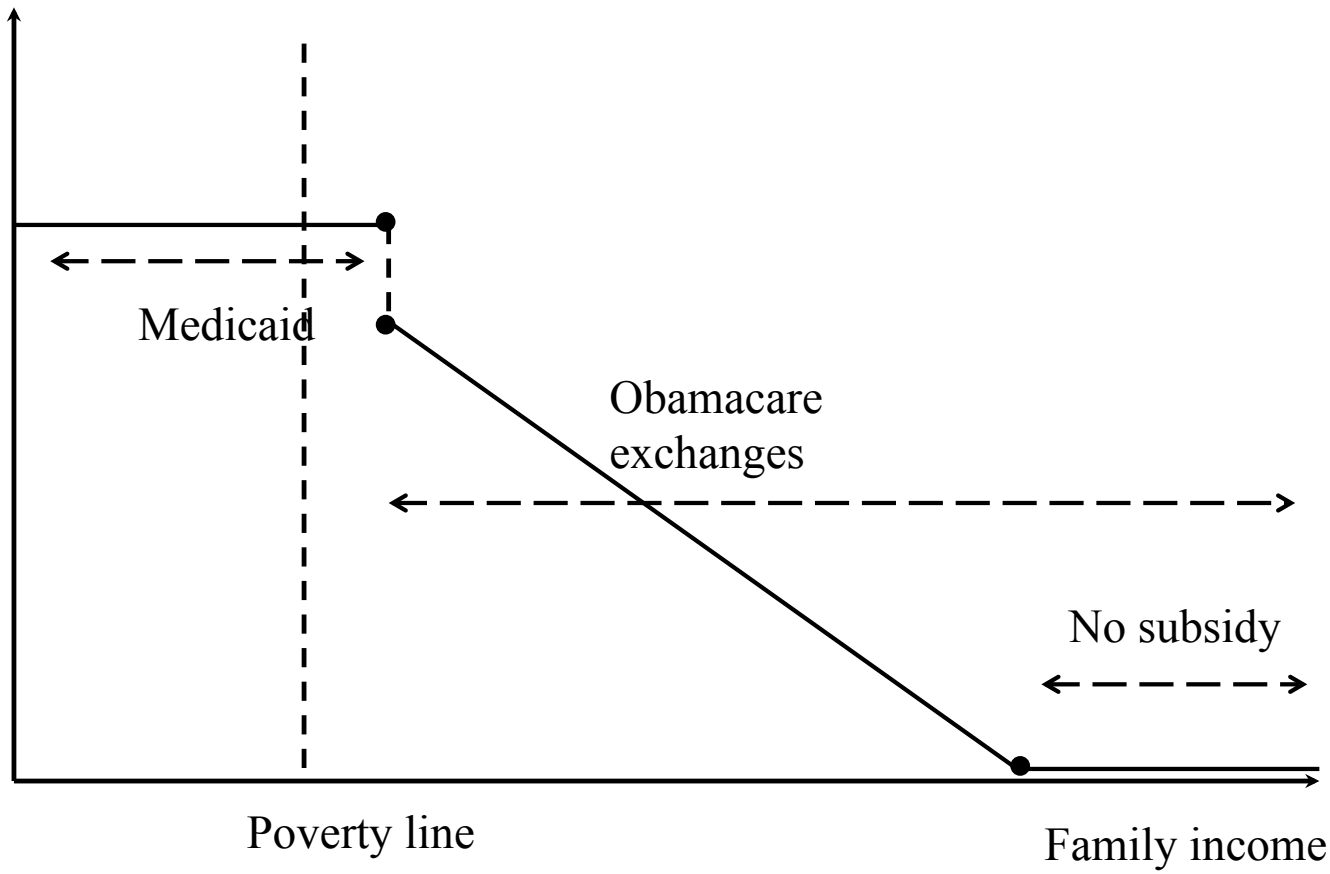
Health subsidy after Obamacare in Medicaid Expansion States



Health subsidy after Obamacare in non-expansion States

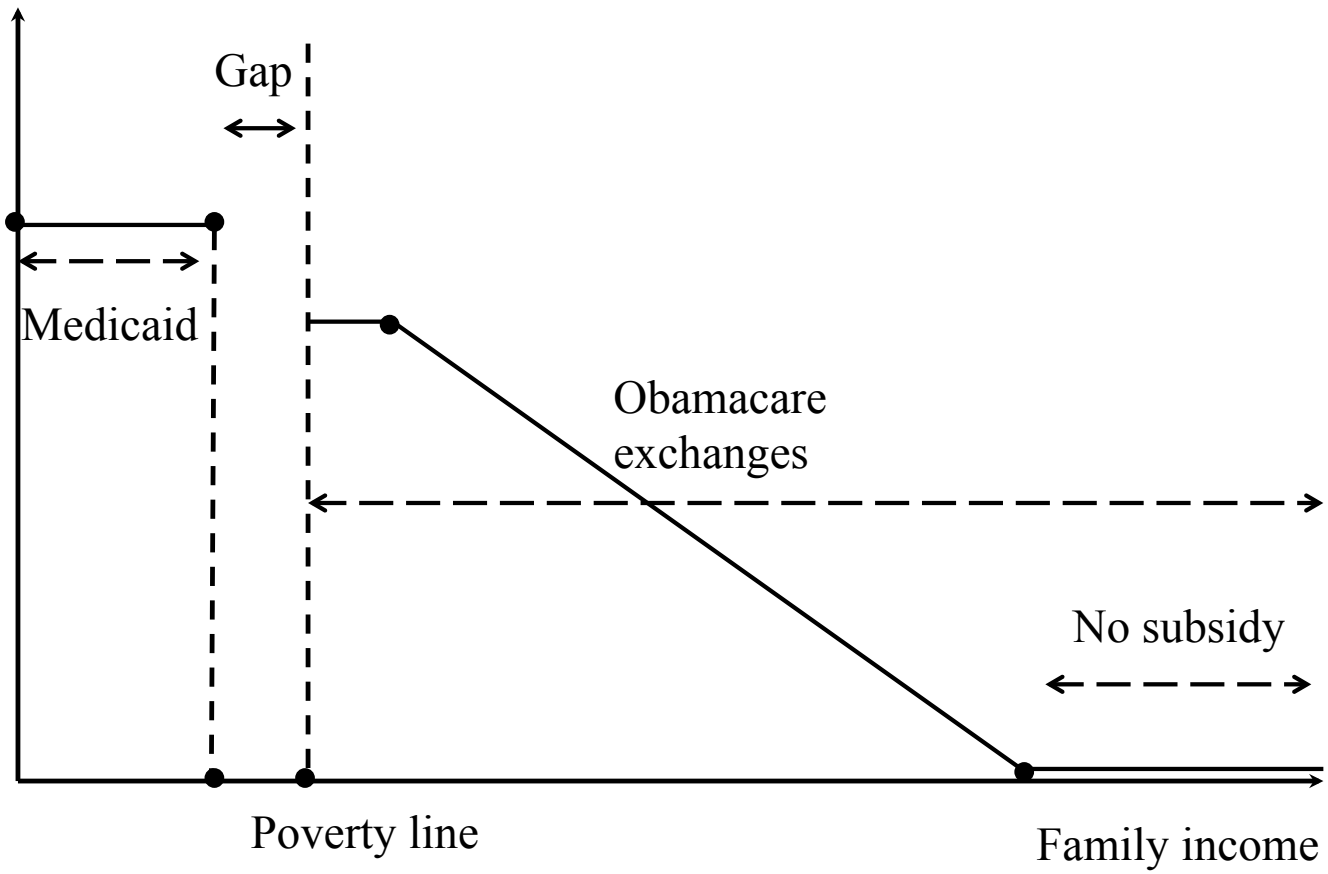
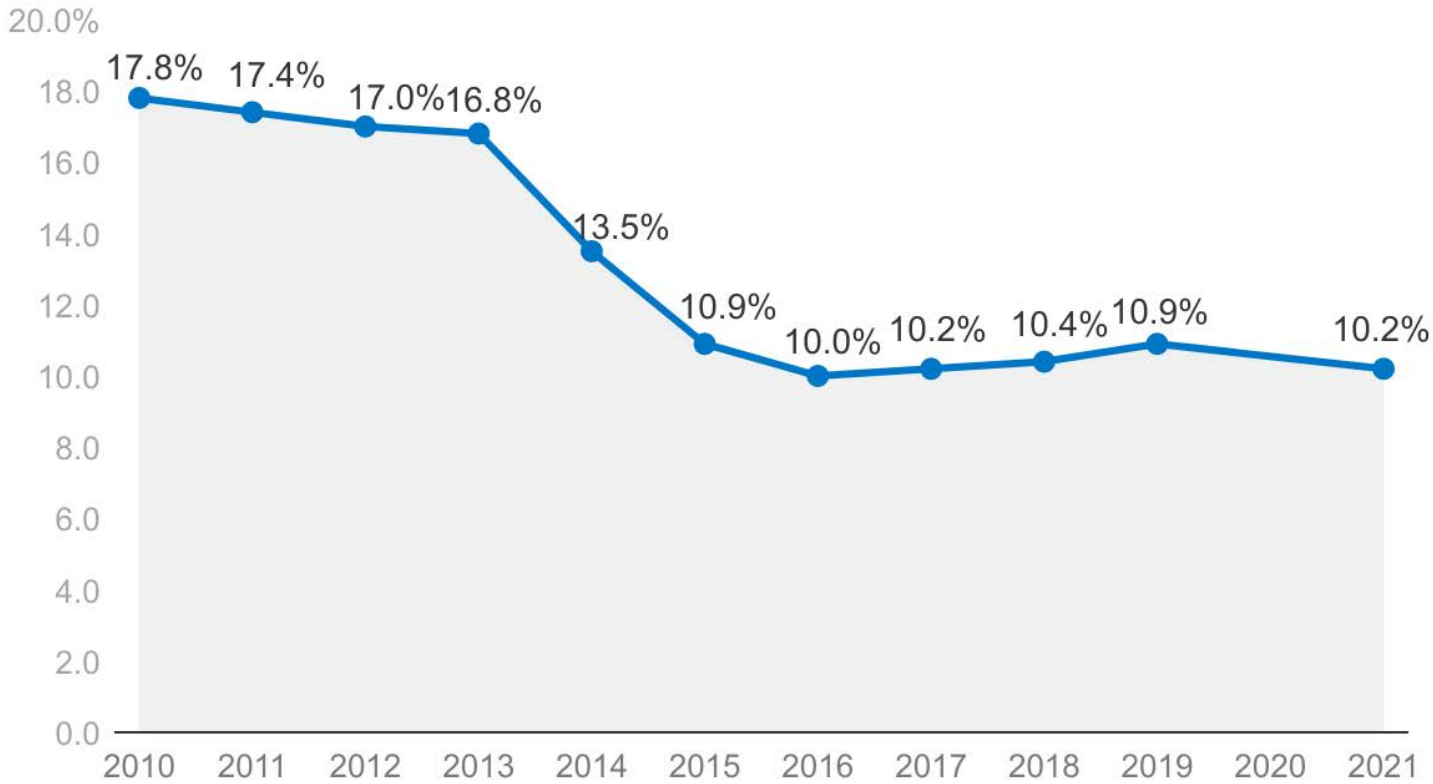


Figure 1

Nonelderly Uninsured Rate, 2010-2021



NOTE: Due to disruptions in data collection during the first year of the pandemic, the Census Bureau did not release ACS 1-year estimates in 2020. Includes nonelderly individuals ages 0 to 64

SOURCE: KFF analysis of 2010-2021 American Community Survey, 1-Year Estimates

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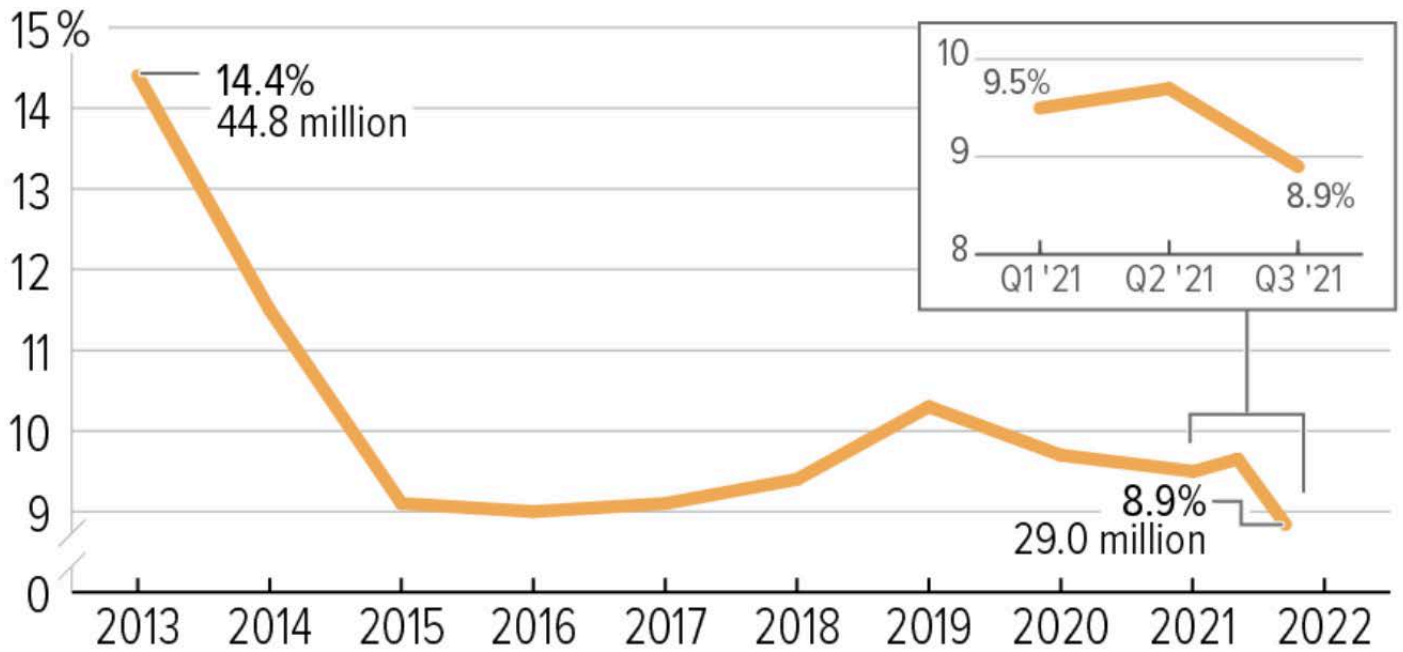
Uninsured Rate Stabilized During Pandemic and Data Suggest Recent Declines in 2021

Uninsured rate by year, all ages



Note: Estimates of uninsured rates in 2021 reflect quarterly data through Quarter 3 of 2021. All other years are annual data.

Source: National Health Interview Survey's Health Insurance Coverage Reports, 2013-2020; Health Insurance Coverage: Early Release of Quarterly Estimates From the National Health Interview Survey, July 2020–September 2021.

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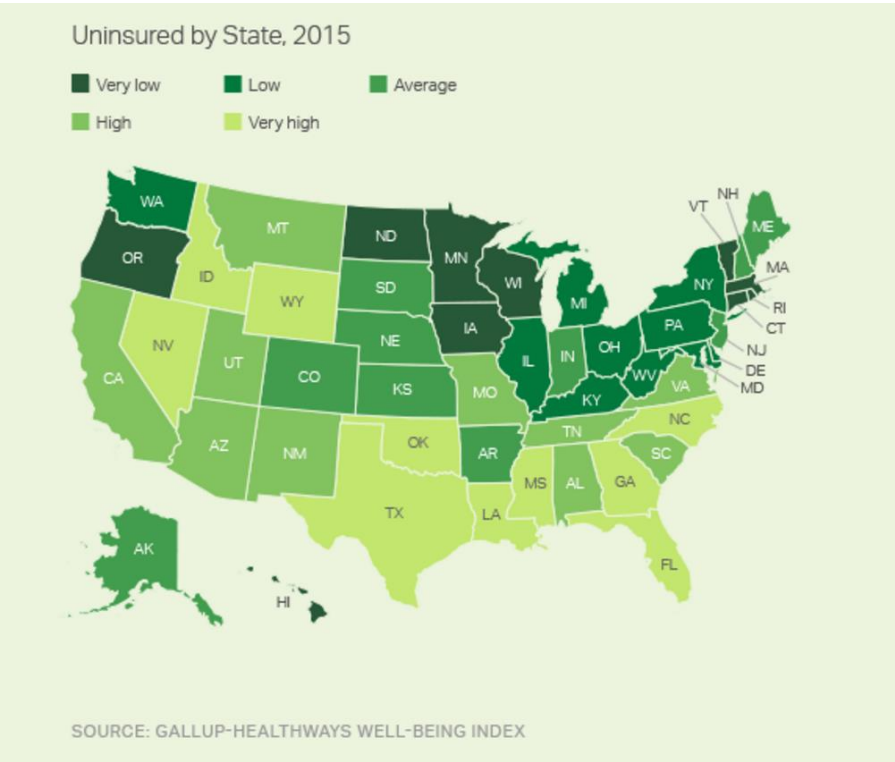
Coverage Gains Vary by State



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

Is Universal Health Care Desirable?

Health care is expensive (even in countries that control costs)

$\Rightarrow$ Poor cannot afford health care on their own and need help.

People face different health risks (i.e., pre-existing conditions).

$\Rightarrow$ Those facing high health risks face very high insurance costs in the private market.

Should the government insure people for health risks?

Yes, if health risks are outside people's control (e.g., age, genetics).

Not necessarily if health risks are due to choices (e.g., diet, exercise).

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

Medicare for All Debate in the US

Medicare of All is universal health care with low copays/deductibles funded by taxes (as in other OECD countries).

Key advantages: everybody is covered, government controls costs better, a sustainable burden for all (big gain for the middle class), but requires a huge shift (doing away with the health insurance industry and employer coverage).

Improving Obamacare starts from the existing system and patches the holes: nudge more states into Medicaid expansion, improve Obamacare exchanges (more subsidies, lower deductibles, public option, etc.).

It is more feasible but keeps an employer coverage system where workers pay full price regardless of earnings and less ability to control costs.

Effect of Health Care on Utilization and Health

In 2008, Oregon had a limited Medicaid budget.

$\Rightarrow$ Lottery to select individuals on the waitlist to be given a chance to apply for Medicaid insurance coverage.

$\Rightarrow$ 30,000 "lottery winners" (treatment group) out of 90,000 participants (control group)

Not all winners received coverage. Some non-winners later received insurance on their own.

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

Oregon Medicaid Health Insurance Experiment

Finkelstein et al. (2012) use the lottery as an instrument to estimate the causal effect of insurance coverage itself

Two ways to report the results:

(1) Intention to Treat (ITT): Just compare winners and losers of the lottery.

(2) Local Average Treatment Effect (LATE): Inflate estimates by 1/[difference in fraction insured between winners and losers]=1/.29=3.5

Oregon Medicaid Health Insurance Experiment

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)

	Extensive Margin (Any)				Total Utilization (Number)			
	Control Mean	ITT	LATE	p-values	Control Mean	ITT	LATE	p-values
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Prescription drugs currently	0.637	0.025	0.088	[0.002]	2.318	0.100	0.347	[0.049]
	(0.481)	(0.0083)	(0.029)	{0.005}	(2.878)	(0.051)	(0.176)	{0.137}
Outpatient visits last six months	0.574	0.062	0.212	[<0.0001]	1.914	0.314	1.083	[<0.0001]
	(0.494)	(0.0074)	(0.025)	{<0.0001}	(3.087)	(0.054)	(0.182)	{<0.0001}
ER visits last six months	0.261	0.0065	0.022	[0.335]	0.47	0.0074	0.026	[0.645]
	(0.439)	(0.0067)	(0.023)	{0.547}	(1.037)	(0.016)	(0.056)	{0.643}
Inpatient Hospital admissions last six months	0.072	0.0022	0.0077	[0.572]	0.097	0.0062	0.021	[0.311]
	(0.259)	(0.0040)	(0.014)	{0.570}	(0.4)	(0.0062)	(0.021)	{0.510}
Standardized treatment effect		0.050	0.173	[<0.0001]		0.040	0.137	[0.0003]
		(0.011)	(0.036)			(0.011)	(0.038)	
Annual spending [a]					3,156	226	778	[0.037]
						(108)	(371)	

Source: Finkelstein et al. 2012

Table VIII: Financial Strain (Survey Data)

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

Source: Finkelstein et al. 2012

Table IX: Health

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

Source: Finkelstein et al. 2012

Table X: Potential Mechanisms for Improved Health (Survey Data)

	Control Mean	ITT	LATE	p-values
	(1)	(2)	(3)	(4)
Panel A: Access to care				
Have usual place of clinic-based care	0.499	0.099	0.339	[<0.0001]
	(0.500)	(0.0080)	(0.027)	{<0.0001}
Have personal doctor	0.490	0.081	0.280	[<0.0001]
	(0.500)	(0.0077)	(0.026)	{<0.0001}
Got all needed medical care, last six months	0.684	0.069	0.239	[<0.0001]
	(0.465)	(0.0063)	(0.022)	{<0.0001}
Got all needed drugs, last six months	0.765	0.056	0.195	[<0.0001]
	(0.424)	(0.0055)	(0.019)	{<0.0001}
Didn't use ER for non-emergency, last six months	0.916	-0.0011	-0.0037	[0.804]
	(0.278)	(0.0043)	(0.015)	{0.804}
Standardized treatment effect		0.128	0.440	[<0.0001]
		(0.0084)	(0.029)	

Source: Finkelstein et al. 2012

Effect of Medicare on Health

Medicare becomes available when you turn 65.

Suggests a regression discontinuity design to see what happens when you cross the age 65 threshold.

Two papers use this strategy:

(1) Card-Dobkin-Maestas AER'08

$\Rightarrow$ Examines impacts across groups with an interest in evaluating impacts on inequality in utilization.

(2) Card-Dobkin-Maestas QJE'09

$\Rightarrow$ Examines impacts on outcomes (mortality following emergency hospital admission for diagnoses with the same admission rates before and after 65).

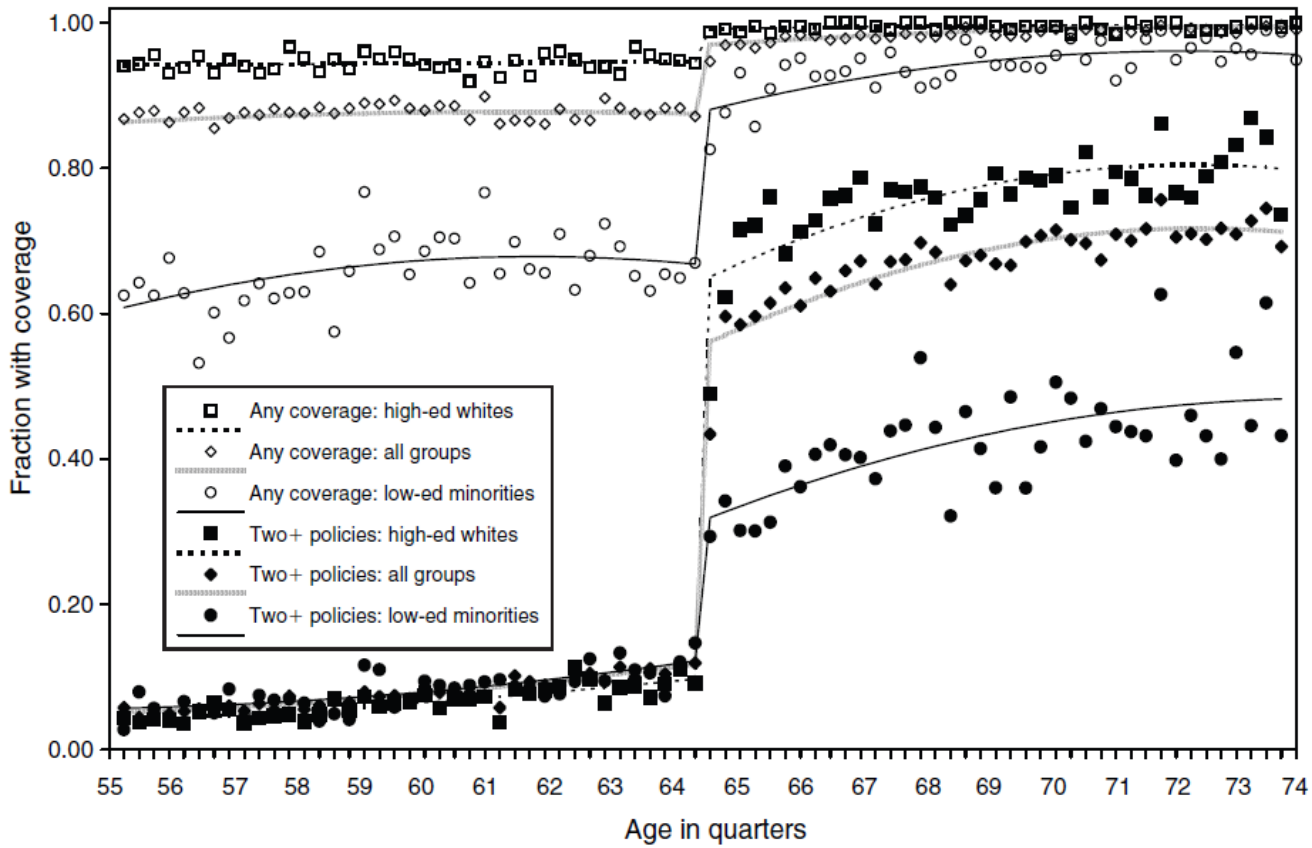


FIGURE 1. COVERAGE BY ANY INSURANCE AND BY TWO OR MORE POLICIES, BY AGE AND DEMOGRAPHIC GROUP

First stage: sharp increase in coverage; more for disadvantaged (From NHIS; age measured in quarters) FIGURE 1

9

Source: David Card et al (2008)

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

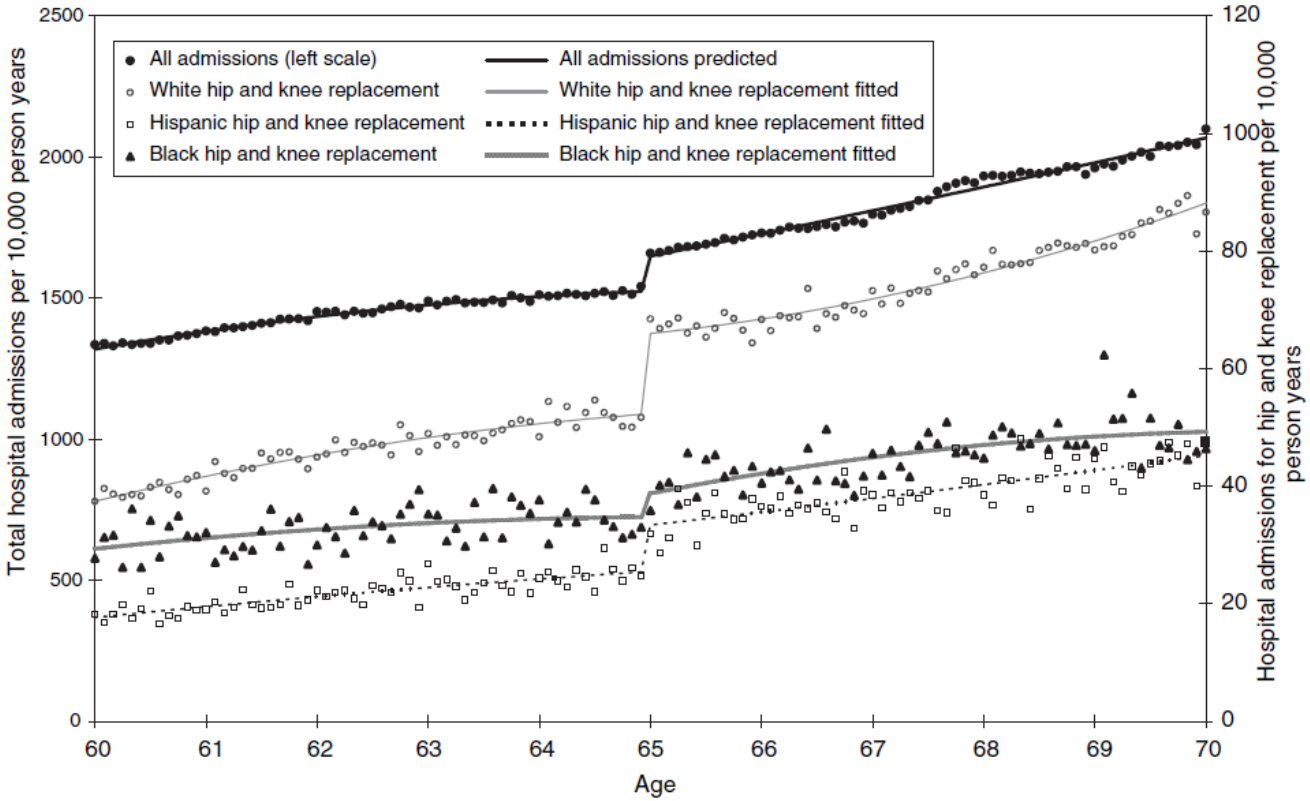


FIGURE 3. HOSPITAL ADMISSION RATES BY RACE/ETHNICITY

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

13

Source: David Card et al (2008)

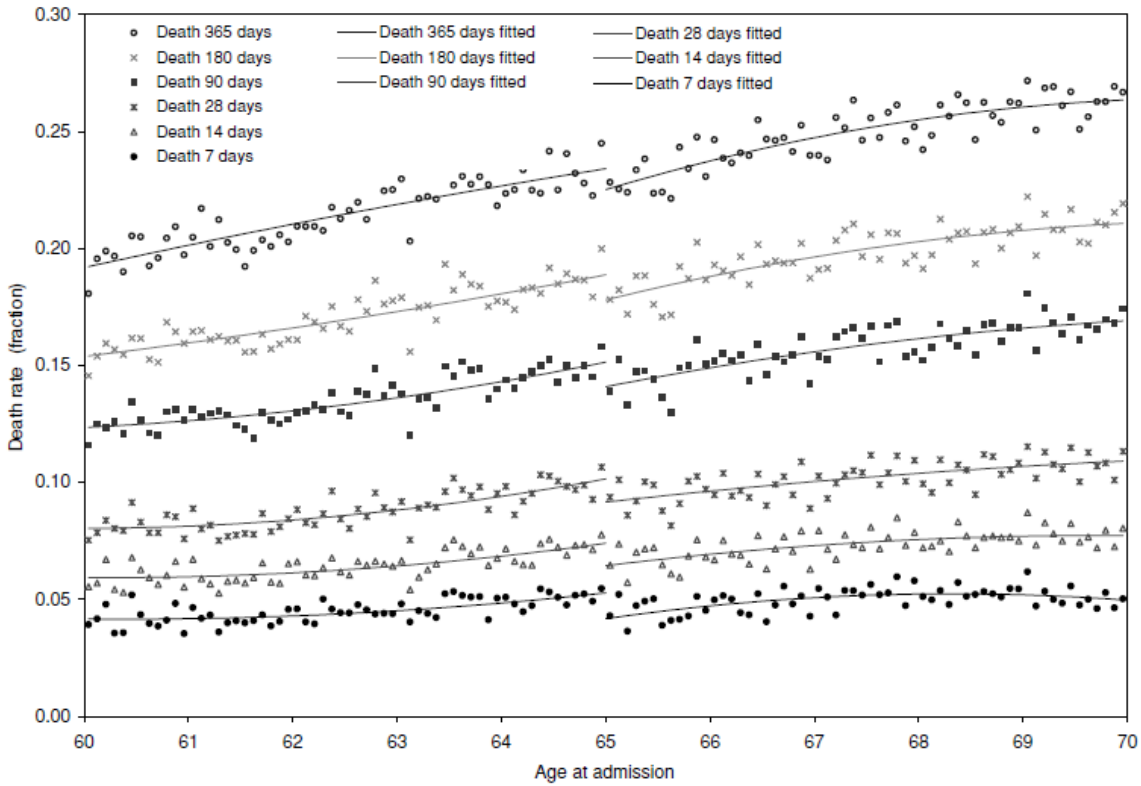


FIGURE VI
Patient Mortality Rates over Different Follow-Up Intervals

Nontrivial decrease in mortality.

22

Source: David Card et al (2008)

Effects of Medicare on Health

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

(2) Big increase in healthcare utilization

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

$\Rightarrow$ Medicare health insurance does save lives.

Optimal Health Insurance: Provider Side

The preceding analysis of optimal insurance assumes the patient makes the entire healthcare decision.

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

Clearly, the reality is closer to the opposite: docs choose treatment and may respond to financial incentives.

Incorporating supply-side issues is critical in understanding health insurance.

How should we design payment schemes for physicians?

Retrospective (fee-for-service) vs. prospective (diagnosis-based fixed payments)

Optimal Health Insurance: Provider Side Model

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

α=fixed cost payment for a given diagnosis

β=payment for proportional costs c (e.g., tests, nurses)

Various methods of payment (α, β):

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

Tradeoff: lower β incentivizes doctors to provide less services... but they may provide too little!

General trend has been toward higher α, lower β.

The private market has shifted from FFS to HMO (Health Maintenance Organizations) capitation schemes (where the insurer pays a fixed amount per patient regardless of treatment provided).

For example, Kaiser receives a flat amount per person enrolled based on age/gender.

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

$\Rightarrow$ Lower costs, but complaints of lower quality of care

Evidence: Payment Schemes and Physician Behavior

(1) In 1983, Medicare moved from retrospective 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).

The 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.

e.g., 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.

$\Rightarrow$ Evidence that doctors put some weight on profits and were not only optimizing patient health.

(3) Cost growth slowed dramatically five years after PPS but then accelerated again.

Biggest failure of US health care: Opioid Epidemic

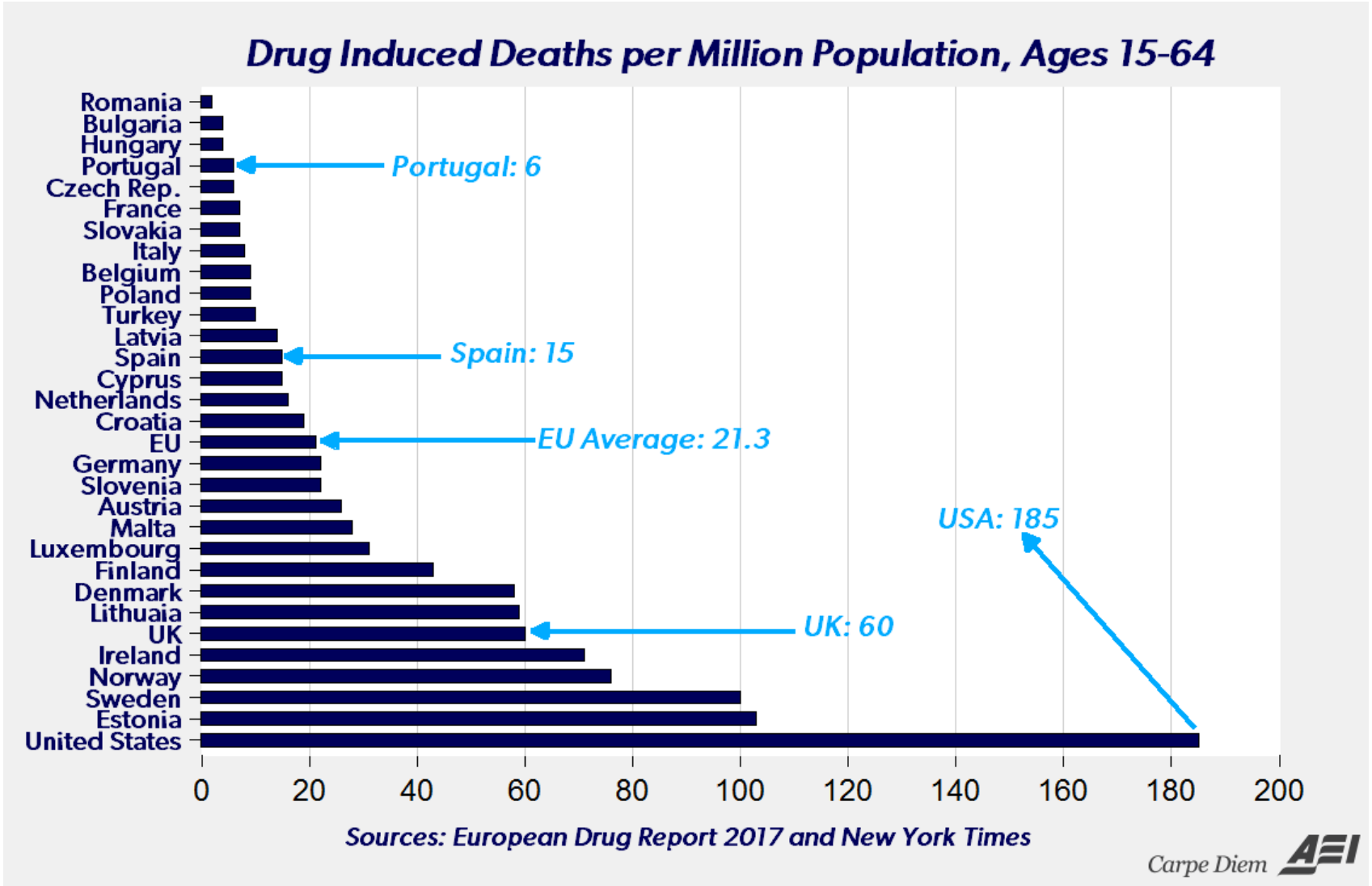
Late 1990s, big pharma pushed opioid painkillers aggressively.

Encouraged doctors to prescribe them (patients love them in the short run but often get addicted).

$\Rightarrow$ Led to misuse and addiction, then turned to heroin and fentanyl. The US now has 1.5m opioid addicts.

100K people/year die from overdoses in the US (5% death rate/year for addicts). 10 times more deaths than in the EU relative to the population.

$\Rightarrow$ US is slowly shifting from "addiction is a crime" to "addiction is a health care problem".


Drug Induced Deaths per Million Population, Ages 15-64
Romania
Bulgaria
Hungary
Portugal
Czech Rep.
France
Slovakia
Italy
Belgium
Poland
Turkey
Latvia
Spain
Cyprus
Netherlands
Croatia
EU
Germany
Slovenia
Austria
Malta
Luxembourg
Finland
Denmark
Lithuaia
UK
Ireland
Norway
Sweden
Estonia
United States
Portugal: 6
Spain: 15
EU Average: 21.3
USA: 185
UK: 60
0
20
40
60
80
100
120
140
160
180
200
Sources: European Drug Report 2017 and New York Times
Carpe Diem
AEI

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