

# Health Insurance

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## MOTIVATION

Health care is costly (modern medicine is hi-tech) and everybody needs it (widely perceived as a right)

Advanced economies spend about 9% of their GDP on health care [up from 2-3% in 1950]

Low income families would not be able to afford health care insurance on their own

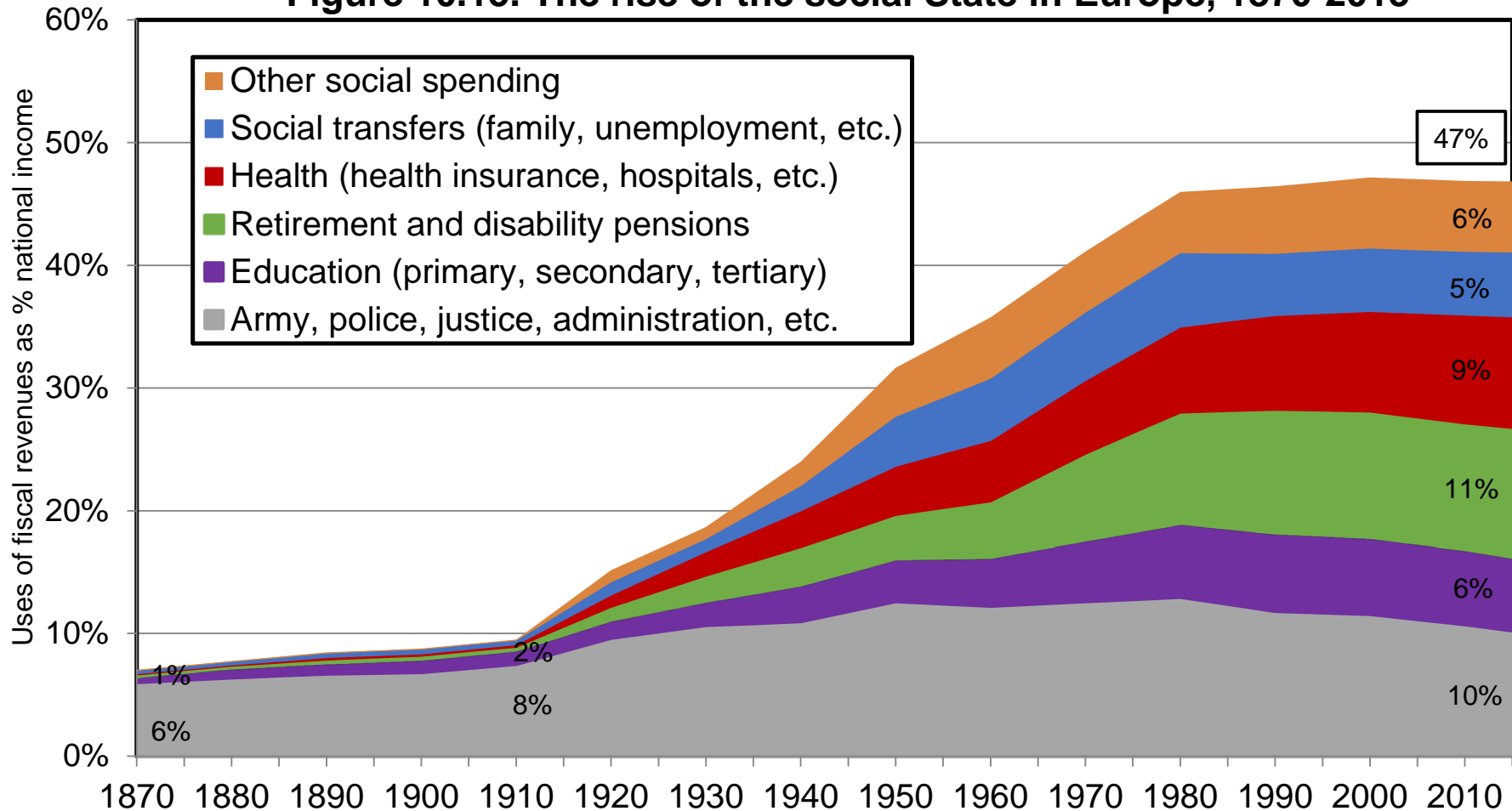
⇒ In all countries, government plays major role in funding health care

U.S. health care system has significant issues:

(a) US health care is very expensive (18% of GDP relative to 9% on average in other OECD countries)

(b) significant fraction of population (9-10%) is uninsured

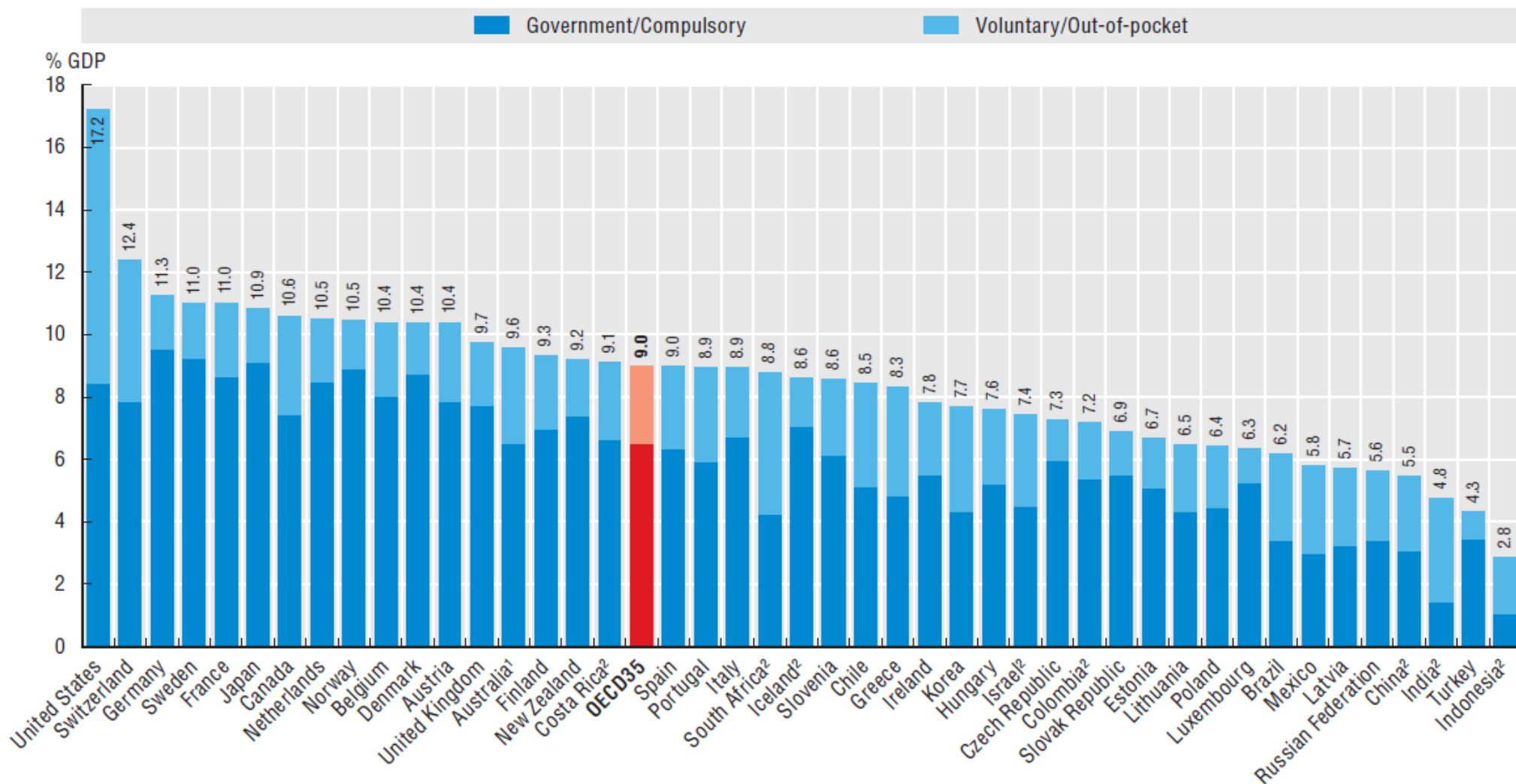
**Figure 10.15. The rise of the social State in Europe, 1870-2015**



**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.

# 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)



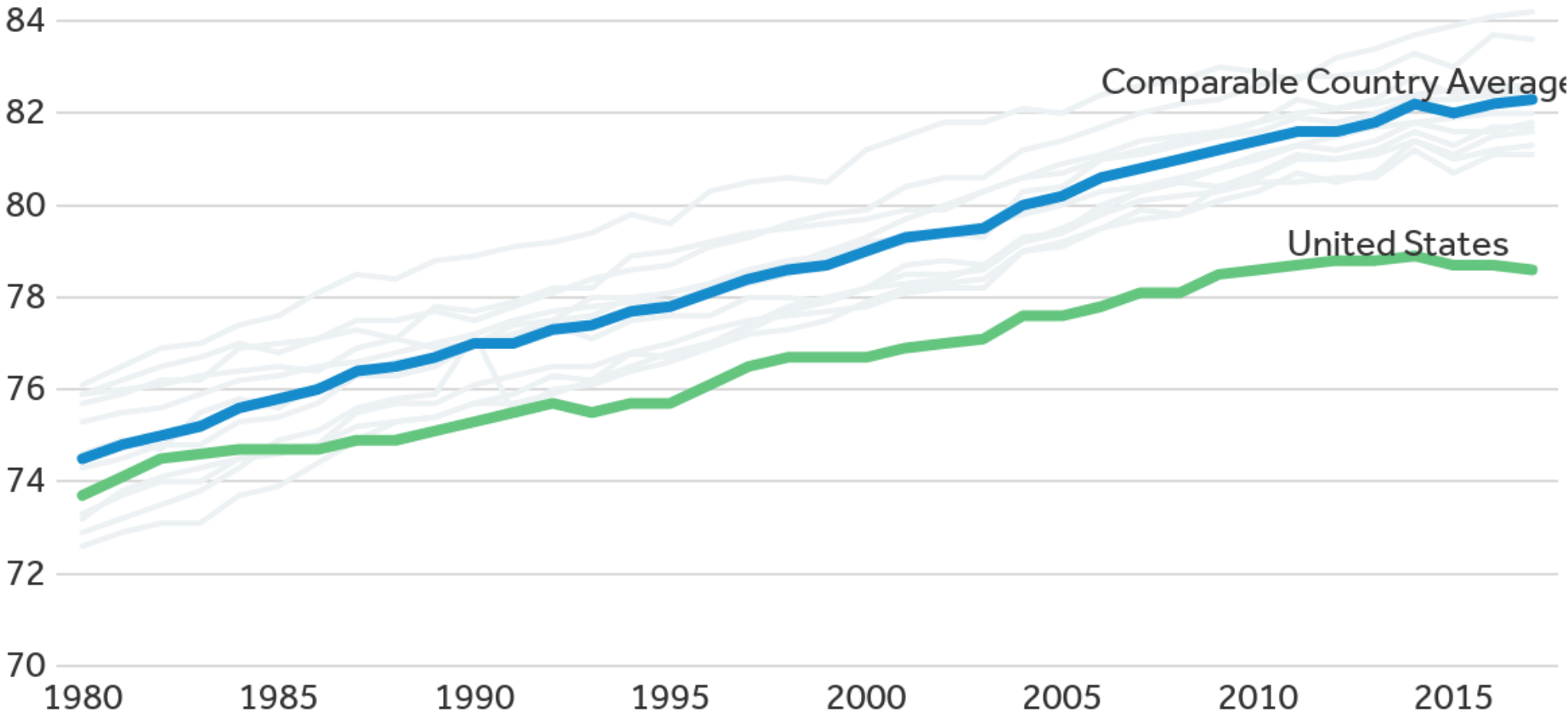
Note: Expenditure excludes investments, unless otherwise stated.

1. Australian expenditure estimates exclude all expenditure for residential aged care facilities in welfare (social) services.

2. Includes investments.

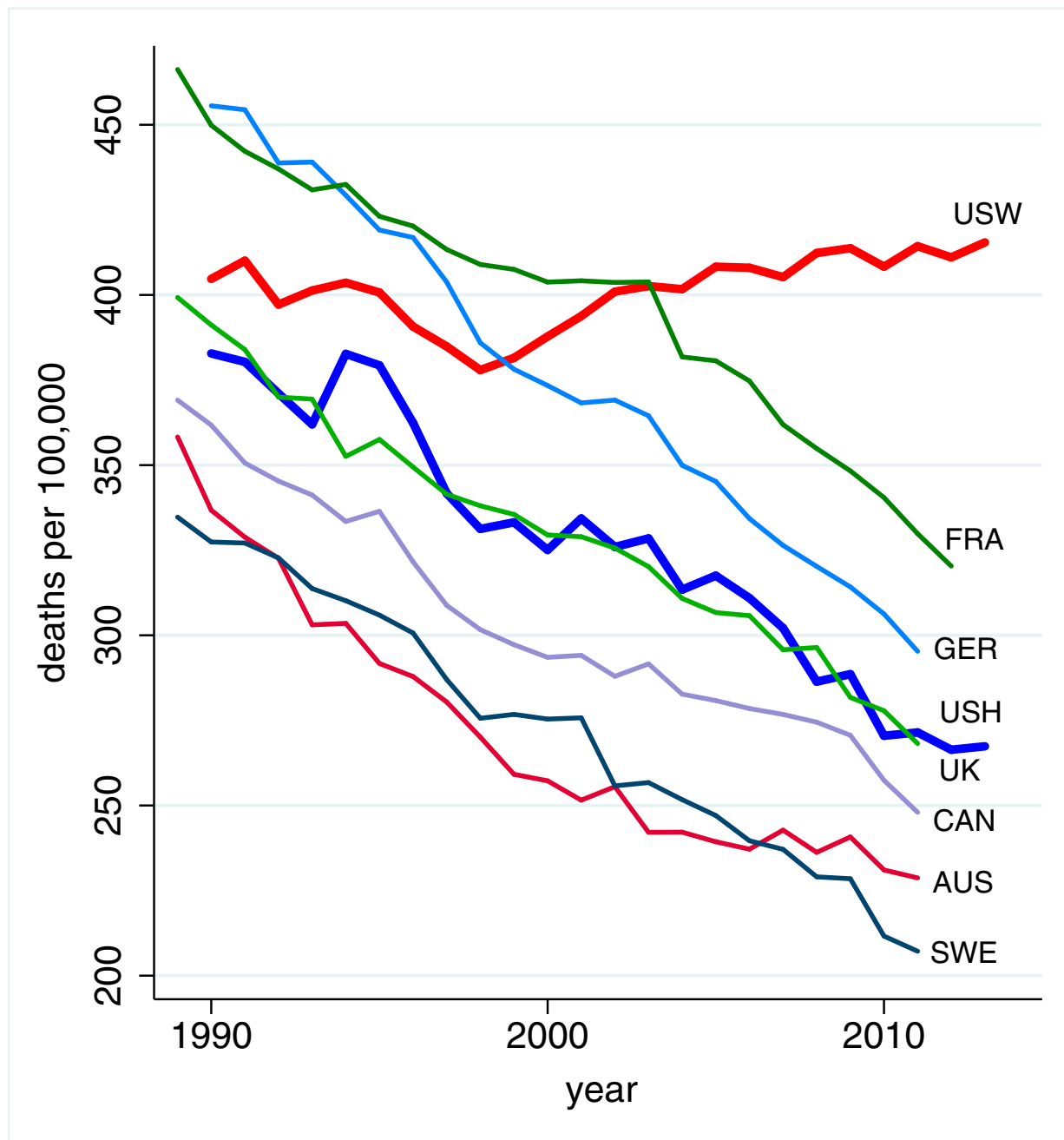
Source: Health at a Glance 2017.

# Total life expectancy at birth in years, 1980-2017



Note: Break in series for Belgium and Switzerland in 2011, Germany in 1991, and Canada in 1982

Source: KFF analysis of OECD data



**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 or Germany)

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 in some cases)
- 2) Patient co-payments (patients share part of the cost)

# US HEALTH INSURANCE

US has a mix of public and private insurance: As of 2018  
(web)

## **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) = 1% of pop

## **2) Privately provided insurance [55% of population]**

- (a) Employer provided health insurance = 49%
- (b) Individual purchases (mostly Obamacare exchanges) = 6%

## **3) Uninsured [9% of pop.] (15-16% before Obamacare)**

## EMPLOYERS PROVIDED INSURANCE

Covers half of the US population. Started after WW2 when health care costs were low.

Employer level insurance allows risk pooling across employees

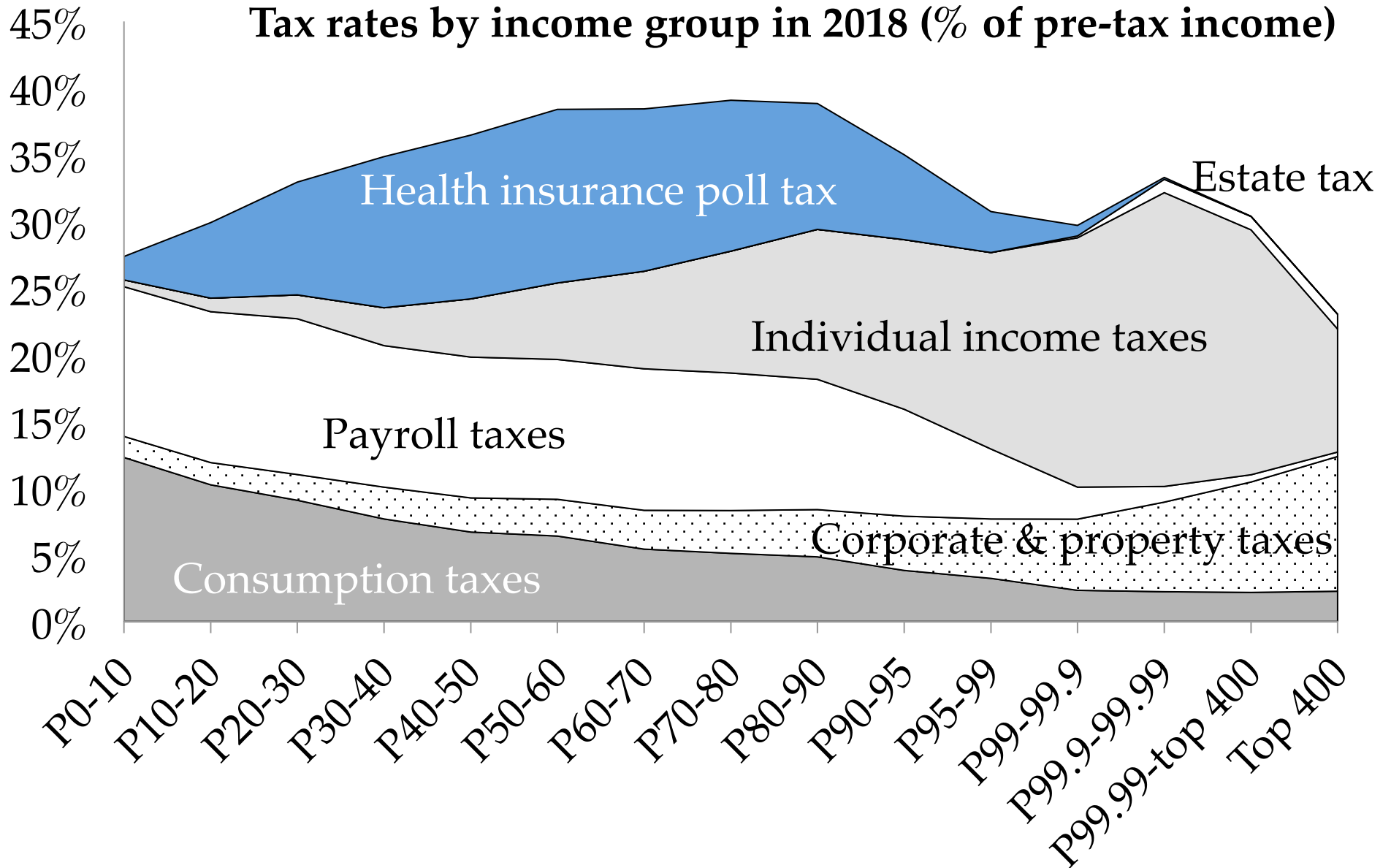
But cost has grown enormously: \$13K/covered worker in 2017

Workers ultimately bear the cost in the form of reduced wages [as employers care about total labor cost = wage + benefits]

This is like a “privatized poll tax” on workers as the secretary pays as much as the executive ⇒ Regressive not sustainable (Saez and Zucman 2019)

On Obamacare exchanges, individual purchase is subsidized based on family income (see below)

**Tax rates by income group in 2018 (% of pre-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 could only obtain it at an incredibly high price)

Even without pre-existing conditions, there was **adverse selection**

Obamacare exchanges is changing drastically the nongroup market by forbidding pricing/discrimination based on preexisting conditions and mandating health insurance (but the fine for non-coverage repealed in 2019+)

## **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% (along with general revenue)

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 by both Fed and State

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]

## **OBAMACARE (Affordable Care Act, ACA)**

Three tier system starts in 2014

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

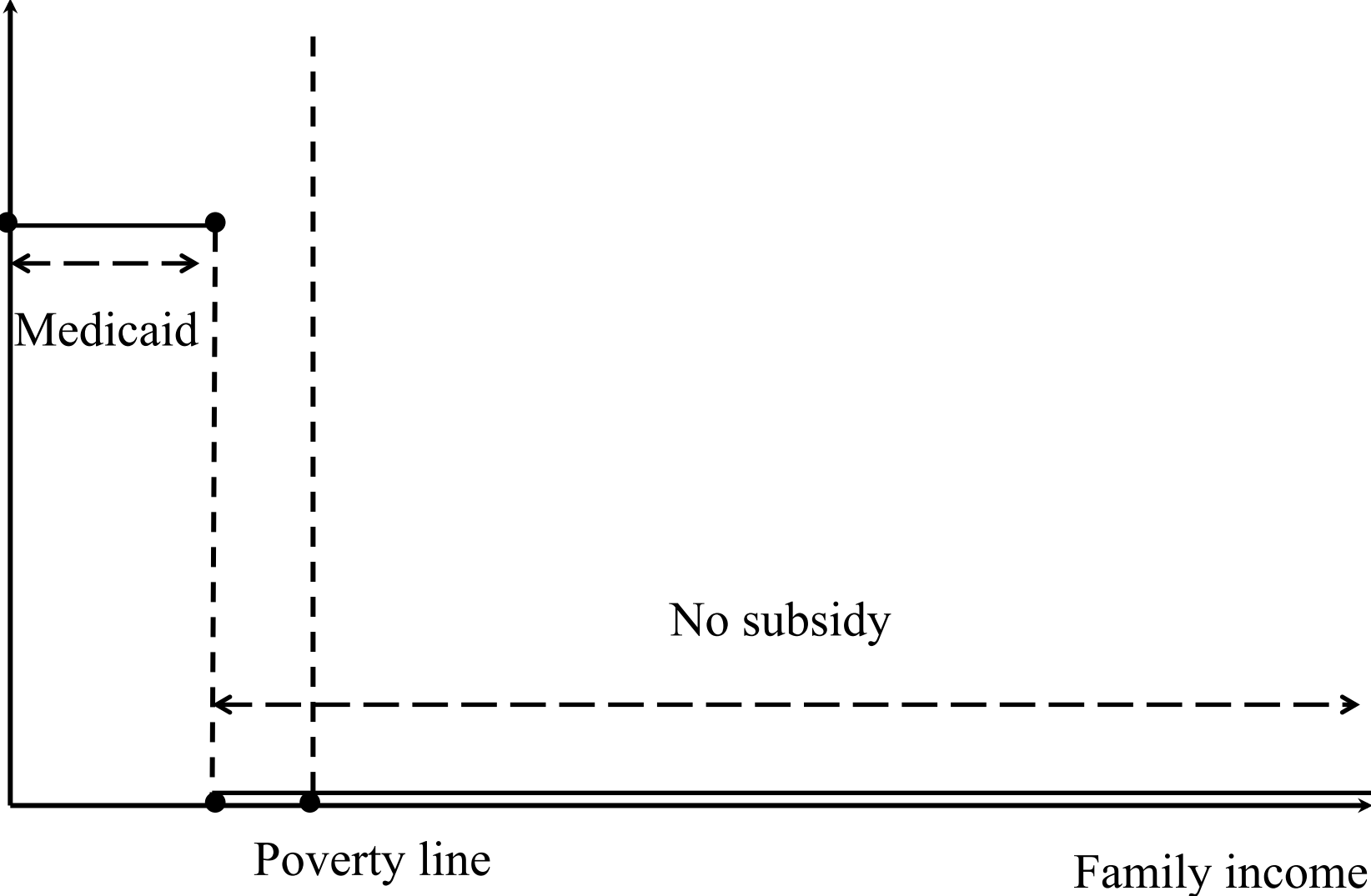
2) Mandate: forces individuals (and large employers with 50+ employees starting in 2015/6) to buy health insurance [else they pay a fine]. Individual fine gone in 2019+

3) Free/subsidized insurance for low-income families: (a) Medicaid expansion up to 138% of poverty line paid by Feds at 90% and (b) subsidized health insurance purchases in Obamacare exchanges up to 400% of poverty line [high deductibles and copays in exchanged while none on Medicaid]

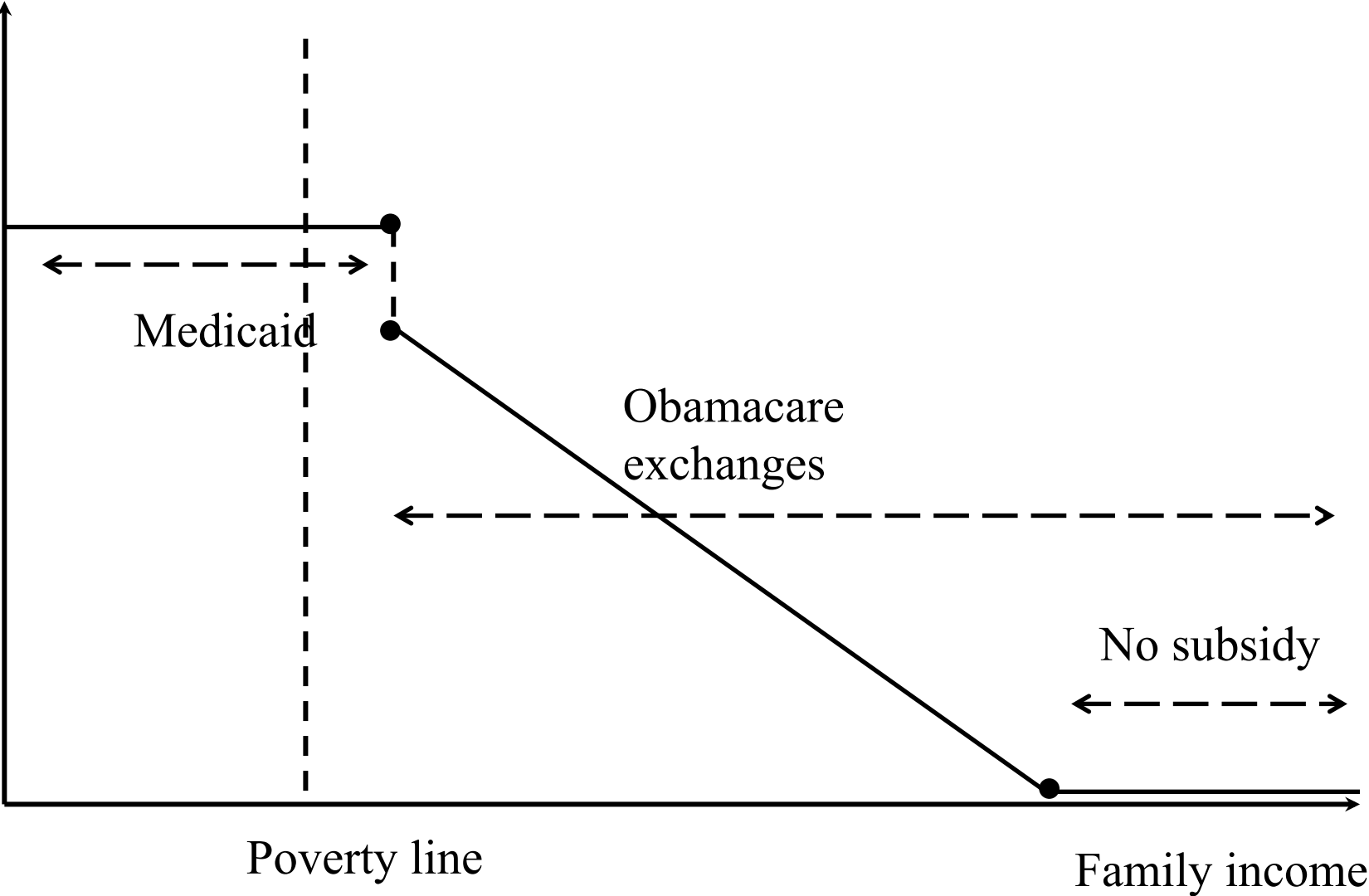
Funded primarily with surtax on rich

Starts trying to control costs [indeed costs increases have slowed down in recent years]

Health subsidy BEFORE Obamacare



# Health subsidy after Obamacare in Medicaid Expansion States



## LEGAL CHALLENGES TO OBAMACARE

1) Is the mandate constitutional? [July 2012]

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

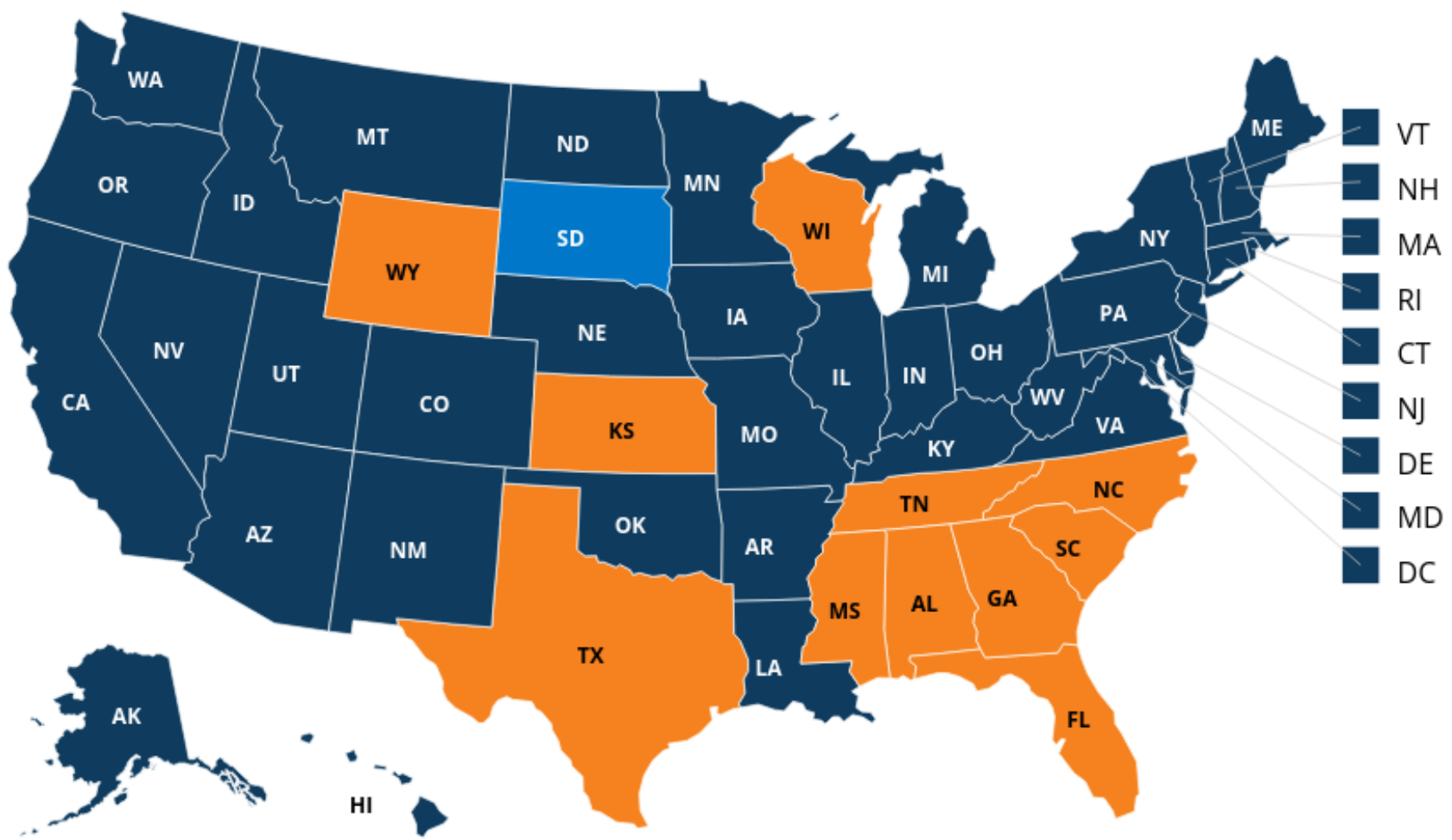
Consequence: Coverage gap because people below 100% of poverty cannot access subsidized Obamacare exchanges

States moving slowly to accept Medicaid expansion through referenda, 14 holdouts as of 2020, (web)

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

3) There are still pending court challenges to Obamacare

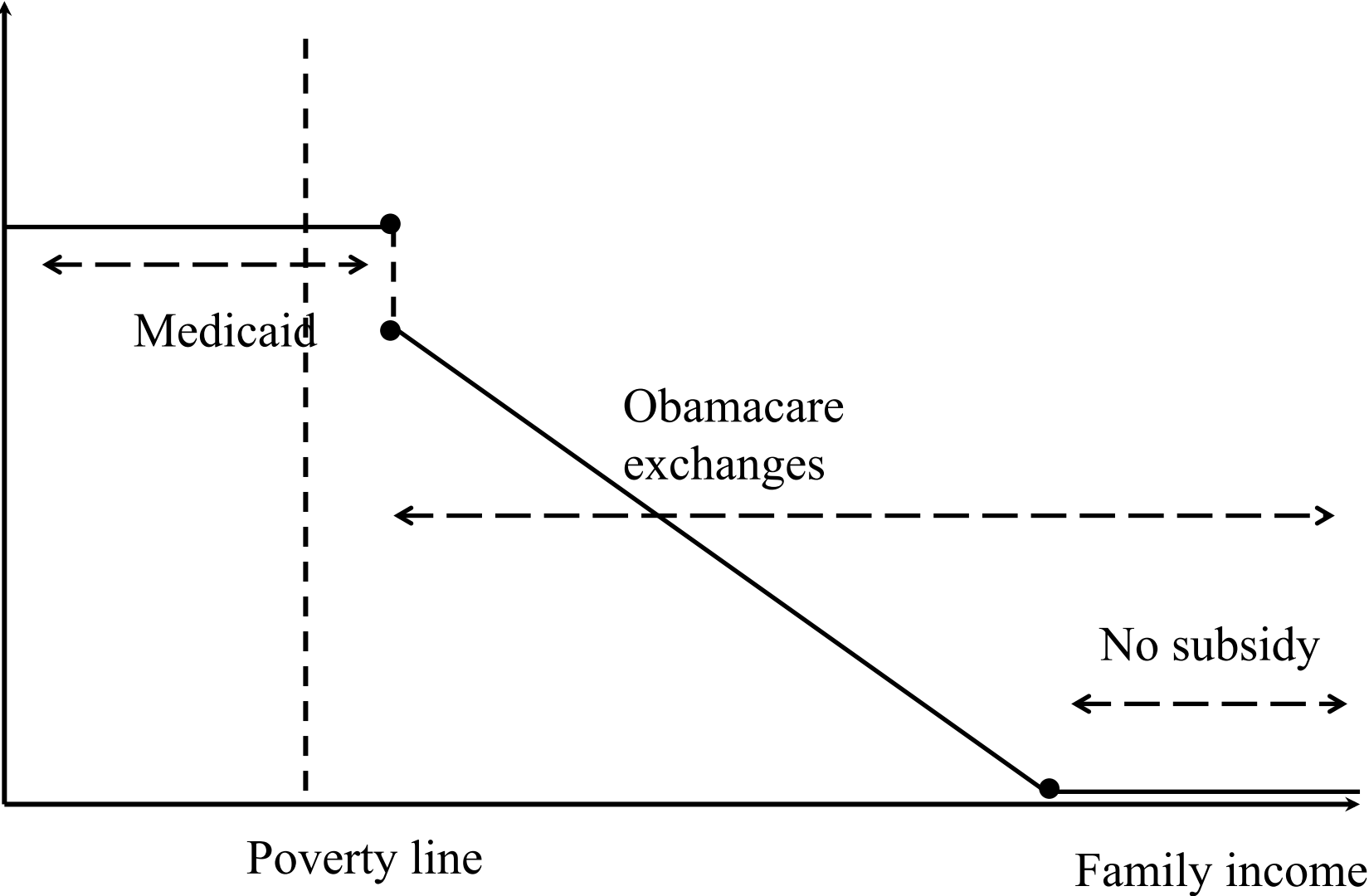
# Status of State Action on the Medicaid Expansion Decision



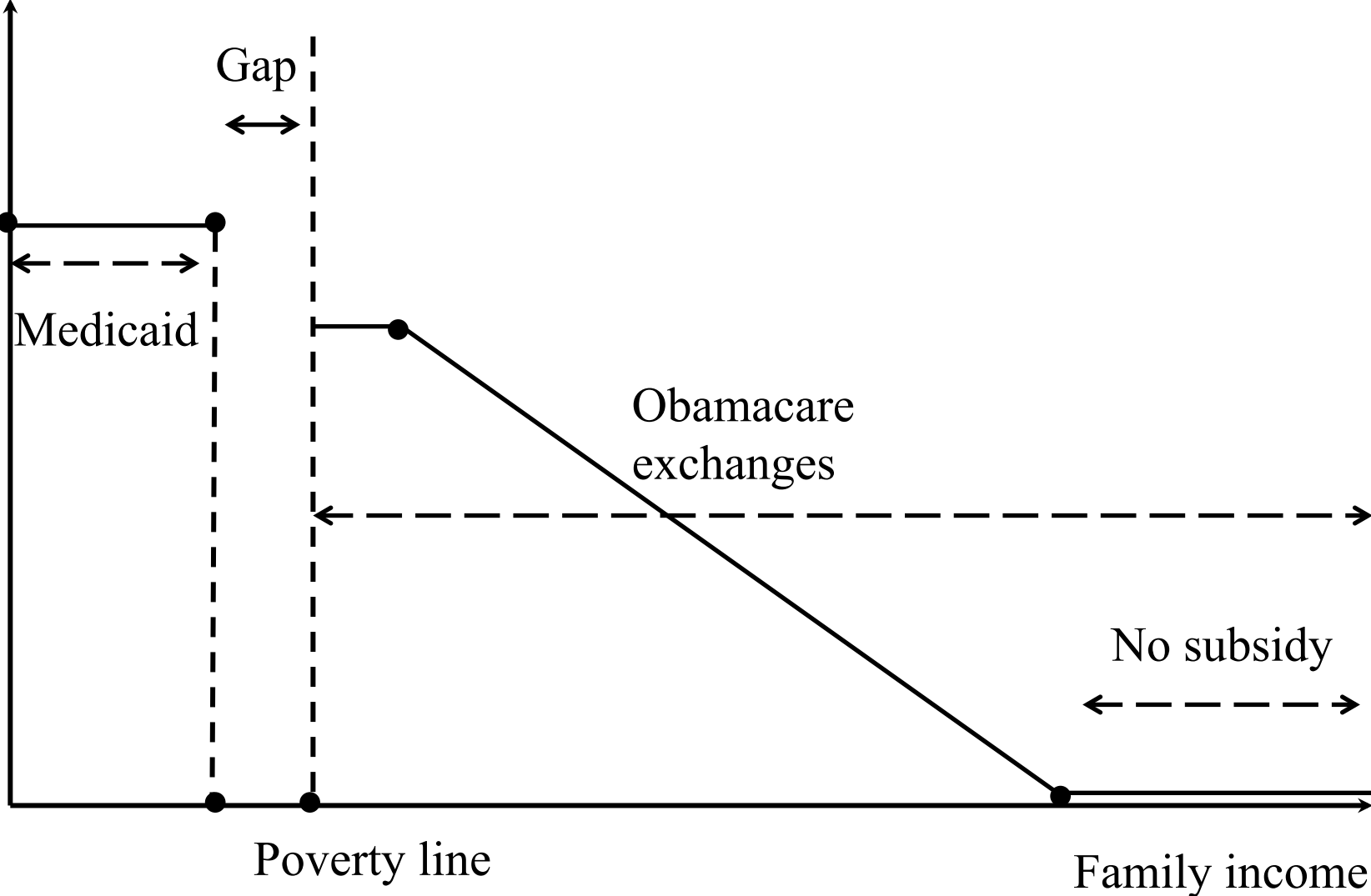
■ Adopted and Implemented   ■ Adopted but Not Implemented   ■ Not Adopted

SOURCE: Kaiser Family Foundation, kff.org

# Health subsidy after Obamacare in Medicaid Expansion States



# Health subsidy after Obamacare in non-expansion States



## THE UNINSURED

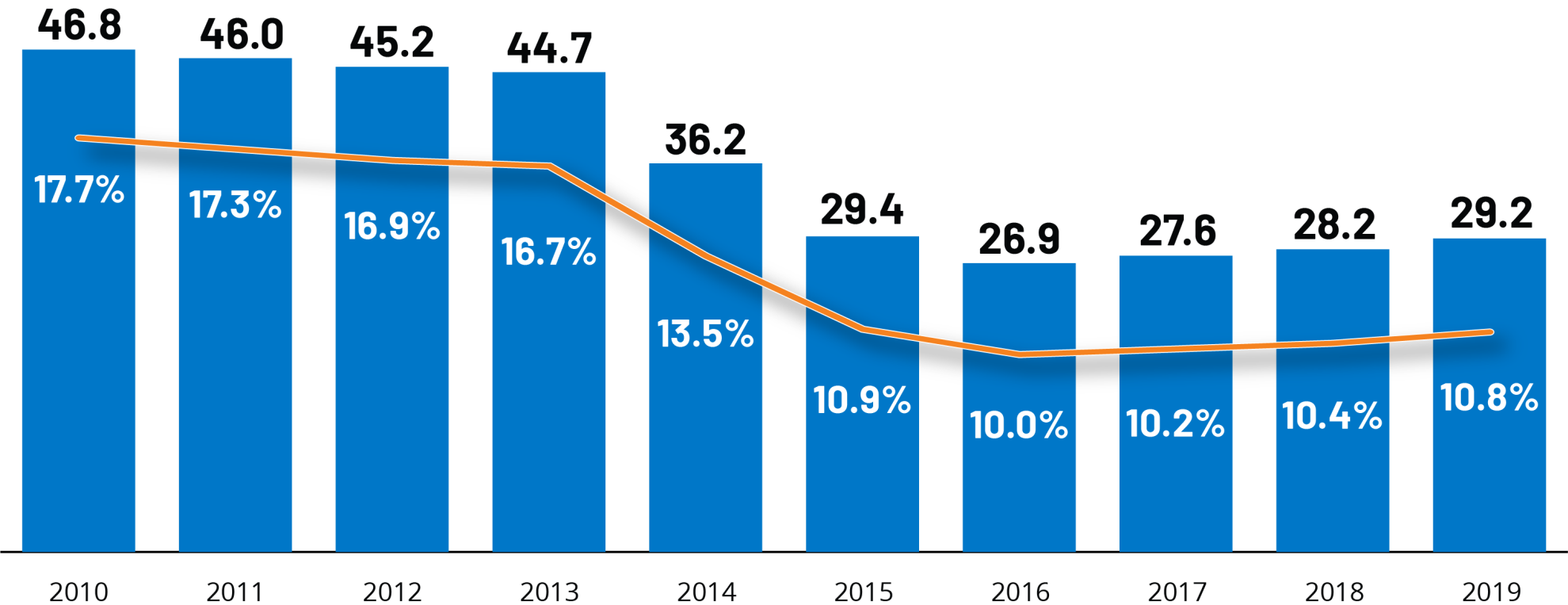
Fraction of individuals uninsured should fall by 50% with Obamacare [from 15% of population in 2013 down to 9% in 2017, 10-11% in 2020?]. Three groups of uninsured:

- 1) Undocumented immigrants (no access to Medicaid or Obamacare subsidized exchanges)  $\simeq$  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 will expand]
- 3) People who did not sign up for Obamacare exchange (used to pay the fine, no fine in 2019+), poor people who qualify for Medicaid but haven't taken up benefits

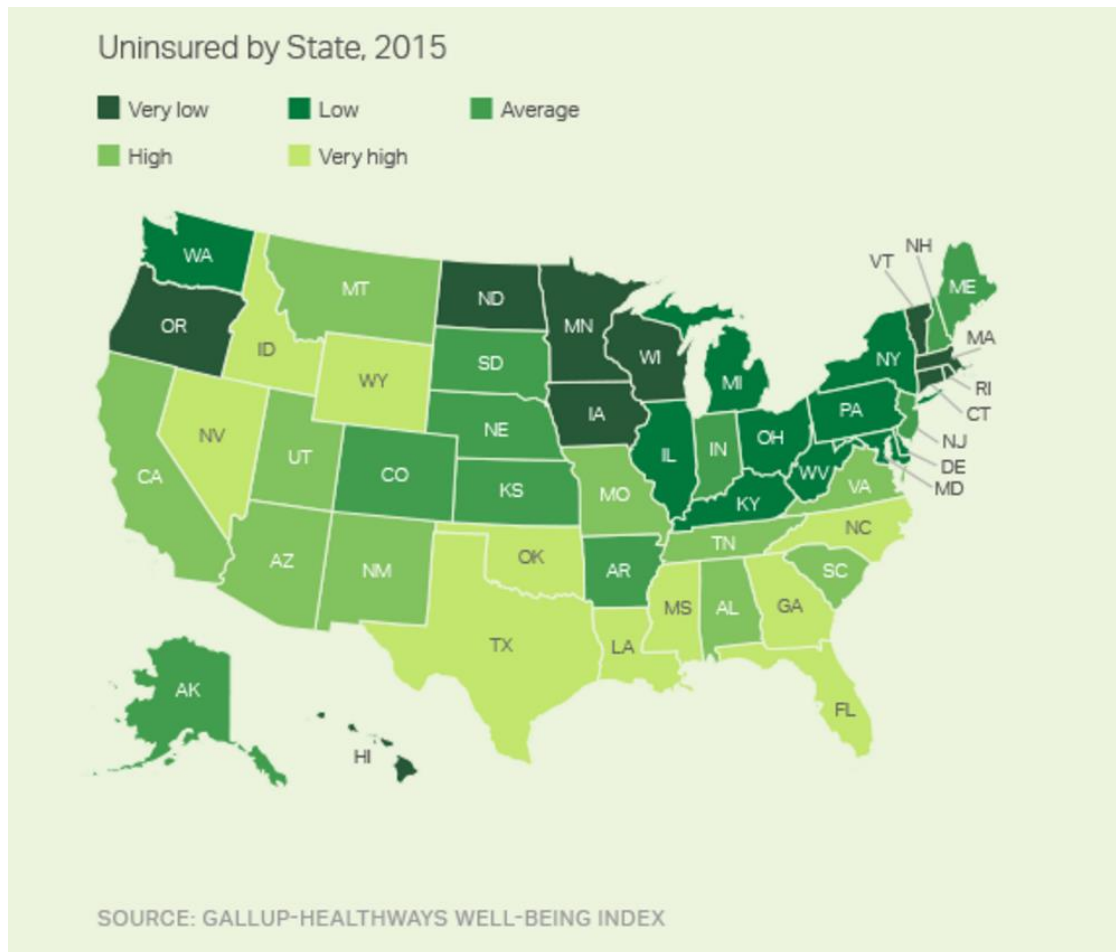
Key issue: uninsured face prohibitive health care costs [price gouging from hospitals] so don't get care or go bankrupt with health care debt [no market serving uninsured has arisen]

# Number of Uninsured and Uninsured Rate among the Nonelderly Population, 2010-2019

● Number of Uninsured in Millions



# Coverage Gains Vary by State



State	% Uninsured		Expanded Medicaid
	2013	2015	
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 which control costs)  
⇒ Poor cannot afford health care on their own and need help

People face difference 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)

## Medicare for All Debate in the US

Among democrats, debate on Medicare for All vs. improving Obamacare

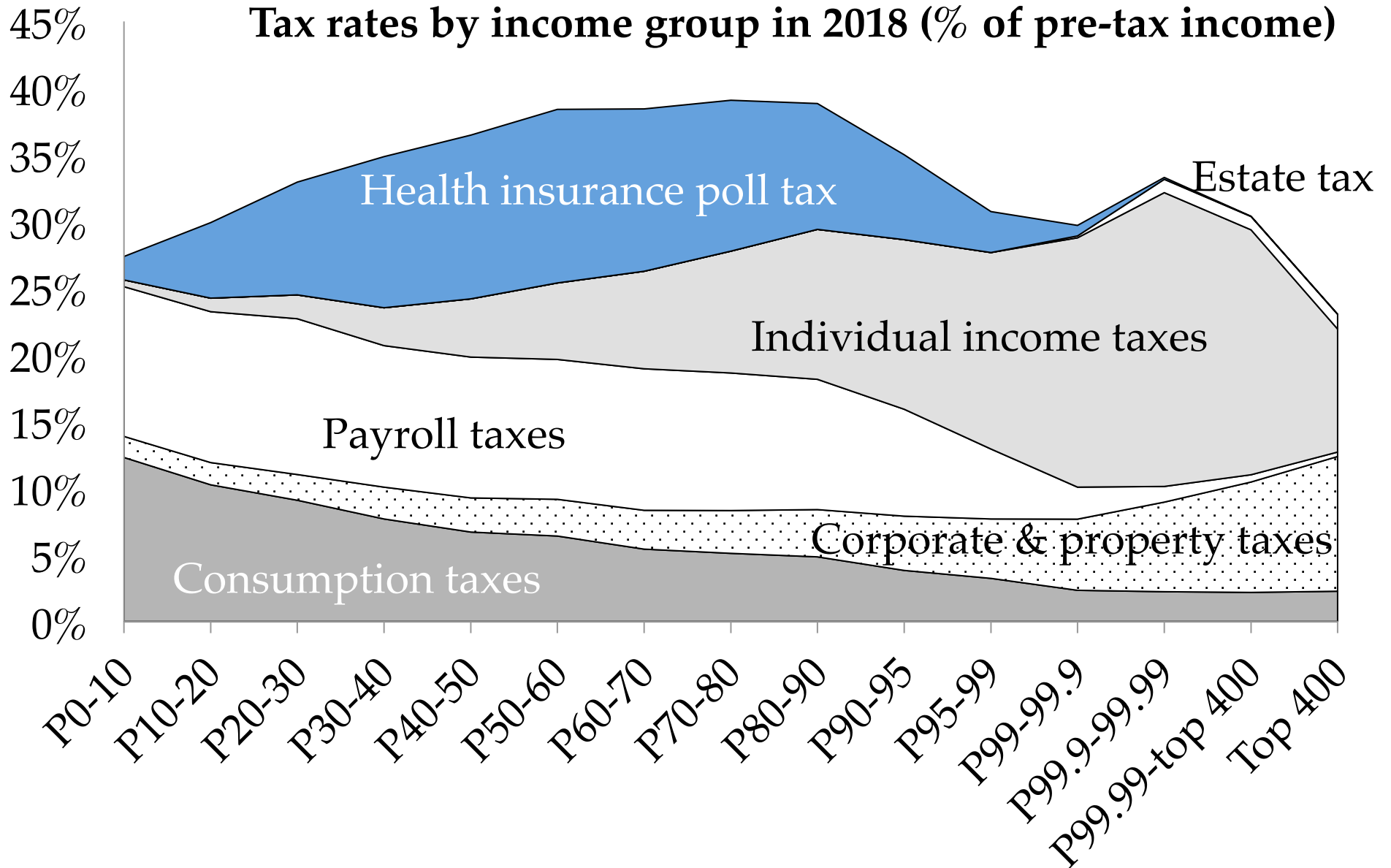
**Medicare of All** is universal health care with low copays/deductibles funded by taxes (as in other OECD countries)

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

**Improving Obamacare** starts from existing system and patches the holes: expand Medicaid, improves Obamacare exchanges (public option, lower deductibles, etc.)

More feasible but keeps employer coverage system where workers pay full price regardless of earnings and less ability to control costs

**Tax rates by income group in 2018 (% of pre-tax income)**



## Effect of Health Care on Utilization and Health: Oregon Medicaid Health Insurance Experiment

- In 2008, Oregon had a limited Medicaid budget  $\Rightarrow$  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. 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

Two way to report the results:

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

LATE (local average treatment effect): Inflate estimates by  $1/[\text{difference in fraction insured between winners and losers}] = 1/.29 = 3.5$

## 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)**

	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 (0.481)	0.025 (0.0083)	0.088 (0.029)	[0.002] {0.005}	2.318 (2.878)	0.100 (0.051)	0.347 (0.176)	[0.049] {0.137}
Outpatient visits last six months	0.574 (0.494)	0.062 (0.0074)	0.212 (0.025)	<0.0001 {<0.0001}	1.914 (3.087)	0.314 (0.054)	1.083 (0.182)	<0.0001 {<0.0001}
ER visits last six months	0.261 (0.439)	0.0065 (0.0067)	0.022 (0.023)	[0.335] {0.547}	0.47 (1.037)	0.0074 (0.016)	0.026 (0.056)	[0.645] {0.643}
Inpatient Hospital admissions last six months	0.072 (0.259)	0.0022 (0.0040)	0.0077 (0.014)	[0.572] {0.570}	0.097 (0.4)	0.0062 (0.0062)	0.021 (0.021)	[0.311] {0.510}
<i>Standardized treatment effect</i>		0.050 (0.011)	0.173 (0.036)	<0.0001		0.040 (0.011)	0.137 (0.038)	[0.0003]
<i>Annual spending<sup>a</sup></i>					3,156	226 (108)	778 (371)	[0.037]

**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 (0.497)	-0.058 (0.0077)	-0.200 (0.026)	[<0.0001] {<0.0001}
Owe money for medical expenses currently	0.597 (0.491)	-0.052 (0.0076)	-0.180 (0.026)	[<0.0001] {<0.0001}
Borrowed money or skipped other bills to pay medical bills, last six	0.364 (0.481)	-0.045 (0.0073)	-0.154 (0.025)	[<0.0001] {<0.0001}
Refused treatment bc of medical debt, last six months	0.081 (0.273)	-0.011 (0.0041)	-0.036 (0.014)	[0.01] {0.01}
<i>Standardized treatment effect</i>		-0.089 (0.010)	-0.305 (0.035)	[<0.0001]

**Table IX: Health**

	Control Mean (1)	ITT (2)	LATE (3)	p-values (4)
<b>Panel A: Administrative data</b>				
Alive	0.992 (0.092)	0.00032 (0.00068)	0.0013 (0.0027)	[0.638]
<b>Panel B: Survey Data</b>				
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}
<i>Standardized treatment effect</i>		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 (1)	ITT (2)	LATE (3)	p-values (4)
<b>Panel A: Access to care</b>				
Have usual place of clinic-based care	0.499 (0.500)	0.099 (0.0080)	0.339 (0.027)	[<0.0001] {<0.0001}
Have personal doctor	0.490 (0.500)	0.081 (0.0077)	0.280 (0.026)	[<0.0001] {<0.0001}
Got all needed medical care, last six months	0.684 (0.465)	0.069 (0.0063)	0.239 (0.022)	[<0.0001] {<0.0001}
Got all needed drugs, last six months	0.765 (0.424)	0.056 (0.0055)	0.195 (0.019)	[<0.0001] {<0.0001}
Didn't use ER for non-emergency, last six months	0.916 (0.278)	-0.0011 (0.0043)	-0.0037 (0.015)	[0.804] {0.804}
<i>Standardized treatment effect</i>		0.128 (0.0084)	0.440 (0.029)	[<0.0001]

Source: Finkelstein et al. 2012

## Effect of Medicare on Health

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

1) Card-Dobkin-Maestas “The Impact of Nearly Universal Insurance Coverage on Health Care Utilization and Health: Evidence from Medicare” AER 2008

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

2) Card-Dobkin-Maestas “Does Medicare Save Lives?” QJE’09

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  $> 65$

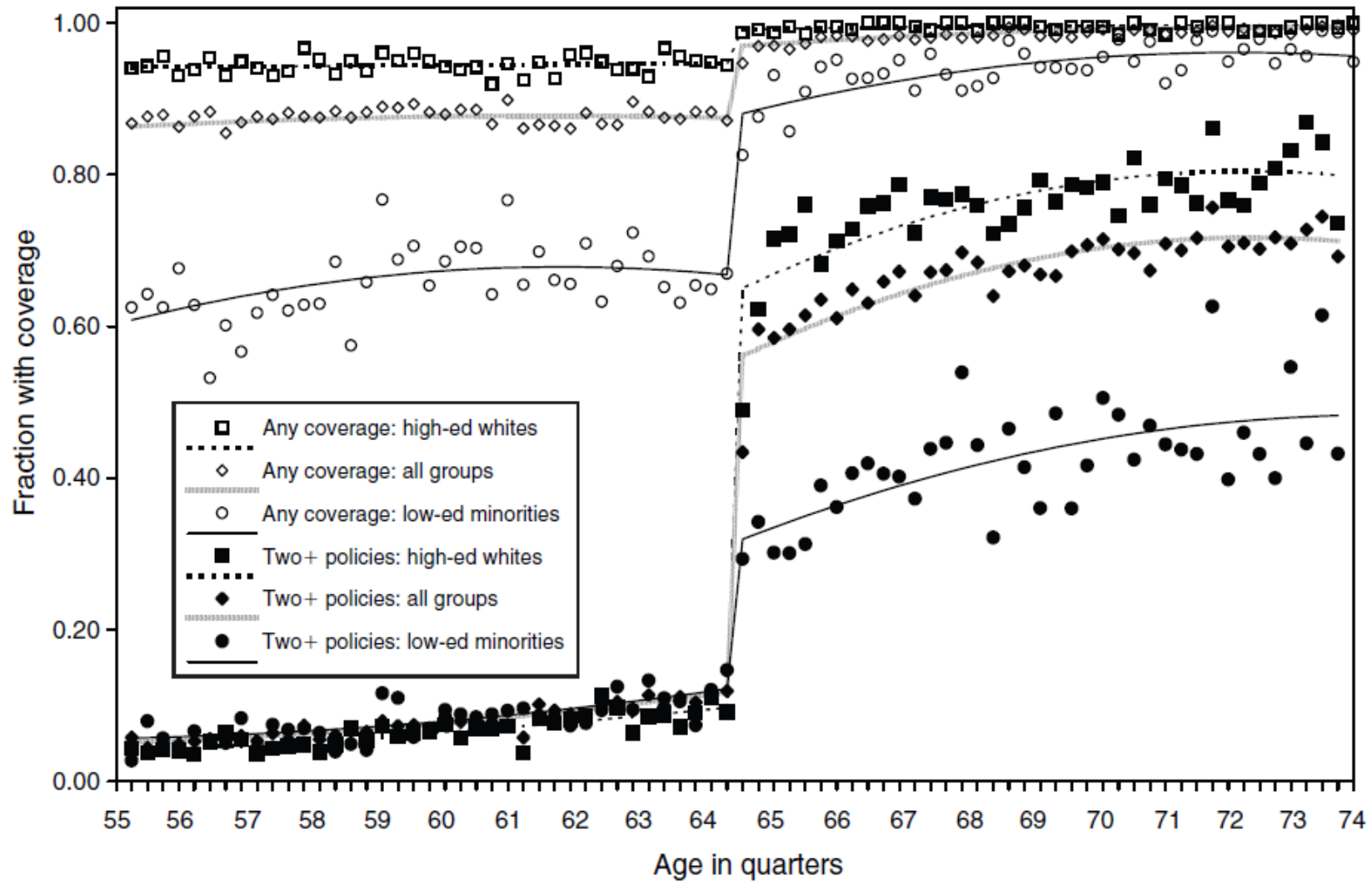


FIGURE 1. COVERAGE BY ANY INSURANCE AND BY TWO OR MORE POLICIES, BY AGE AND DEMOGRAPHIC GROUP

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

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

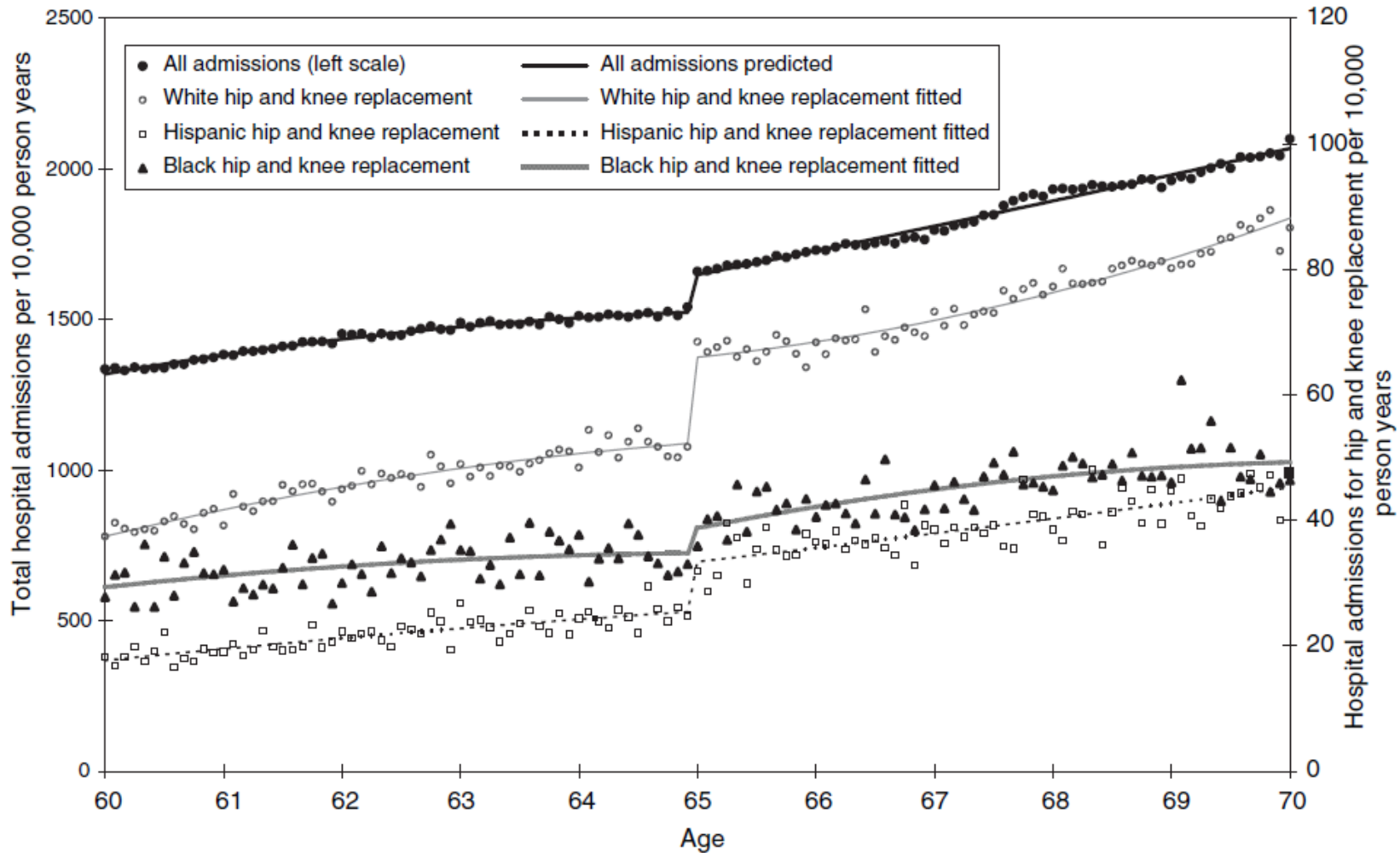


FIGURE 3. HOSPITAL ADMISSION RATES BY RACE/ETHNICITY

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

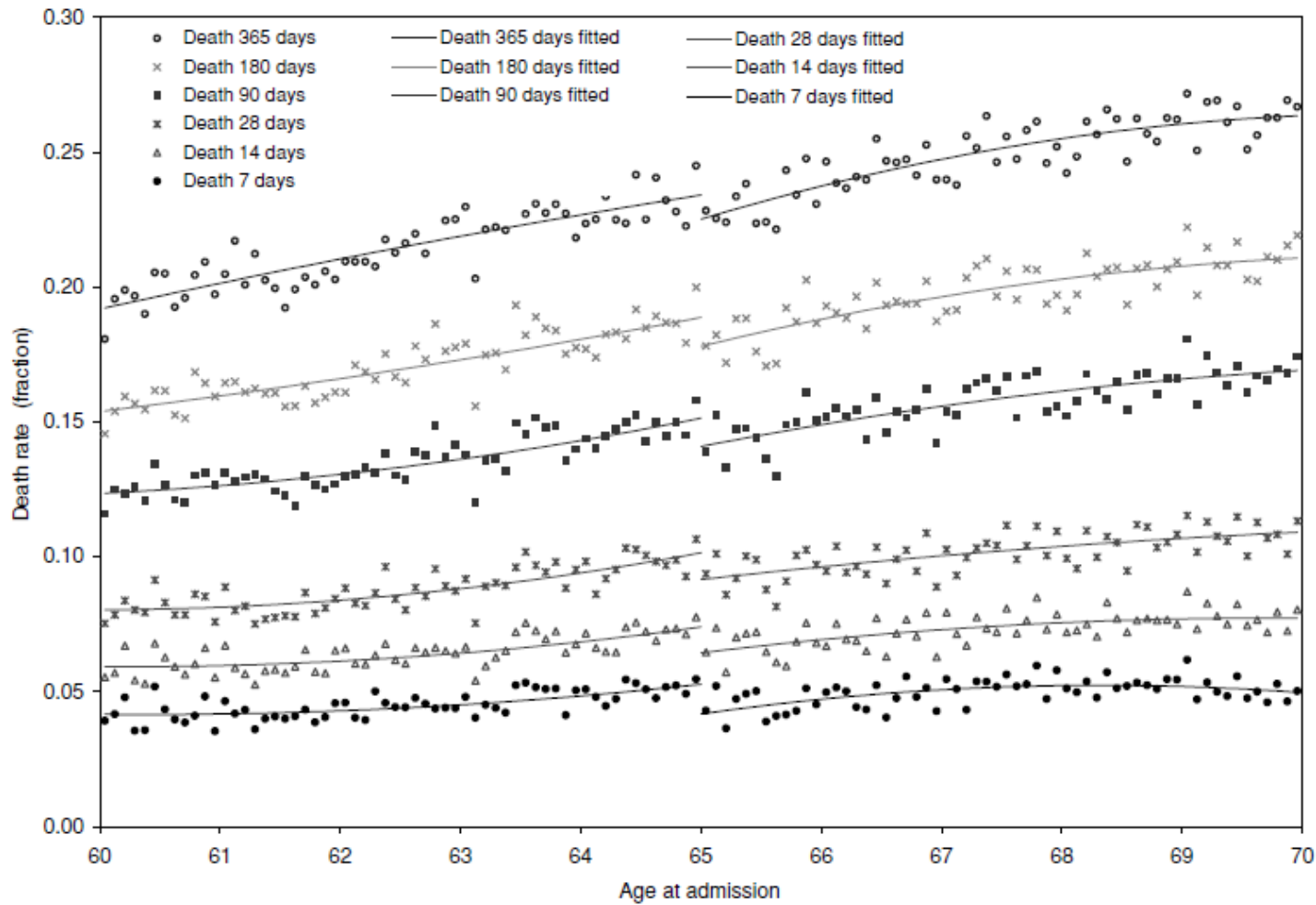


FIGURE VI  
Patient Mortality Rates over Different Follow-Up Intervals

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

## 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 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!

⇒ 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.

## **Biggest failure of US health care: Opioid Epidemic**

Late 1990s, big pharma pushed opioid pain killers aggressively

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

⇒ Led to misuse and addicted then turned to heroin and fentanyl (80% of current addicts started with prescription opioids). US now has 1.5m opioid addicts.

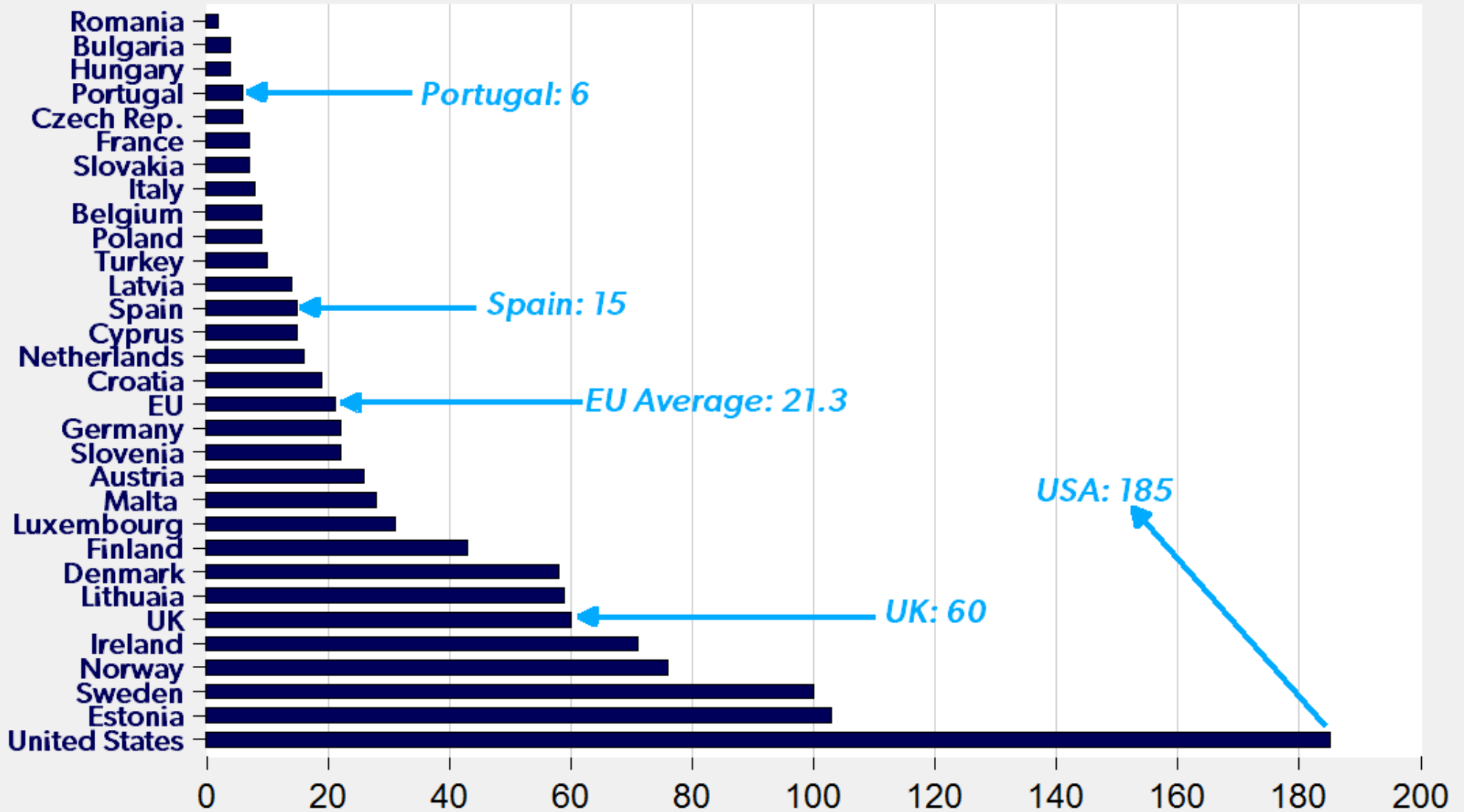
70K people/year die from overdoses (5% death rate/year for addicts). 10 times more deaths than in EU relative to pop

⇒ US is slowly shifting from “addiction is a crime” to “addiction is a health care problem”

⇒ Overdose death rates vary tremendously from 6/million in Portugal, 60/million in UK or Sweden, up to 250/million in the US (web)

⇒ Portugal decriminalized drugs and deployed health care solution ⇒ drop in overdose deaths (more modest decrease in addiction rate)

## Drug Induced Deaths per Million Population, Ages 15-64



Sources: European Drug Report 2017 and New York Times

## 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

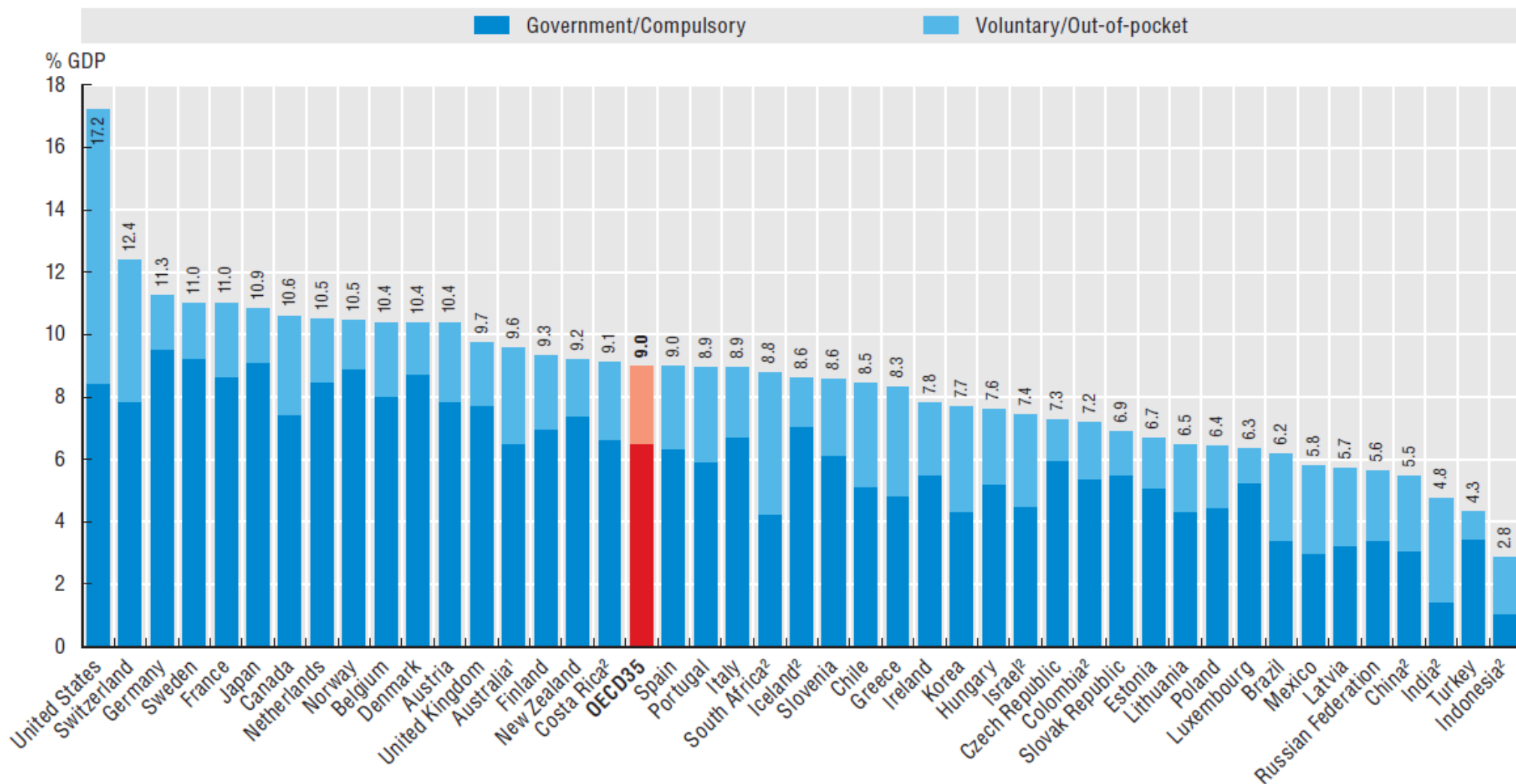
3) Countries which are the most successful at containing costs choose to use only the cost effective new treatments: reduces costs while having very little effect on health outcomes

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

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



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2. Includes investments.

Source: Health at a Glance 2017.

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