I. INTERNATIONAL COMPARISONS

- Big gain in health outcomes going from poor country to developed country.
- Less gain in health outcomes with more spending once developed. But still gain.
- U.S. is unusual. Highest expenditures but, given this, low life expectancy and high infant mortality.
- Possible explanations include
  - excessively high medical prices / inefficiency
  - lack of access (due to uninsured)
  - expensive medical technology not useful
  - unhealthy health habits (smoking, obesity, ...)

Bhattacharya, Hyde and Tu Chapter 15.6: Comparing National Health Policies

I.1 RESOURCES AND UTILIZATION: U.S. vs. OECD 2015

	U.S.	OECD Average
Spending		
GDP per capita	$65,000	$47,000
Health spending	$10,900	$4,100
Spending as % of GDP	17 %	9 %
Utilization		
Doctor Consultations per capita	4.0	6.6
Hospital discharges per capita	0.13	0.15
Resources		
Practicing physicians per 1,000 pop	2.6	3.6
Hospital beds per 1,000 popn	2.8	4.4
MRI scanner Units per million	40	17

U.S. spends more but does not seem to have higher resources (except MRI) utilization.

I.2 OUTCOMES: U.S. versus OECD COUNTRIES 2018

Data for 2018 from OECD online (other years are similar)

GDPpc = GDP per capita in U.S.$ (purchasing power parity)

HLTH_GDP = Health expenditures as percentage of GDP

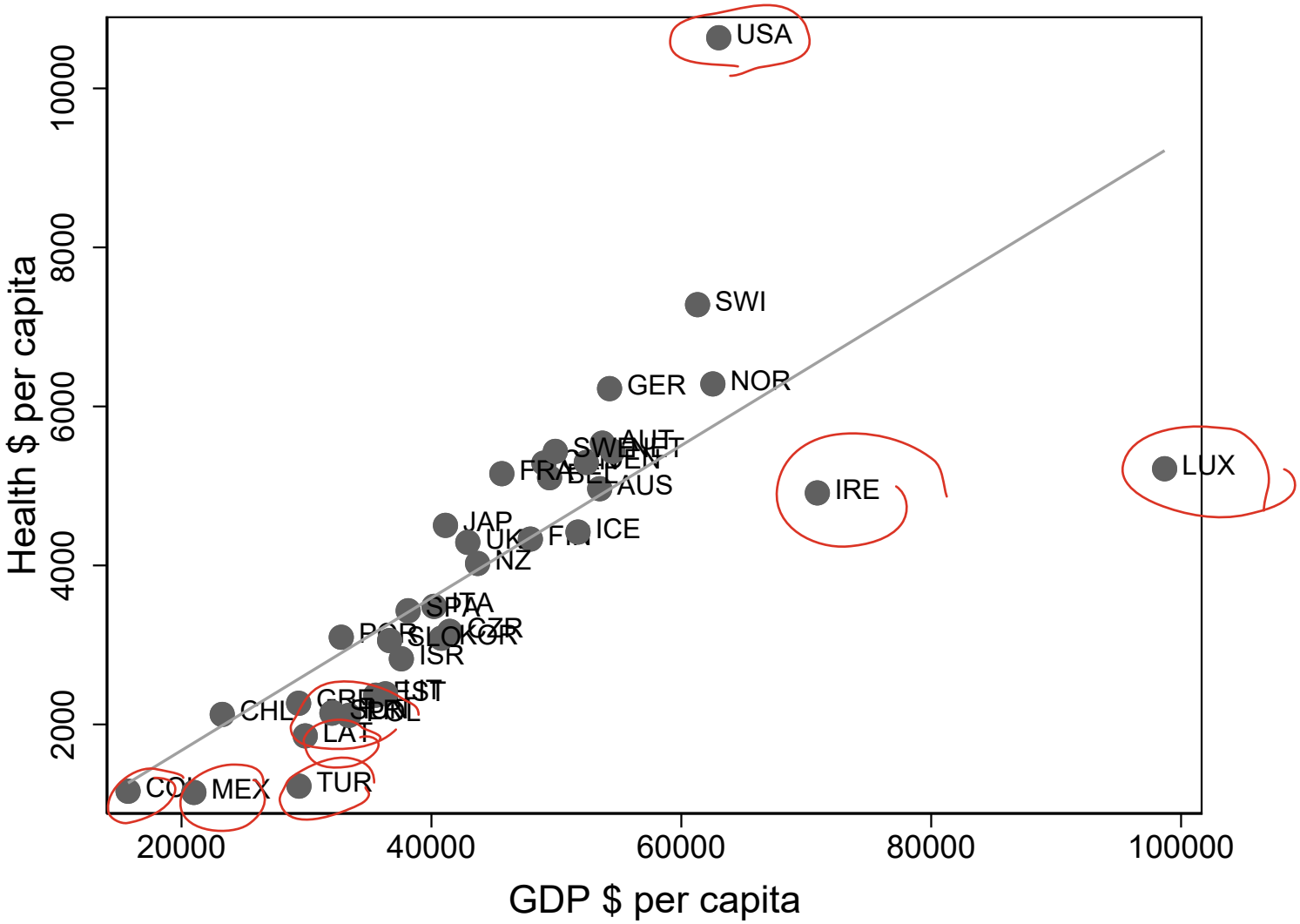
HLTHpc = Health expenditures per capita in U.S.$

InfMort = Number of deaths of children under 1 year per 1,000 live births

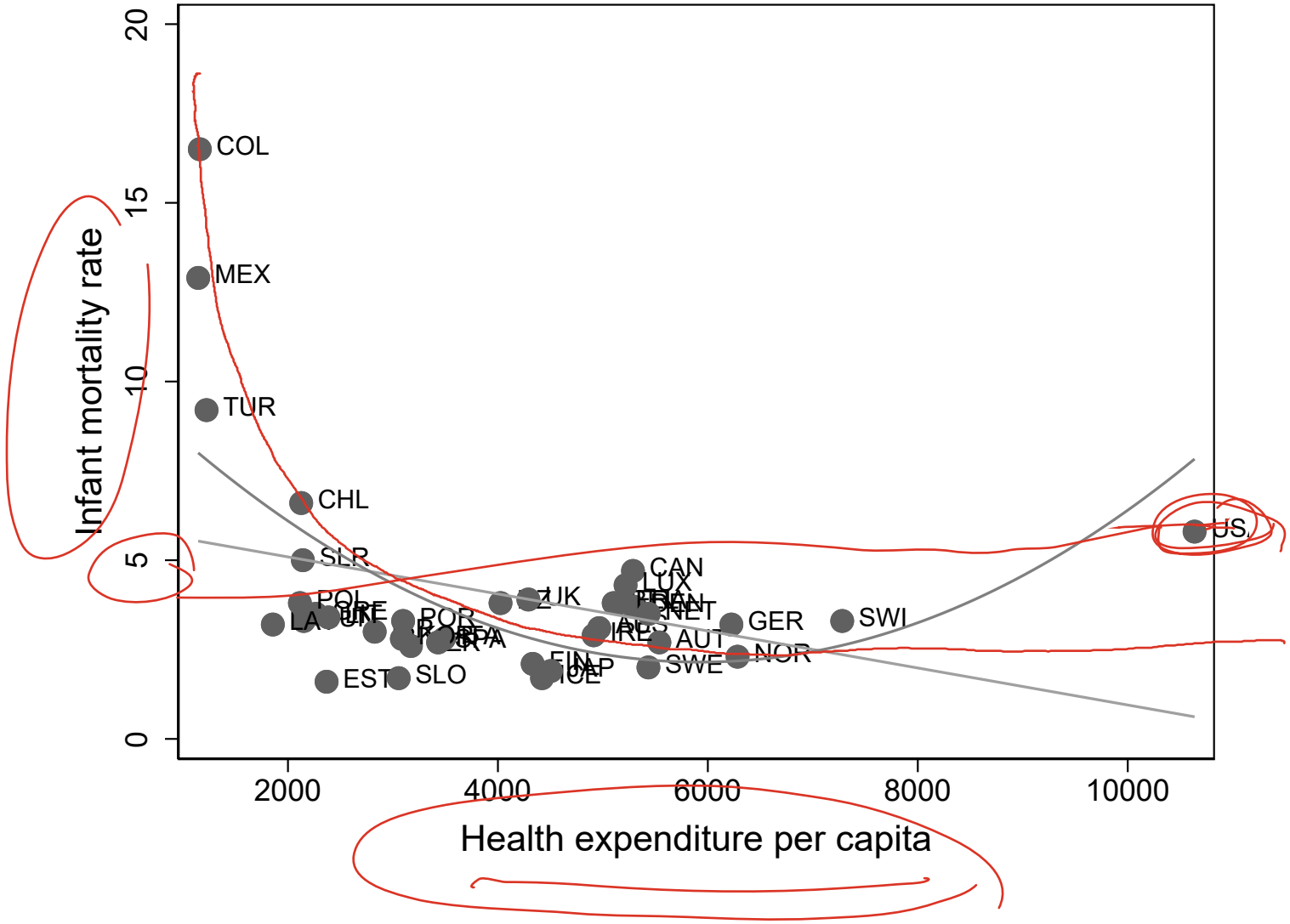
LifeExpM = Life expectancy of males at birth

	country	gdppc	hlthpc	hlthgdp	lifeexp	infmort
1.	Australia	53468	4965	9.3	82.8	3.1
2.	Austria	53687	5538	10.3	81.8	2.7
3.	Belgium	49454	5103	10.3	81.7	3.8
4.	Canada	49003	5287	10.8	82	4.7
5.	Chile	23257	2126	9.1	80.4	6.6
6.	Colombia	15720	1160	7.4	77.1	16.5
7.	Czech Republic	41463	3171	7.6	79.1	2.6
8.	Denmark	52395	5295	10.1	81	3.7
9.	Estonia	35541	2368	6.7	78.4	1.6
10.	Finland	47920	4331	9	81.8	2.1
11.	France	45636	5154	11.3	82.8	3.8
12.	Germany	54257	6224	11.5	81	3.2
13.	Greece	29370	2266	7.7	81.9	3.5
14.	Hungary	32085	2150	6.7	76.2	3.3
15.	Iceland	51731	4420	8.5	82.9	1.7
16.	Ireland	70888	4912	6.9	82.3	2.9
17.	Israel	37592	2826	7.5	82.9	3
18.	Italy	40205	3485	8.7	83.4	2.8
19.	Japan	41125	4504	11	84.2	1.9
20.	Korea	40793	3085	7.6	82.7	2.8

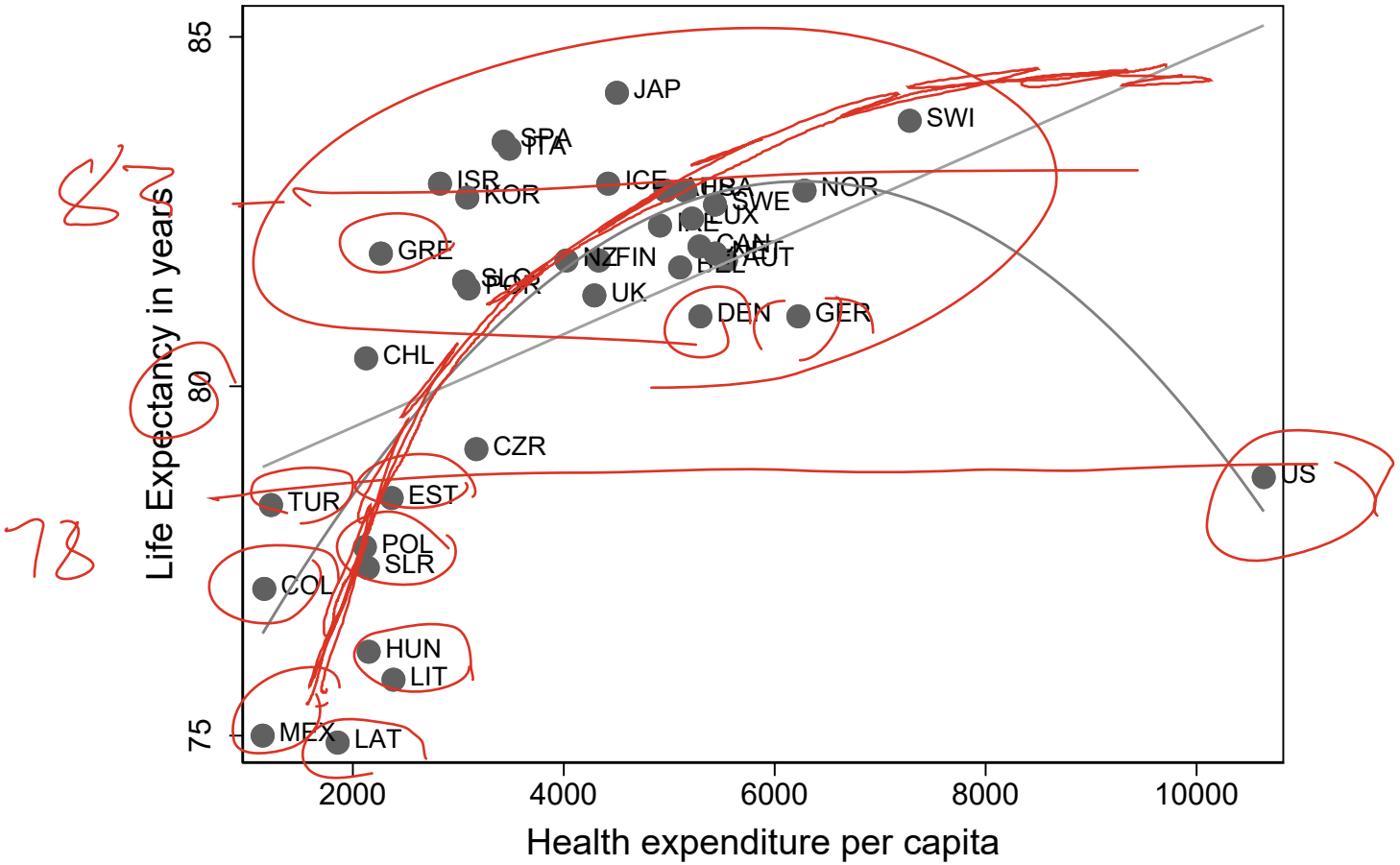
	country	gdppc	hlthpc	hlthgdp	lifeexp	infmort
19.	Japan	41125	4504	11	84.2	1.9
20.	Korea	40793	3085	7.6	82.7	2.8
21.	Latvia	29900	1856	6.2	74.9	3.2
22.	Lithuania	36314	2385	6.6	75.8	3.4
23.	Luxembourg	98681	5216	5.3	82.4	4.3
24.	Mexico	20988	1145	5.5	75	12.9
25.	Netherlands	54505	5436	10	81.9	3.5
26.	New Zealand	43693	4025	9.2	81.8	3.8
27.	Norway	62525	6283	10	82.8	2.3
28.	Poland	33387	2114	6.3	77.7	3.8
29.	Portugal	32783	3097	9.4	81.4	3.3
30.	Slovak Republic	32038	2142	6.7	77.4	5
31.	Slovenia	36656	3055	8.3	81.5	1.7
32.	Spain	38139	3430	9	83.5	2.7
33.	Sweden	49915	5434	10.9	82.6	2
34.	Switzerland	61298	7280	11.9	83.8	3.3
35.	Turkey	29399	1224	4.2	78.3	9.2
36.	United Kingdom	42911	4290	10	81.3	3.9
37.	United States	62998	10637	16.9	78.7	5.8



Health spending per capita rises with GDP per capita.
But U.S. spends much more than linear model predicts.



Infant mortality falls as more is spent on health.
But U.S. has much more infant mortality than linear model predicts



Life expectancy rises as more is spent on health.
But U.S. has much lower life expectancy than linear model predicts.

Schneider et al. (2017), "Mirror, Mirror: How the U.S. Health Care System Compares Internationally," The Commonwealth Fund.

- Not well.

Exhibit 2

Health Care System Performance Rankings

	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
OVERALL RANKING	2	9	10	8	3	4	4	6	6	1	11
Care Process	2	6	9	8	4	3	10	11	7	1	5
Access	4	10	9	2	1	7	5	6	8	3	11
Administrative Efficiency	1	6	11	6	9	2	4	5	8	3	10
Equity	7	9	10	6	2	8	5	3	4	1	11
Health Care Outcomes	1	9	5	8	6	7	3	2	4	10	11

Next slide Papanicolous et al. 2018 "Health care Spending in the U.S. and other high-income countries" JAMA 319(10): 1024-1039

Figure 1. Spending

Rank (highest to lowest)	1	2	3	4	5	6	7	8	9	10	11	Mean
General												
Overall population (in millions)	US 323	Japan 127	Germany 83	UK 66	France 64	Canada 36	Australia 24	NLD 17	Sweden 10	CHE 8	Denmark 6	69
Population ≥65 y, %	Japan 25.1	Germany 21.4	Sweden 19.9	France 18.2	Denmark 18.1	CHE 17.5	UK 17.3	NLD 17.3	Canada 15.7	Australia 14.7	US 14.5	18.2
GDP per capita, US $ (in thousands)	CHE 54.00	Denmark 53.40	US 52.10	Sweden 51.60	NLD 46.30	Australia 45.10	Germany 42.90	Canada 42.40	France 41.00	UK 38.50	Japan 37.50	45.90
Land area (× 1000 sq km)	Canada 9985	US 9834	Australia 7741	France 549	Sweden 450	Japan 378	Germany 357	UK 244	Denmark 43	NLD 42	CHE 42	2697
Poverty rate, % below poverty line of 60%	US 24	Japan 22	Canada 21	Australia 20	UK 18	Sweden 17	CHE 17	Germany 16	France 15	NLD 15	Denmark 12	18
Health spending												
Total spending on health, % of total national GDP	US 17.8	CHE 12.4	Sweden 11.9	Germany 11.3	France 11	Japan 10.9	Denmark 10.8	NLD 10.5	Canada 10.3	UK 9.7	Australia 9.6	11.5
Public spending on health, % of total national GDP	Sweden 10	NLD 9.5	Denmark 9.2	Germany 8.7	France 8.7	Japan 8.6	US 8.3	CHE 7.7	UK 7.6	Canada 7.4	Australia 6.3	8.4
Mean spending on health per capita, US $	US 9403	Sweden 6808	CHE 6787	Denmark 6463	NLD 5202	Germany 5182	Canada 4641	Australia 4357	Japan 3727	France 3661	UK 3377	5419
Health expenditure by function of care as a % of total national health expenditure												
Inpatient care	NLD 32	Australia 31	France 30	CHE 28	Denmark 28	Germany 27	Japan 27	UK 24	Sweden 21	US 19	Canada 17	26
Outpatient care	US 42	Australia 39	Canada 36	Denmark 34	CHE 33	Sweden 31	UK 30	Japan 27	Germany 23	France 23	NLD 22	31
Long-term care	Sweden 26	NLD 26	Denmark 24	CHE 19	Japan 19	UK 18	Germany 16	Canada 14	France 11	US 5	Australia 2	16
Medical goods	Germany 20	France 20	Canada 20	Japan 20	Australia 17	UK 15	US 14	CHE 13	Sweden 12	NLD 12	Denmark 10	16
Governance and administration	US 8	Germany 5	NLD 4	CHE 4	Canada 3	Australia 3	UK 2	Sweden 2	Denmark 2	France 1	Japan 1	3
Home-based care	France 4	US 3	UK 3	Japan 3	Germany 1	Sweden 0	NLD 0	Canada 0	Australia 0	CHE NA	Denmark NA	2
Preventive care	Canada 6	UK 5	NLD 4	US 3	Germany 3	Sweden 3	Denmark 3	Japan 3	France 2	CHE 2	Australia 2	3
Other	France 9	US 6	Australia 6	Germany 5	Sweden 5	Canada 4	UK 3	CHE 1	Japan 1	NLD 0	Denmark 0	4
Population with health care coverage, %	UK 100	Sweden 100	CHE 100	Denmark 100	Canada 100	Japan 100	Australia 100	France 99.9	NLD 99.9	Germany 99.8	US 90	99

GDP indicates gross domestic product; NA, not applicable. CHE indicates Switzerland; NLD, the Netherlands. See eTable 1 in Supplement 2 for data ordered by country.

I.3 RICH vs. INTERMEDIATE vs. POOR COUNTRIES

2018 Data from *World Health Statistics 2020* and from OECD on 6 developed countries, 2 intermediate and 1 poor country.

Country	***Financing Measures (2018)***			***Outcomes Measures***	
Country	Popn	Hth$PC	%GDP	%Public	LE	5yrMort
Australia	25	4400	9	67	83	4
Britain	67	4400	10	79	81	4
Canada	37	4600	10	71	83	5
Germany	83	5300	11	85	81	4
Japan	127	4200	11	85	84	2
United States	327	9500	17	49	79	7
China	1435	730	6	56	76	9
India	1350	270	5	30	69	37
Afghanistan	37	170	8	36	63	62

Popn is population.

Hth$PC = Health $ / capita is health expenditures per capita measured in purchasing power parity "international dollars" which uses an exchange rate to convert to US dollars that increases developing countries data compared to using official exchange rates.

%GDP = Health % GDP is health expenditures as % of GDP.

% Public is percentage of health expenditures paid by government.

LE = Life Exp is life expectancy at birth (both sexes).

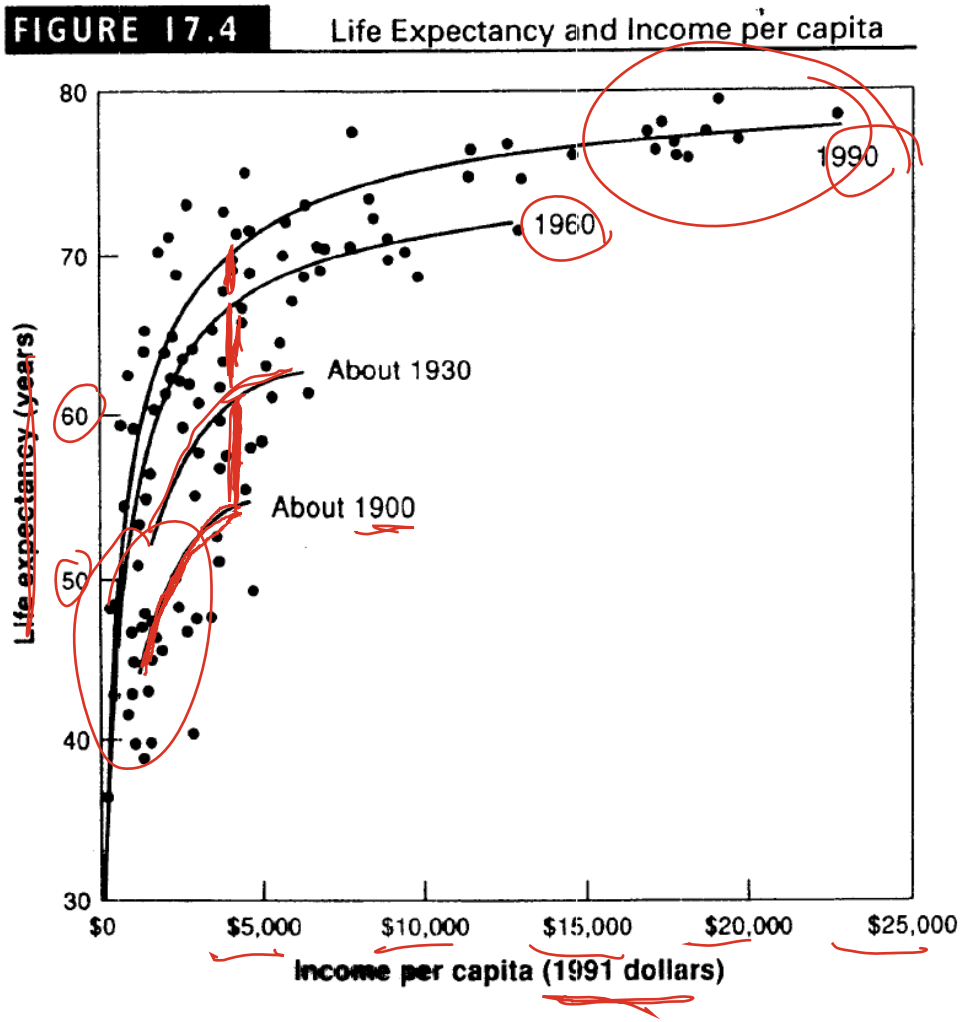
HALE = Healthy life expectancy is disability-adjusted life years (DALY) at birth.

5yrMort = 5 year child mortality rate is probability of dying by age 5 per 1000 live births.

The developed countries look very similar, and clearly dominate India and China, though the real difference is with a poor country, Afghanistan.

I.4 LIFE EXPECTANCY OVER TIME AND INCOME

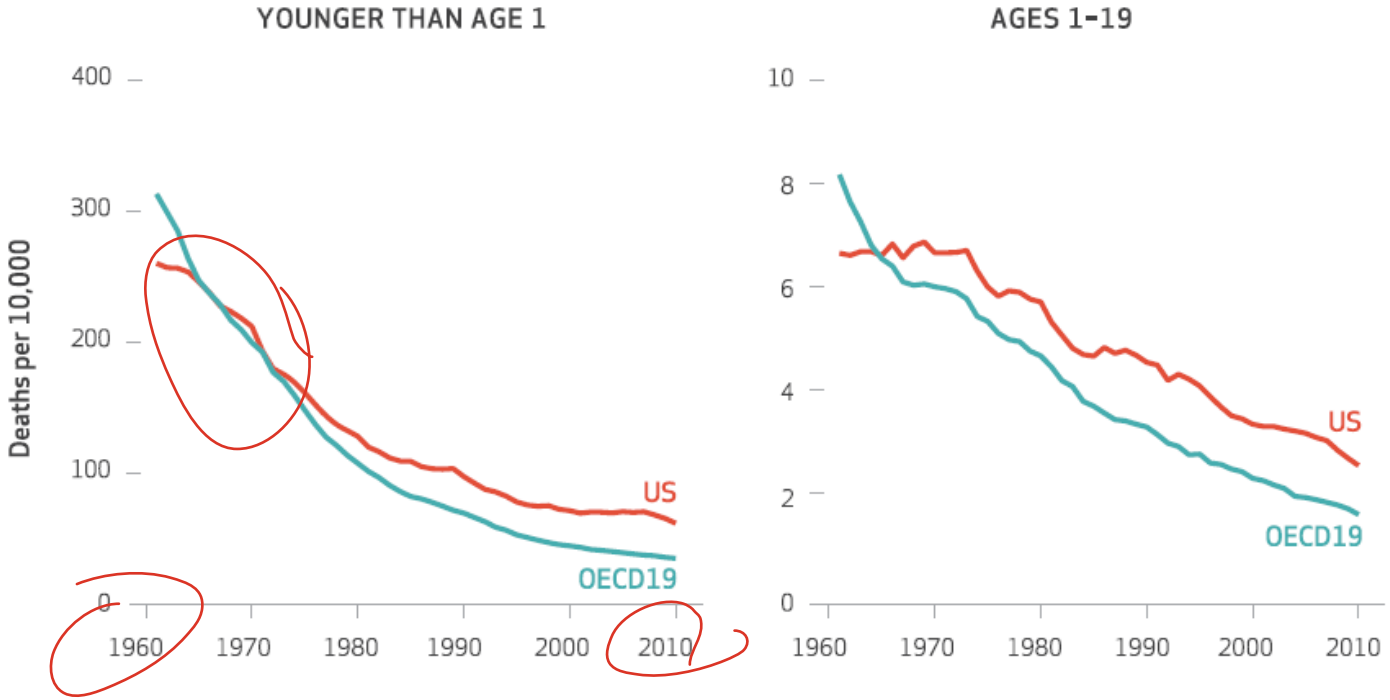
- From Getzen (2013, Figure 16.4) the life expectancy gains are great going from very poor to moderately poor, and over time.



Ashish P. Thakrar et al. "Child Mortality In The US And 19 OECD Comparator Nations: A 50-Year Time-Trend Analysis" Health Affairs, 2018, 140-149.

EXHIBIT 1

Child mortality in the US and the OECD19, by age group, 1960–2010



SOURCE Authors' analysis of data from the Human Mortality Database (University of California, Berkeley, and Max Planck Institute for Demographic Research). **NOTES** The OECD19 is a group of nineteen developed nations other than the US in the Organization for Economic Cooperation and Development. Results for children in the 1–19 age group are age-adjusted.

U.S. leading causes: Infants: extreme immaturity, sudden infant death syndrome. 15-19 years (90% of 1-19 deaths) : motor vehicle accidents, assaults by firearms.