Social interventions

Social epidemiology

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Social interventions in epidemiology

What we already know:

- Mortality and morbidity are distributed unequally between countries, groups and people.
- Health is best in high income countries and high income groups and worst in low income countries and low income groups. → **Social inequality**

- Social inequality is characterized by the existence of **unequal opportunities for different social positions or statuses** within a group or society.

- **Social interventions** aim to **attenuate/prevent health inequality** to achieve better health of individuals and populations.
- Social interventions are actions that might be implemented on levels:
  - Macrosystem – healthcare policy, political decisions etc.
  - Community level (exosystem) – worksites, city-level, schools
  - Microsystem – family, invidividual behavioural changes etc.

Typology of actions to reduce heath inequalities

1	2	3	4	5
Strengthening individuals	**Strengthening families**	**Strengthening communities**	**Improving living and working conditions**	**Promoting healthy macro-policies**
Individual-based interventions	**Family-based interventions**	**Community-based interventions**	**Worksites interventions**	**Policy approaches**

Applying the typology to smoking interventions

INDIVIDUALS AND FAMILIES

- Mass media campaigns
- Anti-smoking educational programs
- Smoking cessation clinics and consultancy
- Targetting poorer patients or areas
- Nicotine replacement therapy

COMMUNITIES

- Greater community participation
- Build confidence and stimulate mutual support to generate circumstances for participants to quit smoking.

ENVIRONMENTS

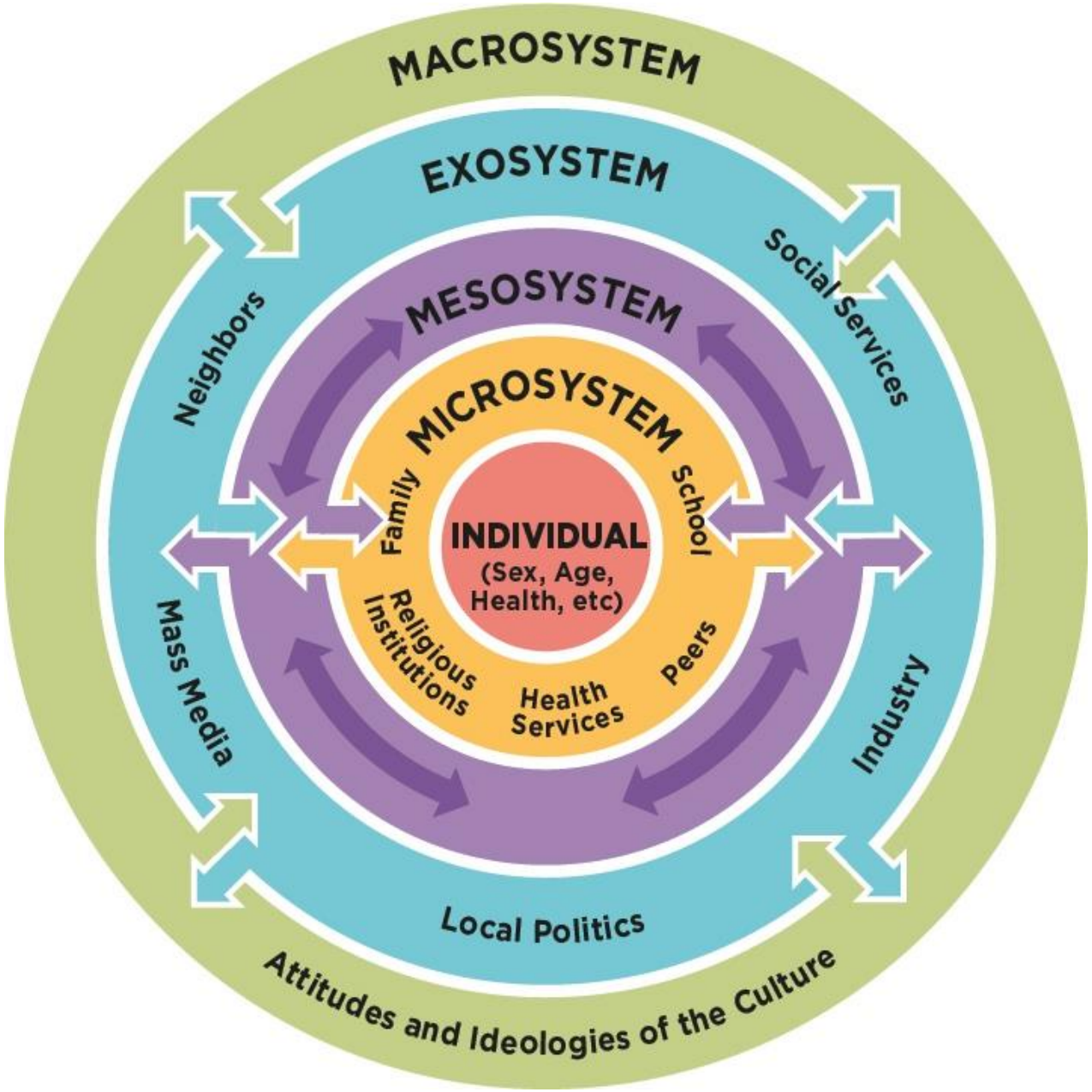
- Smoke-free environments
- Control smoking in public places
- Ban the supply of cigarettes to children

MACRO POLICICES

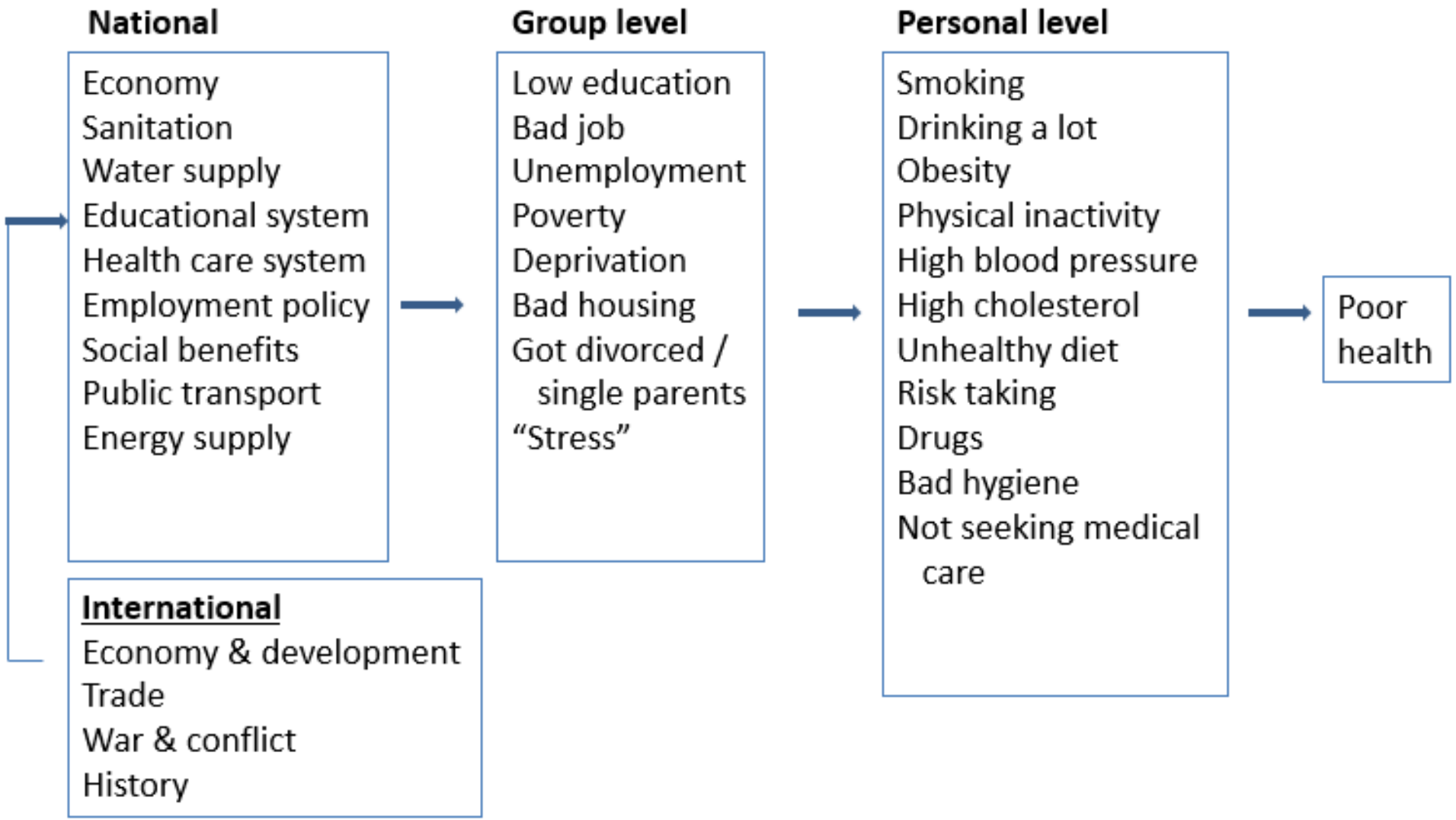
- Restrictions on paid advertisements and brand sponsorship
- Increase access to services to help quitting
- Regulate taxes for tobacco products
- Protect against smuggling („pašování“)
- Controlling product use and distribution
- Reduce EU subsidies to farmers for growing tobacco

Micro-Exo-Macro Systems Framework

- Measures of characteristics of inequality:
  - **Individual**: e.g., sex, age, IQ, education, income, wealth
  - **Community**: e.g., unemployment rate, crime rate, neighbourhood deprivation, social support
  - **Group-level (national)**: GDP, GINI, crime rate, life expectancy

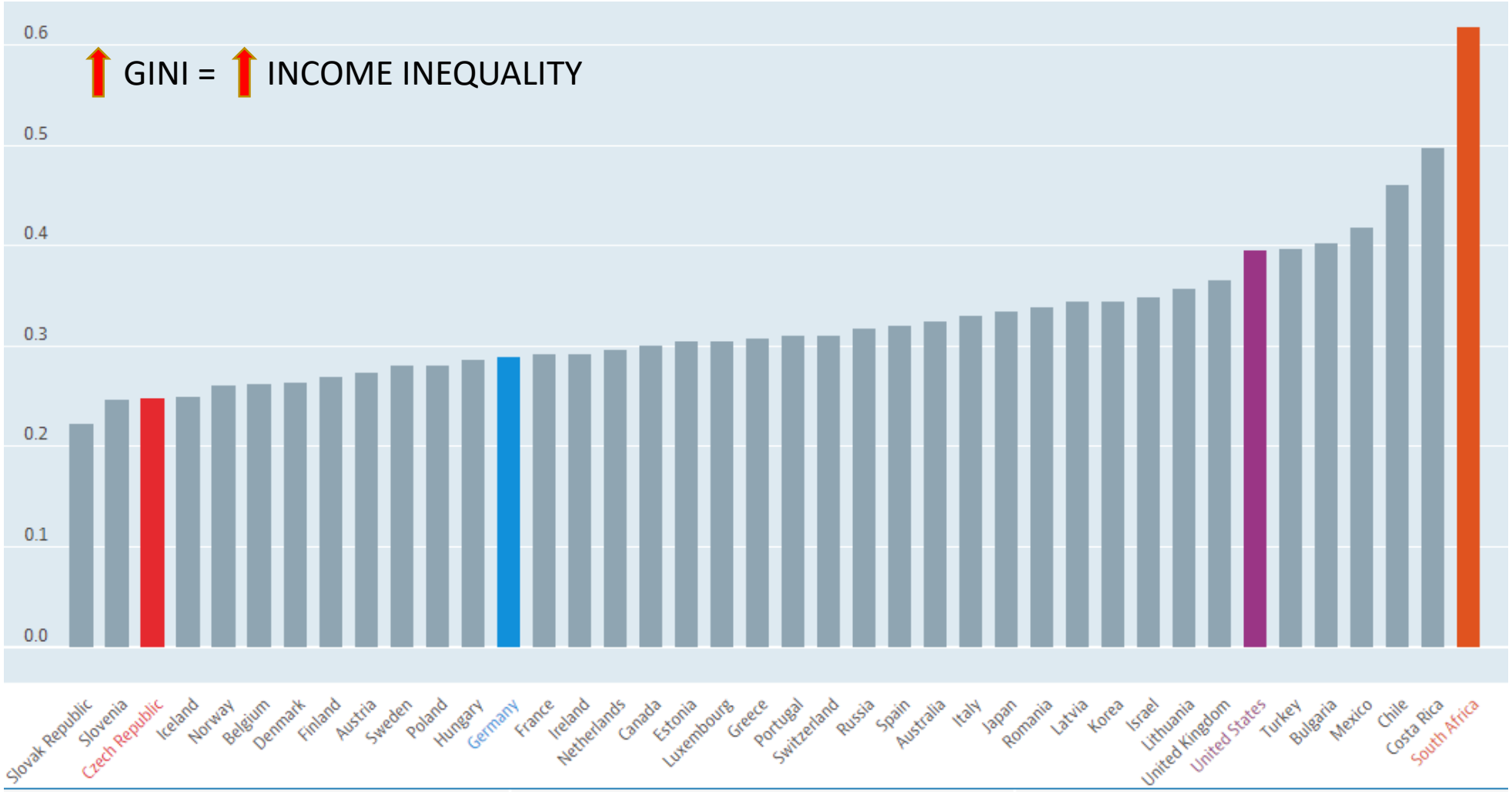


Chain of causes (“causes of the causes”)



GINI coefficient

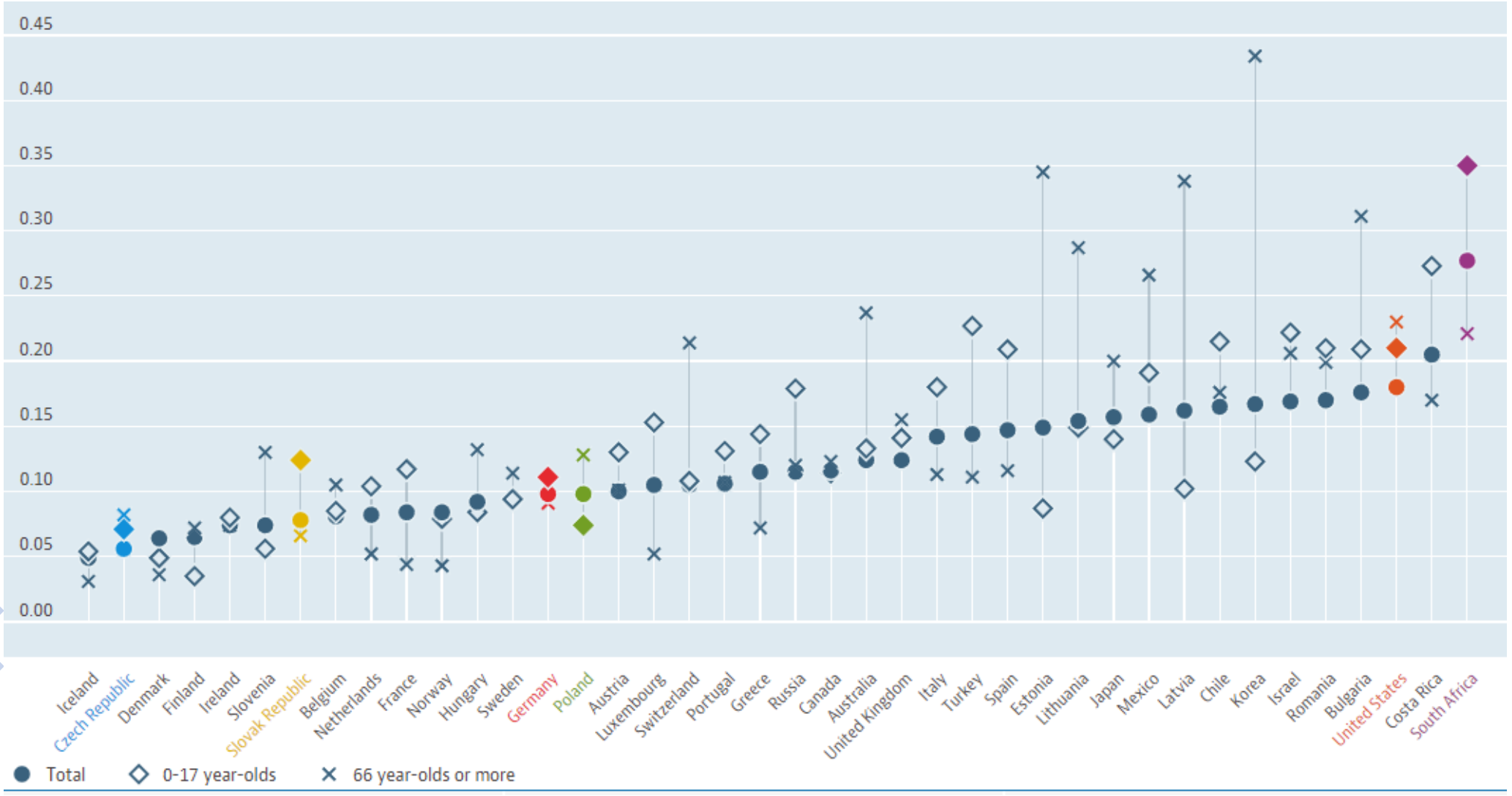
- Measure of income (or wealth) dispersion in a country – equality of income
- Gini coefficient, 0 = complete equality; 1 = complete inequality



2017-2020.
OECD Data.
https://data.oecd.org/inequality/income-inequality.htm

Poverty rate

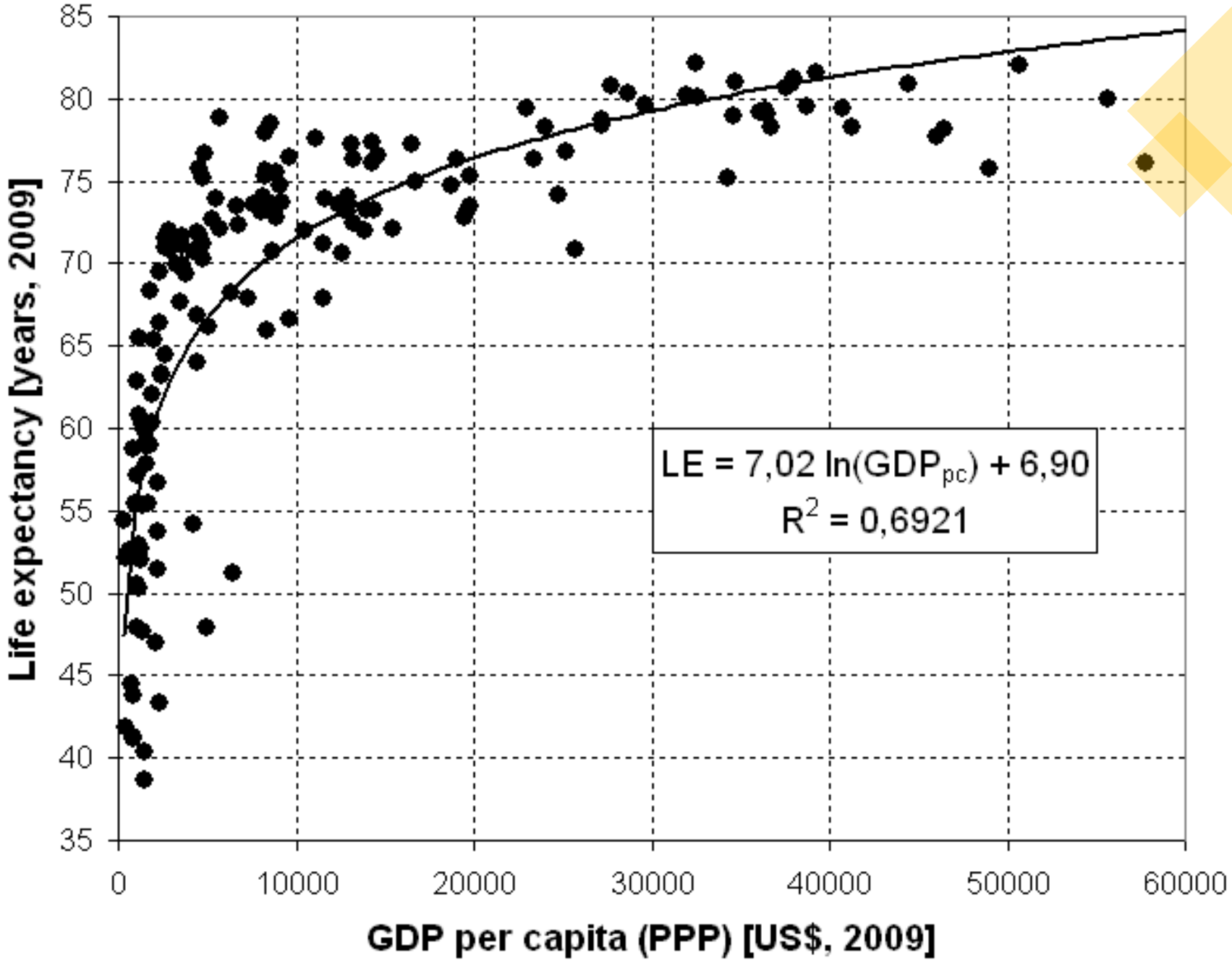
- The poverty rate is the ratio of the number of people (in a given age group) whose income falls below the poverty line



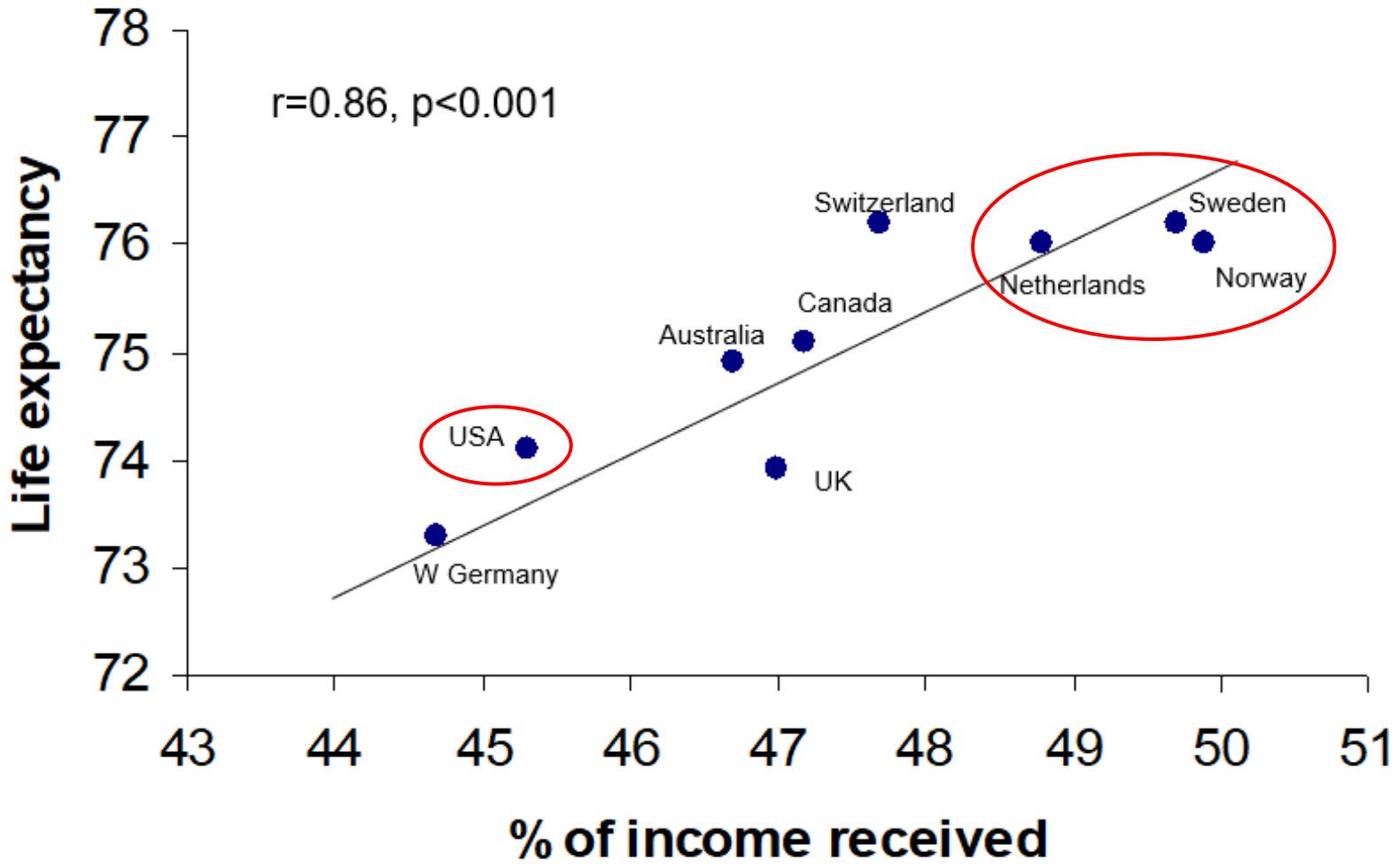
2017-2020.
OECD Data.
https://data.oecd.org/inequality/poverty-rate.htm#indicator-chart

Life expectancy at birth and income

(Preston‘s curve)



Life expectancy at birth and percentage of income received by least well off 70% of families, 1981 (Wilkinson, BMJ 1992)

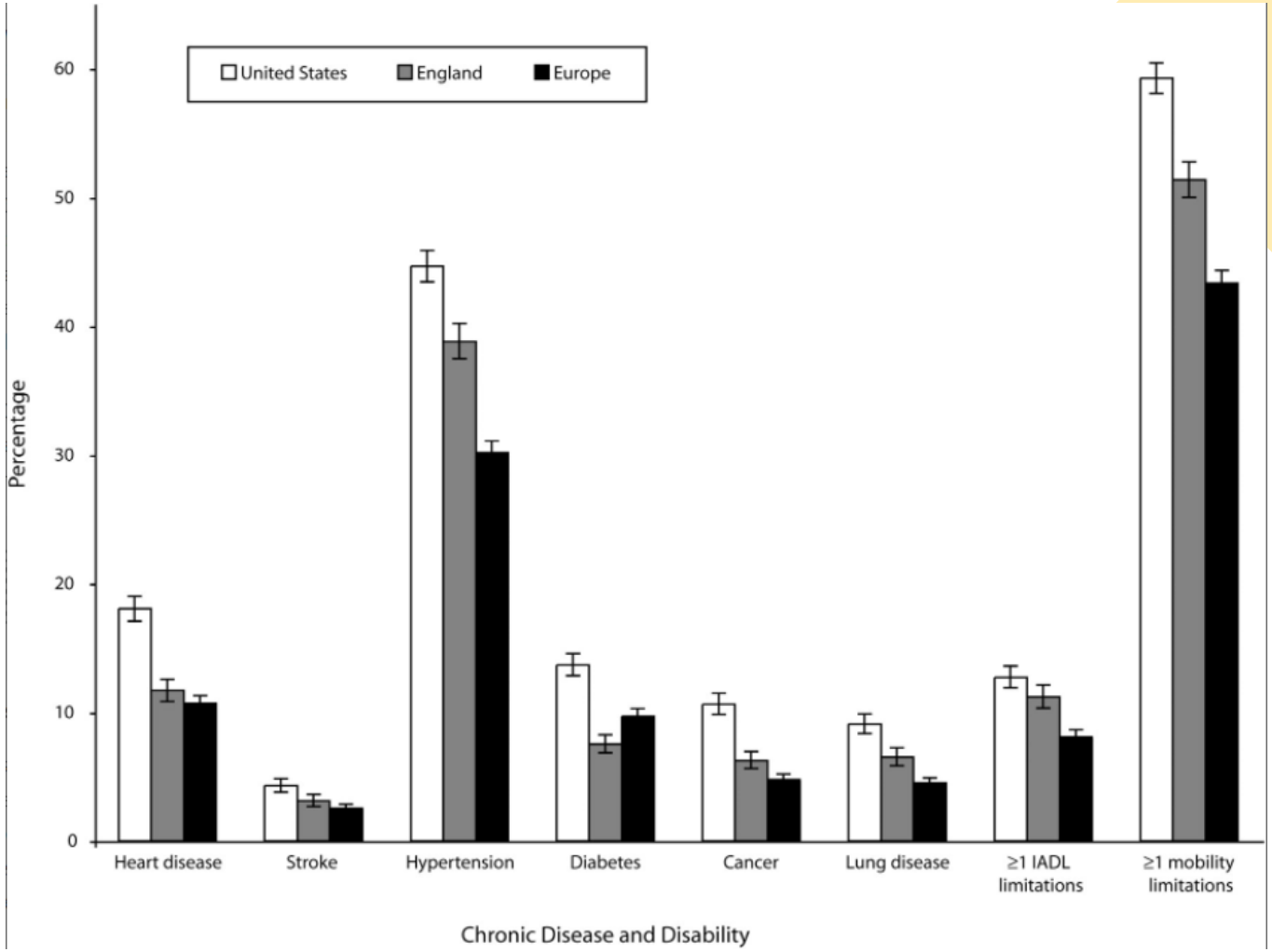


Why Do Americans Have Shorter Life Expectancy and Worse Health Than Do People in Other High-Income Countries? (2004)

- Representative samples of **adults aged 50 to 74 years** were interviewed in 2004 in 10 European countries (n = 17 481), England (n = 6527), and the United States (n = 9940).
- SHARE, ELSA and HRS adult cohorts included.

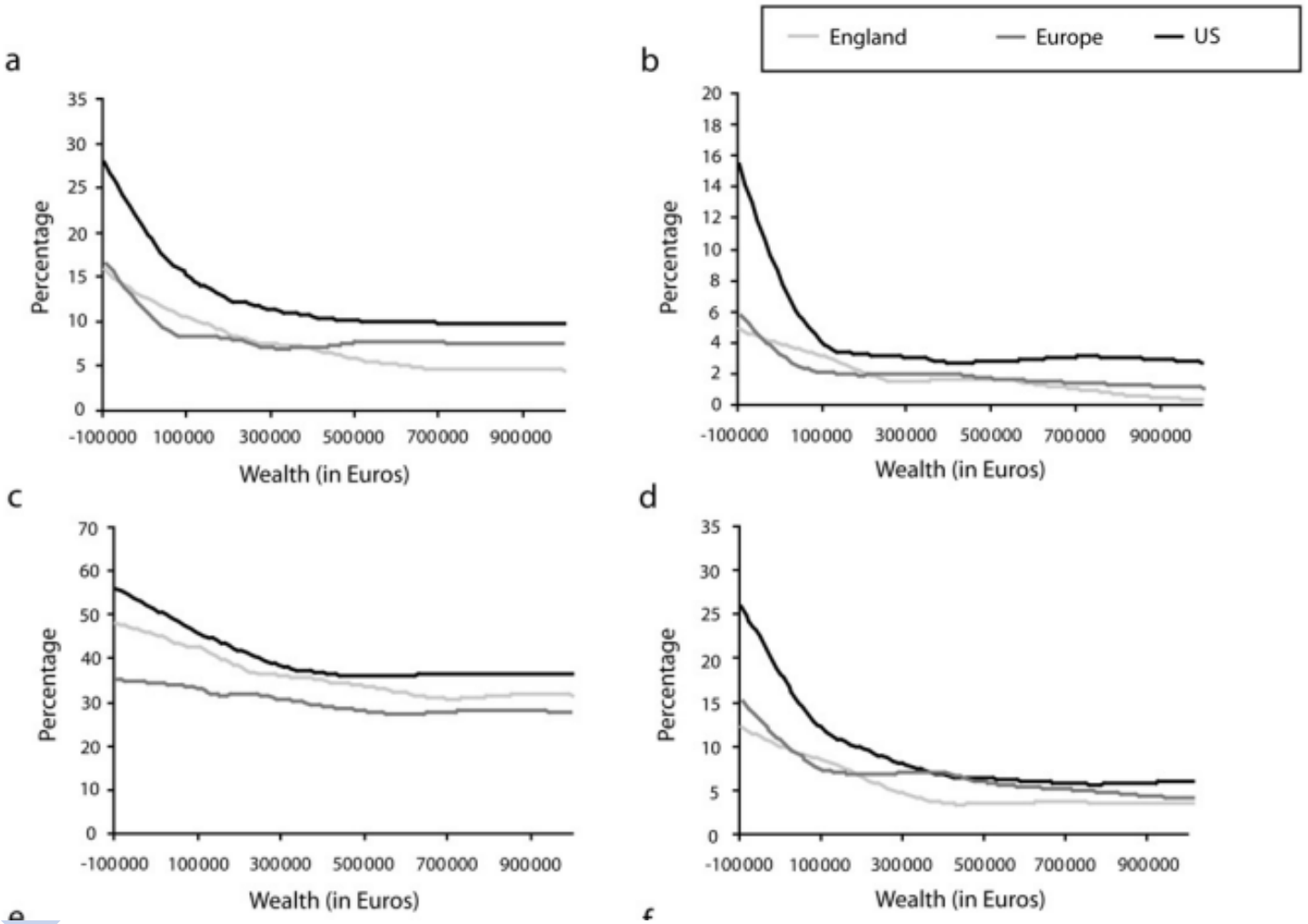
RESULTS:

- Health disparities by wealth were significantly smaller in Europe than in the United States and England.
- The poorest Americans experience the greatest disadvantage relative to Europeans.



Avendano M., et al. 2009:Health Disadvantage in US Adults Aged 50 to 74 Years: A Comparison of the Health of Rich and Poor Americans With That of Europeans.American Journal of Public Health 99, 540_548.

LOESS function of chronic disease and disability by wealth among men and women aged 50 to 74 years (evidence from 2004)



(a) heart disease, (b) stroke, (c) hypertension, (d) diabetes

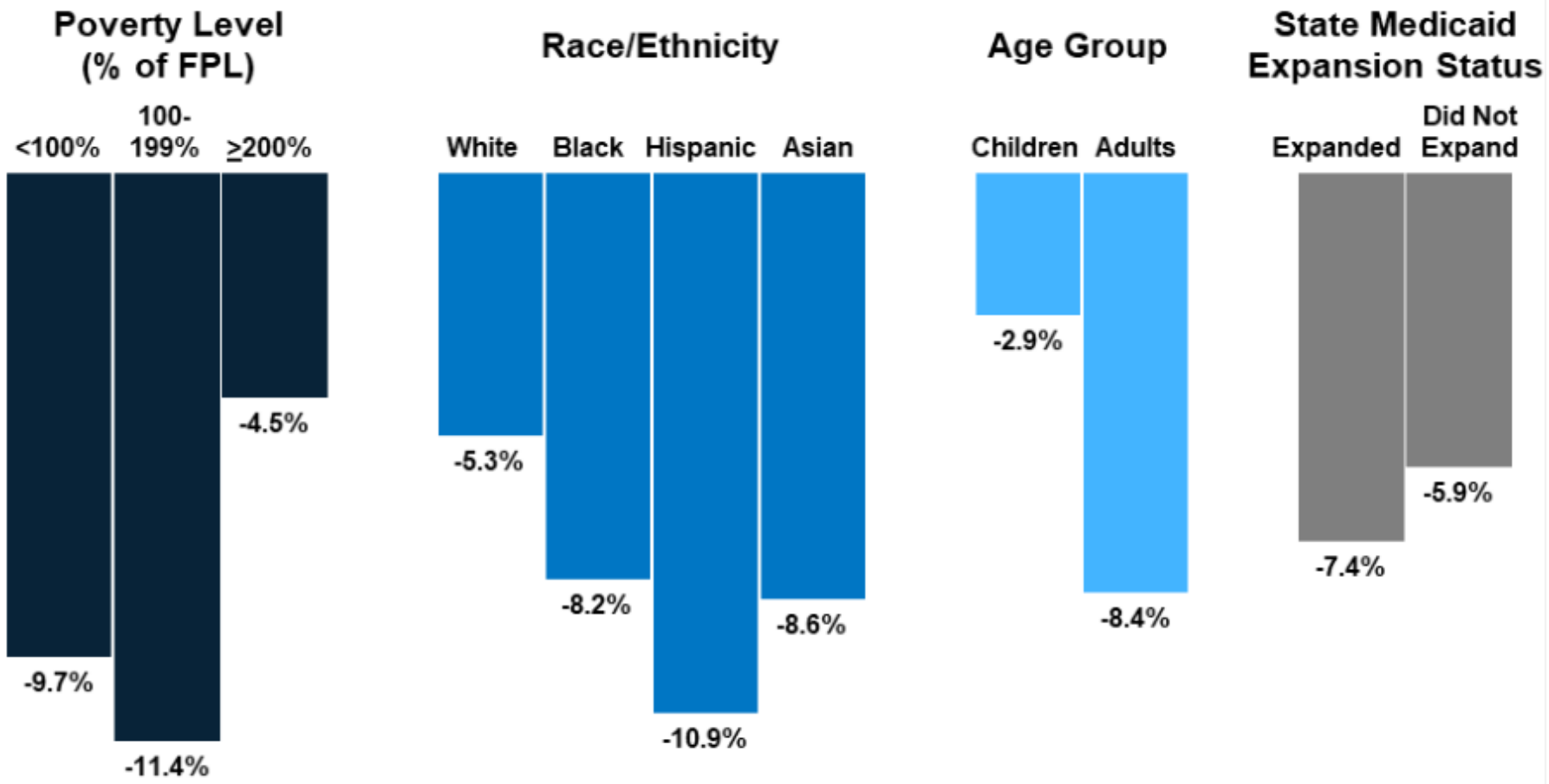
WHICH FACTORS MAY PLAY A ROLE IN DIFFERENCES IN HEALTH BETWEEN EUROPE AND US?

- **Lifestyle differences**? (prevalence of smoking or obesity)
- **Health care system**? European countries have:
  - stronger primary care orientation
  - more equitable distribution of resources
- **Social policies**? European countries have:
  - Higher provision of social transfers (social retirement benefits, unemployment compensation, sick pay)
  - Lower level of uninsured people

Affordable Care Act (ACA) **„Obamacare“**

- Based on the previous studies from US, **insurance coverage as an important determinant of disparities in access to care**.
- The Affordable Care Act (ACA) has made new health insurance options **available to uninsured individuals in low- and middle-income households**.
  - Provides „premium tax credits“ that lower costs for households with incomes up to 400% of the federal poverty level (FPL),
  - For those with a family income below 138% of (FPL), ACA created federal funding (Medicaid) covering all costs for medical expenses.

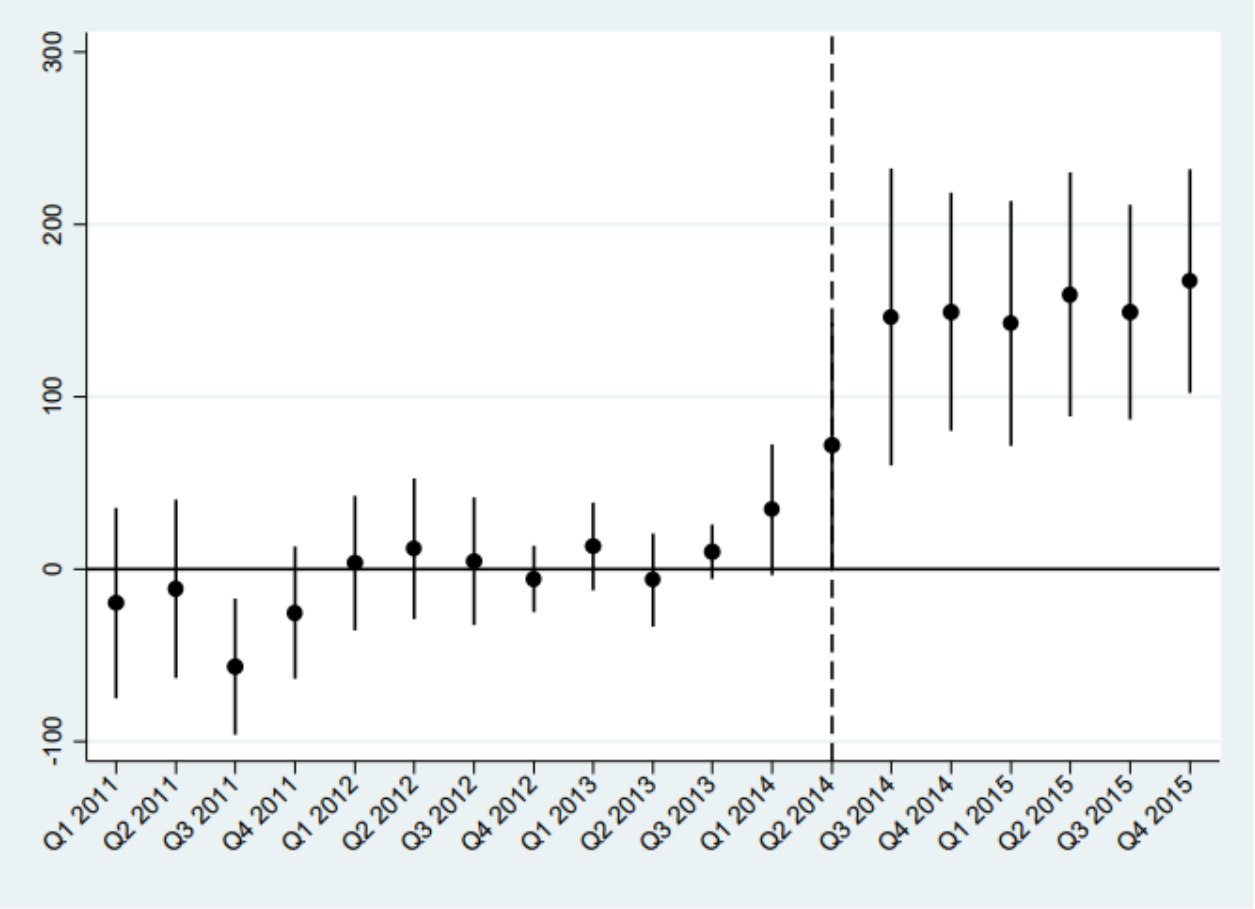
Change in Uninsured Rate Among the Nonelderly Population by Selected Characteristics, 2013-2016



NOTE: Includes nonelderly individuals ages 0 to 64. The US Census Bureau's poverty threshold for a family with two adults and one child was $19,730 in 2017. Asian includes Native Hawaiians and Other Pacific Islanders (NHOPIs).
SOURCE: Kaiser Family Foundation analysis of 2013 & 2016 American Community Survey (ACS), 1-Year Estimates.

KFF
HENRY J KAISER FAMILY FOUNDATION

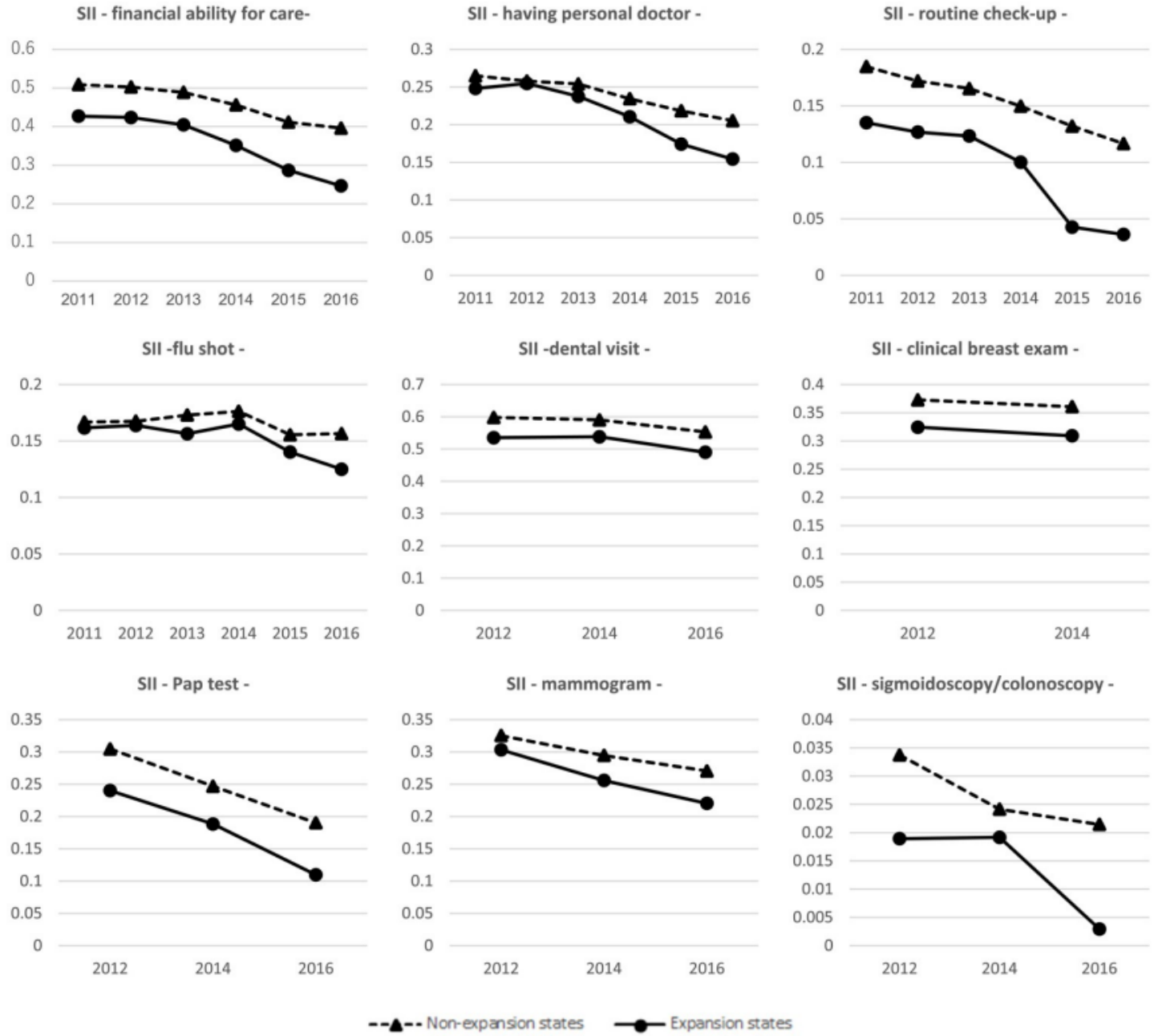
Effect of Medicaid expansions on smoking cessation prescription fills and refills using an event study: 2011-2015



Macleam JC. Et al., THE EFFECT OF INSURANCE EXPANSIONS ON SMOKING CESSATION MEDICATION PRESCRIPTIONS: EVIDENCE FROM ACA MEDICAID EXPANSIONS. NATIONAL BUREAU OF ECONOMIC RESEARCH. 2018. Working Paper 23450 http://www.nber.org/papers/w23450

- Trends in Slope Index of Inequality (SII) inUS countries with and without extension (ACA Medicaid)

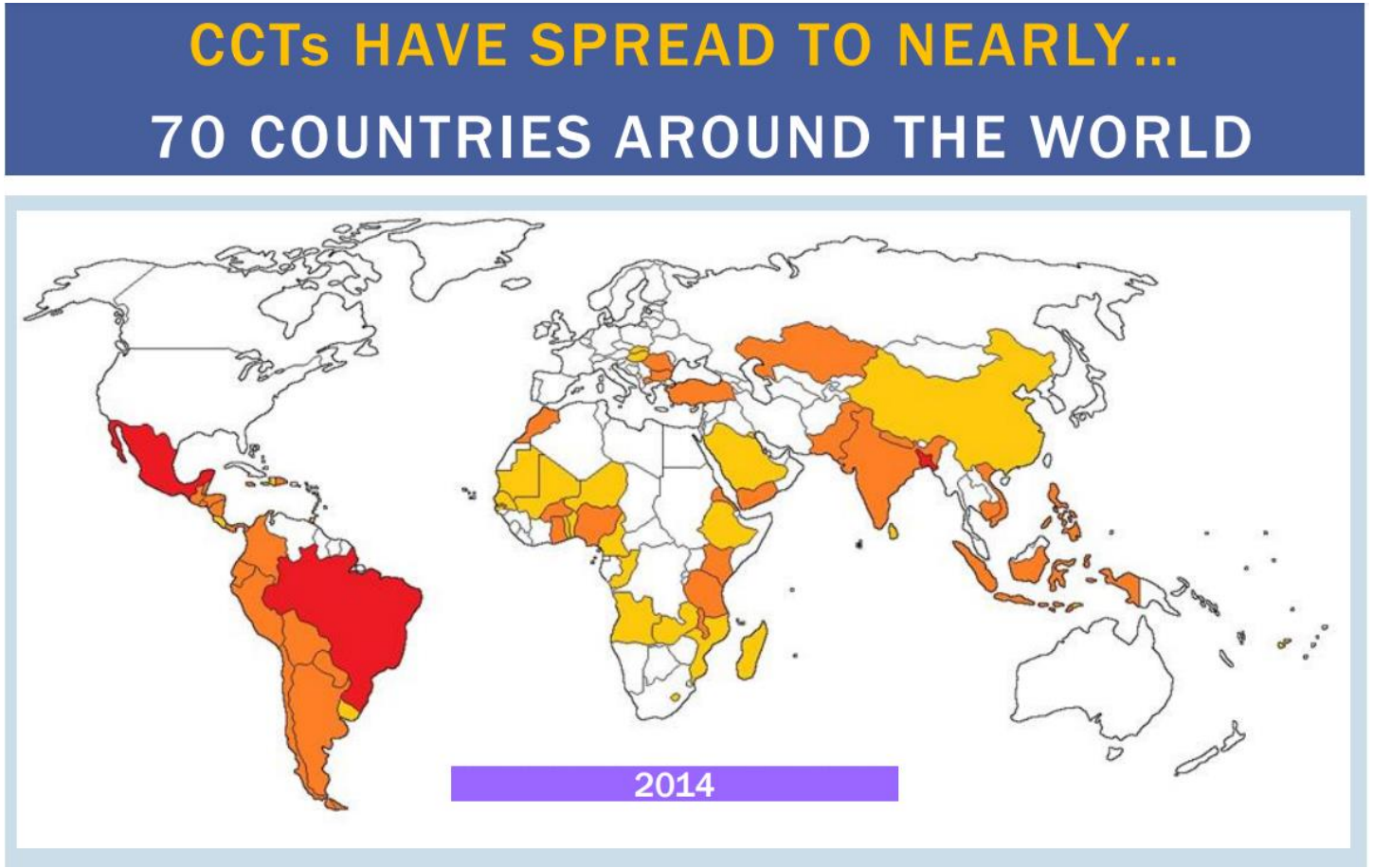
  SII reflects changes in the mean or the prevalence of the health outcome among the population.



Kino S., Kawachi I., The impact of ACA Medicaid expansion on socioeconomic inequality in health care services utilization. PLOS One. 2018. 12(2).

Conditional Cash Transfers (CCT)

- Endogenous innovation from Latin America and the Caribbean
- Aims to reduce current poverty, to develop the human capital of the next generation, and to break the intergenerational transmission of poverty.



https://publications.iadb.org/publications/english/document/The-Growth-of-Conditional-Cash-Transfers-in-Latin-America-and-the-Caribbean-Did-They-Go-Too-Far.pdf
https://www.worldbank.org/content/dam/Worldbank/Event/social-protection/Lindert%20-%20CCTs%20.pdf

CCT characteristics

Conditions:

- Target: Poor families with children under 5.
- Mothers from poor backgrounds receive cash. They must take their children to growth and development check-ups.
- For children <6 years old – visits to preventive healthcare centers in which their growth is monitored.
- For children between 7-17 years old: School attendance is the most common stipulation
- Mothers are also encouraged to attend courses on hygiene, vaccination, and contraception.

Considerations:

- The mere existence of a program does not mean that individuals will enroll.
- Administrative obstacles and costly conditionalities.
- Corruption and other administrative problems might lead to their not receiving the transfer.
- The amount of the transfer could be too small to make a difference in key outcomes.
- Households could use part of the transfer payment to consume tobacco, alcohol, or other 'adult' commodities, increasing consumption of leisure.
- Changes to the details and implementation of the program.

Orazio Attanasio, Erich Battistin, Emla Fitzsimons, Alice Mesnard And Marcos Vera-Hernandez (2005) HOW EFFECTIVE ARE CONDITIONAL CASH TRANSFERS? Evidence From Colombia

CCT in Colombia

Table 1. Impact of FA on percentage of children who attend school

	Without FA	*With FA*	*Impact*
Rural			
Aged 8–11	93.0%	93.1%	0.1
Aged 12–17	46.2%	56.3%	10.1*
Urban			
Aged 8–11	95.2%	96.6%	1.4
Aged 12–17	68.5%	73.7%	5.2*

* Statistically significantly different from zero at the 95% confidence level.

Table 2. Impact of FA on total consumption and on food consumption (in Colombian pesos)

	Without FA	*With FA*	*Impact*
Total consumption			
Rural	450,343	538,057	87,714*
Urban	477,460	521,846	44,386*
Food consumption			
Rural	279,042	349,213	70,171*
Urban	254,767	295,041	40,274*

* Statistically significantly different from zero at the 95% confidence level.

Table 6. Impact of FA on boys' heights (in centimetres)

Age	*Without FA*	*With FA*	*Impact*
12 months	72.70	73.14	0.44*
36 months	87.54	87.58	0.04
60 months	104.22	104.27	0.05

* Statistically significantly different from zero at the 95% confidence level.

Table 4. Impact of FA on percentage of children with up-to-date schedule of preventive healthcare visits

Age	*Without FA*	*With FA*	*Impact*
<24 months	17.2%	40.0%	22.8*
24–48 months	33.6%	66.8%	33.2*
>48 months	38.9%	40.4%	1.5

* Statistically significantly different from zero at the 95% confidence level.

Table 5. Impact of FA on percentage of children who suffered from diarrhoea in the 15 days prior to the interview

Age	*Without FA*	*With FA*	*Impact*
Rural			
<24 months	32.6%	22.0%	–10.6*
24–48 months	21.3%	10.4%	–10.9*
>48 months	8.5%	7.0%	–1.5
Urban			
<24 months	38.6%	23.6%	–15.0
24–48 months	16.8%	13.5%	–3.3
>48 months	12.3%	8.1%	–4.2

* Statistically significantly different from zero at the 95% confidence level.

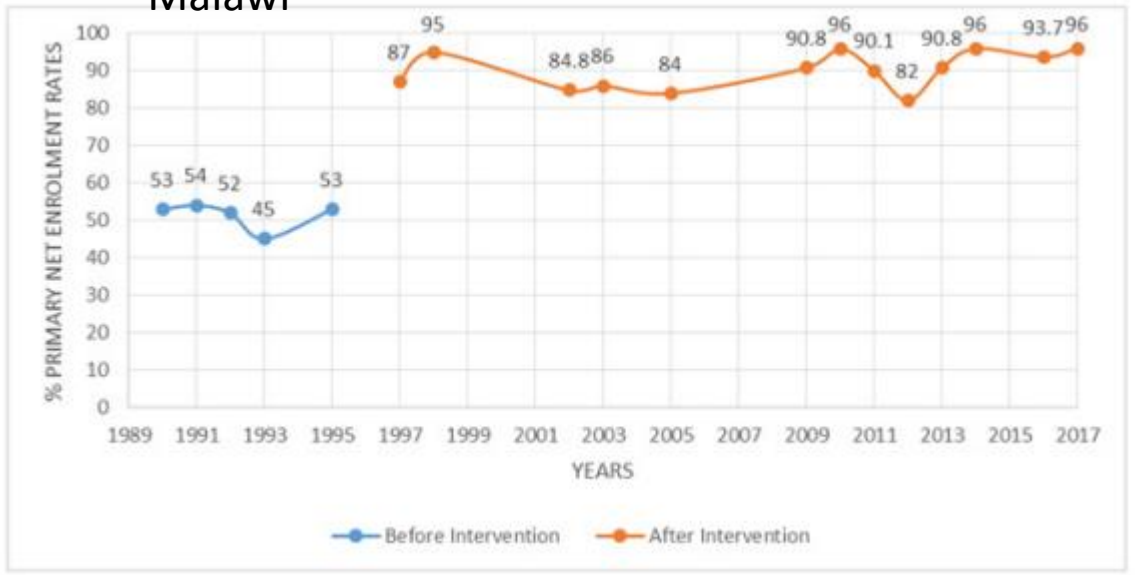
Social interventions in low income countries

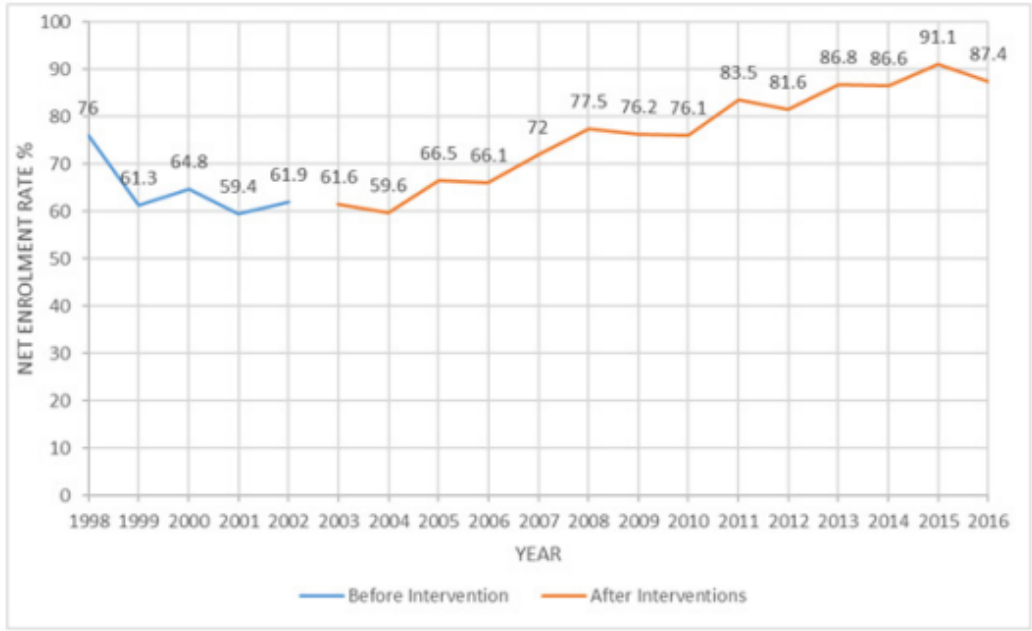
Free Basic Education

- To improve a poverty rate in developing countries, it is important to:
  - Build political freedom
  - Build transparent government and reduce corruption
  - Provide socio-economic facilities
  - Support social opportunities and security
  - Support education in all levels

- Social protection interventions have been used as a poverty reduction strategy in many countries.
- Major donors of the free Universal Education Policy are the World Bank and other subsidiary agencies

Primary schools enrolment rate in Uganda and Malawi





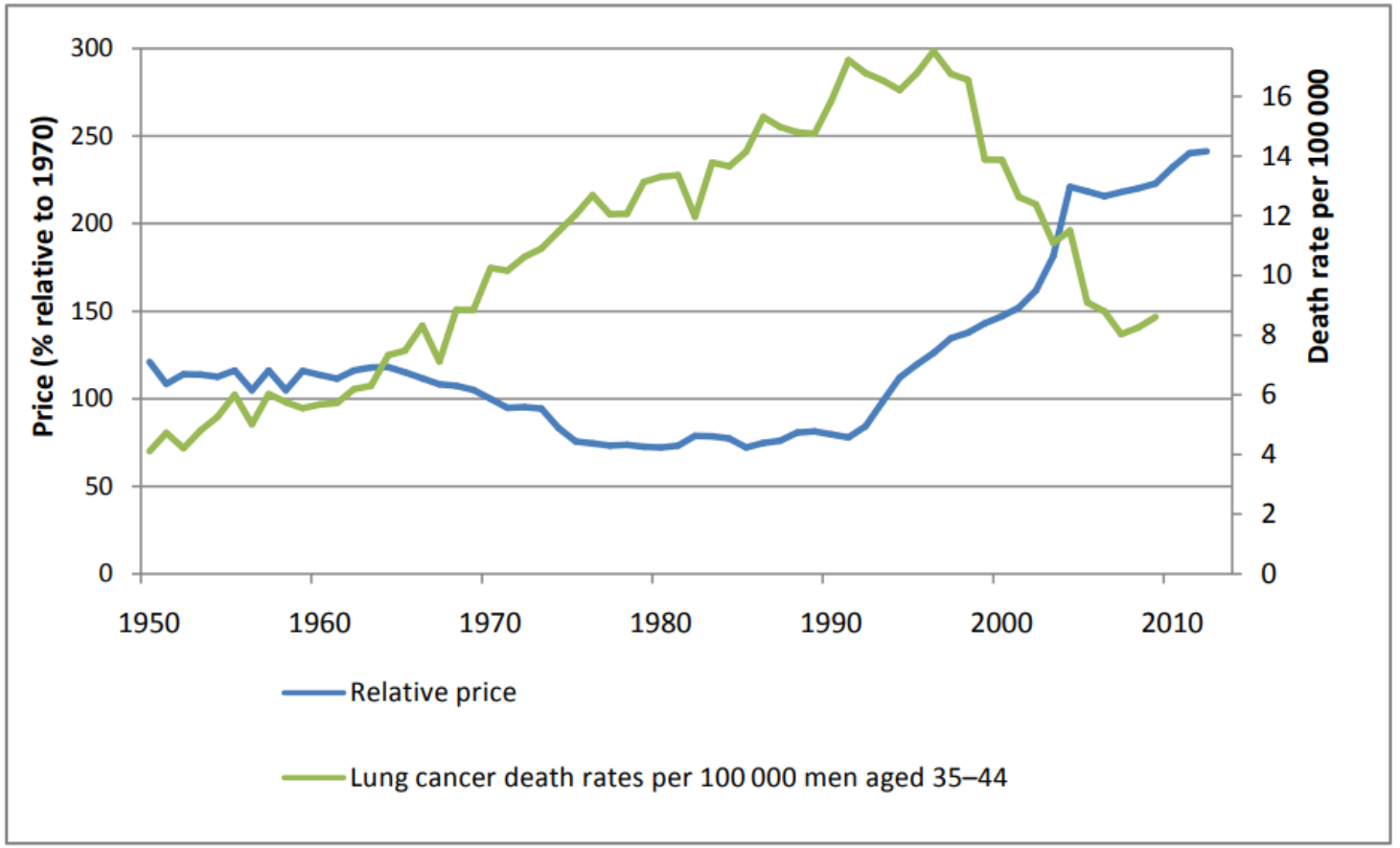
Brenyah JK. Implementation of Social Protection Interventions in Africa. „The trend in the outcomes of free basic eductaion in Ghana, Malawi, Kenya and Uganda. Univ J of Educ Res. 2018; 6(12).

Example of Governmental intervention in France

Smoking intervention

- The French government increased taxes substantially and regularly between the early 1990s and 2005.
- This led to a reduction in sales by more than 50%.
- The health impact of this dramatic reduction in consumption was seen only a few years later with the reduction of lung cancer death rates among young men.
- **Death rates among men aged 35–44 also went down by 50%** from 1996.

Fig. 1: Prices (rising with tax increases) and lung cancer death rates, France, 1950–2010

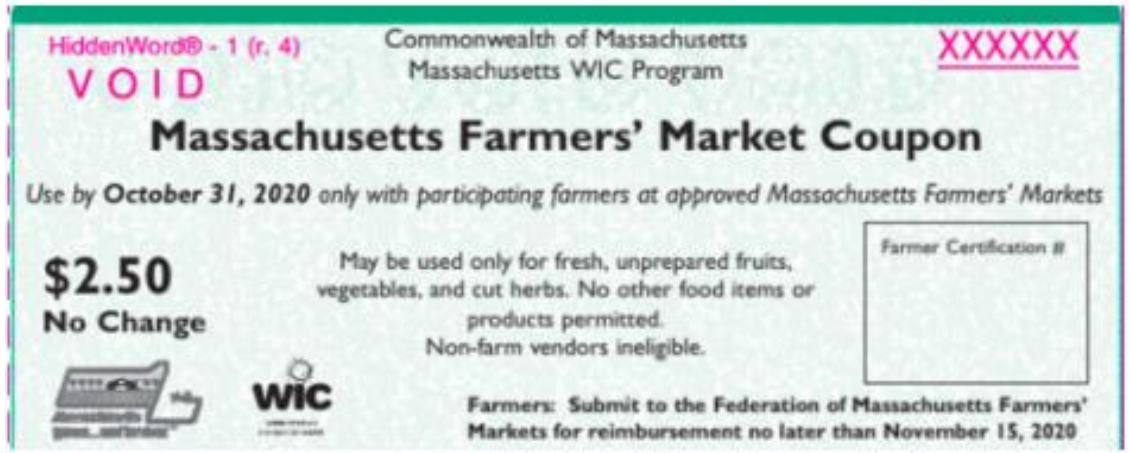


Source: Graph reproduced using data from Hill C. Prévention et dépistage des cancers [Cancer prevention and screening]. Bulletin du Cancer. 2013;100:6.

Income-transfer programs and health

Examples of programs:

- Earned Income Tax Credit program have led to **increased birth weight and reduced maternal smoking**
- Pregnancies in women exposed to the Food Stamps program had **better birth outcomes** than did pregnancies in women who were not exposed to this program, particularly among African American mothers.
- The Massachusetts farmers‘ market coupon program for **low-income elders** led to 32% increase in vegetable and fruit comsumption (1992).



Strully KW, et al. 2010. Effects of prenatal poverty on infant health: state earned income tax credits and birth weight. Am. Sociol. Rev. 75: 534–62
Almond D, et al. 2011. Inside the war on poverty: the impact of Food Stamps on birth outcomes. Rev. Econ. Stat. 93: 387–403

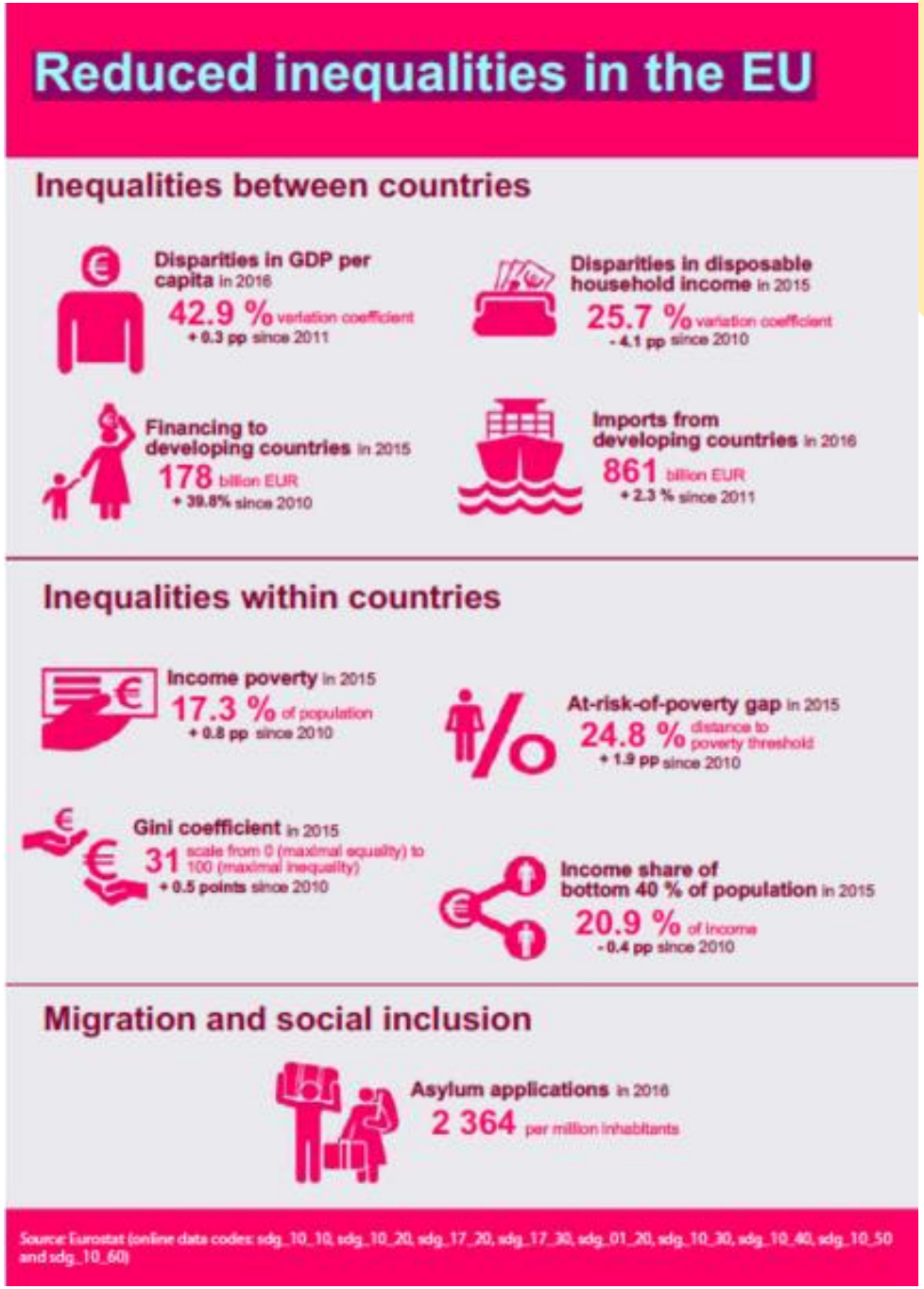
Sustainable Development Goals (SDGs)

- Inequality is a major obstacle to sustainable economic growth.
- SDGs were set in 2015 by the European Commission
- The goal is to find sustainable and inclusive development solutions, **ensure everyone's human rights**
- **17 SDGs** have been defined, with 169 associated targets, to be reached by 2030.
- https://ec.europa.eu/international-partnerships/sustainable-development-goals_en

SDGs-10 Reduce inequality

- Covers different dimensions:
  - **Economic inequality** - refers to differences in economic outcomes, such as in income, consumption or wealth.
  - **Social inequality** - refers to differences in social outcomes (such as in education or employment), or to differences in social status or position.
  - **Political inequality** - refers to unequal influence over decisions made by political bodies, and the unequal outcomes of those decisions. It is closely related to differences in the distribution of political resources, which can lead to the exclusion of particular groups from participating in political processes.
  - **Environmental inequality** - used to indicate an unequal distribution of environmental risks and hazards (e.g. air or water pollution) and unequitable access to natural resources and other ecosystem services (e.g. land, parks and freshwater) between different social groups.

[Reducing inequality | International Partnerships (europa.eu)]



Risk groups

Some **individual socio-demographic characteristics might be disadvantaged** in various situations. = **INEQUALITY**

Could you come up with some situations where one could experience inequality?

Community-based interventions characteristics

- As setting, the community is primarily defined geographically, but should **address the community characteristics related to specific needs of population**.

- Such interventions may be citywide (using e.g. mass media), or may take place within community institutions such as neighbourhoods, schools, churches, work sites, agencies, etc.

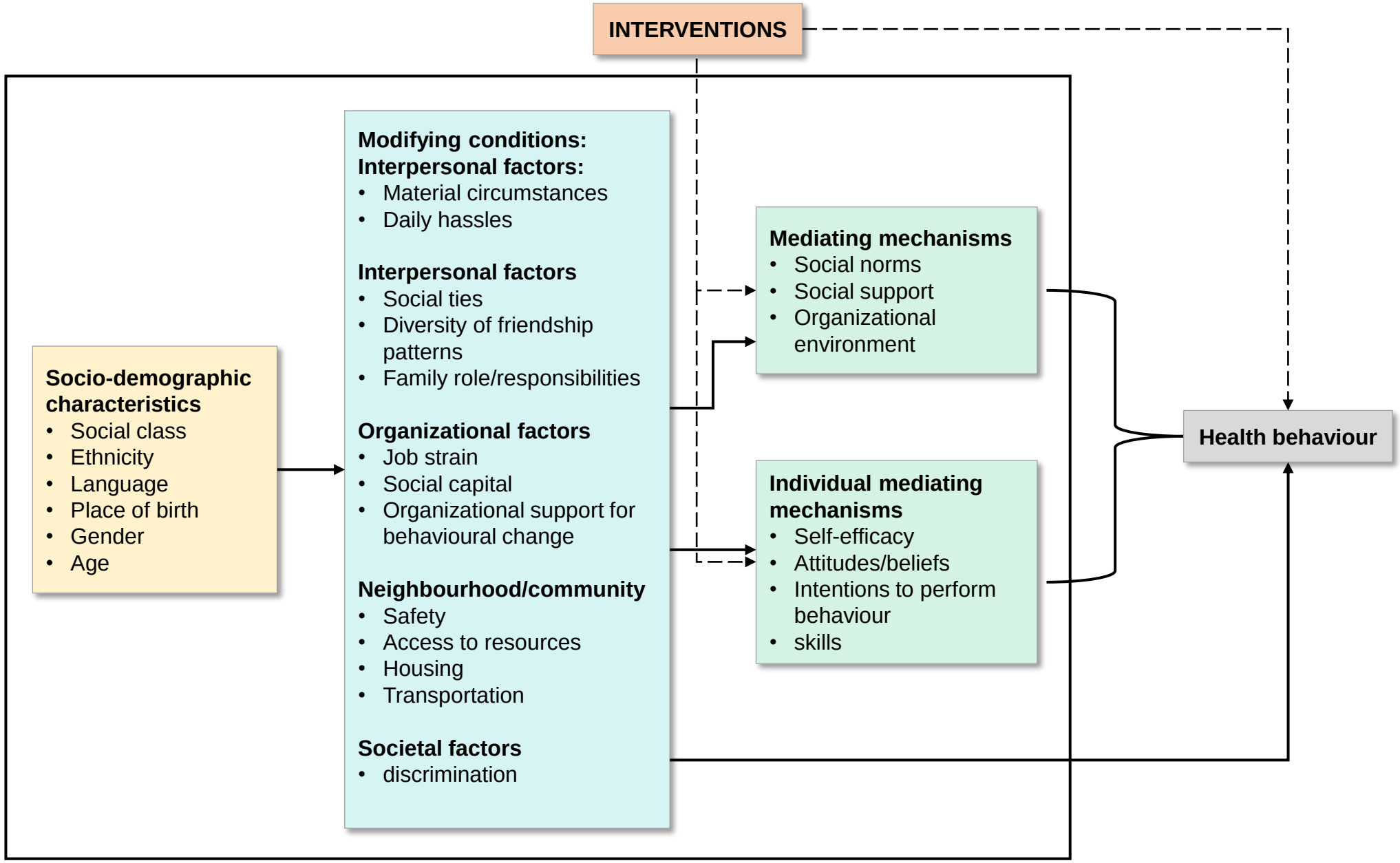
- The focus of these community-based projects is primarily **on changing individuals' behaviours as a method for reducing the population's risk of disease**.

ESSENTIAL ELEMENTS OF THE SUCCESSFUL COMMUNITY-BASED INTERVENTION

Building a trust with community	„Everything on the table“ approach
Understanding the cultural/social context	Ongoing plans preparation to ensure sustainability

Cambel MK. Et al. Process evaluation of an effective church-based diet intervention: body and soul. Health Educ Behav. 2007;34(6):864-80.

Social contextual framework



Worksites interventions

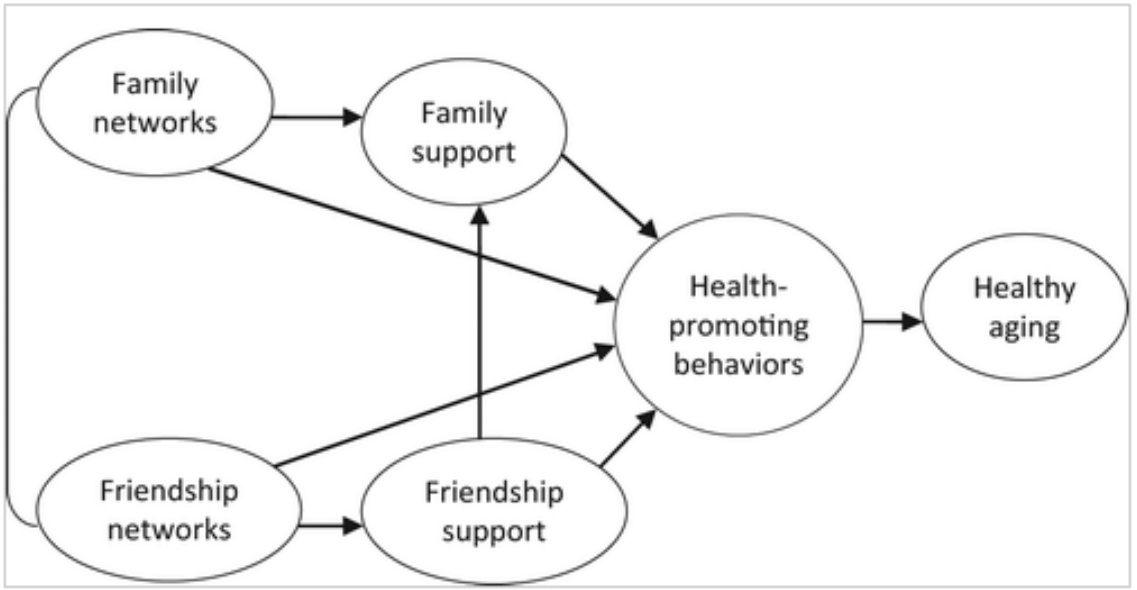
- **Occupational health screening** aims to:
  - prevent work-related illness and injury (primary prevention)
  - reveal diseases related to exposures to risk factors on workplace (secondary prevention)

- Besides that, a wide range of risk factors have been targeted through the workplace, including smoking, nutrition, physical activity, work-family stress, addiction, cancer screening, occupational exposures.

- Notably, workplace can play an important role in supporting unhealthy behaviour.
- Controlling for social class, probability of smoking cessation decreased with exposure to occupational hazards.

Microsystem
Family Social support

- Lack of social support indicates the share of people who report having no friends or relatives whom they can count on in times of trouble.
- Individuals with social support are consistently more likely to be satisfied with their personal health.
- Research has linked **social isolation and loneliness to higher risks for a variety of physical and mental conditions** including
  - high blood pressure,
  - heart disease,
  - obesity,
  - weakened immune system,
  - anxiety and depression,
  - cognitive decline and Alzheimer's disease.



Thanakwang K, Soonthorndhada K. Mechanisms by Which Social Support Networks Influence Healthy Aging Among Thai Community-Dwelling Elderly. *Journal of Aging and Health*. 2011;23(8):1352-1378.

Social support

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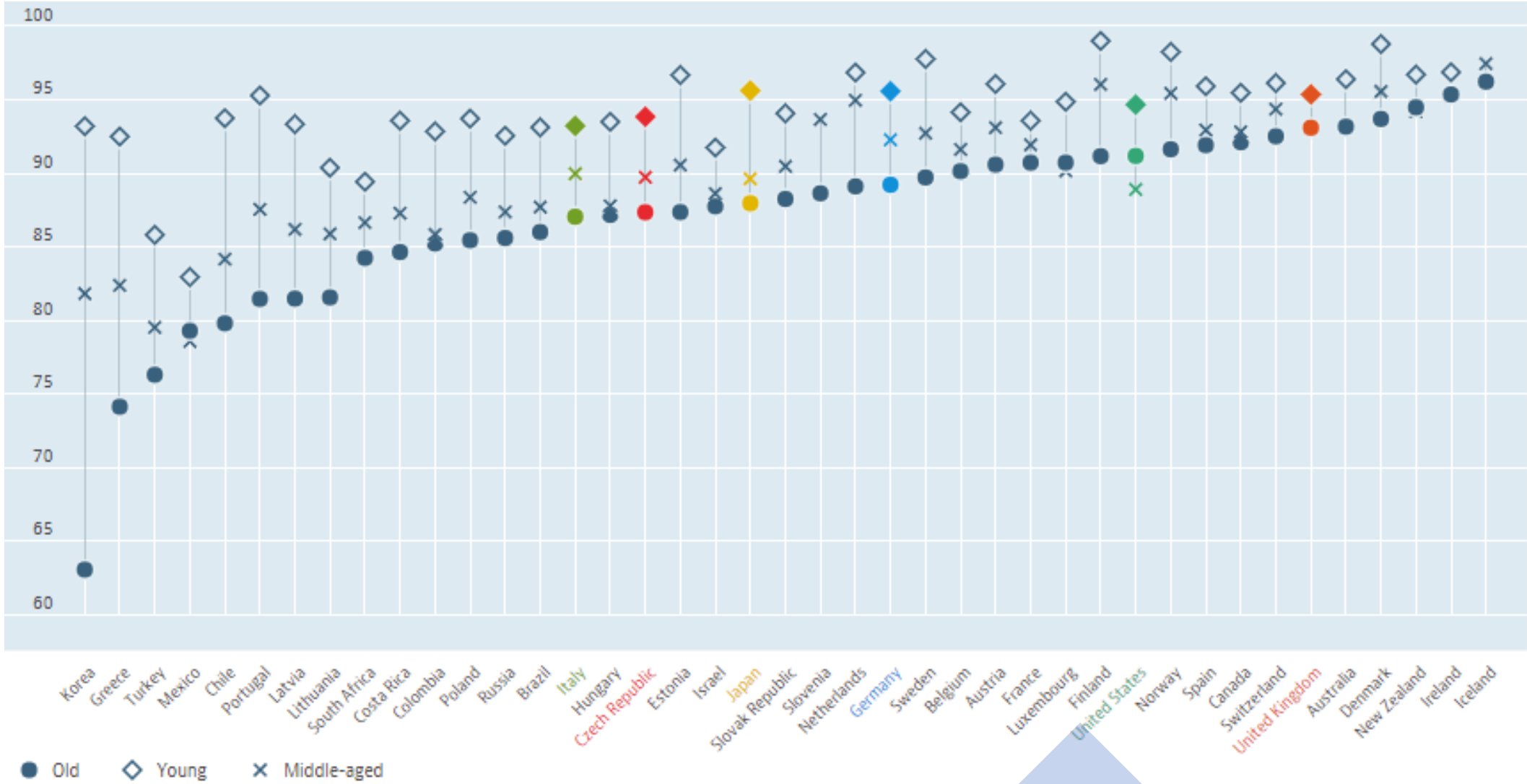

2017-2020.
OECD Data.
https://data.oecd.org/healthrisk/lack-of-social-support.htm

School-based interventions

- Research suggests there is strong evidence that school-based physical education (PE) is effective in increasing levels of physical activity.

WHAT WOULD YOU SUGGEST TO INCREASE PHYSICAL ACTIVITY IN CHILDREN (using schools)?

- Increasing the physical activity in children at school environment might be achieved by:
  - adding free PE activities for low-income families
  - adding new or additional PE classes,
  - lengthening existing PE classes, or
  - increasing moderate to vigorous physical activity of students during PE class without necessarily lengthening the class time.

Individual-based interventions

- Based on **health behaviour change** interventions – health education and advice giving
- Usually targeted to individual risk factors
- Interventions were typically small-scale, long in duration and complex.
- The interventions usually aimed to highly motivated individuals – not also representative of the general population.
- Interventions should focus on
  - success with the most vulnerable population groups
  - address the social and economic circumstances

Motivational Interviewing

- Delivery by phone, Internet etc.
- Smoking cessation, mental health crisis etc.

eHealth interventions

- Require not limited access to internet
- Young people oriented
- Regular physical activity, improved diet

Adverse effects of Public Health Interventions

Direct harm	Psychological harm	Equity harm	Group and Social harm
Increased sport participation and injuries	Screening cancer programs and false-positive results	Public health expenditure target the wealthier	Increased stigma in targeted groups (obese people, marginalized groups)

Lorenc T, Oliver K. Adverse effects of public health interventions: a conceptual framework. *J Epidemiol Community Health* 2014;**68:**288-290.
Castro-Leal F, Dayton J, Demery L, Mehra K. Public spending on health care in Africa: do the poor benefit? Bull World Health Organ. 2000;78(1):66-74. PMID: 10686734; PMCID: PMC2560601.

Thank you for your attention!