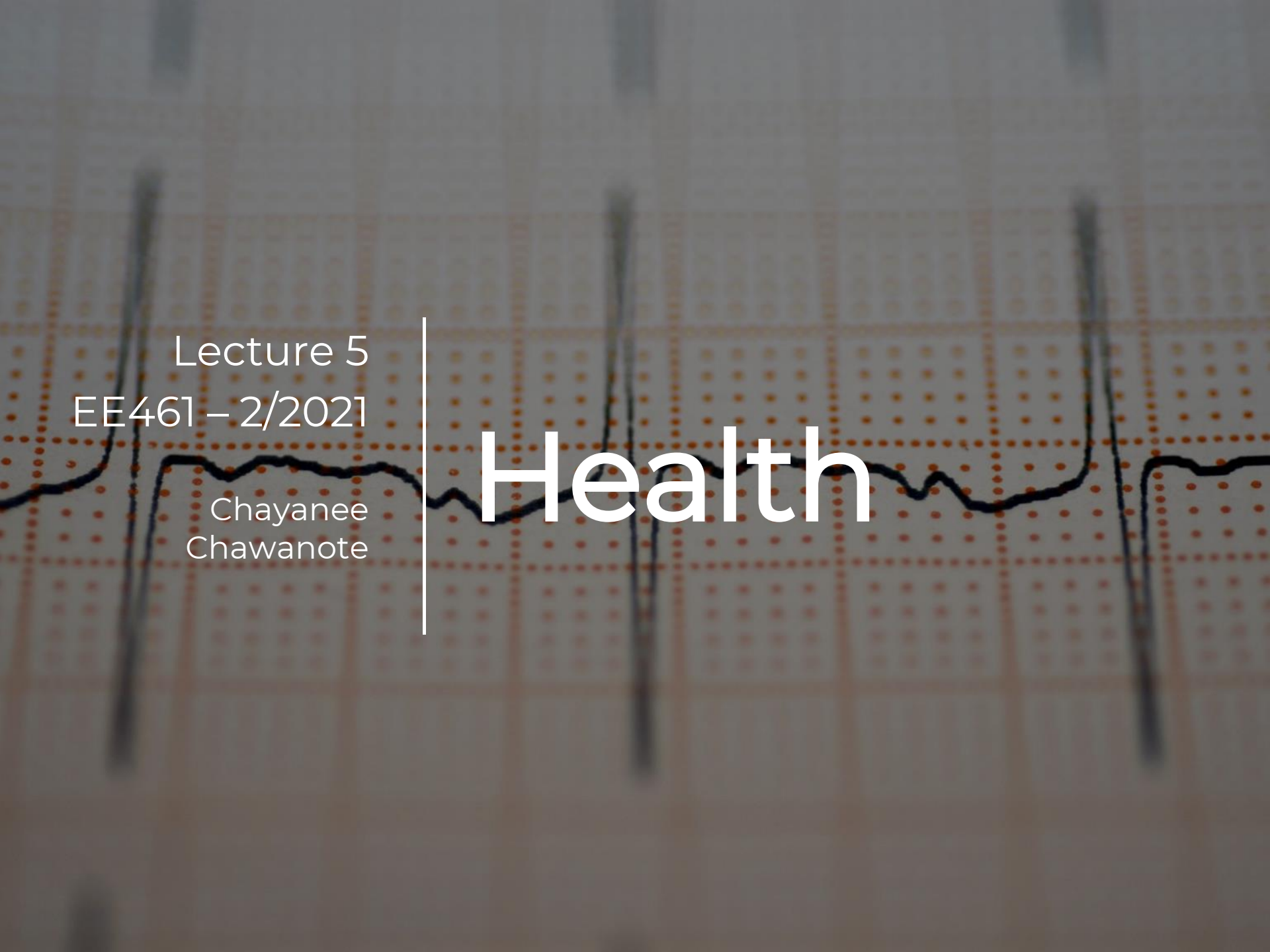


Lecture 5

EE461 – 2/2021

Health

Chayanee Chawanote

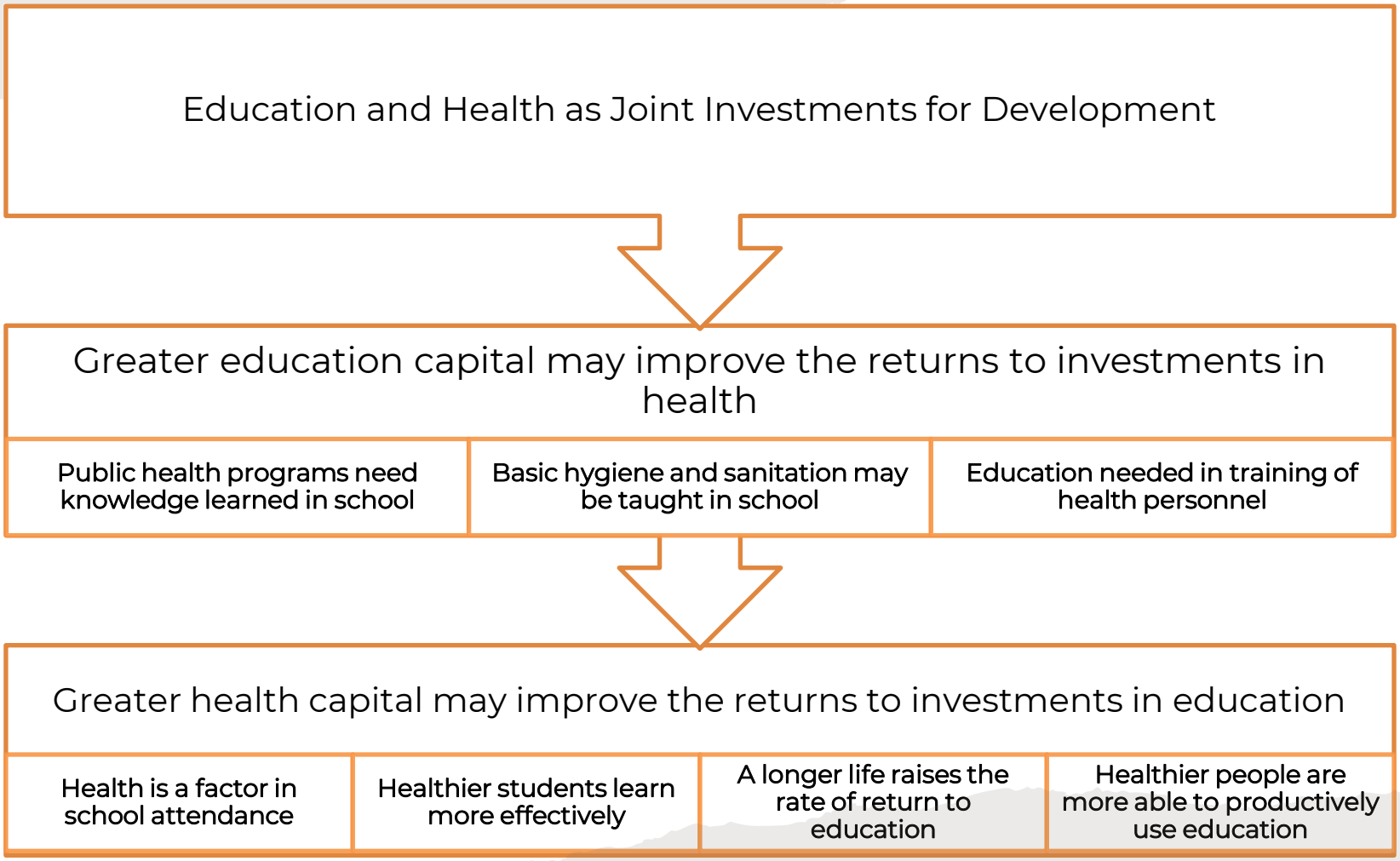
Health and Education

Human capital
Productive investments embodied in human persons, including skills, abilities, ideals, health, and locations, often resulting from expenditures on education, on-the-job training programs, and medical care.

- Health and education are also important components of growth and development
  - Education: absorb modern technology
  - Health: prerequisite for increase in productivity

Read: **Ch. 8 Todaro** (11th edition): 8.1, 8.2, 8.6, 8.7, 8.8 & case study 8

Health and Education



How do improvements in health influence the potential productivity of individuals and improve their well-being?

$\ln(w) = W(H, S, a; K, T)$

H – current stock of health human capital
S – Schooling
a – ability
K – supply of other productive factors (land and capital per worker that may complement labor and increase its marginal product)
T – productive technology

X – local prices of health inputs
D – community health environment, could help identify estimates of the effect of exogenous variation in H on wage

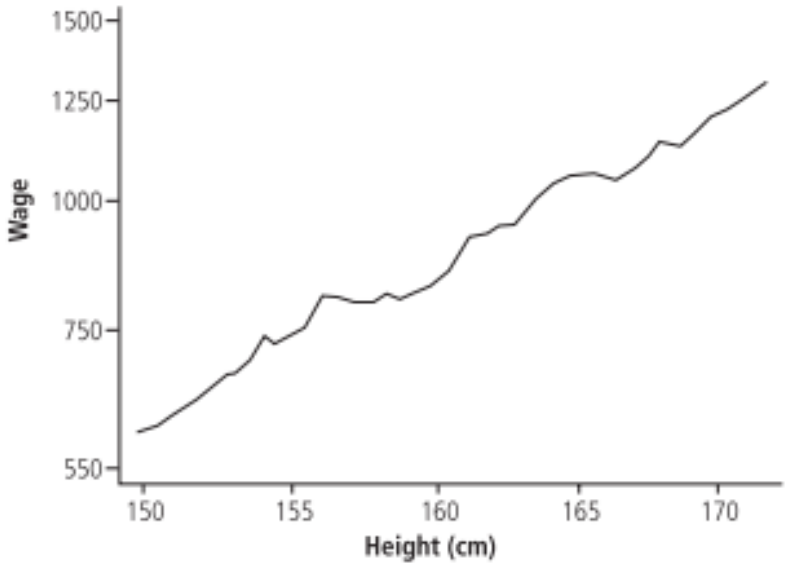
Table 4 Coefficients on four indicators of human capital inputs in log wage equation in Ghana, 1987–1989

Gender and variable[b]	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IV	(6) IV
Males: sample size 3414						
Education	0.0521	0.0475	0.0449	0.0437	0.0445[a]	0.0445
	(11.7)	(10.7)	(10.1)	(9.86)	(2.46)	(9.95)
Migration		0.388	0.360	0.348	0.218[a]	0.295
		(7.48)	(6.97)	(6.75)	(2.26)	(5.34)
BMI			0.0542	0.0530	0.0793[a]	0.0658[a]
			(6.93)	(6.80)	(1.95)	(1.76)
Height				1.48	5.69[a]	5.56[a]
				(5.02)	(3.45)	(3.58)
Females: sample size 3400						
Education	0.0481	0.0425	0.0395	0.0375	0.0356[a]	0.0346
	(9.23)	(8.22)	(7.69)	(7.26)	(2.69)	(6.56)
Migration		0.617	0.537	0.531	0.361[a]	0.447
		(9.85)	(8.55)	(8.46)	(2.98)	(6.51)
BMI			0.0425	0.0420	0.0981[a]	0.0881[a]
			(7.72)	(7.63)	(4.11)	(4.32)
Height				1.29	7.48[a]	7.62[a]
				(3.63)	(3.44)	(3.80)

Source: Schultz (2003), Table 4.
[a]Variable is assumed endogenous and estimated by instrumental variables, which include parent education and occupation, local health infrastructure, and food prices.
[b]Other control variables include region of birth, ethnic group, age and season of interview. Beneath regression coefficient is the absolute value of the *t* ratio in parentheses in columns (1)–(4) and asymptotic *t* ratio in columns (5) and (6).

How do improvements in health influence the potential productivity of individuals and improve their well-being?

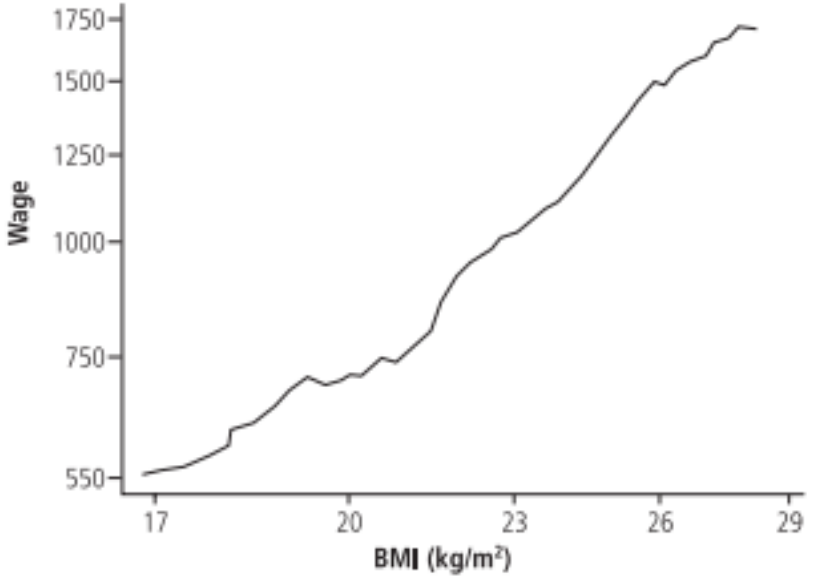
Fig. 2. **Association between height (Ln) and earnings (Ln), adult Indonesian males**



Source: Second Indonesian Family Life Survey.

WHO 02.8

Fig. 3. **Wages (Ln) in relation to body mass index (Ln), adult Indonesian males**



Source: First Indonesian Family Life Survey.

WHO 02.9

https://www.who.int/bulletin/archives/80(2)106.pdf

Improving Health and Education: Why increasing incomes is not sufficient?

- Increases in income often do not lead to substantial increases in investment in children's education and health
- Income is spent on other goods besides food, and part of the increased food expenditures is used to increase food variety without necessarily increasing the consumption of calories.
- The income elasticity of "convenience" foods is greater than unity.
  - An increase in income frequently allows families in developing countries to switch consumption from nutritious foods such as beans and rice to nonnutritious "empty calories" such as candy and soda, which may be perceived as modern and symbolic of economic success.
  - Parents may then fail to place restrictions on children's consumption of such items or to place positive restrictions on consumption of nutritious foods.

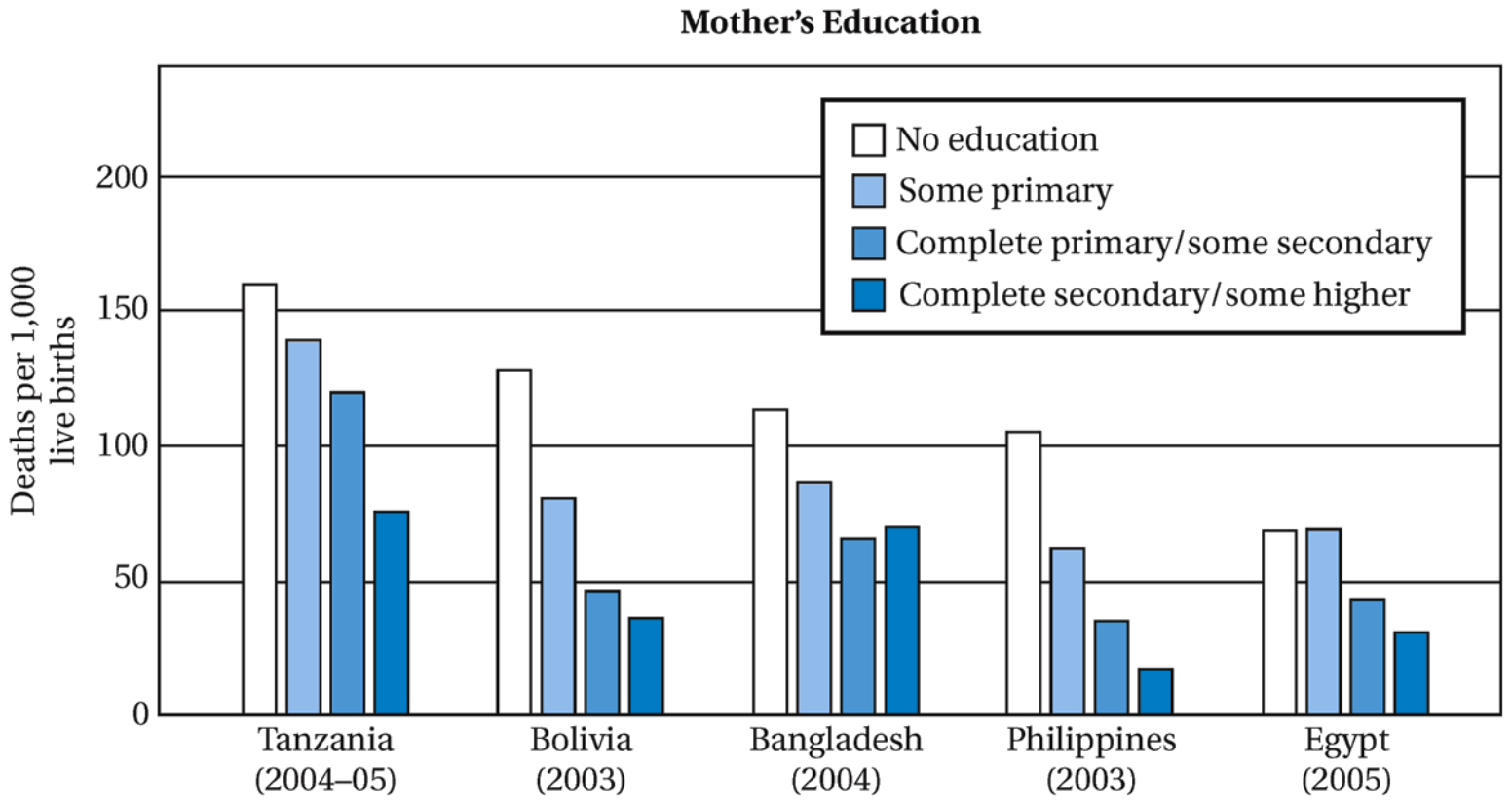
Improving Health and Education: Why increasing incomes is not sufficient?

- Better educated mothers tend to have healthier children at any income level
  - Formal education directly teaches health knowledge to future mothers
  - Literacy and numeracy skills acquired in school assist future mothers in diagnosing and treating child health problems
  - Exposure to modern society from formal schooling makes women more receptive to modern medical treatments
- Significant market failures in education and health require policy action
  - Low investment in education and health in some countries although the returns to investment are high.
  - Example of a policy: **conditional cash transfer program**

    (Read: **Todaro case study 8**, Thailand case: https://www.eef.or.th/fund/support-poor-students/

Conditional cash transfer (CCT) programs:
Welfare benefits provided conditionally on family behavior such as children's regular school attendance and health clinic visitation.

Correlation between Under-5 Mortality and Mother's Education



Source: World Bank, *World Development Indicators, 2007* (Washington, D.C.: World Bank, 2007), p. 119. Used by permission.

Improving Health and Education: Why increasing incomes is not sufficient?

- Another well-known program (Miguel & Kremer) with low-cost health intervention “deworming” drugs to eliminate parasitic infections in children are very cost effective in increasing school attendance.
  - Randomized schools in Kenya received the treatments, compared to not-yet-treated school.
  - Baseline: 92% of schoolchildren were infected with at least one parasite.
  - Heavily infected children were more likely to absent from school.
  - Younger children typically had suffered more infection, and they now attended 15 more school days per year on average; older children attended about 10 more.
  - Treated children also had lower anemia, somewhat reduced reported illness, and better height-for-age scores.
  - The program cost per additional year of schooling was about $3.50
  - Curing worm infections also led to substantial benefits for neighboring school districts that had not yet been dewormed—a classic externality/spillovers.

https://www.evidenceaction.org/dewormtheworld/

Health indicators

< World development indicators: WDI>
Useful data source: http://datatopics.worldbank.org/hnp/ThematicData

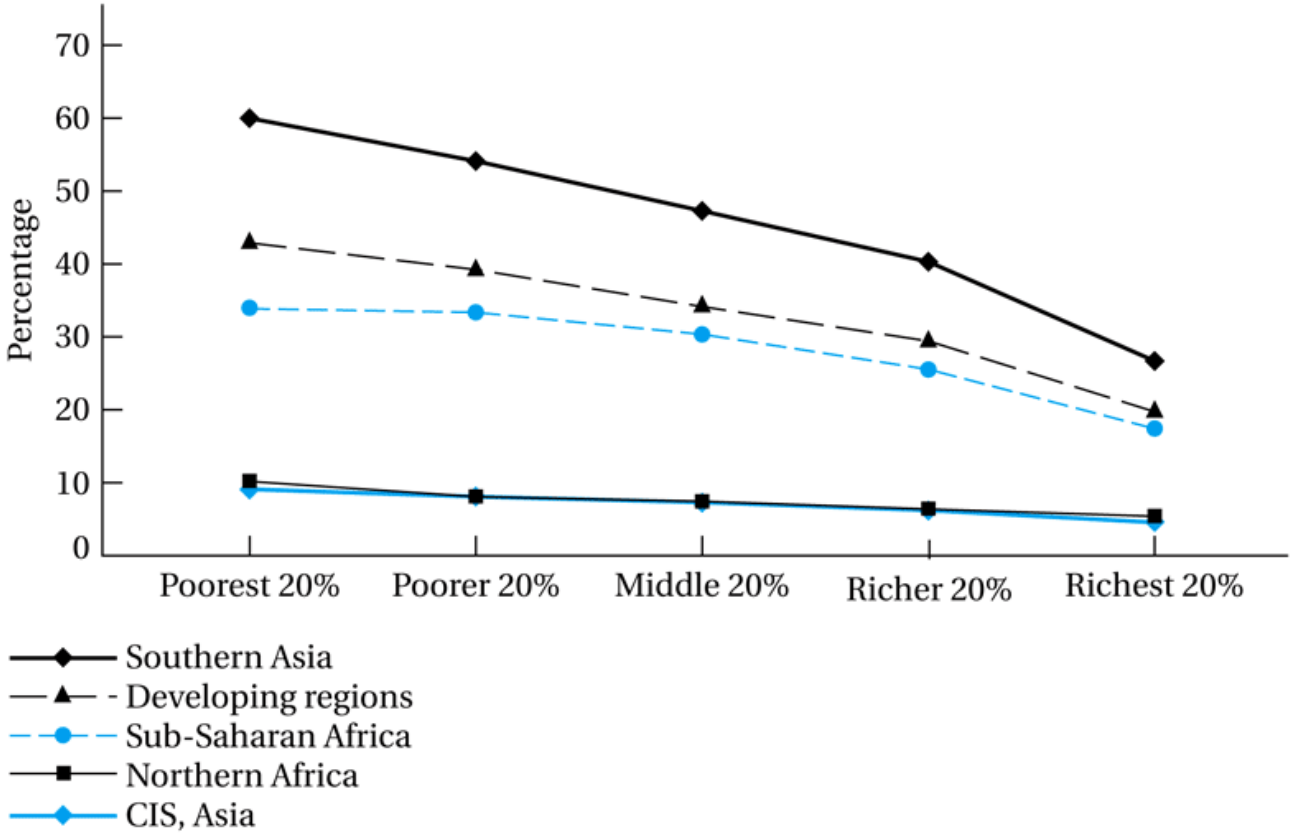
http://www.worldbank.org/en/topic/health

Health in sustainable development goals (SDGs): http://www.un.org/sustainabledevelopment/health/

*WHO stats: https://www.who.int/data/gho/publications/world-health-statistics

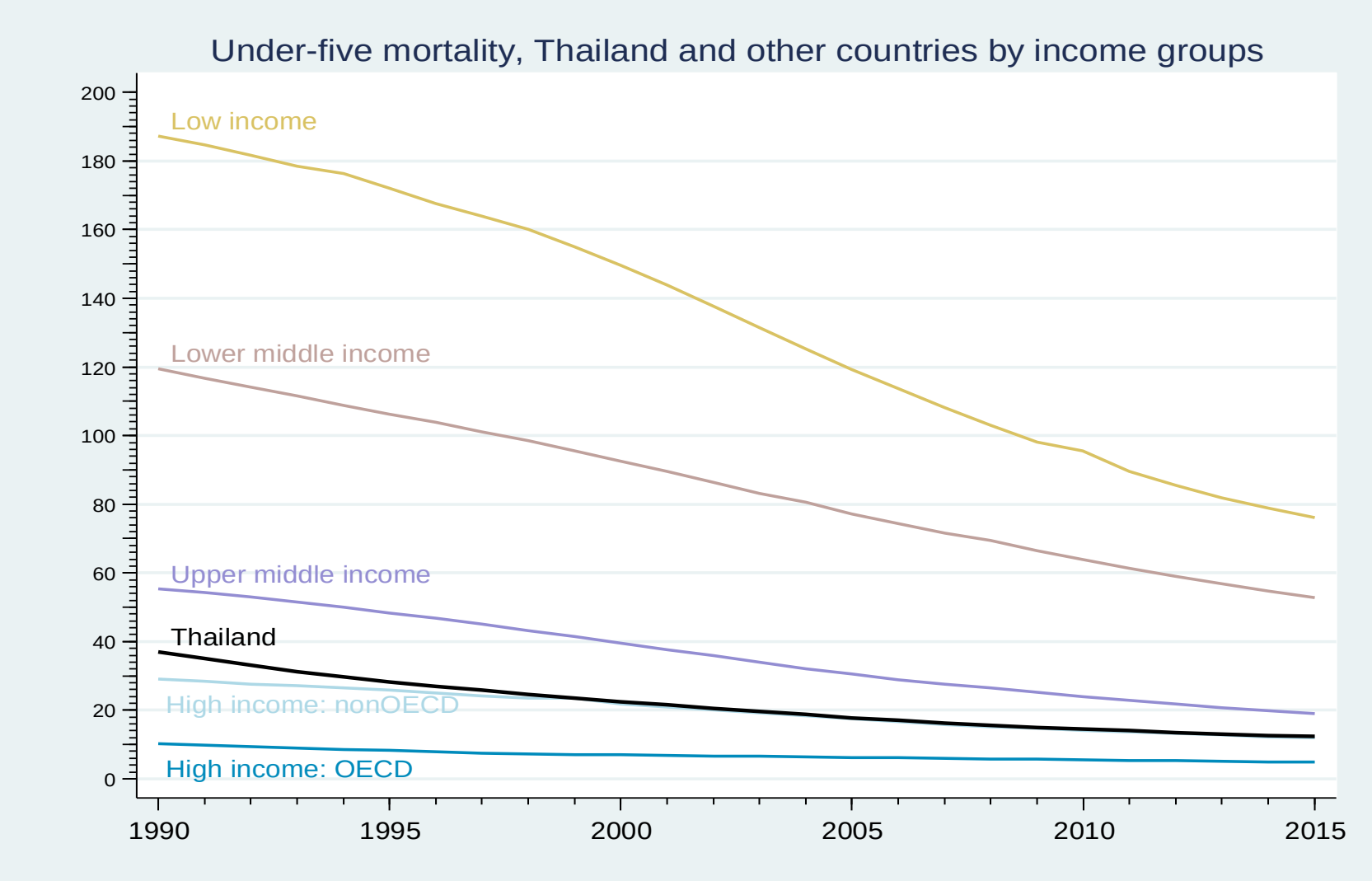
- Calorie intake
- Anthropometric indicators
  - Height as an adult includes the long-run effect of fetal and childhood nutritional limitations and disease environment
  - Stunting when height is two standard deviations below the average in a reasonably well-fed reference population
  - Weight for height (BMI) responds to the shorter-run nutritional balance among food, disease, and work
  - Wasting when BMI values are two standard deviations below average
- Under-5 mortality rate
- Life expectancy
- Health expenditure: private vs. public

Proportion of Under-Five Children Who Are Underweight, by Household Wealth, in 2008



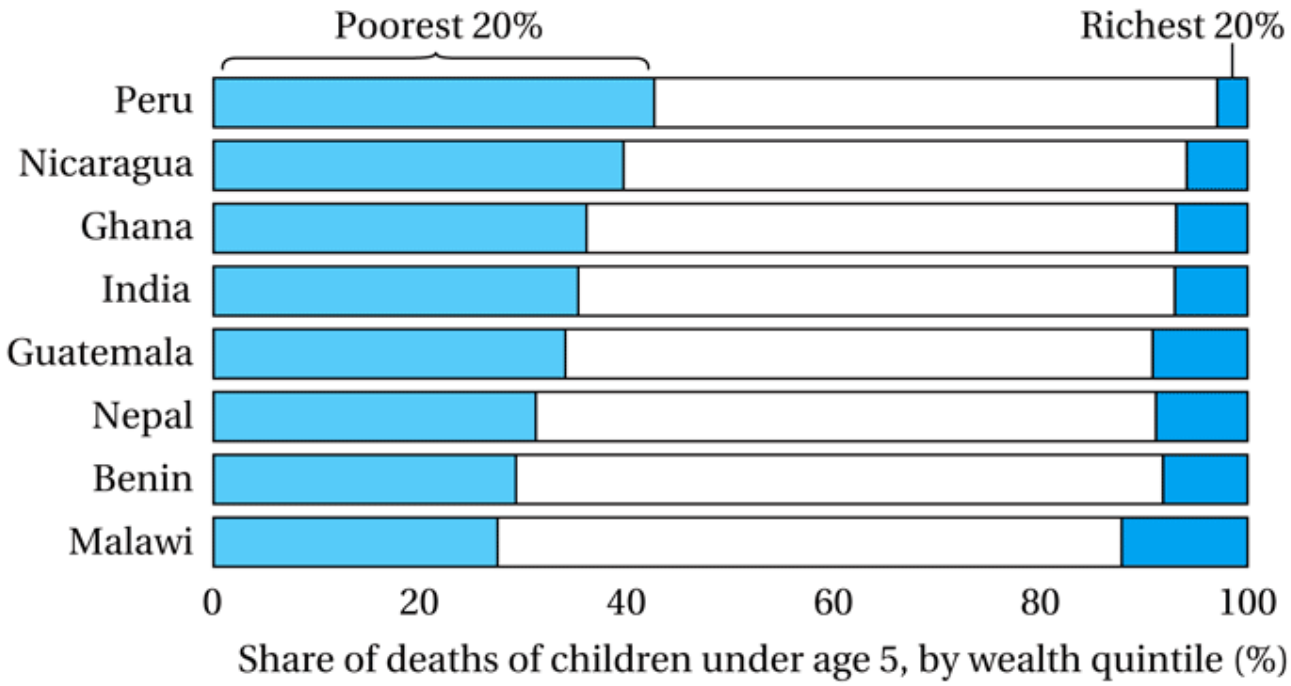
Source: From *Millennium Development Goals Report, 2010*, p. 14. Reprinted with permission from the United Nations.

Under-5 mortality rate



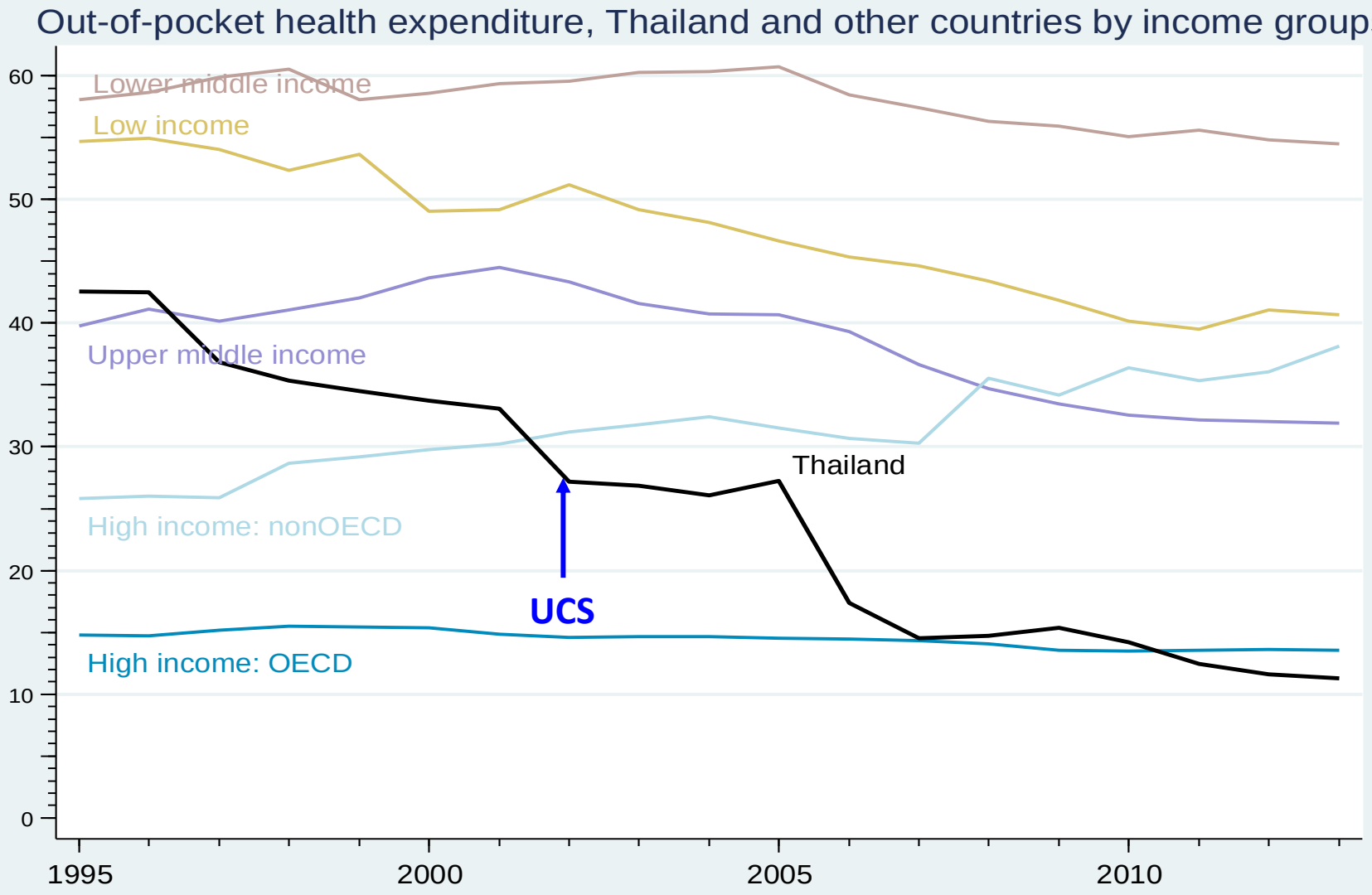
Source: ดร.สุพล ลิมวัฒนานนท Data: World Bank - World Development Indicators (updated Oct 2015)

Children's Likelihood to Die in Selected Countries

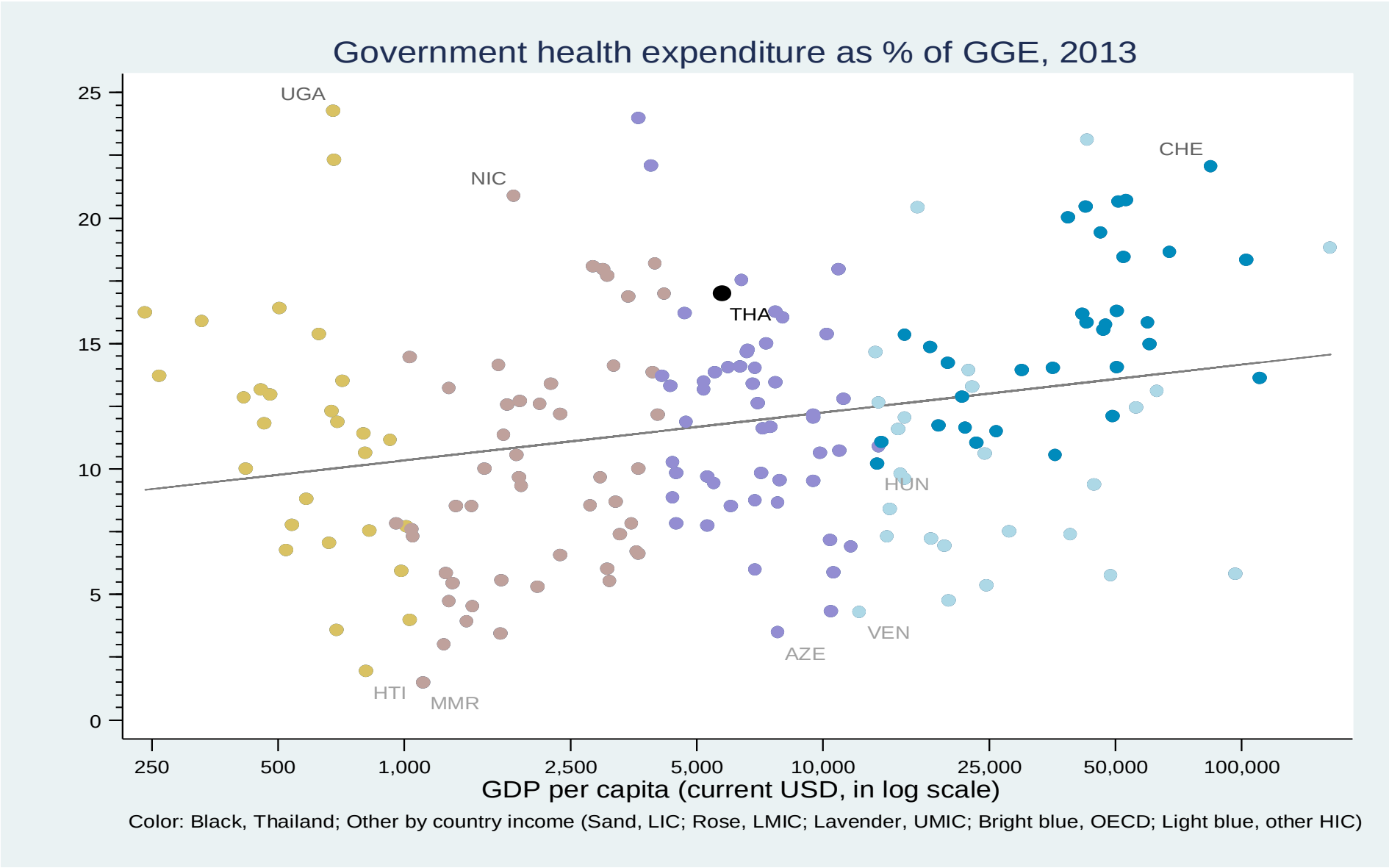


Source: Human Development Report, 2005, fig. 2.4. Reprinted with permission from the United Nations Development Programme.

Household health expenditure



Public health expenditure as % gov't expenditure



https://www.who.int/data/stories/world-health-statistics-2021-a-visual-summary

Good health and well-being

- Mortality rates have been reduced, life expectancy continues to increase globally, and the fight against some infectious diseases has made steady progress.
- However, in the case of other diseases such as malaria and tuberculosis, progress has slowed or stalled.
- At least half the world's population are still without access to essential health services.
- In rich and poor countries alike, a health emergency can push people into bankruptcy or poverty.
- If we spent $1 billion in expanding immunization coverage against influenza, pneumonia and other preventable diseases, we could save 1 million children's lives each year.
- In the past decade, improvements in health and heath care led to a 24 per cent increase in income growth in some of the poorest countries.