COURSE INTRODUCTION & OVERVIEW OF HEALTH ECONOMICS

EE 474 Health Economics

Semester 1/2014

About the Instructor

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- Education:
  - B.A. (Economics), McGill University, Canada
  - M.A. (Economics), University of British Columbia, Canada
  - Ph.D. (Major – Applied Economics, Minor – Health Services Research & Policy Administration), University of Minnesota, USA
- Fields of interest:
  - Health economics (particularly public health insurance)
  - Development economics
  - Population studies
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Students' Background?

- Please introduce yourself:
  - Name & Nickname
  - Which year of the program are you at?
  - What makes you interested in health economics?
  - What do you expect from this class?
  - What's your future plan (particularly for 4^{th}-year students)?
  - Others?

Course Contents

- Production of health and demand for health capital
- Demand and supply of health care
- Demand and supply of health insurance
- Asymmetric information in health care

Before midterm

- Factors of health service production: hospitals, physicians, labor, and pharmaceutical industry
- Issues in health care sector:
  - Efficiency and equity
  - Market failure and government intervention
  - Economic evaluation
- Health care at macroeconomic level
  - Health care system
  - Health care reform

After midterm

Course Organization

- Meet every Tuesday and Thursday, 12:30 - 2 pm
- Lectures based style + class participation
  - Students are required to read assigned readings before class.
- Classroom *etiquette*:
  - No cellphone or other communicating devices please! – A 100 baht tax will be collected each time a phone rings.
  - Please refrain from using all electronic devices (i.e. no facebook, no line, etc.)
  - No chitchat please! Raise your hands if you have questions or comments.
  - Dress code: no shorts, sandals, tank-tops, or other informal wear .

Evaluation

- Class participation based on the readings (10%)
- Problem sets (15%)
- Midterm exam (30%) – Thursday, October 9, 2014
- Final exam (45%) – Monday, December 15, 2014

Readings

- Textbooks (on the reserve in Puey Library)
  - Folland, S., Goodman, A. C., and Stano, M. (2012). *The Economics of Health and Health Care*, Seventh Edition. Pearson.
  - Phelps, S. (2010). *Health Economics*, Fourth Edition. Pearson.
  - Santerre, R.E., and Neun, S. P. (2007). *Health Economics: Theories, Insights, and Industry Studies*, Fourth Edition. Thompson.
- Other readings will be uploaded on B.E. Moodle – please check moodle regularly for any schedule change

Topics for This Week's Lectures

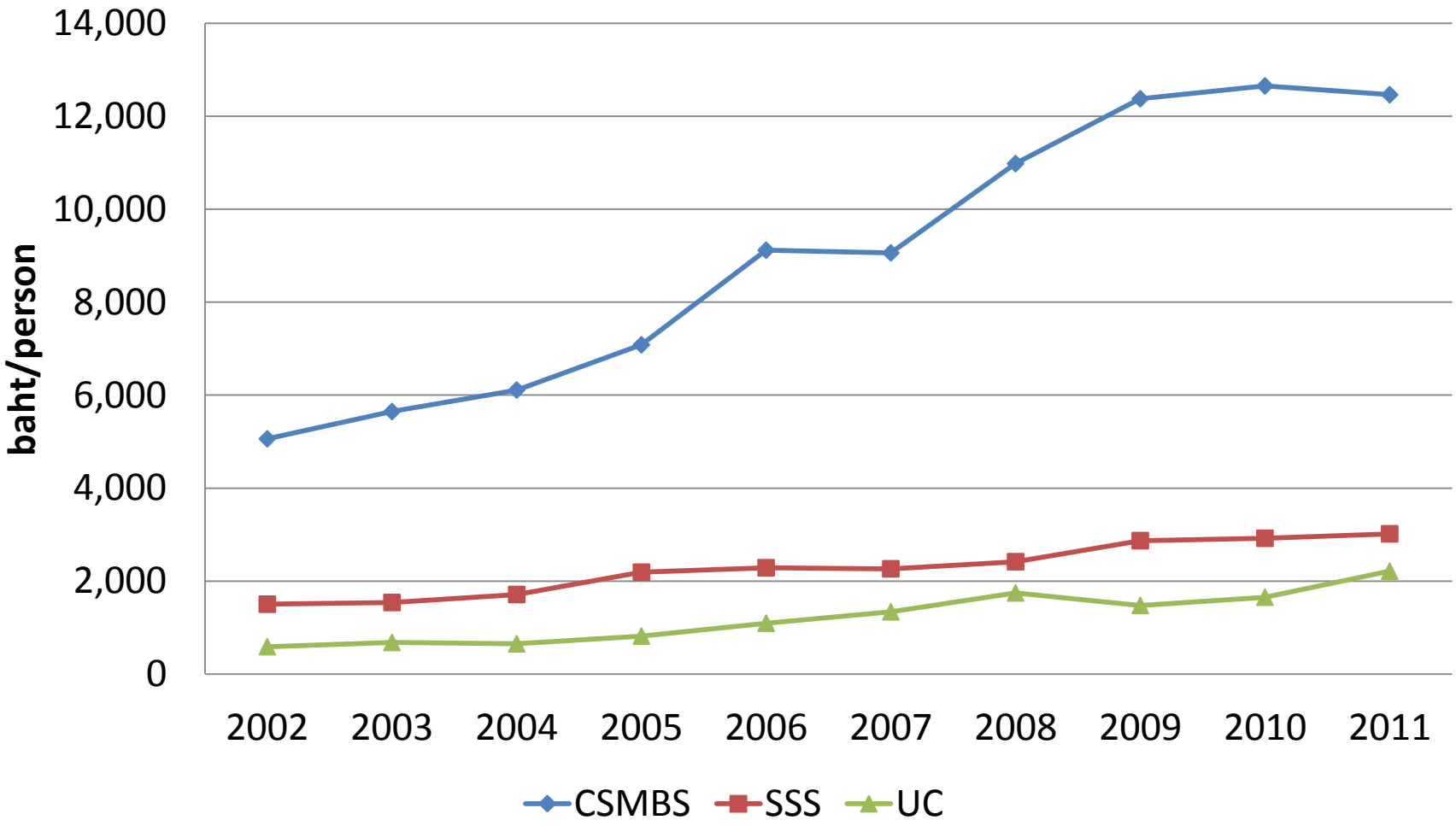
- Why health economics?
- What is health economics?
- What do we study in health economics?
- How economists view health and health care.

Why Health Economics?

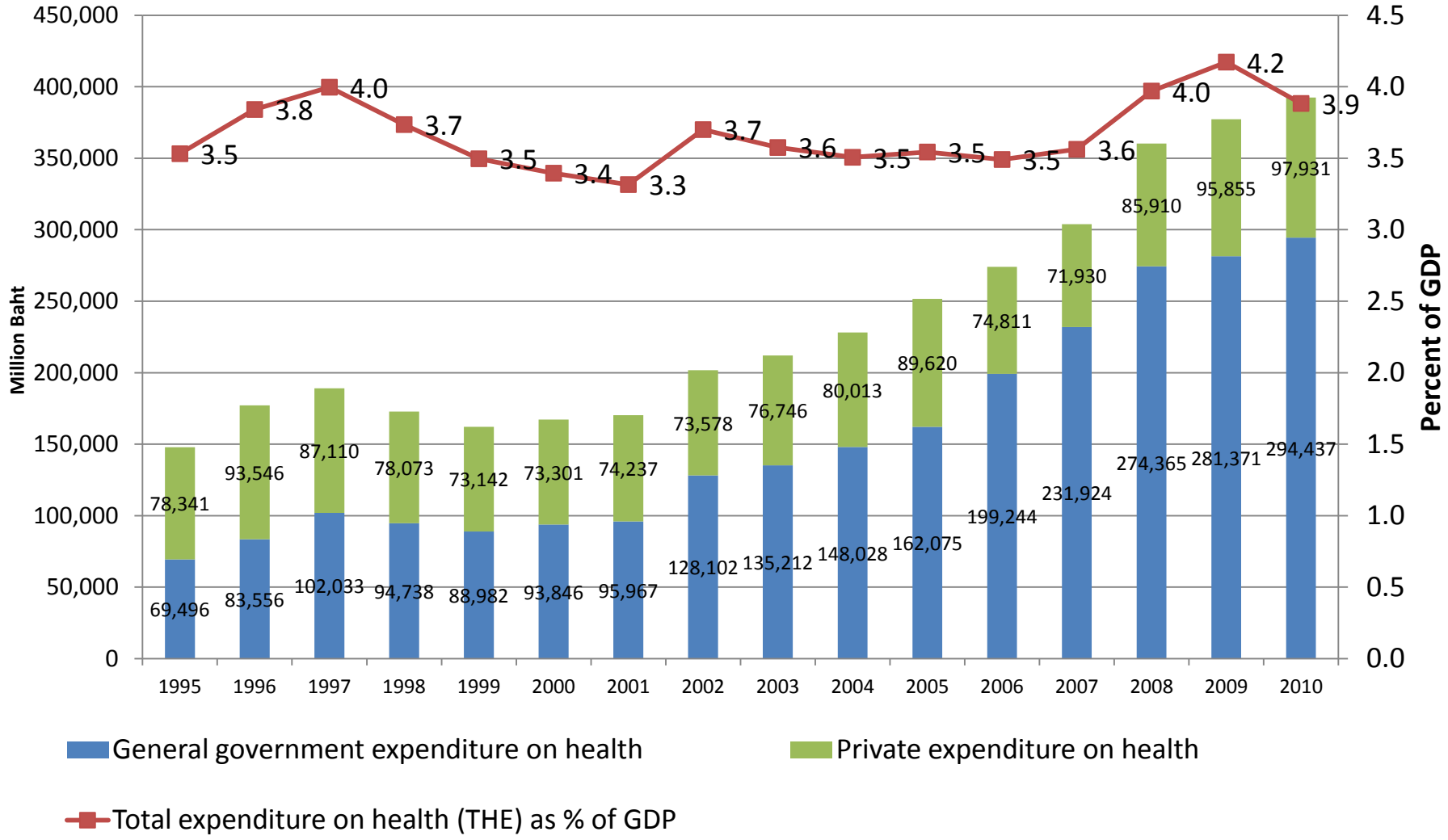
Some Current Health Care Issues in Thailand

- Medical tourism hub
- How to pay doctors in public sector → P4P?
- Health coverage for migrant workers? (Read "Health Coverage for Migrants at Discount" article)
- Co-payment for medical costs the Universal Coverage (UC) scheme? (Read "Health care is a basic right" article)
- Anything else?

Average Per Capita Health Expenditures under Public Health Schemes

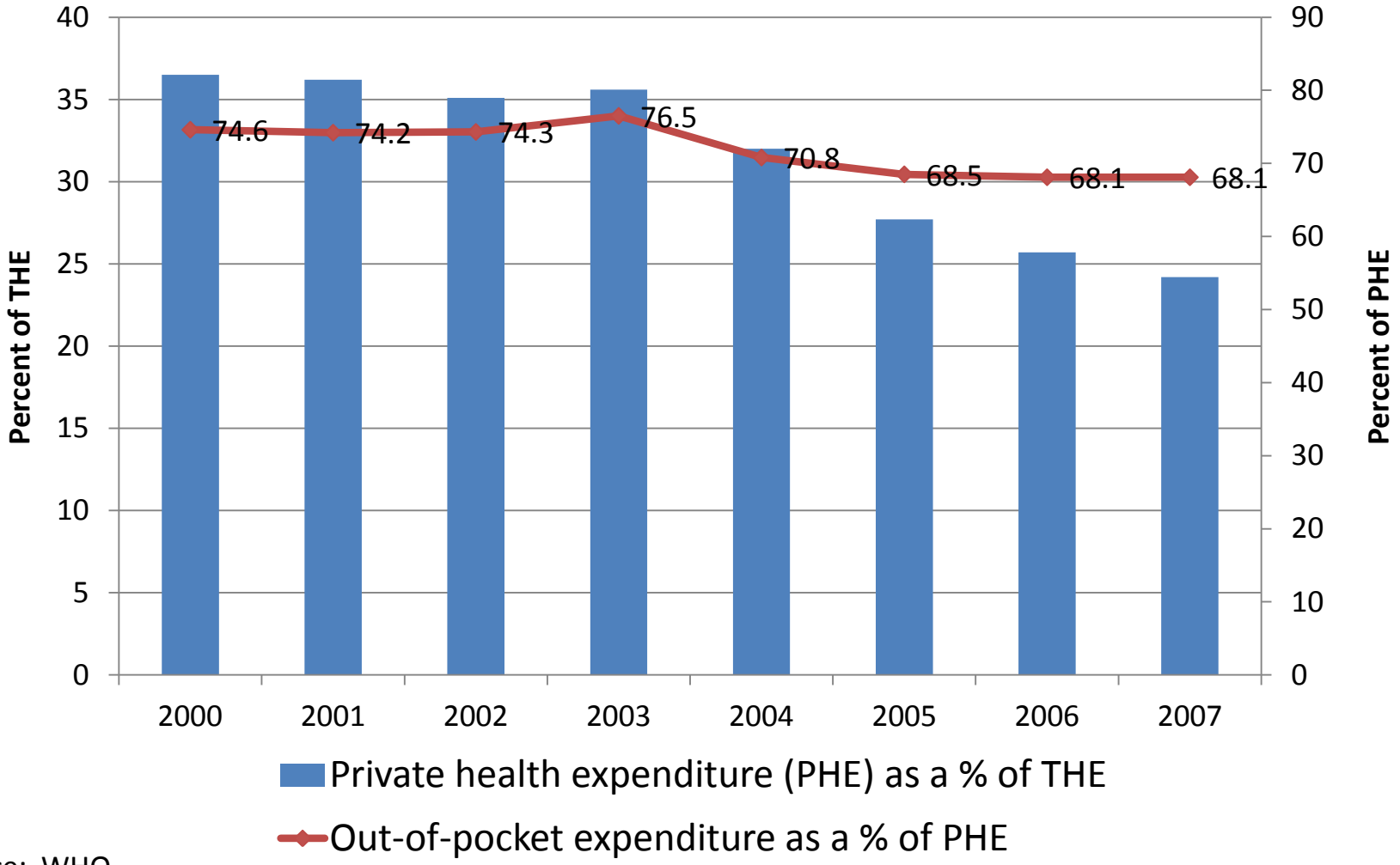


Thailand's National Health Accounts



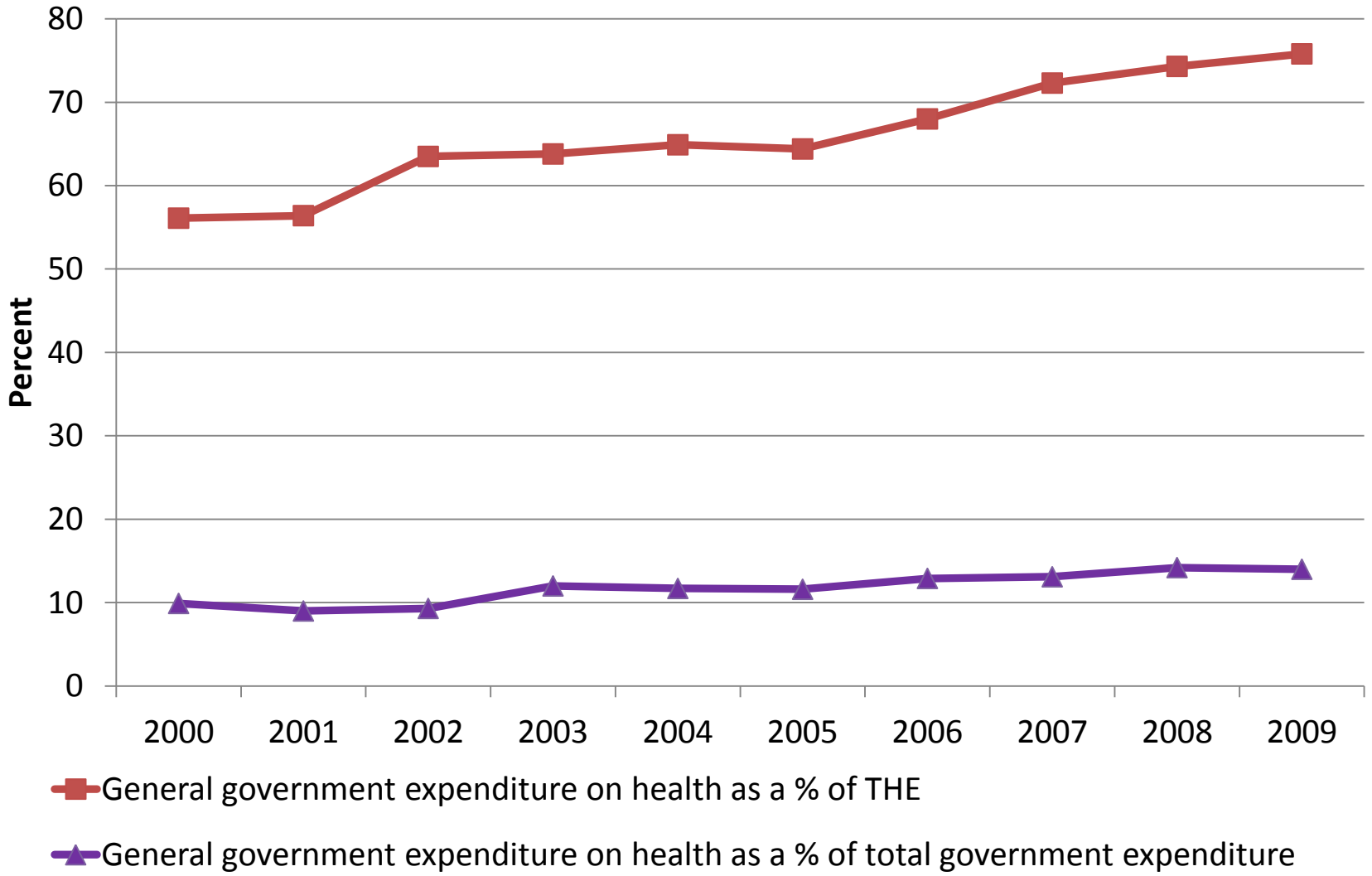
Source: WHO

Private Health Expenditures & Out-of-Pocket Expenditures



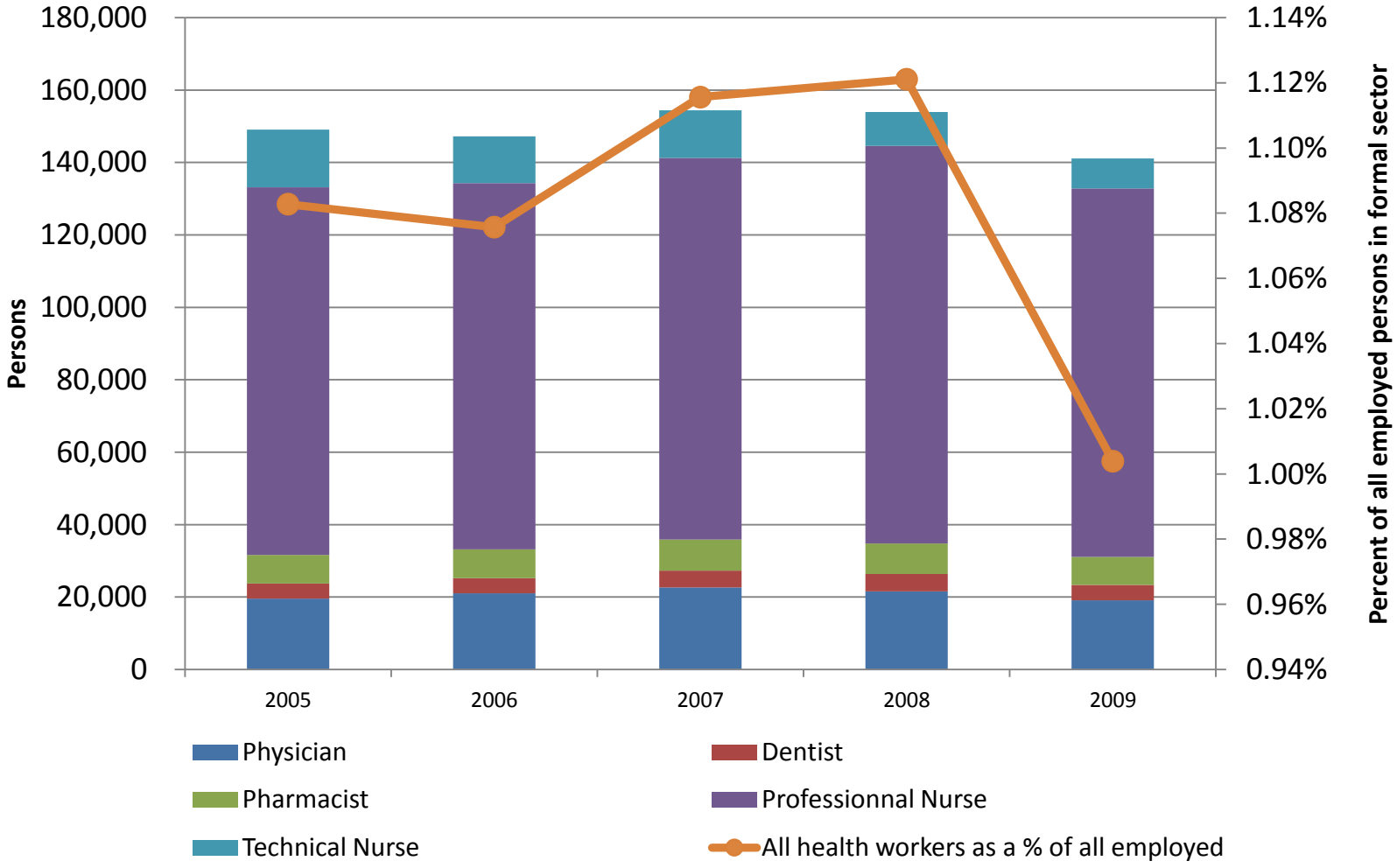
Source: WHO

Government Expenditure on Health



Source: WHO

Health Care Workers



Sources: - Office of the Permanent Secretary for Public Health, Ministry of Public Health
- NESDB

The Relevance of Health Economics

- Size and contribution of the health sector in the overall economy
  - Large proportion of the GDP
  - Important employment sector
  - Importance in personal spending
- National policy concerns
  - Large share of total government expenditure
  - Number of sick people and economic costs and loss in the long run
- The economics sides to other health issues
  - Health care treatment choice
  - Individual health seeking behavior
  - Government's role
  - Etc.

What is Health Economics?

*"**Health economics** … studies the supply and demand of health care resources and the impact of the health care resources on a population."*

The Mosby Medical Encyclopedia (1992, p.361)

Issues/Problems in Health Economics

- Examples:
  - What contributes to high infant mortality rates in some countries?
  - What are the impacts of private hospital mergers?
  - How does a certain national health policy affect the income distribution of the population?
  - How should we (individual/government) finance health care consumption?*
- *Main Goal*:
  - To better understand the economic aspects of health care problems in order to provide corrective health policies

Health Economics Studies

Microeconomics

- Study the behavior of agents in the health economy
  - Demand and supply of health and health care
  - Price determination of health service production factors and health care resources
  - Demand and supply of health insurance

Macroeconomics

- Look at the overall health economy
  - National Health Accounts
  - Health care system
  - Health care financing

4 Basic Questions

1. What combination of health care and other goods and services should be produced in the economy?
2. What specific health care goods and services should be produced in the health economy?

Allocative efficiency

3. What specific health care resources should we use to produce the chosen health care goods and services?

→ Production efficiency

4. Who should receive the health care goods and services that are produced?

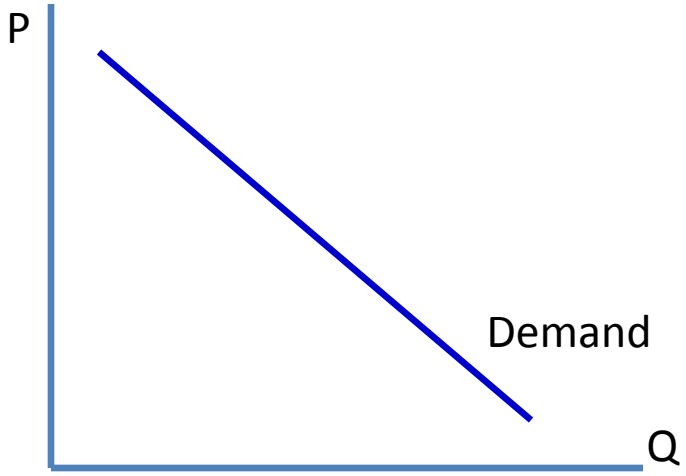
→ Pareto efficiency

Efficiency

- Allocative efficiency
  - Producing a level of output where the cost of producing the last unit of output equals to its values (i.e. MC=MB).
- Production efficiency
  - Achieved when a level of output is being produced where the cost per output is the lowest.
- Pareto efficiency
  - A condition in which *no one can be made better off without making someone else worse off*.

Economic Analysis: Economic Models

- Simplify a complex problem in the real world
- Describe hypothesized relation between two or more variables
- Could be descriptive, graphical, or mathematical form
- Ex: $Q^d_{\text{medical care}} = f(\text{medical price})$



Economic Analysis: Empirical Tests

- Empirical testing of health economic theories
  - Use statistical techniques, *e.g. econometric analysis or multiple regression analysis*, to verify or quantify the magnitude of the relation among economic variables
  - Ex: $Q^d_{\text{medical care}} = a + b*\text{medical\_price} + c*\text{income} + \ldots$
    - Empirical studies are used to determine the *sign* and *magnitude* of the parameter *b*.
      - Implications on cigarette tax policies

2 Types of Analysis

- Positive Analysis
  - What is? What was? What happened?
  - Examples:
    - How much would a 10% co-payment affect the medical care consumed under the UC scheme?
    - Does the universal health coverage policy reduce the income inequality in Thailand?
- Normative Analysis
  - What should be? What ought to be? Which is better?
  - Examples:
    - Should public hospitals charge a co-payment from UC beneficiaries?
    - Should Vietnam adopt a national health insurance program?

How economists view health and health care

- How do we measure health?
- Is health care different from other goods and services?

Health & Health Care

- Health

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

(Source: https://apps.who.int/aboutwho/en/definition.html)

- Health care service

"Health service is any service (i.e. not limited to medical or clinical services) aimed at contributing to improved health or to the diagnosis, treatment and rehabilitation of sick people"

(Source: http://www.euro.who.int/__data/assets/pdf_file/0014/102173/E69927.pdf)

How Do We Measure Health?

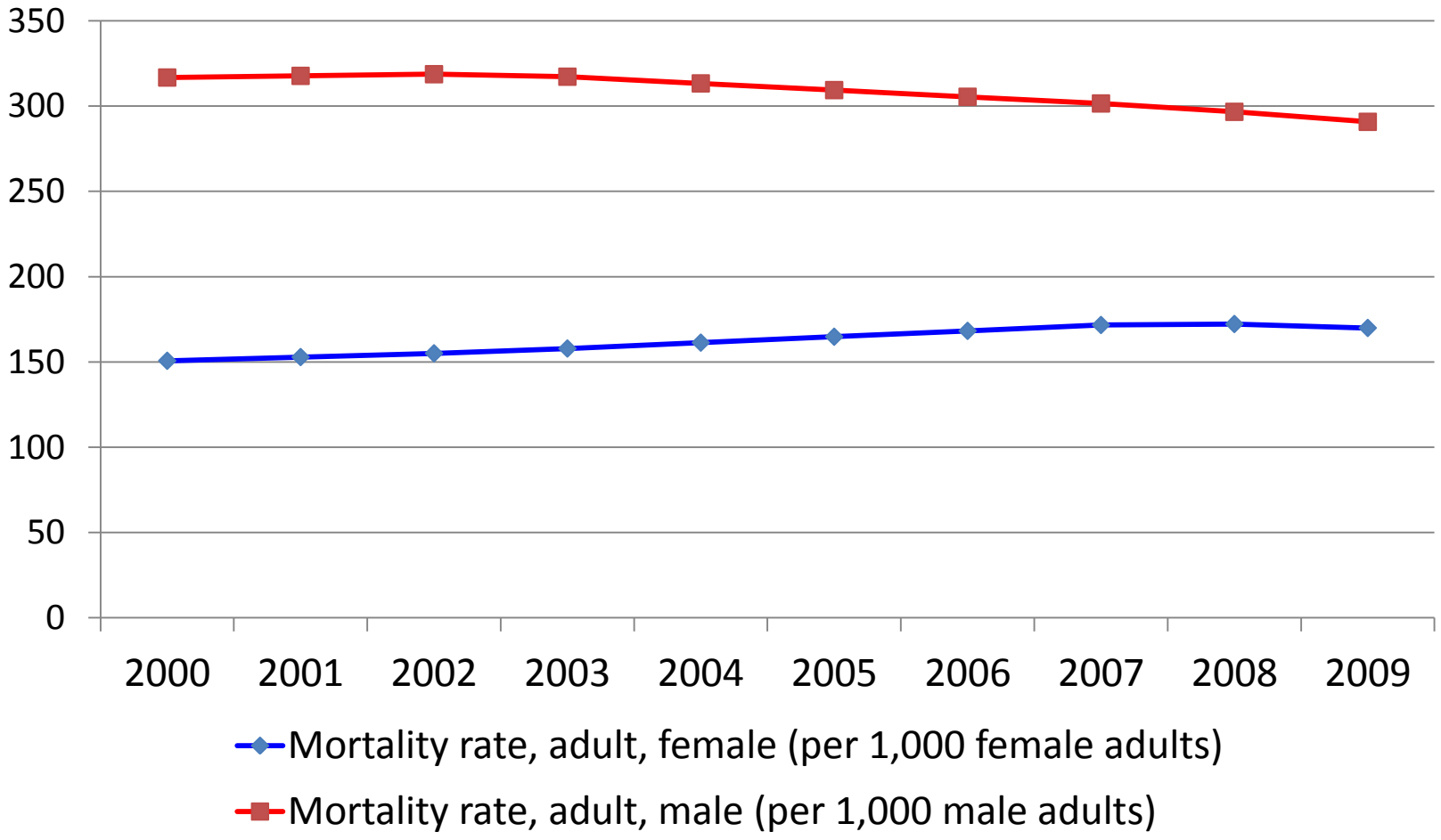
- Is health a *stock* or *flow* variable?
- Commonly used health outcomes (of population):
  - Life expectancy
  - Mortality rates
  - Morbidity
  - Pattern of diseases
  - Health-related quality of life:
    - Quality-adjusted Life Year (QALY)
    - Disability-adjusted Life Year (DALY)

Example: Life Expectancy at Birth in 2009 (years)

Country	Male	Female
Brunei Darussalam	76	77
Cambodia	57	65
Indonesia	66	71
Lao People's Democratic Republic	62	64
Malaysia	71	76
Myanmar	61	67
Philippines	67	73
Singapore	79	84
Thailand	66	74
Viet Nam	70	74

Source: http://apps.who.int/gho/indicatorregistry/App_Main/view_indicator.aspx?iid=65

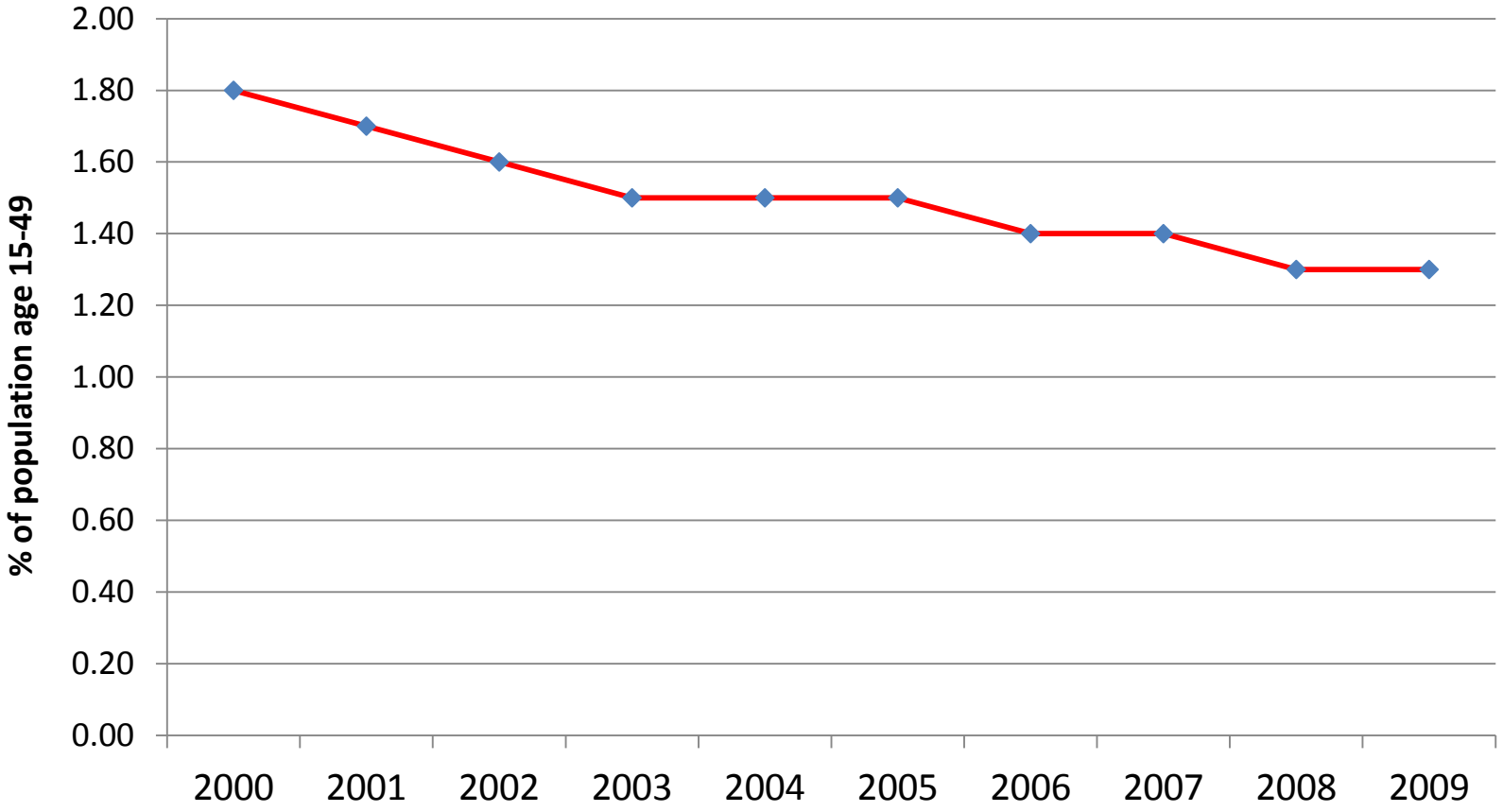
Example: Adult Mortality Rates in Thailand



Source: World Development Indicator, 2011

Example: HIV Prevalence in Thailand

(% population age 15-49)



Source: World Development Indicator, 2011

Is Health Care Different?

- *Unusual* economic features in health care markets:
  - Dominance of *uncertainty* at all levels of health care
  - Problems of information: *Asymmetric information*
  - Presence of *externalities*
  - Large extent of *government involvement*
  - Roles of *equity and need*

Uncertainty

- Arrow (1963): Uncertainty is prevalent in health care markets , both on the demand side and on the supply side.
- Demand side:
  - Consumers are uncertain of the health status and need for health care
- Supply side:
  - Providers are uncertain whether a treatment will work.
  - If cured, uncertain whether it is the result of the treatment or something else.

Uncertainty

- At *macro level*, there is uncertainty about who will become ill, and who will not.
- The existence of uncertainty and risk implies a role of health insurance.
  - Use of expected utility (EU) model in analyzing economic behavior

    Eg. $EU = p*U_{ill} + (1-p)*U_{healthy}$

    Where p= probability of being ill
  - If markets for insurance fail, the government may need to intervene (Arrow, 1963).

Asymmetric Information

- Asymmetric information between physicians and patients
  - Patients rely on doctors' skills and knowledge in providing diagnosis and treatment.
    - Same as the 'Lemons problem'
    - Doctors need to be qualified → Licensure
    - Need ethical codes
  - Principal-Agent problem:
    - Patients are principal, and doctors are agents.
    - "Physician-induced demand" (or supply-induced demand) hypothesis

Asymmetric Information

- Asymmetric information in health insurance industry
  - *Moral hazard*
    - Insured persons use excessive health care services because of lower costs.
  - *Adverse selection*
    - Sick persons hide the information about their actual health status from insurance companies.
    - Insurance companies sell insurance only to healthy persons. → "Cherry picking"
  - Both moral hazard and adverse selection problems lead to welfare loss to the society.

Externalities

- Externalities occur when :
  - a producer does not incur all the costs of the production
  - a consumer does not receive all the benefits of the consumption
- Externalities are commonly used in addressing environmental issues, such as pollution.
- Externalities are a form of *market failure*, and provided a justification for government intervention in health care market.

Externalities

	Positive Externality	Negative Externalities
Consumption	External economy of consumption e.g. Immunization	External diseconomy of consumption e.g. Antibiotic use, alcohol consumption
Production	External economy of production e.g. R&D from teaching universities	External diseconomy of production e.g. Dumping of hospital waste into the river

Positive Externality: Immunization

- Immunization not only benefits the person who is immunized, but also benefits other people in the society.
  - The immunization prevents the disease from spreading around.
  - a.k.a. "Herd Immunity"
- The external benefit to the society is being paid for by the person who receives the immunization only.
  - MSB > MPB

Positive Externality: Immunization

- The externality in immunizations suggests that too little of immunization, as determined by the market , is being produced.
- Government should intervene by reducing the price and increase quantity.
  - Subsidize immunization
- Other examples of positive externalities on consumption:
  - Education
  - Anything else?

Negative Externality: Alcohol Consumption

- This is external *dis*economy of consumption.
- The consumer benefits from alcohol consumption, but he/she could cause traffic accidents if driving when drunk.
- Drunk drivers creates *negative* consumption benefits to the society from their alcohol consumption.
  - The negative benefits are borne other people who do not receive benefits from alcohol consumption.
  - MSB < MPB

Negative Externality: Alcohol Consumption

- The negative externality implies that too much of alcohol is being consumed.
- This provides another justification for government intervention to reduce the number of drunk drivers.
  - Increase the fine
  - Use other punishment method
- Other examples of negative externalities:
  - Antibiotic use
  - Street drug

Government Involvement

- Problems of asymmetric information and externalities provide justification for government intervention.
  - Asymmetric information
    - Licensure
    - Food and drug control
  - Externalities
    - Subsidies to promote health
    - Taxes to control ‘bads’

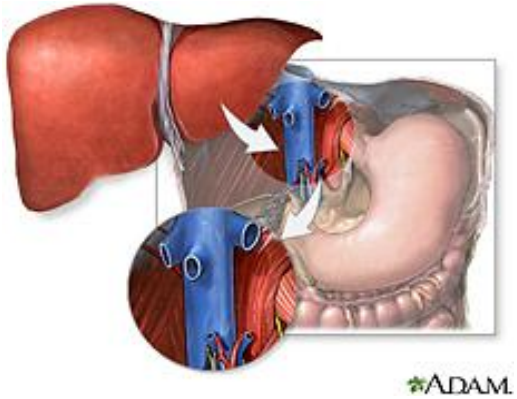
Government Involvement

- In Thailand, the government plays a crucial role in the health care sector.
  - Government (through Ministry of Public Health) is the main health care provider.
    - The majority of hospitals in Thailand are public hospitals.
  - Government pays for almost 70% of total health expenditure. (refer to NHA in previous slide)
  - Government subsidizes education of health personnel.

Equity and Need

- Affordability of a Porsche vs. liver transplant

Vs.



(pictures from inautonews.com and tulanehealthcare.com)

- Is health care different?
  - If not, then we can let the market decide whether we should buy a ฿ 5,000,000 Porsche or ฿ 5,000,000 liver transplant.
  - If different, then it can't be left to the market.

Equity and Need

- One difference is the *very high value of the health care*, compared to the Porsche:
  - Liver transplant preserves life, whereas Porsche is considered as 'luxurious' goods.
  - This is the same as other necessities, such as food, clothing, etc.
- Another unique characteristics is that the *demand for health care is state dependent*:
  - Only when a person's liver fails that s/he needs a liver transplant.

Equity and Need

- Problem: Not everyone can afford a liver transplant when needed.
  - You may have enough money to cover your basic needs, but this income might not be enough to cover the total cost of the transplant.
  - People can become instantly poor when ill.
- Who should get health care should not be determined by their ability to pay, but the need (which is sometimes hard to define).
- So, we cannot ignore "equity" when thinking about health care allocation.

Equity and Need

- Efficiency vs. Equity
  - *Efficiency* is making the pie as big as possible.
  - *Equity* is how you divide up the pie to promote society's welfare.
- Problem: Economists don't have all the tools necessary to analyze equity
  - No social welfare function to explain who is worthy of more income or more health care.
  - In the end, we have to consider the norm or values in the society.