I. THE PRODUCTION FUNCTION

ECONOMIC THEORY	ROLE OF HEALTH IN THE ECONOMY
Input combined to produce a level of output with mediating factors	*Definition: Health is an input + output of productive process*
Different combinaisons: Substitute input to produce the same level of output	Described how efficient particular process are
Ex: Labor, capital --> good, services, activities	Ex: Environment, lifetime, education, wealth --> Productivity, Labor Supply

III. HEALTH AS AN OUTPUT

Health Output Definition = health outcomes (life expectancy, healthy days, QUALY)

1.1 Total ProducT: Health input expended in the production process

1.2 Increasing Total Product: Health increases as more and more Health Inputs are added to the production process

2.1 Marginal Product: additional (health input) = output generated

2.2 Diminishing Marginal Product: More health input added = The rate of increase in Health declines

IV.B THE MODERN ROLE OF HEALTH CARE

2. MARGINAL PRODUCT OF HEALTH CARE INVESTMENT

Population subgroups? 1 (Under 6 years) and 2 (Particular disease area)
Other health outcome measures? Quality Adjusted Life Expectancy QUALY

II. HEALTH AS AN INPUT

Health Input Definition= Health care & Other Input

1. Social Objectives: macroeconomic Objective is Economic Growth

2. Economic Theory: Neoclassical Theory Economic Growth Depends on = Stock of capital, Stock of Labor, Productivity

3. Empirical Evidences: Positive relationship with Health and Economic Growth (health measured as life expectancy which is sizeable predictor of subsequent economic growth)

Grossman 1972 "If health is a driver for human capital, then health is a driver for economic growth".

IV.A THE ROLE OF HEALTH CARE

A THE HISTORICAL ROLE OF HEALTH CARE

1750-1850: Improve Nutrition (industrial revolution)

1850-1930: Improve Public Health (food safety, clean water)

1939's Onwards: Health Care (vaccination, antibiotics, hight technologies medicine)

What caused the improvements in Population Health?
- New ideas personal health and public health (better better nutrition, better housing)
- New ideas about the germ theory (infectious diseases)
- New information on the effects of smoking (health behaviours and health outcome)
- New major, life-saving, scientific innovations in medical procedures and new pharmaceuticals (Extending life Expectancy)

V. IMPLICATIONS FOR POLICY MAKERS

Increase economic growth = Policy makers should consider health input investments

Improve Health = Policy makers should consider the marginal product of alternative health input investments including health care.

Compare evidence on all relevant comparators = Health care VS Health Care / Health care VS Non-Health Care

The historical emphasis of policy makers on health care as the sole determinant of Health may be at odds with the evidence.

Exemple of inputs

- **Productivity**: produce more output/ hour, physical and capable capability, more efficient use of technologies

- **Labor Supply**: More Healthy days available (work, Leisure)

- **Education**: Becker's Human Capital Theory -> more educated = More productive, produce more Output

- **Education**: Becker's Human Capital Theory -> more educated = More productive, produce more Output

- **Capital Formation**: Health impact how individu distribute income: saving, consumption and Investment.

Healthier individu = higher level of income, higher savings ratio and higher likelihood of investment.

Higher levels of savings and/or investment improve economy's physical, intellectual and/or financial capital stock -> Potentially leading to increased returns at individual and macro economic levels.

IV.B THE MODERN ROLE OF HEALTH CARE

1. HEALTH CARE ELASTICITY

Exemple:

*Elasticity of Health Care Expenditure = 0.10
Life expectancy = 80 years
The Government increases Health Care Expenditure by 10% (or 0.10) per year

What improvement in health can we expect?
Expectancy = 0.10 x 0.10 x 80 = 0.80 year or 292 days (365x0.80) over the average lifespan