# Global Economy
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## Lecture 5

- Measures of economic growth and development

# Economic Growth and Development

- **Economic growth** is the increase in the amount of the goods and services produced by an economy over time.

- It implies only an increase in quantitative output.

- **Economic development** is the increase in the standard of living in a nation's population with sustained growth from a simple, low-income economy to a modern, high-income economy.

- It refers to social and technological progress and involves improvements in a variety of indicators such as literacy rates, life expectancy, and poverty rates.

- Economic growth  is measured as the percent rate of increase in  real  gross domestic product GDP (or GDP per capita).

Rate of economic growth

$$\frac{GDP_1 - GDP_0}{GDP_0}$$

where  $GDP_1$  is GDP in current period,

$GDP_0$  is GDP in basic period.

# Why GDP as a measure of happiness and well-being party fails?

- GDP is an average. So even if most people in a country are worse off from one year to the next, GDP may increase if a few people are doing very well.

- GDP does not reflect what money is spent on in society. Simply, the more money is spent, the higher the GDP.

Examples:

- The US spends more money per capita on healthcare than any other developed country, and the quality by any measure  longevity, morbidity, etc.) is lower.

- The more people are put in prison and the more prisons are built, the higher the GDP.

## Prison population rate (per 100,000 of the national population), 2017
Source: World Prison Population List, 2017

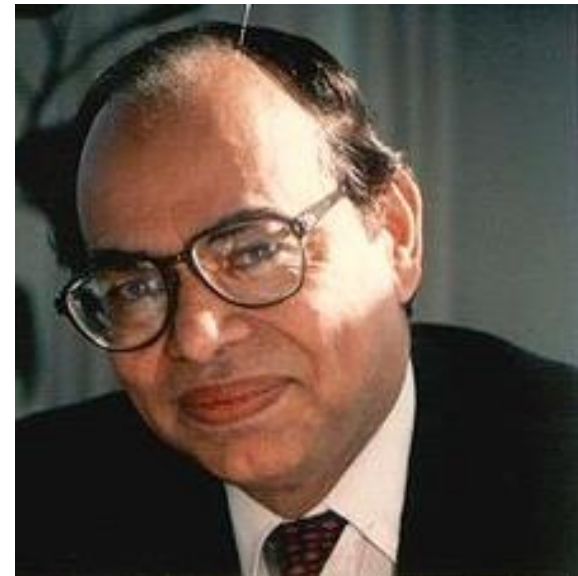| France | 100 | Slovakia | 191 |
|---|---|---|---|
| India | 33 | Spain | 126 |
| Italy | 98 | Sri Lanka | 94 |
| Iran | 284 | Turkey | 288 |
| Lithuania | 235 | Ukraine | 157 |
| Pakistan | 43 | Uzbekistan | 150 |
| Poland | 194 | | |

# Why GDP as a measure of happiness and well-being party fails?

- Failure to make qualitative distinctions.
- Failure to value natural, human, and social capital.
- Failure to value free time.
- Failure to value unpaid work.
- Failure to account for equity.

- Human Development Index (HDI)

- Measures of happiness in nations (Average Happiness, Happy Life Years)

- Happy Planet Index

- Gross National Happiness (GNH) – an alternative approach to progress

# Human Development Index (HDI)

- Mahbub ul Haq (1934-1998)

- The HDI was invented by Mahbub ul Haq and a group of development economists.

- The HDI has been used since 1990 by the United Nations Development Programme for its annual Human Development Reports.
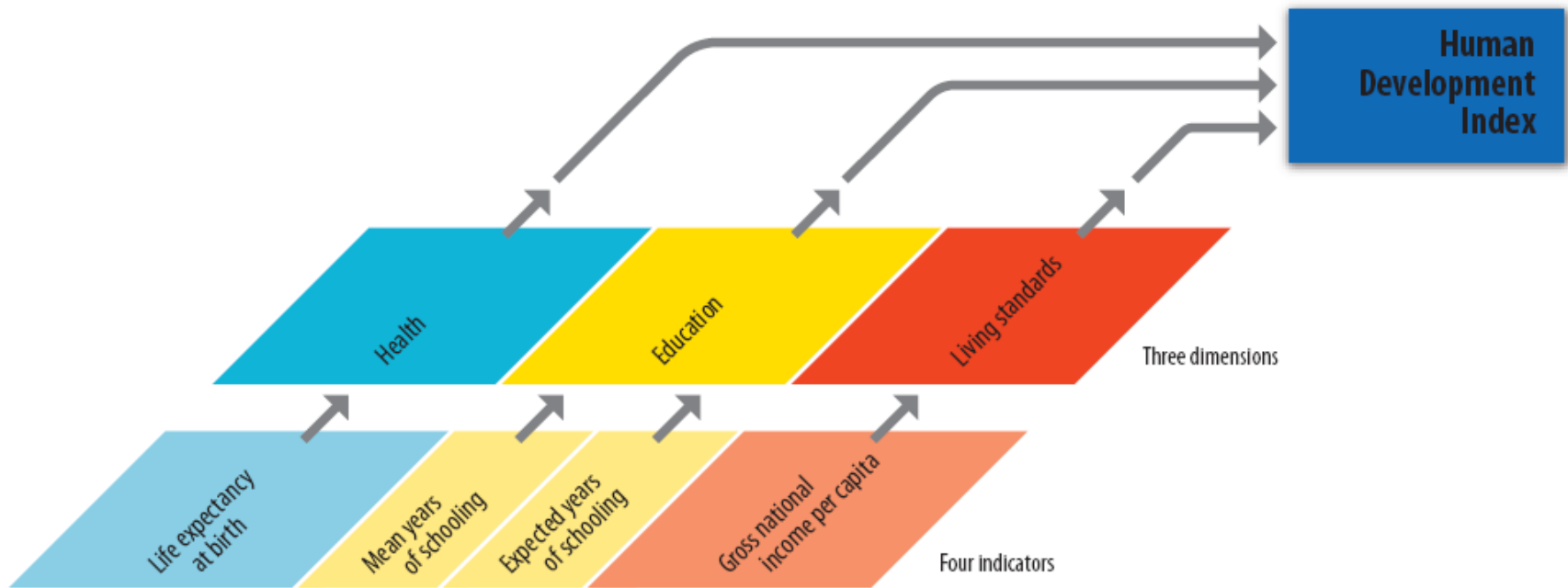
## Human Development Index (HDI)

- Starting with the 2010 report HDI combines three dimensions

- A long and healthy life (measured by life expectancy at birth),
- Access to knowledge (measured by two indicators: Mean years of schooling and Expected years of schooling),
- A decent standard of living (measured by the GNI per capita expressed in purchasing power parity (PPP) US dollars).
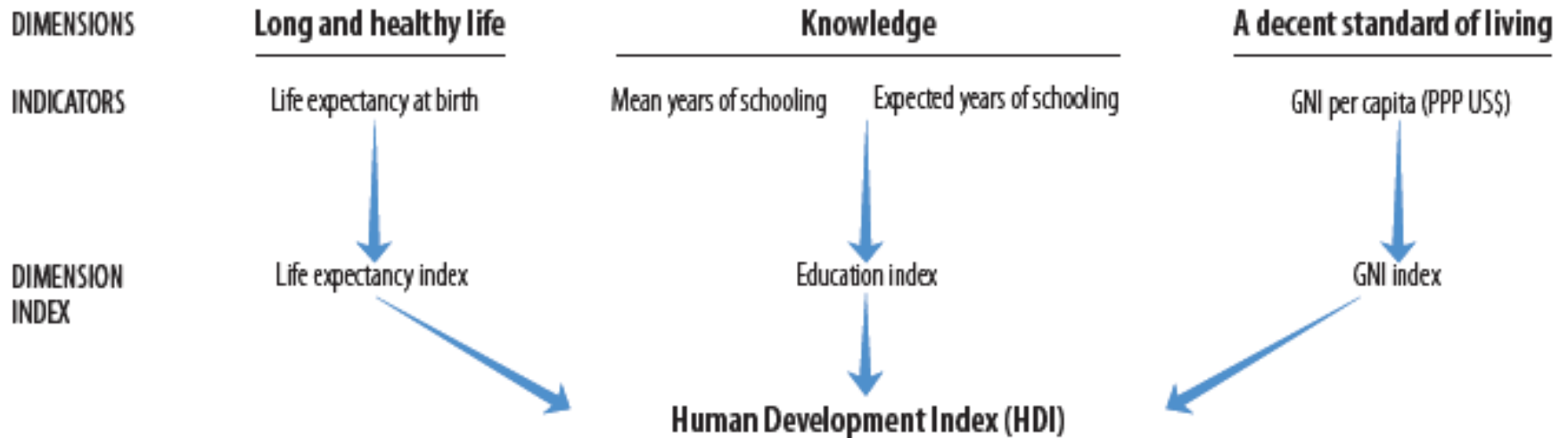
# Components of HDI

Source: Human Development Report 2010 (http://hdr.undp.org)

# Calculating HDI
Source: Human Development Report 2010 (http://hdr.undp.org)

These three dimensions are standardized to values between 0 and 1, and the geometric mean is taken to arrive at the overall HDI value in the range 0 to 1.

$$\text{Dimension index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

$$\text{Income index} = \frac{\ln(\text{actual value}) - \ln(\text{minimum value})}{\ln(\text{maximum value}) - \ln(\text{minimum value})}$$

$$\text{HDI} = \sqrt[3]{\text{Life expectation index} \cdot \text{Education index} \cdot \text{Income index}}$$

# Goalposts for Calculating the HDI

Source: Human Development Report 2010 (http://hdr.undp.org)

| Indicators | Observed maximum | Minimum |
|---|---|---|
| Life expectancy at birth | 83.2 (Japan, 2010) | 20.0 |
| Mean years of schooling | 13.2 (United States, 2000) | 0 |
| Expected years of schooling | 20.6 (Australia, 2002) | 0 |
| Combined education index | 0.951 (New Zealand, 2010) | 0 |
| Per capita income (PPP $) | 108,211 (United Arab Emirates, 1980) | 163 (Zimbabwe, 2008) |

# Example:  Poland, 2010

| Life expectancy at birth | 76.0 |
|---|---|
| Mean  years of schooling | 10.0 |
| Expected years of schooling | 15.2 |
| Per capita income  (PPP $) | 17,803 |

## HDI, Poland, 2010

1.Life expectancy index

$$\frac{76.0 - 20}{83.2 - 20} = 0.8861$$

2. Education index

$$\frac{\sqrt{0.7576 \cdot 0.7379} - 0}{0.951 - 0} = 0.7862$$

where:

- Mean years of schooling index $\quad \dfrac{10.0 - 0}{13.2 - 0} = 0.7576$

- Expected years of schooling index $\quad \dfrac{15.2 - 0}{20.6 - 0} = 0.7379$

3. Income index

$$\frac{\ln(17{,}803) - \ln(163)}{\ln(108{,}211) - \ln(163)} = 0.7223$$

$$HDI = \sqrt[3]{0.8861 \cdot 0.7862 \cdot 0.7223} = 0.795$$

# HDI, 2017

Source: http://hdrstats.undp.org

| | |
|---|---|
| **Very high human development** | 0.953-0.800 |
| **High human development** | 0.798-0.700 |
| **Medium human development** | 0.699-0.556 |
| **Low human development** | 0.546-0.452 |

# HDI, 2017

Source: Human Development Report, 2018;  http://hdrstats.undp.org

| Rank | Country | HDI | Rank | Country | HDI |
|---|---|---|---|---|---|
| 1 | Norway | 0.953 | 189 | Niger | 0.354 |
| 2 | Switzerland | 0.944 | 188 | Central African Republic | 0.367 |
| 3 | Australia | 0.939 | 187 | South Sudan | 0.388 |
| 4 | Ireland | 0.938 | 186 | Chad | 0.404 |
| 5 | Germany | 0.936 | 185 | Burundi | 0.417 |
| 6 | Iceland | 0.935 | 184 | Sierra Leone | 0.419 |
| 7 | Hong Kong | 0.933 | 183 | Burkina Faso | 0.423 |
| 7 | Sweden | 0.933 | 182 | Mali | 0.427 |
| 9 | Singapore | 0.932 | 181 | Liberia | 0.435 |
| 10 | Netherlands | 0.931 | 180 | Mozambique | 0.437 |

# HDI, 2017

Source: Human Development Report, 2018;  http://hdrstats.undp.org

| Rank | Country | HDI | Rank | Country | HDI |
|---|---|---|---|---|---|
| 24 | France | 0.901 | 38 | Slovakia | 0.855 |
| 130 | India | 0.640 | 26 | Spain | 0.891 |
| 28 | Italy | 0.880 | 76 | Sri Lanka | 0.770 |
| 60 | Iran | 0.798 | 64 | Turkey | 0.791 |
| 35 | Lithuania | 0.858 | 88 | Ukraine | 0.751 |
| 150 | Pakistan | 0.562 | 105 | Uzbekistan | 0.710 |
| 33 | Poland | 0.865 | | | |

# Components of HDI, 2017

Source: Human Development Report, 2018;  http://hdrstats.undp.org

| Country | Life expectancy at birth (years) | Mean years of schooling | Expected years of schooling | Per capita income (constant 2011 US $ PPP) |
|---|---|---|---|---|
| **France** | 82.7 | 11.5 | 16.4 | 39,254 |
| **India** | 68.8 | 6.4 | 12.3 | 6,353 |
| **Italy** | 83.2 | 10.2 | 16.3 | 35,299 |
| **Iran** | 76.2 | 9.8 | 14.9 | 19,130 |
| **Lithuania** | 74.8 | 13.0 | 16.1 | 28,314 |
| **Pakistan** | 66.6 | 5.2 | 8.6 | 5,311 |
| **Poland** | 77.8 | 12.3 | 16.4 | 26,150 |
| **Slovakia** | 77.0 | 12.5 | 15.0 | 29,467 |
| **Spain** | 83.3 | 9.8 | 17.9 | 34,258 |
| **Sri Lanka** | 75.5 | 10.9 | 13.9 | 11,326 |
| **Turkey** | 76.0 | 8.0 | 15.2 | 24,804 |
| **Ukraine** | 72.1 | 11.3 | 15.0 | 8,130 |
| **Uzbekistan** | 71.4 | 11.5 | 12.0 | 6,470 |

# World Database of Happiness

- Erasmus University Rotterdam

- Ruut Veenhoven (1942) is director of World Database of Happiness and founding director of the Journal of Happiness Studies

# Measures of happiness in nations
Source: http://worlddatabaseofhappiness.eur.nl

| Nation | Average happiness, 2000-2009 Satisfaction with life (scale 0-10) | Happy Life Years, 2000-2009 |
|---|---|---|
| **Costa Rica** | 8.5 | 66.7 |
| Denmark | 8.3 | 65.0 |
| Iceland | 8.2 | 66.4 |
| Switzerland | 8.0 | 65.2 |
| Togo | 2.6 | 15.1 |
| **Tanzania** | 2.8 | 14.4 |
| Burundi | 2.9 | 14.3 |
| Benin | 3.0 | 16.7 |

## Measures of happiness in nations  Source: http://worlddatabaseofhappiness

| Nation | Average happiness, 2005-2014 Satisfaction with life (scale 0-10) | Happy Life Years, 2005-2014 |
|---|---|---|
| **France** | 6.4 | 52.4 |
| **India** | 5.5 | 36.6 |
| **Italy** | 6.6 | 54.5 |
| **Iran** | 5.8 | 43.1 |
| **Lithuania** | 5.8 | 42.1 |
| **Pakistan** | 6.0 | 40.1 |
| **Poland** | 6.8 | 51.7 |
| **Slovakia** | 6.3 | 47.4 |
| **Spain** | 7.0 | 57.8 |
| **Sri Lanka** | 5.1 | 37.6 |
| **Turkey** | 6.0 | 45.1 |
| **Ukraine** | 5.1 | 34.9 |
| **Uzbekistan** | 6.8 | 46.7 |

# Happy Planet Index (HPI)

- HPI was introduced by New Economic Foundation in July 2006.

- The HPI reflected the average years of happy life produced by a given society, nation or group of nations, per unit of planetary resources consumed.

- Each country's HPI is a function of its average subjective life satisfaction, life expectancy at birth, and ecological footprint per capita.

# Happy Planet Index (HPI)

- Now the HPI is one of the first global measures of sustainable well-being.

- It tells us how well nations are doing in terms of supporting their inhabitants to live good lives now, while ensuring that others can do the same in the future, i.e. sustainable well-being for all.

- HPI calculates the number of Happy Life Years (life expectancy adjusted for experienced well-being) achieved per unit of resource use.

$$\text{Happy Planet Index} \propto \frac{\text{Experienced well-being} \times \text{Life expectancy}}{\text{Ecological Footprint}}$$

# Happy Planet Index (HPI)

- The **ecological footprint** is a measure of human demand on the Earth's ecosystem. It represents the amount of biologically productive land and sea area needed to regenerate the resources a human population consumes and to absorb and render harmless the corresponding waste.

- If every person in the world consumed at the rate of the average Qatari, it would take 11.7 planet earths to sustain that lifestyle.

Source: The Happy Planet Index, 2016 Report

| Rank | Happy Planet Index | Score |
|---|---|---|
| 1 | Costa Rica | 44,7 |
| 2 | Mexico | 40,7 |
| 3 | Colombia | 40,7 |
| 4 | Vanuatu | 40,6 |
| 5 | Vietnam | 40,3 |
| 6 | Panama | 39,5 |
| 7 | Nicaragua | 38,7 |
| World Average | | 26,4 |
| 138 | Togo | 13,2 |
| 139 | Luxembourg | 13,2 |
| 140 | Chad | 12,8 |

# Source: The Happy Planet Index, 2016 Report

| Rank | Experienced wellbeing | |
|---|---|---|
| 1 | Switzerland | 7,8 |
| 2 | Norway | 7,7 |
| 3 | Iceland | 7,6 |
| 4 | Sweden | 7,6 |
| 5 | Netherlands | 7,5 |
| 6 | Denmark | 7,5 |
| 7 | Finland | 7,4 |
| World Average | | 5,4 |
| 138 | Syria | 3,2 |
| 139 | Benin | 3,2 |
| 140 | Togo | 2,9 |

| Rank | Life expectancy | |
|---|---|---|
| 1 | Hong Kong | 83,6 |
| 2 | Japan | 83,2 |
| 3 | Italy | 82,7 |
| 4 | Switzerland | 82,6 |
| 5 | Iceland | 82,2 |
| 6 | Spain | 82,2 |
| 7 | Australia | 82,1 |
| World Average | | 70,9 |
| 138 | Sierra Leone | 49,8 |
| 139 | Lesotho | 48,9 |
| 140 | Swaziland | 48,9 |

Source: The Happy Planet Index, 2016 Report

| Rank | Ecological Footprint per capita (gHa) | |
|---|---|---|
| 1 | Luxembourg | 11,7 |
| 2 | Australia | 10,7 |
| 3 | Hong Kong | 9,7 |
| 4 | United States of Ame | 8,9 |
| 5 | Canada | 8,3 |
| 6 | Trinidad and Tobago | 7,6 |
| 7 | Oman | 7,2 |
| World Average Footprint | | 3,3 |
| World Average Biocapacity | | 1,7 |
| 138 | Afghanistan | 0,8 |
| 139 | Bangladesh | 0,7 |
| 140 | Haiti | 0,6 |

# Happy Planet Index (HPI), 2016
## Source:  The Happy Planet Index, 2016 Report

| Rank | Country | HPI | Rank | Country | HPI |
|------|---------|-----|------|---------|-----|
| 44 | France | 30.4 | 59 | Slovakia | 28.2 |
| 50 | India | 29.2 | 15 | Spain | 36.0 |
| 60 | Italy | 28.1 | 28 | Sri Lanka | 33.8 |
| 84 | Iran | 24.0 | 68 | Turkey | 26.4 |
| 107 | Lithuania | 21.0 | 70 | Ukraine | 26.4 |
| 36 | Pakistan | 31.5 | 51 | Uzbekistan | 29.1 |
| 62 | Poland | 27.5 | | | |

- The term was coined in 1972 by Jigme Singye Wangchuck, the 4th King of Bhutan.

- *Gross National Happiness is more important than Gross National Product* (Jigme Singye Wangchuck, the 4th King of Bhutan, 1986 Interview with Financial Times).