

# MEASURING ECONOMIC GROWTH AND DEVELOPMENT

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EE 462 Development Macroeconomics

Semester 1/2014

# Measuring Economic Growth

- **Gross Domestic Product (GDP)**
  - values all output produced within the borders of the country, including by foreigners but excludes value of production of citizens living abroad
- **Gross National Product (GNP)**
  - values of all final goods and services produced by citizens of the country
    - often called Gross National Income (GNI)
- **GDP per capita** =  $\text{GDP} / \text{total population}$
- Economic growth → changes in per capita income over time
- **Real GDP** = GDP adjusted for domestic price inflation

# Measuring GDP: What is Left Out?

- Underestimation of total values of output because **some goods and services are not in the market**
  - Unpaid family labor services
  - Agricultural production
- Lack of accurate price information or representative market price at the national level
- Doesn't account for “**public bads**” such as crime, pollution, congestion, etc.

# Exchange Rate problems

- GDP does not account for **non-traded goods and services** such as haircut, maid services, etc.
  - Use **Purchasing Power Parity (PPP)** exchange rate
- The *International Comparison Program* (ICP) derives a set of **international prices** in a common currency.
- PPP allows for a more valid comparisons of income levels across economies.

## Examples:

- Ratio of PPP calculation to market exchange rate calculation = 0.7 in Norway, 2.8 in India, and 3.3 in Gambia.
- Using market exchange rate, per capita income in the US is ~40 times those in India in 2009, but when using PPP calculation, the gap is ~14 times.

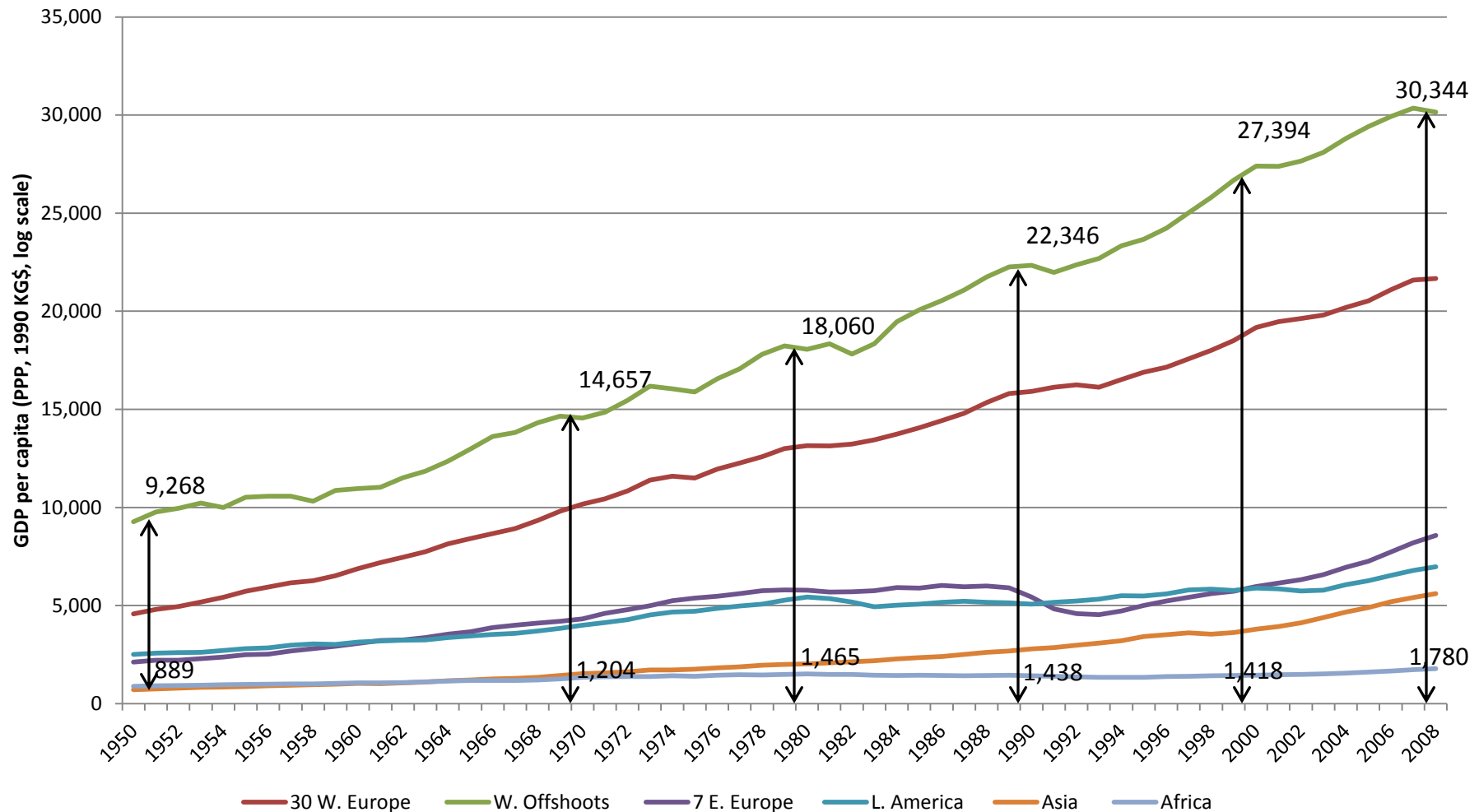
# Example: Purchasing Power Parity (PPP)

	US			INDIA		
	Q	P (US\$)	P x Q (billion \$)	Q	P (Rupees)	P x Q (billion Rs)
Steel (million tons)	200	1,000	200	25	50,000	1,250
Retail sales personnel (millions)	2	20,000	40	4	60,000	240
Total GDP (billions)			240			1,490

**Market exchange rate** based on steel prices = Rs 50,000/ US\$ 1,000 = **Rs 50: US\$1**

- India's GDP in US\$ based on official exchange rate =  $1490/50 = \text{US\$ } 29.8$  billion
- India's GDP in US\$ using PPP:
  - Steel: 25 million tons x 1,000 US\$ = \$25 billion
  - Retail sales personnel: 4 million people x 20,000 US\$ = \$80 billion
  - GDP = \$25 billion + \$80 billion = \$105 billion
- **Ratio of PPP to official exchange rate = \$105 bn/\$29.8 bn = 3.5**

# Economic Growth Around the World



Source: [http://www.ggdc.net/maddison/historical\\_statistics/vertical-file\\_02-2010.xls](http://www.ggdc.net/maddison/historical_statistics/vertical-file_02-2010.xls)

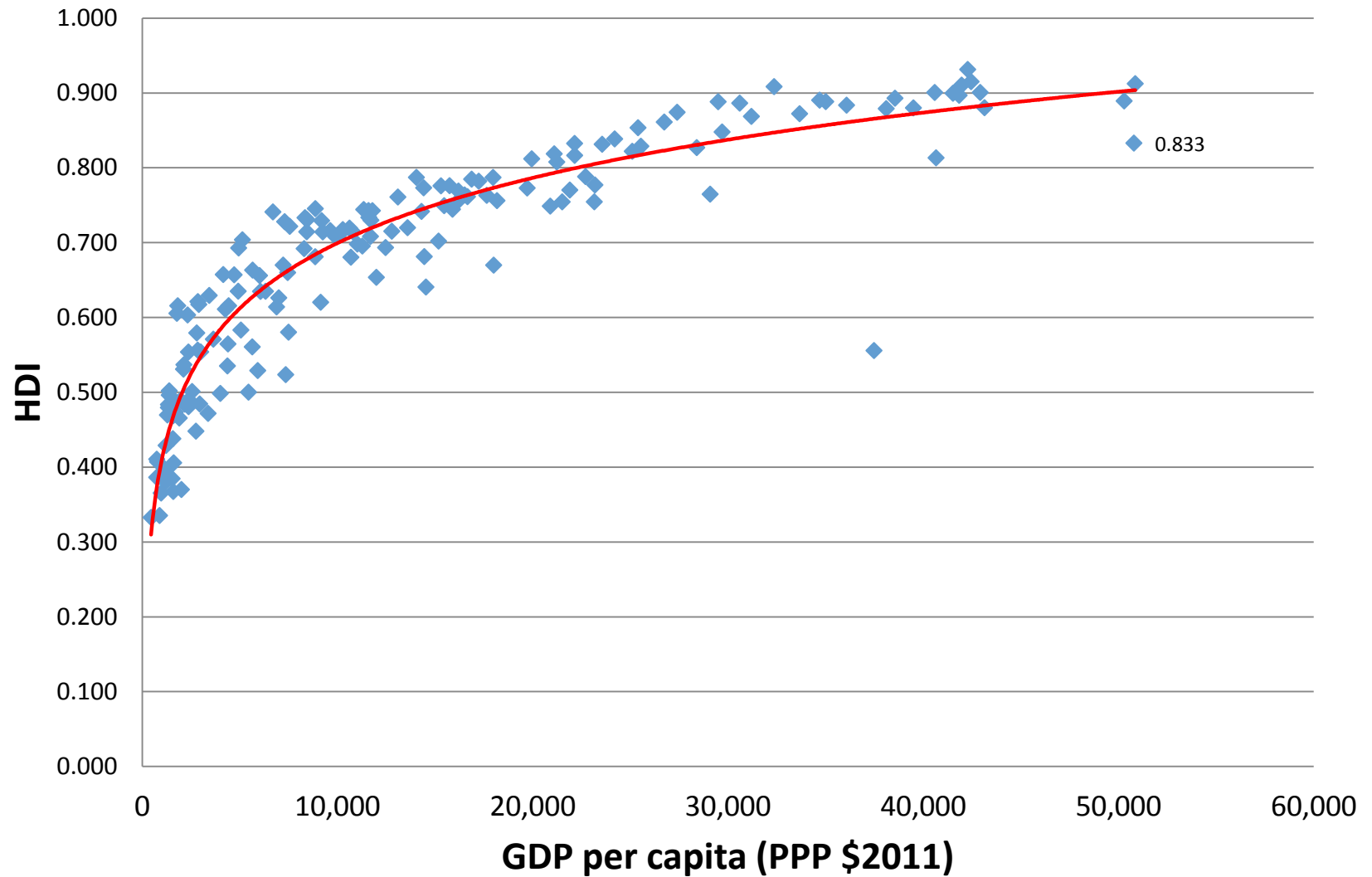
# Economic Development

- Economic development: Economic growth + structural change with significant participation of people in producing wealth.
- **A. K. Sen**: *Economic development is about expanding **capabilities** of people their lives.* Income is one determinant of that capability. Other factors affecting capability are:
  1. State of health wellbeing
  2. Environmental adversity
  3. Social climate: crime, violence, security
  4. Relative deprivation & inequality
  - These sources of “**capability deprivation**” that prevent people the lives they desire.

# Measuring Economic Development

- **Measuring Human Development (HDI):**
  - An index of health, education and income
  - Measured by weighted average of life expectancy, adult literacy & children school enrollment, and GNP per capita
  - Range from 0 to 1
  - HDI is generally correlated with income, but data show that improved health and education depend on factors other than income.

# HDI and GDP per capita, 2012



# Millennium Development Goals (MDGs)








Adopted by world nations in September 2000 that declared 8 goals:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop global partnership for development

# Millennium Development Goals and Targets for 2015

## Goals

## Targets

 <p>1 ERADICATE EXTREME POVERTY AND HUNGER</p>	<p>1. Eradicate extreme poverty and hunger</p>	<ul style="list-style-type: none"> <li>• Reduce by half the proportion of people living on less than \$1 a day</li> <li>• Reduce by half the proportion of people who suffer from hunger</li> </ul>
 <p>2 ACHIEVE UNIVERSAL PRIMARY EDUCATION</p>	<p>2. Achieve universal primary education</p>	<ul style="list-style-type: none"> <li>• Ensure that all boys and girls complete a full course of primary schooling</li> </ul>
 <p>3 PROMOTE GENDER EQUALITY AND EMPOWER WOMEN</p>	<p>3. Promote gender equality and empower women</p>	<ul style="list-style-type: none"> <li>• Eliminate gender disparity in primary and secondary education, preferably by 2005, and at all levels by 2015</li> </ul>
 <p>4 REDUCE CHILD MORTALITY</p>	<p>4. Reduce child mortality</p>	<ul style="list-style-type: none"> <li>• Reduce by two-thirds the mortality rate among children under 5</li> </ul>
 <p>5 IMPROVE MATERNAL HEALTH</p>	<p>5. Improve maternal health</p>	<ul style="list-style-type: none"> <li>• Reduce by three-quarters the maternal mortality ratio</li> </ul>
 <p>6 COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES</p>	<p>6. Combat HIV/AIDS, malaria, and other diseases</p>	<ul style="list-style-type: none"> <li>• Halt and begin to reverse the spread of HIV/AIDS</li> <li>• Halt and begin to reverse the incidence of malaria and other major diseases</li> </ul>
 <p>7 ENSURE ENVIRONMENTAL SUSTAINABILITY</p>	<p>7. Ensure environmental sustainability</p>	<ul style="list-style-type: none"> <li>• Integrate the principles of sustainable development into country policies and programs; reverse loss of environmental resources</li> <li>• Reduce by half the proportion of people without sustainable access to safe drinking water</li> <li>• Achieve significant improvement in lives of at least 100 million slum dwellers by 2020</li> </ul>

# Millennium Development Goals and Targets for 2015 (cont'd)

## Goals

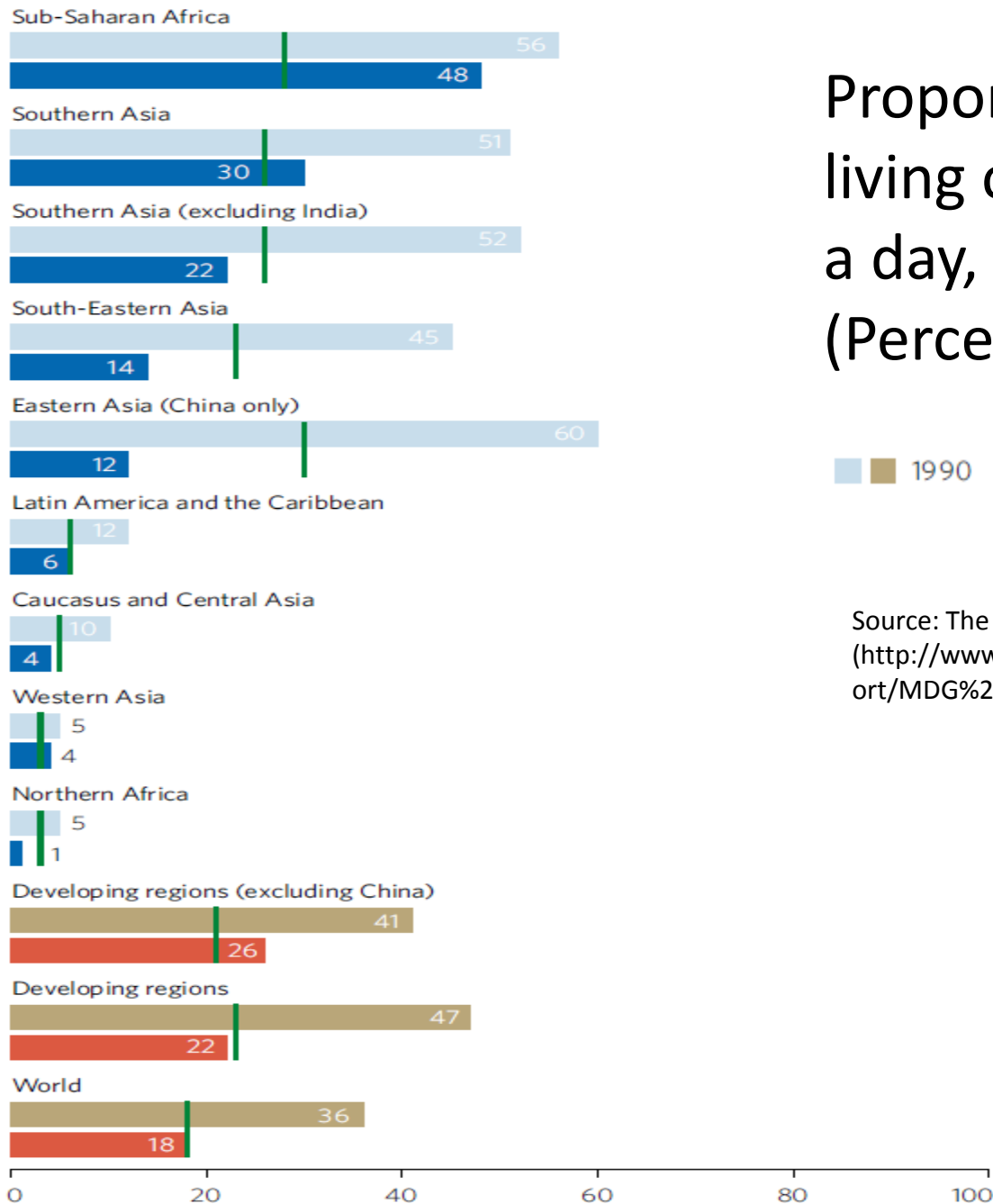
## Targets



### 8. Develop a global partnership for development

- Develop further an open, rule-based, predictable, nondiscriminatory trading and financial system; includes a commitment to good governance, development, and poverty reduction—both nationally and internationally
- Address the special needs of the least developed countries; includes tariff and quota free access for least developed countries' exports; enhanced program of debt relief for heavily indebted poor countries (HIPC) and cancellation of official bilateral debt; and more generous official development assistance (ODA) for countries committed to poverty reduction
- Address the special needs of landlocked countries and small island developing states
- Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term
- In cooperation with developing countries, develop and implement strategies for decent and productive work for youth
- In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries
- In cooperation with the private sector, make available the benefits of new technologies, especially information and communications

# Proportion of people living on less than \$1.25 a day, 1990 and 2010 (Percentage)



Legend: 1990 (light blue), 2010 (dark blue), 2015 target (green line)

Source: The Millennium Development Goals Report 2014  
<http://www.un.org/millenniumgoals/2014%20MDG%20report/MDG%202014%20English%20web.pdf>

# Multidimensional Poverty Index (MPI)

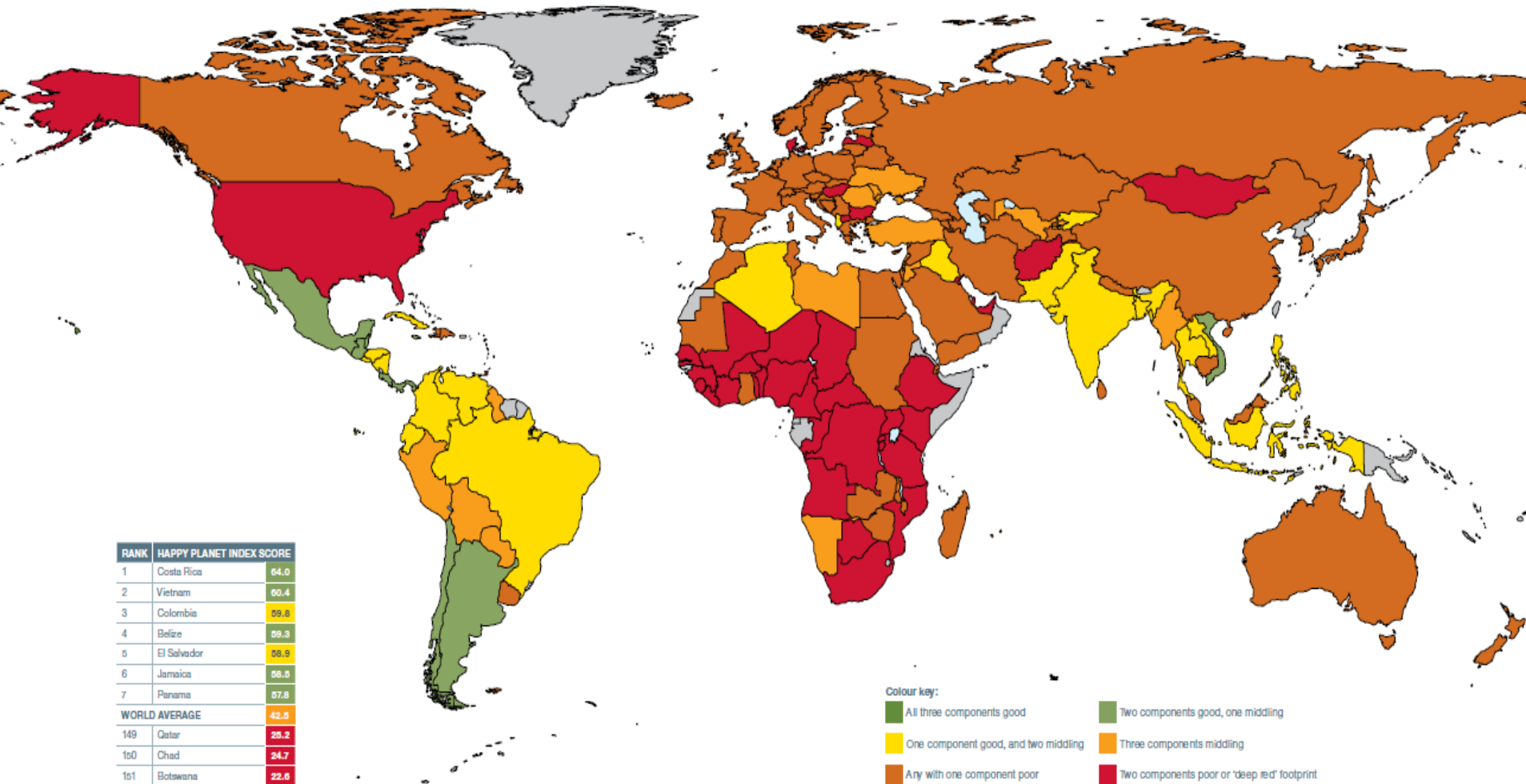
- **MPI** is the percentage of the population that is *multidimensionally poor* adjusted by the intensity of the deprivations.
  - It identifies **multiple deprivations** at the household and individual level in *health, education* and *standard of living*.
  - Constructed by using micro data from household surveys, and all the indicators needed to construct the measure must come from the same survey.
- More info:
  - <http://www.ophi.org.uk/background-to-the-mpi/>
  - <http://hdr.undp.org/en/content/multidimensional-poverty-index-mpi>

# Is Economic Growth Desirable

- Does greater economic Growth lead to more happiness?
- There is *no correlation* between growth and happiness, or growth does not increase happiness.
- **Easterlin paradox**: in the US people did not seem to be happier despite the increase in per capita income over the past half century.
- For *poor countries*, growth may not increase happiness, but it **increases the range of choices and advances human capabilities**.

# Happy Planet Index

Figure 5: A map of the world, colour-coded by HPI

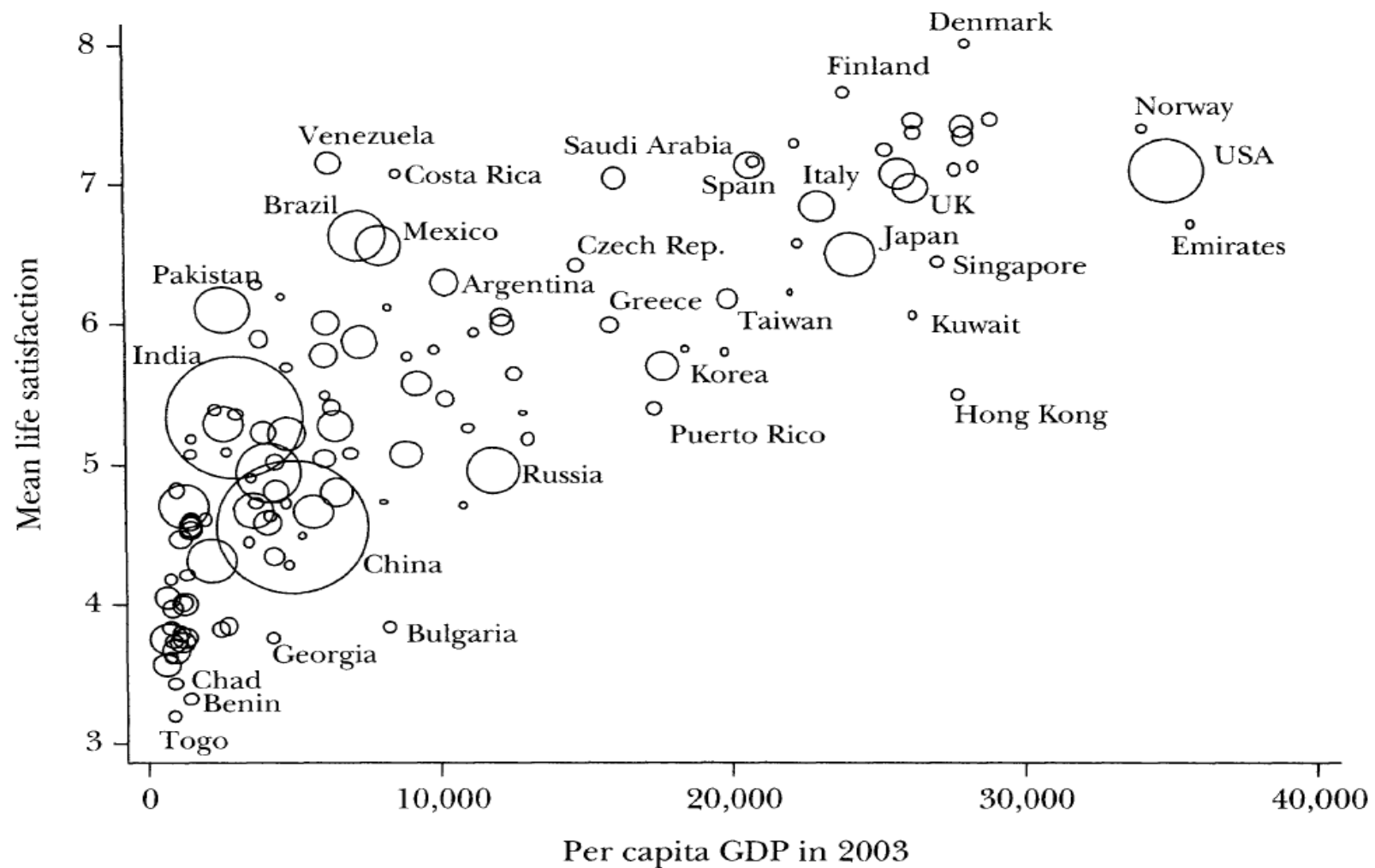


Source: <http://www.happyplanetindex.org/data/>

Deaton (2008). Income, health, and well-being around the world: evidence from the Gallup World Poll. *JEP*, 22 (2), p.53-72.

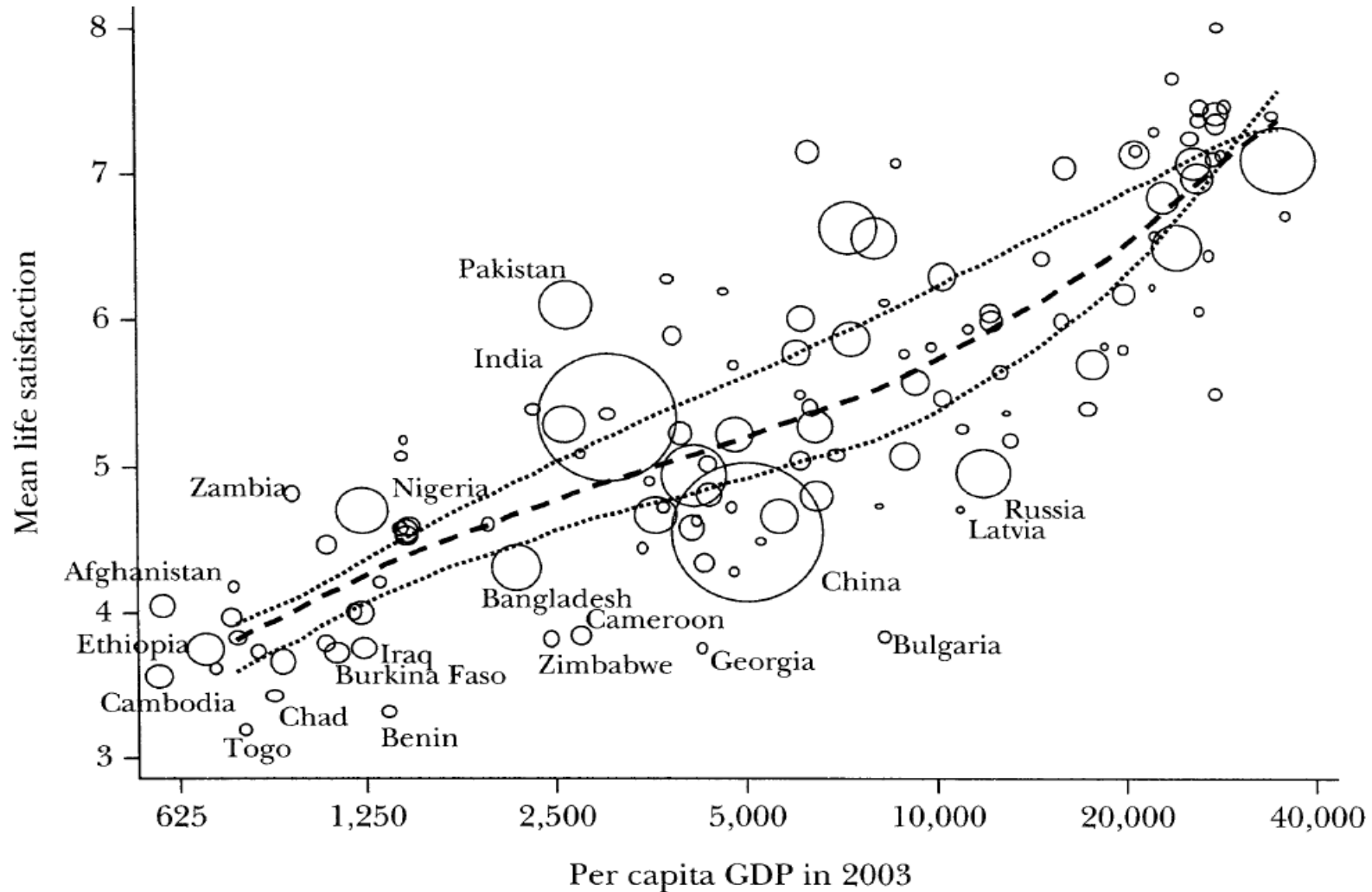
- [The Gallup World Poll](#)
- Look at relationship between per capita GDP and two measures: life satisfaction and health satisfaction.
- Findings:
  - High-income countries have greater life satisfaction than low-income countries, but this income effect fades out when using  $\log(\text{income})$ .
  - For a given level of national income per capita, economic growth has negative effects on life satisfaction.
  - Neither life satisfaction nor health satisfaction strongly responds to objective measure of health (e.g. life expectancy). → Neither is a reliable indicator of population well-being.

# Life Satisfaction and Per Capita GDP



Source: Deaton (2008), p. 56

# Life Satisfaction and Log of Per Capita GDP



Source: Deaton (2008), p. 57

# Health Satisfaction, Age, and Per Capita GDP

