

Growth Economics

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Growth

- A country's economic growth is usually indicated by an increase in that country's **gross domestic product**, or **GDP**.
- Gross domestic product is an economic model that reflects the value of a country's output. In other words, a country's **GDP** is the total monetary value of the goods and services produced by that country over a specific period of time.

Growth

- A country's economic development is usually indicated by an increase in citizens' quality of life. Human Development Index, for instance, factors not considered in economic growth, such as education, life expectancy.
- While economic growth often leads to economic development, GDP measure doesn't include factors, such as leisure time, health, environmental quality.



International Comparisons Project

- Purchasing power parity (PPP) conversion factor. The PPP conversion factor shows how much of a country's currency is needed in that country to buy what \$1 would buy in the United States.
- By using the PPP conversion factor instead of the currency exchange rate, we can convert a country's GNP/GNI per capita calculated in national currency units into GNP per capita in U.S. dollars while taking into account the difference in domestic prices for the same goods.

International Comparisons Project

Assume only one commodity Pizza in USA and India

Mkt Ex Rate $\$1 = \text{Rs } 50$ Salary of US teacher = $\$1000$,
Salary of Indian Teacher = $\text{Rs } 5,000$

If we use Mkt Ex Rate, standard of living is ten times higher in US ($\text{Rs } 50,000$ vs $\text{Rs } 5,000$).

Suppose Pizza is $\$1$ in USA, and $\text{Rs } 10$ in India

How many Pizzas you can purchase?

In USA, 1000 Pizzas; In India 500 Pizzas; standard of living is only twice higher in US

(The *Economist* magazine publishes Big Mac Index)

International Comparisons Project

Thus PPP helps us compare GNP/GNIs of different countries more accurately.

Because prices are usually lower in developing countries, their GNP per capita expressed in PPP dollars is higher than their GNP per capita expressed in U.S. dollars. In developed countries the opposite is true.

The Variety of Growth Experiences

Country	Period	Real GDP per Person at Beginning of Period ^a	Real GDP per Person at End of Period ^a	Growth Rate (per year)
Japan	1890–2003	\$1,280	\$28,620	2.79%
Brazil	1900–2003	663	7,480	2.38
Mexico	1900–2003	987	8,950	2.16
China	1900–2003	610	4,990	2.06
Germany	1870–2003	1,859	27,460	2.05
Canada	1870–2003	2,022	29,740	2.04
United States	1870–2003	3,412	37,500	1.82
Argentina	1900–2003	1,952	10,920	1.69
India	1900–2003	575	2,880	1.58
United Kingdom	1870–2003	4,094	27,650	1.45
Indonesia	1900–2003	759	3,210	1.41
Pakistan	1900–2003	628	2,060	1.16
Bangladesh	1900–2003	531	1,870	1.16

^aReal GDP is measured in 2003 dollars.

ECONOMIC GROWTH AROUND THE WORLD

- Living standards, as measured by real GDP per person, vary significantly among nations.

Classification of nations

- Low Income Countries (LIC), LMIC, UMIC, HIC
- Least Developed Countries (LDC)
- Developing Countries
- Less Developed Countries; Third World
- Least developed countries (49 countries) exhibit lowest indicators of socio-economic development and suffer conditions of extreme poverty, ongoing and widespread conflict (civil war or ethnic clashes), extensive political corruption, and lack political and social stability.

World Development Indicators 2014 (World Bank) Atlas Method based on Gross National Income (GNI)

- LIC: \$1045 or less
- LMIC: >\$1,045 but < \$4,125
- UMIC: \$4,125 and <\$12,736
- HIC: \$12,736 or more

World Economic Outlook IMF classification

The WEO country classification system designates 34 member countries as “Advanced Countries”; the remaining 154 member countries are labelled “Emerging Markets and Developing Economies” (EMDEs).

The EMDE category is not formally broken down into sub-groups of emerging markets (EMs) and non-EMs, although there are generally recognized EMs (e.g., the BRICS)- some characteristics of Advanced Countries, future ACs.

World Economic Outlook IMF classification

Global Growth Generators (3G countries)

- The most promising growth prospects countries are: Bangladesh, China, Egypt, India, Indonesia, Iraq, Mongolia, Nigeria, Philippines, Sri Lanka and Vietnam. China and India as BRIC countries are 3G countries, but not for Brazil, and Russia.
- Developing Asia and Africa will be fastest growing regions until 2050, driven by population and income growth, so all of 3G countries came from the both continents (Asia by 9 countries and Africa by 2 countries) and no one from the other continents. Vietnam has the highest Global Growth Generators Index among the 11 major economies, China is second with 0.81, followed by India's 0.71. This holds Vietnam as world's highest potential source of high growth and profitable investment opportunities.

World Economic Outlook IMF classification

- Some 73 EMDEs are eligible for concessional financial assistance from the Fund via the PRGT (Poverty Reduction Growth Trust); PRGT-eligible countries are often viewed as being synonymous with the category “Low Income Countries” (LICs).

A typical family with all their possessions in the U.K., an advanced economy



Real GDP per capita: \$30,800

Life expectancy: 78 years

Adult literacy: 99%

A typical family with all their possessions in Mexico, a middle income country



Real GDP per capita: \$9,800

Life expectancy: 74 years

Adult literacy: 92%

A typical family with all their possessions in Mali, a poor country



Real GDP per capita: \$1,000

Life expectancy: 41 years

Adult literacy: 46%

Incomes and Growth Around the World

FACT 1:
There are
vast
differences
in living
standards
around the
world.

	<i>GDP per capita, 2004</i>	<i>Growth rate, 1960- 2004</i>
China	\$5,495	5.6%
Singapore	27,273	5.4%
Japan	29,539	3.9%
Spain	25,341	3.2%
Israel	24,082	2.6%
India	3,115	2.5%
United States	39,618	2.2%
Canada	31,129	2.1%
Colombia	7,121	1.8%
New Zealand	22,912	1.4%
Philippines	4,558	1.3%
Argentina	12,723	0.8%
Saudi Arabia	14,022	0.8%
Rwanda	1,336	0.2%

Incomes and Growth Around the World

FACT 2:

There is also great variation in growth rates across countries.

	<i>GDP per capita, 2004</i>	<i>Growth rate, 1960-2004</i>
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Incomes and Growth Around the World

Since growth rates vary, the country rankings can change over time:

- Poor countries are not necessarily doomed to poverty forever – e.g., Singapore, incomes were low in 1960 and are quite high now.
- Rich countries can't take their status for granted: They may be overtaken by poorer but faster-growing countries.

Per capita real GDP



$$\text{Real GDP} = \text{Population} \times \text{Per Capita GDP}$$

$$\text{GDP Growth Rate} = \text{Population Growth Rate} + \text{Per Capita GDP Growth Rate}$$

that is,

$$\text{Per Capita GDP} = \frac{\text{GDP}}{\text{Population}}$$

$$\text{Per Capita GDP Growth Rate} = \text{GDP Growth Rate} - \text{Population Growth Rate}$$

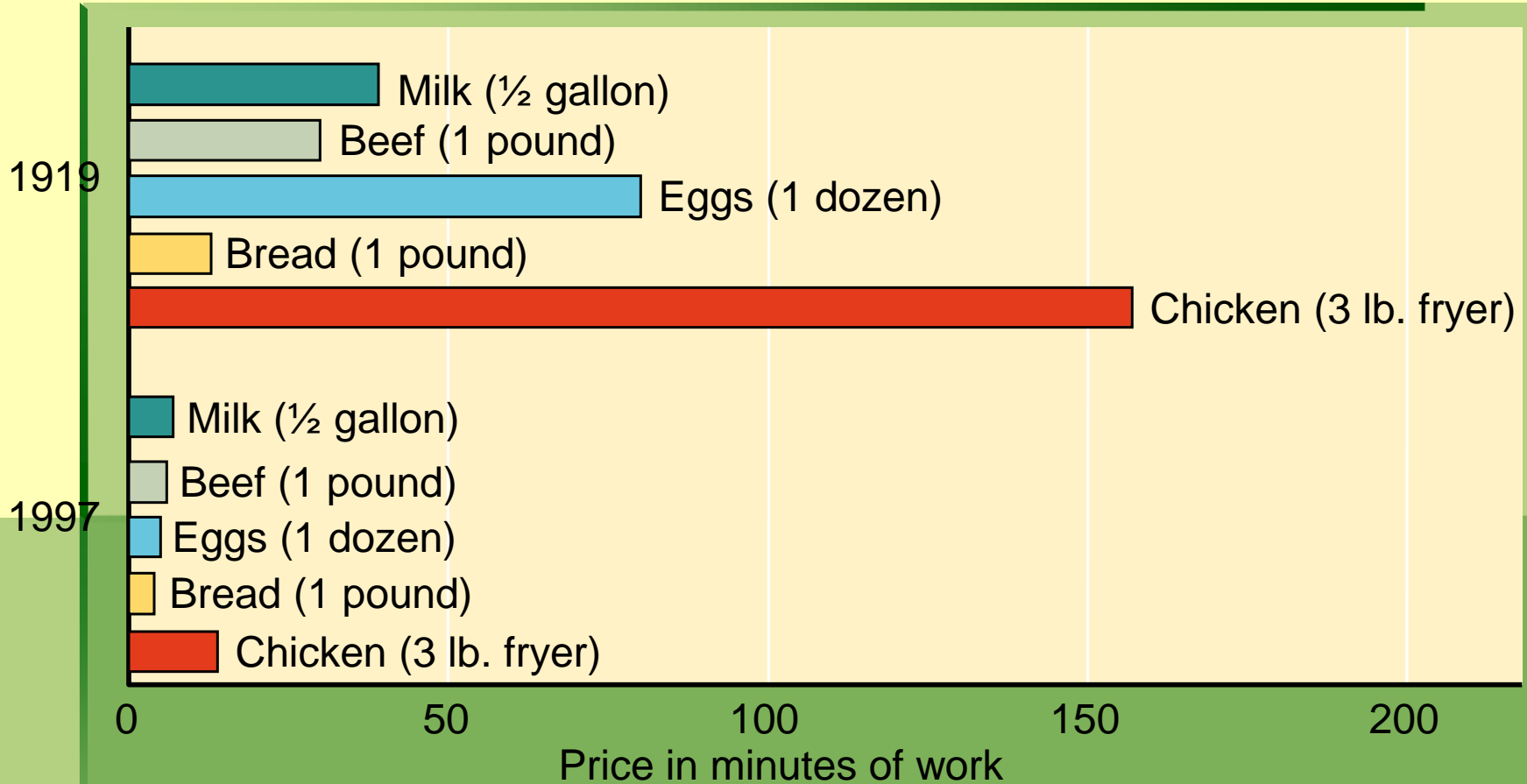
Productivity rise is key to increases standard of living

Production and Growth

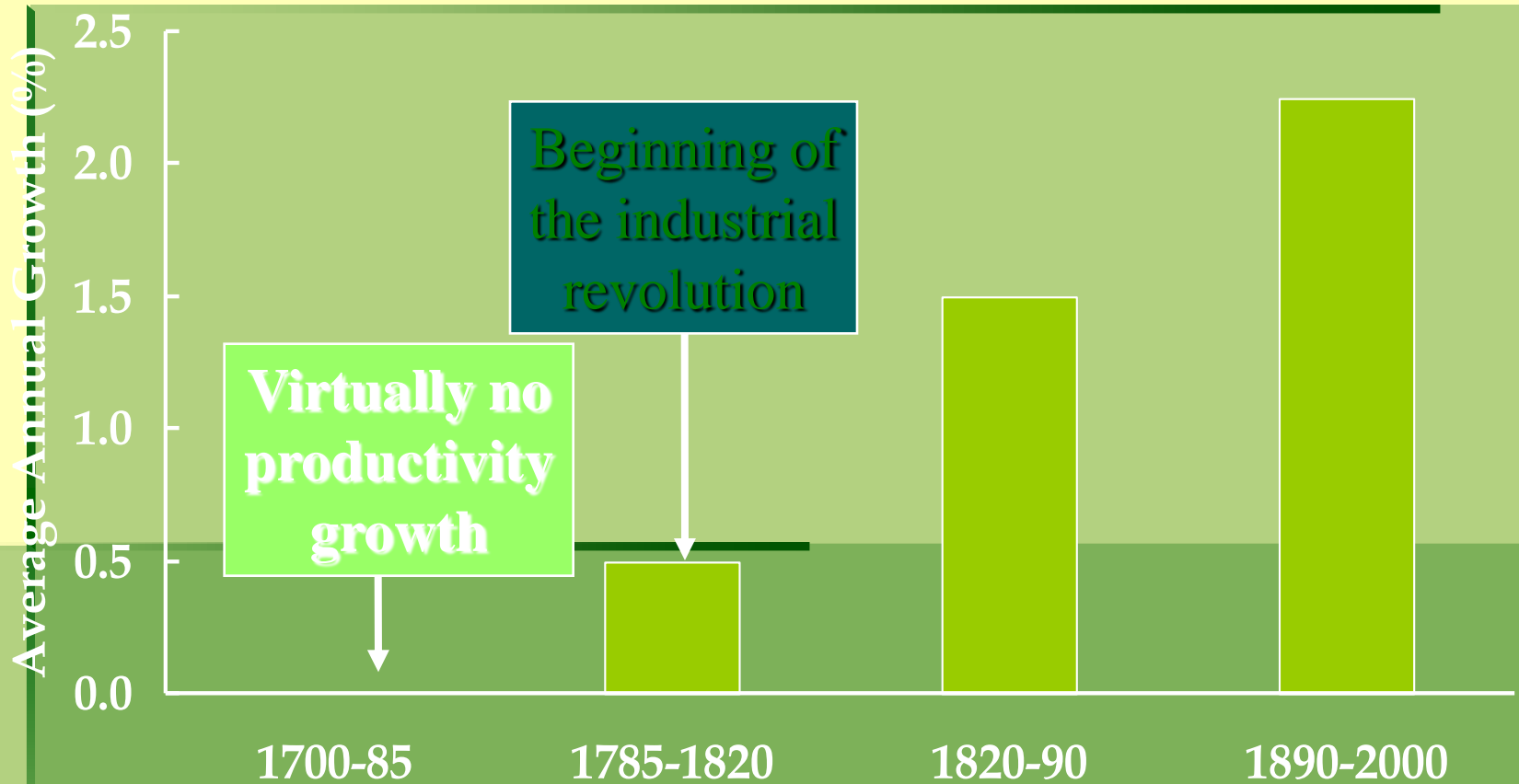
- *Productivity* refers to the amount of goods and services produced from each unit of labor input.
- A nation's standard of living is determined largely by the productivity of its workers.



Cost of Goods in Hours of Work



Productivity Growth During the Last 300 Years



How Productivity Is Determined

- The inputs used to produce goods and services are called the factors of production.
- The factors of production directly determine productivity.

The Factors of Production

- Physical capital
- Human capital
- Natural capita (resources)
- Technological knowledge

How Productivity Is Determined

■ *Physical Capital*

- is a produced factor of production.
 - It is an input into the production process that in the past was an output from the production process.
- is the stock of equipment and structures that are used to produce goods and services.
 - Tools used to build or repair automobiles.
 - Tools used to build furniture.
 - Office buildings, schools, etc.

How Productivity Is Determined

- *Human Capital*

- the economist's term for the knowledge and skills that workers acquire through education, training, and experience
 - Like physical capital, human capital raises a nation's ability to produce goods and services.

How Productivity Is Determined

■ *Natural Resources*

- inputs used in production that are provided by nature, such as land, rivers, and mineral deposits.
 - Renewable resources include trees and forests.
 - Nonrenewable resources include petroleum and coal.
- can be important but are not necessary for an economy to be highly productive in producing goods and services.

How Productivity Is Determined

- *Technological Knowledge*
 - society's understanding of the best ways to produce goods and services.
 - Human capital refers to the resources expended transmitting this understanding to the labor force.

Growth Accounting

The quantity of real GDP supplied (Y) depends on several factors:

- The quantity of labour (L)
- The quantity of physical capital (K)
- The quantity of Human capital (H)
- The quantity of natural resources (N)
- Technology



Determinants of productivity:

physical capital per worker (K/L)

human capital per worker (H/L)

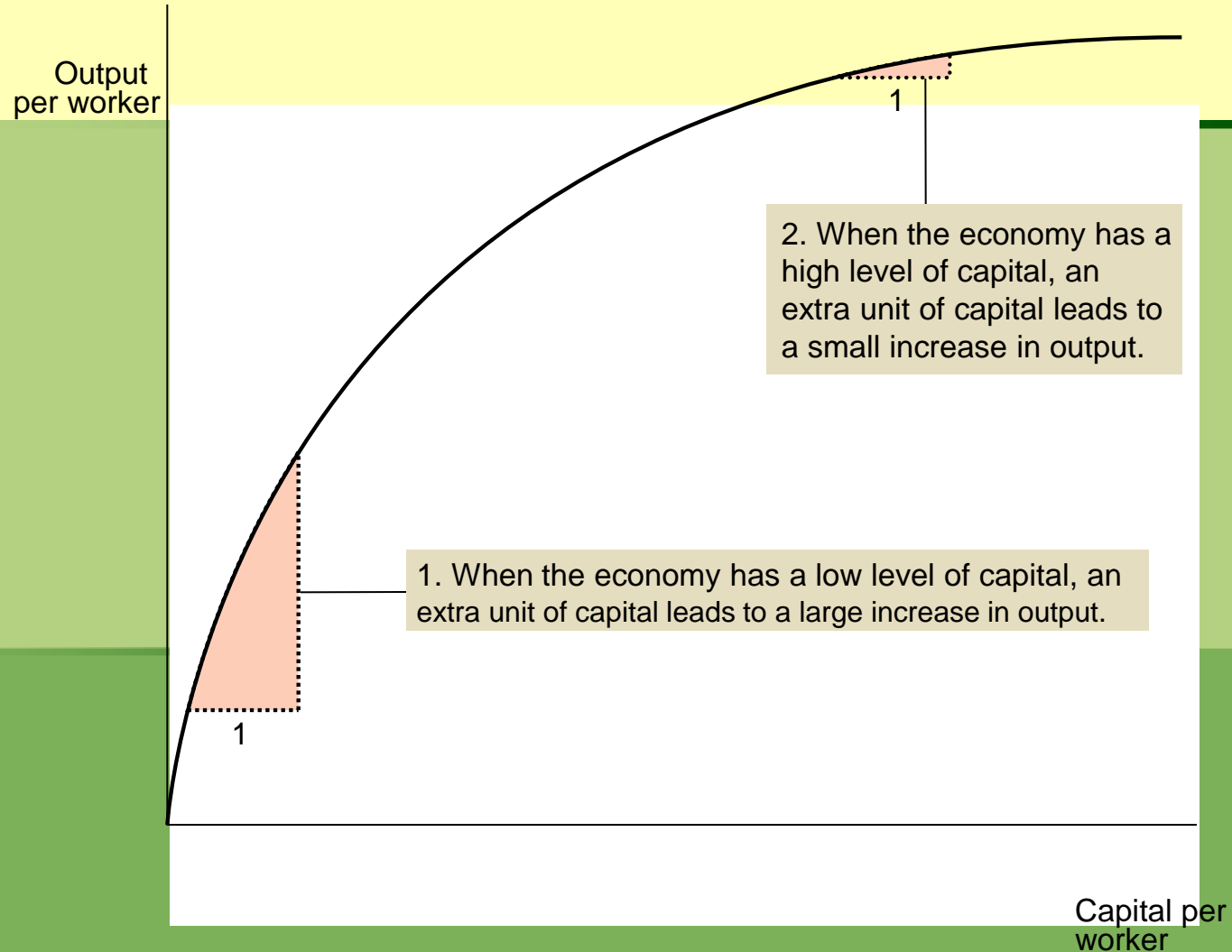
natural resources per worker (N/L)

technological knowledge (A)

Diminishing Returns and the Catch-Up Effect

- As the stock of capital rises, the extra output produced from an additional unit of capital falls; this property is called *diminishing returns*.
- Because of diminishing returns, an increase in the saving rate leads to higher growth only for a while.

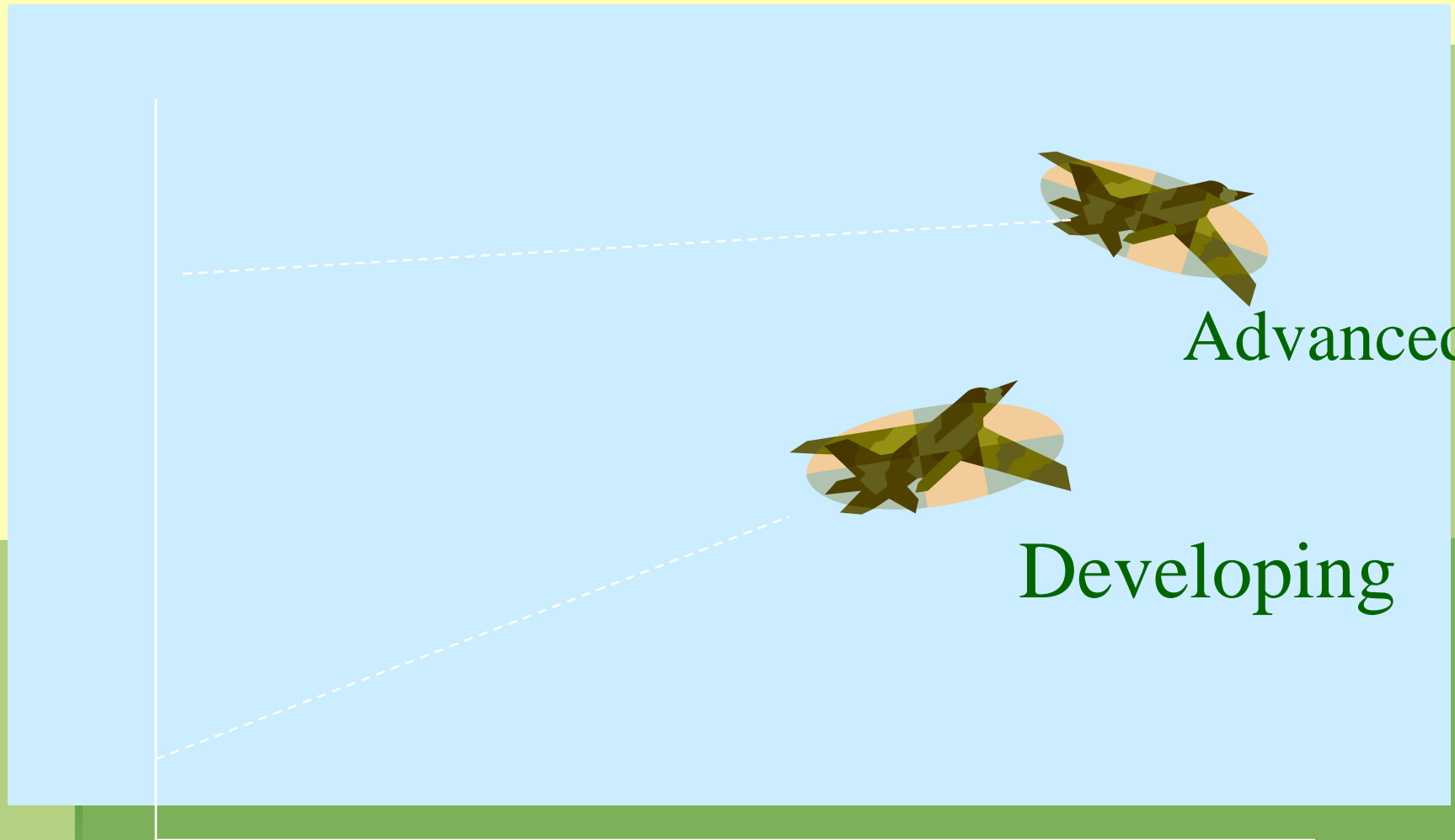
the Production Function



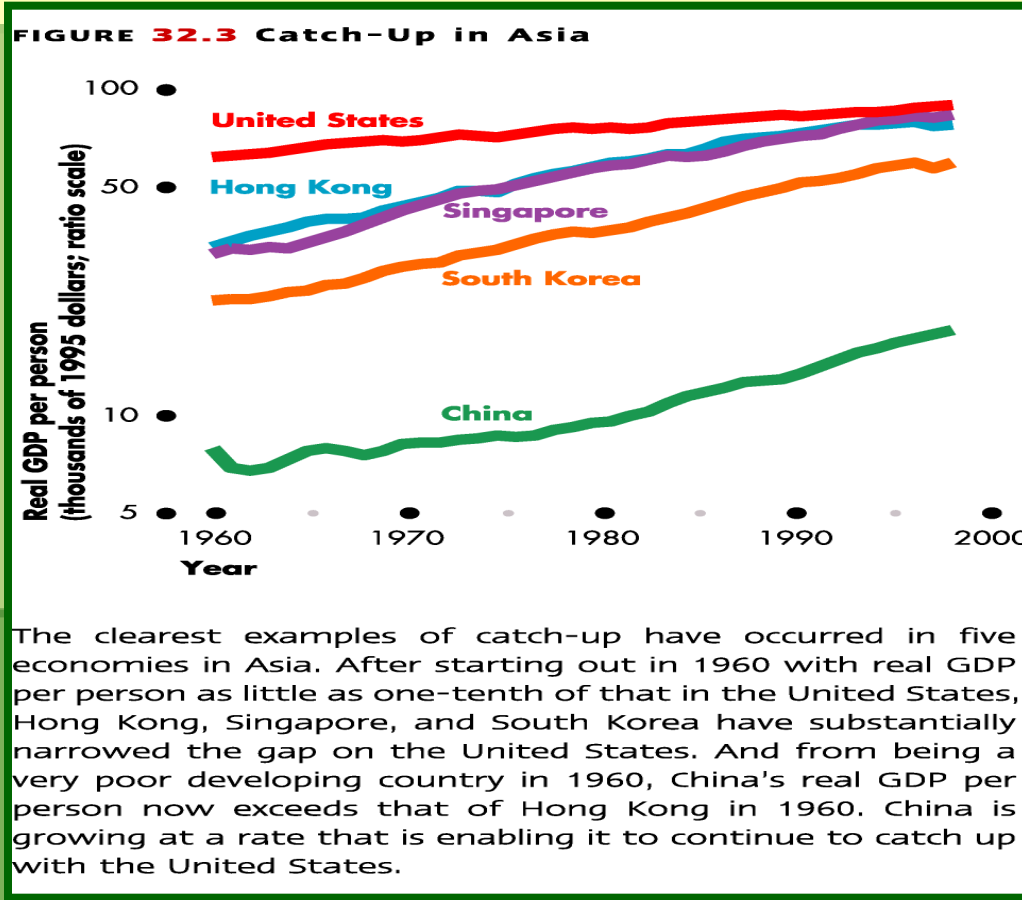
Catch-Up Hypothesis and Convergence

- The *catch-up effect* refers to the property whereby countries that start off poor tend to grow more rapidly than countries that start off rich.

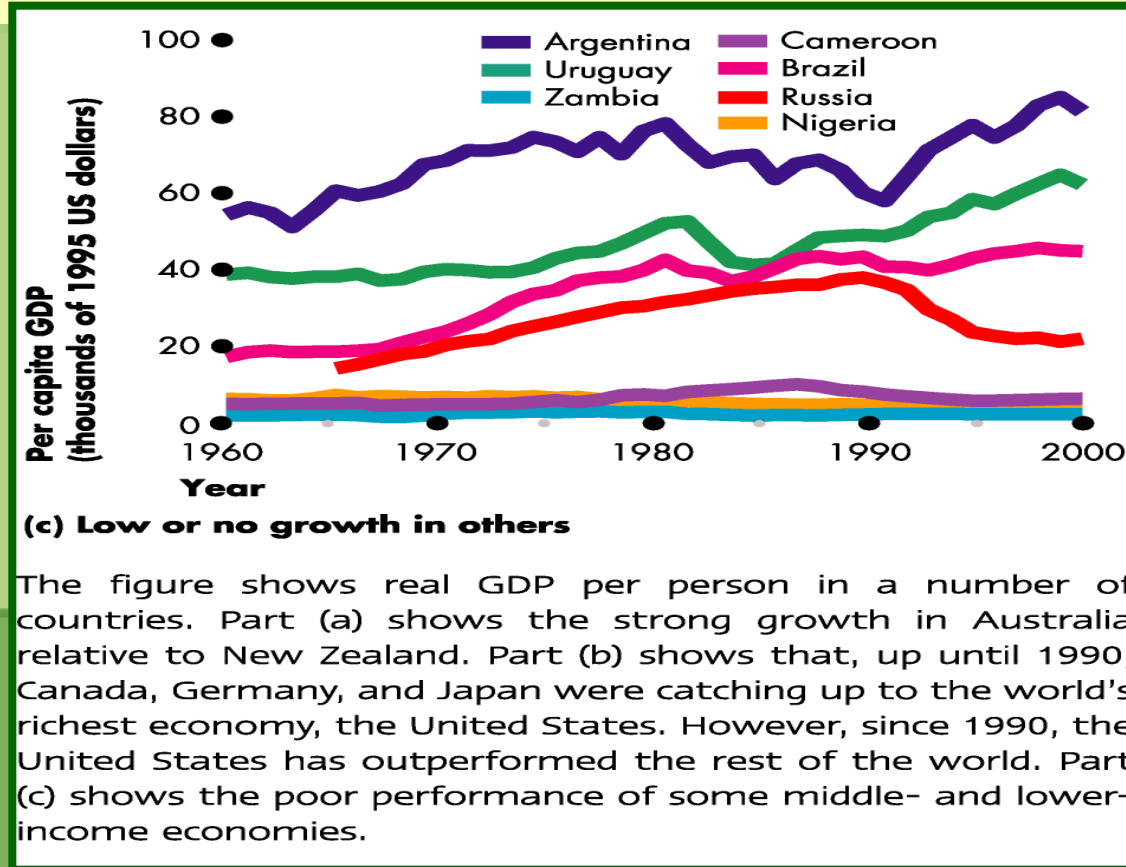
Is Catch-up and Convergence Happening?



Catch-Up in Asia



Other Nations



Convergence measures

- The two most popular measures are: the *beta*-convergence and *sigma*-convergence

β Convergence

- implies that the poor countries (regions) grow faster than the richer ones and
- it is generally tested by regressing the growth in *per capita* GDP on its initial level for a given cross-section of countries (regions).

β Convergence

- Growth rate given on left hand side (one year case). This growth rate is based on a model of continuous, exponential growth between two points in time (is not equal to annual percentage change)

$$\ln \left[\frac{y_1}{y_0} \right] = \alpha + \beta \ln y_0 + u$$

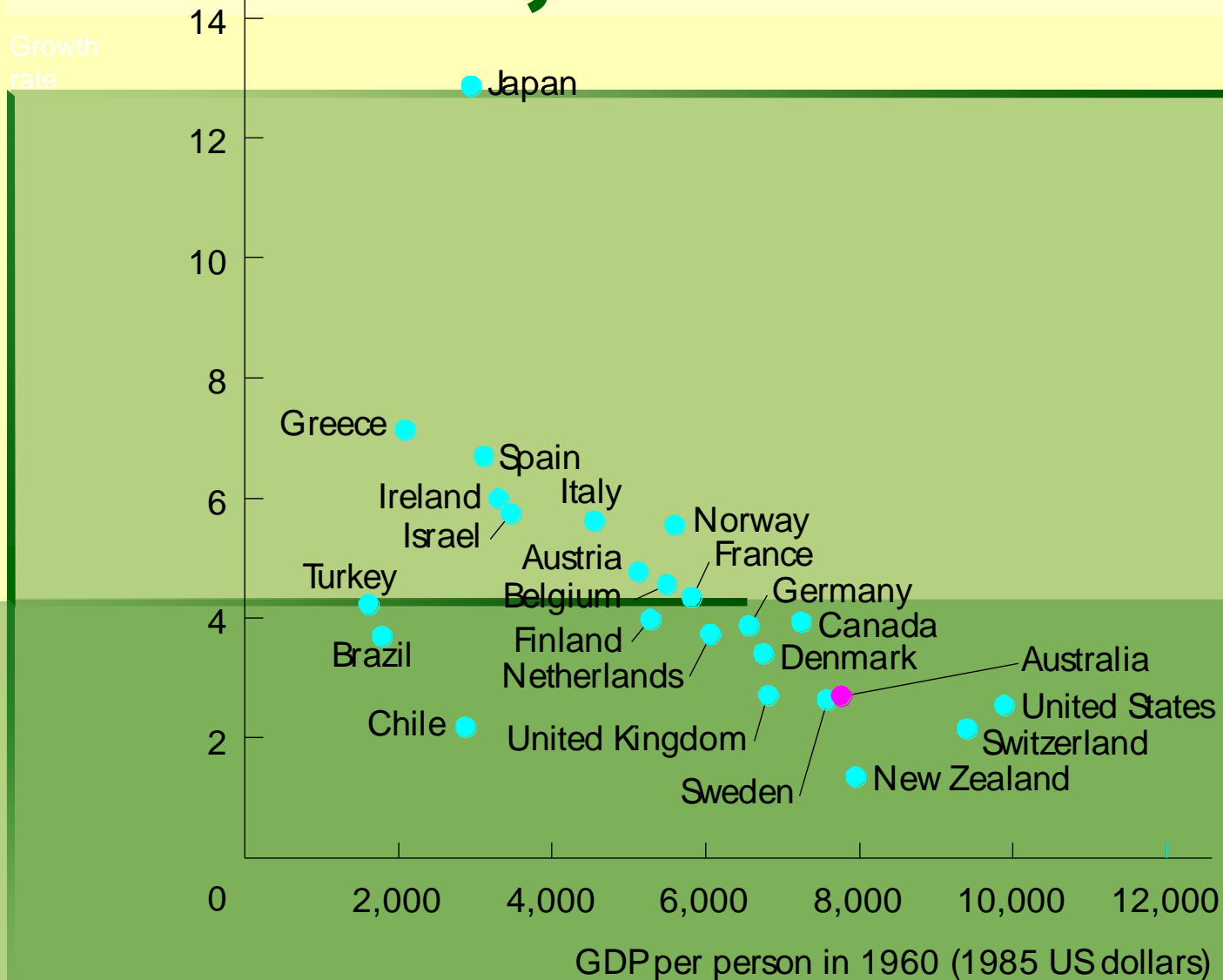
- If we consider 'T' years, then the annual growth rate is obtained by dividing by T.

$$\ln \left[\frac{y_T}{y_0} \right] \times \frac{1}{T} = \alpha + \beta \ln y_0 + u$$

Numerical example for measuring growth rates

- initial value (1992) = 400 (y_0)
- final value (2000) = 1600 (y_T)
- ratio of final/initial = 4
- natural log (\ln) 4 = 1.39
- over 9 years ($T=9$), growth rate is then $1.39/9 = 0.154$ or 15.4% per year

Convergence in Advanced Economies, 1960-92



Conditional β Convergence

- *beta*-convergence covers two types of convergence: absolute and conditional (on a factor or a set of factors in addition to the initial level of *per capita* GDP). Conditional Beta-convergence refers to convergence within homogeneous regions

σ Convergence

- *sigma*-convergence means the reduction of *per capita* GDP dispersion within a sample of countries (regions).

Three numerical examples (1)

- Example 1:

	Group Rich	Group Poor
■ Time 0	\$10,000	\$2,000
■ Time T	\$ 5,000	\$4,000

- Conclusion 1: the rate of growth for group Rich is negative: -50%; the rate of growth for group Poor is positive: 100%. There is Beta-convergence.

- Conclusion 2: the distance between groups R and P has shrunk over time from \$8,000 as of time 0 to \$1,000 as of time T (the standard deviation fell from \$5,657 to \$707). There is Sigma convergence

Three numerical examples (2)

- Example 2:

	Group R	Group P
■ Time 0	\$ 5,000	\$ 4,000
■ Time T	\$10,000	\$ 2,000

- Conclusion 1: the rate of growth of real GDP for group R is positive (100% between time periods 0 and T); the rate of growth for group P is negative (-50% between time periods 0 and T). There is a **lack of Beta-convergence** in this example.

- Conclusion 2: the distance in income per head increases from \$1,000 as of time 0 to \$8,000 as of time T (and the standard deviation increases from \$707 to \$5,657 between time periods 0 and T). There is a **lack of Sigma convergence** in this example.

Corollary from examples 1 and 2

- It is not possible for the income gap between groups R and P to narrow down if the initially poor, P, does not grow faster than the initially rich, R.
- In other words, Beta-convergence is a necessary condition for sigma convergence.

Three numerical examples (3)

- Example 3:

	Group R	Group P
■ Time 0	\$10,000	\$ 5,000
■ Time T	\$ 5,000	\$10,000

- Conclusion 1: the rate of growth of real GDP per head for group P is positive (actually, 100%); the rate of growth for group R is negative (actually, -50%). Therefore, **we have Beta-convergence** in this example.

- Conclusion 2: ~~the distance has not changed:~~ it was \$5,000 as of time 0 and it still is \$5,000 as of time T (the standard deviation stayed the same at \$3,536 between time periods 0 and T). **There is not sigma convergence**

Corollary from example 3

- Beta-convergence is not a sufficient condition for sigma-convergence.
- In other words, P growing faster than R is not enough to guarantee a fall in the standard deviation of GDP per person in the cross-section.

Failed States/ Fragile States

- The Fragile **States** Index (formerly the **Failed States** Index) is an annual report published by the United **States** think-tank the Fund for Peace and the magazine Foreign Policy since 2005. The list only assesses sovereign **states** (as determined by membership in the United Nations).
- Failed states can no longer perform basic functions such as education, security, or governance, usually due to fractious violence or extreme poverty. Within this power vacuum, people fall victim to competing factions and crime, and sometimes the United Nations or neighboring states intervene to prevent a humanitarian disaster. However, states fail not only because of internal factors. Foreign governments can also knowingly destabilize a state by fueling ethnic warfare or supporting rebel forces, causing it to collapse.

Failed States/ Fragile States

Top 20 most fragile/failed states

1. South Sudan
2. Somalia
3. Central African Republic
4. Sudan
5. Democratic Republic of the Congo
6. Chad
7. Yemen
8. Syria
9. Afghanistan
10. Guinea
11. Haiti
12. Iraq
13. Pakistan
14. Nigeria
15. Ivory Coast
16. Zimbabwe
17. Guinea-Bissau
18. Burundi
19. Niger
20. Ethiopia

Sub Saharan Africa

Why has Africa been so inflation-prone?

- ... immature financial markets
- ... which have biased the financing of fiscal deficits towards printing money
- ... Political instability
 -Ethnic conflict
 -Diseases

Hyperinflation in Zimbabwe



Zimbabwe's 100-Trillion-Dollar Note Gains in Value

Zimbabwe's central bank allowed its citizens to exchange the country's almost worthless currency for US dollars. Its 100-trillion-dollar note is worth just 40 U.S. cents (about Rs 25).

You may also buy some 100 trillion Z\$ notes. To be a Trillionaire!!!

Unsound policies

It is not necessarily inflation in itself, impedes economic efficiency and growth

Rather, or simultaneously, perhaps, it could be that inflation is a **common denominator** for **imperfect institutions, unsound policies,** and other factors that together help undermine economic efficiency and growth

Yugo and Ambassador
Unsound Auto Policy - Ambassador became Monopoly
brand protected by Government Policy; fuel inefficient



Debt Problems and Catch-up

Health

Countries such as Tanzania face massive health problems - over two million people could be HIV-positive by the year 2000. But spending on debt service puts even basic health care out of reach.

Education

In Bolivia one million children get no education. Debt service drains nearly one third of the country's income. Without education there is no escape from poverty.

The economy

Huge debts prevent economic development and reform, and scare away investment. Cutting the debt burden reaches the problems that no other actions can. Debt relief will help to break the chains of dependency.

Debt Problems and Catch-up

Severely indebted (45) WORLD BANK

Angola Ethiopia Panama Argentina Gabon
Papua New Guinea Belize Guinea-Bissau
Peru Bhutan Guyana Rwanda Brazil
Indonesia Sao Tome and Principe Burundi
Jamaica Serbia and Montenegro Central
African Republic Jordan Sierra Leone Chad
Kyrgyz Republic Somalia Comoros Lao
PDR Sudan Congo, Dem. Rep. Latvia
Syrian Arab Republic Congo, Rep.
Lebanon Tajikistan Cote d'Ivoire Liberia
Togo Dominica Myanmar Turkey Ecuador
Nicaragua Uruguay Estonia Nigeria Zambia



Highly Indebted Poor Countries

The HIPC Initiative currently identifies 38 countries, 32 of them in Sub-Saharan Africa, as potentially eligible to receive debt relief.

Through the HIPC Initiative, nominal debt service relief of more than US\$ 56 billion has been approved for 28 countries.

Of these countries, 19 have reached the completion point and have been granted unconditional debt service relief of over US\$37 billion

Unfair Trades/ Unfair Shares

- Globalisation and Fair Trade
- Producers are getting far less share of the revenue (e.g., coffee producers/farmers get 10%, banana farmers get 5% etc).
- Most industries are controlled by a few companies (e.g., over three fourths of coffee, chocolates, etc markets are controlled by 3-4 large firms)

Time to Leave GDP

- Sustainable Development (Costanza et al paper)
- Health and Wellbeing Independent of GDP (Prof Pretty et al paper)- graph on GDP and Happiness

Post-2015 directions

UN (2013) suggests that “A new post-2015 era demands a new vision and a responsive framework. Sustainable development — enabled by the integration of economic growth, social justice and environmental stewardship — must become our global guiding principle and operational standard. This is a universal agenda that requires profound economic transformations and a new global partnership”.

UN System-wide Task Team on the Post-2015 UN Development Agenda argues for development of new concrete end goals and targets based on ‘core values of human rights, equality and sustainability’ (UNDP, 2012).

UN (2013). *A life of dignity for all: accelerating progress towards the Millennium Development Goals and advancing the United Nations development agenda beyond 2015*.

UNDP (2012), *Case Studies of Sustainable Development in Practice: Triple Wins for Sustainable Development*.

SDG 2015-2030

Discussions are underway about the Sustainable Development Goals (SDGs) – a global effort to spur sustainable development.

The SDGs must set countries on a path to global targets between 2015 and 2030; also help balance environmental objectives with poverty reduction.

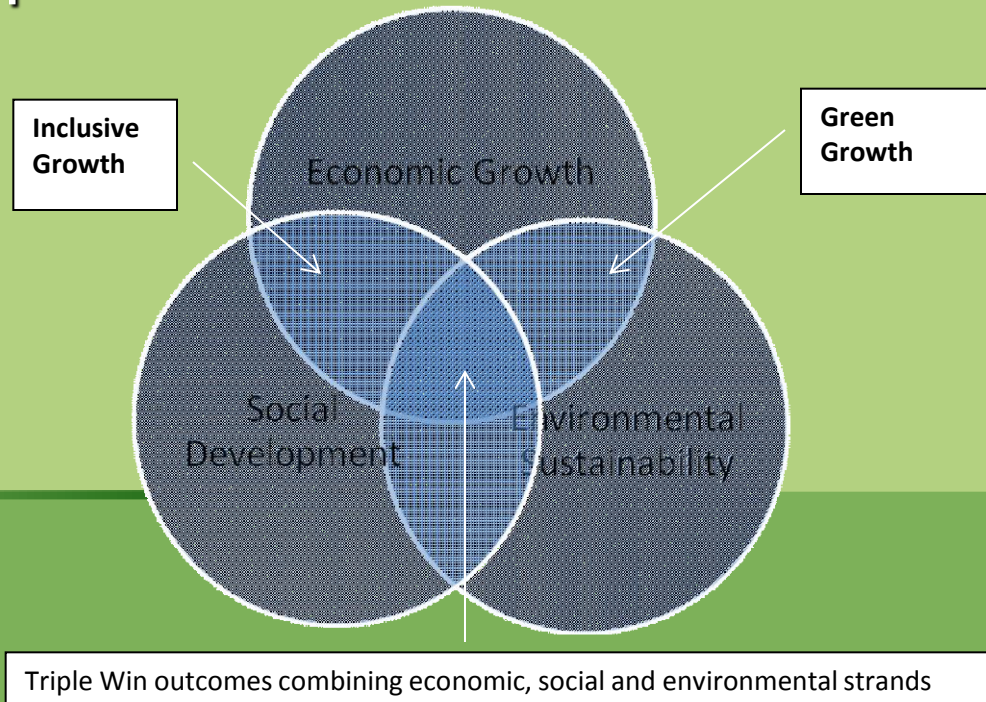
To that end, the Open Working Group of the United Nations General Assembly is discussing specific environmental themes in early 2014, including **forests, oceans, biodiversity, climate change, transport, waste, and chemicals**.

Once the Open Working Group consolidates the proposals, the entire United Nations General Assembly will vote on the SDGs.

UNDG (2008). *Good Practices for Scaling up MDG Achievement*, New York: UNDG

Triple Win Outcomes

Triple Win



World Bank Approach to Sustainable Development

Genuine Savings or Adjusted Net Savings

ANS suggests: Sustainable only if it conserves its total endowment of productive capital, K , which includes manufactured capital (K_M), human capital (K_H) and natural capital (K_N); institutional or social capital is not explicitly considered by ANS. Each K has several subcomponents. Weak sustainability-perfect substitutability of K s.

$$K = K_M + K_H + K_N$$

Hicks–Hartwick–Solow rule of weak sustainability:

$$Z = s - (\delta + \eta)$$

Z is the sustainability indicator, s is the rate of savings, δ and η are the rates of depreciation of physical and natural capital.

$Z > 0$ implies sustainability.

Adjusted Net Saving

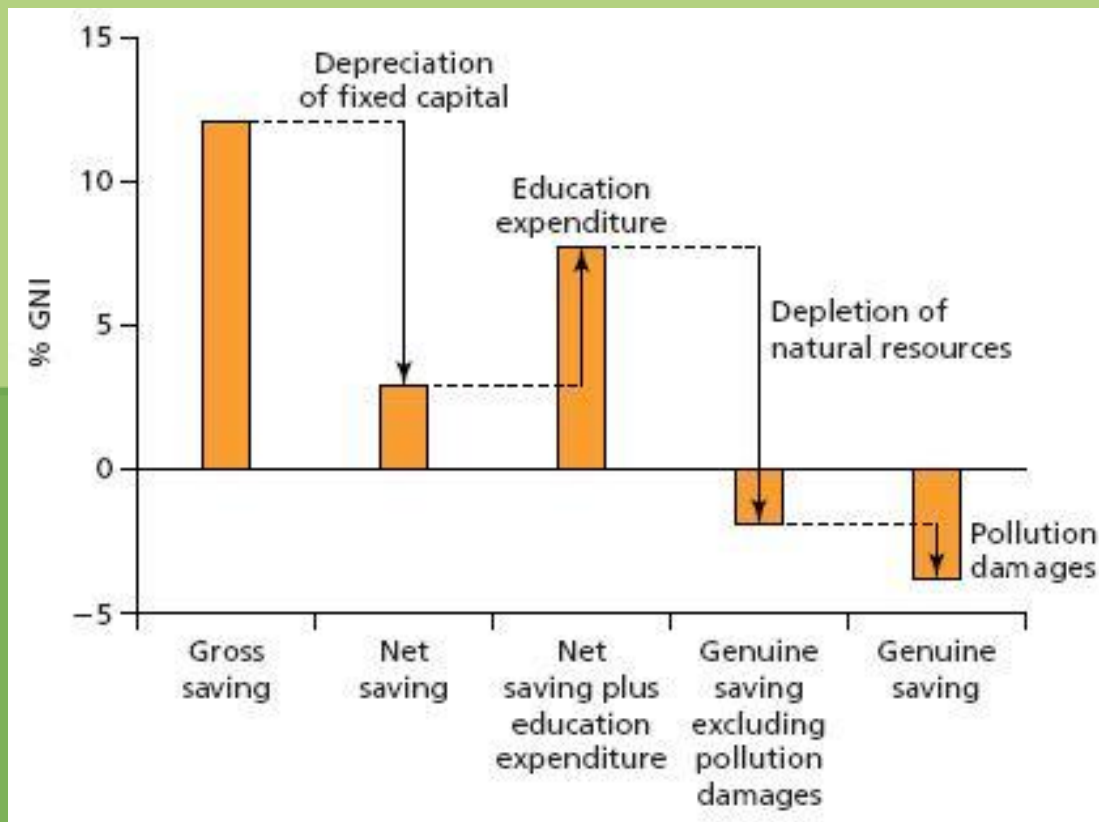
- ANS is currently calculated as:

$$ANS = \frac{GDS - D_p + EDU - \sum R_{n,i} - CO_2 Damage - PM10 Damage}{GNI}$$

- where ANS is Adjusted Net Savings (Genuine Savings) rate, ANS is gross domestic savings, D_p is depreciation of physical capital, EDU is current expenditure on education, $R_{n,i}$ is the rent from depletion of i-th natural capital (energy, mineral and forest depletion are included), CO_2 damage is damage from carbon dioxide emissions (currently estimated as US\$20 per ton of carbon times the number of tons of carbon emitted), and GNI is gross national income at market prices. PM10 damage is based on the estimate of particulate matter less than 10 microns in diameter for all cities with a population of 100,000.
- ANS > 0 implies sustainability according to World Bank? Is it acceptable?

Adjusted Net Saving

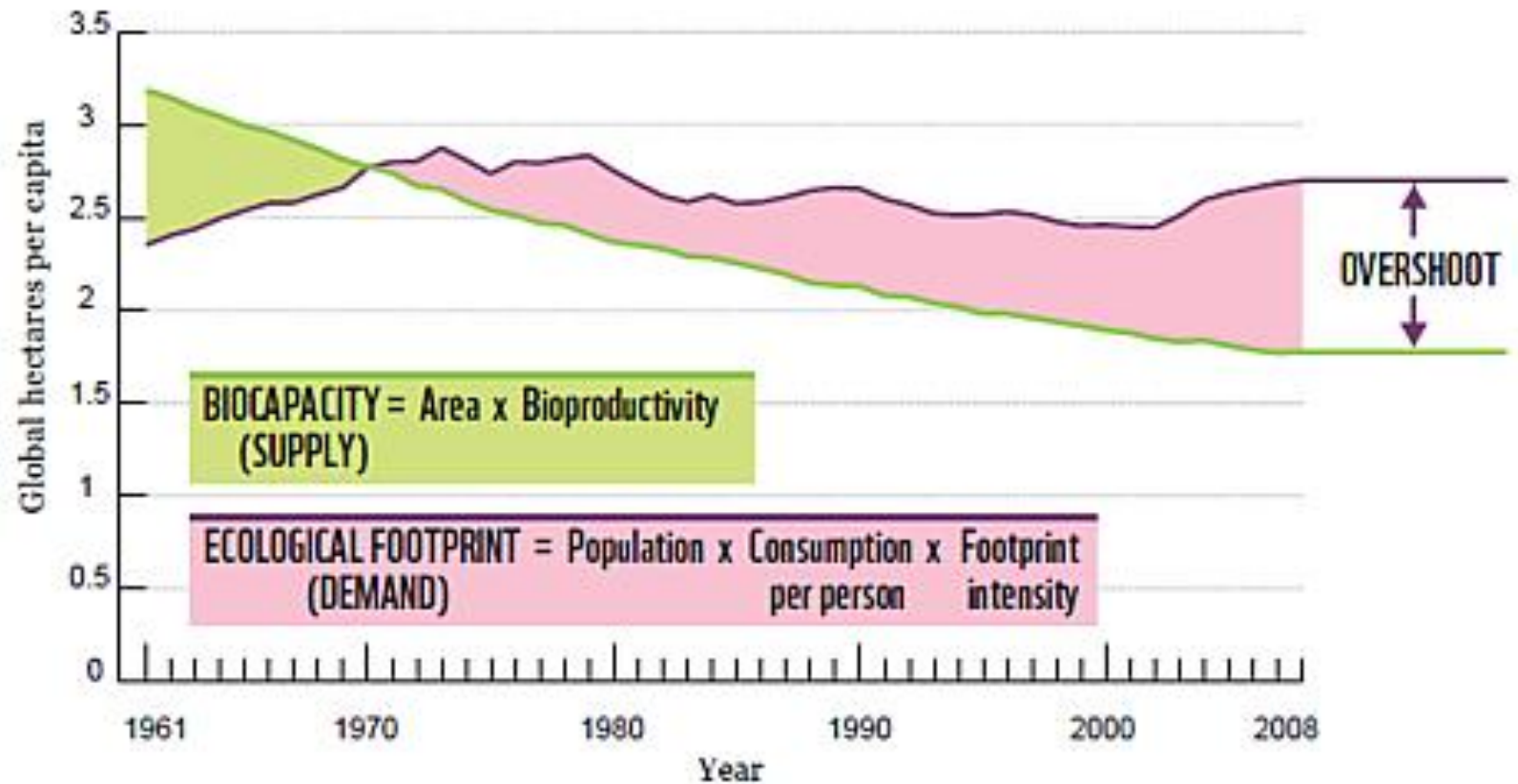
Is GDP growth sustainable or are we just “living off our natural capital?”



Adjusted Net Saving

- Top three ranks having ANS rates of above 30: **Singapore (31.9)**, **Botswana (31.6)**, and **China (31.3)**.
- High per capita GHG contributing nations such as **USA, Canada, Australia** and others consistently positive ANS rates.
- Similarly, highly populated developing nations (with populations of over 100 million), including **India (15.3)**, **Indonesia (22.8)**, **Brazil (5.4)**, **Pakistan (4.1)**, and **Bangladesh (18.3)** have positive ANS values (only **Nigeria** has an ANS of -10.2).
- Most of **CIS** nations (excluding Kazakhstan), all of the **Middle East** oil exporting nations, **East Asia** industrialized nations have positive ANS values.
- As a group, **sub-Saharan African** nations register negative ANS values, the bottom most values for **Angola (-27.0)**, **Burundi (-24.3)** and **Uganda (-14.8)**. According to ANS, most of the world is on sustainable development path!!!
- Ecological Overshoot gives a different picture

Ecological Overshoot



Ecological Overshoot

- Humanity's annual demand on the natural world has exceeded what the Earth can renew in a year since the 1970s. This "ecological overshoot" has continued to grow over the years,
- 17% population consumes 80% of resources

Maggi Case

GDP does not distinguish between good and bad commodities. E.g: tobacco, toxic chemicals, deforestation all contribute to GDP.

Maggi case

- MSG (Ajinomoto)
- Lead

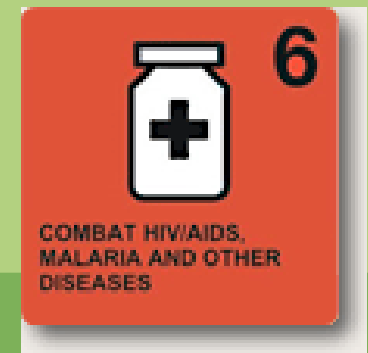
(“cocktail effect” of food toxins- especially for children who eat different items and absorb toxins from each of them)

Meat Production and Consumption case

Meat significantly contributes to environmental pollution (Co2, toxins), and health if produced a la Factory Farming methods (CAFO). Meat consumption per person very high in HICs.



Millennium Development Goals



World Story

The Millennium Development Goals Report 2013 UNDP



Achievements

- The proportion of people living in extreme poverty has been halved at the global level
- Over 2 billion people gained access to improved sources of drinking water
- Remarkable gains have been made in the fight against malaria, TB

Failures

- The hunger target is within reach
- Environmental sustainability is under severe threat
- Most maternal deaths are preventable, and progress in this area is falling short
- Access to antiretroviral therapy and knowledge about HIV prevention must expand
- Too many children are still denied primary education
- There is less aid money overall, with the poorest countries most adversely affected

MDGs – Linkages Poverty, education, health and environment

- “Ensure” Environmental Sustainability (Goal 7) not viewed serious.
- World Bank Report- China achieved impressive reduction in poverty (13%); but the health and non-health cost of pollution is 4.3% and 1.5% of GDP (5.8% total).
- China’s ‘Airpocalypse’- permanent lung damage to children.
- *Lancet*- Outdoor air pollution contributed to about 1.2 million deaths in China in 2010 (40 percent of airborne pollution-related deaths worldwide). Toxic air was listed as the fourth-leading risk factor for deaths in China, behind poor diet, high blood pressure and smoking (clean up cost \$817 billion).

Delhi the Most Polluted City in the World



Environment Performance Index (EPI)

178 countries - 9 environmental parameters

- Delhi has earned the dubious tag of being the world's most polluted city (**India ranks 155 out of 178**; worse than all the other BRICS nations - China ranks at 118; South Africa at 72. Switzerland tops the list of 178)
- India's pollution levels could be playing havoc with the health of its citizens. "A bottom performer on nearly every policy issue included in the 2014 EPI, with the exception of forests, fisheries and water resources, **India's performance lags most notably in the protection of human health from environmental harm**"
- *Harvard International Review*: Every two in five persons in Delhi suffer from respiratory ailments.
- *The Lancet's Global Health Burden 2013*: Air pollution the sixth biggest human killer in India

Hyderabad – Silver Medal!!

- The air in Hyderabad isn't fit to breathe!
- After Delhi, Hyderabad has reached a stage, where harmful substances in the air are recorded much above normal levels.
- Rising pollution is related to rising incidence of lung cancer.

Nearing End of Fossil Fuel Consumption? Competitive Renewable Energy is Good News for Sustainable and Inclusive Development

- Jochem Wermuth from Germany says free market capitalism will eliminate oil industry! He gives Germany example of high economies of scale in renewables.
- [Wermuth Asset Management warns of risks of hydrocarbon investment](#)
- Wermuth Asset Management has announced its expectation that, given the availability of solar power at 4 cents/kWh, a price with which crude oil could only compete if offered below USD 7/barrel, the 'carbon bubble' will burst and that it will have profound implications for the Middle East's oil producing countries, global financial markets and the world economy. If COP21 leaders this year commit to a global 2°C temperature target for 2050, by reducing CO2 emissions, 80 percent of the world's known fossil fuel reserves will need to be written off by energy majors. Regardless of an agreement, competition from renewables and greater energy efficiency in industry is now such that long-term fossil fuel price forecasts need to be revised downwards, with USD 21 trillion in reserves likely to be written off.

MDGs, SDGs

- MDGs and SDGs (Sustainable Development Goals; Rio+20 2012 *The Future We Want* - “define pathways to a safer, more equitable, cleaner, greener and more prosperous world for all”
- “The continuous striving for improvements in material welfare is threatening to surpass the limits of the natural resource base unless there is a radical shift towards more sustainable patterns of consumption and production and resource use” and
- “As the challenges are highly interdependent, a new, more holistic approach is needed to address them”.
- Living Planet Report
- UNDG (2008). *Good Practices for Scaling up MDG Achievement*, New York: UNDG

Green Jobs

NSSO 2011-2012

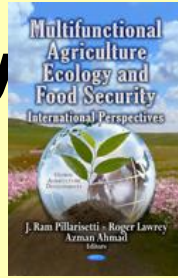
Job growth 2.2% p. a. during 2000-2012

Agriculture jobs: no growth in 13 years

Manufacturing jobs: 4% p.a.

Service jobs: Construction jobs grew 17% p.a. (rural construction boom 300% (MGNREGS)) ; jobs in trade, hotels, hawkers, other services like cooks, maids, guards 47%. Jobs low-paying, contractual, minimum benefits, subsistence level.

Multifunctional Agriculture, Nutrition, Ecology Food Security



Time to marry agriculture with nutrition: providing support to small farmers in India will not only help in eradicating poverty but also lead to nutritional security (Prof. Swaminathan).

“Health per hectare” (not yield per hectare) (Prof. Shiva)

Green jobs:

Forestry, Agro-ecology/ Ecological Agriculture; Eco-tourism, Agri-tourism, Renewable Energy, Sea Water Farming.

E.g.: Organic farming has the potential to generate over eight million jobs in Rajasthan in over the next five years if it is actively promoted, industry body Assocham said in a report 'Organic Rajasthan: Untapped Potential for Growth' (can raise net per capita income of farmers by 250%). Sikkim, Bhutan, Kerala. EU. **Good Environment=Good Economics**



Multifunctional Character of Agriculture



AGRICULTURE

Food and Fibre production

Multifunctionality of Agriculture

Rice+ Flood prevention
+Water Purification+
Culture Heritage+
Ecotourism

Tangible Benefits Rs.

Economic Function
Food Security Function
Social Function
Environment Function
Cultural Function



Funding Issues

Fiscal space is very limited (94% in India live on less than \$4 a day according to World Bank).

ODA from OECD falling. \$133.5 billion (also only 0.4% of went to aid for basic nutrition).

CSR, Philanthropy

World Giving Index

India Rank: a lowly 133rd out of 146 countries (Pakistan-85; Bangladesh-109)

Rich in India: 3.1 percent of their income to charitable causes in 2011 - far behind the 9.1 percent average in the USA

The Difficulty of Being Good.

Forests, Values, Happiness

Happy Planet Index:

Costa Rica – No.1 Happiest Nation in the World

(Family (family leave to reduce *karoshi*), Environment (mostly energy from renewable resources)).

Karōshi, which can be translated literally as "death from overwork" in Japanese, is occupational sudden death. The major medical causes of *karōshi* deaths are heart attack and stroke due to stress and a starvation diet.

Human Values Index: Brazil Human Development Report.

“The dominance of the ‘growth fetish’ ideology has much contributed to lure societies into believing that people’s value judgements are unnecessary for a better life and social justice. The theme ‘human values’ became the central research topic for the United Nations Development Programme Human Development Report team in Brazil..”

Best wishes

Thank you

