Illustration of Elective Part II
“Extension of Trade Theory, Economic Growth and Development”
with authentic data

Dr. KWONG Che-leung
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Part I: Extension of Trade Theory

➢ Production Possibilities Frontier
➢ Comparative Advantage & its relation to Globalization

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Part 1: Extension of trade theory

Production Possibilities Frontier (PPF)
A) Production efficient Points:
Any points on the PPF \(\rightarrow\) utilized all its available resources and used the best production method to produce the maximum amount of output at the current state of technology.

B) Inefficient point:
e.g. Point F \(\rightarrow\) fails to use all available resources and/or used the best production method.

C) Unattainable point:
e.g. Point G
Shift of PPF

PPF shifts outward $\Rightarrow$ economic growth $\Rightarrow$
increase the production capacity of the economy$\Rightarrow$
determined by the availability of factor inputs including labour,
capital (both human and physical capital), natural resources and the level of technology

$\Rightarrow$ ↑ consumption level
How to increase?

i) labour availability → a more lax immigration policy e.g. Quality Migrant Admission Scheme (優秀人才入境計劃) in Hong Kong

ii) Physical capital → foreign direct investments (i.e. investments from abroad).

Human capital → enhanced by investing in education and on-the-job training e.g. Continuing Education Fund
Specilisation and Gains from Trade

- Apart from economic growth and technological change, are there any other means to raise the consumption of both goods?

⇒ Specialization and trade
Country A has comparative adv in producing computer.

Terms of trade: 1C=10F

C: Autarky production point = consumption point
E: Production point after trade
G: Consumption point after trade
Gains from trade = CG units of computer
Country B has comparative advantage in producing food.

Terms of trade: $1C=10F$

J: Autarky production point = consumption point

H: Production point after trade

K: Consumption point after trade

Gains from trade = KL units of food & JL units of computer
Conclusion

- If two countries specialise according to their comparative advantages and trade is opened up between the countries, then both countries can attain higher levels of consumption of both goods, despite the fact that one country is absolutely more efficient at producing both goods.
PPF with increasing MC

- Law of diminishing marginal returns or
- Law of increasing marginal opportunity cost
Gains from Trade with increasing marginal cost

- Point D: Country A’s autarky equilibrium
- Point G: Country B’s autarky equilibrium

- The slope of $PPFa$ at $D$ is smaller than that of $PPFb$ at $G$.
- Country A has a comparative adv in producing $F$ at production point $D$.
- Country B has a comparative adv in producing $E$ at production point $G$. 
Gains from Trade of Countries A & B

AB – international price line - Terms of trade

Country A:
D - production & consumption point before trade
P – production point after trade
C - consumption point after trade
CD - gains from trade

Country B:
G - production & consumption point before trade
P* - production point after trade
C* - consumption point after trade
GC* - gains from trade
Comparative Adv & Globalization

• Economic globalization:

• The process of closer economic integration of countries of the world through the increased flows of goods, services, capital and labour.
Pros of Globalization

I. *Gains from free trade:*

- specialisation and trade enable countries to enjoy more goods and services at lower prices
- e.g. consumers in China now enjoy a wide range of products such as coffee by Starbucks and iPad by Apple.
II. Kickoff of Developing Economies:

- Globalization has caused the rapid expansion of export in developing countries,
- e.g. from 1965 to 1990, Japan’s export in the world market increased from about 8% to 12%.
- The rise in net export promotes economic growth.
- This export-oriented strategy was later taken up
- by the Four Asian Tigers (or Asian Dragons): Hong Kong, Singapore, South Korea and Taiwan.
• In the 1970s and 1980s, the export of the *Four Asian Tigers* grew nearly 4 times faster than Japan’s.

• They achieved exceptionally high growth rates (in excess of 7% a year) in the early 1980s and 1990s.

• The strategy was later followed by Malaysia, Indonesia, Thailand and China in the 1980s to speed up economic growth.
III. Promotion of Capital Growth:

• According to the law of diminishing marginal returns, in a developed country (DC) with abundant capital per worker, the marginal rate of return on capital is on the decline.

• On the contrary, in a developing country (or less developed country, LDC) with limited capital per worker, the rate of return on capital will be higher.

→ DCs have an incentive to export capital to LDCs to capture higher returns on capital and LDCs have the incentive to attract foreign direct investment to increase its marginal product of labour (i.e. labour productivity).
• In the 1980s and 1990s, capital-abundant countries, such as the U.S. and Japan, export capital to China and other Asian countries.

• The U.S. and Japan utilize the relatively cheap labour and land in China to reduce its production costs.

• While China attracts foreign capital to enhance its labour productivity, technology and managerial skills.

• It benefits both the capital-exporting and capital-importing countries.
IV. Human Capital Enhancement:

• Advanced countries such as the U.S., UK, Germany and Japan have comparative advantages in providing higher education.

• Huge foreign exchange earnings are generated

• E.g., the U.S. enrolled about 691,000 international students with tuition and fees estimated to a total of US$13 billion during the 2009-10 academic year.

• Taking into account cost of living expenses for students and their families, the total monetary income from international students is nearly US$19 billion a year.
Cons of Globalization

I. Loss of independence:

• Some argue that by not producing what we consume, we become dependent on others in terms of imports.

• A good example is China’s exports of rare earth elements/metal (REEs) consisting of 17 elements which are crucial for technological products.
• By 2010, China supplies 97% of the world’s total production of REEs. However, China planned to cut 72% of REEs exports in the second half of 2010, followed by a further reduction in 2011.

• Japan and the U.S. accused China of using the export quota of REEs as a tool to increase its bargaining power over economic and political issues.

• The problem is more closely related to the global monopoly of REEs by China rather than to free trade.

• If the international trading system is free and competitive enough, substitutes will be developed and exported to the international market.
II. Production Concentration and Price Fluctuation:

• Specialisation causes some developing countries to concentrate on a few agricultural exports (e.g. cotton or cocoa) and on a few manufactured exports (such as clothing and textile).

• They are therefore particularly vulnerable to international price fluctuations and volatile terms of trade.
• According to a study by the United Nations Conference on Trade and Development (UNCTAD, 2002), prices paid to coffee growers have declined between 1995 and 2000 by over 50% in 10 out of 14 LDCs which specialised in growing and exporting coffee beans.

• The livelihood of the people of these countries, particularly for those almost completely dependent on one to two kinds of exports, specialisation may lead to fluctuations in living standards.
III. *Structural Changes and Job Losses:*

• The opponents of globalization are not confined to developing countries.

• For example, farmers in South Korea or workers in the U.S. manufacturing industries, who have lost their jobs because of the huge influx of low-price imported goods.
• In an ideal world, laid-off workers would take up new jobs in other sectors, but it is difficult in reality as they need to acquire new skills before taking up new jobs.

• Obtaining those skills takes time. More importantly, there is no guarantee that newly generated vacancies in other sectors would be enough to absorb the laid-off workers.
IV. Infant Industries and Acquired Comparative Advantage:

• A developed country has in place a large manufacturing and capital base is relatively better at high-tech manufacturing.

• A developing country with lots of low-skilled labour and a weak manufacturing base is relatively better at producing goods that require low-skilled labour, and less efficient at high-tech production.
• Free trade under globalization predicts that the developed country will specialise and export high-tech products and the developing country will specialise and export low skilled, labour intensive products.

• Free trade will keep the trade pattern stable except that infant industries (young industries) in developing countries are temporarily protected from established industries of developed countries to build an acquired comparative advantage.
• The acquired comparative advantage can be developed by a country’s educational policies (e.g. subsidised education) and industrial policies (e.g. policy favouring the inflow of capital).

• If the young industry is undercut and driven out of world markets at the beginning of its development by free trade, the acquired comparative advantage might never develop and the new industry would never exist in the developing country.
V. Loss of national and cultural identity:

• Developing countries in Asia and Middle East have opened their economies to import from the West. Foreign brands in e.g. McDonald’s restaurant, Levi’s jeans, iPad have replaced their local products.

• Though local consumers could enjoy a wide variety of imported goods, some people perceive it as damaging to national and cultural identities.
Concluding remarks

• Free trade based on comparative advantage promotes the economic well-being of the participating countries.

• However, there may be issues of distribution.

• The point is how we “manage” globalization. It implies that government may need to devise policies to address the needs of the losers under free trade, or in a broader sense, globalization.
• Tt does not mean that we should put a halt to or unnecessary hurdles on the process of globalization, though the process may not be problem-free.

• Although economists disagree on many issues, the vast majority of them believe that globalization does more good than harm for the world economy.
Part 2: Economic Growth & Development

• *Economic growth* refers to the rise in real GDP and/or GDP per capita.

• *Economic development* is a broad concept encompassing economic growth and other developmental dimensions including health, education, food, clean water, environment, equality and income distribution.
Development economists put high emphasis on a human development approach, that is: how the well-being of people in a country or region is improved throughout the course of economic growth.
Does Economic Growth Necessarily Lead to Development?

• Higher economic growth represents a rise in a country’s ability to produce and to buy goods and services. It is expected that economic growth will lead to economic development as a country has more resources to provide better education, medical services, more extensive transportation networks, and so on.

• This was supported by the observations on sustained economic growth beginning from the Industrial Revolution in Britain in around 1750.
• The Industrial Revolution later spread to other countries, such as the United States, France, and Germany. The long-term economic growth since the 18th Century raised considerably the living standards of these countries in various developmental dimensions, such as provision of education, health services and infrastructure.
• However, there maybe negative impacts on some developmental dimensions, such as income disparity and environmental degradation.

• E.g. China and India: annual growth rate of GDP up to 7 to 9% in the past decade.

• China: - Gini coefficient- 0.47 in 2010.
  - 40% water sources are not suitable for drinking
India: the 2011 Global Hunger Index (GHI) Report ranked India at 15th, among leading countries with hunger problems. India’s GHI went up from 22.9 to 23.7 between 1996 and 2011, which is categorized as an “alarming” level.
Measurement of Economic Growth and Development

• Changes in real GDP and real GDP per capita are common indicators for economic growth and change of a country’s living standard.

• However, there are shortcomings e.g. the omission of leisure, lack of adjustment for negative effects of production (e.g. pollution), income distribution.
• Human Development Index (HDI) to analyse more comprehensively the comparative status of socioeconomic development in different countries.

• The HDI is a summary measure of three developmental dimensions: health, access to knowledge (education) and standard of living.
<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health</strong></td>
<td>Life expectancy at birth: <em>better medical</em> services $\rightarrow$ better health conditions $\rightarrow$ positive impact on the longevity of people. (a proxy for health conditions of the people in the country)</td>
</tr>
<tr>
<td><strong>Access to knowledge</strong></td>
<td>Mean years of schooling: average number of school years attended by the population $\rightarrow$ degree of access to education <em>at present</em></td>
</tr>
</tbody>
</table>
• **Health index, education index and income index, are constructed for each**
  **of the developmental** dimensions. The **HDI is obtained by taking the**
  **geometric mean of the three** sub-indices

• **The HDI ranks most of the countries (169 countries in 2010) in the world**
  on a scale of 0 (lowest human development) to 1 (highest human development) into three groups:

  ①  low human development (0.0 to 0.499),

  ②  medium human development (0.50 to 0.799),

  ③  and high human development (0.80 to 1.0).

• **Hong Kong achieved a HDI of 0.862 (Rank 21) in 2010**, which reflects that
  Hong Kong has accomplished a very high level of human development.

• **Japan (HDI = 0.884; Rank 11)** is the only country/region ranked higher than
  Hong Kong in Asia.
Advantages of HDI

• It offers a more balanced and comprehensive indicator to compare the developmental levels among different countries.

• E.g. the United States clearly excels over New Zealand in terms of income level; other aspects such as health and education, New Zealand (HDI Rank = 3) is ranked higher than the United States (HDI Rank = 4).
# Human Development Index and its components

<table>
<thead>
<tr>
<th>HDI rank</th>
<th>Human Development Index (HDI) value&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Life expectancy at birth (years)</th>
<th>Mean years of schooling (years)</th>
<th>Expected years of schooling (years)</th>
<th>Gross national income (GNI) per capita (PPP 2008 $)</th>
<th>GNI per capita rank minus HDI rank</th>
<th>Nonincome HDI value</th>
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<tbody>
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<td>2</td>
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</tbody>
</table>

## VERY HIGH HUMAN DEVELOPMENT

<sup>a</sup> HDI values range from 0.0 to 1.0. Higher values mean greater human development.

<sup>b</sup> The HDI value is the average of weighted values in four dimensions: health (life expectancy at birth), education (mean years of schooling), income (GNI per capita), and access to knowledge (expected years of schooling). Weightings are 0.3 each.

<sup>c</sup> Life expectancy at birth estimated.

<sup>d</sup> Mean years of schooling estimated.

<sup>e</sup> Gross national income per capita (PPP 2008 $) is the purchasing power parity adjustment factor for comparing GDPs across countries.

<sup>f</sup> GNI per capita rank is the rank of the country in the list of countries with the highest GNI per capita (PPP 2008 $), with 1 being the highest.

<sup>g</sup> Nonincome HDI value is the average of the three indicators: knowledge, income, and health.
• Some countries, such as Chile, have a moderate income level, but its HDI ranking (Rank 45) is much higher than some high income countries such as Kuwait (Rank 47).

• It does reveal that a low income country can do much better than expected, and that little human development may be accomplished even with a high income.
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**HIGH HUMAN DEVELOPMENT**
Criticisms of HDI?

• In the long run, the HDI has a strong tendency to rise with per capita income, as wealthier countries can invest more in health and education, and this added human capital raises productivity.

• If country rankings in GNI do not vary much with HDI ranking in the long run, a single-dimensional income index would serve as a reliable proxy for socioeconomic development, and there would be no need to worry about such things as health and education indicators.
There is still such great variation between income and broader measures of well-being. If the two rankings are really converging, the figure of GNI per capita rank minus HDI rank should be around 0 (e.g. range from -1 to 1).

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<th>HDI rank</th>
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**VERY HIGH HUMAN DEVELOPMENT**

1. Norway   0.938    81.0     12.6     17.3     58,810     2     0.954
2. Australia 0.937   81.9     12.0     20.5     38,692     11    0.989
3. New Zealand 0.907  80.6     12.5     19.7     25,438     30    0.979
4. United States 0.902  79.6     12.4     15.7     47,094     5     0.917
5. Ireland    0.895    80.3     11.6     17.9     33,078     20    0.936
6. Liechtenstein 0.891  79.6d   10.3d   14.8     81,011*e,f  -5    0.861
7. Netherlands 0.890    80.3     11.2     16.7     40,658     4     0.911
8. Canada     0.888    81.0     11.5     16.0     38,668     6     0.913
9. Sweden     0.885    81.3     11.6     15.6     36,936     8     0.911
10. Germany   0.885    80.2     12.2     15.6     35,308     9     0.915
11. Japan     0.884    83.2     11.5     15.1     34,692     11    0.915
12. Korea, Republic of 0.877    79.8     11.6     16.8     29,518     16    0.918
• HDI does not cover certain important developmental dimensions such as environmental sustainability and income distribution.

→ no single developmental indicator can be "all comprehensive". Data constraint is a primary concern. If we want to construct one more sub-index on environmental sustainability, we need data available to all countries concerned.
• Equal weight is given to each of the three sub-indices when compiling the HDI, which clearly has some value judgment behind it.

Any other weighting, without justification, could also be subjective. In practical sense, it is difficult to judge and justify which of the three dimensions is more or less important.
• No attention has been paid to the role of quality in HDI. E.g. there is a big difference between an extra year of life as a healthy, well-functioning individual and an extra year with a very limited range of capabilities (such as being confined to bed). Moreover, the quality of schooling counts, not just the number of years of enrolment.

→ while one could imagine better proxies for health (e.g. number of doctor per 1000 people) and education (e.g. teacher-student ratio), new measures for these variables must be chosen on the criterion that sufficient data must be available.
Factors Affecting Growth of an Economy

• Economic growth refers to the rise in GDP and/or real GDP per capita. The output level of an economy is partly determined by how much goods and services are produced by each unit of labour (i.e. labour productivity).

• labour productivity is determined by physical capital, human capital, natural resources and technology (or technological change)
• **Physical Capital**
  - the stock of equipment and structures that are used to produce goods and services e.g. plants and equipment.

• **Human Capital**
  - the knowledge and skills that workers acquire through education, training, and experience

• **Natural Resources**
  - the inputs in the production of goods and services that are provided by nature, such as land, rivers, and mineral deposits.
Technological Change

Technological change is an advance in knowledge which improves ways to produce goods and services, that is to improve the production efficiency of goods and services. Technological change consists of at least two elements: advance in knowledge (or an invention) and innovation. Advance in knowledge, such as the invention of optic fibre, always happens in universities and laboratories. The invention finally used to produce an existing product more efficiently is called innovation (e.g. optic fibre to replace metal wires in telecommunication).

Advance in managerial knowledge, accounting procedures and data management can also be used to improve the production efficiency of a firm.
• Technological change can be measured indirectly by looking at the change in the quantity of output a firm can produce using given quantity of inputs. Some economists use other indirect measures such as the number of patents registered by a firm or a region to indicate technological change
Public Policies Promoting Growth of an Economy

- **Policies to increase savings:**
- The amount of capital accumulation in an economy is determined by its rate of saving. The more savings in an economy, the more funds are available for investment.
- tax exemptions on interests and dividend earned from deposits and financial assets e.g. MPF in Hong Kong.
Foreign direct investment:

- Countries could adopt favourable investment policies, such as tax exemption and low land rent, to attract foreign investment.

Two forms:

- Foreign direct investment (FDI) & Foreign portfolio investment (FPI)
• FDI—when a capital investment is owned and operated by a foreign company e.g. if a U.S. firm invests capital directly in China and sets up a factory to produce its product, it is a case of FDI in China from the U.S.

• FPI- a capital investment is financed with foreign money but operated by domestic residents e.g. when a U.S. unit trust company buys a Chinese stock and the funding is finally used to invest in capital goods by the Chinese firm, it is a case of FPI in China by a U.S. investor.
Trade promotion:

Free trade allows a country to specialise in what it does best and thus consumes beyond its production possibilities. Throughout the second half of the 20th century, outward oriented policies adopted by South Korea, Taiwan, Singapore and Hong Kong are conducive to economic growth.
Education Policy:

Education is an investment in human capital, which has a positive impact on labour productivity.

- A study based on historical data indicates that increase in human capital (education and training) accounted for 19% of the growth of the U.S. economy during the period 1929-1982.
• However, investment in human capital also has an opportunity cost. When students study in school, they cannot produce goods and services for consumption.

• In LDCs, this opportunity cost is considered to be high. Therefore, student dropout rates in LDCs are high. One of the possible solutions to the dropout problem is government subsidies on education in these countries.
Population Policy:

• High population growth reduces capital per worker because rapid growth in the number of workers forces the capital stock to be shared more thinly. It lowers labour productivity and future economic growth.

• To address this issue, effective birth control policy can be implemented to limit population growth.
Property Rights and Political Stability:
There is little incentive for investors to produce if there is no guarantee that their products cannot be taken illegally by others or confiscated by the government. Contracts must also be enforced effectively.
Research and Development (R&D):

• R&D is the primary source for technological change which can promote economic growth.
• However, R&D is always costly and risky. Government can provide research grants and tax incentives for firms or institutions engaged in R&D.
• The patent system also encourages research by granting an inventor the exclusive right to produce the product for a specified number of years. It guarantees the inventors the ability to capture exclusive profits to cover its costs in R&D and provides incentives for future R&D.
Desirability and Costs of Economic Growth

I. Desirability of Economic Growth

- **Living standards enhancement:**
  
  Higher real GDP means more goods and services are produced and enjoyed by the people. A higher GDP is important for poverty reduction.
Employment creation:

• Economic growth $\rightarrow$ $\uparrow$ job opportunities $\rightarrow$ $\uparrow$ consumption $\rightarrow$ $\uparrow$ investment $\rightarrow$ future rounds of economic growth.

• Higher employment $\rightarrow$ $\downarrow$ government expenditure on welfare e.g. unemployment allowance $\rightarrow$ $\uparrow$ Government resources on policies for the development of the economy.
Increase in quality and varieties of goods and services:
the average household today may enjoy a "richer" life, in terms of quality and varieties of goods and services.

Better public services:
• Higher GDP means higher tax revenue for governments, which enables them to provide better public services such as education and medical care that improve the well-being of the general public.
Promoting technological change:

- With higher fiscal revenue, governments are more able to subsidise education and R&D, which are crucial for technological change. Further, economic growth causes higher consumption and firms derive higher income for future R&D.
• II. Costs of Economic Growth

➢ Trade-off between current and future consumption
• ↑Saving ➔ ↑funds investment ➔ economic growth ➔ forgo resources for current consumption.

• However, ↑investment ➔ ↑future income ➔ ↑ future consumption.
➔ forgo current consumption for future consumption.
Resources exhaustion, pollution and sustainable development

- Economic growth involves production which inevitably increases resources exhaustion such as the substantial use of clean water, extensive deforestation and huge consumption of oil and other fossil fuels. The rapid exhaustion of natural resources brings out two important issues: sustainability and pollution.
Sustainability

• Sustainability refers to balanced economic growth and environment preservation.
• In economic terms, it is a balance between current and future economic growth.
• Sustainability emphasizes the importance of fulfilling the needs of current generation without compromising the needs and welfare of future generation.
• Another embedded meaning of sustainability is that the stock of overall assets should remain constant or rises over time.
• Economists, in general, are more optimistic. They argue that technological changes in the past show that new sources of resource, such as solar and nuclear energy, and new materials, such as synthetic fibre, would be developed to replace existing fuel and materials.
Pollution

• Growth-related pollution is everywhere.
• The quality of life is adversely affected by pollution, but it is not reflected in growth indicators such as GDP growth rates.
• China’s average GDP growth rate of 8-9 % per annum in the past two decades, but ranks beside the U.S. as one of the top two greenhouse gases emitting countries.
• about 40% of China’s water sources are not suitable for drinking.
Creation of unnecessary needs

• To maintain growth, firms need to create new models to attract new demand by managing the taste of consumers through advertising, fancy designs and other marketing strategies.

• Some economists therefore argue that the new models actually are not desperately needed by the consumers. The resources used for the new models could better be utilised for other products which satisfy intrinsic needs.
Income distribution

• It is not rare to observe that uneven income distribution is associated with rapid economic growth, particularly in developing countries.

• In developing countries, capital is relatively scarce and labour is abundant and so the return on capital is higher than that of labour.

• As rich people possess more capital, they are able to reap higher returns than the poor during the course of economic growth.

• → The rich gets richer the poor remains poor.
Some economists argue that since the poor also earn more under economic growth, as they will acquire more physical and human capital, which will eventually enhance their productivity and income in the long run.

Though the theoretical prediction is basically sound, narrowing the income gap in the long run is not always a must for developing countries.

The Gini coefficients of Thailand, the Philippines and China are still higher than 0.4.
International Comparison

• Economic theory predicts that a relatively poor country can grow faster than the rich countries by adopting existing (already developed) technology and attracting capital. It follows that the poor countries can catch up with the rich countries in the long run (economic convergence).

• Is it valid?
Catch-up line:

• A downward sloping curve showing the relationship between the level of productivity (or level of per capita income) and the growth of productivity.

• It predicts that the level of GDP per capita (or income per capita) in poor countries will grow faster than in rich countries.

Source: Hubbard and O’Brien (2010: 723)
• The figure plots real GDP per capita in 1960 against growth in real GDP per capita from 1960 to 2008 for a number of high-income countries.

• It is noted that richer countries, such as the U.S. and Switzerland, grew slower than less rich countries/regions such as Japan, Ireland, and Hong Kong. The catch-up phenomenon is observed among high-income countries.

Source: Hubbard and O’Brien (2010: 723)
• Is catch-up observed in most countries?
• Table 1 shows the GNI per capita of 10 representative high and low countries in 2001 and 2010.
• It clearly reveals that the income gap between rich and poor countries are still very huge, though the gap is narrowing.
• The average income of rich countries was 93.5 times that of the poor countries in 2001 and the figure dropped to 62.6 in 2010.
<table>
<thead>
<tr>
<th>Country</th>
<th>2001</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Income Countries /Regions</strong></td>
<td>US$</td>
<td>US$</td>
</tr>
<tr>
<td>Denmark</td>
<td>30,640</td>
<td>59,210</td>
</tr>
<tr>
<td>France</td>
<td>23,120</td>
<td>42,390</td>
</tr>
<tr>
<td>Germany</td>
<td>24,020</td>
<td>43,290</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>25,930</td>
<td>32,780</td>
</tr>
<tr>
<td>Japan</td>
<td>35,120</td>
<td>42,130</td>
</tr>
<tr>
<td>Luxemburg</td>
<td>42,900</td>
<td>79,630</td>
</tr>
<tr>
<td>Norway</td>
<td>37,530</td>
<td>85,340</td>
</tr>
<tr>
<td>Switzerland</td>
<td>37,790</td>
<td>70,030</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>25,860</td>
<td>38,560</td>
</tr>
<tr>
<td>United States</td>
<td>35,480</td>
<td>47,240</td>
</tr>
<tr>
<td>Average of HIC</td>
<td>30,839</td>
<td>54,060</td>
</tr>
<tr>
<td><strong>Low Income Countries /Regions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>380</td>
<td>700</td>
</tr>
<tr>
<td>Cambodia</td>
<td>310</td>
<td>760</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>130</td>
<td>390</td>
</tr>
<tr>
<td>Ghana</td>
<td>300</td>
<td>1,230</td>
</tr>
<tr>
<td>India</td>
<td>460</td>
<td>1,340</td>
</tr>
<tr>
<td>Mozambique</td>
<td>230</td>
<td>440</td>
</tr>
<tr>
<td>Pakistan</td>
<td>480</td>
<td>1,050</td>
</tr>
<tr>
<td>Nepal</td>
<td>230</td>
<td>480</td>
</tr>
<tr>
<td>Nigeria</td>
<td>320</td>
<td>1,180</td>
</tr>
<tr>
<td>Yemen</td>
<td>460</td>
<td>1,070</td>
</tr>
<tr>
<td>Average of LIC</td>
<td>330</td>
<td>864</td>
</tr>
<tr>
<td>Average of HIC/Average of LIC</td>
<td>93.5</td>
<td>62.6</td>
</tr>
</tbody>
</table>
Does it imply convergence among rich and poor countries?

• Figure 3 plots the real GDP per capita in 1960 and the average annual growth rate of real GDP per capita of about 100 high-income countries and low-income countries during the period 1960-2008.

• The figure reveals that catch-up is found in some countries, but not all.
• The above figure suggests that when we enlarge the sample size for analysis, we can find little tendency for the low-income countries to grow relatively rapidly. It implies that some obstacles are hindering the spread of capital and technology to some relatively poor countries.

• Absolute and relative poverty persist among nations, as indicated by the fact that 3 billion people, about 40% of the world population, lives on less than US$2 per day. Every year 3 million people die for lack of immunization, 1 million die from malaria, and 3 million people die from water-related diseases.
Knowledge enrichment

The economic growth of advanced countries slow down?

• Economic growth causes higher savings and consumption. In some cases, however, the MPC increases along with economic growth. The rise in current consumption raises the living standards of current generation.

• Nonetheless, higher MPC implies lower MPS, which reduces the loanable funds available to the financial sector for capital investment.

• Lower capital investment reduces the economic growth of the future generation whose consumption and living standards will be hampered.
What hinders the growth in LDCs?

- **Regulation and Legal Rights:**
  - The cost of setting up a business is high in some LDCs.
  - E.g. it takes 36 months to set up a retail business and 6 years and 11 months to set up a housing construction firm in Peru.
  - Further, property rights are poorly protected in the LDCs. The high transaction costs associated with setting up a firm and the loosely enforced property rights hinder the inflow of FDI.
Lack of Human Capital:

- Though the rate of returns to education is positive, poor families cannot afford the costs of education in developing countries. Huge disparities in education attainment are found among rich and poor countries.
<table>
<thead>
<tr>
<th>Rank</th>
<th>Countries</th>
<th>Years of Schooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOP 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td># 1</td>
<td>United States</td>
<td>12</td>
</tr>
<tr>
<td># 2</td>
<td>Norway</td>
<td>11.8</td>
</tr>
<tr>
<td># 3</td>
<td>New Zealand</td>
<td>11.7</td>
</tr>
<tr>
<td># 4</td>
<td>Canada</td>
<td>11.6</td>
</tr>
<tr>
<td># 5</td>
<td>Sweden</td>
<td>11.4</td>
</tr>
<tr>
<td># 6</td>
<td>Australia</td>
<td>10.9</td>
</tr>
<tr>
<td># 7</td>
<td>Switzerland</td>
<td>10.5</td>
</tr>
<tr>
<td># 8</td>
<td>Germany</td>
<td>10.2</td>
</tr>
<tr>
<td># 9</td>
<td>Finland</td>
<td>10</td>
</tr>
<tr>
<td># 10</td>
<td>Poland</td>
<td>9.8</td>
</tr>
<tr>
<td>Bottom 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>91</td>
<td>Nepal</td>
<td>2.4</td>
</tr>
<tr>
<td>= 93</td>
<td>Benin</td>
<td>2.3</td>
</tr>
<tr>
<td>= 93</td>
<td>The Gambia</td>
<td>2.3</td>
</tr>
<tr>
<td># 95</td>
<td>Sudan</td>
<td>2.1</td>
</tr>
<tr>
<td># 96</td>
<td>Afghanistan</td>
<td>1.7</td>
</tr>
<tr>
<td># 97</td>
<td>Mozambique</td>
<td>1.1</td>
</tr>
<tr>
<td># 98</td>
<td>Niger</td>
<td>1</td>
</tr>
<tr>
<td># 99</td>
<td>Mali</td>
<td>0.9</td>
</tr>
<tr>
<td># 100</td>
<td>Guinea-Bissau</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>Weighted average:</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Population Growth:

- To increase the capital per worker, the increase in capital must be faster than that of population. However, fertility rate (births per woman) is higher in most developing countries than in developed countries.
- To illustrate, fertility rate in Sub-Saharan Africa is up to 4-5 while the rate is less than 2 in the U.S. and Australia.
- Poor countries with high population growth spend a major share of their income in consumption, resulting in a low saving rate of around 10 % LDCs.
Foreign Direct Investment:
• The lack of domestic savings in LDCs creates a need to attract FDI from capital-abundant countries. However, some LDCs suffer poor governance and property rights are not effectively enforced and protected, which are not conducive to FDI.

Physical Geography:
• Many of the world poorest countries are severely hindered by high transport costs because they are landlocked and in lack of navigable rivers and long coastal lines.
Governance Failures:

• Ineffective governance, either caused by corrupted governments or civil wars, is one of the most common impediments to domestic and foreign investment.