

Economic Development: Why are poor countries poor?

1. Lack of resources to invest and grow.

We saw: $GDP = C + I + G + X - IM$

$$GDP = C + S + T$$

GDP is used for consumption or is saved or goes to government as taxes.

We have $GDP = GDP$

So: $C + I + G + X - IM = C + S + T$

So: $I + G + X - IM = S + T$

So: $I = S + (T - G) + (IM - X)$

Investment = Private savings + government budget surplus ("government saving")
+ current account deficit ("foreign saving")

Often argued that poor people don't have enough resources to save, so S is low. Governments don't save (low tax revenue, lots of spending). Foreign saving is unpredictable. Result: low investment (and growth).

However, we saw that investment is typically about a sixth (16%) of GDP. Plenty for OK growth.

2. Lack industry.

Traditional view: Move from agriculture to industry to services. Britain.

Newer view: Industry is not essential. Sometimes services will work: tourism.

Larger countries: industry likely to be more important. Ethiopia.

3. Human resources

Education. But improving. Most children in Africa now go to primary school. Slow-working but important. E.g. South Korea. 1950s: very poor, but OK education. A decade later, economic growth picked up. Even education is no guarantee of success: Argentina.

4. Poor governance (including war, corruption)

War kills economic development. Until very recently, wars were decreasing in number and intensity. Lose a generation.

Corruption? Some argue that low-level corruption could even help! Gets things done. Most argue that corruption hurts.

In 18th century, Britain was corrupt. Became more honest with time. How do we gradually push back on corruption? A process.

5. Weak institutions

e.g. property rights. Courts. Tax collections. Government spending procedures. Government is complicated. Another graduate process.

6. Population

Rapid population growth.

1978: China moved to its one-child policy. Feared famine.

India encouraged family planning.

Iran requires couples to have family planning training before they can get married.

Except for Africa, total fertility rate is at about replacement.

Total fertility rate is number of children a woman will have in her lifetime.

Replacement rate is 2.1.

Almost all of the increase in world population from 2030-2050 will be in Africa.

Fertility is falling in Africa too, like in the rest of the world, only later.

7. Climate

Poor countries are main tropical. Tropical climate may make economic development harder to achieve. Exception: Singapore. Exception: North Korea. Disease:

8. Culture. Lazy.

Not clear! People respond to incentives.

1950s: "Koreans are lazy". Wrong!

9. Natural Resources. [Other exploit their resources]

Does it help to have good natural resources?

Ghana: gold, oil, land for cocoa, etc. Contrast with Australia.

Botswana: diamonds.

DR Congo: fighting related to natural resources.

Maybe resources + good governance works.

10. Colonization

Sometimes drained resources. Stunted political growth.

60 years ago.

11. Not consuming locally

See earlier notes on assembling cars in The Gambia. Trade is effective.

12. Lack of technology

Comes with investment and education. Slow.

MPesa. Pioneer in mobile banking. Kenya.

Environmental Kuznets Curve

Basic idea: as countries develop economically, they first pollute more, and then less.

Is it true?

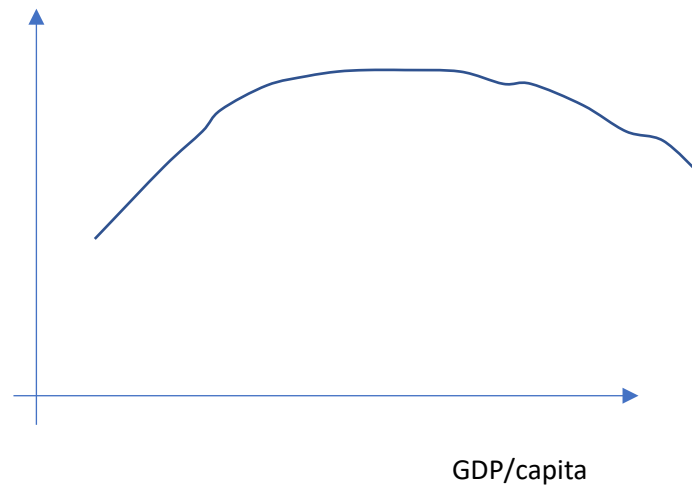
If so, why?

Is it inevitable?

How measure?

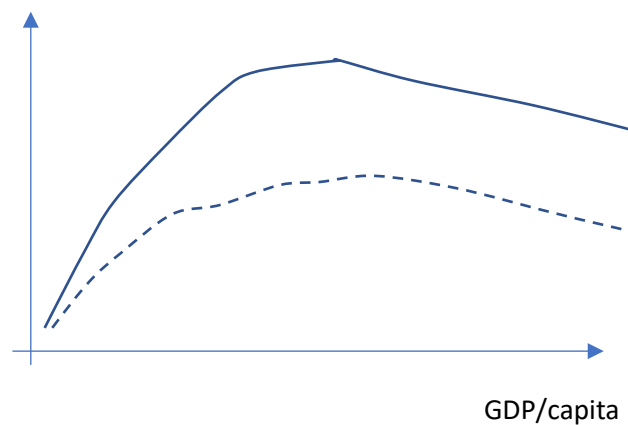
Kuznets Curve. Nobel laureate Simon Kuznets. How does inequality change with economic development. Looked at UK and USA over time.

Gini measure of inequality
(Higher is more unequal)



By analogy, Environmental Kuznets Curve

Pollution, etc.
e.g. CO₂, PM_{2.5}, deforestation



Over time, as a country develops:

Many pollutants decline at higher levels of development.

e.g. air pollution.

Tokyo. Once very polluted. Now city air is quite clean.

CO₂: Emissions in most rich countries have stabilized and even fallen. Very very high still.

Improvements, when they occur, are due to **policy** mainly.

e.g. We adopted our daughter in 1997 in Vietnam. She turn out to have lead poisoning.

US: Lead used to be in paint; in gasoline; in batteries (still). US banned lead in paint and gasoline.

e.g. US: Move from coal to natural gas. **Technology**: new ways to extract natural gas. Replaced dirty coal with less-dirty gas.

Where does the EKC apply?

1. Air.

- a. Urban air quality. SO_x and particulates (PM_{2.5}).

Grossman and Krueger. 1991. Data from 42 countries for 1976-1990.

Air quality get worse until GDP/capita of about \$7,000, and then improves.

- b. CO₂. Less evidence of a EKC effect; small.

2. Water

- a. Drinking water. Ecoli bacteria.

- b. River and lake water. Bacteria; dissolved oxygen (dead rivers have no oxygen).

Drinking water quality improves at relatively early stage. Improves when GDP/capita is about \$2,000 (as of 1990s); river water improves after \$7,000.

3. Deforestation

Evidence on when deforestation ends, and afforestation dominates is mixed: probably occurs at fairly high levels of GDP/capita.

Why the EKC?

- a. As people become richer, the demand for cleaner environment rises.
- b. Technology. Partly "exogenous". Often in response to policy.

In US: a lot of electricity is still generated in coal-power power stations. Burning coal pollutes.

- CO₂
- Particulates (soot)
- SO_x (sulfur). In atmosphere, creates sulfuric acid, acid rain.
- NO_x (nitrogen). In atmosphere, creates nitric acid, acid rain.
- Smog.

Coal-burning power stations must remove most particulates and sulfur. Flue-gas “scrubbers”. Technology was developed to achieve the goal of relatively clean emissions up the chimneys.

One way to reduce such pollution is with a tax on pollution. E.g. Carbon tax is an example.

Steel mill. Use coking coal to make steel. Air pollution.

Market for steel: Demand and supply.

Demand for steel: $Q_d = f(\text{price, price of other goods (e.g. plastics), income, tastes/preferences})$

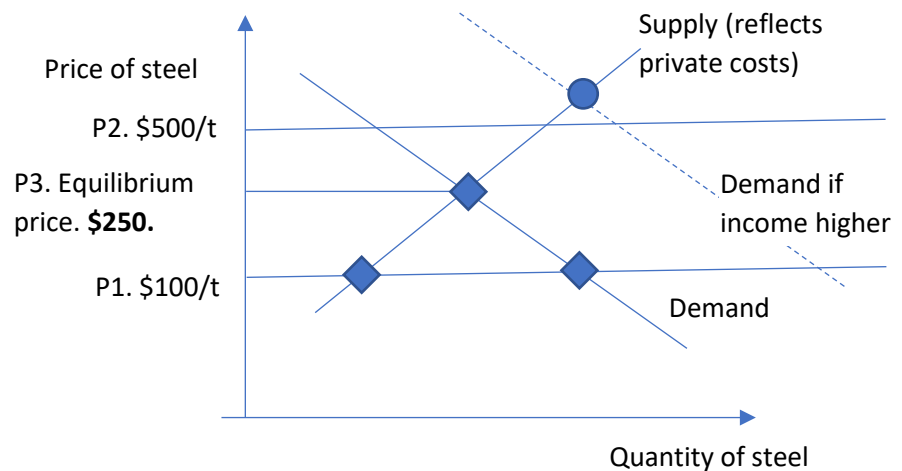
Quantity of steel demand depends on:

Price. Higher price of steel, people will buy less steel.

Price of other goods. If substitutes for steel are cheap, buy less steel.

Incomes. If higher, probably demand more steel (because buy more goods that use steel)

Preferences.



Supply of steel: $Q_s = g(\text{price, price of inputs, technology, weather/season})$

Quantity supplied depends on:

Price. Higher price of steel, firms will want to increase the quantity supplied, to maximize their profits.

Price of inputs. Need iron ore, coal/energy, labor, machinery, etc. If these cost rise, you need to charge more, or else you would lose money and go out of business.



Back to the steel. Production causes pollution. An externality. External effect. Spillover.

An **externality** is an unintended side effect of production (or consumption).

Marginal external effect of (say) steel production. This is the cost imposed on the rest of society by the pollution due to the steel plant, per extra ton produced.

e.g. Produce 1,000 tons of steel. Increase to 1,001 tons. Increase of one ton of steel. If cost imposed on society of this extra production is \$50, then this \$50 is the marginal external cost of the steel. Usually assume that marginal external cost (MEC) rises as production rises.

True costs to society of making steel are the private costs plus the external costs.

Assume we are producing 1,000 tons of steel. Suppose the private cost is \$250 and the marginal external cost is \$50. Then social cost is \$300.

Problem: Market price of \$250 means that customers are paying \$250 for steel which really costs society \$300 per ton to produce (when all costs, direct and external are taken into account). The market price is too low.

Solution: Charge steel mill for the cost of the external pollution that it causes. "Effluent charge".
"Pollution tax".

What will happen if we put the pollution tax in place? Firm now has to **internalize** the cost of the pollution.

