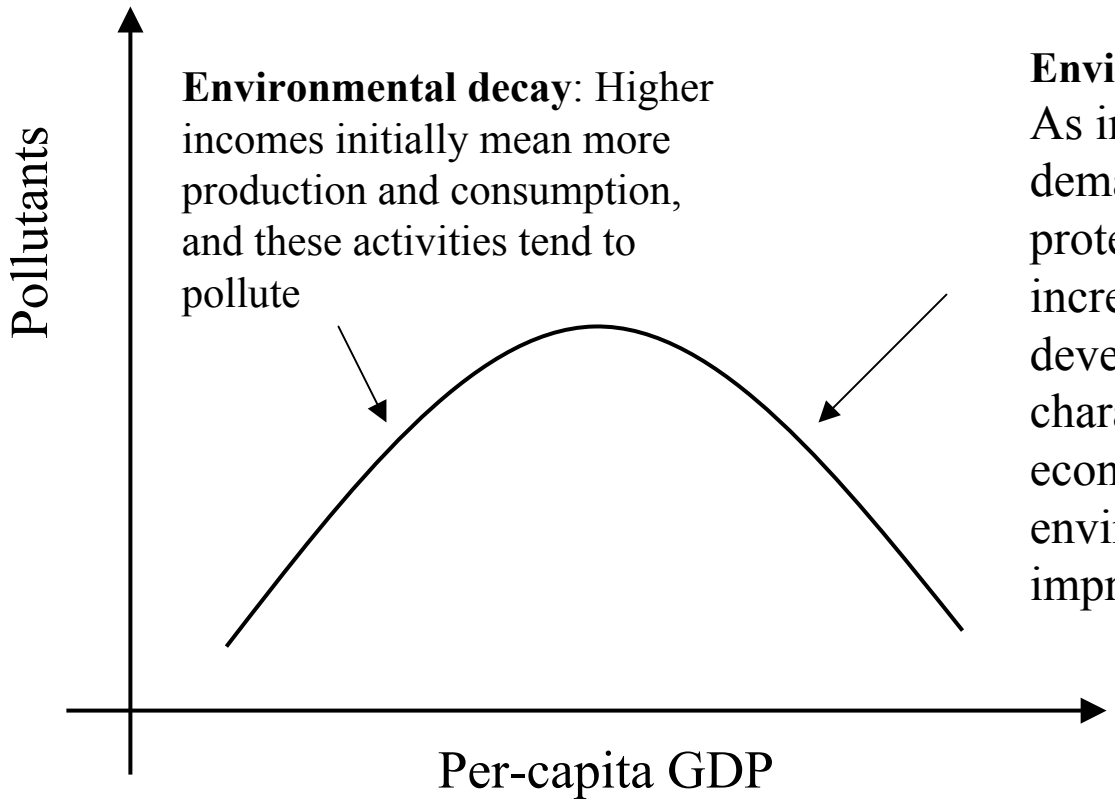
Does globalization harm or help the environment?

- Two competing arguments
  1. Harms: "Race-to-the-bottom" hypothesis: countries open to trade and investment adopt weaker environmental regulations, out of fear of a loss in competitiveness
  2. Helps: The indirect "Gains from trade" hypothesis (trade $\Rightarrow$ growth $\Rightarrow$ environment gains)
     a. Openness raises income (via, specialization, comparative adv)
     b. As people get wealthier they demand better environment
        - This is the inverted "U" shaped relationship between income per capita and pollution (aka the Environmental Kuznets Curve)
     c. With appropriate institutions in place, this demand will translate into effective regulation and the desired reduction in pollution
     - Given a, b, and c, free trade should *protect* the environment

Basic Environmental Kuznets Curve (EKC)

"Inverse-U" relationship between pollution and national income

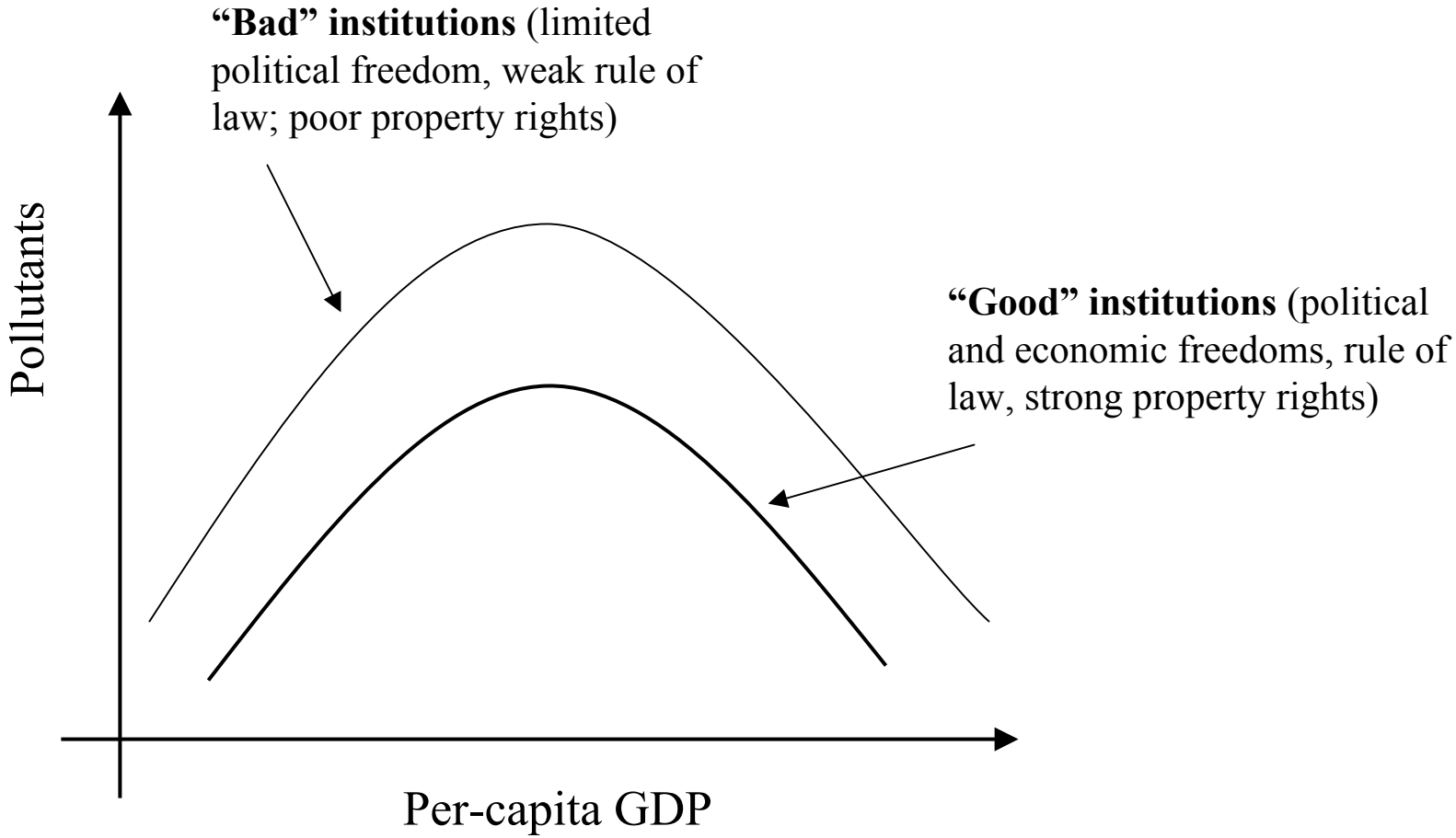


Environmental decay: Higher incomes initially mean more production and consumption, and these activities tend to pollute

Environmental improvement: As income grows the demand for environmental protection also tends to increase, leading to a development path characterized by both economic growth and environmental quality improvements

Note: This relationship is named after Nobel Laureate Simon Kuznets, who found a similar relationship between per-capita GDP and income inequality.

Environmental Kuznets Curve (EKC): The Role of Institutions



Institutions: When ordinary people have political power, civil and economic rights, economic growth is more environmentally friendly (a "flatter" EKC) and sustainable growth.

Recent estimates of EKC "turning points"

- Air pollutants reach apex of EKC at the following income levels:
  - Particulate Matter: $2,882 per capita GDP
  - Sulfur Dioxide: $5,770 per capita GDP
  - Nitrogen Dioxide: $7,765 per capita GDP
- Trade openness (a higher ratio of trade to income) and good institutions (democracy) flatten the EKC for pollutants
- This optimistic story does NOT hold for carbon dioxide, the source of global warming
  - No evidence that Kuznet's curve for CO_2 ever turns down on its own

Source: Jeffrey Frankel and Andrew Rose, "Is Trade Good or Bad for the Environment? Sorting out the Causality." NBER Working Paper No. 9021, September 2002

What's unique about $C0_2$ and global warming?

- Some environmental problems, like global warming, are truly international (solutions are thus *global* public goods).
- Very nature of the potential harm - impact on global climate - makes unilateral action fruitless. Trade, growth, and institutions won't do it.
- International cooperation (a treaty) is needed
- Clinton signed the Protocol in Nov 1998, but Senate did ratify. Why?
- Bush, March 2001: "Kyoto is dead."

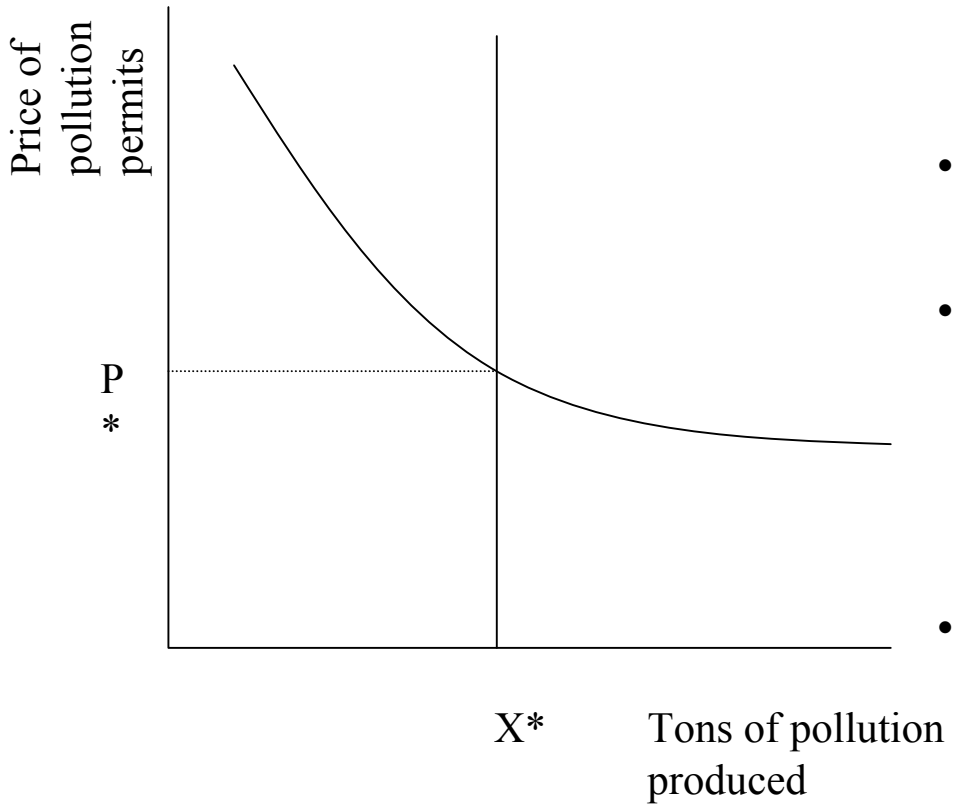
Key points of the Kyoto Protocol

- Obliges developed countries to cut emissions of CO_2 and other greenhouse gases by about 5% from 1990 levels by 2012 (U.S. emissions have skyrocketed since then).
- Countries can offset the requirements by properly managing forests and farmlands that absorb carbon dioxide ("carbon sinks"). Can also earn credits by helping developing countries avoid carbon emissions (developing nations aren't required to reduce emissions).
- Agreement allows buying and selling the right to pollute, a market-based solution know as "emissions trading."
- To take effect, the accord must be ratified by 55 countries responsible for 55% of greenhouse gas emissions. With the US rejection, Russian approval was needed.
- Russia begged out on 12/2/03

Government policy and the environment

- 3 ways of providing environmental public goods
  - –Regulatory limits (good)
  - –Corrective taxes (better)
  - –Create market for tradable pollution rights (best) Figure
- Example of a market in rights to pollute: Sulfur Dioxide Emissions Trading
  - –1990 Clean Air Act sought to reduce acid rain by reducing SO_2 emissions from electricity generating plants to half their 1980 levels by 2000.
  - –Very successful! In 1995, emissions fell to about 5.3 million tons from 10.3 million tons in 1980.
  - –Suggest we should support Kyoto, which is based on a market in tradable rights.

Market for Tradable Pollution Rights



- The supply of pollution rights, and hence the quantity of pollution produced, is fixed at quantity X*.
- Rights can be used, banked (held for later), or sold to others.
- Firms not prepared to pay the market price, P*, to purchase pollution rights have to cut back emissions or adopt technologies that produce less pollution.
- Efficient since allowance holders can trade permits with each other, so that those that can reduce emissions at lowest cost have an incentive to do so. They sell their allowances to those for whom the cost of reducing emissions would be greater.

Bush's Climate Change Policy?