Economics 172
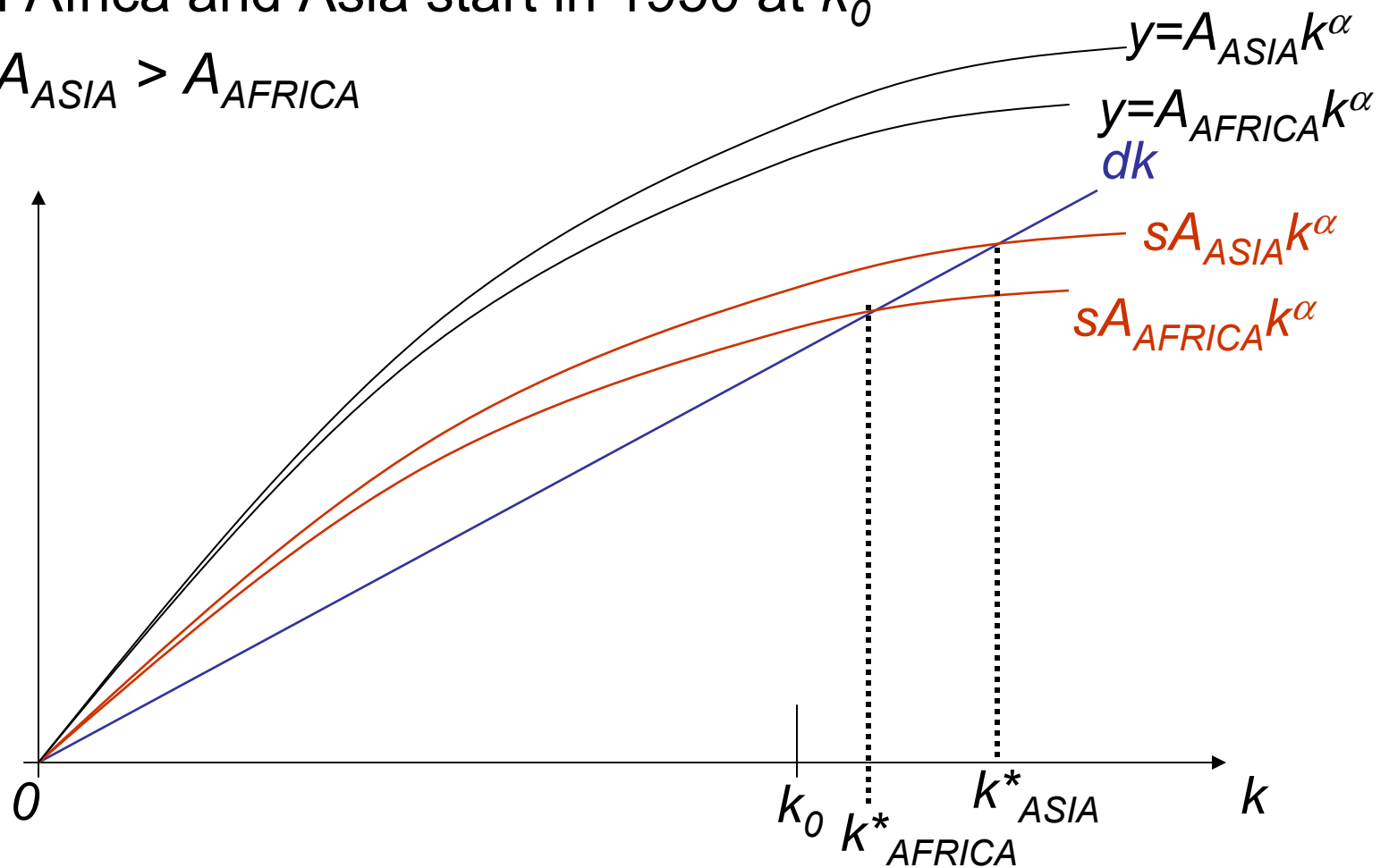## Issues in African Economic Development

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Economics 172
Issues in African Economic Development

Lecture 4 – January 25, 2007

An illustrative case: Africa versus Asia

- Both Africa and Asia start in 1950 at k_0
- But $A_{ASIA} > A_{AFRICA}$

$y = A_{ASIA}k^{\alpha}$

$y = A_{AFRICA}k^{\alpha}$

dk

$sA_{ASIA}k^{\alpha}$

$sA_{AFRICA}k^{\alpha}$

0 k_0 k^*_{AFRICA} k^*_{ASIA} k

Evidence on sources of growth

- If *A* were equal across regions / countries, and all differences were driven by baseline capital intensity, then we would see: systematically higher returns to investment in poor countries (like those in Sub-Saharan Africa), most capital flowing from rich to poor countries, and poor countries growing faster than rich countries.

- More evidence: African countries have shown massive increases in education (e.g., school enrollment, literacy) in the past 50 years but average growth has been zero

- Similarly, massive infusions of international capital – often in "foreign aid" – have not produced growth

Why are "*A*" and "*k*" lower in Africa?

- The next part of the course attempts to understand why *A* and *k* are relatively low in Africa

- The first potential explanation is the burden of Africa's tropical geography (Bloom and Sachs 1998)

The Curse of the Tropics?

- "At the root of Africa's poverty lies its extraordinarily disadvantageous geography, which has helped to shape its societies and its interactions with the rest of the world." Bloom and Sachs (1998), p. 211

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- 1995 per capita income (PPP)

  - Worldwide

  Tropical $3,326, Non-tropical $9,027

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- 1995 per capita income (PPP)

  - Worldwide

  Tropical $3,326, Non-tropical $9,027

  - Sub-Saharan Africa

  93% of its land area lies in the tropics

  Tropical $1,732, Non-tropical $5,438

1. Agricultural factors

- According to Bloom and Sachs(1998), a general pattern in the data is: for most crops, crop yields (per acre) are lower in Sub-Saharan Africa than other regions of the world. Why?
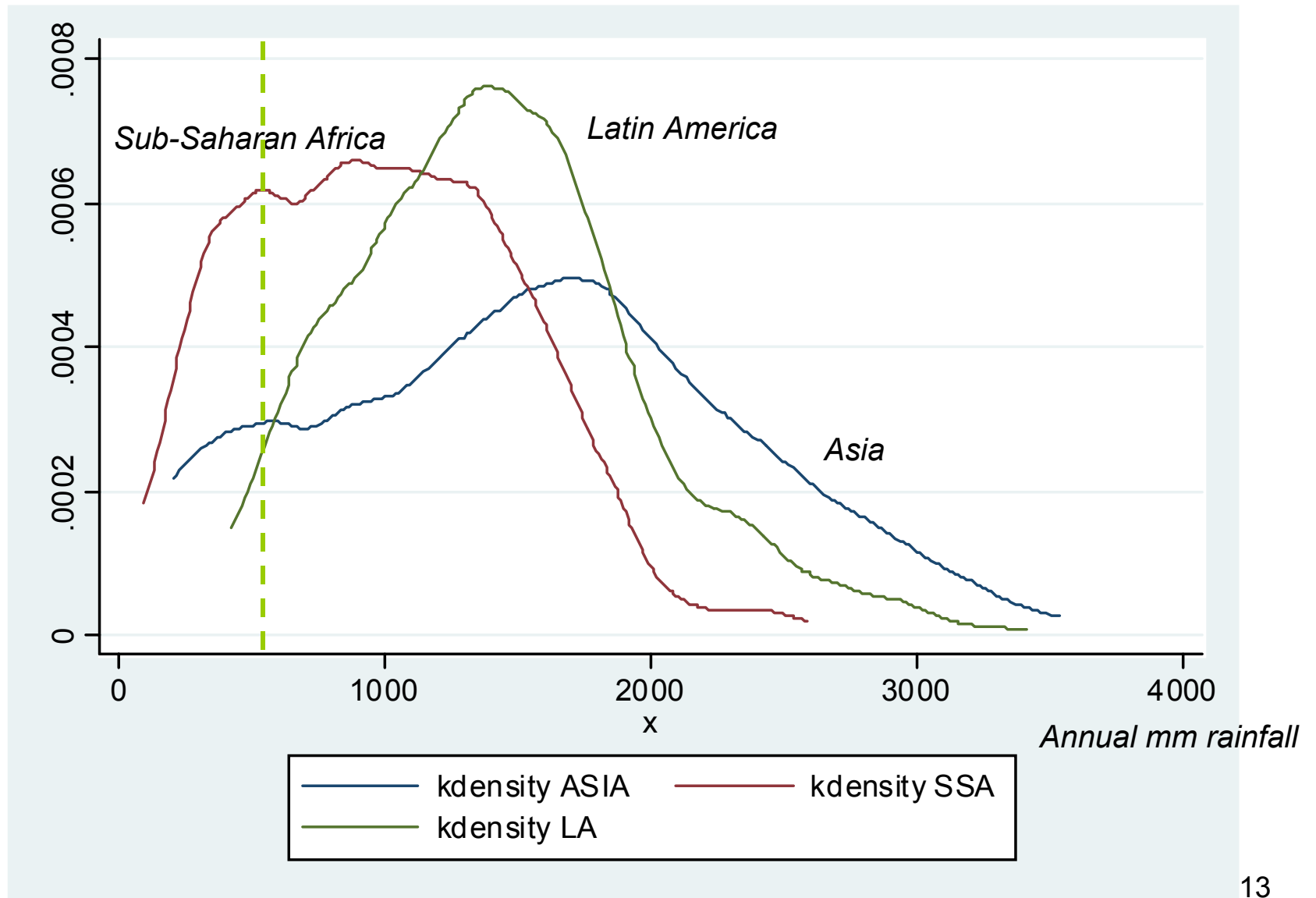
1. Agricultural factors

- Rainfall patterns
  - Less rainfall than other regions
  - More variable rainfall, drought more likely

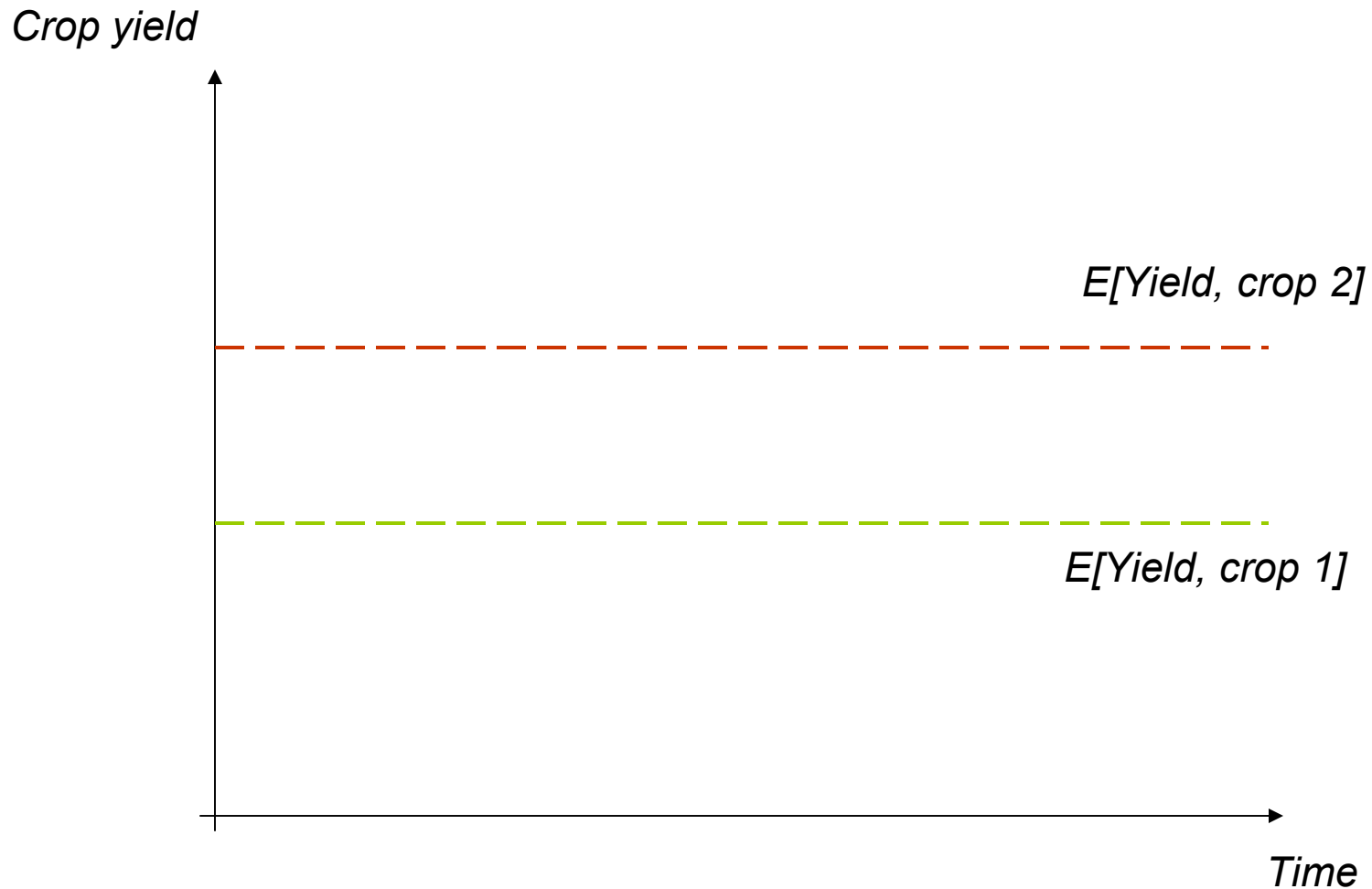# Rainfall distribution, 1978-2000
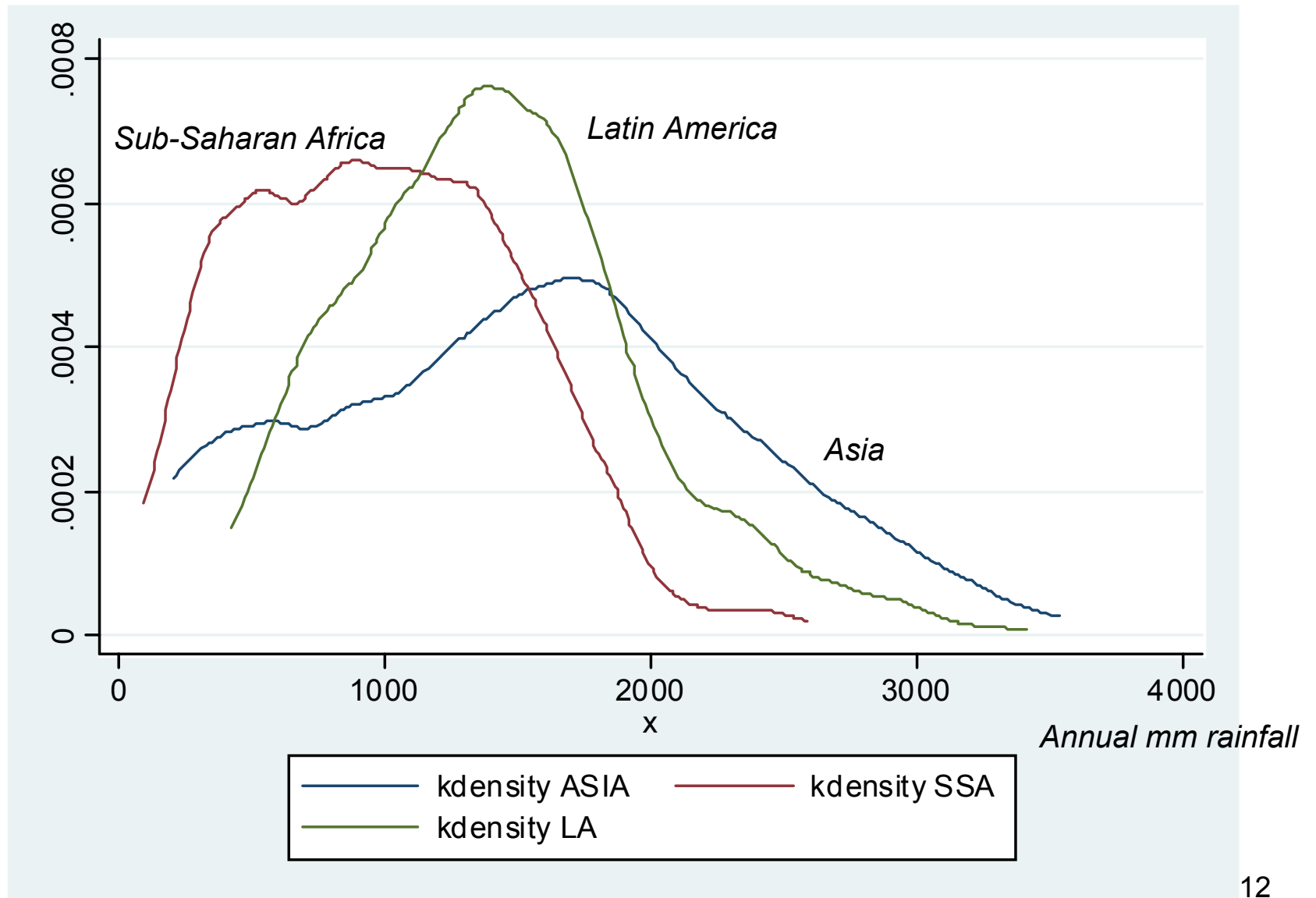
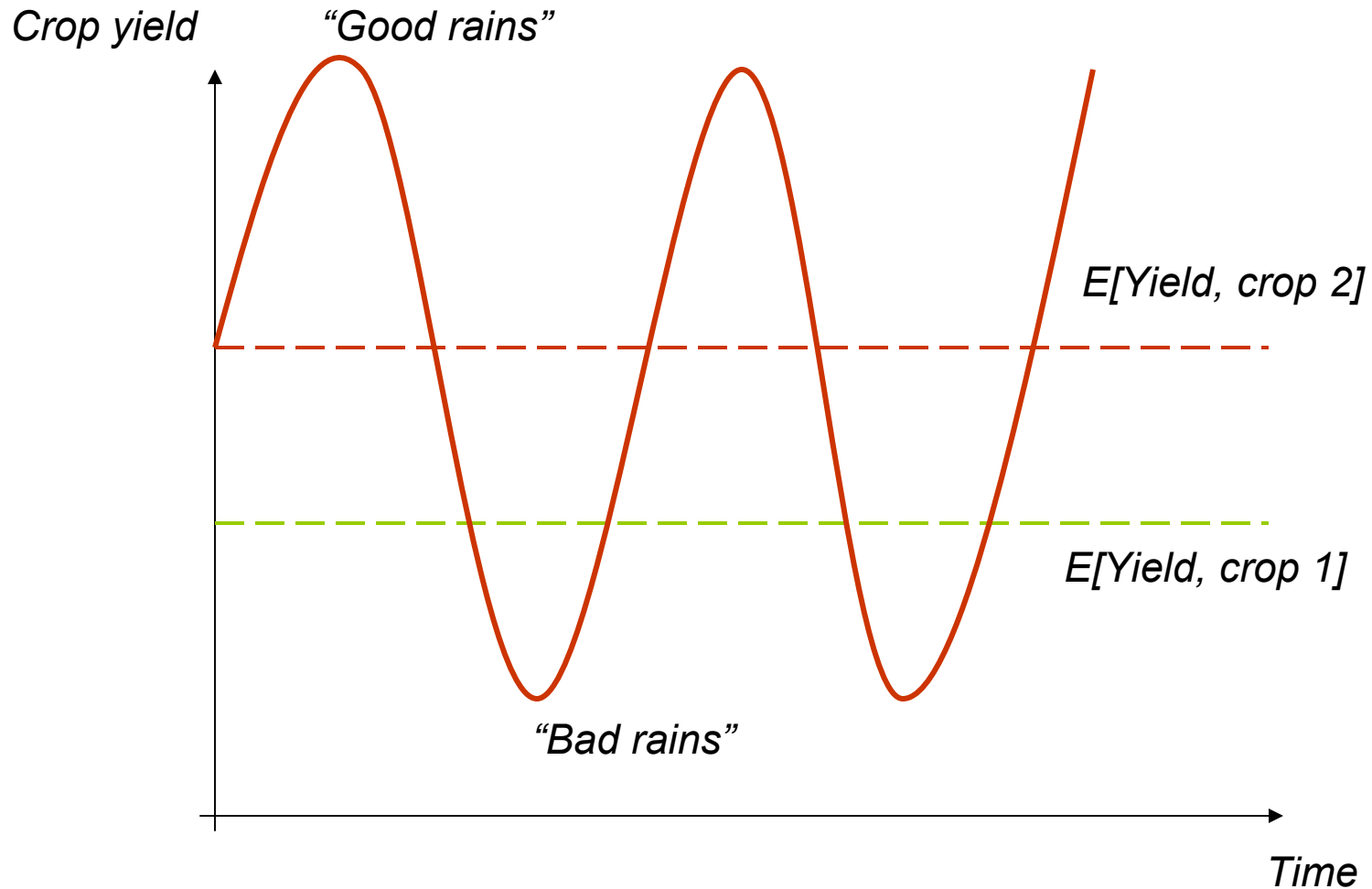# Rainfall distribution, 1978-2000

1. Agricultural factors

- Rainfall patterns
  - Less rainfall than other regions: arid soil
  - More variable rainfall, drought more likely
  - During 1983-1995: 24 of 42 Sub-Saharan African countries had at least two years of extreme drought

Trading off risk and return in agriculture

Crop yield

E[Yield, crop 2]

E[Yield, crop 1]

Time

Trading off risk and return in agriculture

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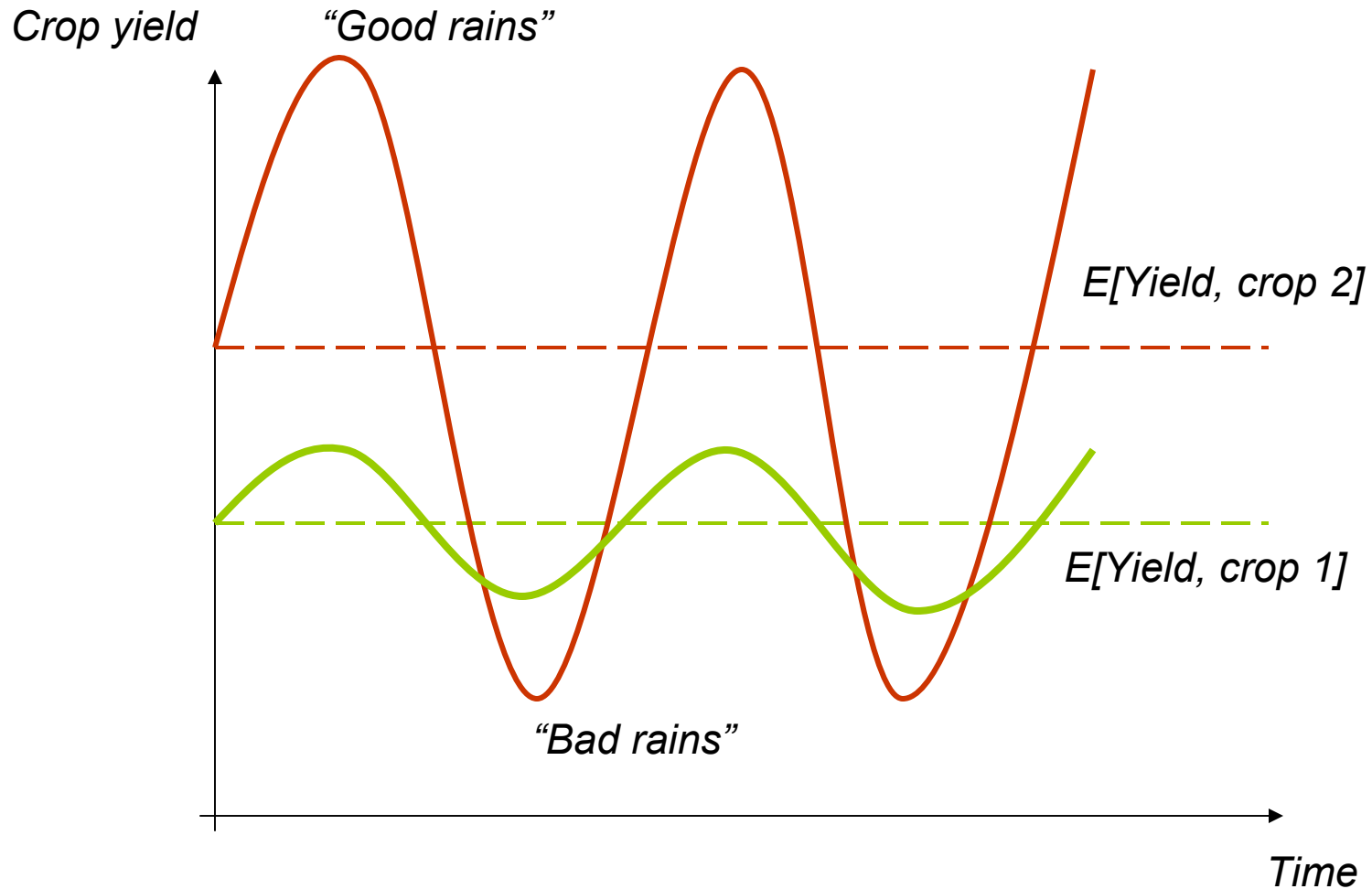
Crop yield

"Good rains"

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"Bad rains"

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- Soil quality is low (exception: highland regions)

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- Crop pests, livestock diseases

2. Health factors

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- Life expectancy and other health outcomes are worse in Sub-Saharan Africa than other regions. Why?

2. Health factors

- Widespread tropical disease
  - Yellow fever (vector: mosquito), sleeping sickness / trypanosomiasis (vector: tse-tse fly), schistosomiasis / bilharzia (vector: snail), intestinal helminths …

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- The most important disease: malaria (vector: mosquito)
  - Kills 1-2 millions Africans every year
  - The Global Fund: over US$4 billion committed to projects in 128 countries. One quarter to fight malaria (over 60% of total targeted to African countries)

Health and wealth: cause or effect?

- How can we determine whether poor health is the cause of poverty (as Bloom and Sachs assert) or vice versa?

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  5. The association is purely coincidental (regression confidence intervals help address this)

3. Transport factors

- Transport costs are critical determinants of trade and technology transfer, especially historically

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- Ratio of coastline to land area is very low in Africa:
    - 1.15 in SSA, 2.54 in South Asia, 15.7 Western Europe

- Major rivers to the interior (e.g., the Nile, Niger, Congo, and Zambezi rivers) have large cataracts and are only navigable locally

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- 28% of SSA population lives in land-locked countries

- Large distance from the major industrialized economies in Europe, Asia, North America (contrast: Mexico)

- For next time: Read Bloom and Sachs (1998), and Miguel (2005)

Whiteboard #1

Whiteboard #2

Whiteboard #3

Whiteboard #4

Whiteboard #5

Map of Africa

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Map of Africa