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Spring 2017 Professor David Romer

LECTURE 11

COMPARATIVE ADVANTAGE AND THE GAINS FROM INTERNATIONAL TRADE

February 23, 2017

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Announcement

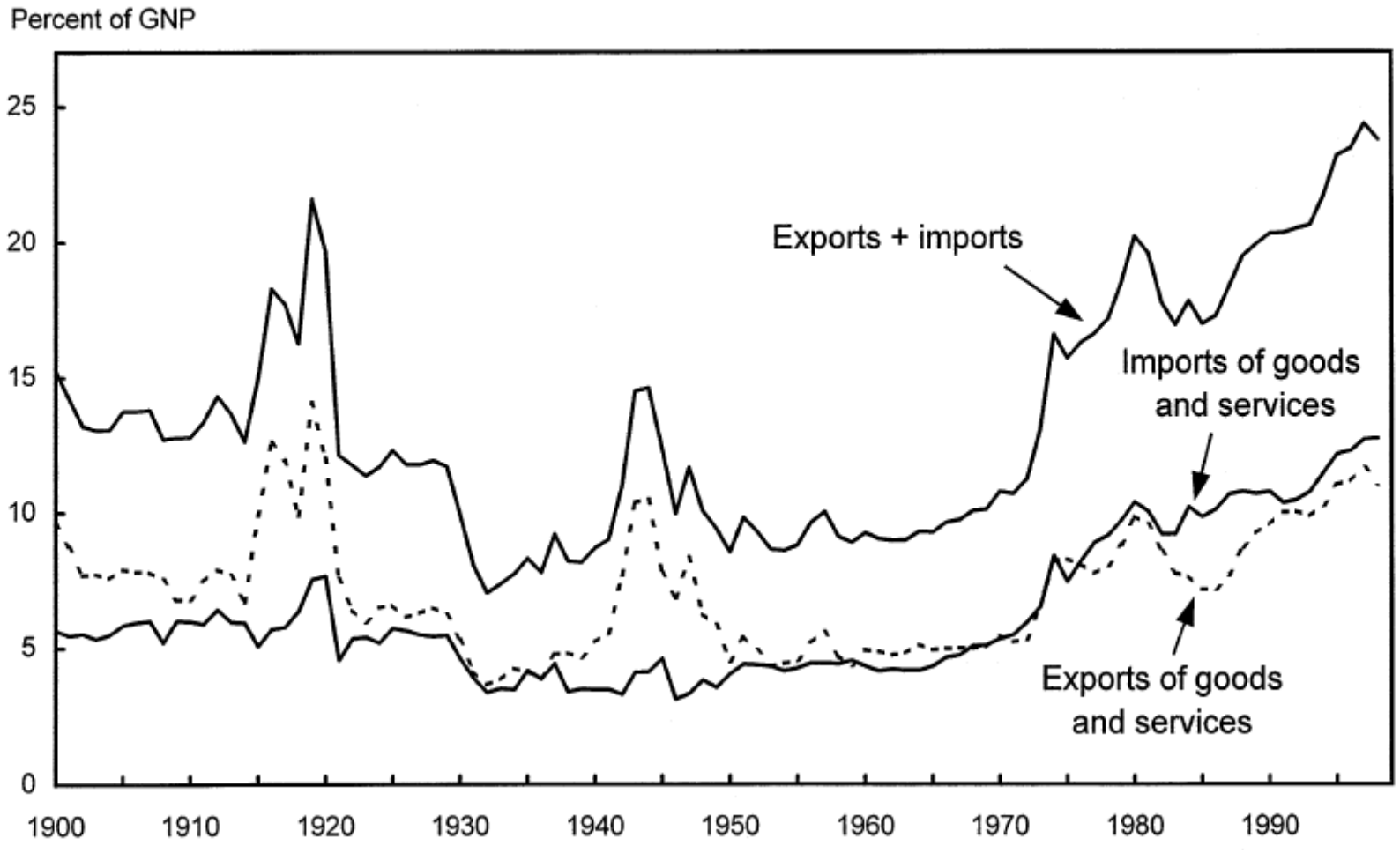
- Reading for today and next time:
    - Chapter 9 from an earlier edition of the textbook.
    - It is available at:

https://drive.google.com/a/berkeley.edu/file/d/0BxkqD_vpnXj2Yi1vNWVQZms5TVE/view?usp=sharing

    - Reading for today: pp. 245–254.
    - Reading for next time: pp. 254–268.

I. Overview of International Trade

U.S. Trade Relative to GNP since 1900



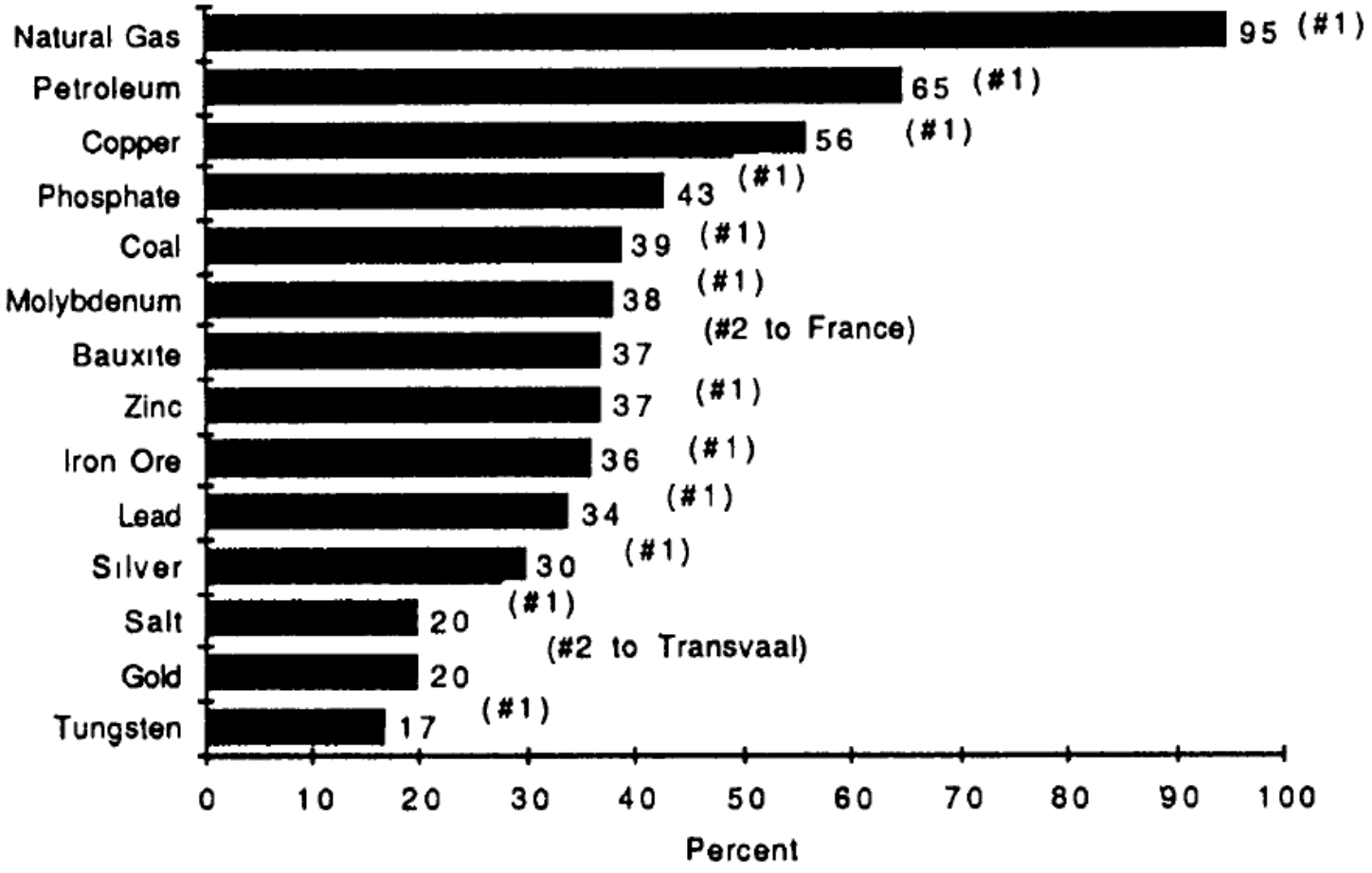
Source: *Economic Report of the President, 2000.*

II. Sources of Comparative Advantage

Factor Abundance

- “Factor” is just another term for inputs to the production process.
- A country will tend to have a comparative advantage in the production of goods that use inputs it has in abundance.

U.S. Mineral Output, 1913: Percentage of World Total



Source: Gavin Wright, "The Origins of American Industrial Success, 1879–1940."

Shares of Manufacturing Exports, 1879-1929 (Percent)

	Iron and Steel Products (except Machinery and Vehicles)	Machinery	Automobiles and Parts	SUM (1,2,3)	Petroleum Products	SUM (1,2,3,5)
1879	2.1	3.4	–	5.5	12.1	17.6
1889	2.4	6.1	–	8.5	13.3	21.8
1899	7.6	10.7	–	18.3	9.2	27.5
1913	10.9	14.5	2.3	27.7	10.1	37.8
1923	8.8	12.4	6.4	27.6	13.1	40.7
1926	5.6	12.9	11.5	30.0	16.8	46.8
1927	5.1	13.9	13.3	32.3	14.7	47.0
1928	5.3	16.4	15.7	37.5	13.9	51.4
1929	5.4	16.4	15.7	37.5	13.9	51.4

Source: Gavin Wright, ""The Origins of American Industrial Success, 1879–1940."

Examples of the Role of Factor Abundance

- Minerals and early U.S. industrialization.
- Climate and soil in determining where coffee is produced.
- Capital and skilled labor in determining what the U.S. has a comparative advantage in today.
- Many developing countries have an abundance of less-skilled labor and have a comparative advantage in low-tech manufactured goods.

Top U.S. Exports of Goods, December 2016

	Millions of $
Civilian aircraft	5147
Other parts and accessories of vehicles	5073
Industrial machines, other	4560
Pharmaceutical preparations	4249
Passenger cars	4039
Engines—civilian aircraft	4024
Semiconductors	3865
Electrical apparatus	3710
Other petroleum products	3637
Telecommunications equipment	3296
Medicinal equipment	2848

Source: U.S. Census Bureau and Bureau of Economic Analysis.

Dynamic Comparative Advantage

- Some comparative advantage isn't inherent, but acquired.
- By doing something or getting an early start, a country may become the low-opportunity-cost producer of a good.
- We sometimes refer to this as "dynamic comparative advantage."
- Examples?

III. The Gains from International Trade: The Special Case of Linear PPCs

Example of the U.S. and China

Output per Day of a Typical Worker:

	Tons of Wheat	Washing Machines
U.S.	2	2
China	1	2

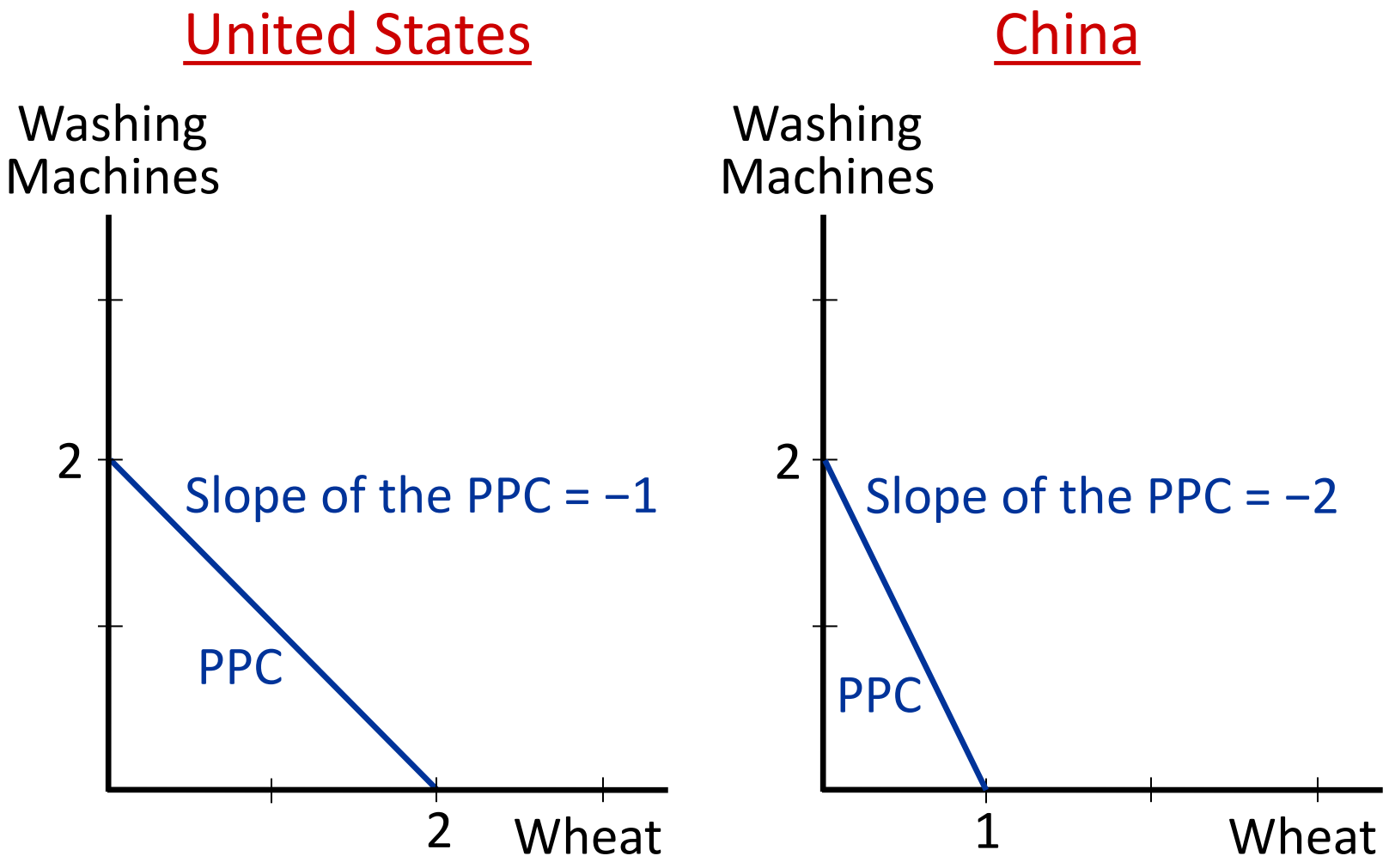
Opportunity Cost of a Ton of Wheat:

U.S.	1 washing machine
China	2 washing machines

Opportunity Cost of a Washing Machine:

U.S.	1 ton of wheat
China	½ ton of wheat

Production Possibilities Curve for Each Country (Per Worker, Per Day)



Terms of Trade

- The terms at which the goods trade in world markets.
- For example, if the world price of a ton of wheat is $400 and the world price of a washing machine is $300 (in the same currency), then the terms of trade are 1⅓ washing machines per ton of wheat.
- Or, equivalently, ¾ of a ton of wheat per 1 washing machine.

Terms of Trade and the World Relative Price

- Because the terms of trade depend on world prices, we also call it the world relative price.
- For example, the world relative price of wheat is:

$$\frac{P_{Wheat}}{P_{Washing\ Machines}}$$

When Will Both Countries Want to Trade?

- The terms of trade must be between the opportunity cost of producing the good in the two countries.
- In our example, for both countries to want to trade, the terms of trade must be between 1 and 2 washing machines per ton of wheat.
- Or, equivalently, the terms of trade must be between ½ and 1 ton of wheat per washing machine.

Market Forces Will Tend to Move World Prices So That Both Countries Will Want to Trade

- Suppose P_{Wheat} is \$200 and $P_{Washing\ Machine}$ is \$300.
- Then 1 ton of wheat trades for ⅔ washing machine in world markets.
- China would love to buy wheat from the US at this relative price, but the US would not like to supply it.
- Excess demand for wheat in the world market will push up the relative price of wheat.

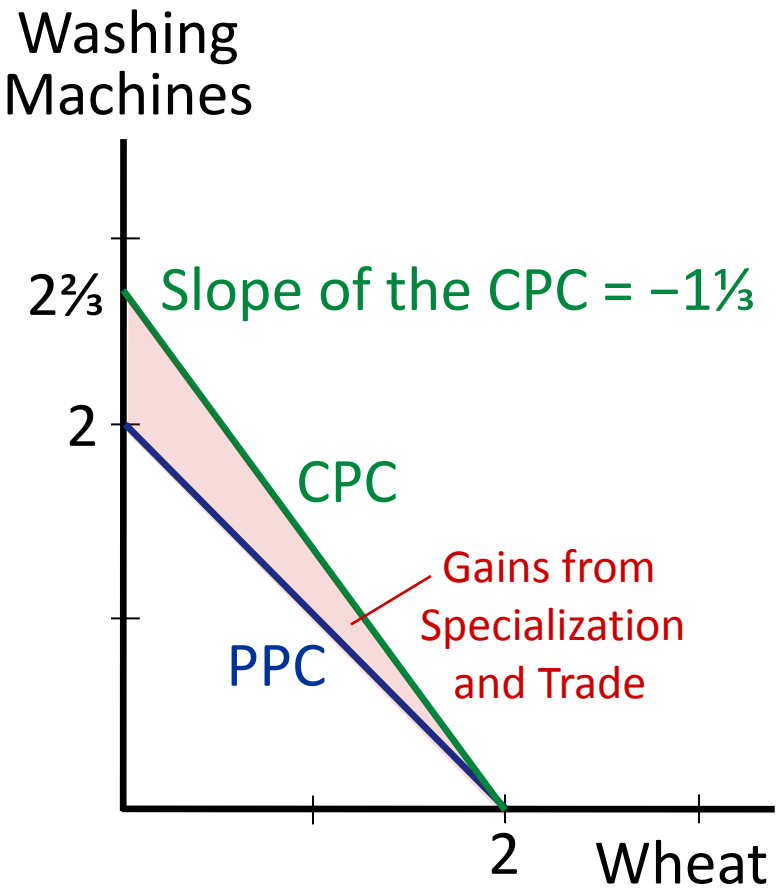
Consumption Possibilities Curve

- The CPC shows the combinations of the two goods that a country can have with trade.

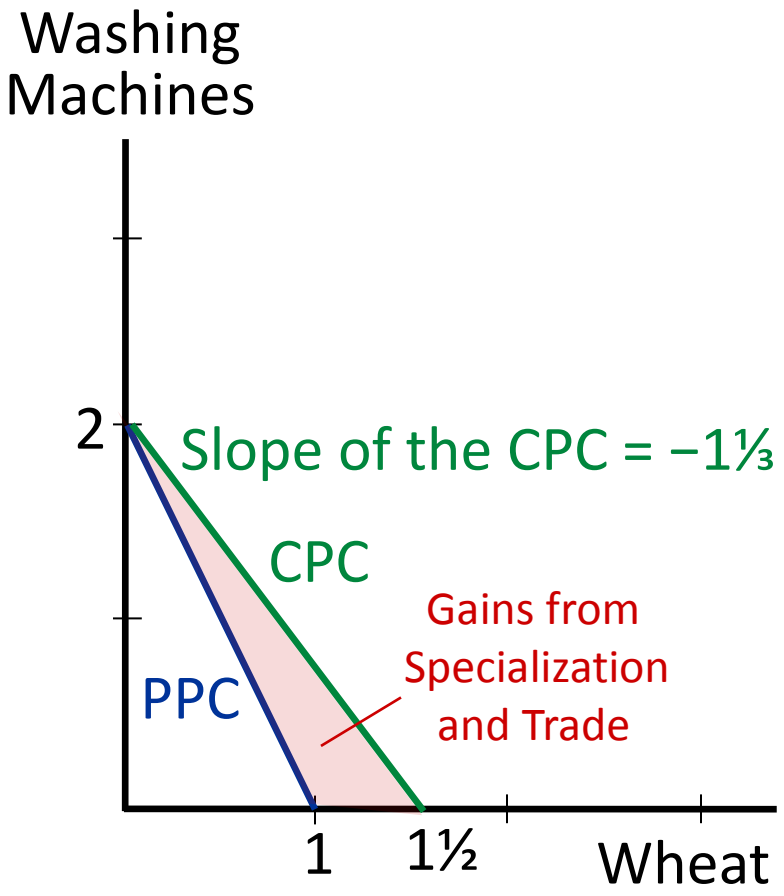
Consumption Possibility Curves with Trade

(Assuming 1 ton of wheat trades for 1⅓ washing machines)

United States



China



IV. The Gains from International Trade: The More General Case

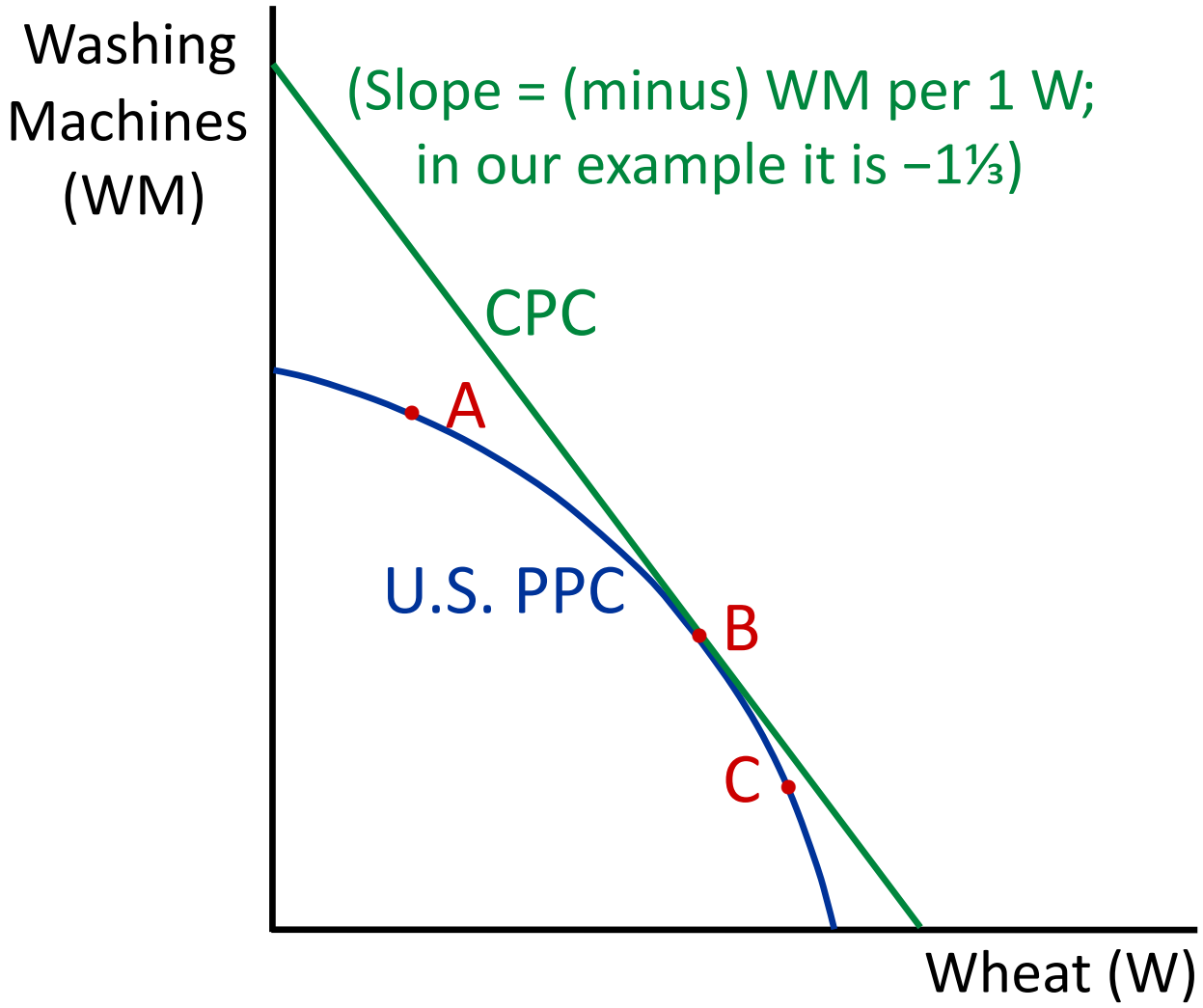
Limitations of the Previous Analysis

- The PPC for a country is almost surely curved; that is, the opportunity cost of producing more of either good rises as more is produced.
- Countries rarely specialize completely.

Terms of Trade

- Assume (as before) that the world price of wheat is $400 and the world price of washing machines is $300 (in the same currency).
- The terms of trade (also called the world relative price) is therefore 1⅓ washing machines per ton of wheat.

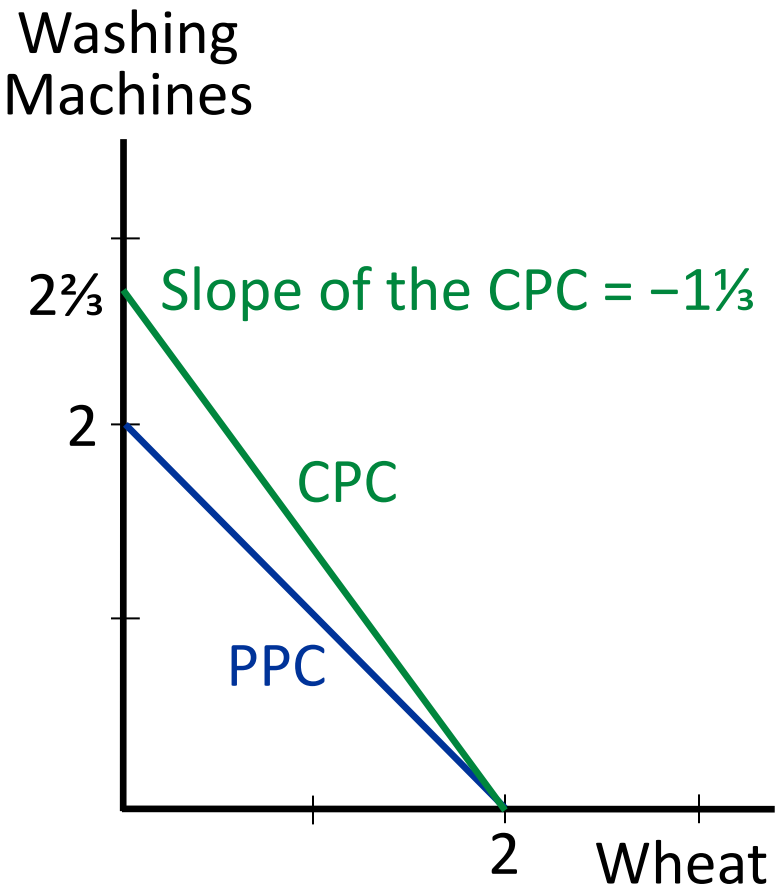
Optimal Specialization when the PPC is Curved



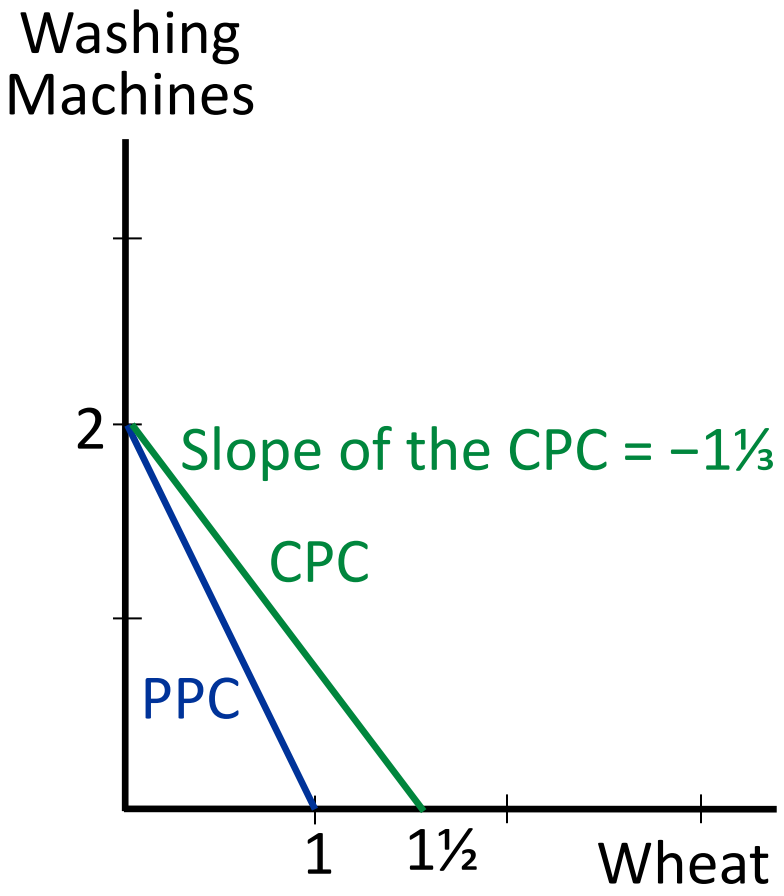
Consumption Possibility Curves with Trade

(Assuming 1 ton of wheat trades for 1⅓ washing machines)

United States



China

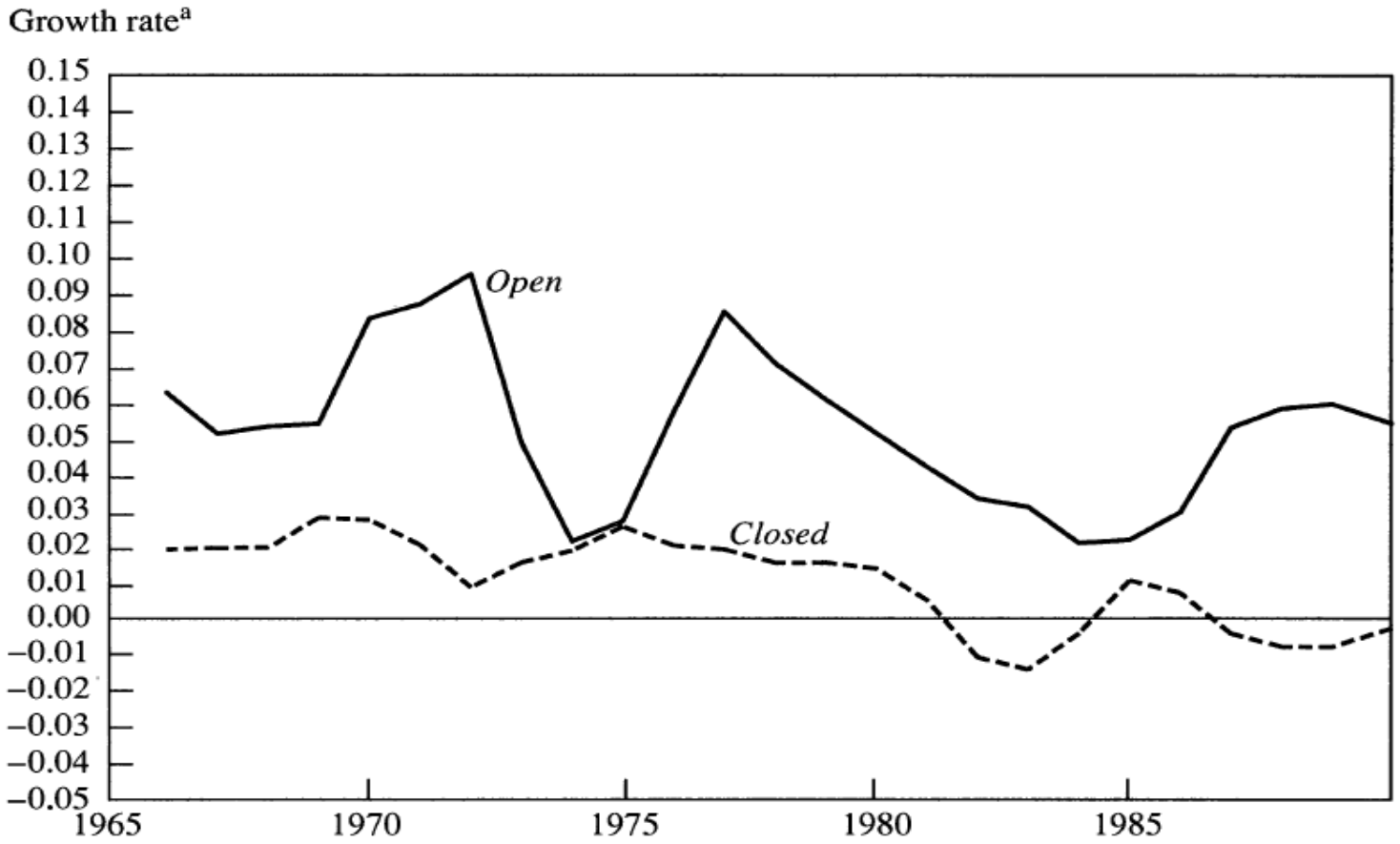


Consumption Possibilities Curve

- The CPC shows the combinations of the two goods that a country can have with trade.
- It is the line with a slope equal to (minus) the terms of trade (expressed as per 1 of the good on the horizontal axis) that is just tangent to the PPC.
- The point of tangency shows the combination of the two goods that the country can produce that has the largest value in world markets.
- The country can trade the combination of goods at the point of tangency for any other combination along the CPC.

V. Empirical Evidence on the Gains from International Trade

Average Growth of Eight Always Open and Forty Always Closed Economies, 1966-90

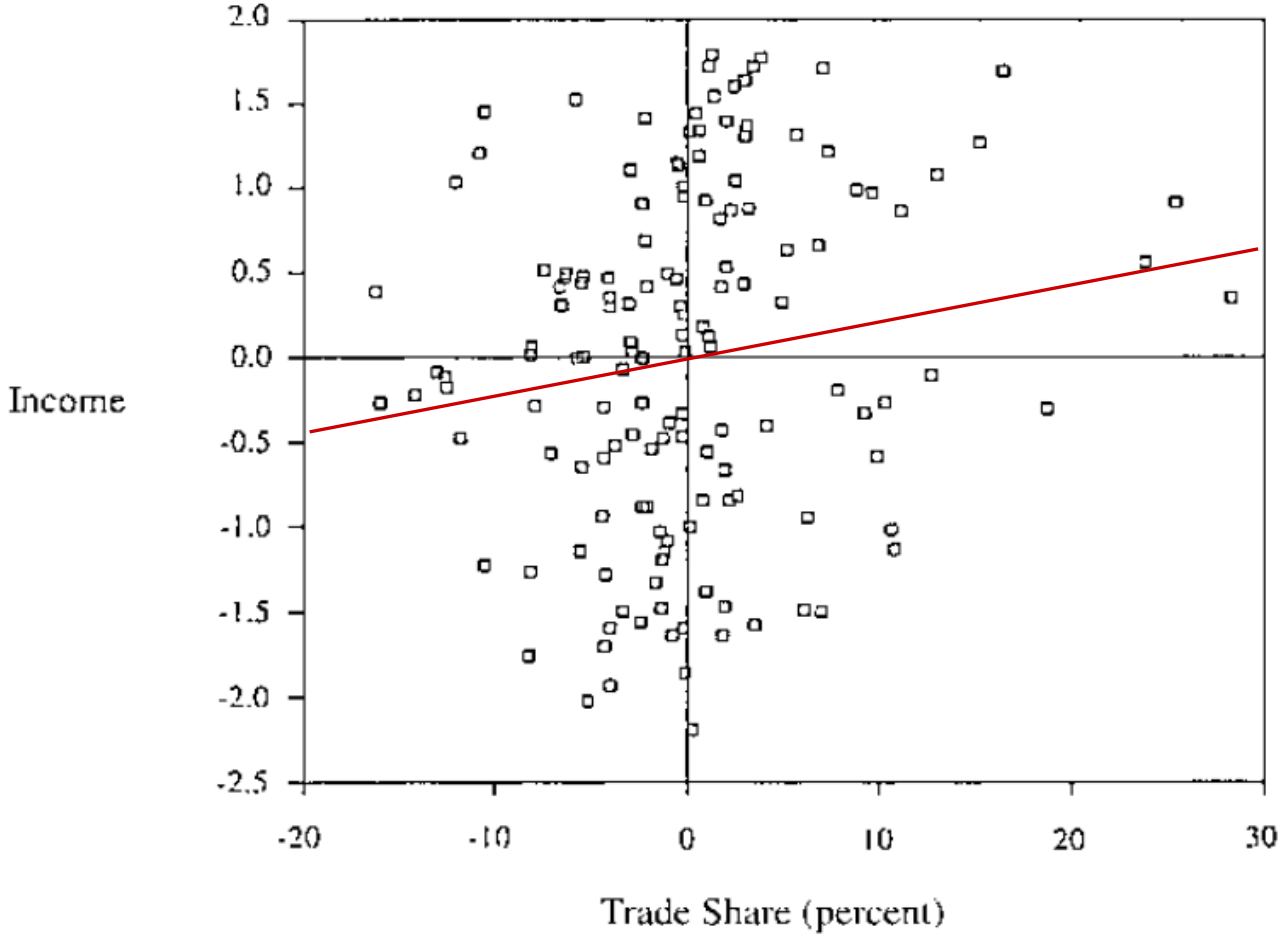


Source: Jeffrey Sachs and Andrew Warner, "Economic Reform and the Process of Global Integration."

Possible Problems in Looking at the Correlation between Trade and Growth?

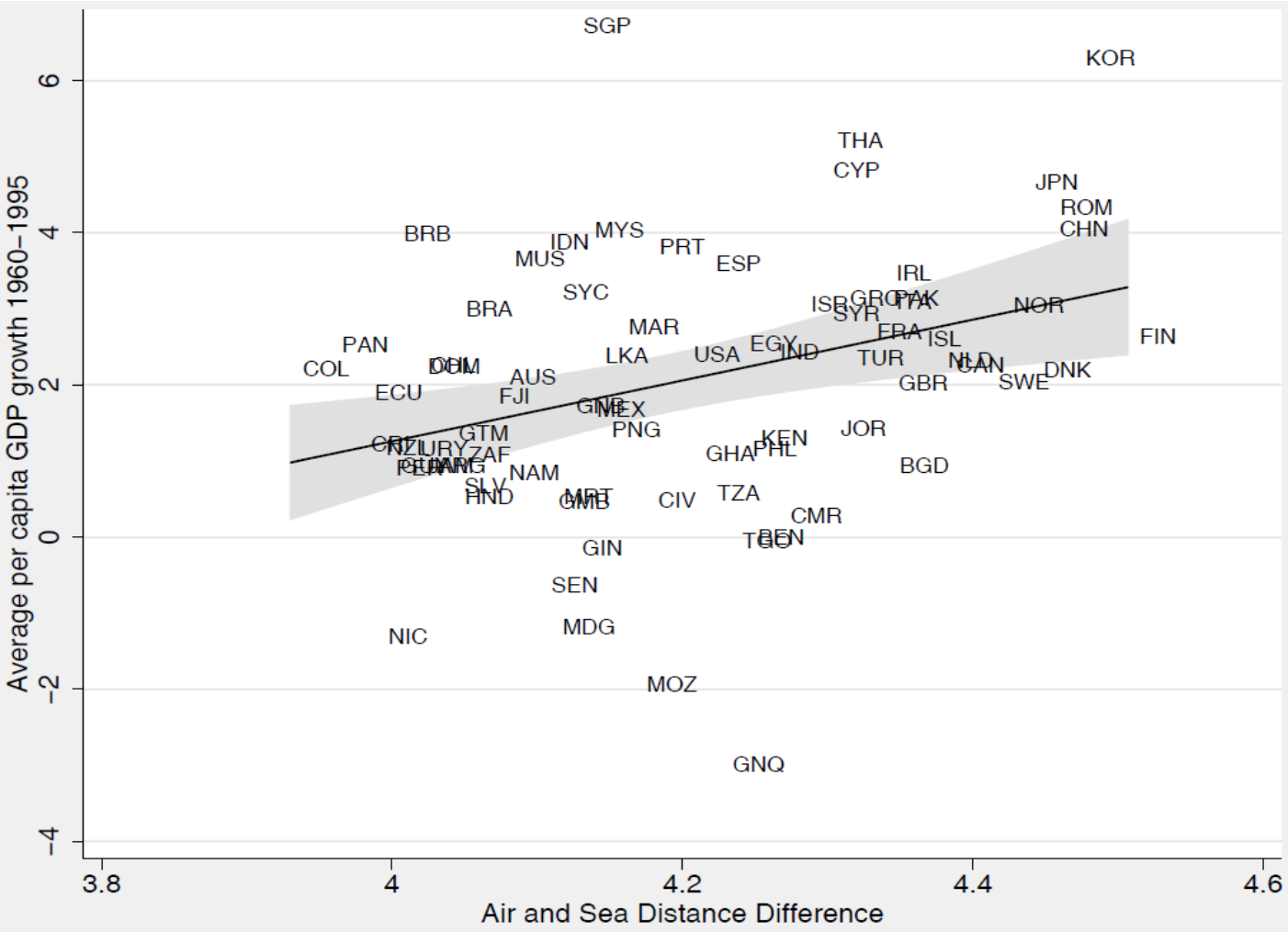
- Ignores reverse causation: Perhaps being rich makes you want to engage in a lot of trade.
- There might be a systematic relationship between trade and omitted influences on growth. For example, perhaps countries that adopt free trade policies adopt other policies that are good for growth.

Partial Association between Income and the Geographic Component of Trade



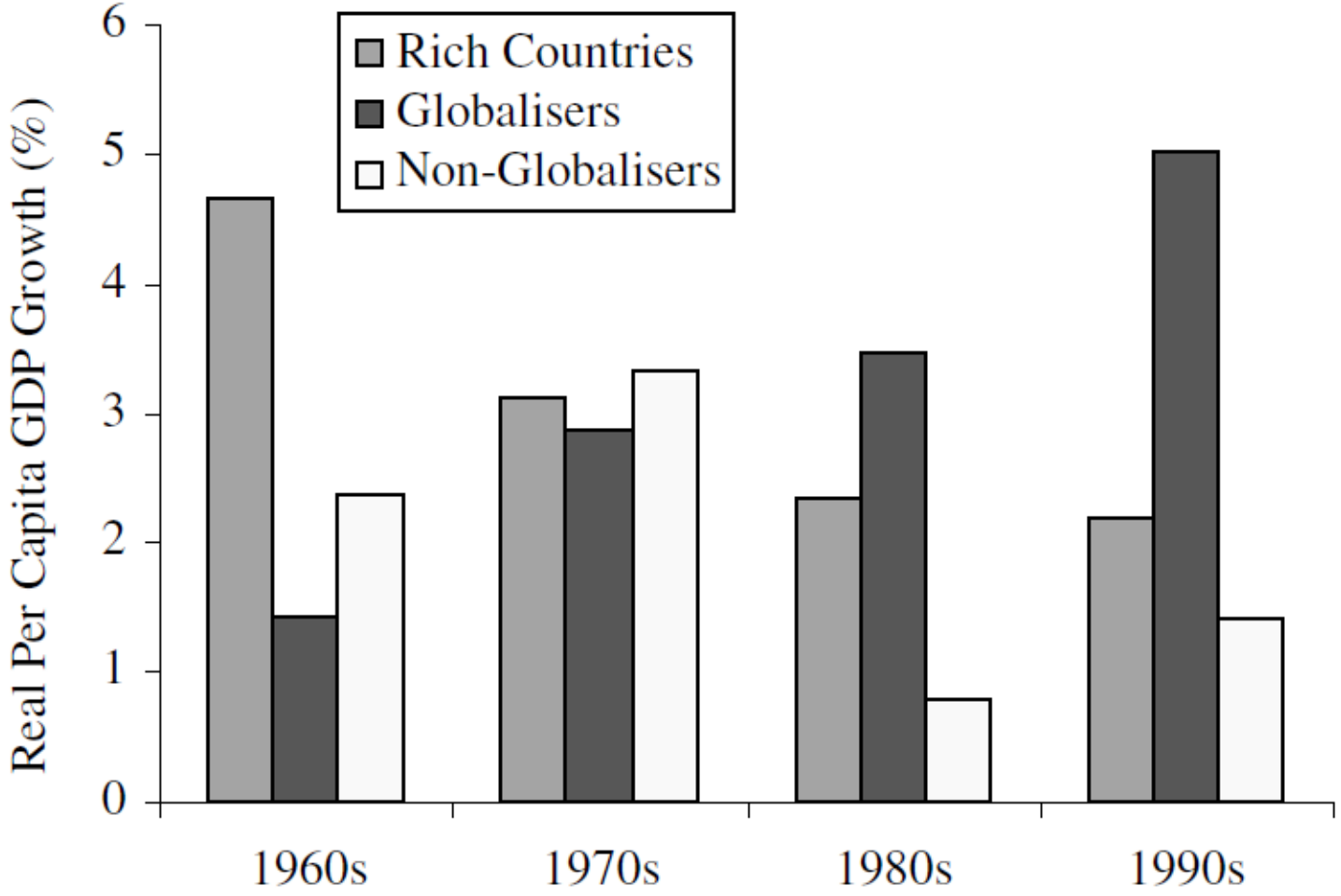
Source: Jeffrey Frankel and David Romer, "Does Trade Cause Growth?"

Openness and Growth in Developing Countries

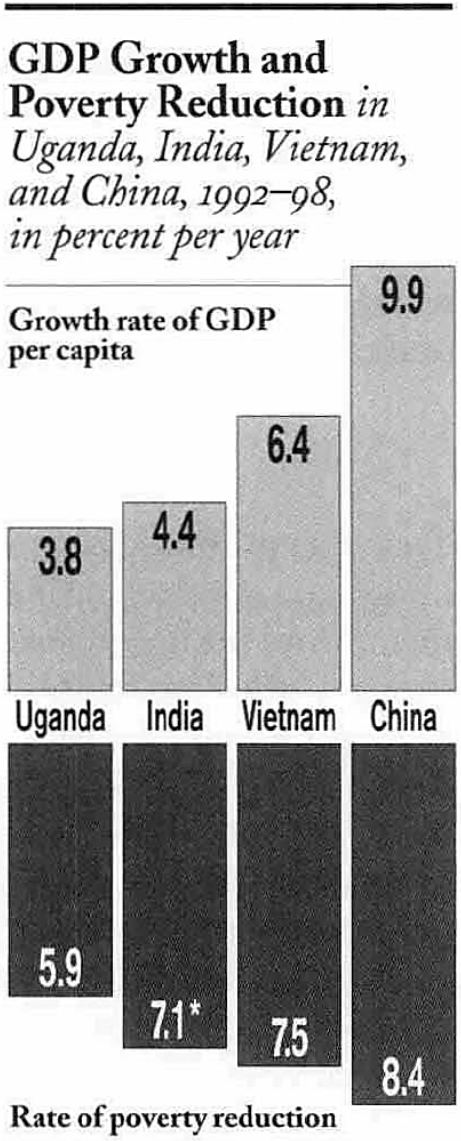


Source: James Feyrer, “Trade and Income—Exploiting Time Series in Geography.”

Openness and Growth in Developing Countries



Source: David Dollar and Aart Kraay, "Trade, Growth, and Poverty."



Source: David Dollar and Aart Kraay, "Spreading the Wealth."