Part IX: Macroeconomics in a Global Economy

28. Macroeconomics and International Trade
29. Open Economy Macroeconomics

Chapter 28
Macroeconomics and International Trade

2021.8.24.

EVIDENCE-BASED ECONOMICS

Q: Are companies like Nike harming workers in Vietnam?

- International trade enables countries to focus on activities in which they have a comparative advantage.
- The current account (經常帳) includes international flows from exports, imports, factor payments, and transfers.

- If a country runs a current account deficit, it pays for this by giving its trading partners financial IOUs ("I owe you"). If a country runs a current account surplus, it receives financial IOUs from its trading partners.
- The world has become more globalized over the past several decades.

28.1 Why and How We Trade

- Trade, both within and between countries, enhances our quality of life by increasing the efficiency of production.
- Trade increases the efficiency of production through gains from specialization.
- By specializing in a single job or activity, each member of an economy can produce more than if all members produced every good or service by themselves.

Absolute Advantage and Comparative Advantage

- A producer has an **absolute advantage** in producing a good (or service) if the producer can produce more units per hour compared to other producers.
- A producer has a **comparative advantage** in producing a good (or service) if the producer has a lower opportunity cost compared to that of other producers.

	Steve Jobs	Chuck Chores
Sales	2,000 sales/year	1,000 sales/year
Design	1,000 design ideas/year	1 design idea/year

Exhibit 28.1 Productivity in Sales and Design

- Who has an *absolute advantage* in sales, and who has one in design?
- Who has a *comparative advantage* in sales, and who has one in design?

(a) With Value Added of $50 from Sales and $50 from Design

	Steve Jobs	Chuck Chores
Sales	$100,000/year	$50,000/year
Design	$50,000/year	$50/year

(b) With Value Added of $50 from Sales and $100,000 from Design

	Steve Jobs	Chuck Chores
Sales	$100,000/year	$50,000/year
Design	$100,000,000/year	$100,000/year

(c) With Value Added of $50 from Sales and $5,000 from Design

	Steve Jobs	Chuck Chores
Sales	$100,000/year	$50,000/year
Design	$5,000,000/year	$5,000/year

Exhibit 28.2 Wages in Sales and Design

- Market prices (wages) will induce individuals to choose occupations and activities that line up with their comparative advantage.

Comparative Advantage and International Trade

- By exploiting comparative advantage, international trade increases overall economic efficiency.
- As a result, goods and services are sold at lower prices, which benefits consumers.
- In addition, domestic citizens and firms will receive payments from patents, distribution, retail, and production of component parts.
- Comparative advantage in international trade explains why Chinese workers assemble iPods, even though U.S. workers have an absolute advantage in assembly.

	U.S. Worker	Chinese Worker
Assembly	20,000 iPods/year	5,000 iPods/year
R&D	10 innovations/year	1 innovation/year

Exhibit 28.3 Productivity in Assembly and R&D (Research and Development)

	U.S. Worker	Chinese Worker
Assembly	$30,000/year	$7,500/year
R&D	$50,000/year	$5,000/year

Exhibit 28.4 Wages in Assembly and R&D (Research and Development)

- Value added from iPod assembly is $1.50 and the value added from each R&D is $5,000.
- The U.S. worker will choose to specialize in R&D and the Chinese worker will specialize in assembly.

Efficiency and Winners and Losers from Trade

- International trade increases overall economic efficiency.
- Although trade creates gains for society as a whole, trade will produce some losers.
- In the United States, low-skilled workers suffer as many of their jobs are lost through trade and outsourcing.

How We Trade

- A country that does not trade is said to be a **closed economy**. Today, not a single country has an entirely closed economy, but North Korea comes the closest.
- An **open economy** allows international trade, and in most countries such trade accounts to significant share of GDP.
- We can measure the openness of an economy to trade by
  1. Exports / GDP
  2. Imports / GDP

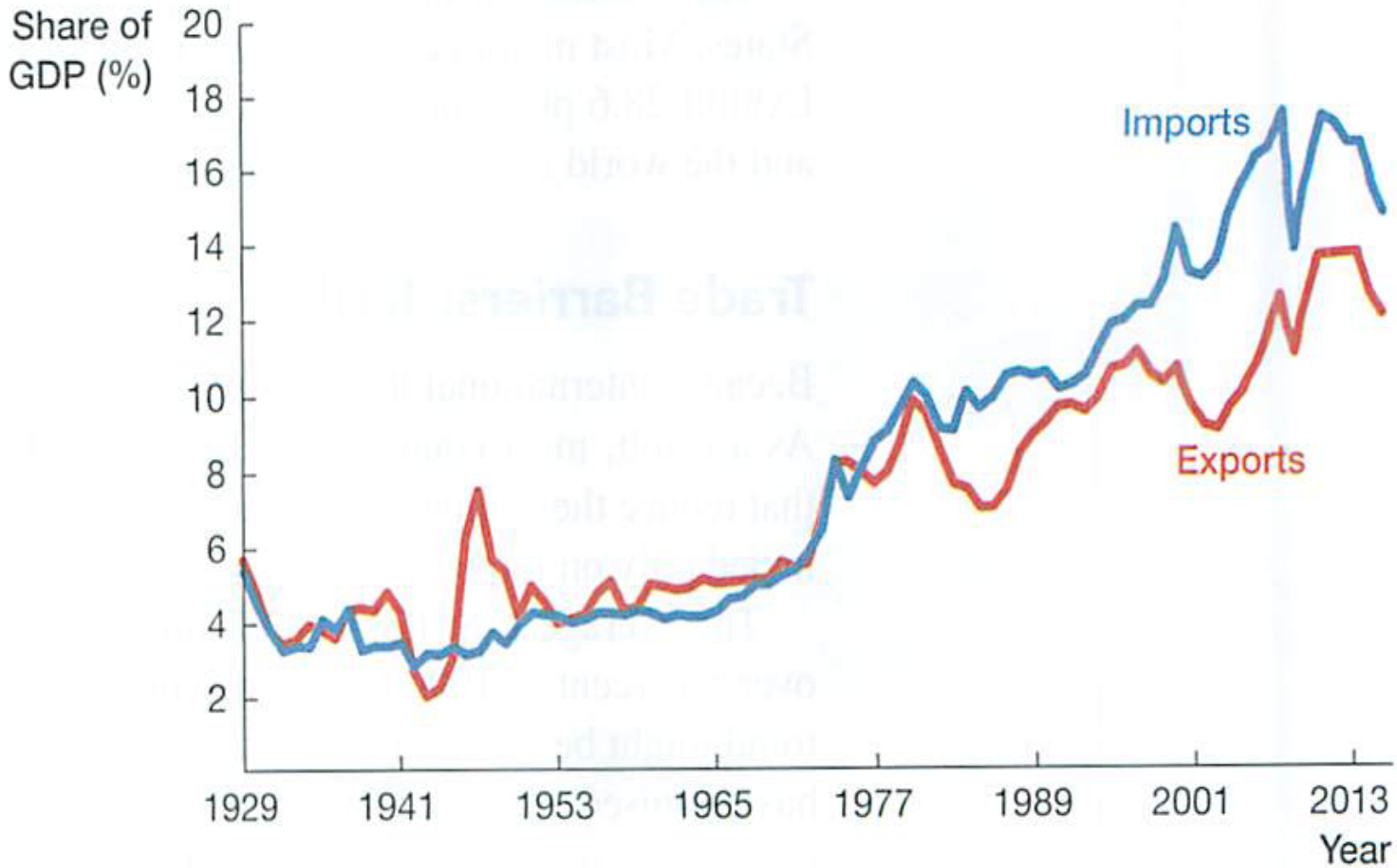


Exhibit 28.5 U.S. Imports and Exports as a Share of GDP (1929-2016)

- In 1950, imports amount to 4% of GDP. In 2016, the import share was 15%.

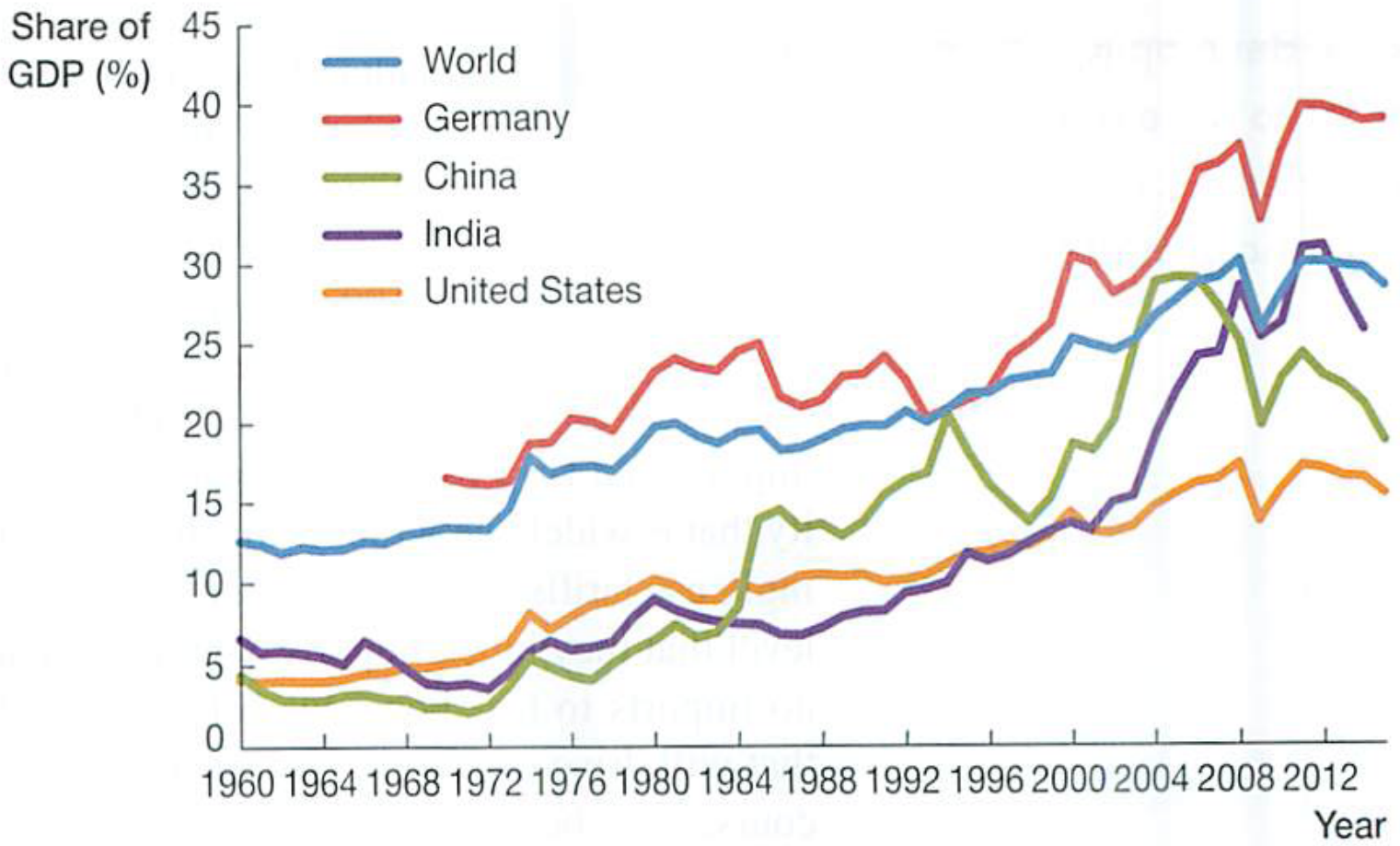


Exhibit 28.6 The Ratio of Imports to GDP in Four Large Economies and in the Total World Economy (1960-2015)

Trade Barriers: Tariffs

- Because international trade creates winners and losers, most countries, including the United States, impose trade barriers like tariffs.
- In industrialized countries, tariffs are generally low but can be quite high for agricultural goods.
  - The average U.S. tariff was 2.7% in 2014, down from over 5% in 1990.
  - In recent years, the average U.S. tariff on agricultural products has been 62%. Tariffs on tobacco have run to 90%, while tariffs on sugar have been even higher, sometimes exceeding 100%.
- In some developing countries, tariffs are used to raise revenue and to protect domestic producers.

- Powerful domestic producers lobby government to impose tariffs that will drive out foreign competition and increase the domestic industry's profits. The consumers end up paying higher prices.
- Today, Mercedes-Benz assembles light trucks at a factory in Dusseldorf, Germany and tests the trucks. Then Mercedes-Benz disassembles the trucks by removing the engines, bumpers, drive-shafts, fuel tanks, and exhaust systems.
- The trucks are exported to the U.S. without paying tariff, and assembled again in South Carolina.

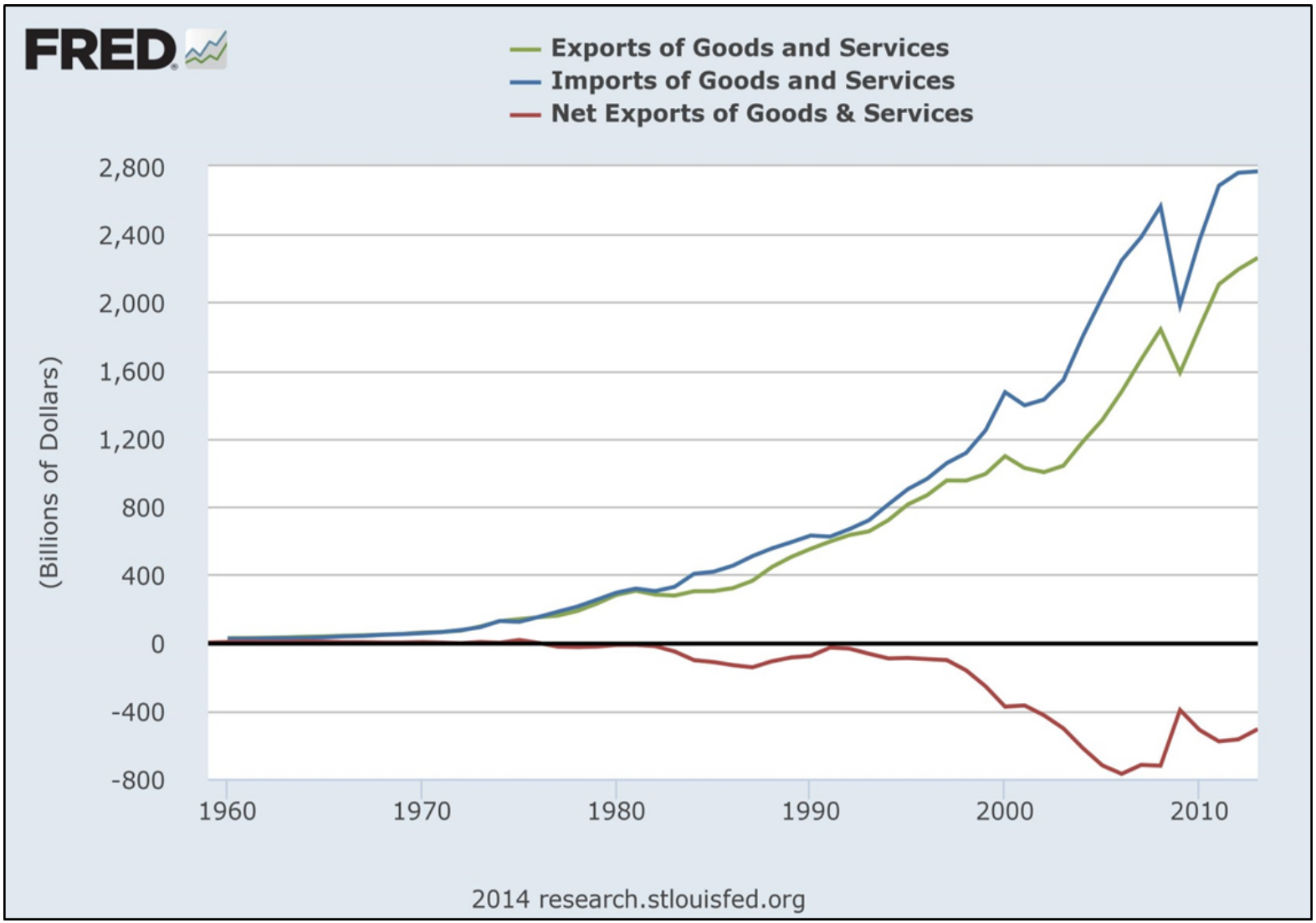
28.2 The Current Account and the Financial Account

- In 2015, the United States imported $2,761.5 billion in total, with $497.8 billion coming from China.
- In 2015, the United States exported $2,261.2 billion in total, with only $161.6 billion going to China.
- What does this mean? More importantly, should the U.S. be concerned?

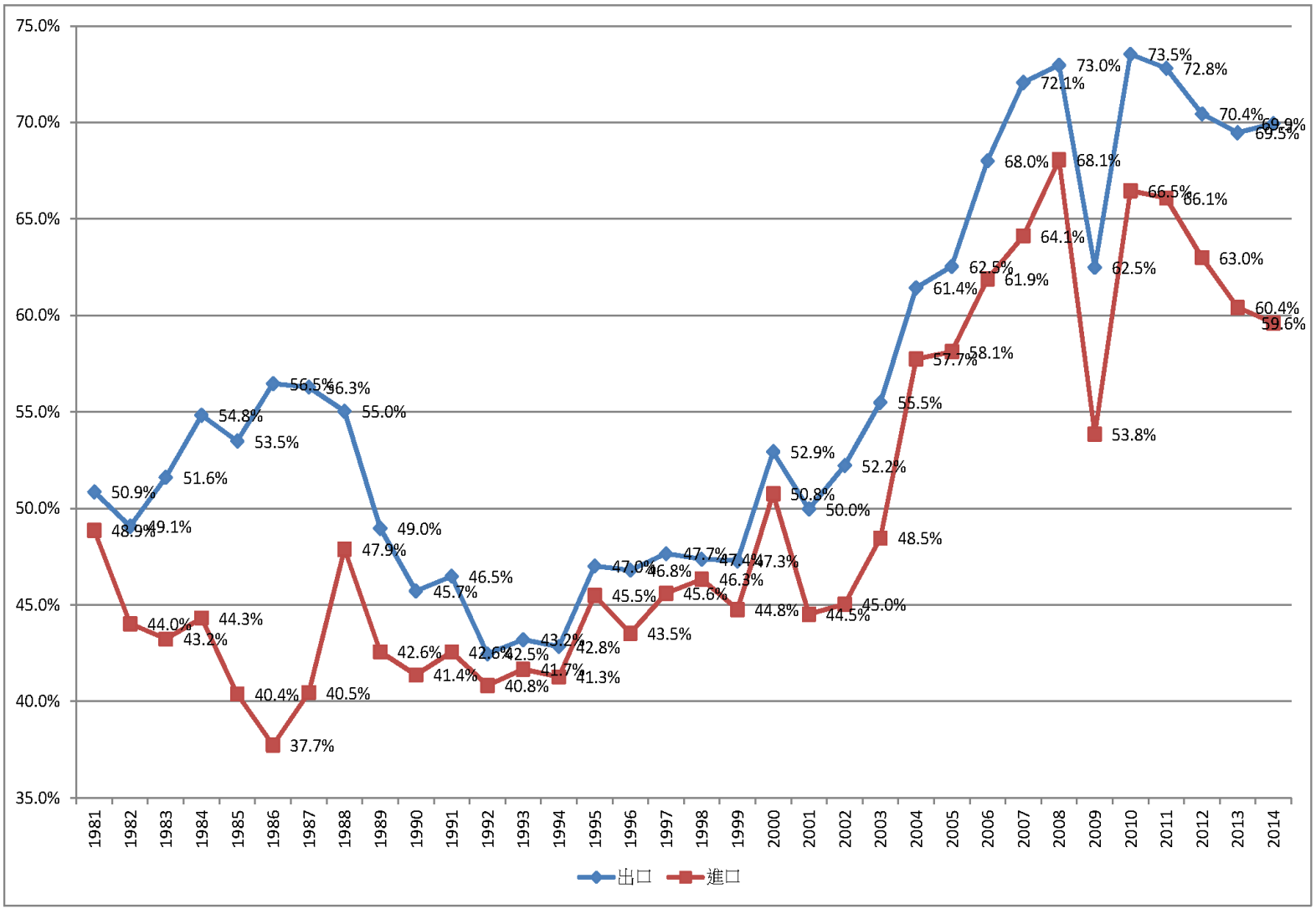
Trade Surpluses and Trade Deficits

- **Net exports** or the **trade balance** is defined as exports minus imports.
- When the trade balance is positive, it is called a **trade surplus**.
- When the trade balance is negative, it is called a **trade deficit**.
- In 2016, the United States ran a trade deficit.

$$\begin{aligned} \text{Net exports} &= \text{Exports} - \text{Imports} \\ &= \$2,128 \text{ billion} - \$2,690 \text{ billion} \\ &= -\$562 \text{ billion} \end{aligned}$$


FRED
Exports of Goods and Services
Imports of Goods and Services
Net Exports of Goods & Services
(Billions of Dollars)
2,800
2,400
2,000
1,600
1,200
800
400
0
-400
-800
1960
1970
1980
1990
2000
2010
2014 research.stlouisfed.org

進出口占GDP 比例, 台灣, 1981-2014



台灣於2002年1月1日正式成為WTO 的會員。

International Financial Flows

- A complete understanding of international financial flows needs to study all sources of payments from (to) foreign residents to (from) domestic residents.
- The international accounting system is built on the concept of residency, not the concept of citizenship:
  - Income-based payments *from* foreigners
  - Income-based payments *to* foreigners

Income-Based Payments *from* Foreigners

- Receiving payments from the sale of goods and services to foreigners: exports
- Receiving income from assets that the domestic resident owns in foreign countries: factor payments from foreigners
- Receiving transfers from individuals who reside abroad or from foreign governments: transfers from foreigners

Income-Based Payments *to* Foreigners

- Making payments to foreigners in return for their goods and services: imports
- Paying income on assets that foreign residents own in the domestic economy: factor payments to foreigners
- Making transfers to individuals who reside abroad or to foreign governments: transfers to foreigners

The Workings of the Current Account and the Financial Account

- For each item, we can sum payments from foreigners (+) and payments to foreigners (-):
  - Net exports = (Payments from abroad for exports) - (Payments to foreigners for imports)
  - Net factor payments from abroad = (Factor payments from abroad) - (Factor payments to foreigners)
  - Net transfers from abroad = (Transfers from abroad) - (Transfers to foreigners)
- The **current account** is the net flow of payments made to domestic residents from foreign residents on goods and services, factor payments, and transfers:
- Current account = (Net exports) + (Net factor payments from abroad) + (Net transfers from abroad)

	Payments from Foreigners	Payments to Foreigners	Net Payments
Trade in goods and services	2,261	2,762	−501
Factor payments	769	601	+168
Transfer payments	NA	NA	−145
Current account	NA	NA	−477

Exhibit 28.7 The Current Account and the Financial Account of the United States in 2015 (in Billions of 2015 Dollars)

- **Question**: What are the consequences of running a current account deficit?
- **Idea**: When U.S. residents make $477 billion of net payments to foreigners, the payments are made in U.S. dollars.
- **Answer**: These dollars enable the foreign residents to buy U.S. assets, which can be exchanged for U.S. goods and services at some point in the future.
- A simple example current account transaction where a U.S. consumer decides to buy a Chinese lap-top that cost $1,000.

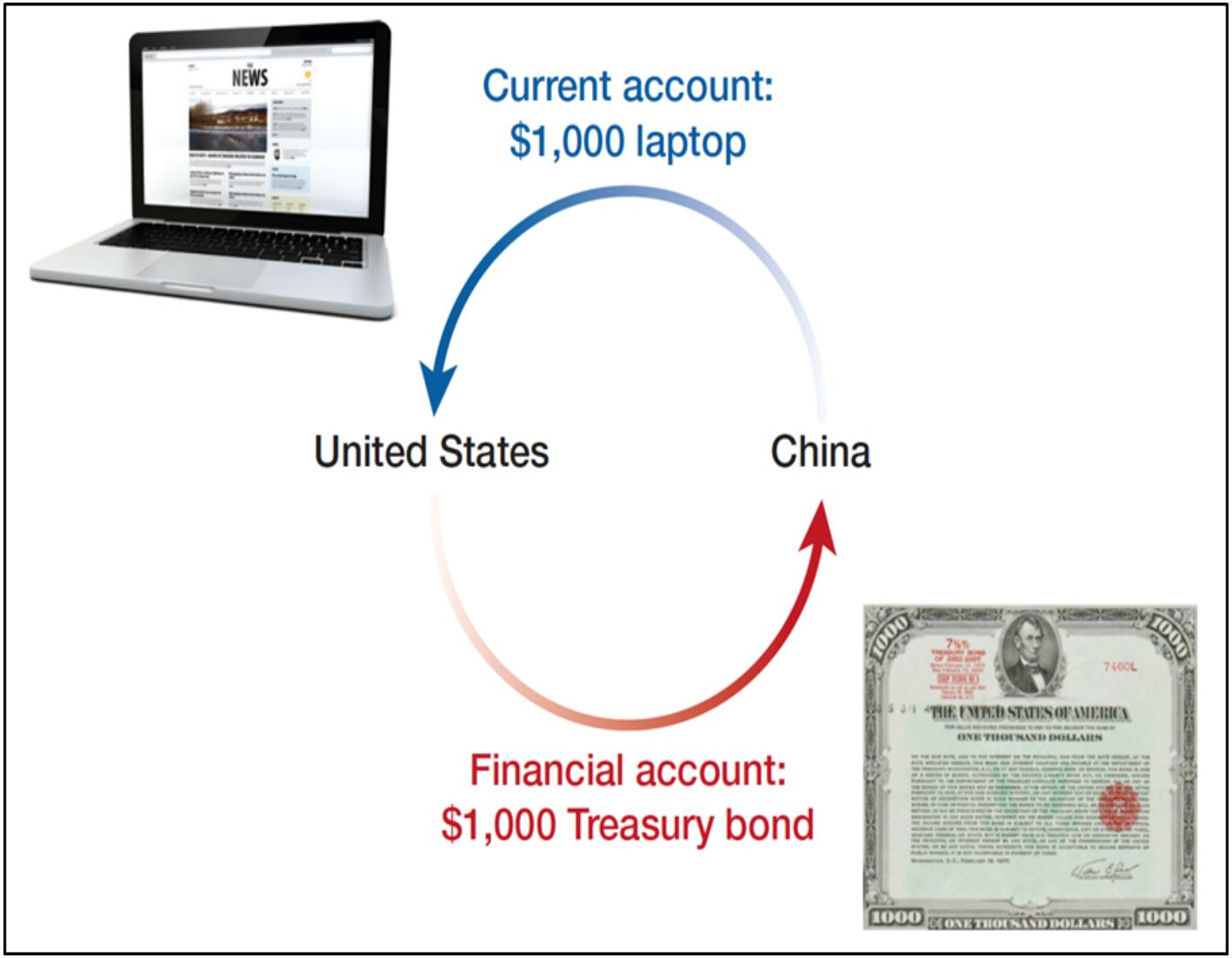


Exhibit 28.8 Circular Flows in the U.S. International Transactions Accounts

- The **financial account** is defined as the increase in domestic assets held by foreigners minus the increase in foreign assets held domestically.
- The **financial account** is defined so that the net flows in the financial account offset the net flows in the current account: (Current account) + (Financial account) = 0

	Payments from Foreigners	Payments to Foreigners	Net Payments
Trade in goods and services	2,261	2,762	−501
Factor payments	769	601	+168
Transfer payments	NA	NA	−145
Current account	NA	NA	−477

Exhibit 28.7 The Current Account and the Financial Account of the United States in 2015 (in Billions of 2015 Dollars)

We can also conduct the analysis by focusing only on net exports (the trade component of the current account).

$$\begin{aligned} Y &= C + I + G + NX \\ Y - C - G - I &= NX \\ S - I &= \underline{NX = \text{Net capital outflows}} \end{aligned}$$

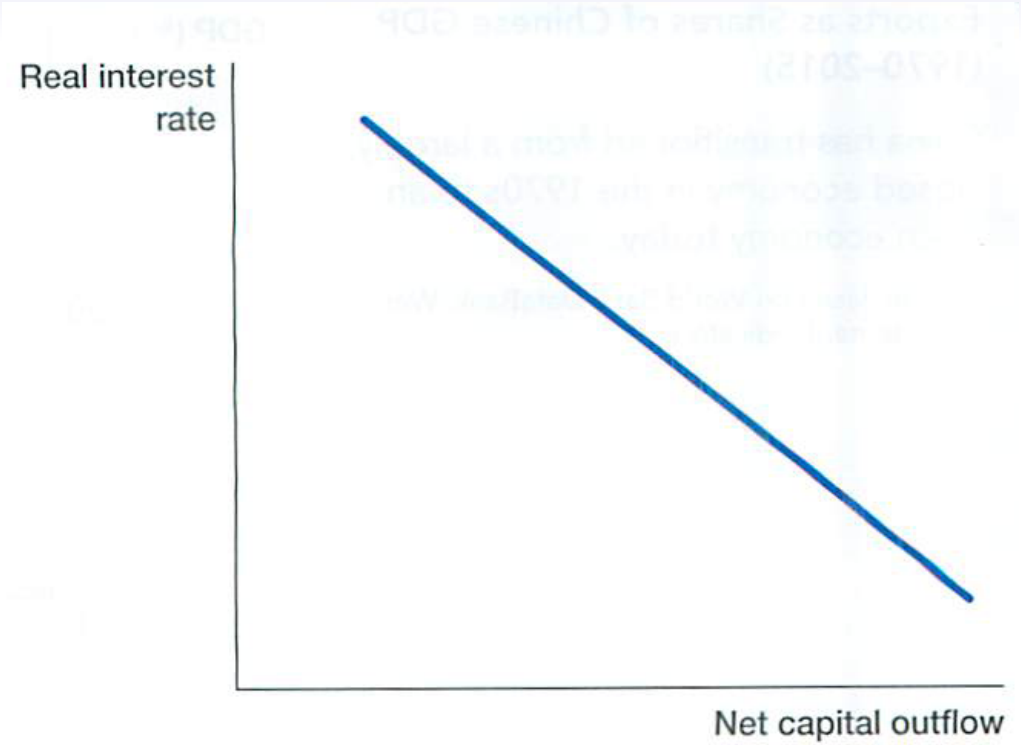


Exhibit 28.9 Relationship Between Net Capital Outflows and the Real Interest Rate

- When the real interest rate rises, the U.S. becomes more attractive to global investers. As the capital pours in, net capital outflows decrease and net exports therefore decrease.

28.3 International Trade, Technology Transfer, and Economic Growth

- International trade can also benefit countries through the transfer of technology from more advanced to less advanced economies.
- The transfer of technology will increase productivity and thus the growth rate of GDP.
- Consider the example of China.

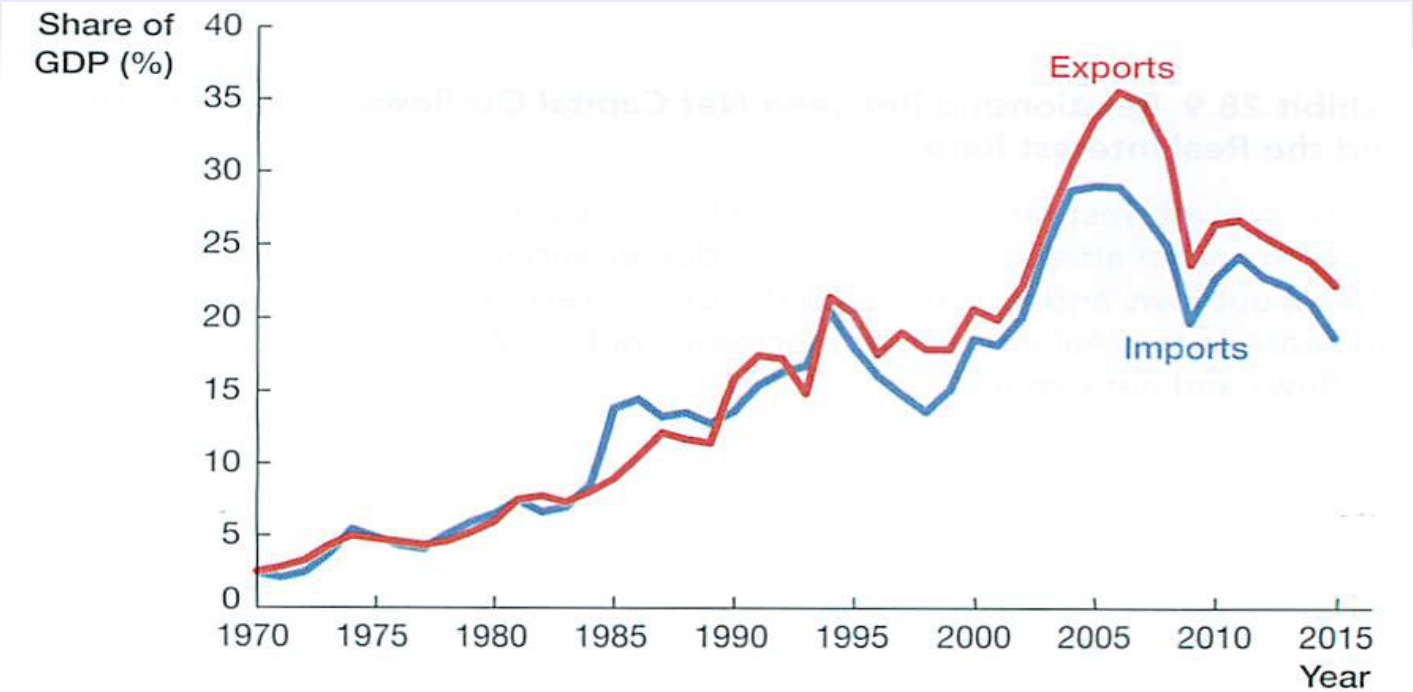


Exhibit 28.10 Chinese Imports and Exports as Shares of Chinese GDP (1970-2015)

- When Mao Zedong died in 1976, Chinese PPP-adjusted GDP per capita was $882 in 2005 dollars. Under Mao, China was organized as a planned economy.
- In 1978, Deng Xiaoping became the next leader. Under Deng, China began to liberalized the economy, including opening to international trade.

- Under Mao's leadership in the early 1970s, exports represented less than 5% of GDP.
- Over the last 10 years, the export share of the Chinese economy has averaged over 30%.
- Chinese growth over the last 20 years has often been described as "export-led growth."
- China achieved an average annual growth rate of real GDP per capita of 6.6% between 1979 to 2012. At this pace, Chinese real GDP per capita has doubled approximately once every 11 years.
- China's growth is largely due to the shift from central planning towards a market economy.
- China improved its technology greatly, enabling its citizens to work in modern factories, which now export to markets around the world.

Foreign direct investment

- **Foreign direct investment** (FDI) refers to investments by foreign individuals and companies in domestic firms and businesses.
- To qualify as foreign *direct investment*, this capital flow must generate a large ownership stake in a local firm for the foreign investors.
- Foreign direct investment is a major conduit for technology transfer, though in most cases this transfer is not the goal of the foreign firm that is making the investment.
- The more interaction there is between these countries, in particular through FDI, the faster technological improvements will migrate from one to the other.

EVIDENCE-BASED ECONOMICS

Q: Are companies like Nike harming workers in Vietnam?

- **Data**: Agricultural and factory wages in Vietnam, as well as data on trade, growth, poverty, and child labor-force participation.
- Unskilled workers in the factories that manufacture Nike products earn $4-$5 per day under poor working conditions.
- Unskilled workers on Vietnamese farms earn $1-$3 per day in similar conditions. Unskilled workers in the United States earn over $50 per day.
- Is it possible for Nike to continue to buy shoes from suppliers in Vietnam but require those suppliers to pay higher wages?
- Would there be unintended consequences if Nike paid its subcontractors more and forced them to pass these extra funds on to the workers?

- Vietnamese leader Ngyuen Van Linh adopted an socialist-oriented market economy policy starting in 1988.
- As a results of the Vietnamese reforms, trade rapidly expanded, with exports rising from 10% of GDP to 75% of GDP today.
- REal GDP per capita has grown at a rate of 5.5% (1988-2013), more than a doubling from the pre-reform growth rate.
- Poverty rate has fallen precipitously if it is measured with the poverty line of one U.S. dollar per day. In 1993, nearly 60% of the Vietnamese population fell below that standard of living, but by 2006 “only" 16% of the population consumed less than a dollar-per-day.

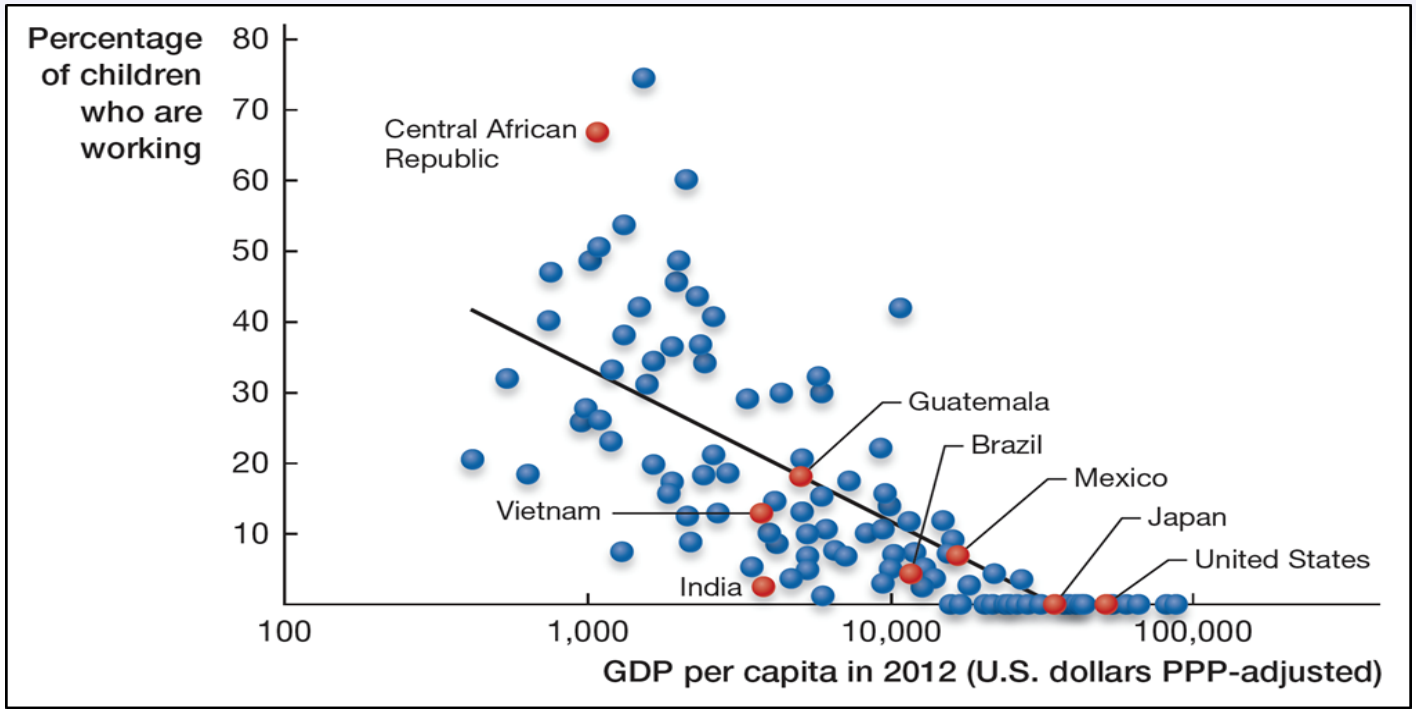


Exhibit 28.11 The Relationship Between GDP per Capita and Child Labor (the Fraction of Children Ages 7-14 Who Are Working)

- Economists believe that sustained growth is one of the key factors that reduces child labor.
- Rising levels of income in Vietnam have coincided with a sharp fall in child labor, and much of the decline in child labor is credited to Vietnam's opening to trade.

- **Question**: Are companies like Nike harming workers in Vietnam?
- **Answer**: The Vietnamese workers who make Nike's sneakers are paid extremely low wages and work in unsafe conditions. However, the next best alternative— to work in the agricultural sector— appears to be even worse.