

Week 1

Intro to International Economics

Guillermo Lezama

Topics

- Introduction
- Balance of Payments
- Foreign Exchange Market

What do you need to do?

- Read the required readings (see below).
- Attend lectures
- Watch video lectures (for Wednesday's class, 2 videos)
- Do the quizzes for lectures 1 and 2 (Due date: 7/2)
- Do the Homework Assignment (Due date: 7/2, 11.59 AM)
- Send me by email the group composition (look for Project Instructions)

An introduction

Intro to International Economics

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Summary

- Summarize the course
- Why is the course relevant?
- What are some current trends in International Economics
- Readings (Optional, but suggested):
 - Chapter 1 (Pugel)
 - The Economy. Core Project. Chapter 18

Summary of the course

- Economic principles and policy options that shape relationships between countries
- Which relationships?
 - Those related to Trade of Goods and Services and Financial transactions
- Define them, how to measure them, explain why they happen and talk about consequences.
- What do governments do about them.
- Consequences of relationships between countries and government interventions.

Units

- Balance of Payments
- Foreign Exchange Markets
- Macroeconomics and Open Economy
- Trade Theory
- Empirical Evidence about Trade
- Trade Policy (Tariffs, other barriers, export promotion)
- Institutions and Agreements
- Development (or how trade and finance affect developing countries)
- International Factor Movements

What makes Intl Economics interesting?

- Nations are not firms or families.
- They are sovereign: It is difficult to enforce anything on them.
- They create their own currency, impose barriers (to trade or migration) and taxes.
- However, they still face other constraints. They do not have infinite resources. They cannot consume infinite goods and services.
- How can governments influence trade and the flow of financial assets?
- Countries try to design policies to serve the country. But some groups benefit more than others. What affects the distribution of gains from trade?
- When globalization can be detrimental to growth??

In US politics

- “China is responsible for “the greatest theft in history of the world” - Trump 2016
- “China is undercutting American companies by dumping products, erecting trade barriers, and giving illegal subsidies to corporations” – Yellen 2021
- Pop Internationalism (Paul Krugman)

Why do countries trade?

Alternative: isolation

- Producing everything at home
- Less room for specialization
- Less room to lower costs

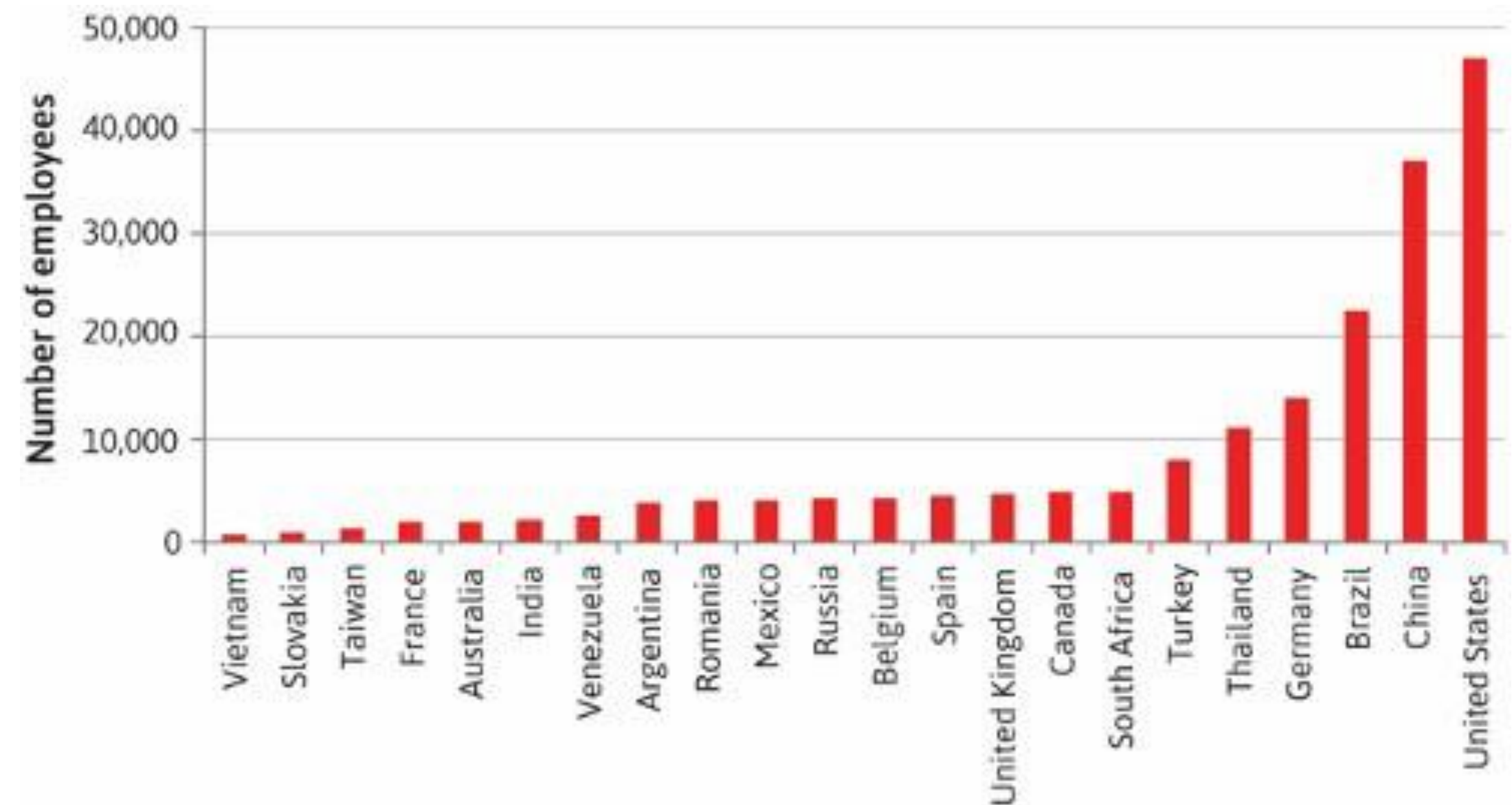
This was true some centuries ago

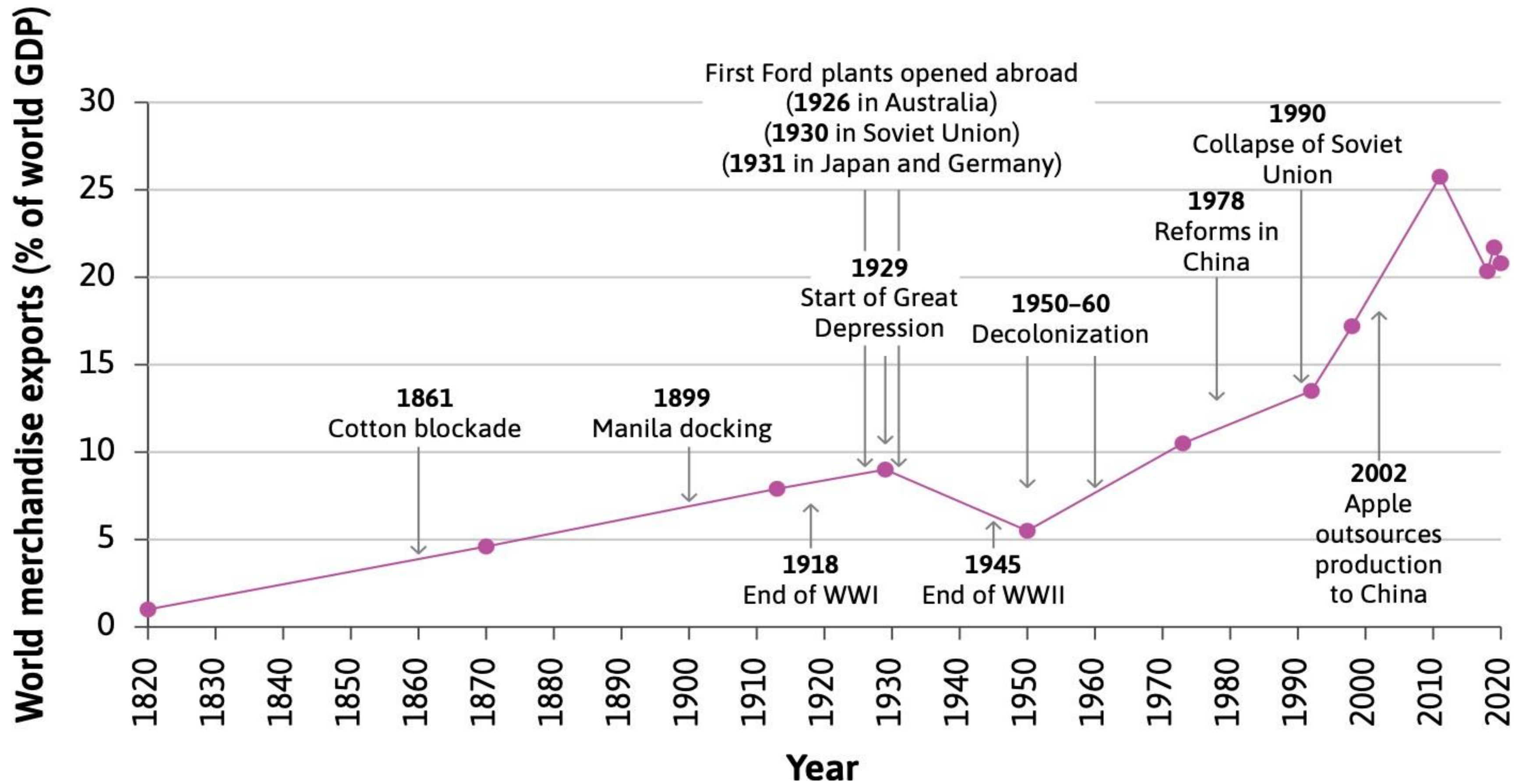
Globalization

- A process by which the economies of the world become more integrated by the freer flow across national boundaries of goods, investment, finance, and labour.

Ford employees across the world in 2014

Source: The Economy. Core Project.





World Merchandise exports as a share of world GDP (1820-2020).

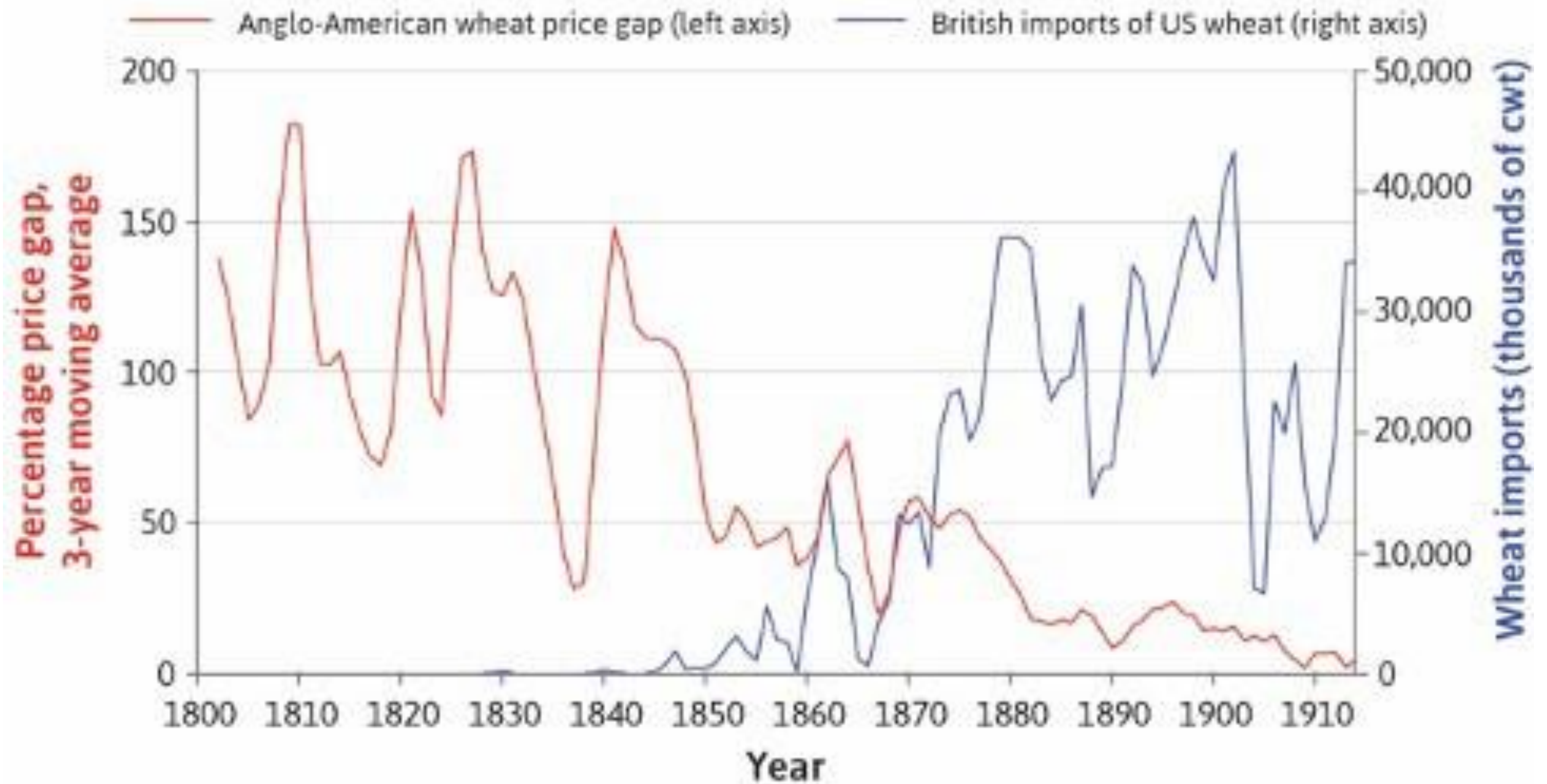
Source: The Economy. Core Project.

Globalization

- In the right circumstances, globalization can benefit both exporting producers and importing consumers.
- It does so by bringing them closer together.
- It leads to an increase in both the supply of exports and the demand for imports.

Because of arbitrage:

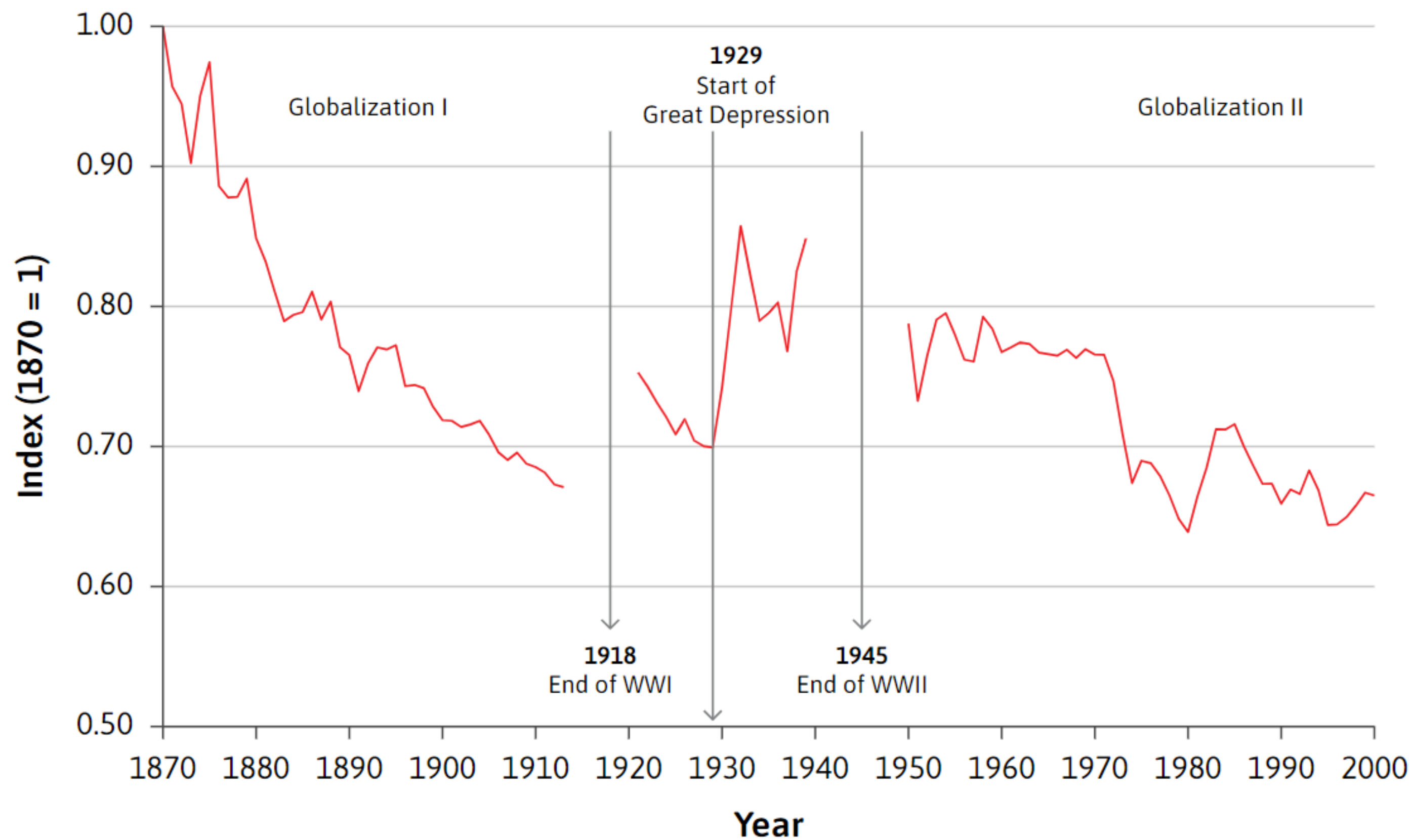
- Globalization should lead to falling import prices
- Globalization should also lead to rising export prices
- Declining price gaps between importing and exporting countries are a much surer sign of globalization



The Anglo-American wheat trade (1800-1914)

Source: The Economy. Core Project.

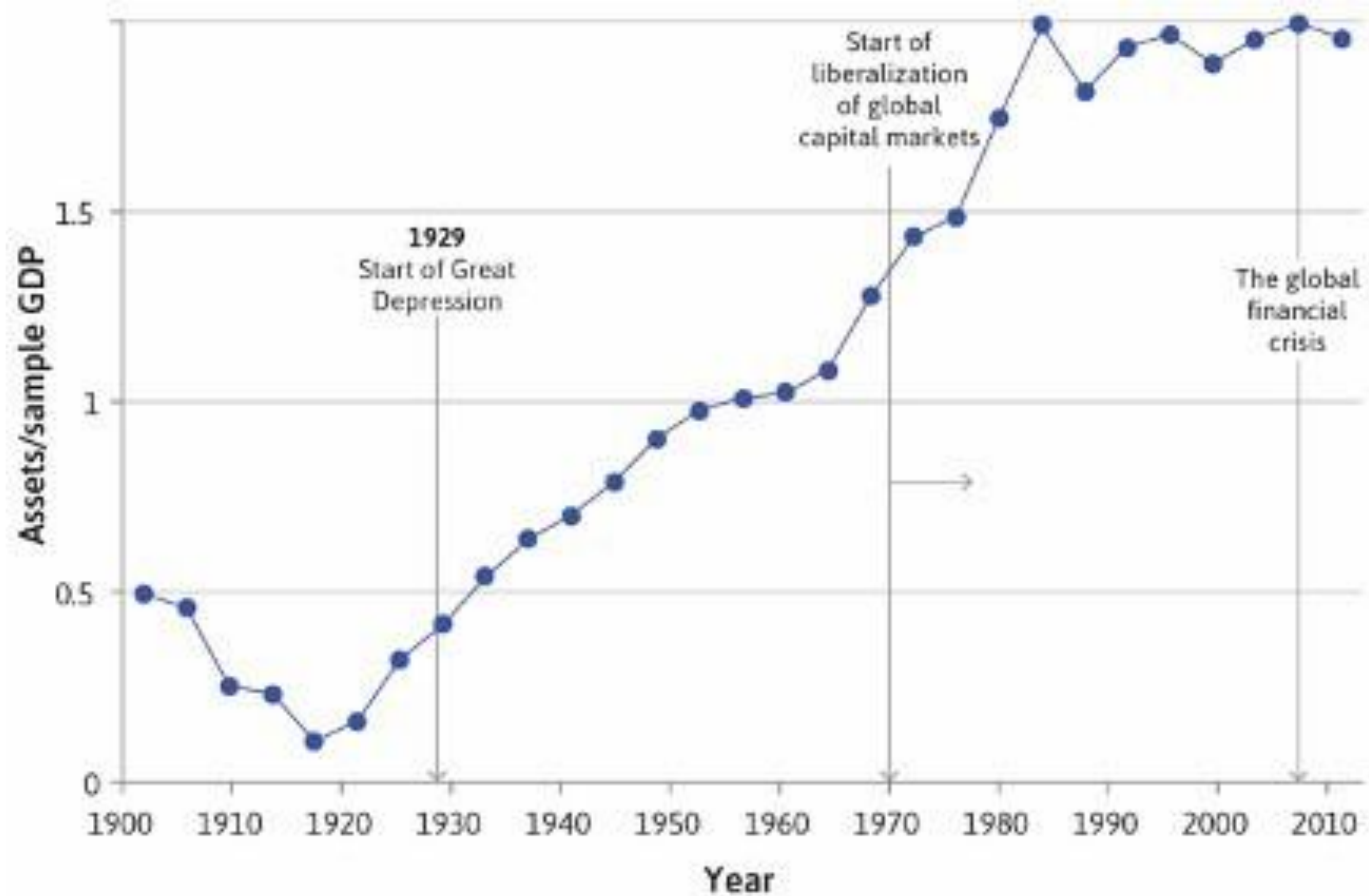
Impediments to Trade



Investments

Alternative: isolation

- they could not spend more than they earned in a year
- all their income would have to be spent domestically

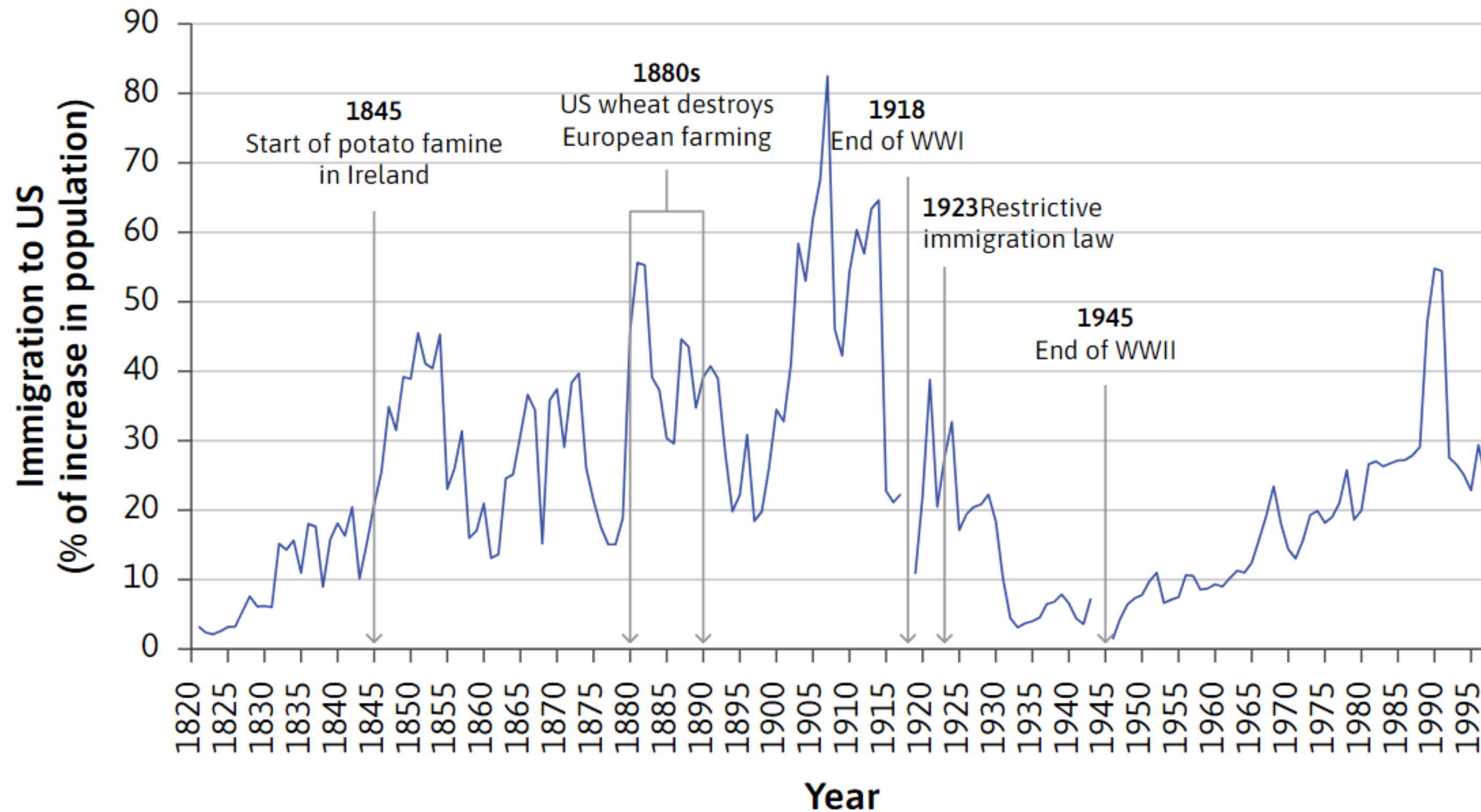


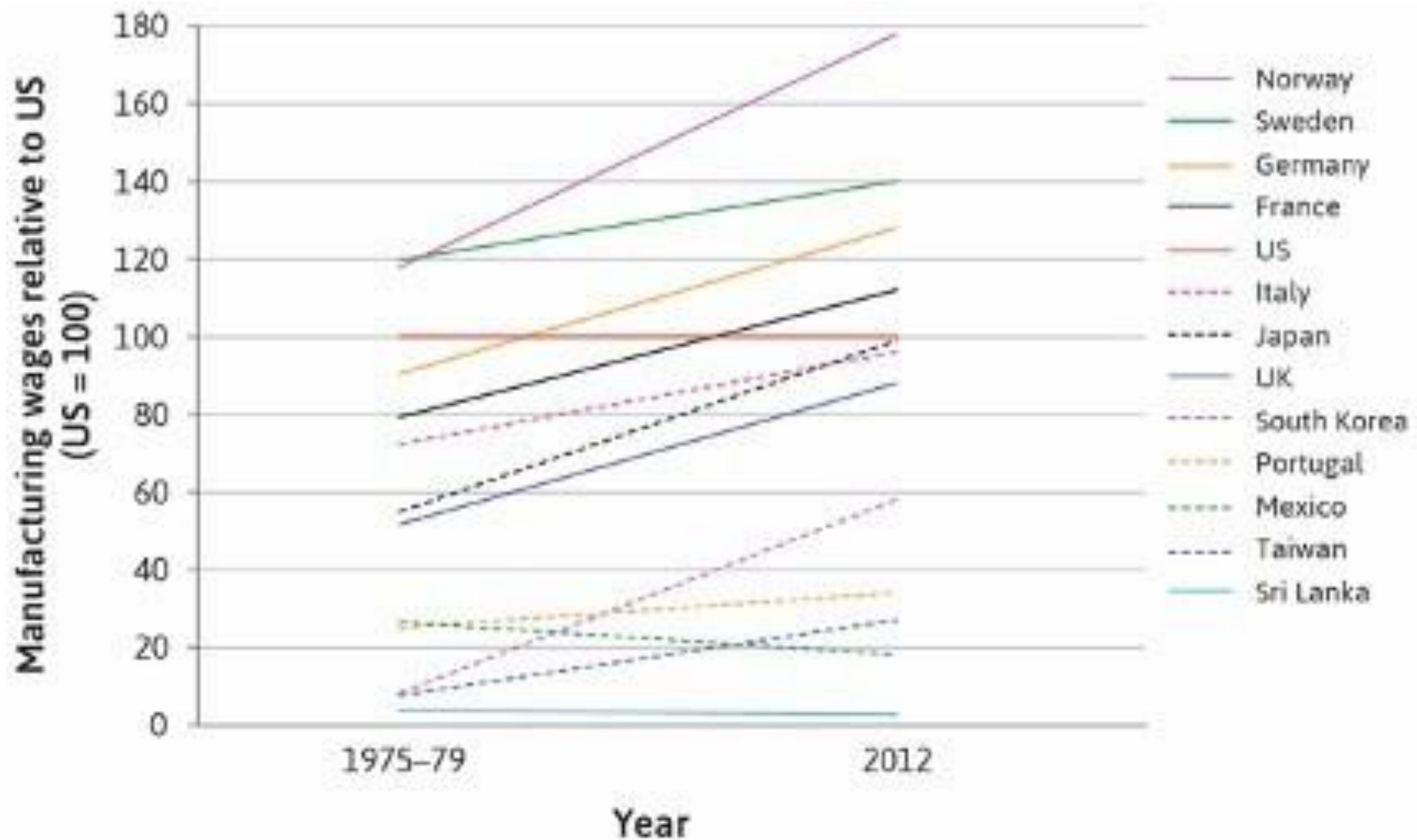
International asset holdings (1900-2020)

Source: The Economy. Core Project.

Migration

Alternative?





Manufacturing wages relative to the US (1975-79 and 2016)

Source: The Economy. Core Project.

Other trends

- Specialization (Week 3)
Winners and Losers
- Governments face policy challenges regarding globalization (Week 4-6)
- Globalization promoted growth. Globalization prevented growth (?) (Weeks 5-6)
- Some countries have benefitted more from globalization than others. (Weeks 3-6)

Preliminary Accounting and Financial Concepts

Asset

- An asset is a present right that has the potential to produce economic benefits, and that is controlled by the entity as a result of past events.
 - Something that, in the future, can generate cash flow, reduce expenses, or improve sales.
- Liabilities: An obligation that results in future sacrifices. What you owe.

Financial Assets

- Investments in the assets and securities of other entities. It involves a contractual claim.
 - Stocks, bonds, bank deposits.

Principal and Earnings

- Principal: face value of the asset, or the original amount of money invested.
- Earnings: incomes generated by the asset without any effort from the owner of it.

Credits and Debits

- Credit item: the country must be paid (monetary claim on a foreigner)
transactions that increase Gains, Income, Revenues, Liabilities or Stockholder's Equity.
 - An export creates revenue.
 - Money earned through tourism
- Debit item: country must pay (monetary claim owed to a foreigner)
transactions that increase Expenses, Assets or Losses.
 - An import create expenses.
 - Purchase of consulting services from firms outside the country.

Balance of Payments

Summary of the topic

- Balance of payments
- Current Account
 - Definitions
 - Example
 - Data
 - Discussion
- Financial Account and Capital Account
 - Example
- Changes in Official International Reserves
- $BP = 0$
 - Implications
 - Example
- BoP Data

- Readings:
- Chapter 16 (Pugel)

Balance of Payments

- System of National Accounts (SNA)
- an accounting record of a country's international transactions over a particular time period
- Balance of payments
 - money payments of a country to the rest of the world
 - money payments that come from the rest of the world
 - on a period of time
 - It is always in balance

It is always in balance

- Every transaction is an exchange of value for an item or a service of equal value.
 - A credit to the domestic country is a debit, of equal value, to the foreign country
 - A debit to the domestic country is a credit, of equal value, to the foreign country.
- The Balance of Payments is always in balance.
 - When a country exports it is “giving” items and “receiving” the same value in another form.

Book notation

- How Pugel's book analyzes it?
 - current account (+)
 - financial account (+)
 - net changes in official international reserves (+)
 - net errors and omissions (+)

Current Account

Summary

- Current account
 - Goods and services
 - Other income and transfers
 - Balances
-
- Readings:
 - Chapter 16 (Pugel)

Current account

Flows of

- Goods
 - For Sale
 - E.g.: A computer made in China, Tangerines produced in Peru
- Services
 - Tourists going to Cancun
 - Consulting
- Income
 - interest, dividends, other claims on profits
- Gifts
 - Aid
 - Remittances

	Credit (money inflows)	Debit (money outflows)
Goods and Services	Exports	Imports
Primary Income	Earnings received from foreigners regarding investments, and compensation of employees from foreign firms	Earnings paid to foreigners regarding investments, and compensation of foreign employees abroad paid by domestic firms
Secondary income	Transfers received from abroad	Transfers sent abroad

Balances

- Trade Balance = Exports – Imports = $X - M$
- Current Account Balance = Credit - Debits
- If a Balance is positive (>0)
 - Surplus
- If a Balance is negative (<0)
 - Deficit

Current Account:

An example for the US

	Credit (money inflows)	Debit (money outflows)
Goods and Services	Exports	Imports
Primary Income	Earnings received from foreigners regarding investments, and compensation of employees from foreign firms	Earnings paid to foreigners regarding investments, and compensation of foreign employees abroad paid by domestic firms
Secondary income	Transfers received from abroad	Transfers sent abroad

Examples

1. An export of 1,000 tons of wheat from the US to Bolivia (1 M dollars).
2. American tourists going to Colombia (0.5 M dollars)
3. An import of Cheese from France to Mexico (1 M dollars)
4. Interests paid to a Mexican investor on an American bank (0.4 M)
5. A Chinese professor that is hired to teach a course at the University of Pittsburgh for 2 weeks (0.05 M)
6. An American soccer player that sends money to his family from England (0.3 M).
7. A donation to a Ukrainian school from an American Family (0.2 M)

Balances

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-
- Trade Balance = Exports – Imports = $X - M$

 - Current Account Balance = Credit - Debits

Example (cont.)

1. An export of 1,000 tons of wheat from the US to Bolivia (\pm 0.5 M dollars).
2. American tourists going to Colombia (0.5 M dollars)
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• $X - M =$

• Current Account Balance =

Current Account: Data and a Discussion

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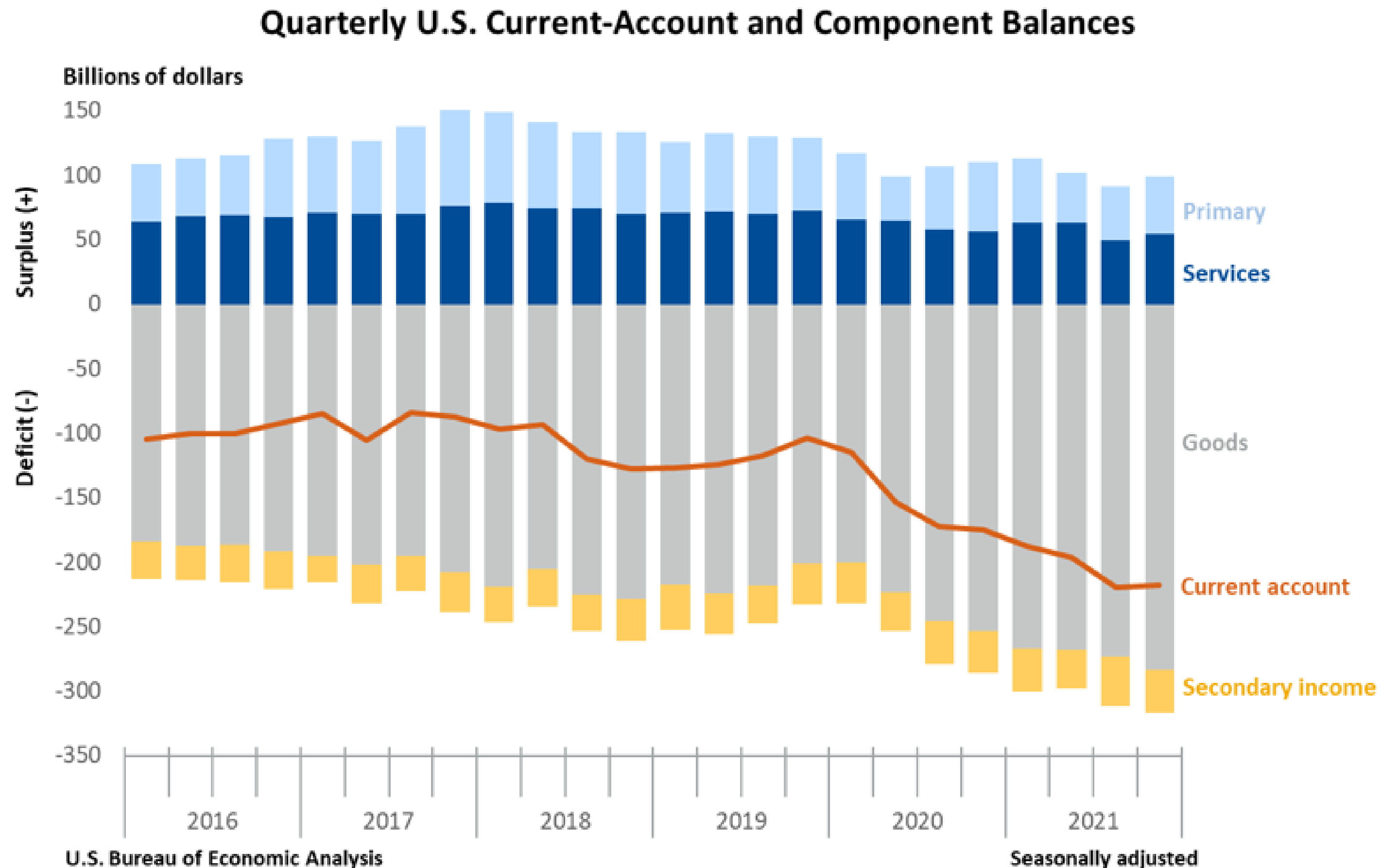
Data (US)

- **FRED**
- Trade Balance: <https://fred.stlouisfed.org/series/BOPGSTB>
- Balance on Current Account: <https://fred.stlouisfed.org/series/IEABC>

US data

Bureau of Economic Analysis

- <https://www.bea.gov/news/2022/us-international-transactions-fourth-quarter-and-year-2021>



Discussion Questions

- Are these deficits bad?
- Are these deficits high?

Data (World)

- World Bank
- Trade Balance:

<https://data.worldbank.org/indicator/NE.RSB.GNFS.ZS?locations=US>

- Balance on Current Account:

[https://data.worldbank.org/indicator/BN.CAB.XOKA.GD.ZS?
locations=US](https://data.worldbank.org/indicator/BN.CAB.XOKA.GD.ZS?locations=US)

Capital Account, Financial Account and Changes in Reserves

Summary

- Private FA
 - Examples of financial assets
- Capital Account
- Changes in OIR
- **Readings**
 - Chapter 16 (Pugel)

Financial Account

- Private FA
- Capital Account

Private Financial Account

- Another category in the Balance of Payments
- Financial: Looks at the net change in ownership of financial assets
- We only care about the **principal** of the asset
- Excludes changes in the Official International Reserves

Credit and debit

If, because of the transaction, a payment (not the asset) flows:

- into the country (in exchange for an asset): Credit
- out of the country (in exchange for an asset): Debit

The same as in exports and imports.

Financial Assets

International Financial Reporting Standards (IFRS) and Generally Accepted Accounting Principles (GAAP):

- A. Cash
- B. An equity instrument of another entity (ownership rights)
- C. A contractual right to receive cash or another financial asset from another entity
- D. A contractual right to exchange financial assets or financial liabilities with another entity under particular conditions or
- E. A particular contract that will or may be settled in the entity's own equity instruments

Is cryptocurrency a financial asset?



An asset?

- They derive economic benefits to the holder
- They have monetary value and their price is determined by the market in which they trade.

A Financial Asset?

- financial assets consist of claims that give rise to an economic asset with a counterpart liability of a debtor.
- Currencies issued by central banks constitute financial assets as they are legal tender in the domestic economy and represent claims on the issuer.

<https://www.imf.org/external/pubs/ft/bop/2019/pdf/Clarification0422.pdf>

Examples

Changes in the ownership of Financial assets

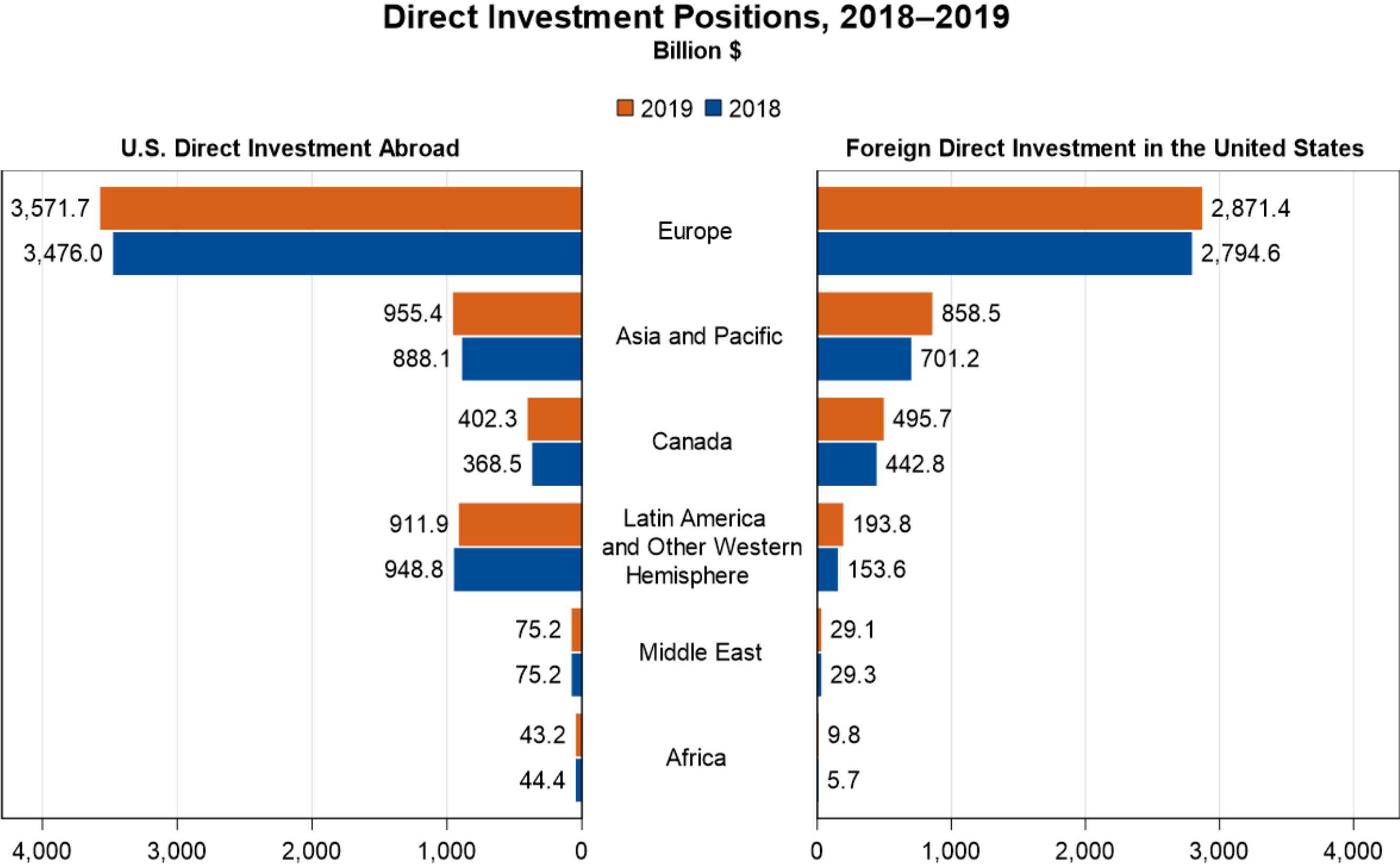
- Buying a bond or stocks.
- Get an IOU from a loan.
- Receive a bank deposit.
- FDI:
 - Flow of lending to or purchase of ownership in
 - foreign firm mostly owned by lender.
- IPI:
 - When the foreign firm is not mostly owned by lender.

FDI: Example

June 2013, Google (USA) purchases Waze (Israel) for \$996 million.



Stock of FDI



Source: U.S. Bureau of Economic Analysis

Portfolio Investment

A flow of lending to, or purchases of ownership in, a foreign firm in which the investor (usually a firm) has (or gains) ownership of less than 10% the foreign firm.

- Cannot affect operations

E.g., residents of Japan buying AMC shares

AMC Entertainment Holdings Inc

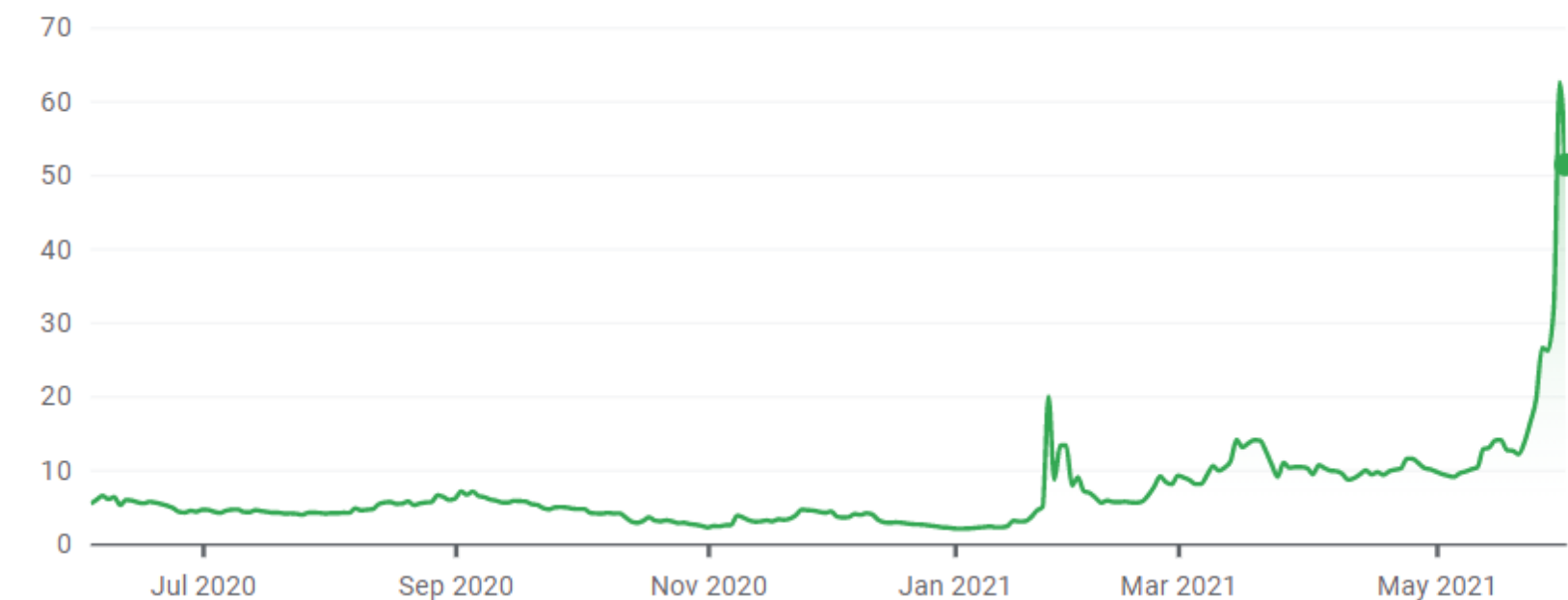
AMC

\$51.34 ↑ 854.28% +45.96 1Y

After Hours: \$48.92 (↓ -4.71%) -\$2.42

Closed: Jun 3, 5:08:38 PM UTC-4 · USD · NYSE · Disclaimer

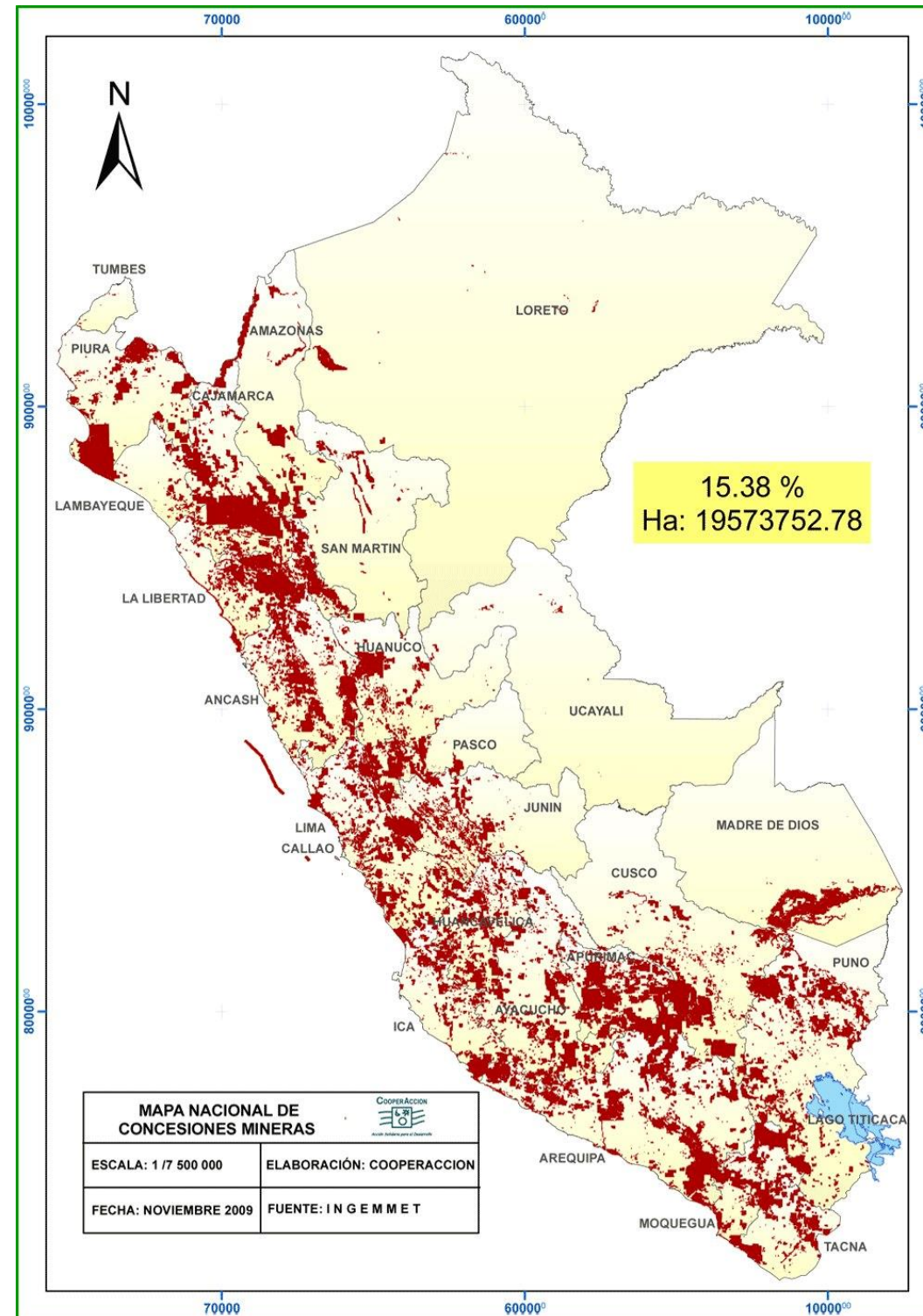
1D 5D 1M 6M YTD 1Y 5Y MAX



Capital Account

- Capital transfers, e.g., debt forgiveness, migrants' transfers (goods or financial assets)
- Acquisitions of non-financial and non-produced assets
 - Rights to natural resources, intangible assets, land.
 - Patents, copyrights, trademarks, franchises, leases
 - Land
 - Physical equipment

Non-Financial Assets



Peru is the second largest producer of copper, zinc, and silver

The state owns natural resources and is entitled to grant rights to mine

Anyone can buy the rights to mine in a location

- We can calculate a balance, as in the current account.
- Credits: Funds are flowing into the country (+ items in the balance)
 - Foreign resident increasing her holding of a US financial asset
 - US resident decreasing her holding of a foreign asset
- Debits: Funds are flowing out of the country (- items in the balance)
 - Foreign resident decreasing his holding of a US financial asset
 - US resident increasing her holding of a foreign financial asset

Official International Reserves

- Changes in Official International Reserves
- Governments (monetary-type officials) hold money-like assets
- Gold, own currency, other currencies and other assets such as Special Drawing Rights (SDR)
- We can calculate a balance, as in the previous accounts.
- The net change in OIR is measured as Credits-Debits

	Credit (inflow)	Debit (outflow)
Official Reserve Assets	Foreign purchase of home currency and official assets	Home purchase of foreign currency and official assets

- US reserve assets: <https://www.federalreserve.gov/data/intlsumm/current.htm>

Balance of Payments in Balance

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BP = 0

Appendix E

- Each transaction means an exchange of a value for value
- For example, an export creates an obligation to foreigners.
- Either an asset is created or money is “imported”
- Both create a debit that balance in value the Export credit.
- All transactions are always registered twice.
- At the end, Credits = Debits
- What about transfers?
- We expect:

Current Account Balance + Financial Account Balance+ Changes in Official International Reserves = **0**

A note on trade deficits

- Suppose changes in OIR, primary income and secondary income are 0.
- If Imports of G&S $>$ Exports of G&S
- Trade Balance = Current Account Balance < 0
- FA surplus.
- Interpretation: Foreigners are buying more assets than we are buying from them.
- Equivalent to borrow money.

In reality

- This is an accounting identity. Not a theory.
- However, not all international transactions are accounted properly.
- Statistical Discrepancy (or net errors and omissions)

BoP: IMF Data

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Book v. Reality

- How Pugel's book analyzes it?
 - current account (+)
 - financial account (+)
 - net changes in official international reserves (+)
 - net errors and omissions (+)
- How IMF shows the data?
 - Capital account (+)
 - Private Financial Account (-)
 - (-)

- Real-world data
- IMF Balance of Payments
- Private Financial Account Balance and Changes in the OIR
 - Opposite sign
 - Net acquisition (flows out - flows in)
 - or net lending
 - $-(FA + \text{Changes in OIR}) = \text{Net Foreign Investment}$
- <https://data.imf.org/?sk=7A51304B-6426-40C0-83DD-CA473CA1FD52>

BoP: an Example

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An example

- Continuation from previous example.

1. An export of 1,000 tons of wheat to Bolivia (1 M dollars).
2. American tourists going to Colombia (0.5 M dollars)
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4. A Chinese professor that is hired to teach a course at the University of Pittsburgh for 2 weeks (0.05 M)
5. An American soccer player that sends money to his family from England (0.3 M).
6. A donation of money to a Ukrainian school (0.2 M)

- What is the Private FA balance?

- What is the BP?

1. Paid with stock in the Bolivian company (1 M dollars).
2. Paid with money (0.5 M dollars)
3. Paid in a new bank account in the US (0.4 M)
4. Paid in a new bank account in the US (0.05 M)
5. Paid with money - US dollars (0.3 M)
6. Paid with debt forgiveness to the Ukraine Gov't (0.2 M)

CA and Investment

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CA and Investment

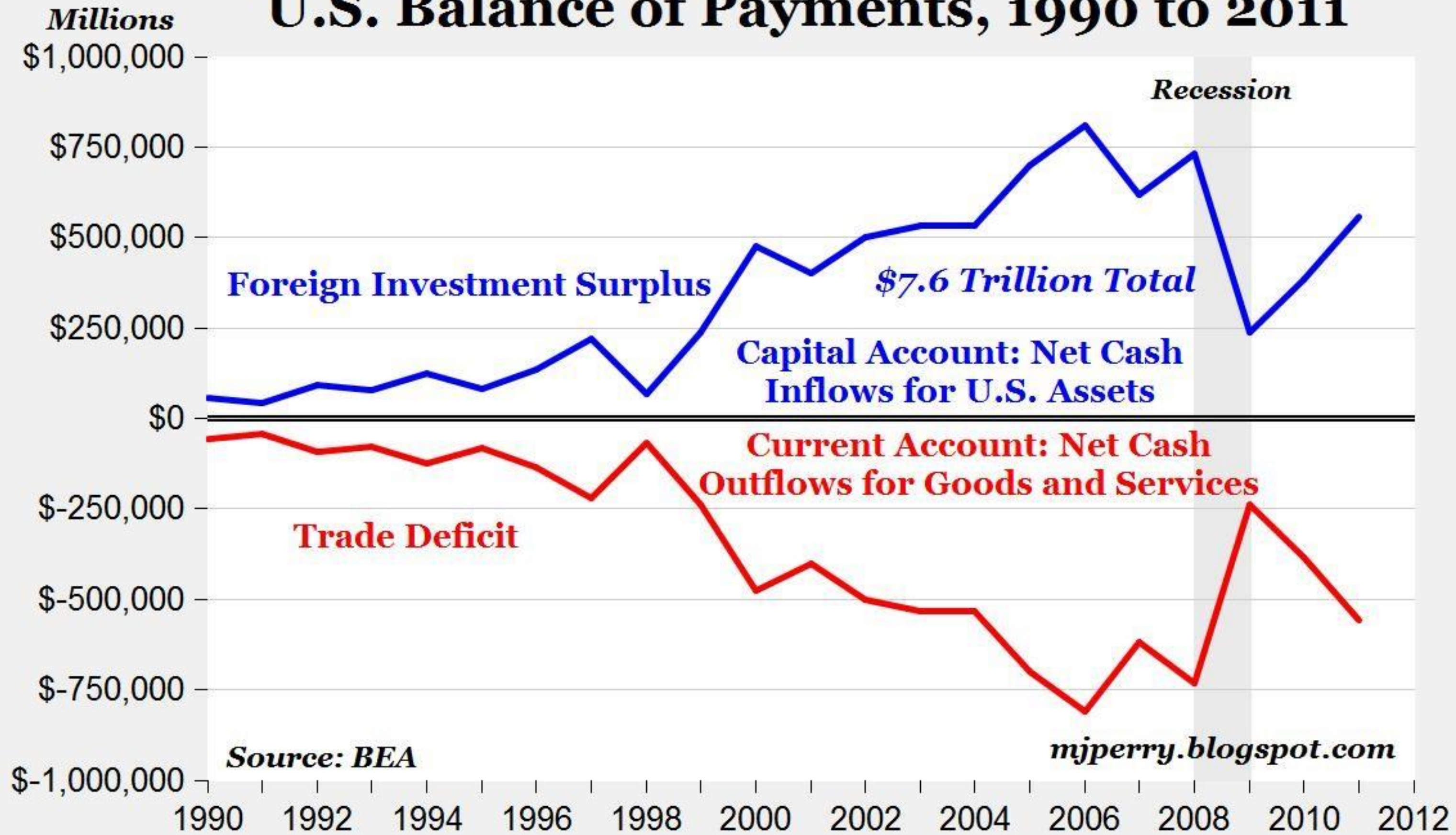
- Net Foreign Investment = - (FA + Changes in Official International Reserves) = I_f
- The increase in the country's foreign financial assets - the increase in the country's financial liabilities.

$$\text{Current Account Balance} - I_f = \mathbf{0}$$

- If $CA < 0$, we must have a $I_f < 0$.
- If $CA = 0$, we must have $I_f = 0$.

- What is I_f ? Purchase of foreign assets (by residents) -
purchase of national assets by non-residents
- If $CA < 0$, then $I_f < 0$, and this means being an international borrower
- If $CA > 0$, then $I_f > 0$, and this means being an international lender

U.S. Balance of Payments, 1990 to 2011



Macro and the CA

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Summary

- GNP and GDP
- CA and Savings
- Reading:
 - Chapter 16 (Pugel)

National Income

- A deviation from Puget's.
- How to measure National Income?
- **Gross domestic product (GDP):** the value of all final goods and services produced within a country's borders during a period of time (usually a year)
- Value of output = Expenditure on output
- Gives a good snapshot of the standard of living
 - Cons: Distribution? Other measures of quality of life? Future? ...
- **Gross national product (GNP):** the value of all final goods and services produced by the labor, capital, and other resources of a country within the country as well as abroad
- Value of output = Income made by producing output
- (where Income = payments to factors of production)

$$\text{GNP} = \text{GDP} + \text{Income received for International Output} - \text{Income paid for International Output} \quad (1)$$

What is this income?

- Primary and Secondary Income
- For GDP, total output is measured via total expenditure ($C + I_d + G + X - M$) (2)
- $\text{GNP} = \text{Income} := Y = C + S + T$ (3)
- (1), (2) and (3) gives us

$$I_d + CA = S + (T - G)$$

- If $G=T$, we have Puget's identity:

$$CA = S - I_d$$

- CA are the Savings that are not invested in the domestic economy.

$$CA = S - I_d + (T - G)$$

- CA are the Savings that are neither invested in the domestic economy nor appropriated by the government.
- Let's assume $G=T$ from now on.
- When $CA < 0$, domestic investment is higher than savings (or foreigners really want to invest in the our economy, given that means you need to rely on foreign funding)
- USA

- Suppose a country wants to increase I_d

$$I_d = S - CA$$

- Is it necessary to reduce the CA?
- That is one option. Reducing the CA means that I_f is also reduced, and if savings are the same, that means that the money is invested domestically (less net purchase of foreign assets).
- See that we need $S-CA$ to increase. Another option is to increase CA, but increasing S more.

Exchange Rates

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Summary of the topic

- Transactions involve the use of different moneys:
 - Exchange rates
 - Foreign Exchange Market
 - Supply and Demand
 - Regimes
 - Arbitrage

- We have seen there are multiple transactions between residents and non-residents agents.
- A Colombian farmer exports Coffee beans to a US manufacturer. The US manufacturer pays with money.
- US dollars? Colombian Pesos? Other currency?
- We need some equivalency between currencies.

Exchange Rates

- Price of one nation's money in terms of another nation's money.
- Communicates supply and demand forces within the global market.
- $R_{x/y}$: Exchange rate for Y in terms of X. Price of one of Y (when buying with X).
- Equivalent to goods:
 - 1 pizza for 8 dollars.
 - 1 euro for 1.05 dollars
 - Or 0.95 euros to 1 dollars???

Bilateral Exchange Rates

- When comparing two currencies
- You can google: www.google.com
- Exchange rates: <https://www.wsj.com/market-data/currencies/exchangerates>
- Yen and Yuan to USD: <https://fred.stlouisfed.org/graph/?g=QMjR>

Multilateral Exchange Rates

- Effective Exchange Rates
 - Compares one currency to a “basket of currencies”
 - Each currency is weighted by its share of international trade
 - Real Exchange Rates: adjusted by consumer prices
 - <https://fred.stlouisfed.org/graph/?g=QMmT>

Changes in Exchange Rates

- We usually look at percentage changes:

$$[P_t - P_{t-1}] / P_{t-1}$$

- Currency appreciation (with respect to another): its value rises in terms of the other.
- Currency depreciation (with respect to another): its value falls in terms of the other.
- If US dollar appreciates w.r.t Euro, the Euro depreciates w.r.t. US dollar.

When?

Spot and Forward

- **Spot** exchange rates: price for "immediate" exchange.
- **Forward** exchange rates: price agreed today for exchanges that will occur at a specified time in the future. E.g. 30, 60, 180 days from now.
- Why? It protects the currency buyer from a potential risk: unknown value of spot rate.

Forward Exchange Rate

An example

- US importer needs 1.000.000 euros in 30 days.
- Today, she does not have the money.
- Spot today: 1.20 \$/EUR. She would need 1.2 M
- A dollar depreciation is expected (more dollars per euro).
- If spot in 30 days is 1.30 \$/EUR, she will need 1.3 M.
- If forward is at 1.25 \$/EUR, that would benefit her.

Premium and Discount

- Forward **premium**: If a forward trade costs more than the spot trade today
- Forward **discount**: If a forward trade costs less than the spot trade today

Foreign Exchange Market

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How P and Q are determined?

- Analyze it as any other market
- Who?
 - Retail customers
 - Commercial Banks
 - Brokers
 - Central Banks

The market: Why

- Trade and Investment
 - Importer (from Europe) needs to pay to the exporter (from the US).
 - The importer sells the merchandise in Euros.
 - Should the exporter accept Euros?
 - The exporter pays inputs, wages and profits in US dollars.
 - Should the importer pay in dollars?
 - This creates a demand for Dollars and a supply of Euros.
- Interest Rate Arbitrage
- Speculation
- Market Intervention

- Imports create a demand for foreign currency and a supply of home currency
- Exports create a demand for home currency and a supply of foreign currency
- Supply and demand determine exchange rate and the amount of money to be traded.
- However, this also depend on the institutions (rules) that apply to this market.

Regimes

- Floating exchange-rate system: no intervention.
 - Spot price is market-driven.
 - Supply and Demand
 - It could be entirely free or dirty/managed
- Fixed
 - National Government
 - Value is determined to some extent
 - A determined value or a range of values

Floating Regime: Market Analysis

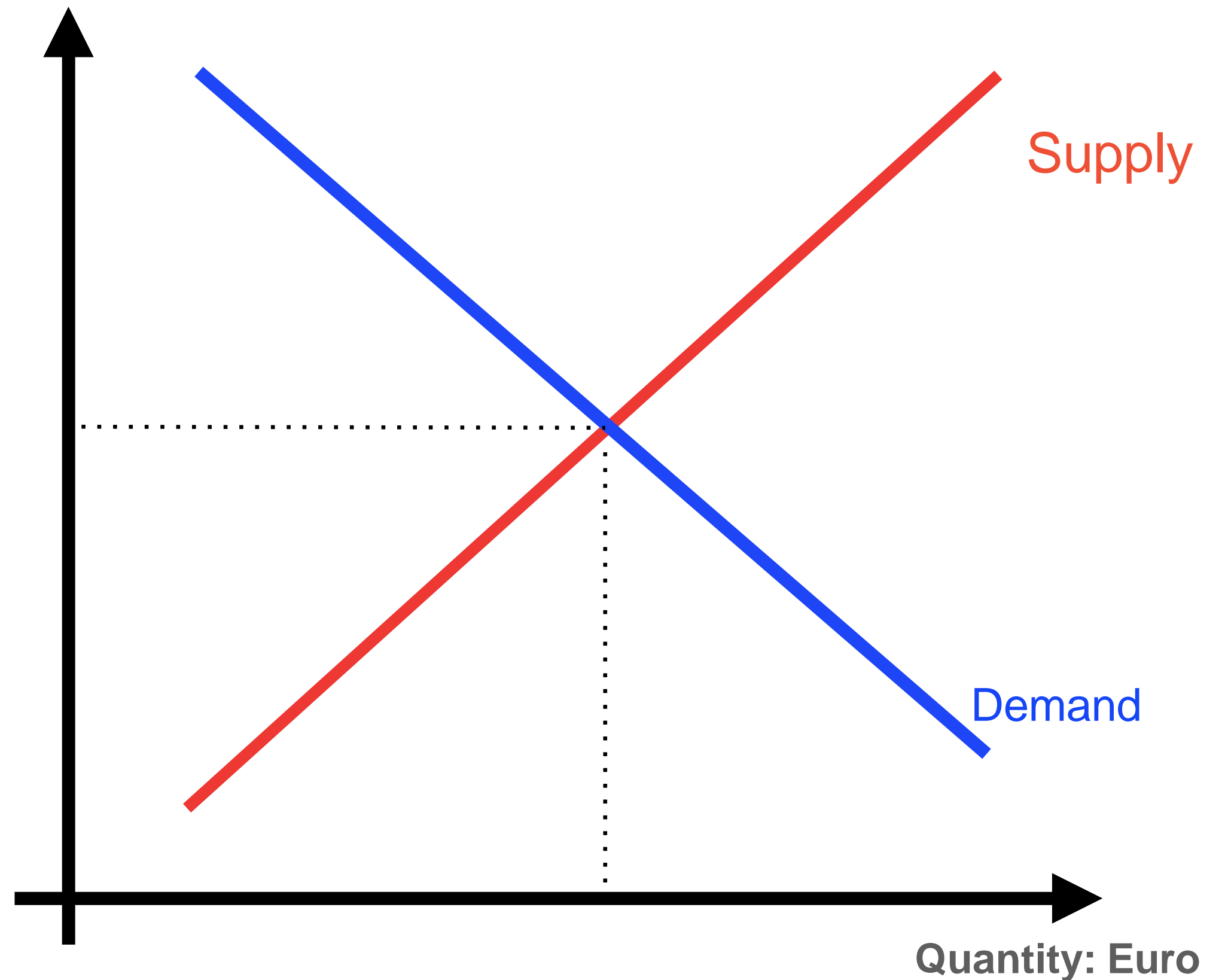
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Floating Regime: Graph I

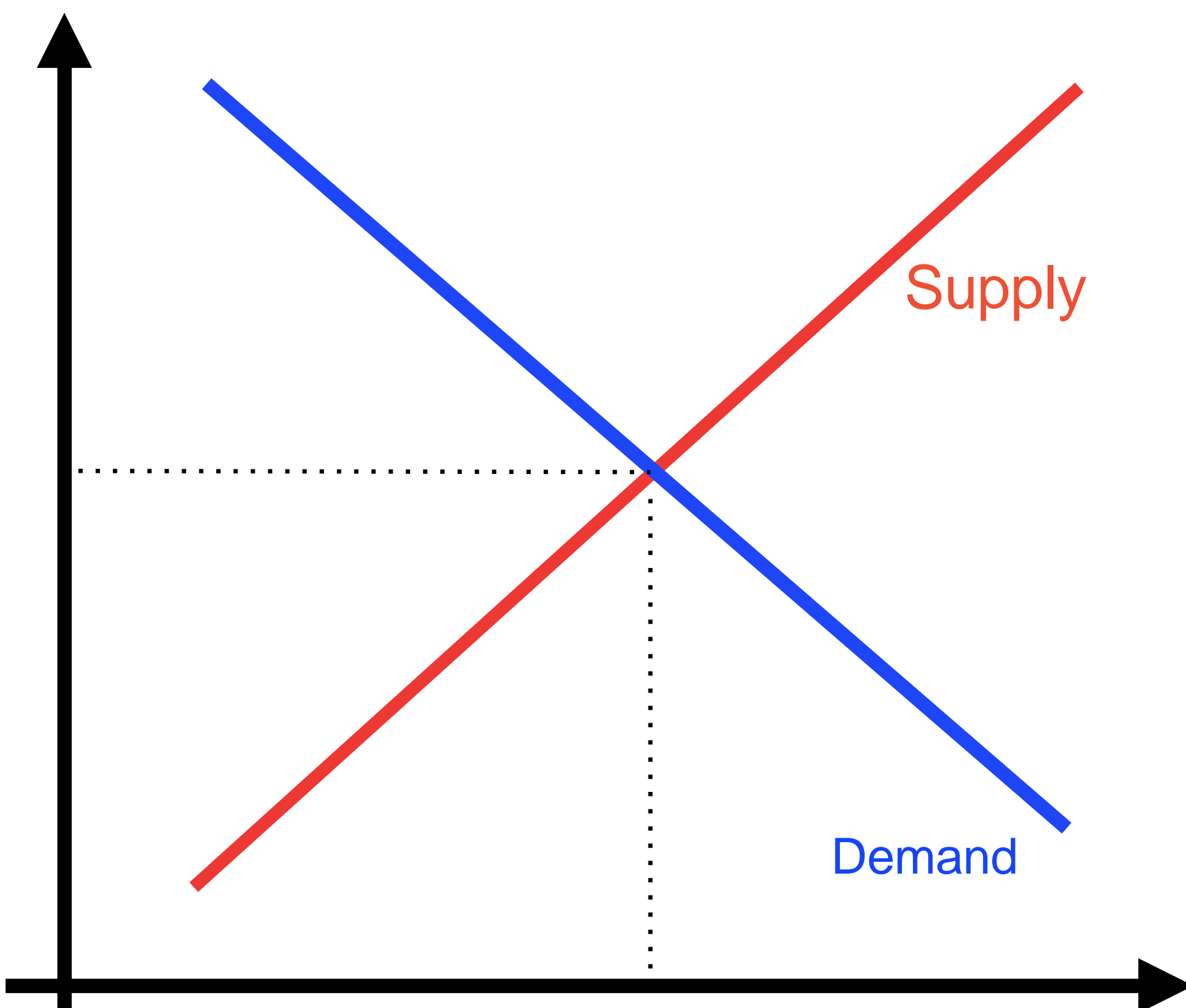
- This is a market where:
 - Consumers hold USD
 - Want to buy Euros

Price: Exchange rate
(USD per Euro)



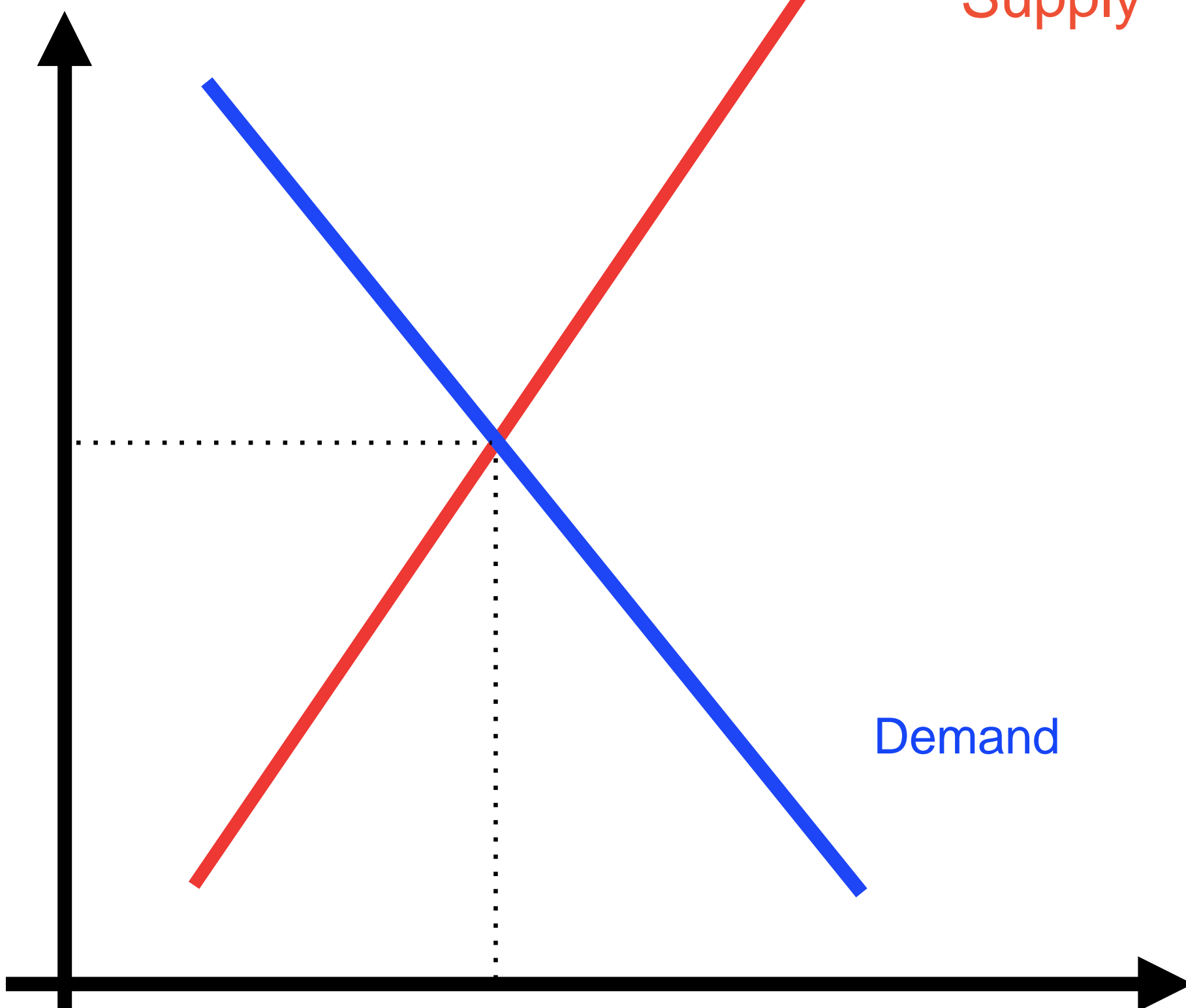
Floating Regime: Graph II

Price: Exchange rate
(USD per Euro)



Quantity: Euro

Price: Exchange rate
(Euros per USD)



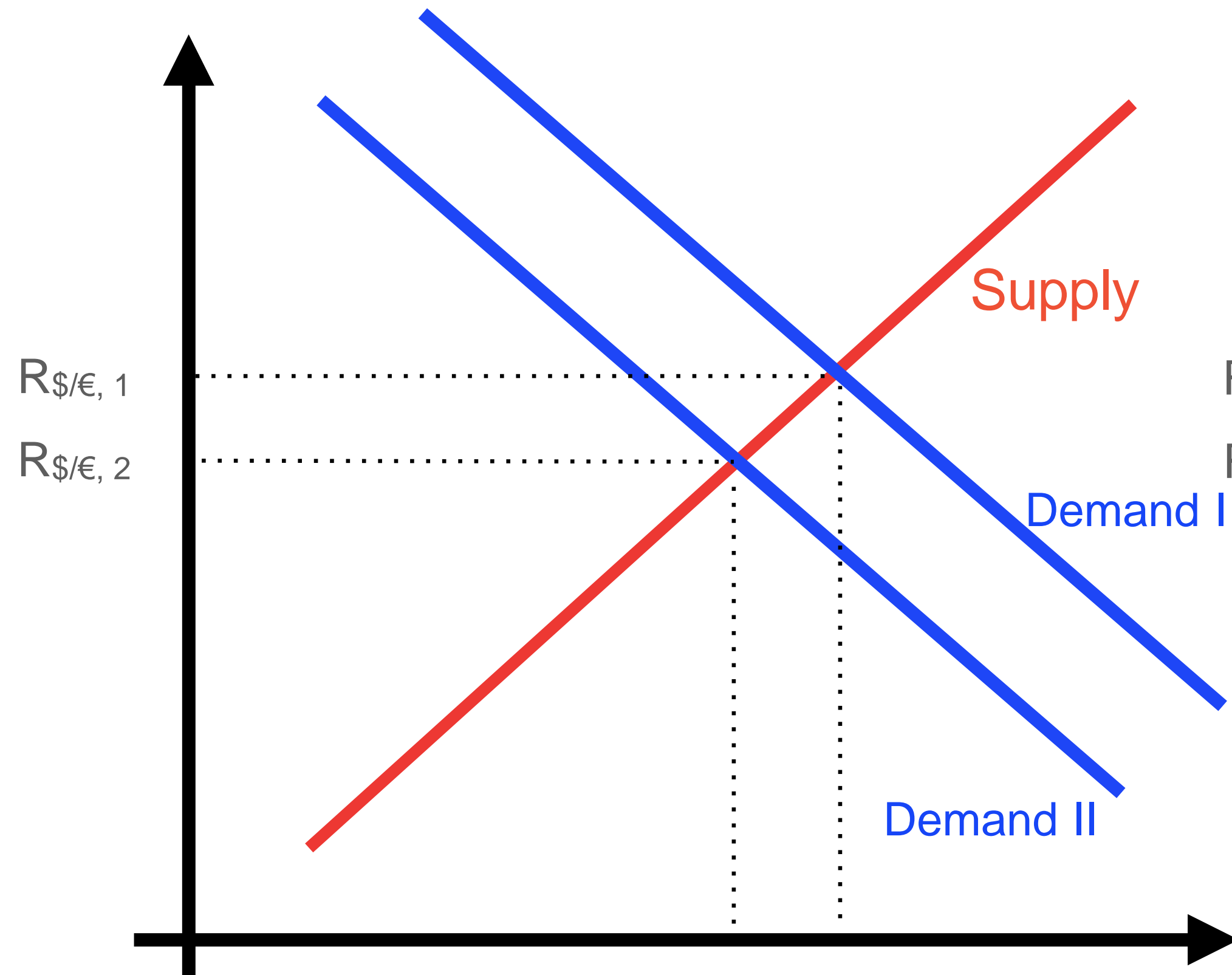
Quantity: USD

Demand

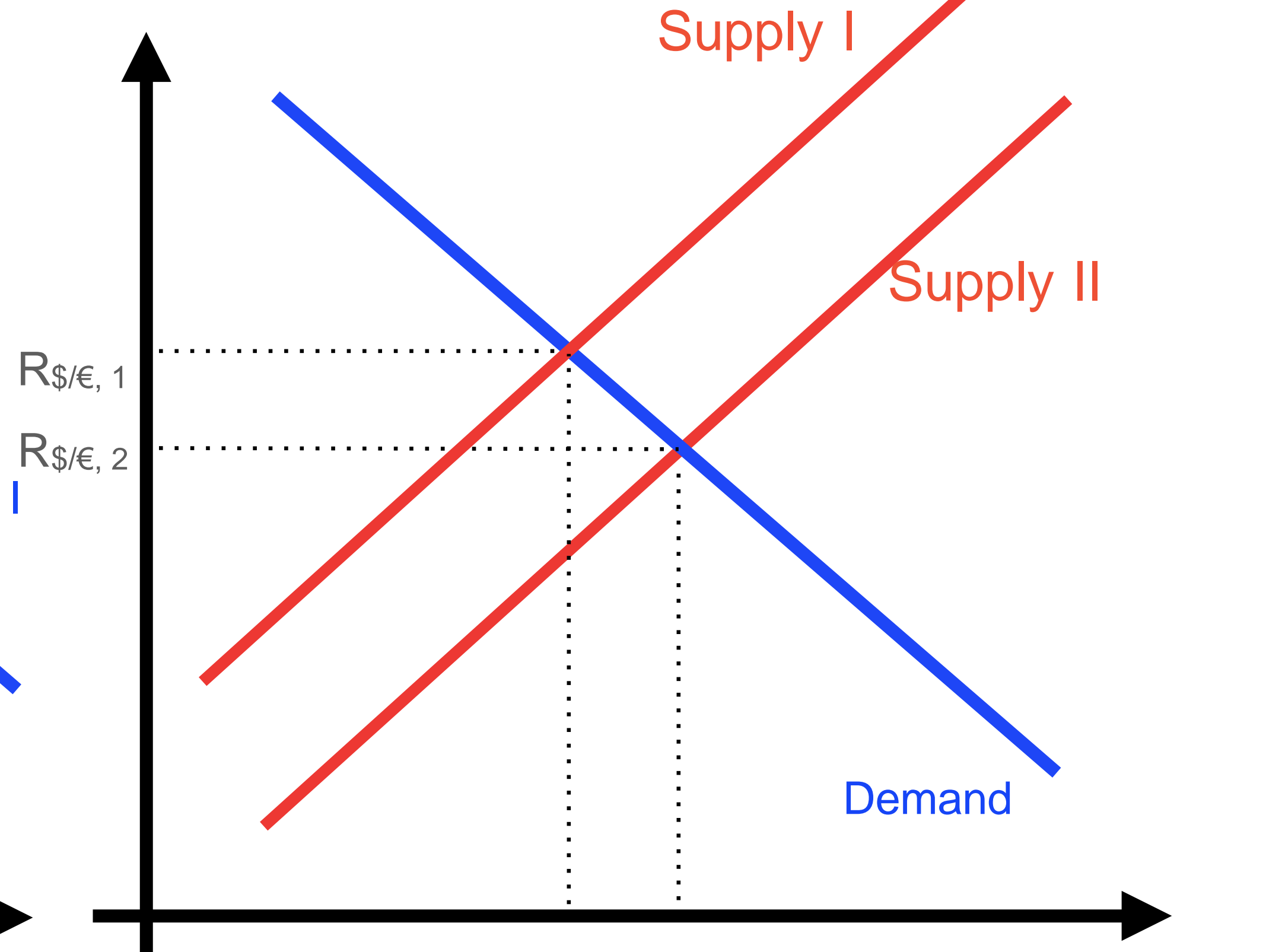
- Slope: downward.
- As exchange-rate increases at home (foreign currency increases its price)...
- ... buying something abroad is now more expensive in home currency.
- People at home wants to buy fewer products abroad.
- People at home wants to buy less foreign currency.
- Similar argument with supply.
 - Exchange-rate increases at home. Abroad, exchange-rate decreases.
 - People from abroad wants our products.
 - More foreign currency is supplied.

Why the price could go down?

Price: Exchange rate
(USD per Euro)



Price: Exchange rate
(USD per Euro)

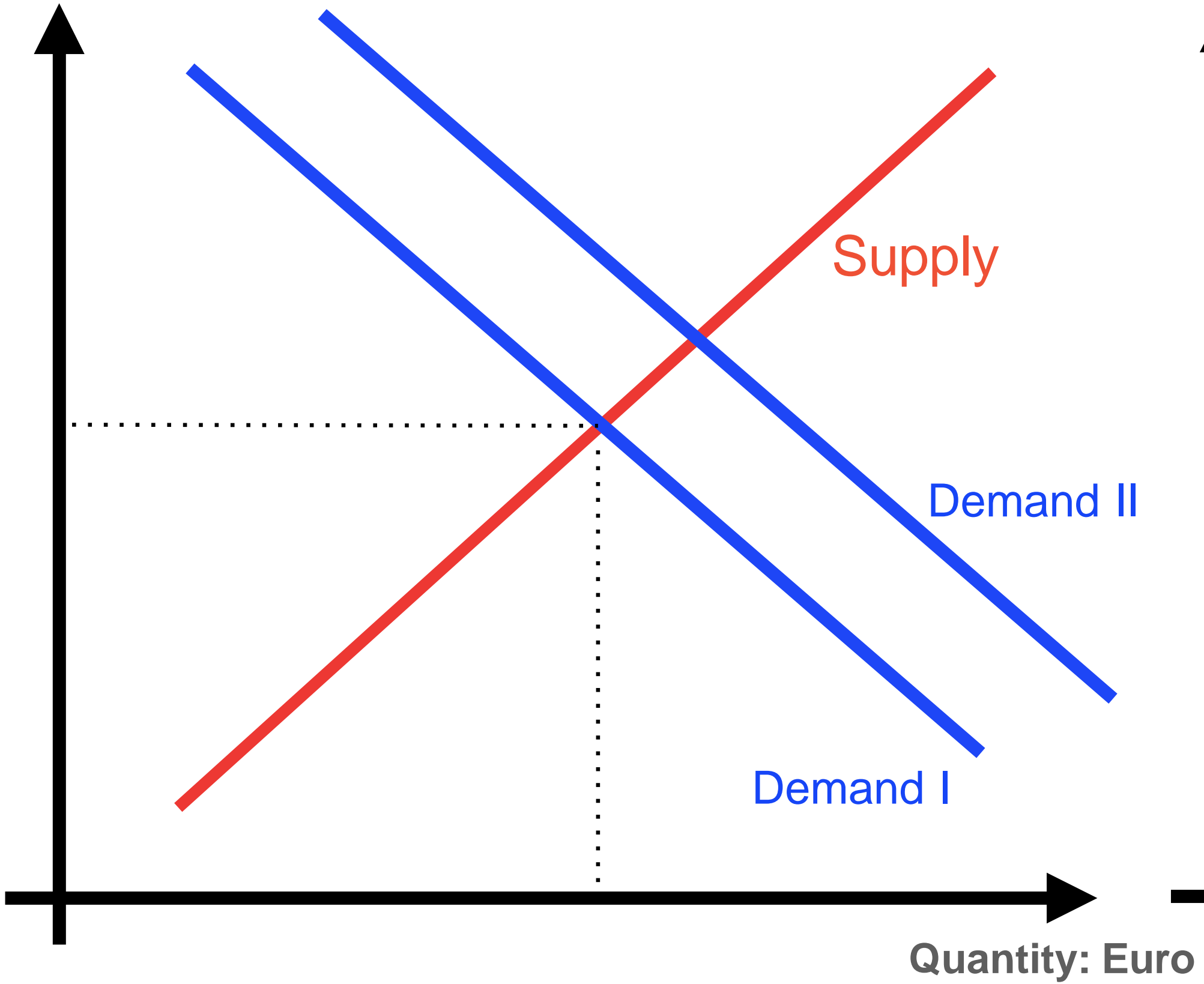


Why the price could go up?

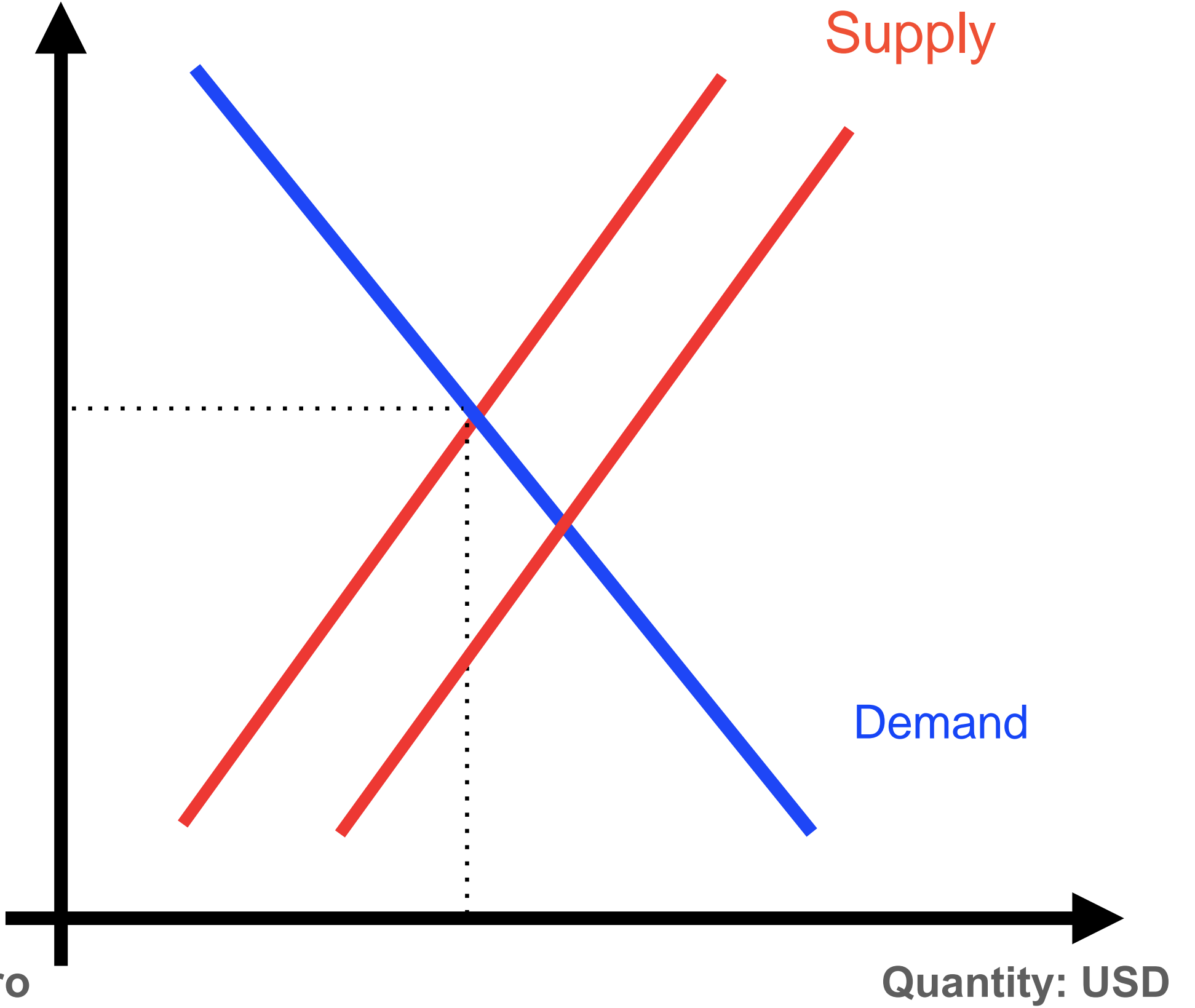
- Demand curve moving to the left (supply curve remains unchanged)
 - People starts liking more the foreign goods and services
 - Foreign opportunities to invest become more attractive
 - Speculation
- **Example: All Americans suddenly want to visit the Eiffel Tower**
 - Market to buy Euros in the US
 - Price is in USD
 - Quantity in EUR
 - American consumers
 - European Sellers
 - Market to buy USD in Europe
 - Price is in EUR
 - Quantity in USD
 - European consumers
 - American Sellers

Shock to Tourism preferences

Price: Exchange rate
(USD per Euro)



Price: Exchange rate
(Euros per USD)



Fixed Exchange Rates

Intro to International Economics

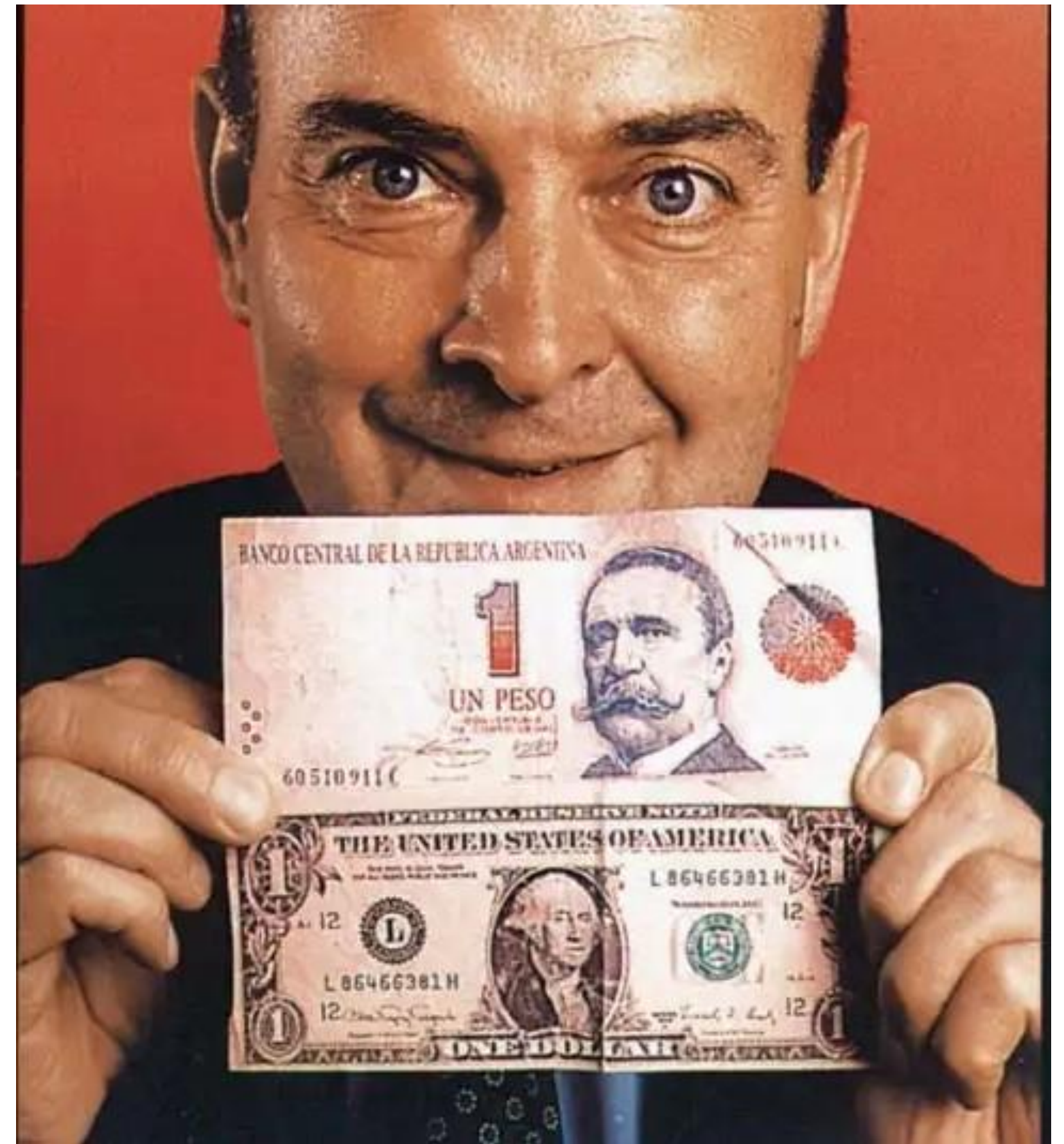
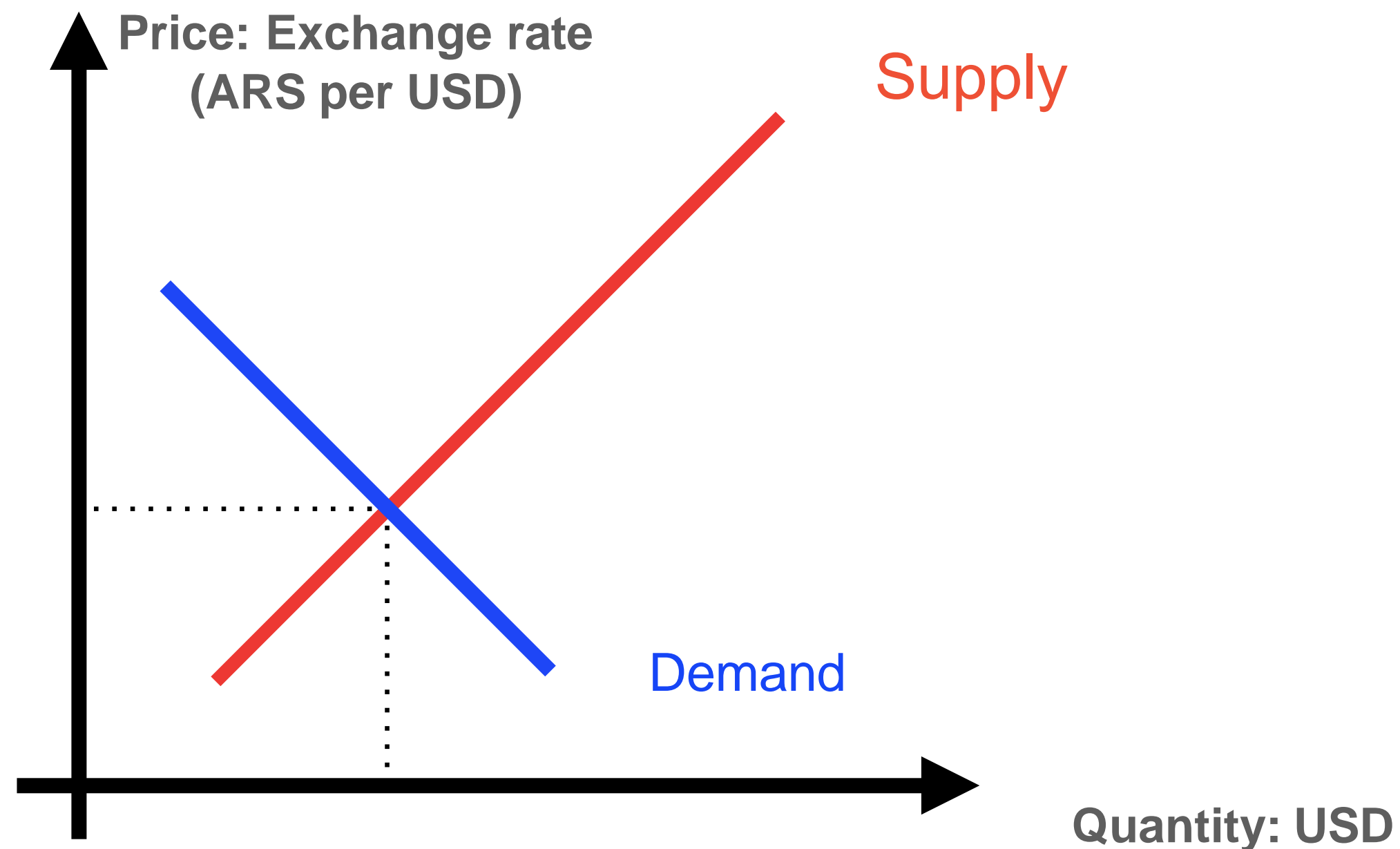
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Government Intervention

- Governments sometimes intervene
- They can do this by determining the price
- If a price is determined, the government should defend that fixed rate
- That means that for any non-equilibrium price, the government should respond by buying or selling currencies
- Otherwise, a black market will probably exist.

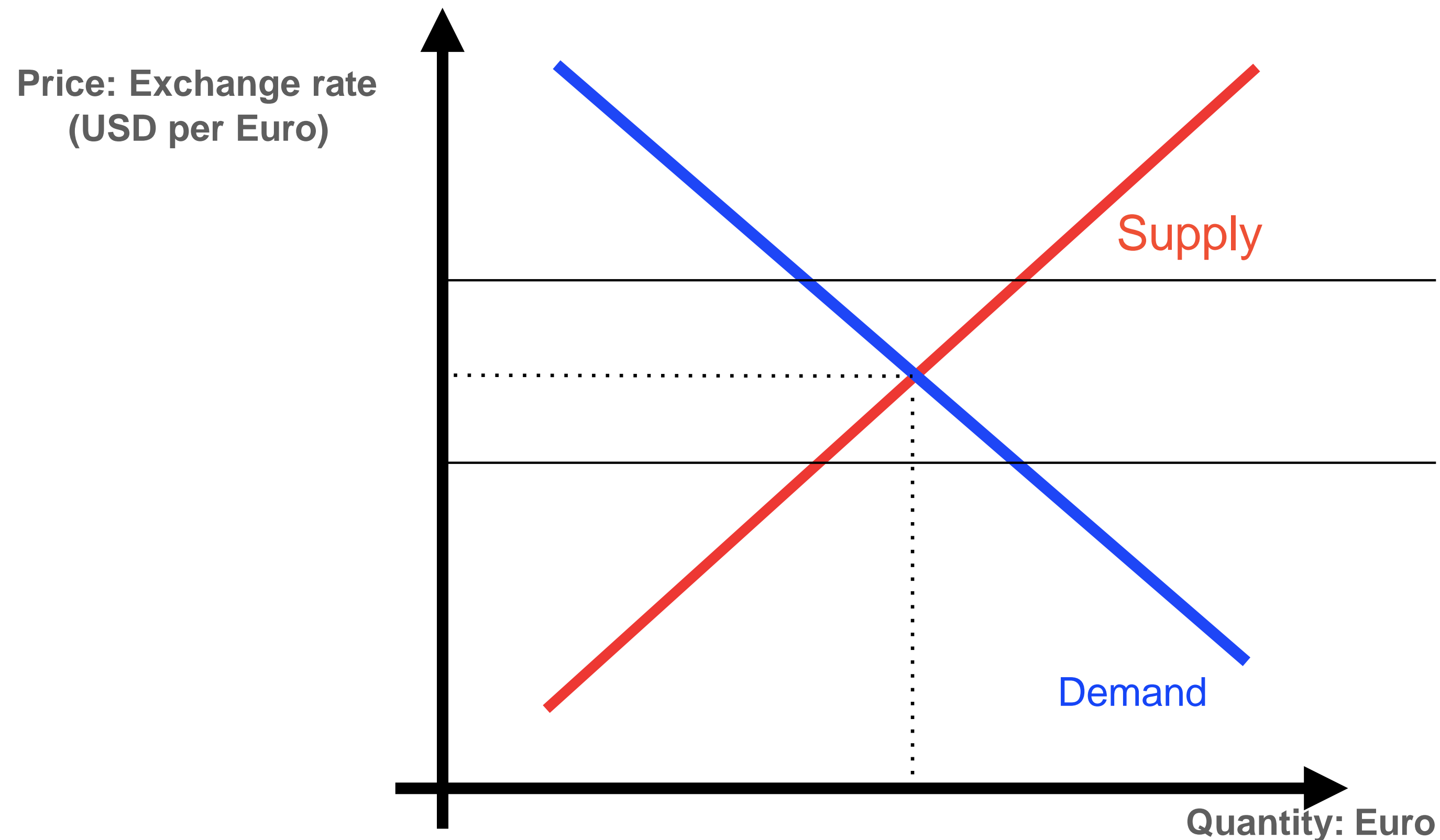
Fixed Exchange Rates System

- Keep exchange rate fixed.
- Argentina fixed in the 90s that 1 dollar should be bought with 1 Peso.



Fixed Exchange Rates System

- Declare a narrow band of exchange rates within which the rate is allowed to vary



Arbitrage

Intro to International Economics

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Arbitrage

- Suppose $1\text{£} = \$1.70$ in London and $\$1.60$ in NY.
- Buy 1£ in NY (cost = 1.60 USD).
- Sell 1£ in London and you get 1.70 USD.
- You started with 1.60 USD and finished with 1.70 USD.
- This cannot happen. A lot of people in NY will buy pounds.
- Thus, rates are essentially the same.

Triangular Arbitrage

- Suppose
 - $1\text{£} = \$1.60$ everywhere.
 - $1\text{CHF} = \$0.50$ everywhere.
 - $3\text{CHF} = 1\text{£}$ everywhere.
- You start with 1.50 USD. Buy 3 CHF.
- Sell it and buy 1£.
- Sell it and buy 1.60 USD.
- You started with 1.50 USD and finished with 1.60 USD.
- This cannot happen. A lot of people will buy CHF.
- Thus, cross-rates are consistent because of market pressures.