An Open Economy

ECON201 - Winter, '24

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This Lecture

- In our lecture on investment and saving, we ignored exports and imports. Instead, we focused on national saving.
- However, trade can have significant effects on the global allocation of financial assets.
- Today, we will look at an open economy. That is, an economy which imports/exports goods, and sends/receives capital from abroad.
- In this framework, we will also consider trade policy, including the welfare effects of tariffs.

Outline

1. International Flows

2. Purchasing-Power Parity

3. Two Markets

4. Welfare Effects of Trade

5. Effects of Tariffs

6. Free Trade: Arguments...

7. Modern Trade Policy

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1. Goods

2. Financial Flows

3. More Accounting Identities

4. Nominal Exchange Rate

5. Real Exchange Rate

Trade Balance

Net Exports = Exports – Imports

- Another term for net exports (NX):
  Trade balance.
- $NX > 0 \iff$ *Trade surplus.*
- $NX < 0 \iff$ *Trade deficit.*
- $NX = 0 \iff$ *Balanced trade.*

Determinants of Trade Balance

1. Consumer tastes,
2. Prices in both countries,
3. (Currency) exchange rate,
4. Transportation costs, and
5. Government (trade) policy.

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Net Capital Outflows

Net capital outflows = Purchases of foreign assets by domestic residents
– Purchases of domestic assets by foreigners.

- Another term for net capital ouflows (NCO):
  Net foreign investment.

- Two types of foreign investment:

  i. Foreign direct investment (active), and

  ii. Foreign portfolio investment (passive).

Determinants of Net Capital Outflows

1. Real interest rate on foreign assets,

2. Real interest rate on domestic assets,

3. Perceived economic and political risks of holding assets abroad, and

4. Government policies toward foreign ownership of domestic assets.

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NX = NCO

- Net exports are always equal to net capital outflows.
- **Reason:**
  i. To buy foreign goods (imports), you need foreign assets (e.g. foreign currency).
  ii. If you sell abroad (exports), you will receive foreign assets in return.
- If $NX > 0$, then $NCO > 0$.
- If $NX < 0$, then $NCO < 0$.

Savings and Investment

$$Y = C + I + G + NX$$
$$\Longleftrightarrow$$
$$\underbrace{Y - C - G}_{S} = I + NX$$

- In a closed economy, $NX = 0$. Thus, $S = I$.
- If trade balance NX is negative, investment exceeds domestic saving ($I > S$) $\rightarrow$ foreigners finance part of domestic capital accumulation.
- Trade deficits are not bad *per se*. Better if the deficit is due to high (foreign) investment.

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Nominal Exchange Rate

- *The rate at which a person can trade the currency of one country for the currency of another.*

- For example, how many peso do you get for 1 USD. *Currently, ca. 17 MXN.*

- **Appreciation**/Strengthening: One dollar buys *more* foreign currency than before.

- **Depreciation**/Weakening: One dollar buys *less* foreign currency than before.

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Real Exchange Rate

- The units of different currencies are arbitrary. Occasionally, countries may even change the denomination of their currencies.
- The price of goods and services compared in different countries in *real* terms determines the amount of exports and imports.

$$\text{Real Exchange Rate} = \frac{\text{Nominal Exchange Rate} \times \text{Domestic Price}}{\text{Foreign Price}}$$

- **Example:** Tech products in U.S. vs Europe.
- If we extend this to the general price level:

$$\text{Real Exchange Rate } (\epsilon) = \frac{e \times P}{P^*}, \text{ where } P^* \text{ is the foreign price level.}$$

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1. International Flows

2. Purchasing-Power Parity

3. Two Markets

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5. Effects of Tariffs

6. Free Trade: Arguments...

7. Modern Trade Policy

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1. International Flows

2. Purchasing-Power Parity

1. Definitions

2. Implications

3. Limitations

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5. Effects of Tariffs

6. Free Trade: Arguments...

7. Modern Trade Policy

Purcharsing-Power Parity

- Purchasing power = The value of money in terms of goods and services.
- **Purchasing-power parity**: Equality of purchasing power across countries.
- **The Law of One Price**: A unit of any given currency should be able to buy the same quantity of goods in all countries.
- **Reason:** *No arbitrage opportunities* in equilibrium/long run, assuming no other frictions.

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7. Modern Trade Policy

Implications

$$\text{Real Exchange Rate} = 1 = \frac{e \times P}{P^*}.$$

$$\implies e = \frac{P^*}{P}$$

- Under the Law of One Price, real exchange rate cannot change over time.
- The nominal exchange rate must reflect the relative price levels of the two countries.
- If there is higher inflation domestically, the nominal exchange rate falls.

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7. Modern Trade Policy

Limitations

- LOP/PPP does not hold in practice.

- **Two Reasons:**

  i. Some goods cannot be easily traded (e.g.haircuts) → no arbitrage, even if real prices are different.

  ii. Foreign and domestic goods may not be perfect substitutes (e.g. Apple vs Samsung).

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7. Modern Trade Policy

Simplifying Assumptions

- Take GDP and price level as given.
- Price level adjusts to balance supply and demand for money.
- **Goal:** Highlight the forces which determine trade balance and exchange rate.

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3. Two Markets

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5. Effects of Tariffs

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7. Modern Trade Policy

1. Loanable Funds

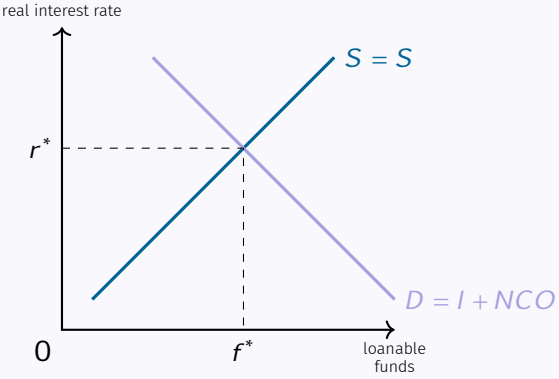
2. Foreign-Currency Exchange

3. Equilibrium

4. Policy Applications

Loanable Funds Market

- $\underbrace{S}_{\text{national saving}} = I + NX = I + NCO$
- Supply of loanable funds = national saving
- Demand for loanable funds = investment + net capital outflows.
- At equilibrium interest rate r^*, the amount people save exactly balances the sum of domestic investment and net capital outflows.



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1. International Flows

2. Purchasing-Power Parity

3. Two Markets

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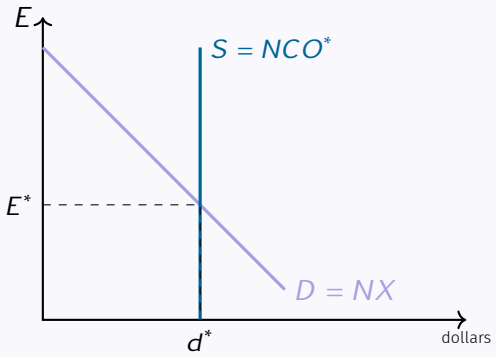
Foreign-Currency Exchange Market

- $NCO = NX$
- **Supply** for foreign currency = Net capital outflows at different (real) exchange rates.
- **Demand** for foreign currency = Net exports at different exchange rate.
- At equilibrium real exchange rate, the demand for dollars by foreigners (for exports) is equal to the supply of dollars arising from U.S. net capital outflow.



Outline

1. International Flows

2. Purchasing-Power Parity

3. Two Markets

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7. Modern Trade Policy

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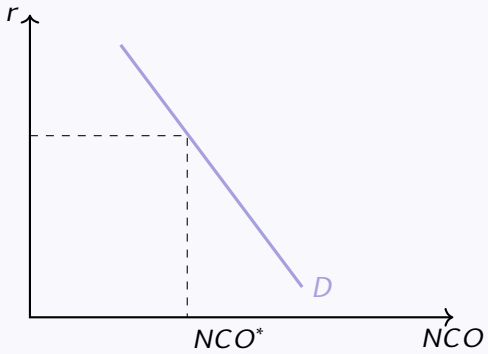
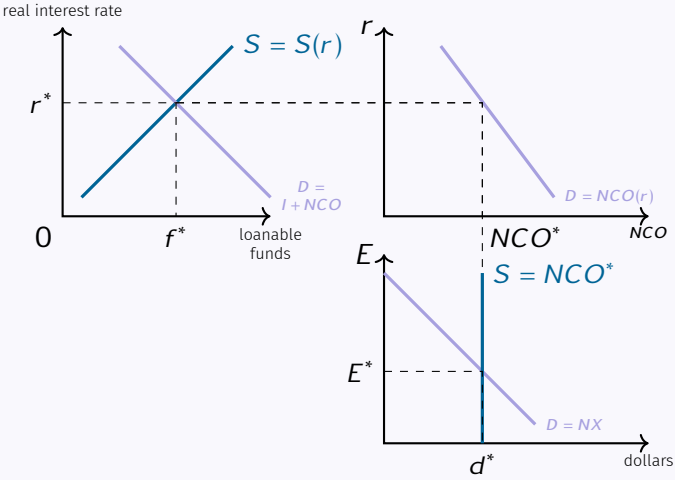
Net Capital Outflow

- The markets for loanable funds and foreign-currency exchange are linked by net capital outflows, NCO.
- A key determinant of NCO is the domestic real interest rate.



Simulatenous Equilibrium



Outline

1. International Flows

2. Purchasing-Power Parity

3. Two Markets

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5. Effects of Tariffs

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7. Modern Trade Policy

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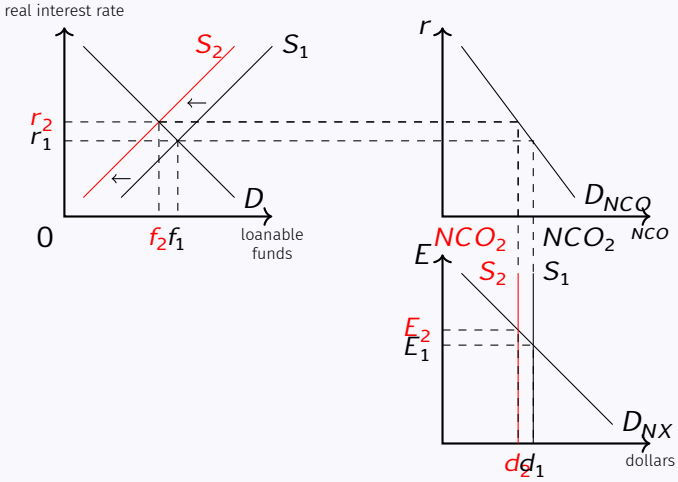
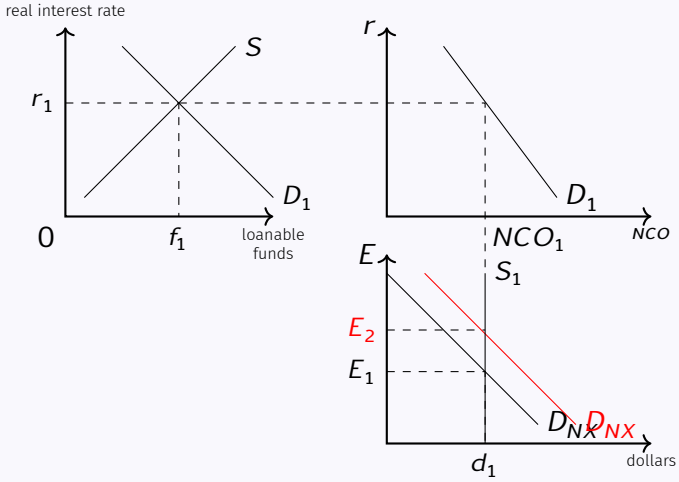
Government Budget Deficit

What happens if the government increases its budget deficit?



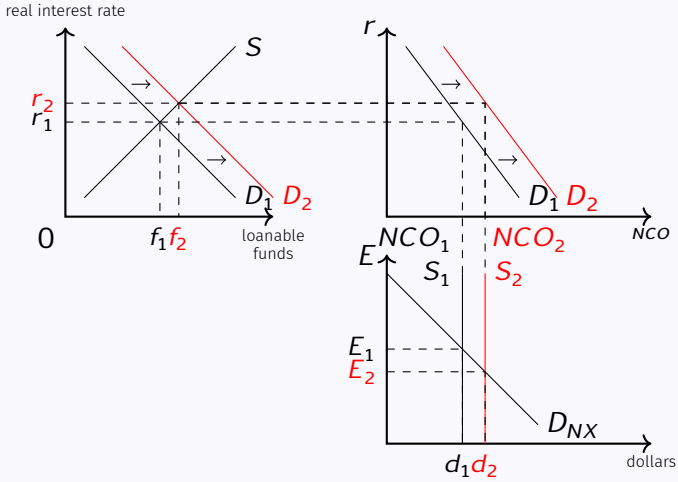
Trade Policy

What happens if the government imposes a quota on imports?



Capital Flight

What if investors are suddenly nervous and want to withdraw their capital from a country, e.g. Mexico capital flight 1994/5?



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2. Purchasing-Power Parity

3. Two Markets

4. Welfare Effects of Trade

5. Effects of Tariffs

6. Free Trade: Arguments...

7. Modern Trade Policy

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7. Modern Trade Policy

1. A Small Economy

2. Exporting Sector

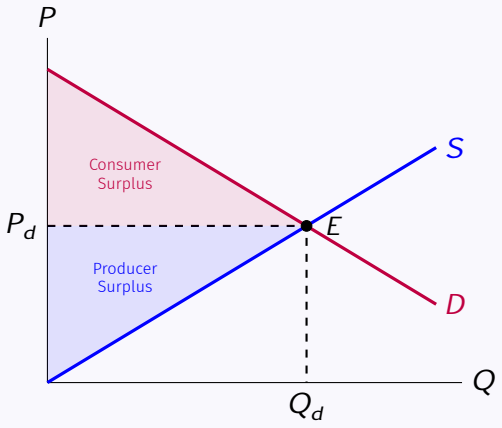
3. Importing Sector

4. Discussion

Autarky

- Consider a market which is closed to international trade.
- Assume that the domestic market is **small relative to the world market**.
- Thus, all buyers and sellers will be **price-takers** if the market opens to trade.
- Effects of trade will depend on:
  i. comparative advantage, and
  ii. $P_w > P_d$ or $P_w < P_d$,

  where P_w is the *world price*.



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2. Purchasing-Power Parity

3. Two Markets

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7. Modern Trade Policy

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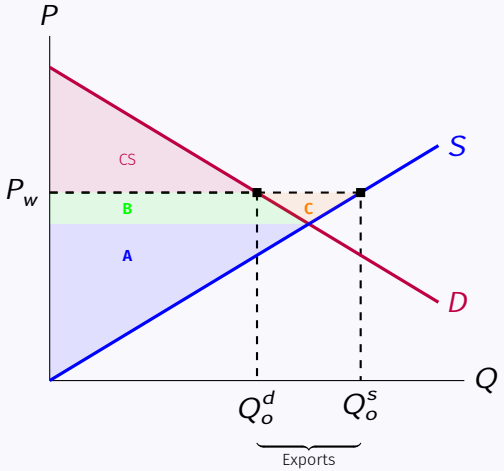
Exporting Sector

- If the world price is higher, the country will export.
- Domestic producers will supply more, $Q_o^s > Q_d$.
- But domestic consumers will demand less, $Q_o^d < Q_d$. So, $Q_o^s - Q_o^d$ is exported.
- Consumer surplus decreases but producer surplus expands by more. $\rightarrow$ Total surplus increases.



New PS = A + B + C.

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2. Purchasing-Power Parity

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7. Modern Trade Policy

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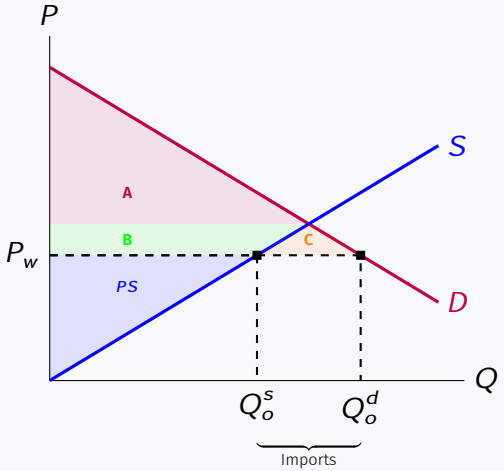
Importing Sector

- If the world price is lower, the country will import.
- Domestic consumers will demand more, $Q_o^d > Q_d$.
- But domestic producers will supply less, $Q_o^s < Q_d$. So, $Q_o^d - Q_d^s$ is imported.
- Producer surplus decreases but consumer surplus expands by more. $\rightarrow$ Total surplus increases.



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2. Purchasing-Power Parity

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6. Free Trade: Arguments...

7. Modern Trade Policy

Discussion

- Gains of trade lead to increase in total surplus.
- Trade has winners **and** losers.
- Ideally, gains of trade would be redistributed to compensate those who lose.
- In practice, compensation schemes are rarely satisfying.
- **Problem:**
  Often losses are concentrated, while benefits are dispersed (e.g. fewer workers than consumers).

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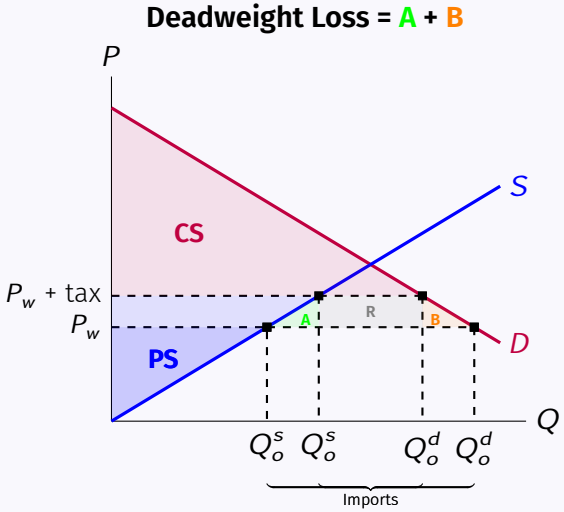
7. Modern Trade Policy

Tariffs

- A *tariff* is a tax on imported goods.
- Tariffs increase the price of imported goods.
- Domestic producers supply more, but consumers demand less.
- Consumer surplus decreases by more than sum of producer surplus and tax revenue increases.
  → Tariffs are inefficient.



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1. ...in favor

2. ...against

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Arguments for Trade

- Increased total surplus.
- Increased variety of goods.
- Lower costs due to economies of scale.
- Increased competition (less market power).
- Increased productivity (least productive firms = purged).
- Greater access to foreign technological knowledge.

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Jobs and Infant-Industries

- Fewer jobs in importing industries.
- Without protection, fledging firms in high-value industries may not mature.

However,

- Creates jobs in industries with comparative advantage.
- Start-up often survive long periods of losses, as long as enough finance available.
- Trade protection requires picking winners.

National Security and Unfair Competition

- Dependence on foreign production may increase vulnerability to blackmail/war.
- Domestic producers will be outcompeted by subsidized foreign firms.

However,

- Can limit free trade to industries which are not critical to national security.
- National security can benefit from stronger economy and cheaper inputs.
- Economic interdependence may decrease the risk of open conflict?
- Local consumers will benefits from subsidized goods.

Positive Demand Externalities

- More advanced industries may lead to more job creation through positive demand externalities.
- Such industries may enable the development of high-value, local supply chains.
- Such externalities may not be captured by our diagram, which represent a perfectly competitive market.

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7. Modern Trade Policy

Modern Trade Policy

- Two types of trade liberalizations:
  i. unilateral, and
  ii. multilateral.
- **Multilateral Trade Policies**
  a. Free Trade Agreements (e.g. USMCA, CPTPP)
  b. Supranational Institutions (e.g. EU)
  c. International Organizations (e.g. WTO and GATT)

Conclusion

- Net exports and net capital outflows are identical.
- Domestic investment and national saving are crucial to understand trade and foreign investment.
- Purchasing-Power Parity (PPP) implies that nominal exchange rates change due to different levels of inflation. The real exchange rate would be fixed under the Law of One Price.
- We have seen that international trade increases total surplus but has losers as well as winners.
- Tariffs lead to deadweight loss. We need a more complex model to evaluate modern trade policy.
- **Next:** Short-term fluctuations in economic activity.