Lecture 2

Measurement of transport costs

Trading goods and services generates transport costs due to the distance between trading partners.
Transport costs not only include the actual monetary cost of shipping products from one location to another (CIF vs. FOB, see next slide) but also transportation time.
—> Hard to exactly quantify the level of transport costs.

The most commonly used **unit transport cost rate** (TC) captures the cost of carriage, insurance, and freight.
two main shipping quotations:

- **FOB (Free on Board) quotation**: Value of the traded good at the port of shipment (includes purchase price of the good, cost of transporting to the port of shipment, loading the carrier.) the actual value + transporting + cost of loading of the ship. The exporter is in charge of all the costs.
- **CIF (Cost Insurance & Freight) quotation**: Value of the traded good at the port of destination (includes FOB value, cost of carriage, insurance.)

Based on CIF and FOB rates we can calculate the unit transport cost rate:
TC=[(CIF - FOB)/FOB] *100 = (CIF/FOB - 1) *100
Depends on country and industry
CIF/FOB unit transport cost rate captures the ratio of transport cost to the FOB value of goods. Typically it is:

- Higher for perishable goods.
- Higher for heavy/bulky items.
- Higher for countries far away from major trading partners.—> distance is important
- Higher for landlocked countries.
- Higher for air transportation.

Overall, transport costs have been falling over time because of more efficient technology.

Dimensions of 'distance'

Distance is a key factor that determines the level of transport costs.
Distance between trading countries is the result of differences along various dimensions.
Overcoming distance is costly, so we expect less international economic activity when distance is high.

- Geographic: Great-circle distance between capital cities; length of shipment route (directly related to transport cost). Negative relation: countries do more business with countries with a small distance.
- Cultural: Differences in norms and values between countries. (Harder to interact with people who are different.) The more different they are the more difficult to interact with people. Negative relation: countries do more business with countries with a small distance
- Institutional: Differences in formal rules and regulations. Easier to interact with countries with high quality institutions. Institutional quality is an important aspect to countries to where they operate because of the costs of the locations.

Other dimensions of distance relevant for international economic activity:

- Economic distance: Differences in economic development (GDP per capita) between countries. Determines what types of products and how much countries can sell to one

another. Influences the value of the product.
- Language: Speaking a common language facilitates interaction. Difficulties in negotiations.

Role of distance for international economic activity at the country level and the firm level.

Distance at country level:

Overcoming distance is costly. All distances create costs.
We expect less cross-border economic activity the greater is the distance.
At the country level, this implies that aggregate trade flows between countries are influenced by distance.
The 'gravity model' relates two countries' trade flows to the various dimensions of their distance.

Idea from physics: Gravity forces between two bodies are the stronger the greater their masses and the smaller the distance between them.
Application to international economics:
- Bodies = countries
- Gravity forces = trade flows (*T*)
- Mass = Level of GDP (*Y*)
- Distance = (geographic) distance (*dist*)
- Other factors (*Z*)

$$\ln T_{ij} = \alpha \ln Y_i + \beta \ln Y_j + \gamma \ln dist_{ij} + \delta Z$$

Empirical studies confirm that α>0, β>0, γ <0.

Factors typically considered in Z:
- Cultural distance (-)
- Population (size) (+)
- Tariffs (-)
- Landlocked (-)
- Common language (+)
- Common border (+)
- Regulatory burden (administrative) (-)
- Common membership in trade agreements (+)
- Exchange rate volatility (-) exchange rate change gives uncertainty and therefore reduces trade

Distance makes multinational activity more costly:
› Shipping products to foreign customers or between the parent firm and the foreign subsidiary involves transport costs.
› Firms have to overcome institutional, cultural, and language barriers in the country they are operating.
—> Distance influences not only the level of cross-border activity but also the choices regarding the type of international firm activity (export/import, horizontal/vertical multinational activity).
The level of horizontal/vertical multinational also depends on the distance.

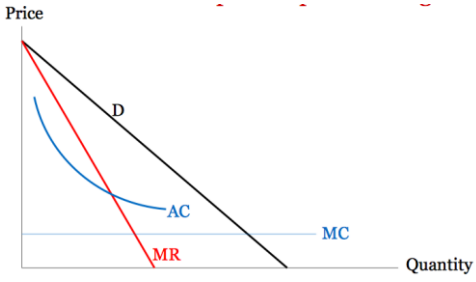
'Going global' model:
Microeconomic model to evaluate the cost and benefits associated with different types of global firm activity.

Key assumptions:

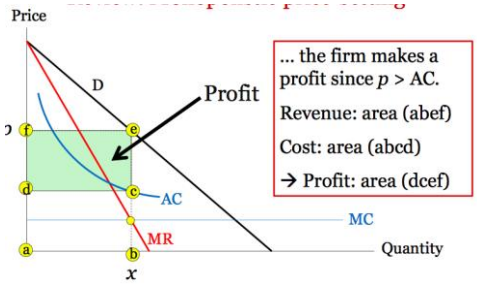
- Two identical countries (no country-specific factors).
- Home and foreign market are segmented (firm can set prices independently in each market).
- Firm is a **monopolist** in each market.

Review: Monopolistic price-setting

- The firm faces two types of costs: constant marginal costs (MC) and fixed costs.
- This results in a falling average-cost (AC) curve.
- The firm faces a downward-sloping demand (D) curve.
- The marginal-revenue (MR) curve goes through the same point on the vertical axis as the demand curve, but has twice its slope.



Profit maximization: The monopolists sets the quantity (x) such that MR = MC holds.
The price (p) is determined by the demand curve.
As long as p > AC, the firm makes a profit.



The firm sets the quantity (x) such that MR = MC.
The price (p) is determined by the demand curve
The production costs are determined by the average cost (AC) curve.

Two types of fixed costs:

1. Firm specific cost, **F** (imposed only once, typically at the headquarter: R&D, marketing, etc.)
2. Plant-specific cost, **P** (fixed cost of setting up and running each production plant) forevery foreign subsidiary

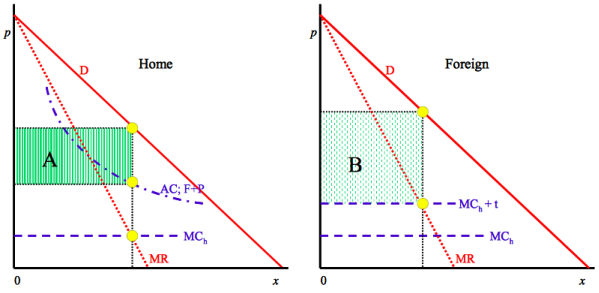
Key variables:

1. Marginal production cost, **MC** (extra cost of producing an additional unit); here constant. Notation: **MCh**, **MCf**.
2. Transportation cost, **t** (cost of shipping one unit between the two countries)

MCh+t is the actual relevant marginal costs for buyers in the foreign market and for the subsidiary

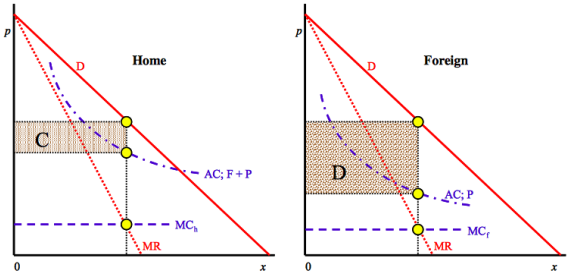
<u>Export/Import:</u>
At home there are two types of fixed costs: firm and plant.
There is no production at the foreign subsidiary and therefore only firm fixed costs

The firm makes a profit of A at home and a profit of B at the foreign country. Total profit = A+B



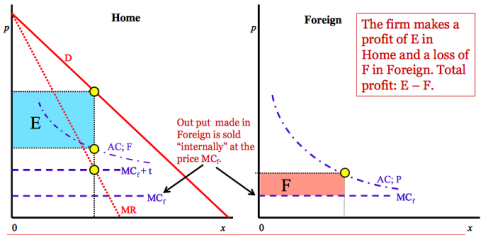
If the transportation cost were higher, the sales would be lower and the profit also. So distance has an influence on the profit.

<u>Horizontal MNE</u>: selling and producing in both countries.
Fixed costs at home are higher because of headquarter.
Foreign profit is bigger due to lower fixed costs.



Profit = C+D
Transportation costs are irrelevant.

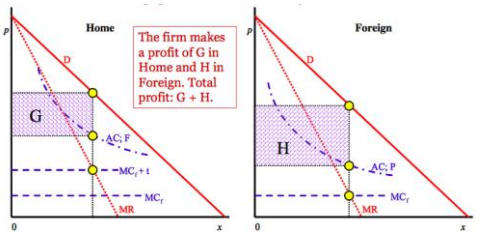
Vertical MNE: selling and producing at different places
Marginal costs of production are at the foreign country.
There is no demand curve at the foreign country.
There are no producing costs at home just marketing hand headquarter.



Fffective marginal costs is mcf + transportation
The foreign country only sells to the home country for a price, which is equal to the marginal costs at the home country. The foreign company makes a loss because the production costs are higher.
The total profit is important, not the profits of the subsidiaries

Total profit = E - F

Hybrid MNE: producing in one location but selling at both markets.



Both home market en foreign market have demand curves.
MCf at foreign and MCf+t shows that there is being produced at the foreign country.
Prices and quantities at the countries are independed.
Both countries make profit.
Called vertical case in the textbook, but this is wrong!

Total profit: G+H

International firms have to overcome institutional, cultural, and language barriers in the foreign country they are operating.
Firms doing business abroad face extra costs that local firms do not face.
Total additional costs (actual financial costs + hidden non-monetary costs) = 'liability o foreignness'

The multinational firm has more cost due to distance (cultural, institutional), that is why the multinational has higher average costs of production than the local business who is used to the environment.

Liability of foreignness is the difference in profit between the multinational and the local firm because of the distance

Challenges faced by firms crossing borders

Multinational companies suffer from the liability of foreignness.
1. What determines the profitability of MNEs'? → firm- and country specific factors
2. What are the challenges faced by MNEs? → managing the global-local paradox
□choosing the right entry mode

Firms operating abroad need to overcome the liability of foreignness to be able to compete with local firms.
Both firm-specific and country-specific factors influence the level of competitiveness of global firms.
› Two models:

• Diamond model (Porter)
Ownership-Location-Internalization (OLI) model (Dunning)

Porter's diamond model

Four related factors determine the level of international competitiveness of a firm/industry in a given country.

1. Production factors (resource endowments) in home country, availability of national, natural and human resources.
2. Demand conditions: size (scale economies) and quality of home market (pressure to innovate to satisfy local buyers)
3. Presence of supporting industries in home country, deliver (specialized) inputs, may generate innovation which can encourage to innovate
4. Firm-specific advantages (strategy, structure, rivalry) how the are created, organized, managed

Combination of the four determines competitiveness. Government and chance have influence on this

Firm-specific advantages = valuable firm-specific tangible and intangible resources and capabilities.
Resources and capabilities generate a firm-specific advantage if they are:

- Valuable
- Rare
- Inimitable
- Non-substitutable

—> resource-based view of the firm
Porter's model ignores conditions in host countries, which is essential for understanding multinational firms.

Dunning's OLI model

Three factors influence the decision of a firm to go abroad and its international success:

1. Ownership: firm-specific advantages that are transferable across borders
   → WHY
2. Location: specific factors in the host country.
   → WHERE
3. Internalization: organization of cross-border activities (in-house vs. through market) depends on the degree of internationalization. Based on the choices you make.
   → HOW

Global-local paradox
Low/Low: International strategy →Copy paste home operations
Low/High: Global standardization strategy → Standardize products and concentrate activities
High/Low: Localization → Customize to host country
High/High: Transnational strategy → Use subsidiary as source of key resources. (very difficult)

Entry modes

Different local circumstances in the host country require different entry modes:

- Licensing to a firm in the host country (e.g. technology, trademark): low costs⇔little control, risk of abuse, dissemination (e.g. iPod accessories).
- Franchising a business model to the host country: low costs; intermediate control (e.g. McDonald's).

- Greenfield: Establishing a foreign subsidiary from scratch: added production capacity, full control⇔ costly, lack of local expertise .
- Acquisition of a foreign firm: fast entry, access to local assets ⇔ no added production capacities.
- Joint ventures (merging home and foreign firm): low costs, sharing of assets ⇔ limited control, complicated interactions.

Decision has to take into account three key factors:

1. Desired degree of control
2. Level of resource commitment
3. Dissemination risk

Degree of control of foreign operations:

- Highest in greenfield, full acquisition.
- Low for licensing/franchising

Level of resource commitment

- Amount of resources invested
- Degree of irreversibility of investment
- High in greenfield
- Low for licensing/franchising

Dissemination risk:

- Low for greenfield, full acquisition
- High for licensing/franchising

Key theory predicting entry modes: Transaction cost theory (Coase)
→ Create multinational organization when this is more efficient than organizing activity through market (export/import, licensing/franchising).