



## Introduction to International Economics – 103PE

Date: 24/11/2004

Schedule: Wednesdays

Time: 09:00 – 11:00hs

Room: E, Building A



## Pace of the course

- 1<sup>o</sup> Essay's deadline: Today until 11:30hs in my mailbox.
- Material for this lecture
  - Syllabus:
    - Chapter 5.
  - Additional Literature
    - Chapter 11 (KO).
- Mid-term exam:
  - Discussion of the grades.

## Modern arguments relating protection



- The modern approach to study protection:
  - Dynamics effects of trade policy, rather than the static environment.
    - How is the process of action and reaction among the various parties concerned when politicians intervene in international trade.

## Modern arguments relating protection



- The importance of the presence of certain strategic sectors for the rest of the economy and for the international competitive position:
  - Strategic sectors are vital to a country due to their effects on:
    - Employment, Value added, Advanced technology, Defense, Expected future growth potential, Positive external effects.
  - Competitiveness depends on the performance of the businesses...
  - ...but it is also determined by environment in which they operate.

## Modern arguments relating protection



- Trade policy can also be regarded as a “game of negotiation”:
  - Agents:
    - enterprises and governments of different countries.
  - Strategies:
    - Various, ranging from threatened action to the formation of coalitions.
  - Different approach from the previous comparative-static analysis used for the classical arguments.
    - Now, game-theory approach.

## External economies of scale and the competitive position



- Internal Economies of Scale theory:
  - Comparative advantage is largely determined by random factors.
- The patterns of specialization and the “endogenous” development of the company depends on the existence of external economies of scale:
  - Sufficient production capacity;
  - Sufficient large sales market in the vicinity;
  - A well-developed network of business supplying one another;
  - A healthy competitive climate:
    - Porter’s diamond.

## External economies of scale and the competitive position



- Therefore the protection of certain industries can be extremely effective in improving the welfare of a country.
  - Especially if there are:
    - Mutually beneficial influences owing to a combination of positive external effects and external economies of scale.
      - Inability of firms in high-technology industries to capture the benefits of that part of their contribution to knowledge that spills over to other firms.
    - In practice, this combination occurs in technologically advanced industries.
      - High investments costs of R&D.
      - Dynamic environment.
        - » The possibility of attracting trained staff;
        - » The proximity of service companies as suppliers or customers.
      - Monopoly profits in this highly concentrated oligopolistic industries.

## External economies of scale and the competitive position



- Example: Production of calculators in Japan and China.
  - External economies of scale in the sector because of the positive influence of one company in another.
    - Production must be concentrated at one location.
  - Japan is the first to produce calculators.
    - Production in China, even being cheaper, is impossible.
  - Difference between tables 2.5 and 5.1:
    - Now, demand from China represents a large proportion of international demand.
      - Final column of Table 5.1.

## External economies of scale and the competitive position



**Table 5.1** – Calculators: supply, costs and demand

Japan Number (x 1000)	Average Cost = price	Global Demand (x 1000)	China Number (x 1000)	Average Cost = price	Global Demand (x 1000)	Domestic Demand (x 1000)
1	10,000	1,5	1	5,000	4	1
2	5,000	4	2	1,000	700	3
400	1,000	700	175	250	875	175
875	250	875	1,000	100	1,000	700

## New Trade Theories



- Example: Calculators production in Japan and China

**Table 2.5:** Economies of scale in Japan and China

Japan Number (x 1000)	Average Cost = price	Global Demand (x 1000)	China Number (x 1000)	Average Cost = price	Global Demand (x 1000)
1	10,000	1,5	1	6,000	3
2	5,000	4	2	3,000	6
400	1,000	700	600	250	875
875	250	875	1,000	100	1,000

## External economies of scale and the competitive position



- China prohibits the imports of calculators from Japan through policy measures.
  - Domestic demand equals domestic supply:
    - This occurs at a volume 175,000 and price of 250.
    - Remaining of the world demand:  $875,000 - 175,000 = 700,000$ .
      - » Insufficient demand left for Japan to produce at a competitive price: the Japanese price will be 1,000 at a supply of 700,000.
    - The world demand will switch to China!
      - » Decline in production costs.
      - » In a new possible equilibrium, the traded volume will be 1,000,000 at a price of 100.

## External economies of scale and the competitive position



- Conclusion:
  - A *temporary* import ban is sufficient to bring about the switch in production location:
    - An aggressive export promotion is not necessary.
    - On balance the consumer is better off worldwide.
- Static Picture:
  - Production costs will not change if that is the annual volume of sales.
- In practice:
  - Learning curve: the production costs in the country where the production takes place could decline still further as time goes by.
    - Learning effects can further increase the effectiveness of protection as an instrument for shifting the location of production

# Strategic Trade Policy



- Protection: a move in a negotiating game.
  - Example:
    - Governments of two different countries wanting to protect the same domestic sector.
  - By trade policy threat a country tries to influence foreign suppliers or their governments.
- *Strategic trade policy*:
  - Forms of trade policy which:
    - Take account of the expected reactions of the other party;
    - Aim to influence the behaviour of foreign supply.

# Strategic Trade Policy



- Example of strategic trade policy:
  - Two countries have one enterprise in a particular sector but there is only scope for one supplier to sell on the combined markets.
    - Oligopoly sector with excess returns:
      - Firms will make profits above what equally risky investments elsewhere in the economy can earn.
- Aircraft manufactures Boeing (USA) and Airbus (Europe).
  - Characteristics of the market:
    - High fixed costs owing to the start-up costs (sunk costs) for developing a prototype. (high break even point).
      - Break even point:
        - » The sales volume at which the overall returns just match the overall costs
    - Essential the participation on the international market.

## Strategic Trade Policy



- Reasons for governments attempt to ensure its own enterprise as the victor of the game, via trade policy:
  - Fast increase of business profits after the break even point is passed, because of the high fixed costs.
    - Part of the negative welfare effects of the protection will be cancelled out via taxation.
  - Exclusion of the foreign company makes the national company a world monopoly.
    - The profit of the company can be increased via monopoly pricing (mark up).
    - Higher tax revenues for the government as well.
  - Learning effects after becoming a monopoly may increase the profits of the company even further.
    - Less chance for a foreign rival to penetrate the market.
      - Barriers to entry.

## Strategic Trade Policy



- Other arguments:
  - Employment, national prestige, military/strategic interests, national security etc.
- Analogy with duopoly theory:
  - An oligopolistic market form in which two suppliers on a market both develop a strategy based on how they expect the other party to behave.
    - Tactics may emerge which attempt to influence the behavior of the other party.
      - Example: Stackelberg leadership or Cournot Duopoly.
- Difference:
  - Under free trade, there can be no market equilibrium with both suppliers.
    - Strong incentive for strategic policy intervention.

# Brander-Spencer analysis



- Example: Airbus x Boeing
  - Assumptions:
    - 2 countries: USA, Europe.
    - 2 firms: Boeing, Airbus.
    - New product: 150-seat aircraft that both firms are capable of making.
    - Set of strategy (decisions) for the companies:
      - Either produce or not the 150-seat aircraft.
    - Pay-off: Profits.
    - Either firm alone could earn profits making 150-aircraft, but if both firms try to produce them, both will make losses.
  - Table 11.2 (KO) and 5.12 (Syllabus):
    - Each row corresponds to a particular decision by Boeing and each column by Airbus. (strategies – decision)
    - In each box there are two entries:
      - The entry on the lower left represents the profits of Boeing.
      - The entry on the upper right represents the profits of Airbus. (Profits)

# Brander-Spencer analysis



Prisoner's dilemma applied to international trade:

**TABLE 11-2**

## Two-Firm Competition

		Airbus	
		Produce	Don't produce
Boeing	Produce	-5 / 100	-5 / 0
	Don't produce	0 / 100	0 / 0

## Brander-Spencer analysis



- Conclusions from the table:
  - If both firms produce this yields a loss of 5 for them.
  - If both firms do not produce, they don't earn anything.
  - If only one company enters in the market, it makes a profit of 100 and the other does not earn anything.
- Who enters first in the market will get all the profits.
  - It is difficult to state in advance which of the companies will enter the market first and make the profit of 100.
  - Assumption:
    - Both firms has complete information about the earning dependent on their decisions.
    - Each one will try to discourage the other party from making the investment.
      - The option of a Cartel agreement do not exist.
      - This action to discourage the another will unconvincing because both know that the positions are symmetrical.

## Brander-Spencer analysis



- Entrance of the government in the game:
  - European government commits itself to pay its firm a subsidy of 25 if it enters.
    - Table 11.2 (KO), 5.3 (Syllabus).
    - Now is profitable for Airbus to produce 150-seat aircraft whatever Boeing does.
    - Boeing will be deterred from entering in the market.
    - The subsidy raises profits by more than the amount of the subsidy itself:
      - 125 in the example.



## Brander-Spencer analysis

TABLE 11-3

Effects of a Subsidy to Airbus

		Airbus	
		Produce	Don't produce
Boeing	Produce	-5 / 20	100 / 0
	Don't produce	0 / 125	0 / 0



## Brander-Spencer analysis

- The European Union can recoup the original subsidy out of a tax levy on profits of Airbus.
  - If tax on profits is 30%:
    - Revenue of the government:  $37.5 - 25 = 12.5$ .
    - The rest of the Airbus profit will also contribute to the European welfare.
- European increases welfare as a result of protection.
  - Part of the profit is obtained as expense of the US.
    - Example of **Beggar-thy-neighbor** -policies.
    - The risk of retaliations by the other's country government is high.

# Brander-Spencer analysis



- Criticisms about this kind of analysis:
  - Most of the conditions and assumptions of the previous example are not verified in practice.
    - Neither a government nor a company can be totally sure about the business profits in the various production situations.
      - In practice, they will have to make an estimate and arrive at forecasts with margins of uncertainty.
      - Information available at business level is not complete and correct when it reaches the public authorities.
        - » Firms may have an interest in presenting the government a distorted situation.
      - If the government gets the wrong information, a subsidy policy may turn out to be a costly misjudgment.
- Table 11.4 (KO) 5.4 (syllabus)
  - Boeing is assumed to have some underlying advantage.
    - Maybe a better technology.
    - Even if Airbus enters Boeing will still find it profitable to produce. But not the other way around.

# Brander-Spencer analysis



**TABLE 11-4**

**Two-firm Competition: An Alternative Case**

		Airbus	
		Produce	Don't produce
Boeing	Produce	+5      -20	125      0
	Don't produce	0      100	0      0

- In the absence of subsidy the outcome will be in the upper right corner:
  - Boeing produces and Airbus does not.

# Brander-Spencer analysis



- Criticisms:
  - Suppose that European government provides a subsidy of 25, which is sufficient to induce Airbus to produce.
  - Both firms produce: box in the upper left.
  - Airbus receives a subsidy of 25 and earn profits of only 5.
    - The subsidy has failed to act as a deterrent to Boeing.
    - The desirability strategic trade policies depends on an exact reading of the situation.
    - What is the likely to have enough information to use the theory effectively?

# Brander-Spencer analysis



**TABLE 11-5**

**Effects of a Subsidy to Airbus**

		<i>Airbus</i>	
		<i>Produce</i>	<i>Don't produce</i>
<i>Boeing</i>	<i>Produce</i>	5	125
	<i>Don't produce</i>	0	0

## Brander-Spencer analysis



- Second critique:
  - Positive international external effects can occur for the producing country in the case of production.
    - Certain technical inventions can be adopted abroad.
  - Some of the positive external effects make themselves felt in other countries.
  - Whereas any negative external effects are only felt at home.
    - Environmental pollution or excessive noise.

## Brander-Spencer analysis



- Third critique (dynamic game):
  - The subsidizing government will often be unsure about whether the other government will retaliate:
    - Given a symmetrical case, it is logical that both governments will see sufficient reason to grant the strategic subsidy.
    - Tip-tap games:
      - Once granted a subsidy, there is no going back and the circumstances necessitate the granting of higher and higher subsidies in order to avoid losing face because previous subsidies achieved nothing.

## The practice of protection



- Conclusion from the previous chapters:
  - In general international free trade is beneficiary for all; but also
  - Protectionism can increase rapidly, especially without well-designed international policy coordination.
- Focus of Chapter 7:
  - How protectionism and the removal of protection comes about in practice.

## The practice of protection



- World Trade Organization (WTO):
    - The successor of the General Agreement on Trade and Tariffs (GATT);
    - The only global international organization dealing with the rules of trade between nations.
    - Main function:
      - To ensure that trade flows as smoothly, predictably and freely as possible.
      - serve as a forum for trade negotiations
      - dispute settlement
      - It also takes into account the negative effects of free trade for some specific cases or for specific countries like the developing countries.
- “The goal is to improve the welfare of the peoples of the member countries.”*

## Case Study – Patent dispute between US and Brazil



- TRIPS:
  - WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).
  - Created on the Uruguay Round (January 1995).
  - It sets minimum standards for the protection of intellectual property rights:
    - Member countries cannot confer a lower level of protection than provided under the agreement.
    - Patent protection must be available for inventions for at least 20 years.

## Case Study – Patent dispute between US and Brazil



- Qatar, November 2001:
  - WTO members discussed the issues and the agenda for a new WTO-Round of multilateral negotiations:
    - EU, Japan and US put TRIPS high on the agenda.
      - This regions hold most of the world's patents, and therefore gain most from protection via TRIPS.
      - Example:
        - » In 2000 the American pharmaceutical industry estimated it losses due to poor patent protection some \$500 m per annum for its potential sales on the Indian market alone.
      - Some groups claimed that TRIP work in the benefit of industrialized countries, tending to discriminate against developing countries.
      - In the field of drugs:
        - » More than 2/3 of world production of pharmaceutical products takes place in western industrialized countries;
        - » TRIPS contribute to the fact that half of the population in the poorer regions of Africa and Asia has to do without essential pharmaceuticals.

## Case Study – Patent dispute between US and Brazil



- Why TRIPS?:
  - Patents are necessary to get R&D off the ground.
    - The exclusive marketing rights provided by patents represent a legitimate reward for the high levels of investment and risks associated with developing new drugs.
- But it became clear that TRIPS would have implications for the availability of pharmaceutical in the developing countries:
  - Many of the most effective drugs to treat typical tropical diseases such as HIV and malaria were covered by patents in the industrialized world.

## Case Study – Patent dispute between US and Brazil



- Art. 31 – TRIPS Agreement:
  - Compulsory licensing and government use of a patent without the patent holder's consent is allowed under a number of special conditions:
    - “National Emergencies”, “other circumstances of extreme urgency”, or “public non-commercial use”.
    - If a compulsory license is issued, adequate remuneration must, however, still be paid to the patent holder.
- Art. 6 – TRIPS Agreement:
  - Parallel imports are always allowed:
    - The practice that products made and marketed by the patent owner in one country are imported into another country without the approval of the patent owner.
      - » Countries can seek a cheaper source of a patented drug from abroad.

## Case Study – Patent dispute between US and Brazil



- February 2001:
  - Complaint from US to the WTO Dispute Settlement Body over Art. 68 of Brazil's industrial property law.
    - It violated international rules and it should be considered an illegal protectionist measure.
    - Art. 68 of Brazil's industrial property law:
      - The subject matter of a patent must be “worked” in Brazil. If this requirement is not met within three years after the issuance of the patent, the government can issue a compulsory license allowing other to utilize the patent against the patent holder's wishes.
        - » The patented good must be produced in the country; or
        - » The patented process can be used in Brazil.
        - » If owners of the patent choose to utilize the patent through importation, then others than the patent holder will also be allowed
      - With this article, Brazil allowed local manufacturing of patented drugs, including those aimed at HIV/AIDS.

## Case Study – Patent dispute between US and Brazil



- Brazilian reply:
  - Brazil accused the Bush administration of launching an unfair attack on its successful AIDS-treatment program.
    - Brazil ensures the provision of a combination of drugs to all HIV/AIDS patients (100,000).
    - It produces 7 of 12 drugs involved.
    - Since 1995, the free distribution of mainly Brazilian produced AIDS drugs had halved annual deaths from the disease.
- June, 2001:
  - US government withdrew its complaint.
- August 30<sup>th</sup>, 2003:
  - WTO member governments broke their deadlock over intellectual property protection and public health.
    - They agreed on legal changes that will make it easier for poorer countries to import cheaper generics made under compulsory licensing if they are unable to manufacture the medicines themselves.

## Case Study – Patent dispute between US and Brazil



- Conclusions from the case study:
  - The difficulty to formulate global trade rules.
    - The WTO has to reckon with all kind of interests from industrialized countries, developing countries, the industry, the NGOs etc.
  - WTO-rules are not always easy to interpret and may leave room for “protectionism”.
    - Brazilian industry was placed at an advantage in relation to the foreign industry.
      - Trade policy instrument.

## Case Study – Patent dispute between US and Brazil



- Questions from the case study:
  1. What was the role of WTO rules in this?
  2. What was the aim of the Uruguay Round?
  3. Which government instruments can be regarded as trade policy instruments?
  4. How effective are these trade policy instruments?
  5. Why and how do such trade instruments come about?
  6. Why do governments wish to protect pharmaceutical industry?
  7. In this context, what is the relationship between industry and government?
  8. What is the position of the developing countries in the international trade system?