Firms, trade costs and FDI

Giovanni Marin
Department of Economics, Society, Politics
Università degli Studi di Urbino 'Carlo Bo'

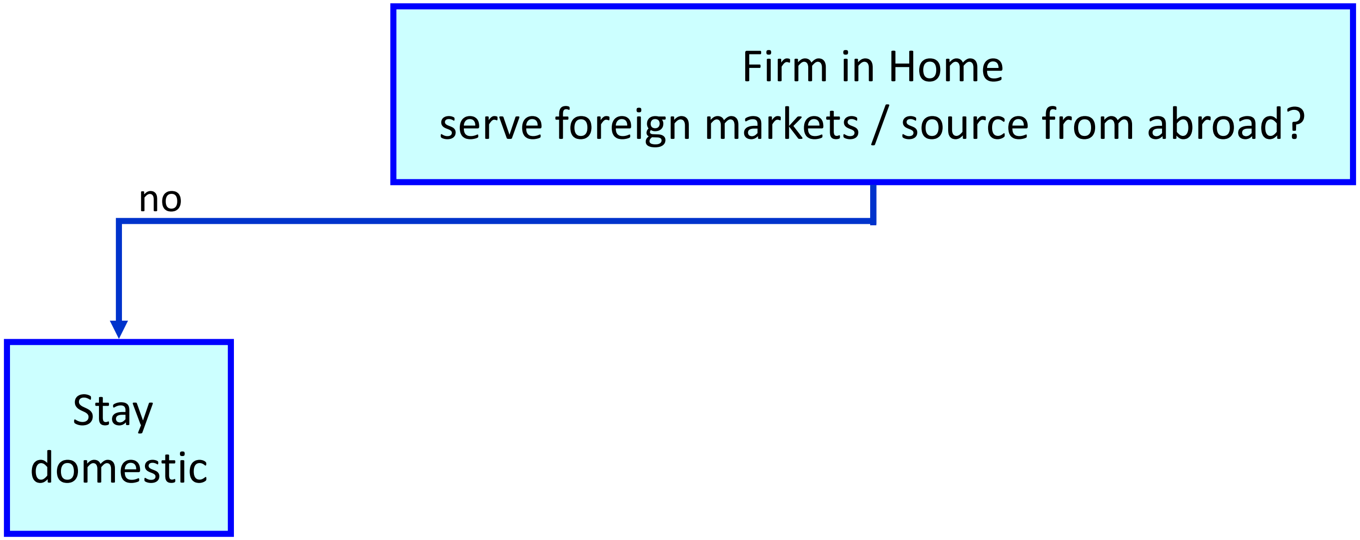
References for this lecture

- BBGV
  - Chapter 6, paragraph 6.3, 6.4

Firms and distance

- **Distance** and overall **trade costs** influence **firms’** decisions in various respects
  - **Export**
  - **Import**
  - **Foreign Direct Investment** (and type of FDI)

Figure 6.4 Home firm decision tree



Removing assumptions

- Differently from the **models** of **trade** discussed so far (Ricardo, HOS, Krugman, heterogeneous firms), we now **remove** the **assumption** of **immobility** of **capital**
- Firms are now allowed to **invest** either at **home** or **abroad**
- The decision between **home vs foreign investment** is motivated by **profit maximization ➔** investment will take place (or move) where **returns** from **investments** are the **highest**

- **Differences** in **technology** and thus in **marginal costs** of production in **home** and **foreign** countries **drive** firms' **decisions**

Proximity vs concentration

- **Where** should firms **produce** to **serve foreign markets**?
  - Concentrating **production** at **home** and **exporting** elsewhere
  - Localizing **production** in **proximity** of **foreign markets**

- **Trade off** between the advantages of **concentration** and the advantages of **localization**

Economies of scale

- **Firm level economies** of **scale** derive from costs for **functions** which do **not depend** on the **individual plant** (R&D, marketing, finance, organization, management)

- If such costs are relevant, firms **reduce** their **average costs** by **expanding** overall **size** (given the size of individual plants)

- Multinational **expansion** as a means to **exploit** firm level **economies of scale**

Firms and distance
Assumptions

- Firms can **locate** production in **one or two identical countries** ➔ no country-specific effect
- **No price equalization** across markets ➔ **segmented** markets ➔ no arbitrage
- **One input** only (labour)

- The **firms** wants to **maximize their profits**, considering the following **options**
  - **Export**
  - **Locate production abroad** to serve the **destination market**
  - **Locate production abroad** to **exploit specificities** of the **foreign country** (e.g. low wage workers) and, eventually, re-import

Firms and distance
Assumptions

- **Firm-specific fixed cost** *F*
  - Fixed cost of **production** (including the cost of setting up the headquarter)
  - **Increasing returns** to scale
  - **Independent** on the **number** of **plants**

- **Plant-specific fixed costs** *P*
  - Find suitable **location**, hire **workers**, **investments**
  - Costs of **setting up** a production **plant**

- **Marginal** production **cost** *MC*
  - **Constant** per unit of production
  - **Identical** in both countries

- **Transportation cost** *t*
  - In terms of **labour**

Allocation of the fixed cost *F*

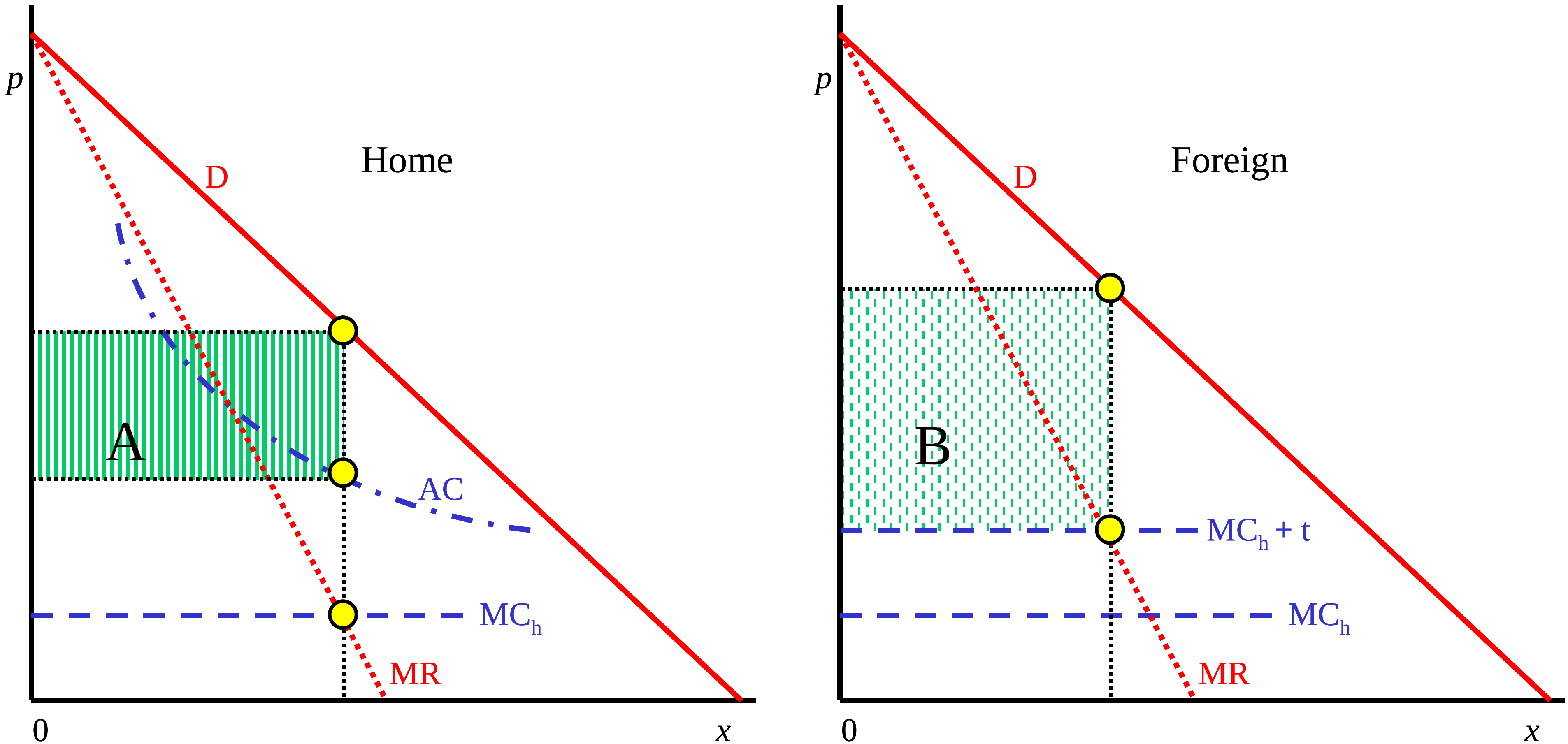
- The **fixed cost** *F* is incurred **only once** by each firm, **no matter how many plants** the firm owns

- It is **indifferent** whether these costs are **allocated** to the **headquarter** or to the **subsidiary**(ies)

Export

- By **producing only** at **home**, **average costs** are equal to $(F+P)/x + MC^{HOME}$
- The firm sets the **price** at **home** such that $MR^{HOME} = MC^{HOME}$
- In the **exporting** market, **prices** will be such that $MR^{FOREIGN} = t + MC^{HOME}$
- **Trade off** of exporting
  - **Exploit** increasing returns to **scale** at home as much as possible
  - Pay the **trade cost**

Figure 6.5 Profits in the Home and Foreign market: national exporting firm

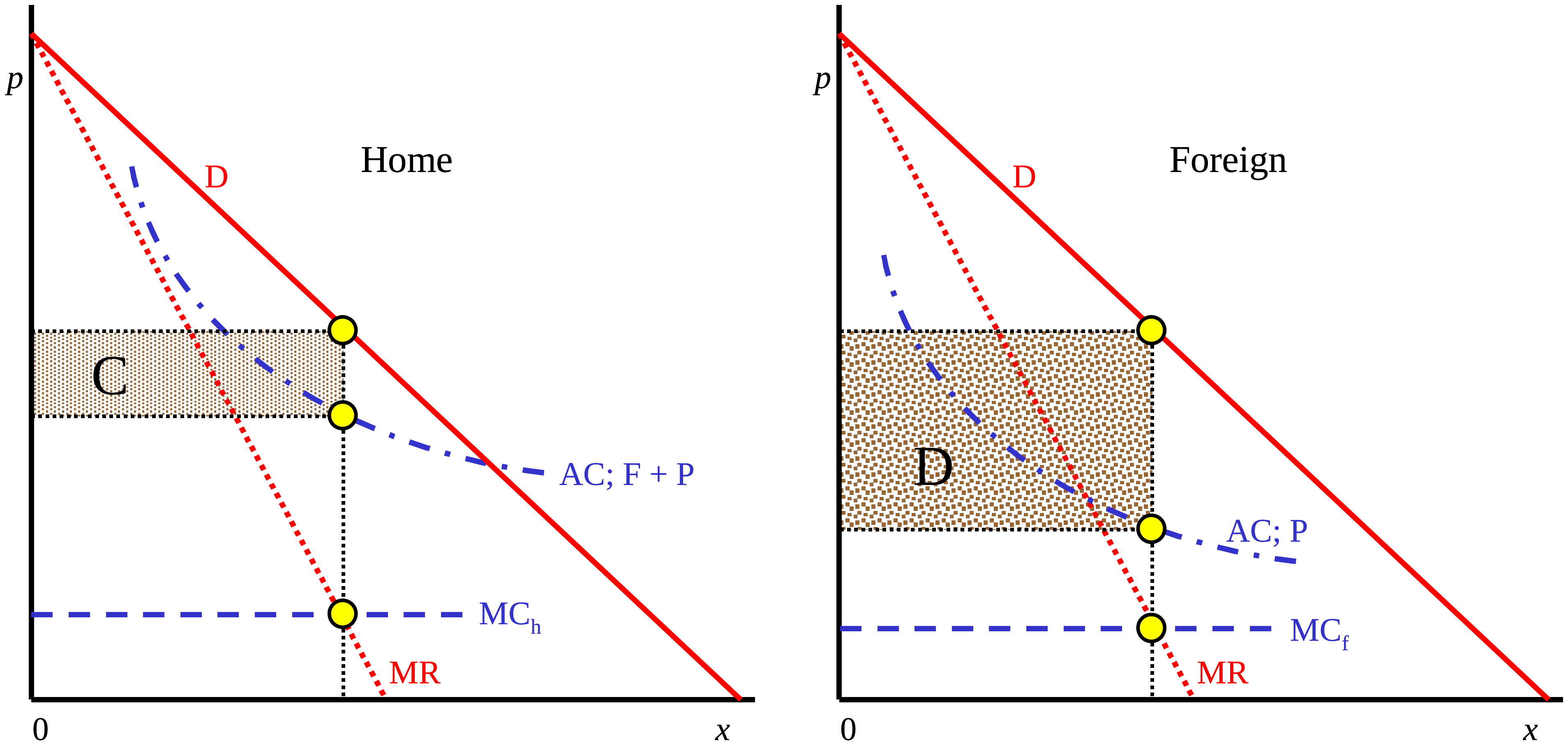


Horizontal multinational activity

- **Horizontal FDI** → the firm produces **abroad** the **same commodity** as in 'home'
- **Market-seeking** strategy
- The firm decides to **serve** customers in **another country** by locating **production** in the **host country** rather than producing at home and then exporting
- **Total fixed costs** are now higher and equal to $F + P + P$

- Same **trade off** of export
  – High **fixed costs** *P* will **discourage** horizontal FDI
  – High **trade costs** *t* will **encourage** horizontal FDI

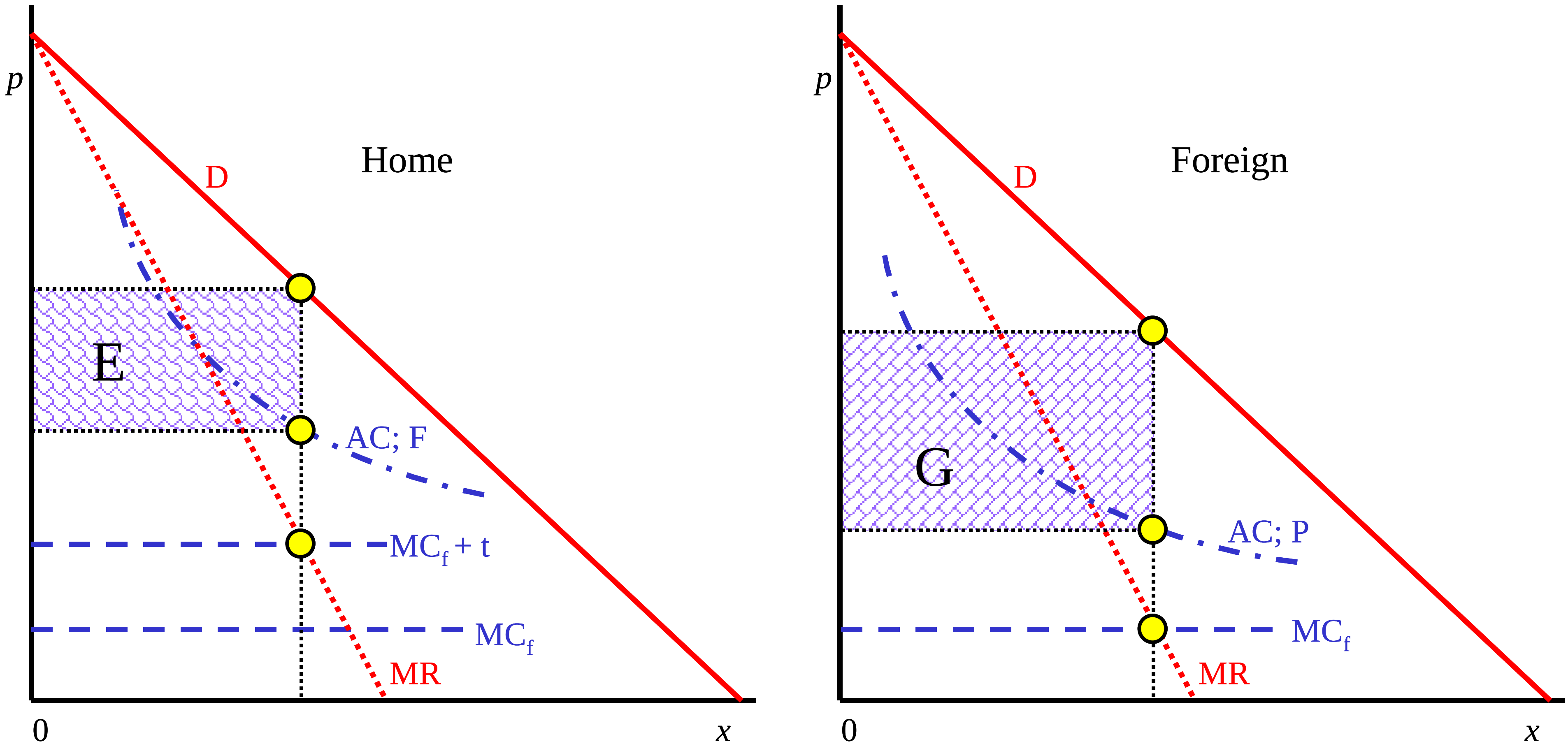
Figure 6.6 Going multinational: the horizontal case



Vertical multinational activity

- **Reasons**
  - **Efficiency** seeking
  - **Natural resource** seeking
- Exploit **availability** of **specific assets** in the **host** country
- Exploit **differences** in the **compensation** of production **inputs** that **cost less** in the **host** country ➔ what matters is **productivity-adjusted** cost of inputs!

Figure 6.7 Going multinational: the vertical case



Vertical multinational activity

- **Part** of the production (e.g. a specific process) or **all production** may be **moved abroad**
- Production abroad is then **re-imported** to be **employed** in the **next stage** of the production process **or** directly **sold** to **consumers**

- Increasing **dis-integration** of **global value chains** ➔ the different **stages** of production of a good take place in many **different locations** to exploit **country-specific advantages** of host countries

Vertical multinational activity

- **Vertical** multinational activity is **profitable** in presence of
  - Relatively **low marginal cost** of production in the **host** country (relative to the home country)
  - Relatively **low trade costs**

- If the vertical multinational activity is motivated by the presence of **specific inputs** (e.g. natural resources) in the **host** country, the **choice** is between **import** of the specific input and **vertical** FDI

Vertical multinational activity

- If the **firm only** produces **abroad**, it will also **save** the **fixed cost** *P* of the production **plant** at **home**
- In this case, the **headquarter** will **only import production** made abroad

Vertical multinational activity

- Vertical **FDI** vs **import**
  - With vertical multinational activity, the multinational firm gains **control** of the **subsidiary** through **ownership**

- **Import** is mediated by **markets**
- With a **vertical FDI** the **transaction** between 'home' and 'foreign' firm is based on **hierarchical decision-making**

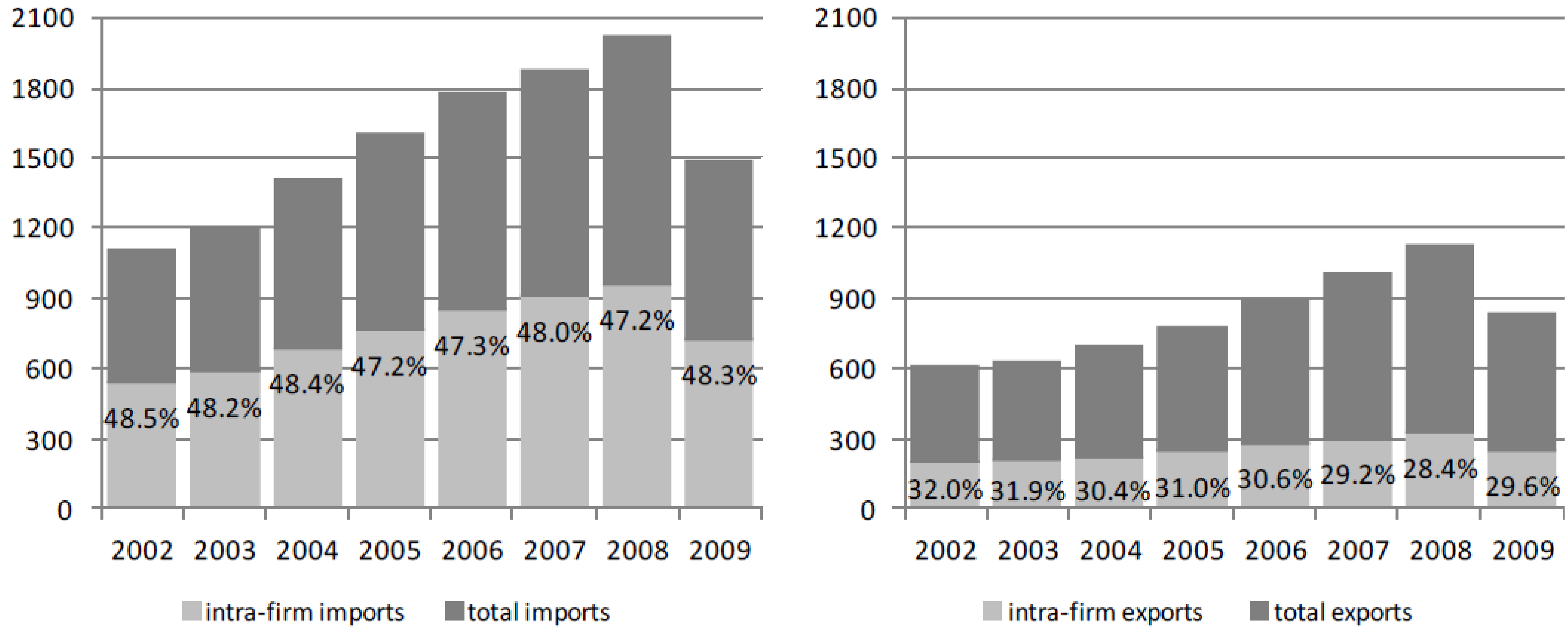
Intra-firm trade

- **Vertical** multinational activity gives rise to **intra-firm international trade**

- The **headquarter** imports **intermediate** or **final** products **from** the **subsidiary** abroad

Relevance of intra-firm trade

Figure 5. Total US goods trade and the share of intra-firm trade (Bill. USD, 2002-2009)



Source: US Census Bureau, Related Party Database

Make or buy

- The **choice** between **vertical** multinational activity and **import** is a typical ‘**make or buy**’ choice
  - **Make** → vertical multinational activity
  - **Buy** → import

- Trade off between **coordination costs** (make) and **transaction costs** (import)

Hybrid cases

- **Export platform** multinational activity
- **Strategic asset seeking** multinational activity

Export platform multinational activity

- Firms **internationalize** and locate in a **certain country** to serve **customers** in a **third country**
- **Market seeking** + **efficiency seeking**

- The **Netherlands** attracts a substantial numberof this kind of multinationals
- Port of **Rotterdam** + Airport of Amsterdam **Schipol** are very well connected to **Germany** (large market)
- MNE that locate in the Netherlands aim at **serving** both **Dutch** customers and **German customers**

Strategic asset seeking

- **MNEs** often want to gain **access** to **crucial inputs**
- Not only **natural resources** (e.g. rare earth elements), but also **intangible inputs**

- **Technical knowledge**
- **High-skill** labour force

Differences in market size

- If the **home market** is **larger** than the foreign market, it might be more **profitable** to pay the **trade cost** and **export** rather than creating a subsidiary abroad and pay the fixed cost *P*

- If the **foreign market** is **larger** than the domestic market, it might be more profitable to **pay the fixed cost** *P* of creating a new **subsidiary abroad** and also pay the **trade cost** to **re-import** and serve the domestic market ➔ **vertical** multinational activity

- If home and foreign **markets** are of **similar size**, **horizontal multinational activity** is more likely as **economies of scale** in production (i.e. bearing the fixed cost *P* of setting up a production plant) are **high enough** to **discourage trade** (that requires paying the trade cost *t*)

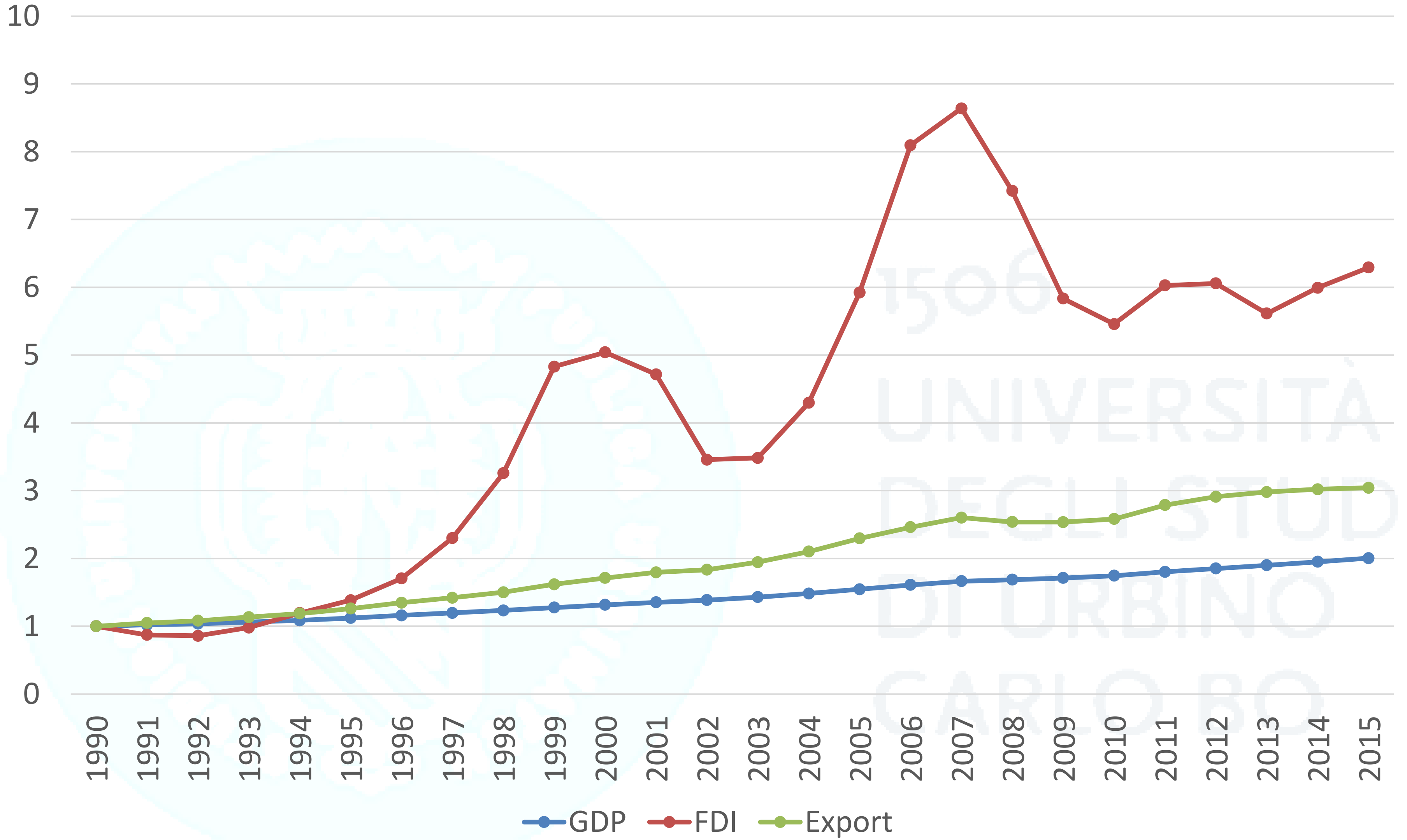
Summing up

- There exists a **trade-off** between **proximity** (via FDI) and **concentration** (via export)

- **FDIs** are **more likely** if:
  - **Sectoral** characteristics
    - Sector specific **transportation costs** are **high**
    - **Plant level fixed costs** are **low** (low plant level economies of scale)
    - **Firm level fixed costs** are **high** (high firm level economies of scale)
  - **Host country** characteristics
    - **Trade costs** between **home** and **host** country are **high**
    - **Host country market** is **large**
    - **Host** country **productivity** is **high**

World GDP, FDI flow, export

(1990=1; source: World Bank)



Paradox of FDI

- How can we **reconcile lower trade costs** (modernising communication, trade liberalisation, reduction of tariff and non tariff barriers) with **increasing FDIs**, even faster that export growth?

- **Globalization** expands **market size**
- **R&D based competition** increases **firm level economies of scale**
- **Technical change reduces plant** level **economies** of **scale**