

Economics of European and International Integration

Rosella Nicolini

UAB

What did we learn ?

- ▶ Space organization is not homogeneous
- ▶ Local unbalances are due to differences in economic environment that drive their attractiveness
- ▶ People and firm move

What are we learning today ?

- ▶ Some fundamentals about the movement of factors of production

What are we learning today ?

- ▶ Some fundamentals about the movement of factors of production
- ▶ Delocation of firms

What are we learning today ?

- ▶ Some fundamentals about the movement of factors of production
- ▶ Delocation of firms
- ▶ Some insights about their impact in the host countries

Fundamentals

- ▶ In a perfect competitive setting, the returns of each factor of production are expressed as follows:

$$w = P(MP_L) \implies \frac{w}{P} = MP_L$$
$$r = P(MP_K) \implies \frac{r}{P} = MP_K$$

- ▶ *In an international setting with free movement of factors, each factor moves versus the location that guarantee higher returns.*

Fundamentals

- ▶ In a perfect competitive setting, the returns of each factor of production are expressed as follows:

$$w = P(MP_L) \implies \frac{w}{P} = MP_L$$
$$r = P(MP_K) \implies \frac{r}{P} = MP_K$$

- ▶ *In an international setting with free movement of factors, each factor moves versus the location that guarantee higher returns.*
- ▶ *Higher returns associate with lower abundance of factor(s) of production.*

Movement of capital as productive factor

- ▶ The sources of the movement of capital follows the same pattern than that of workers

Movement of capital as productive factor

- ▶ The sources of the movement of capital follows the same pattern than that of workers
- ▶ Therefore, capital should move from the most abundant "areas" versus the less abundant ones..

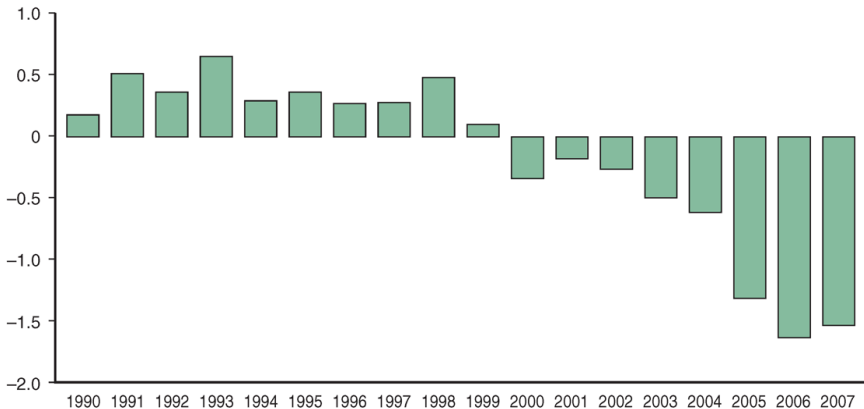
Movement of capital as productive factor

- ▶ The sources of the movement of capital follows the same pattern than that of workers
- ▶ Therefore, capital should move from the most abundant "areas" versus the less abundant ones..
- ▶but this is not true (no big movements in Sub-Saharan Africa)...why ?

Evidence

Flows of capital to developing countries as a % of GDP developed countries

(source: Krugman-Obstfeld)



Foreign direct investment (FDI)

- **Foreign direct investment** refers to investment in which a firm in one country *directly controls or owns* a subsidiary in another country.
- If a foreign company invests in at least 10% of the stock in a subsidiary, the two firms are typically classified as a **multinational corporation**.
 - 10% or more of ownership in stock is deemed to be sufficient for direct control of business operations.
 - In addition, international borrowing and lending sometimes occurs between a parent company and its subsidiary.

Foreign direct investment (FDI)

- ▶ Why should FDI be preferred to export ???

Foreign direct investment (FDI)

- ▶ Why should FDI be preferred to export ???
- ▶ When FDI are more convenient than export to enter new markets ?

Foreign direct investment (FDI)

- ▶ Why should FDI be preferred to export ???
- ▶ When FDI are more convenient than export to enter new markets ?
- ▶ Helpman-Melitz-Yeats (2004) (see graph): productivity matters. Melitz-Redding (2012): more productive firms may export farther.

FDI

1. **Location:** Why is a good produced in two countries rather than in one country and then exported to the second country?

FDI

1. **Location:** Why is a good produced in two countries rather than in one country and then exported to the second country?
2. The company prefers to replicate the production process elsewhere in the world (**horizontal FDI**).

FDI

1. **Location:** Why is a good produced in two countries rather than in one country and then exported to the second country?
2. The company prefers to replicate the production process elsewhere in the world (**horizontal FDI**).
3. **Internalization:** Why is production in different locations done by one firm rather than by separate firms?

FDI

1. **Location:** Why is a good produced in two countries rather than in one country and then exported to the second country?
2. The company prefers to replicate the production process elsewhere in the world (**horizontal FDI**).
3. **Internalization:** Why is production in different locations done by one firm rather than by separate firms?
4. Companies prefer to break up the production chain and to transfer parts of the production processes to the affiliate location (**vertical FDI**)

FDI

- Why production occurs in separate locations is often determined by
 - ◆ the location of necessary factors of production:
 - mining occurs where minerals are;
 - labor intensive production occurs where relatively large numbers of workers live.
 - ◆ transportation costs and other barriers to trade may also influence the location of production.
- These factors also influence the pattern of trade.

FDI

- ▶ Therefore, agglomeration areas are places that are particularly attractive to FDI because they are characterized by
 - ▶ High productivity

FDI

- ▶ Therefore, agglomeration areas are places that are particularly attractive to FDI because they are characterized by
 - ▶ High productivity
 - ▶ High market potential

FDI

- ▶ Therefore, agglomeration areas are places that are particularly attractive to FDI because they are characterized by
 - ▶ High productivity
 - ▶ High market potential
 - ▶ High density of skill workers (\implies high wages)

The workhorse framework

- ▶ Markusen (2002) proposes a comprehensive framework to analyze the sources of FDI, determinants and impact on the host markets

The workhorse framework

- ▶ Markusen (2002) proposes a comprehensive framework to analyze the sources of FDI, determinants and impact on the host markets
- ▶ This framework is known as the *knowledge-capital* model

The knowledge-capital model

The model relies on three important properties:

A. Fragmentation: The location of knowledge-based assets may be fragmented from production.

B. Skilled-labor intensity: Knowledge-based assets are skilled-labor-intensive relative to final production.

C. Jointness: The services of knowledge-based assets are (at least partially) joint inputs into multiple production facilities.

The knowledge-capital model

- ▶ General setting of demand-supply very similar to the one developed by the NEG models

The knowledge-capital model

- ▶ General setting of demand-supply very similar to the one developed by the NEG models
- ▶ The model establishes some important assumptions concerning factor-intensivity:

The knowledge-capital model

- ▶ General setting of demand-supply very similar to the one developed by the NEG models
- ▶ The model establishes some important assumptions concerning factor-intensivity:
- ▶ **Headquarters activities are more skilled-labor intensive than production plants.**

The knowledge-capital model

- ▶ General setting of demand-supply very similar to the one developed by the NEG models
- ▶ The model establishes some important assumptions concerning factor-intensivity:
- ▶ Headquarters activities are more skilled-labor intensive than production plants.
- ▶ A plant alone is more skilled-labor intensive than the composite good Y sector

The knowledge-capital model

- ▶ General setting of demand-supply very similar to the one developed by the NEG models
- ▶ The model establishes some important assumptions concerning factor-intensivity:
- ▶ Headquarters activities are more skilled-labor intensive than production plants.
- ▶ A plant alone is more skilled-labor intensive than the composite good Y sector
- ▶ The marginal costs (and trade costs) depend only on factor prices in the country of production and that they are independent of firm type.

The knowledge-capital model

- ▶ *Type-h(horizontal)* multinationals will have higher *markup* revenues than *type-d(omestic)* or *type-v(ertical)* since the latter bear transport costs.

The knowledge-capital model

- ▶ *Type-h*(*orizontal*) multinationals will have higher *markup* revenues than *type-d*(*omestic*) or *type-v*(*ertical*) since the latter bear transport costs.
- ▶ *Type-h* multinationals will have higher fixed costs than either *type-d* or *type-v* firm from at least one country.

The knowledge-capital model

- ▶ *Type-h(orizontal)* multinationals will have higher *markup* revenues than *type-d(omestic)* or *type-v(ertical)* since the latter bear transport costs.
- ▶ *Type-h* multinationals will have higher fixed costs than either *type-d* or *type-v* firm from at least one country.
- ▶ *Type-h* multinationals will tend to dominate when total world income is high ($M_i + M_j$), when trade costs are relatively high (τ), and when two countries are relatively symmetric in both incomes ($M_i = M_j$) and in factor prices.

Factors attracting FDI

1. Pecuniary elements (low wages; fiscal waivers etc..)

Factors attracting FDI

1. Pecuniary elements (low wages; fiscal waivers etc..)
2. Technological endowments or facilities

Factors attracting FDI

1. Pecuniary elements (low wages; fiscal waivers etc..)
2. Technological endowments or facilities
3. **Human capital**

Host country effects

1. Technological transfer

Host country effects

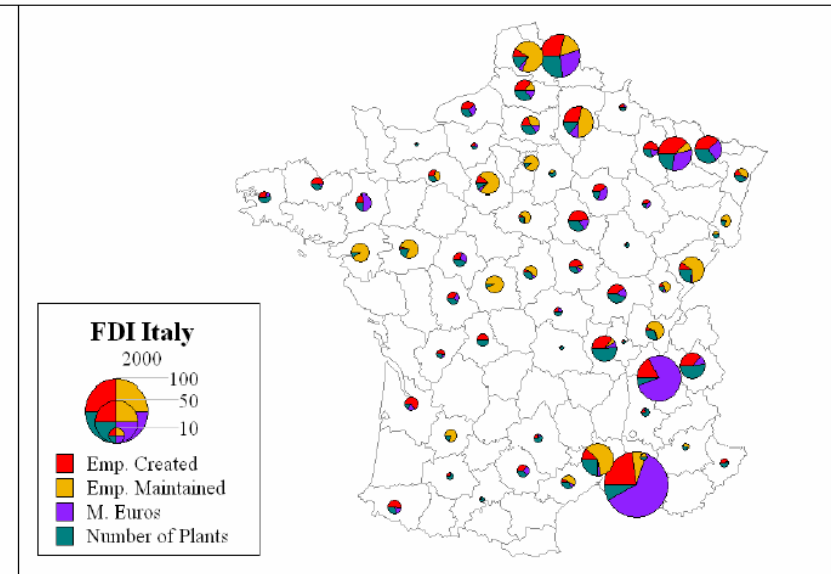
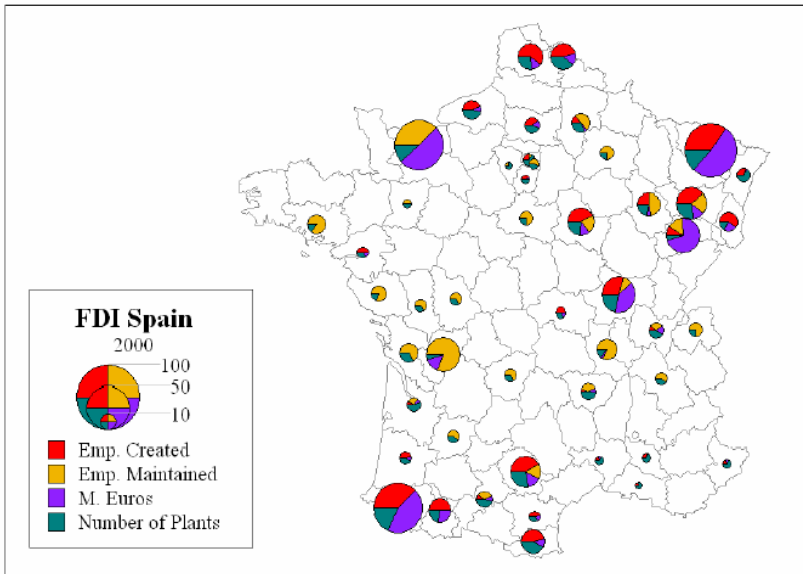
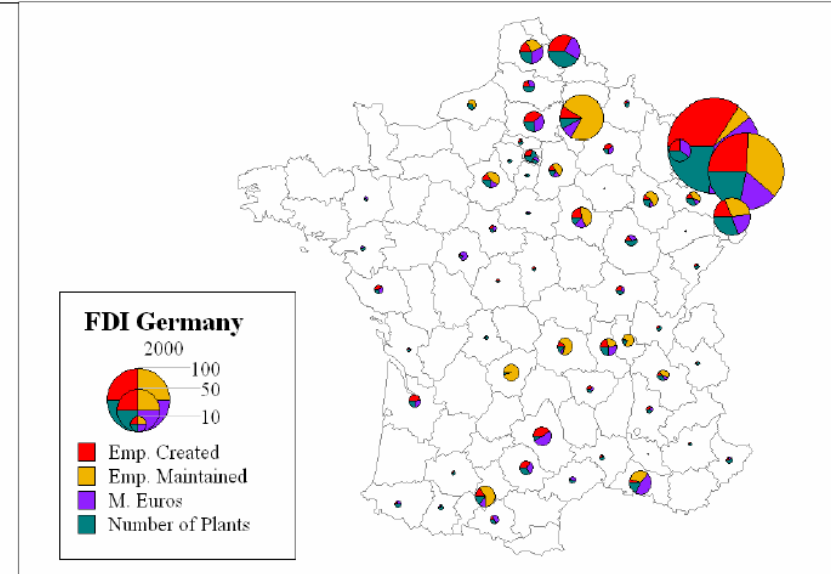
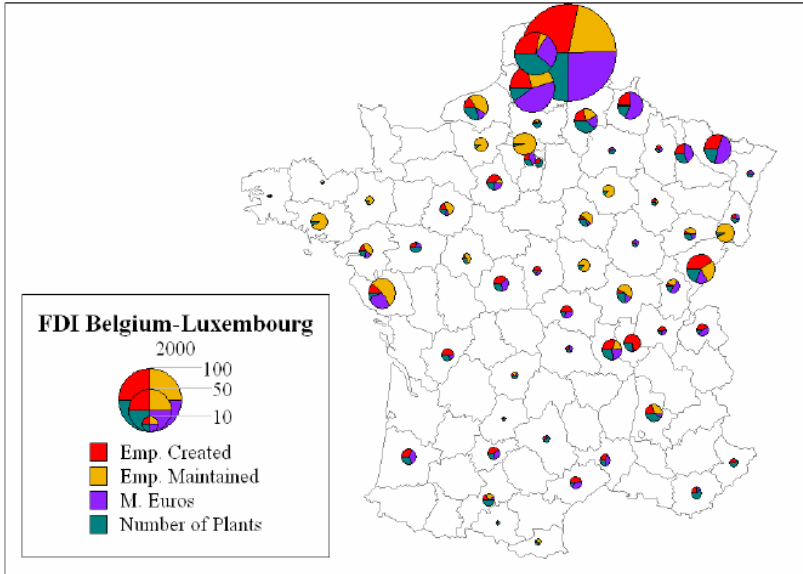
1. Technological transfer
2. Trigger local development by boosting supply and increase employment (discussion cases of Ireland and Wales)

Host country effects

1. Technological transfer
2. Trigger local development by boosting supply and increase employment (discussion cases of Ireland and Wales)
3. Favouring human capital formation

FDI distribution evidence

Lafourcade-Paluzie (2011, RS)



Employment evidence

Employment in foreign-owned firms in the United States

	As Percent of Total Nonfarm Employment	As Percent of Manufacturing Employment
1977	1.5	3.8
2005	3.8	14.0

Source: U.S. Commerce Department.

(source: Krugman-Obstfeld)

FDI and geography

1. Considering FDI in geography framework implies to take into account heterogeneity.

FDI and geography

1. Considering FDI in geography framework implies to take into account heterogeneity.
2. In Ekholm and Forslid (2001); factor prices differ across locations and this favours the creation of vertical/horizontal FDI; they study how MNE-headquarters (in charge of skill and R&D activities) may locate in the home country or well move to other destinations (costs factors and productivity drive this decision).

FDI and geography

1. Midelfart and Knavirk (2003): empirical approach to identify the distinguishing features of specialization in European regions/countries; these specialization patterns are particularly attractive for agglomeration of native firms as well as of MNE.

FDI and geography

1. Midelfart and Knavirk (2003): empirical approach to identify the distinguishing features of specialization in European regions/countries; these specialization patterns are particularly attractive for agglomeration of native firms as well as of MNE.
2. Spatial lag in FDI and market potential: FDI tends to clusters; third country effect and market potential (Head and Mayer, 2004; Neary, 2008; Ekholm, Forslid, Markusen, 2007; Bloningen and others, 2007).

FDI and the regional dimension

Let us focus on the paper by Artige and Nicolini (2010).

- ▶ The novelty of this paper is to provide an original framework to understand the determinants of FDI inflows in a sample of European regions.

FDI and the regional dimension

Let us focus on the paper by Artige and Nicolini (2010).

- ▶ The novelty of this paper is to provide an original framework to understand the determinants of FDI inflows in a sample of European regions.
- ▶ Selected determinants: productivity, market potential among others

FDI and the regional dimension

Let us focus on the paper by Artige and Nicolini (2010).

- ▶ The novelty of this paper is to provide an original framework to understand the determinants of FDI inflows in a sample of European regions.
- ▶ Selected determinants: productivity, market potential among others
- ▶ Regions: Baden Württemberg(G), Catalunya, and Lombardia(I)

FDI and the regional dimension

Let us focus on the paper by Artige and Nicolini (2010).

- ▶ The novelty of this paper is to provide an original framework to understand the determinants of FDI inflows in a sample of European regions.
- ▶ Selected determinants: productivity, market potential among others
- ▶ Regions: Baden Württemberg(G), Catalunya, and Lombardia(I)
- ▶ Selected sample of sectors: Finance (be attentive...); Services; Manufacturing; Mechanical (including automotives); Electrical and high tech; Chemical.

FDI and the regional dimension: empirical evidence

Table 3. Cumulative FDI outflows by sector (1995–2005) (%)

	Baden-Württemberg	Catalunya	Lombardia ^a
Traditional manufacturing	11	28	35
Machinery and automotive	16	5	3
Finance and credit	45	17	34
Electrical and high tech	2	3	7
Chemical	—	14	5
Other services ^b	26	34	16
Total (million €)	700,135	38,530	122,379

FDI and the regional dimension: empirical evidence

Table 2.1 The size effect of the local surrounding market

	(1)	(2)	(3)	(4)
<i>Baden-Württemberg</i>				
C	-6.11*** (1.55)	-7.65*** (1.84)	-5.24*** (1.27)	-4.19*** (1.19)
DAVARAGE	3.34*** (0.33)	3.34*** (0.33)	3.35*** (0.32)	3.35*** (0.32)
ULBV	-2.04*** (0.50)	-2.10*** (0.49)	-2.14*** (0.50)	-2.17*** (0.50)
GDP	2.47 E-05*** (5.97 E-06)			
GGDP		4.31 E-06*** (9.97 E-07)		
Market potential (by region) with total GDP			0.002*** (0.0004)	
Market potential (by country) with total GDP				0.001*** (0.0002)
Adjusted R ²	0.86	0.86	0.87	0.87
Observations	60	60	60	60

FDI and the regional dimension: empirical evidence

<i>Catalunya</i>				
C	-0.07 (0.07)	-0.07 (0.07)	-0.12 (0.08)	-0.14 (0.09)
DAVARAGE	0.09*** (0.02)	0.09*** (0.02)	0.09*** (0.02)	0.09*** (0.02)
ULBV	-0.21** (0.10)	-0.21** (0.10)	-0.21** (0.10)	-0.21** (0.10)
GDP	2.16 E-06*** (6.87 E-07)			
SGDP		4.01 E-07*** (9.23 E-06)		
D2003	-0.14*** (0.04)	-0.14*** (0.038)	-0.14*** (0.04)	-0.14*** (0.04)
D2004	-0.14*** (0.04)	-0.14*** (0.043)	-0.13*** (0.04)	-0.13*** (0.04)
Market potential (by region) with total GDP			0.0006*** (0.0001)	
Market potential (by country) with total GDP				0.0001*** (4.40 E-05)
Adjusted R^2	0.42	0.45	0.45	0.45
Observations	54	54	54	54

FDI and the regional dimension: empirical evidence

<i>Lombardia</i>				
C	-0.08*** (0.03)	-0.09*** (0.03)	-0.11*** (0.03)	-0.09*** (0.03)
DUM	0.02** (0.007)	0.02** (0.007)	0.02** (0.007)	0.02** (0.007)
ULBV	-0.02** (0.01)	-0.02* (0.01)	-0.02* (0.01)	-0.02** (0.01)
GDP	4.00E-07*** (1.01 E-07)			
IGDP		9.62 E-08*** (2.43 E-08)		
Market potential (by region) with total GDP			6.31 E-05*** (1.62 E-05)	
Market potential (by country) with total GDP				4.09 E-05*** (1.01 E-05)
Adjusted R ²	0.45	0.45	0.44	0.45
Observations	36	36	36	36

FDI and the regional dimension: salient points

- ▶ Home market effect

FDI and the regional dimension: salient points

- ▶ Home market effect
- ▶ Market potential effect (calculated as $M_{ij} = \sum_j \frac{Y_j}{d_{ij}}$)

FDI and the regional dimension: salient points

- ▶ Home market effect
- ▶ Market potential effect (calculated as $M_{ij} = \sum_j \frac{Y_j}{d_{ij}}$)
- ▶ Productivity index