Multinationals and Economic Geography: FDI, Competition and Policy

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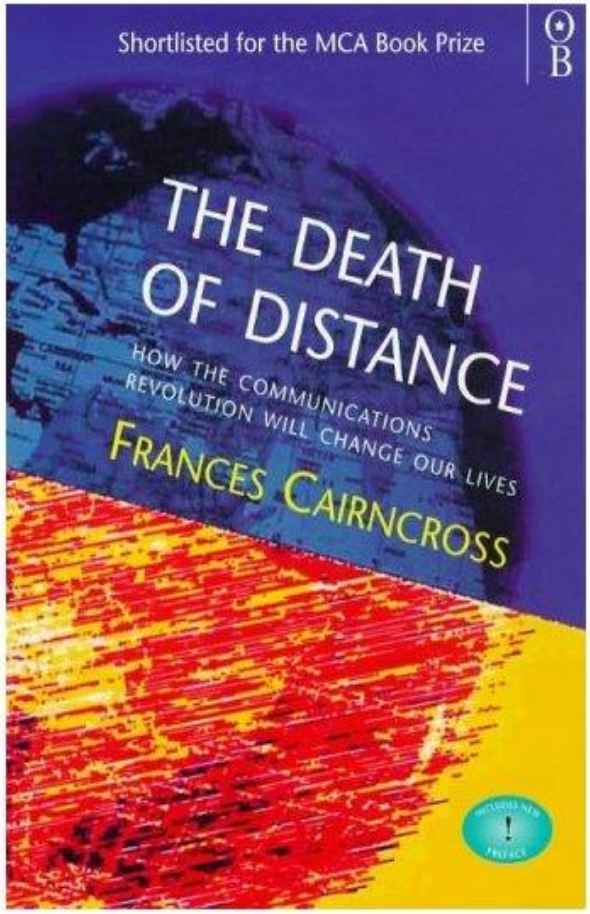
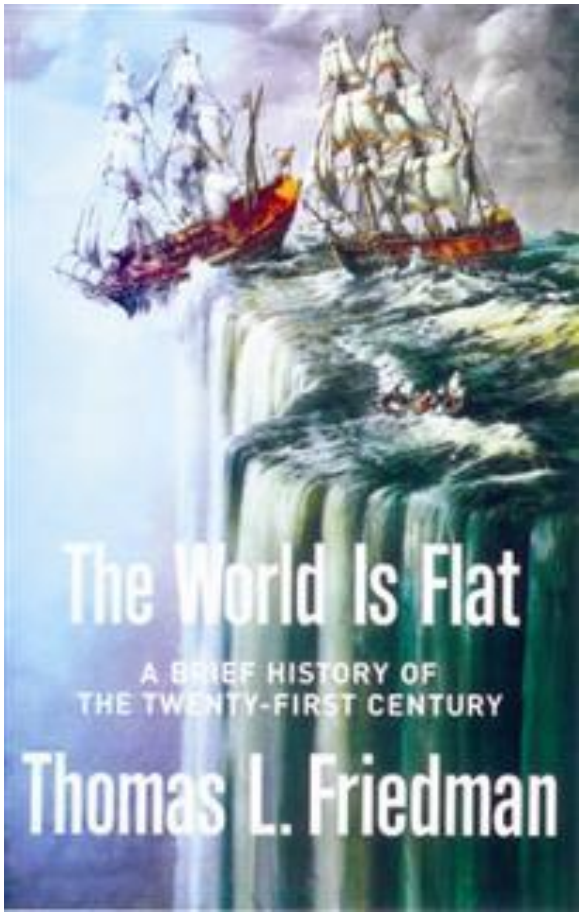
Globalization: Perceptions

- Increased international trade and travel
- Rapidly improving communications
- Global branding
- Multinational companies
- The ‘rise’ of Asia
- A ‘shrinking’ world

Space in Popular Science: ‘Distance is Death’





Whither Globalization?

- Despite opening up of markets and decreasing transport and communication costs, the world is still not flat.
- Trade and foreign direct investment are still directed an originating from a few countries in the world.
- One reason why globalization is so unevenly distributed is the existence of barriers to trade and foreign direct investment.

10 Amazing Facts

1. Number of multinationals increases by 1000-2000 per year; number of multinational establishments by 10,000-20,000 per year.
2. Top 100 of a combined firm-nation list for 2000 indicated that 29 economies were multinationals.
3. Top 1% of European Multinationals account for roughly 50% of European exports.
4. Top 500 Multinationals account for over 90% of the world's investments and 50% of the world’s exports.

10 Amazing Facts

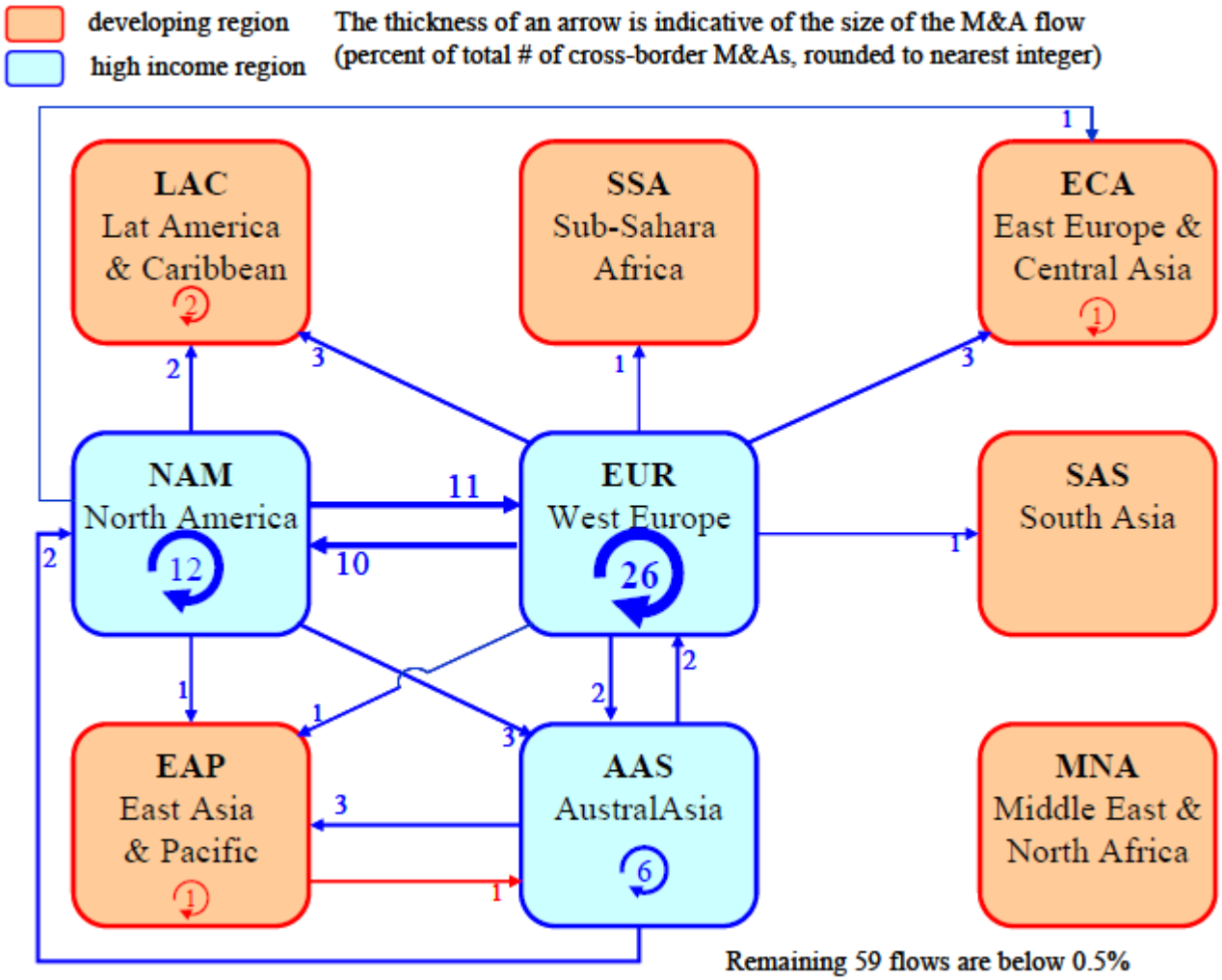
5. 700 largest R&D MNEs account for 46% of global R&D and 69% of private sector R&D
6. 10 countries (China, Germany, USA, Japan, Netherlands, France, Italy, Belgium, South Korea, United Kingdom) account for over 50% of the world exports.
7. EU-USA-Japan account for 80% of incoming investments and 97% of outgoing investments.

10 Amazing Facts

8. Over 90% of the headquarters of the top 100 Multinationals are located in a few cities in the USA, Germany, France, Japan, UK, Switzerland and The Netherlands.
9. Top 40 cities in the world account for 20% of the total population, 66% of all economic activity and for 85% of technological and scientific innovation.
10. Top 25 cities in the world account for more than half of the world's wealth.

Distribution of World FDI

Distribution of World FDI



Source: Van Marrewijk (2007)

Top 10 Best Connected Countries

# Outgoing Corporate Connections		# Incoming Corporate Connections	
1. United States	27.1%	1.United States	11.5%
2. Germany	19.7%	2. United Kingdom	7.2%
3. France	10.6%	3. Canada	5.7%
4. Switzerland	10.4%	4. Germany	5.3%
5. Japan	8.4%	5. France	4.8%
6. United Kingdom	8.1%	6. China	3.9%
7. The Netherlands	7.6%	7. The Netherlands	3.5%
8. Belgium	1.9%	8. Spain	3.4%
9. Italy	1.8%	9. Australia	3.1%
10. Spain	0.6%	10. Belgium	3.1%

Home Country Determinants

- Large and richer countries export more FDI.
- Home countries can also offer ownership advantages that shape opportunities for firms to invest abroad.
- Assets to which firms cannot easiliy get access and which provide MNCs certain market power over others.
- Availability of technology, openness and well-functioning capital markets.

The World is Spiky, Not Flat

- Although the process of globalization is going on for centuries, its magnitude has increased dramatically over the past decades.
- Despite advances in communication and technology and lowering of transport costs, the world is still very spiky and not flat.
- Corporate internationalisation remains restricted to the ‘happy few’ (cf. Mayer and Ottaviano, 2007).

The World is Spiky, Not Flat

- Geographical distribution of the corporate networks of multinationals remains persistently disproportionate.
- Corporate connections originate from and are targeted at a limited number of countries.
- Many forms of corporate connections: e.g., FDI, inter-corporate directorships, intra-firm trade, office networks.
- **Focus: intra-firm ownership**

Today

- Why and When do Firms Internationalize?
- Competition for Foreign Direct Investment
- Policy and Foreign Direct Investment
- Documentary: Multinationals and Tax Havens

Literature and Other Materials

Literature

- Burger, M.J., Knaap, G.A. van der & Wall, R.S. (2013). Revealed competition for greenfield investments between European regions. *Journal of Economic Geography, 13*(4), 619-648.
- Ianchovichina, E., Devarajan, S., Burger, M.J., Cosic, D. & Rouis, M. (2013). *Middle East and North Africa - Economic Developments and Prospects : Investing in Turbulent Times.* Washington, DC: World Bank.
- Wall, R.S., Burger, M.J. & Knaap, G.A. van der (2011). The geography of global corporate networks: the poor, the rich, and the happy few countries. *Environment and Planning A: International Journal of Urban and Regional Research, 43*(4), 904-927.

Documentary

- VPRO Backlight (2012) The Tax Free Tour.

MULTINATIONAL CORPORATIONS

International Transactions

- Residence Test: are the permanent addresses (“centers of economic interest”) for buyer and seller in different countries?
- I own a Nokia (Finnish), which I use in the Netherlands and which I purchased from Vodafone (British), but which operates on microchips manufactured in Taiwan or Korea, running on telecommunications networks built by companies such as Alcatel from France, having been assembled in Thailand, sending signals via American-built satellites, probably launched from European rockets from South America.
- Volkswagen, a German multinational corporation, exports cars built at its Mexico subsidiary to The Netherlands

International Transactions

- Trade: exports (+) & imports (-)
  - Merchandise
  - Services
  - Goods for processing
- Income receipts (+) & payments (-)
  - Investment income
  - Employee compensation
- Investment sales (+) & purchases (-)
  - Portfolio Investment
  - Direct Investment
  - Acquisitions of intangibles (IP)

International Business Entities

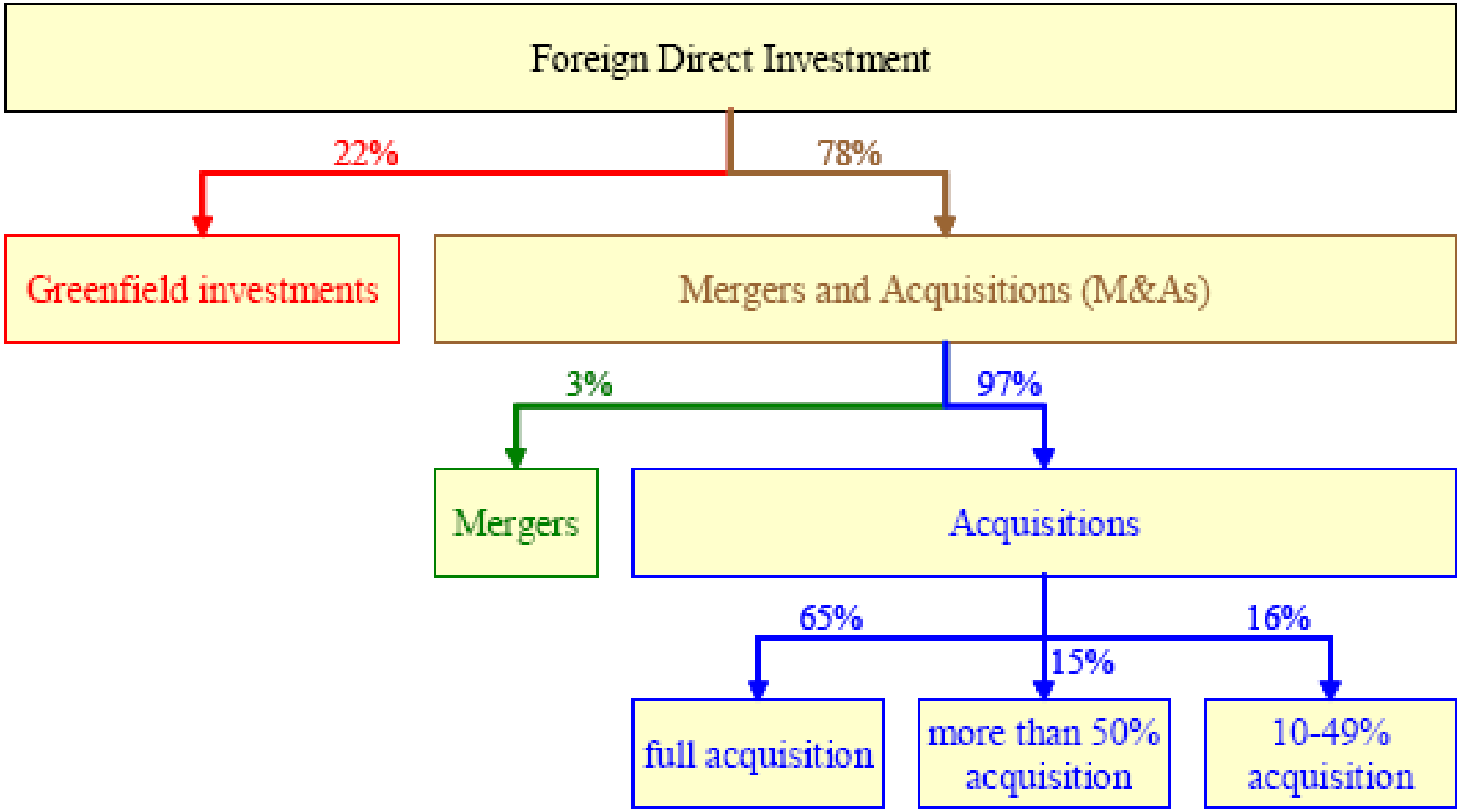
- Uninational Enterprises
- Multinational Enterprises
  - MNCs
  - MNPs
- Multinational Contractual Networks
  - Supply and distribution networks
  - Alliances between competitors

Foreign Direct Investment

- Firms internationalize if the competitive advantages gained are high enough to cover risks and costs.
- Firms decide to invest abroad when they:
  - have market power based on ownership of products or production processes.
  - they have a location advantage in locating their plant in a foreign country rather than in their home country.
  - have an advantage from internalizing their foreign activities in fully owned subsidiaries rather than carrying out through market transactions (trade) or networked relationships with other firms (licensing and franchising).

Foreign Direct Investment

- The expansion of MNC networks takes place through FDI.
- Long-range investments by an investor in a firm in a country other than where the investor is based
- MNCs enter foreign markets either through mergers and acquisitions (M&A) or Greenfield investments


Foreign Direct Investment
22%
78%
Greenfield investments
Mergers and Acquisitions (M&As)
3%
97%
Mergers
Acquisitions
65%
15%
16%
full acquisition
more than 50% acquisition
10-49% acquisition

Foreign Direct Investment

- Horizontal FDI
  - Firm duplicates a number of activities carried out in the home country.
  - Trade-off: market access, strategic advantage and lower transportation costs versus foregone economies of scale and disintegration costs.
- Vertical FDI
  - Firm geographically disperses its activities by functions, where some of these functions are now carried out abroad.
  - Trade-off: lower factor costs (i.e., labor costs) versus increased trade costs.

International Transactions

- Trade: exports (+) & imports (-)
  - Merchandise
  - Services
  - Goods for processing
- Income receipts (+) & payments (-)
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  - Employee compensation
- Investment sales (+) & purchases (-)
  - Portfolio Investment
  - Direct Investment
  - Acquisitions of intangibles (IP)

Multinational Corporation

- Where should we do the things we do?
  - At home: the country where top management is based.
  - At host: offshore, overseas, in a foreign country
- Depends on four factors:
  - Market size
  - Trade costs
  - Factor advantages
  - Plant economies of scale

Market Size

- Size of the foreign market compared to the size of the home market co-determines whether a multinational will move abroad.

Trade Costs

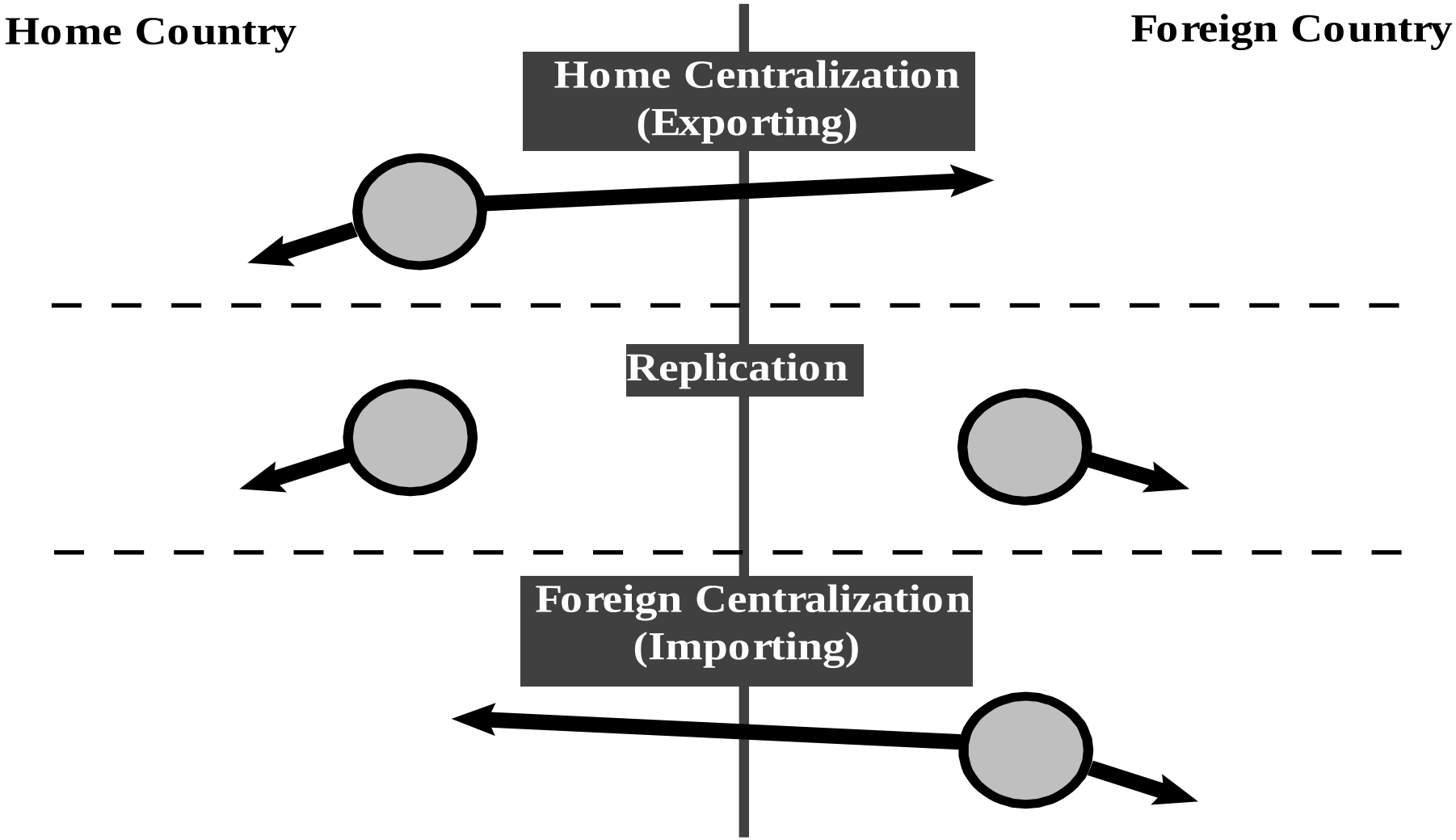
- To realize the gains from trade, buyers and sellers must incur a variety of costs other than production costs; these are known as “trade costs.”
- Trade costs have distance- and border-related components.
- Trade costs include transportation costs, travel costs, communication costs, customs costs (trade policy barriers), currency conversion costs, and transaction costs.

Factor Advantages

- A location has a factor advantage for a product if the *unit factor costs* are lower than alternative sites.
- A location (country, region) is more likely to offer *factor advantages* for producing X if the *factors* used intensively to make *product* X are relatively abundant there.

Plant Economies of Scale

- Decline in the average costs of an activity whenever the output in a specific location increases.
- Increase in total production increase productivity.
  - Indivisible fixed costs
    - E.g, machines
  - Learning by doing
    - The more output is manufactured in a plant, the better calibrated will be the workers to efficient production.
    - Tacit knowledge


Home Country
Foreign Country
Home Centralization
(Exporting)
Replication
Foreign Centralization
(Importing)

Home Centralization

- Strong plant economies of scale
- Low trade costs to export to foreign country
- Large home market
- Home country has factor advantages

Examples of Centralization

- Home Centralization:
  - Boeing commercial aircraft assembly in U.S. (mainly Seattle)
  - Airbus commercial aircraft assembly in EU (mainly Toulouse)
- Foreign Centralization:
  - Mattel's Barbie dolls (2 factories in Dongguan, China +1 in Malaysia +1 in Indonesia)

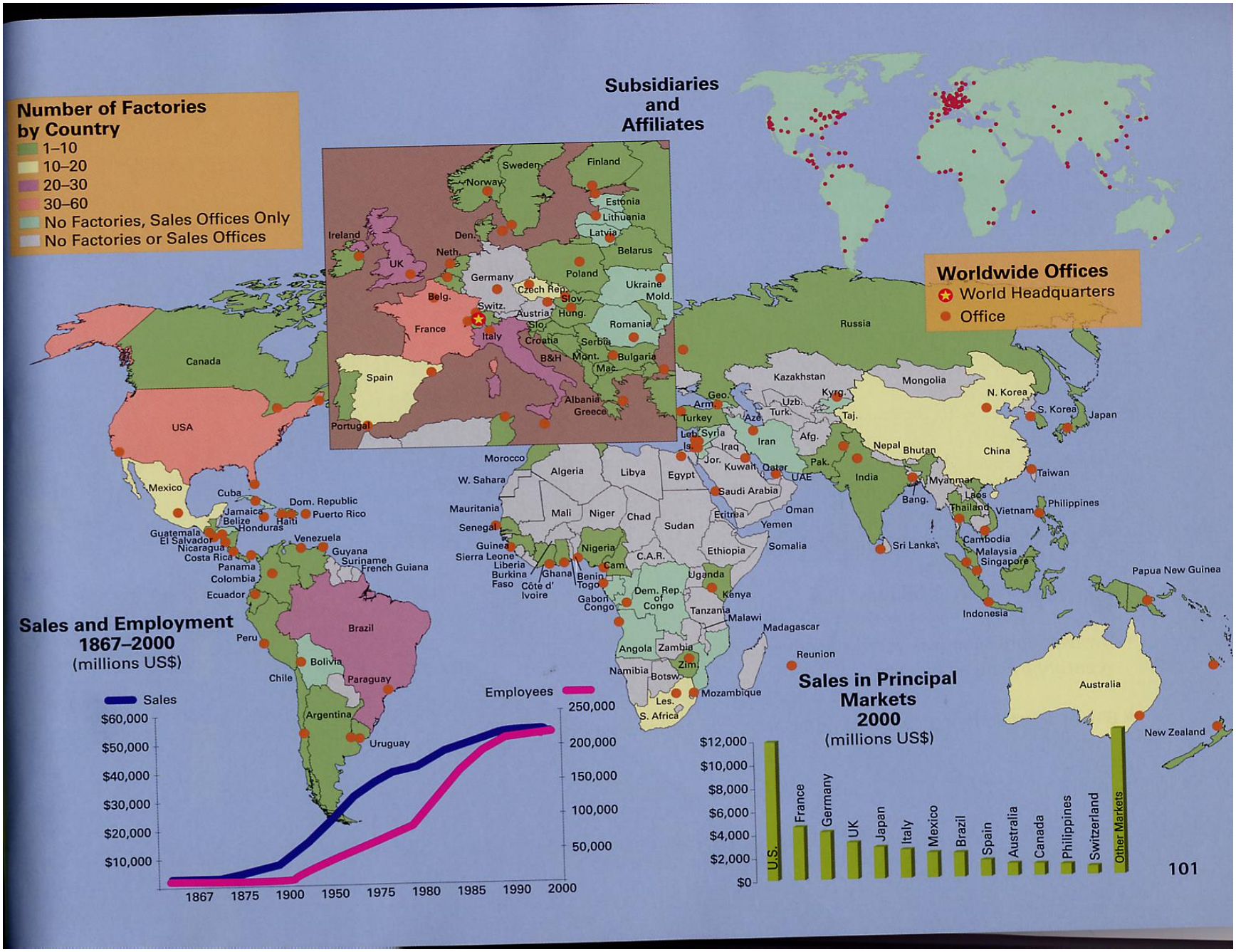
Foreign Centralization

- Strong plant economies of scale
- Low trade costs to *import* from foreign country
- Large *foreign* market
- Foreign country has factor advantages

Replication Form

- Weak plant economies of scale
- Both markets are large
- High trade costs impede exports and imports
- Unimportant factor advantages: costs of production similar across countries.

Nestle


Number of Factories by Country
1–10
10–20
20–30
30–60
No Factories, Sales Offices Only
No Factories or Sales Offices
Subsidiaries and Affiliates
Worldwide Offices
World Headquarters
Office
Sales and Employment 1867–2000 (millions US$)
Sales
Employees
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
250,000
200,000
150,000
100,000
50,000
1867
1875
1900
1950
1975
1980
1985
1990
2000
Sales in Principal Markets 2000 (millions US$)
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
U.S.
France
Germany
UK
Japan
Italy
Mexico
Brazil
Spain
Australia
Canada
Philippines
Switzerland
Other Markets
101

Motivations to Internationalize

- Four motivations to internationalize the production process:
  - Foreign market-seeking FDI (horizontal)
    - e.g., small market in home country
  - Efficiency-seeking FDI (vertical)
    - e.g., high labor costs in home country
  - Resource-seeking FDI (horizontal and vertical)
    - e.g., lack of (cheap) natural resources in home country
  - Strategic asset-seeking FDI (horizontal and vertical)
    - e.g., absence of technological capabilities and/or highly skilled labor pool in home country
- Stress the locational aspects of FDI.

Market-Seeking FDI

- Firms will supply their goods or services to the investing market and optionally serve third markets from this location.
- The new location can also be used to serve the surrounding regions, which is especially interestingly if the location provides access to a large integrated market.

Efficiency-Seeking FDI

- Motivated by a reduction of production costs
- Differences in the costs of production factors across countries can influence a firm do geographically split up its activities.
- Efficiency-seeking FDI is often found in host countries with lower labor costs and lower taxes.

Resource-Seeking FDI

- Targeted at the acquisition of specific resources at lower cost than would be obtained in the home market.
- In this, the availability of natural resources and local partners to obtain knowledge and exploit these resources are important motivations to invest in a particular market.

Strategic Asset-Seeking FDI

- Motivated by the acquisition of assets to promote long-term strategic objectives and sustaining the firm's international competitiveness.
- Driven by the need to acquire specific technological capabilities, management or marketing expertise

Location Factors*

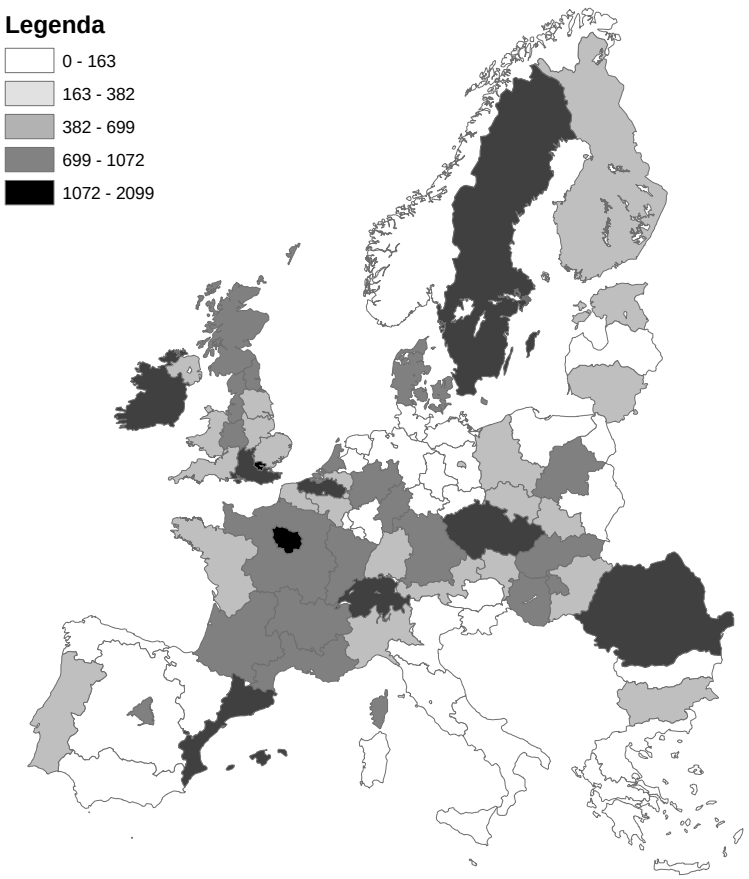
- These motivations can be linked to favorable economic location factors in the host countries. E.g.:
  - Market-Seeking FDI:
  - Efficiency-Seeking FDI:
  - Natural Resource Seeking FDI:
  - Strategic Asset-Seeking FDI:

Location Factors

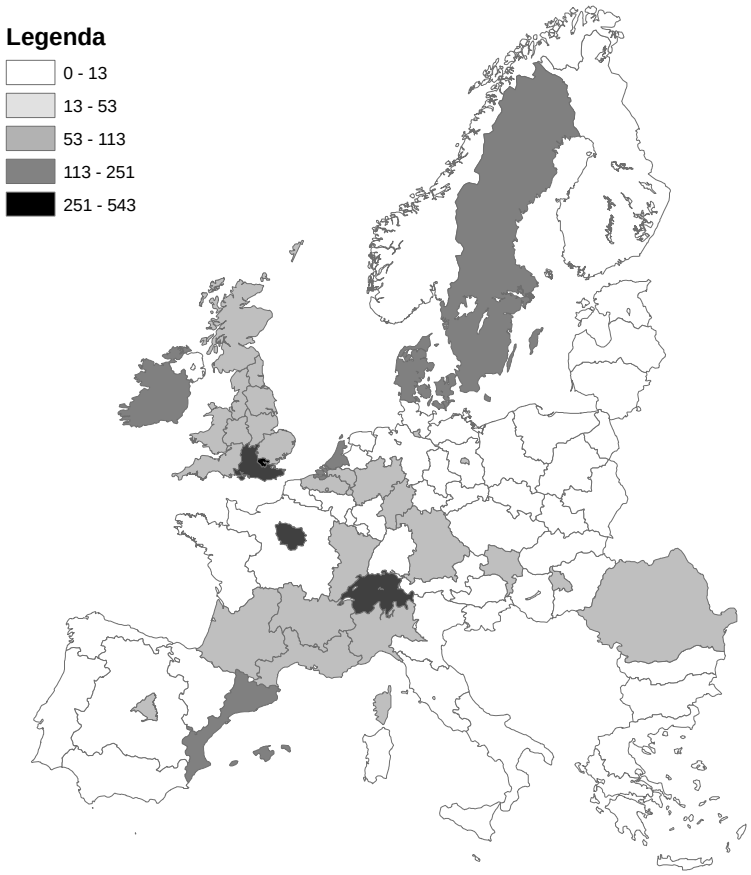
- These motivations can be linked to favorable economic location factors in the host countries. E.g.:
  - Market-Seeking FDI: Market Access, Market Size.
  - Efficiency-Seeking FDI: Labor Costs, Capital Costs.
  - Natural Resource Seeking FDI: Presence of Natural Resources.
  - Strategic Asset-Seeking FDI: Education of the Labor Force, R&D expenditures.

FDI in Europe

Total



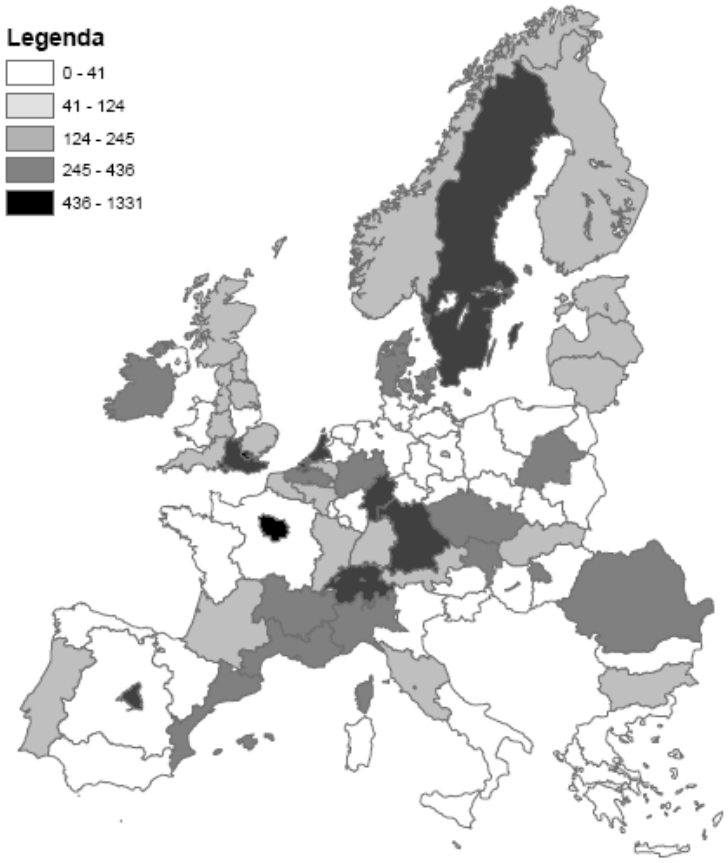
Headquarters



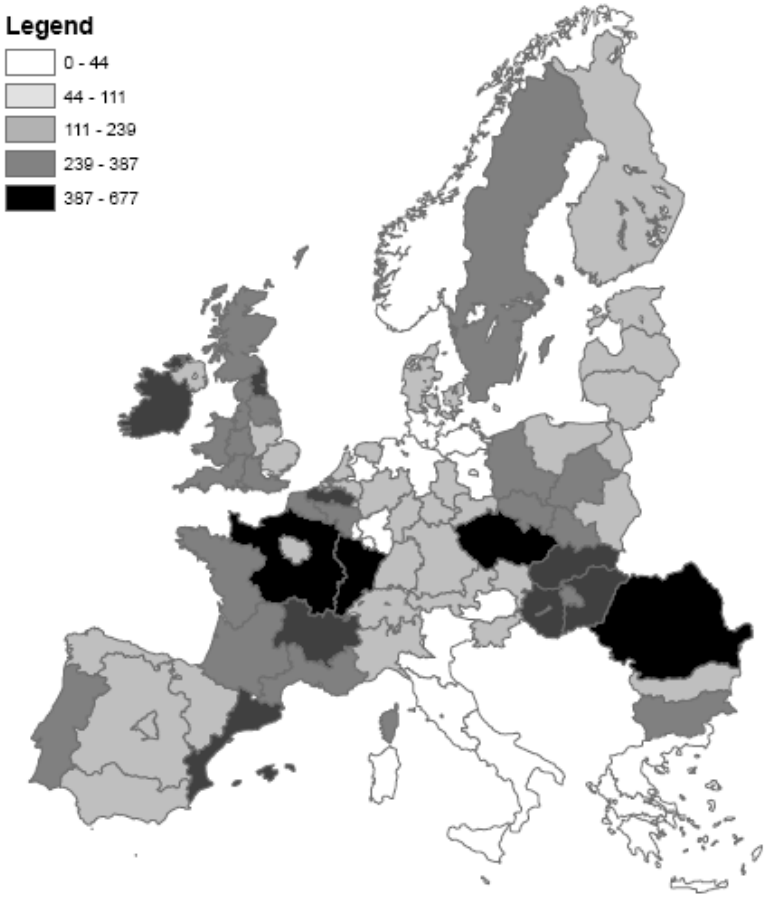
Source: Brienen et al. (2010)

FDI in Europe

Sales and Marketing



Production Plants

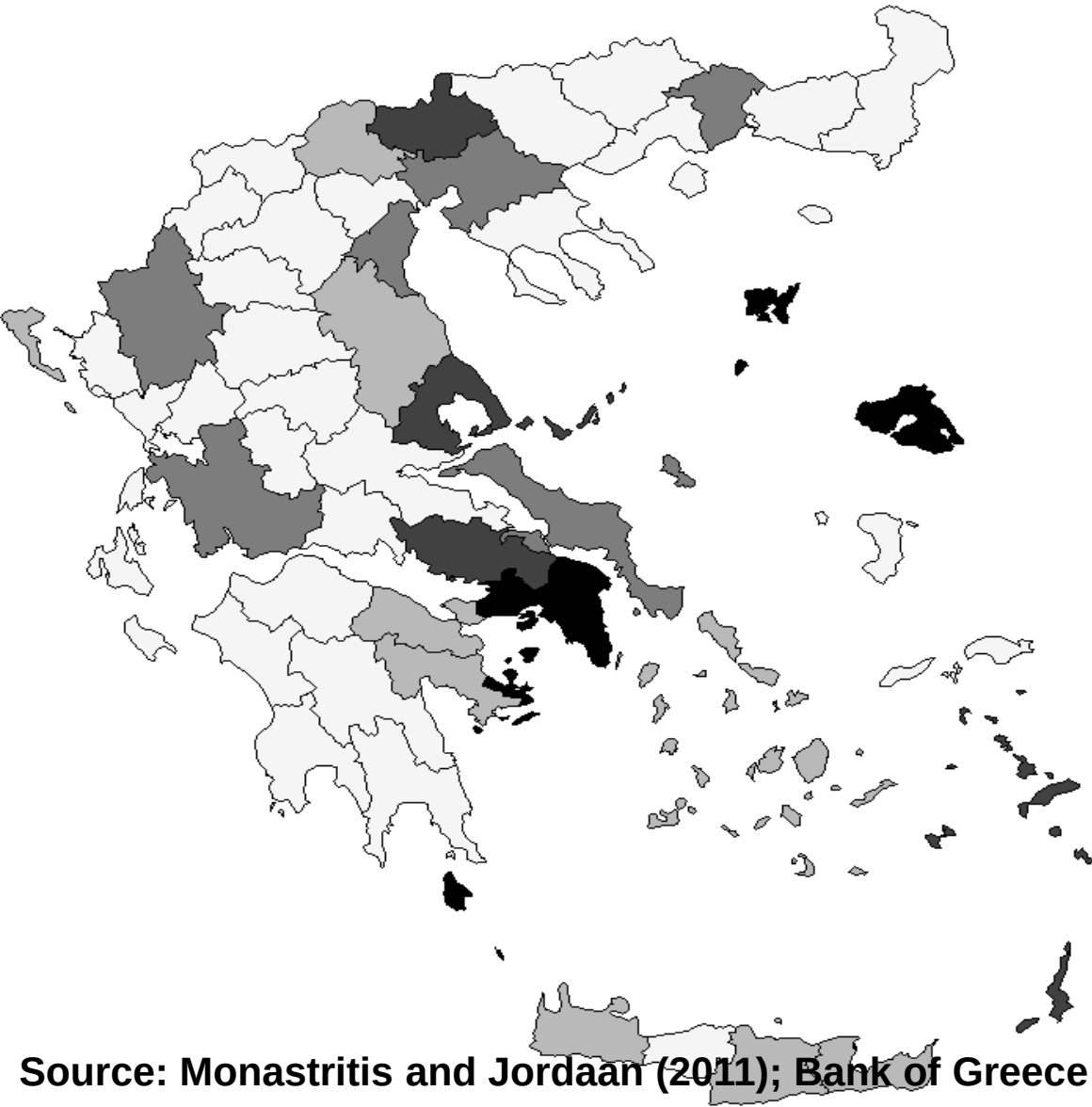


Source: Brienen et al. (2010)

Location Factors

- Apart from the motives, other location characteristics play an important role
  - Quality of institutions
  - Quality of environment
  - Agglomeration externalities
- MNCs tend to be very selective when choosing a location for their subsidiary.

Distribution of FDI in Greece



87% of FDI goes into Attiki/Athens

Sectoral Distribution:
30% Financial Services
15% Transport Services
13% Wholesale

Low degree and quality of FDI attributable to:

- High taxes
- Red tape and bureaucracy
- Poor infrastructure
- Weak business environment

(Pantelidis and Nikolopoulos, 2008)

Source: Monastritis and Jordaan (2011); Bank of Greece

COMPETITION FOR FDI AND POLICY

FDI in Popular Discourse

- FDI is good for urban and regional development
- Cities and regions compete for FDI.
- Governments have to work on their competitiveness in order to attract FDI.
- Growing influence competitiveness in urban and regional policy.
  - Rise city-marketing
  - Large number of ranking lists

FDI and Regional Development*

- Free market view: FDI should be encouraged.
- International production should be distributed per national comparative advantage; MNC increases the world economy efficiency.
- Advantages:
  - Jobs, Labour and Labour Productivity
  - Trade and Balance of Payments
  - Innovation and Skills

FDI and Regional Development

- Radical view: inward FDI is harmful
- MNCs are imperialist dominators: they exploit the host country to advantage of the home country.
- Extract profits from the host country and keep developing countries backward.
- FDI associated with:
  - capital outflow
  - crowding out of domestic companties
  - loss of economic independendence.

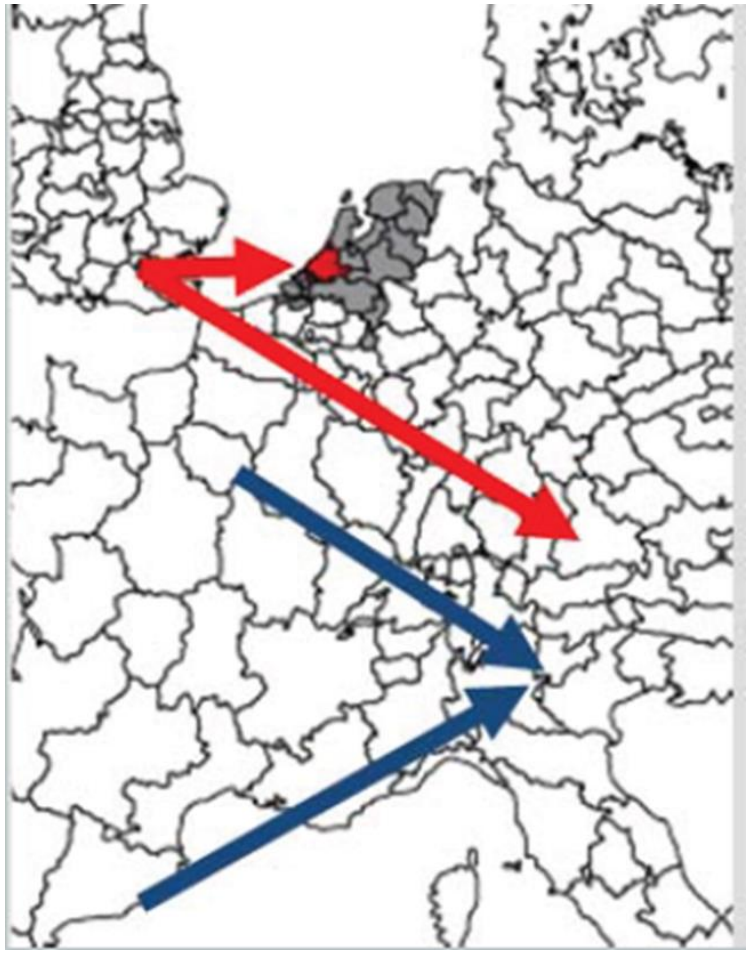
FDI and Regional Development

- Empirical literature: Overall benefits of FDI are unclear; not all types of FDI are beneficial for economic growth.
- Quality of FDI depends on
  - Entry mode (greenfield vs. M&A)
  - Knowledge-intensiveness
  - Absorptive capacity region

Urban and Regional Competition

- MNCs are constrained in their location choice by local resource availability.
- The majority of all potential locations in the world are not even considered by MNCs that aim to set up a subsidiary.
- For regions it is important to understand with which other regions it is competing for FDI.

Competition for Investments*



It is possible to divide the market for investments into segments.

Segment:
Function x Sector x Region of origin

Territorial competition:
The degree to which two regions are active in the same market segments for FDI.

Regions that receive similar types of investments from similar parts of the world

Competition for Investments

Table 3. Most competitive market segments in European market for investments

Rank	Number of investments	Overlap	Sector	Function	World region of origin
1	921	0.454	Processing industries	Production	Western Europe
2	1707	0.437	Low-tech manufacturing	Production	Western Europe
3	766	0.406	Transport services	Logistics	Western Europe
4	486	0.397	Low-tech manufacturing	Production	North America
5	573	0.354	High-tech manufacturing	Production	Western Europe
6	1206	0.346	Medium-tech manufacturing	Production	Western Europe
7	316	0.338	Low-tech manufacturing	Logistics	Western Europe
8	1181	0.300	Software and ICT	Sales and marketing	Western Europe
9	407	0.296	Consumer services	Production[a]	Western Europe
10	1042	0.296	Financial services	Business services	Western Europe

Table 4. Least competitive large market segments in European market for investments

Number of investments	Overlap	Sector	Function	World region of origin
341	0.079	Financial services	Business services	Asia-Pacific
100	0.098	Consumer services	Production[a]	Middle East
159	0.100	Financial services	Business services	Rest of Europe
355	0.114	Software and ICT	Headquarters	North America
106	0.119	Software and ICT	Business services	North America
118	0.132	Financial services	Business services	North America
421	0.135	Financial services	Sales and marketing	North America
188	0.136	Financial services	Sales and marketing	Western Europe
150	0.137	Low-tech manufacturing	Sales and marketing	Asia-Pacific
134	0.142	Consumer services	Sales and marketing	Western Europe

[a]This mainly include the construction of hotels and entertainment facilities.

Source: Burger et al. (2013)

Competition for Investments

Facing smallest competitive threat from other regions

Code	Region name	Main city	Average overlap
UKI1	Greater London	London	0.050
FR10	Ile-de-France	Paris	0.081
IE02	Southern and Eastern Ireland	Dublin	0.109
DEA1	Düsseldorf	Düsseldorf	0.133
DE21	Oberbayern	Munich	0.134
NL32	Noord-Holland	Amsterdam	0.138
DE71	Darmstadt	Frankfurt	0.140
ES30	Communidad de Madrid	Madrid	0.142
UKJ1	Berkshire, Bucks and Oxfordshire	Oxford	0.145
ES51	Cataluña	Barcelona	0.148

Facing largest competitive threat from other regions

Code	Region name	Main city	Average overlap
GR41	Voreio Aigaio	Mytilene	0.519
DEB2	Trier	Trier	0.477
PT20	Azores	Ponta Delgada	0.470
ITE2	Umbria	Perugia	0.450
NL34	Zeeland	Middelburg	0.425
GR24	Sterea Ellada	Lamia	0.419
GR42	Notio Aigaio	Ermoupoli	0.418
ES43	Extremadura	Mérida	0.417
PL34	Podlaskie	Bialystok	0.416
AT34	Vorarlberg	Bregrenz	0.411

Posing largest competitive threat to other regions

Code	Region name	Main city	Average overlap
ITC4	Lombardia	Milan	0.384
DEA2	Köln	Köln	0.379
UKM3	South Western Scotland	Glasgow	0.371
DE71	Darmstadt	Frankfurt	0.365
CZ01	Praha	Prague	0.355
ES61	Andalucia	Sevilla	0.353
FR71	Rhône-Alpes	Lyon	0.352
UKM2	Eastern Scotland	Edinburgh	0.349
DE21	Oberbayern	Munich	0.345
ES30	Communidad de Madrid	Madrid	0.343

Posing smallest competitive threat to other regions

Code	Region name	Main city	Average overlap
GR13	Dytiki Makedonia	Kozani	0.005
NO06	Trøndelag	Trondheim	0.009
GR11	Anatoliki Makedonia	Komotini	0.009
FR83	Corse	Ajaccio	0.020
GR21	Ipeiros	Ioannina	0.024
GR25	Peloponnese	Tripoli	0.026
ITE3	Marche	Ancona	0.029
ITF2	Sardegna	Cagliari	0.029
NL12	Friesland	Leeuwarden	0.030
ITD2	Trentino-Alto Adige	Trento	0.032

Source: Burger et al. (2013)

Competition for Investments

Table 9. OLS on competitive threat posed and faced by regions

	Model 3 Ln (threat posed)	Model 4 Ln (threat faced)	Model 5 Ln (posed/faced)
Regional level			
Ln market size	0.45 (0.048)**	−0.13 (0.022)**	0.58 (0.046)**
Ln accessibility by air	0.60 (0.183)**	−0.09 (0.083)	0.73 (0.140)**
Ln accessibility by road and rail	0.08 (0.049)	0.01 (0.016)	0.07 (0.050)
Ln population density	−0.08 (0.048)	−0.08 (0.022)**	−0.01 (0.043)
Ln wage per hour	−0.60 (0.088)**	0.06 (0.047)	−0.66 (0.080)**
R&D expenditures (% GDP)	4.05 (2.42)	0.34 (1.18)	3.71 (2.32)
University degree rate	1.71 (0.294)**	−0.99 (0.219)**	2.70 (0.410)**
Natural resource intensity	−2.91 (6.81)	−5.34 (3.36)	2.43 (4.50)
Country level			
Social charges rate	1.00 (0.798)	−0.28 (0.290)	1.28 (0.850)
Corporate tax rate	−2.84 (0.691)**	1.47 (0.303)**	−4.28 (0.807)**
Observations	245	245	245
R-squared	0.55	0.50	0.73
Root MSE	0.45	0.22	0.42

Source: Burger et al. (2013)

FDI and Policy

Governments should concentrate on the following aspects:

- The type of sectors and activities that a region would like to attract.
- The location facors that are important to attract these investments.
- The policy instruments with which these investments can be attracted.

Selection of Sectors and Activities

- Acquisition activities that target specific sectors and activities are more succesful than acquisition activities that do not target specific sectors and activities.
- Focus on those activities in which the region has a competitive advantage.
- Target those activities that complement the economic structure of a region.

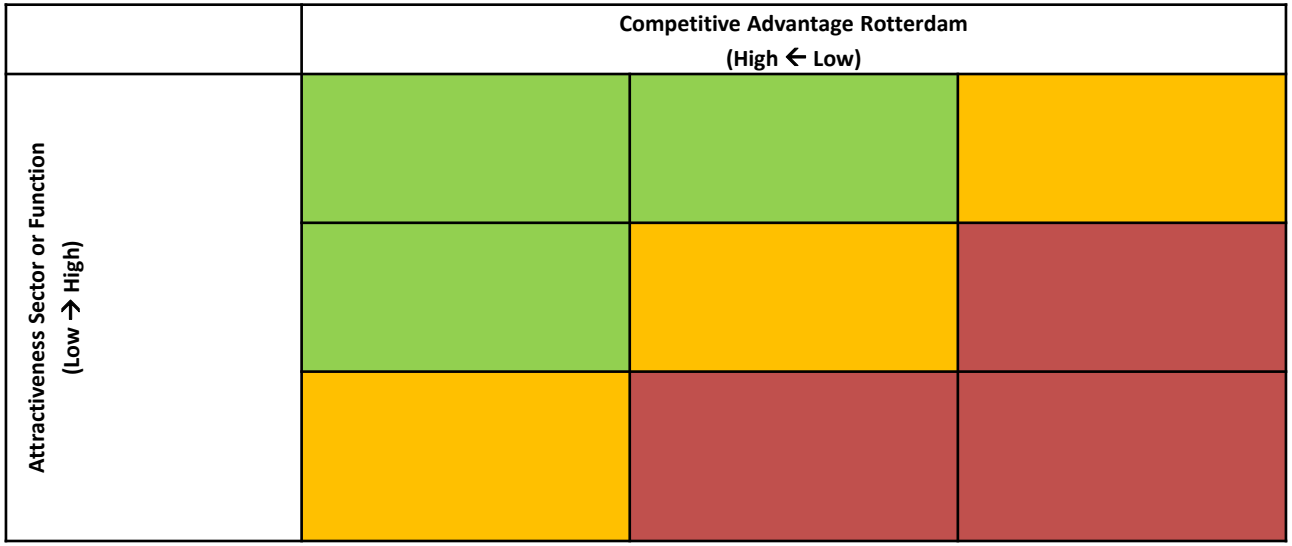
Selection of Sectors and Activities

- Focus on fast-growing and high-valued functions and sectors:
- However, take in that the potential impact of investment can differ:
  - Effects on jobs and labour market
  - Effects on trade and balance of payments
  - Effects on innovation and technology

Selection of Sectors and Activities

Young et al. (1994, *Regional Studies*) on acquisition activities

- Regions need to attract those sectors and functions in which the region has a competitive advantage.
- Regions need to target those investments that add value to the regional economy and generate positive spillovers.



A. Headquarters	1. Coal, Oil and Gas
B. Offices	2. Alternative Energy
C. Sales and Marketing	3. Food and Beverages
D. R&D and Design	4. Chemical and Petrochemical Industry
E. Logistics	5. Life Sciences
F. Production	6. Machinery
	7. Software & ICT
	8. Transport Services
	9. Financial Services
	10. Business Services

	Competitive Advantage Rotterdam (High ← Low)		
Attractiveness Sector or Function (Low → High)		A 5 D5	D 6, 10 A910, D7
	1, 2, 4, 8 A8, F2, F4	7	F
	C, E 3	9	B

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	10. Business Services

Policy Instruments and FDI

- Incentive-based policies aimed at attracting specific firms.
- Capacity-building policies policies aimed at improving economic, institutional and physical environment.
- Race to the bottom vs. Race to the top

Policy Instruments and FDI

Incentive-based policies:

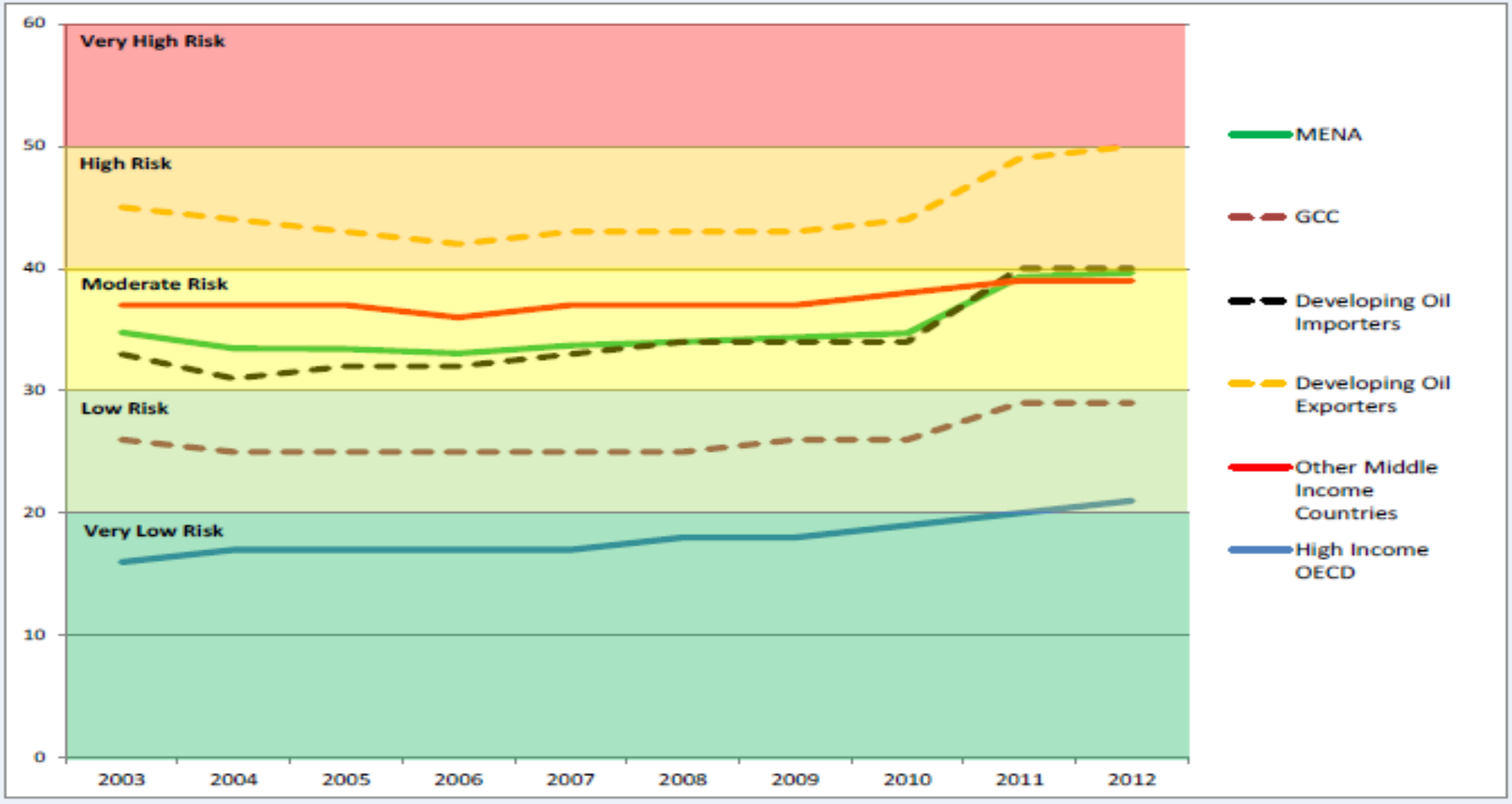
- Reduce corporate tax rates
- Weaken regulatory review process
- Offer financial subsidies
- Eliminate limitations on foreign ownership levels.

Policy Instruments and FDI

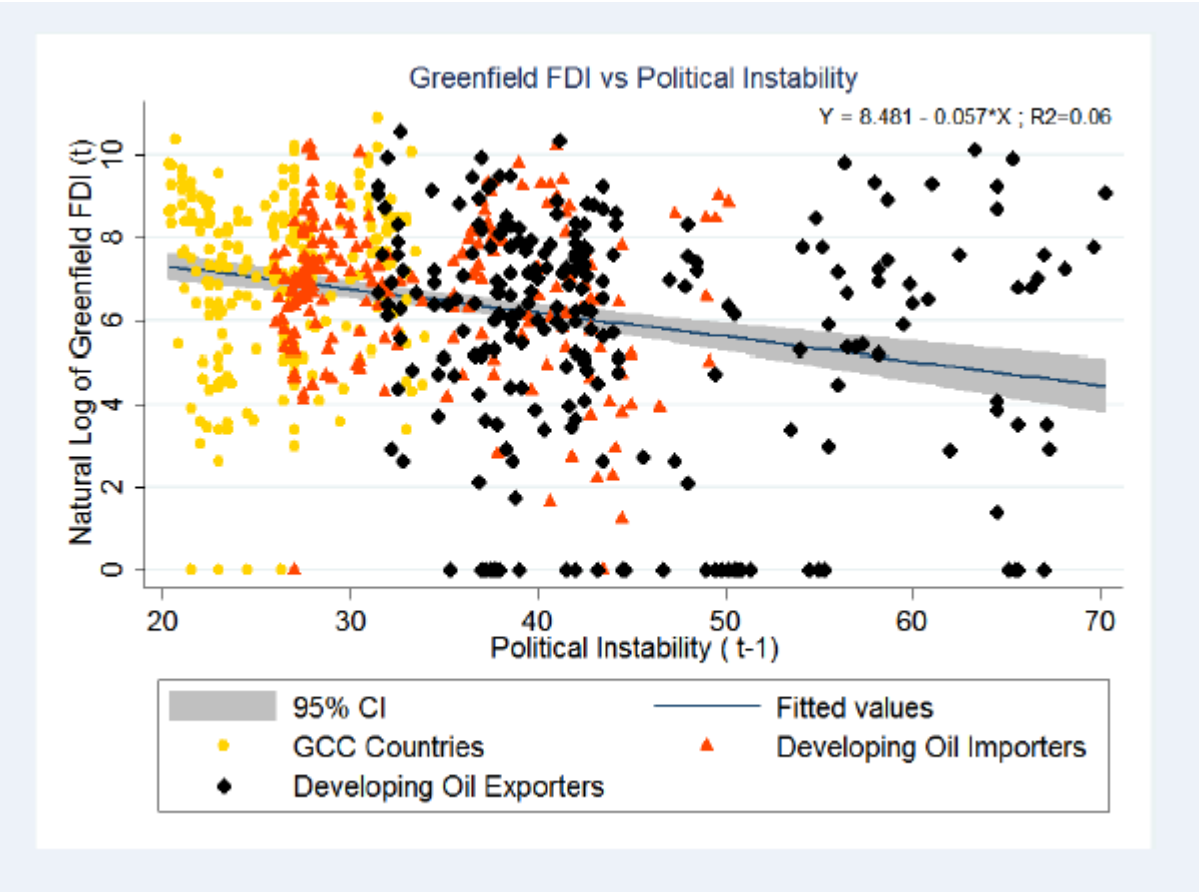
Capacity-building and rule-based policies:

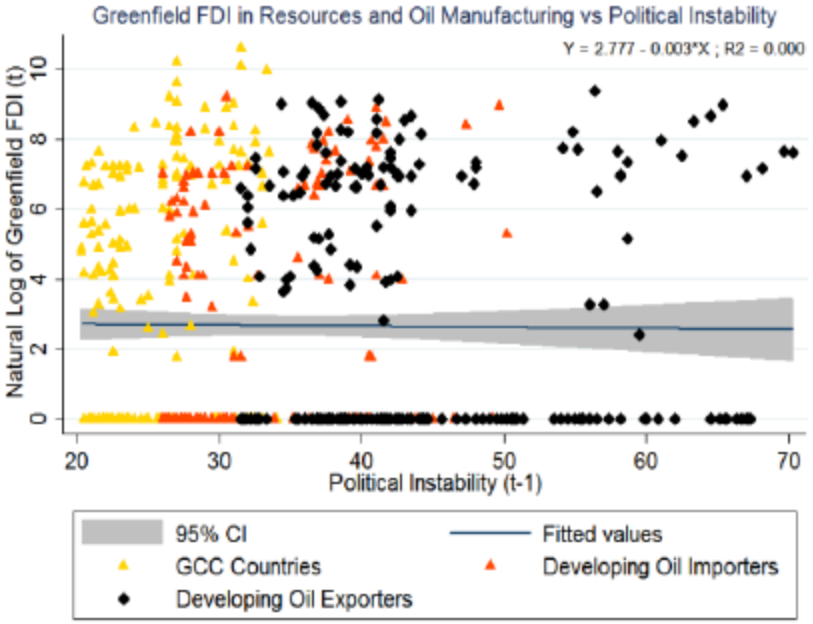
- Promotion of institutional quality
- Implementation of macro-economic policies that encourage growth with low inflation.
- Investment in infrastructure.
- Investment in education and worker training programs.

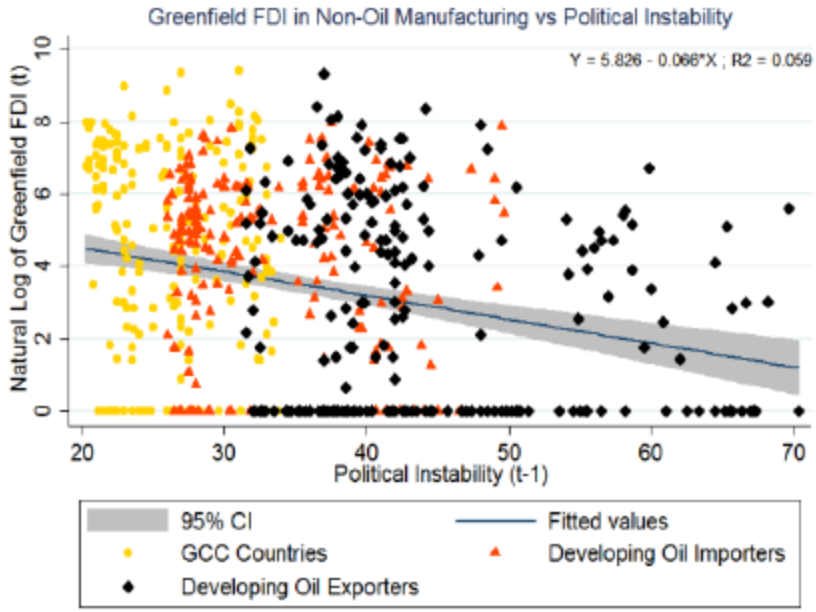
Case Study: Arab Spring

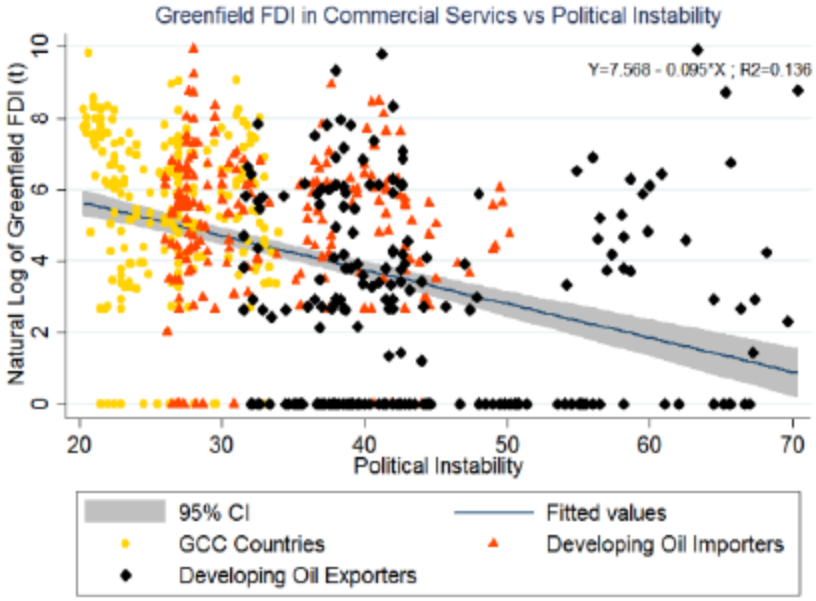


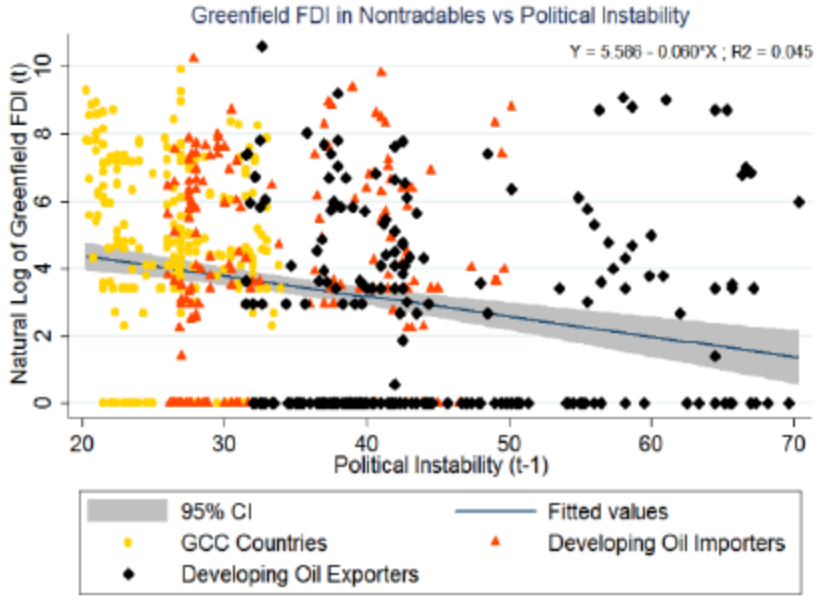
FDI and Political Instability




Greenfield FDI in Resources and Oil Manufacturing vs Political Instability
Y = 2.777 - 0.003*X ; R2 = 0.000
Natural Log of Greenfield FDI (t)
0
2
4
6
8
10
20
30
40
50
60
70
Political Instability (t-1)
95% CI
Fitted values
GCC Countries
Developing Oil Importers
Developing Oil Exporters


Greenfield FDI in Non-Oil Manufacturing vs Political Instability
Y = 5.826 - 0.066*X ; R2 = 0.059
Natural Log of Greenfield FDI (t)
0
2
4
6
8
10
20
30
40
50
60
70
Political Instability (t-1)
95% CI
Fitted values
GCC Countries
Developing Oil Importers
Developing Oil Exporters


Greenfield FDI in Commercial Servics vs Political Instability
Y=7.568 - 0.095*X ; R2=0.136
Natural Log of Greenfield FDI (t)
0
2
4
6
8
10
20
30
40
50
60
70
Political Instability
95% CI
Fitted values
GCC Countries
Developing Oil Importers
Developing Oil Exporters


Greenfield FDI in Nontradables vs Political Instability
Y = 5.586 - 0.060*X ; R2 = 0.045
Natural Log of Greenfield FDI (t)
0
2
4
6
8
10
20
30
40
50
60
70
Political Instability (t-1)
95% CI
Fitted values
GCC Countries
Developing Oil Importers
Developing Oil Exporters

Policy Instruments and FDI

Incentive-based policies are more controversial:

- Unclear whether the costs of taks benefits and subsidies outweigh the benefits of attracting FDI.
- Increased change of attracting investments that do not fit within the region.
- Easy to copy by competing regions.
- Important: active rol of investment agencies.

Policy Instruments and FDI

- However, the use of policy instruments comes with some caveat:
  - Not all location factors can be influenced
  - Not all sectors and activities respond to incentive-based and capacity-based policies
  - Policy measures play at different geographical scales.
  - Effectiveness of policy instruments is dependent on policy instruments of competing regions.

Case Study: FDI in Germany

- Germany
  - Substantial variation in terms of regional subsidies
  - Relatively dilligent bureaucrats (extensive stats at NUTS-3)

- Funding as an indicator for policy priority
- Capacity-based funding vs. Incentive-based funding

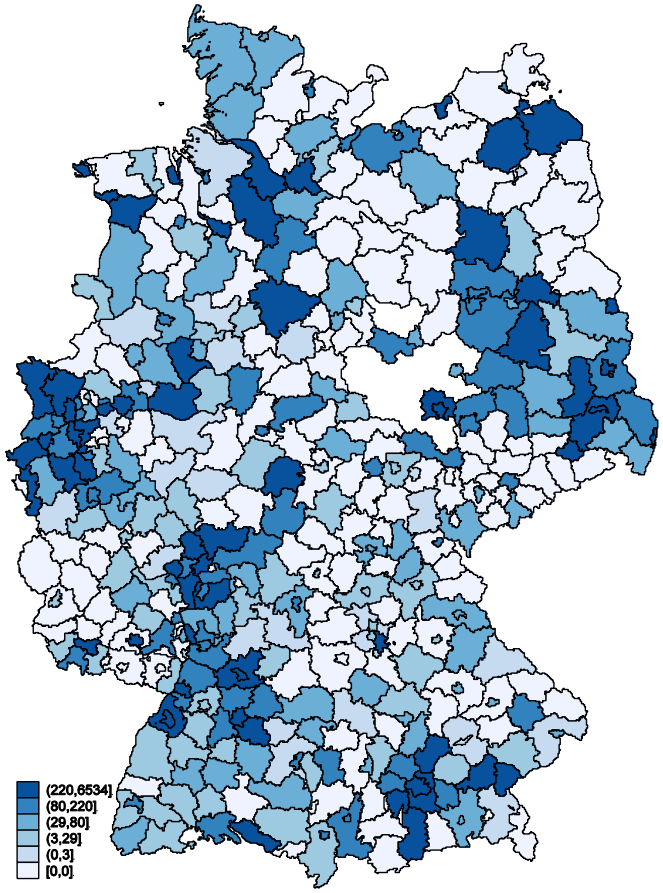
- Two data sources
  - Financial Times fDI Markets: MNC location choice and FDI
  - Inkar (Bundesinstitut): Local funds, socio-demographic and economic characteristics of regions

Investments in Germany 2003-2011

Investment volume

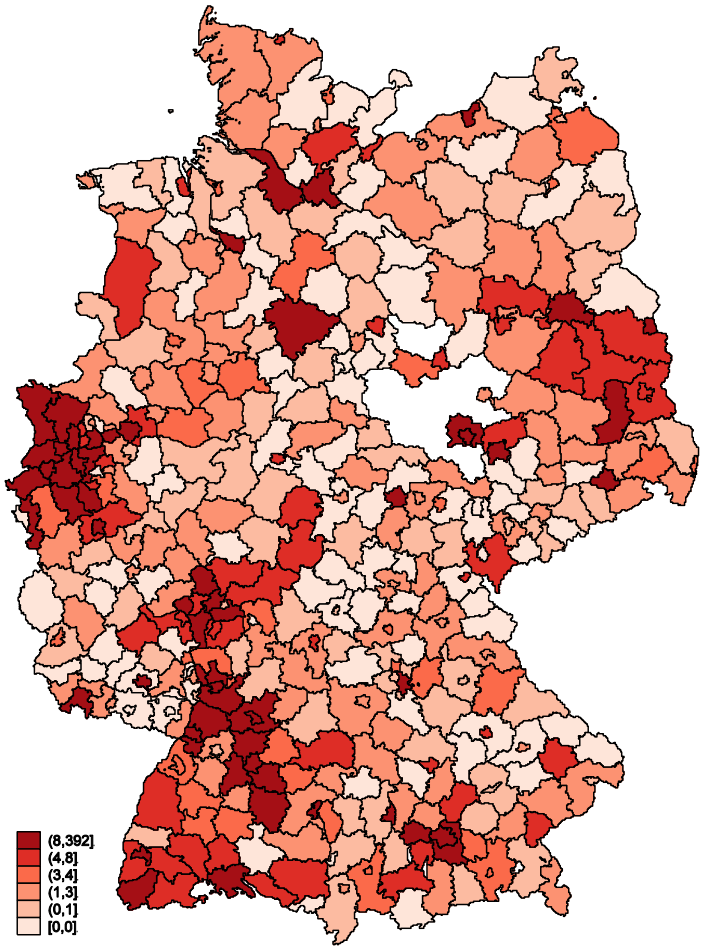
(unreliable measure)

(Mean = € 165 mln ; Max = € 6.5 bln)

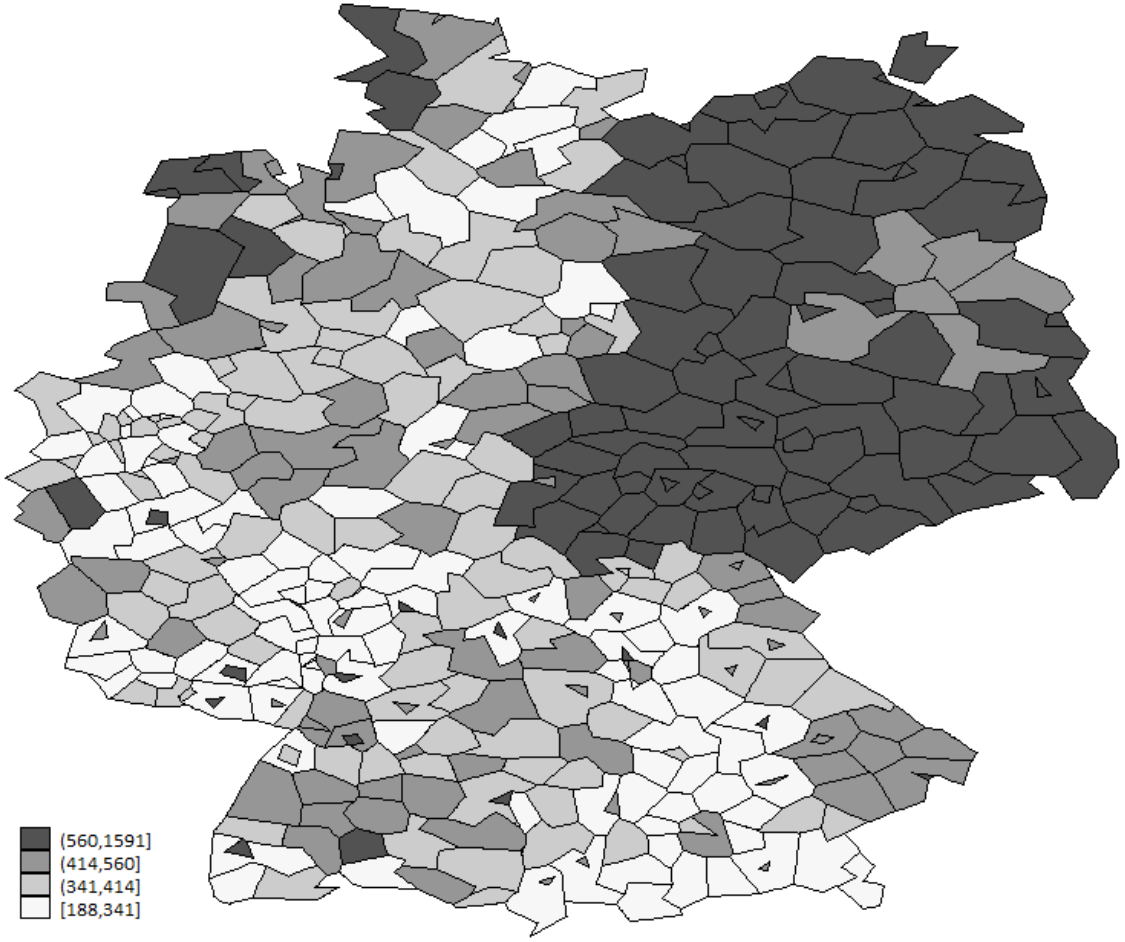


Number of investments

(Mean = 8; Max = 392)



Public Funding in Germany
- Capacity- and Incentive-Based -



Results

	(1) Baseline Model	(2) Including Public Funds	(3) Including Incentives 1996-2004	(4) East vs. West Germany
Public funds (ln)		0.69**	0.85**	0.21
		(0.194)	(0.194)	(0.223)
Local GDP (ln)	1.11**	1.14**	1.10**	1.14**
	(0.109)	(0.104)	(0.111)	(0.104)
% Growth Local GDP	0.01	0.01	0.02*	0.01*
	(0.007)	(0.007)	(0.007)	(0.007)
Multimodal accessibility (ln)	0.38	0.87*	0.97**	0.72*
	(0.336)	(0.368)	(0.360)	(0.343)
Unit wage costs (ln)	-2.06**	-1.56*	-2.03**	-1.66*
	(0.796)	(0.727)	(0.774)	(0.745)
% High-educated workforce	0.09**	0.03	0.04	0.02
	(0.031)	(0.028)	(0.032)	(0.027)
Land costs (ln)	-0.55**	-0.34**	-0.30*	-0.06
	(0.139)	(0.121)	(0.145)	(0.135)
% Business tax	-0.11**	-0.10**	-0.09*	-0.06
	(0.038)	(0.036)	(0.035)	(0.033)
Population density (ln)	0.40**	0.26**	0.30**	0.25*
	(0.110)	(0.100)	(0.108)	(0.104)
Capital (ln)	0.43**	0.43**	0.41**	0.30**
	(0.107)	(0.108)	(0.108)	(0.102)
Presence top 500 MNC	0.12	0.14	0.20	0.20
	(0.168)	(0.162)	(0.161)	(0.151)
East Germany dummy				-9.33*
				(3.803)
East Germany dummy*Public funds (ln)				1.54** (0.586)
Observations	412	412	412	412
McFadden's R^2	0.209	0.215	0.25	0.224
LR test of alpha	715**	723**	727**	576**
AIC	4.64	4.61	4.51	4.56
BIC	-522	-531	-530	-541

Results

	(1) Upstream Activities	(2) Construction and Energy	(3) Production Plants	(4) Downstream Activities
Public funds (ln)	0.19	0.46	0.82**	0.49
	(0.297)	(0.490)	(0.263)	(0.321)
Local GDP (ln)	1.31**	1.36**	0.83**	1.22**
	(0.111)	(0.188)	(0.111)	(0.160)
% Growth Local GDP	0.01	0.03*	0.00	0.03*
	(0.013)	(0.014)	(0.008)	(0.013)
Multimodal accessibility (ln)	0.89	-2.03**	0.75	1.40*
	(0.578)	(0.848)	(0.491)	(0.606)
Unit wage costs (ln)	-0.76	-3.21**	-2.06*	-0.52
	(0.930)	(1.132)	(1.035)	(0.800)
% High-educated workforce	0.03	0.02	-0.03	0.06
	(0.025)	(0.048)	(0.032)	(0.038)
Land costs (ln)	0.01	-0.41	-0.67**	-0.23
	(0.186)	(0.232)	(0.150)	(0.221)
% Business tax	-0.11*	-0.14	-0.03	-0.13*
	(0.049)	(0.091)	(0.051)	(0.054)
Population density (ln)	0.20	0.26	0.25*	0.39**
	(0.144)	(0.235)	(0.124)	(0.150)
Capital (ln)	0.39**	0.45	0.48**	0.38*
	(0.148)	(0.296)	(0.157)	(0.170)
Presence top 500 MNC	0.11	1.08**	-0.03	-0.00
	(0.232)	(0.359)	(0.212)	(0.228)
Observations	412	412	412	412
McFadden's R^2	0.292	0.224	0.103	0.239
LR test of alpha	11.2**	16.8**	131**	462**
AIC	1.65	1.13	3.06	3.40
BIC	-1750	-1964	-1166	-1029

Results

	(1) Incentive-Based	(2) Capacity-Building	(3) Full Model
Incentive-based public funds (ln)	0.39*		0.34*
	(0.155)		(0.151)
Capacity-building public funds (ln)		0.76**	0.71**
		(0.166)	(0.160)
Local GDP (ln)	1.10**	1.14**	1.13**
	(0.106)	(0.110)	(0.107)
% Growth Local GDP	0.01*	0.01	0.01
	(0.007)	(0.008)	(0.008)
Multimodal accessibility (ln)	0.68	0.81*	1.05*
	(0.379)	(0.338)	(0.376)
Unit wage costs (ln)	-1.81*	-1.87*	-1.68*
	(0.742)	(0.755)	(0.721)
% High-educated workforce	0.08**	0.02	0.02
	(0.028)	(0.032)	(0.030)
Land costs (ln)	-0.53**	-0.26	-0.26
	(0.126)	(0.141)	(0.134)
% Business tax	-0.09*	-0.10**	-0.08**
	(0.037)	(0.035)	(0.034)
Population density (ln)	0.45**	0.21	0.27*
	(0.115)	(0.110)	(0.118)
Capital (ln)	0.41**	0.43**	0.41**
	(0.105)	(0.108)	(0.104)
Presence top 500 MNC	0.20	0.14	0.21
	(0.160)	(0.164)	(0.156)
Observations	412	412	412
McFadden's R^2	0.212	0.216	0.219
LR test of alpha	688**	730**	703**
AIC	4.62	4.60	4.59
BIC	-525	-532	-533

Case Study: Tax Havens

- Most large multinationals have operations in several tax havens to avoid taxes.
- Those routes go by resounding names like 'Cayman Special', 'Double Irish', and 'Dutch Sandwich'.
- However, how do these tax havens work?

LOCATIONS IN OFFSHORE TAX JURISDICTIONS

When you hear "tax haven" you probably picture a small island with great weather and accommodating tax and banking systems. While you wouldn't be entirely wrong, you'd only be seeing part of the picture. The IMF identifies over 60 'offshore financial centres' around the world, some of which you might find surprising...

Grant Thornton