

# Does Geography Matter for Economic Theory and Policy?

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**Economic geography seeks to  
explain the riddle of **uneven  
spatial development****

**(at different spatial scales)**

# **Part I: The World of Yesterday**

**or why a bit of economic history  
doesn't hurt**

between **1800** and **1910**, it can be estimated that the lowering of the real average prices of transportation was on the order of **10** to **1**  
(Bairoch)

by **1910**, steamships were crossing the  
Atlantic at **5** times the speed of  
seventeenth-century boats, and  
with **20** times more tonnage

it took **358** hours in **1650** to go from Paris to  
Marseille, **38** hours in **1854**, but  
only **3** hours in **2002**

**Wheat: Liverpool/Chicago**

**1.57 in 1870 but 1.15 in 1913**

**Steel: London/Philadelphia**

**1.75 in 1870 but 1.15 in 1913**

**Cotton: Liverpool/Bombay**

**1.57 in 1873 but 1.20 in 1913**

**Jute: London/Calcutta**

**1.35 in 1873 but 1.04 in 1913**

(Findlay and O'Rourke)

The emergence during the second half of  
the nineteenth century of  
a **first globalization** ending in 1914

(O'Rourke and Williamson)

**What happened within Europe  
in the nineteenth century?**

**The Great Divergence**



## Per capita GDP of European countries expressed in 1960 U.S. dollars and prices

Countries	1800	1830	1850	1870	1890	1900	1913
Austria-Hungary	200	240	275	310	370	425	510
Belgium	200	240	335	450	55	650	815
Bulgaria	175	185	205	225	260	275	285
Denmark	205	225	280	365	525	655	885
Finland	180	190	230	300	370	430	525
France	205	275	345	450	525	610	670
Germany	200	240	305	425	540	645	790
Greece	190	195	220	255	300	310	335
Italy	220	240	260	300	315	345	455
Netherlands	270	320	385	470	570	610	740
Norway	185	225	285	340	430	475	615
Portugal	230	250	275	290	295	320	335
Romania	190	195	205	225	265	300	370
Russia	170	180	190	220	210	260	340
Serbia	185	200	215	235	260	270	300
Spain	210	250	295	315	325	365	400
Sweden	195	235	270	315	405	495	705
Switzerland	190	240	340	485	645	730	895
United Kingdom	240	355	470	650	815	915	1035
<b>Mean</b>	<b>200</b>	<b>240</b>	<b>285</b>	<b>350</b>	<b>400</b>	<b>465</b>	<b>550</b>
<b>Relative standard deviation</b>	<b>12%</b>	<b>18%</b>	<b>23%</b>	<b>31%</b>	<b>38%</b>	<b>39%</b>	<b>42%</b>

## Elasticity of GDP per capita w.r.t. to distance to the UK

	1800	1830	1850	1870	1890	1900	1913
Slope	-0.090	-0.195	-0.283	-0.371	-0.426	-0.437	-0.436
Standard-deviation	0.028	0.029	0.028	0.032	0.052	0.058	0.078
R <sup>2</sup>	0.376	0.717	0.857	0.883	0.796	0.764	0.647

**distance to the UK matters more and more**  
**(a correlation)**

## Spatial variations in the US

<b>Relative standard deviation</b>	<b>1880</b>	<b>1900</b>	<b>1920</b>	<b>1940</b>	<b>1960</b>	<b>1980</b>
<b>Nominal GDP per capita</b>	<b>65%</b>	<b>43%</b>	<b>29%</b>	<b>32%</b>	<b>18%</b>	<b>13%</b>
<b>Real GDP per capita</b>	<b>55%</b>	<b>39%</b>	<b>29%</b>	<b>31%</b>	<b>15%</b>	<b>12%</b>
<b>Productivity of labor</b>	<b>37%</b>	<b>33%</b>	<b>24%</b>	<b>26%</b>	<b>12%</b>	<b>11%</b>

As for communication, the inventions of the **telegraph** and then the **telephone** brought about big falls in the time taken to transmit information

It took an average of **15 - 16** days for a letter to travel between Avignon and Paris during the Renaissance

**25 - 30** days between Florence and London

**20 - 22** days between Florence and Paris

# **Part II: The World of Today**

Economic journalists have celebrated  
the *death of distance*  
the *weightless economy* or  
the *flat world*

**Empirical studies do not confirm  
such predictions**

**Quite the opposite:  
proximity still matters**

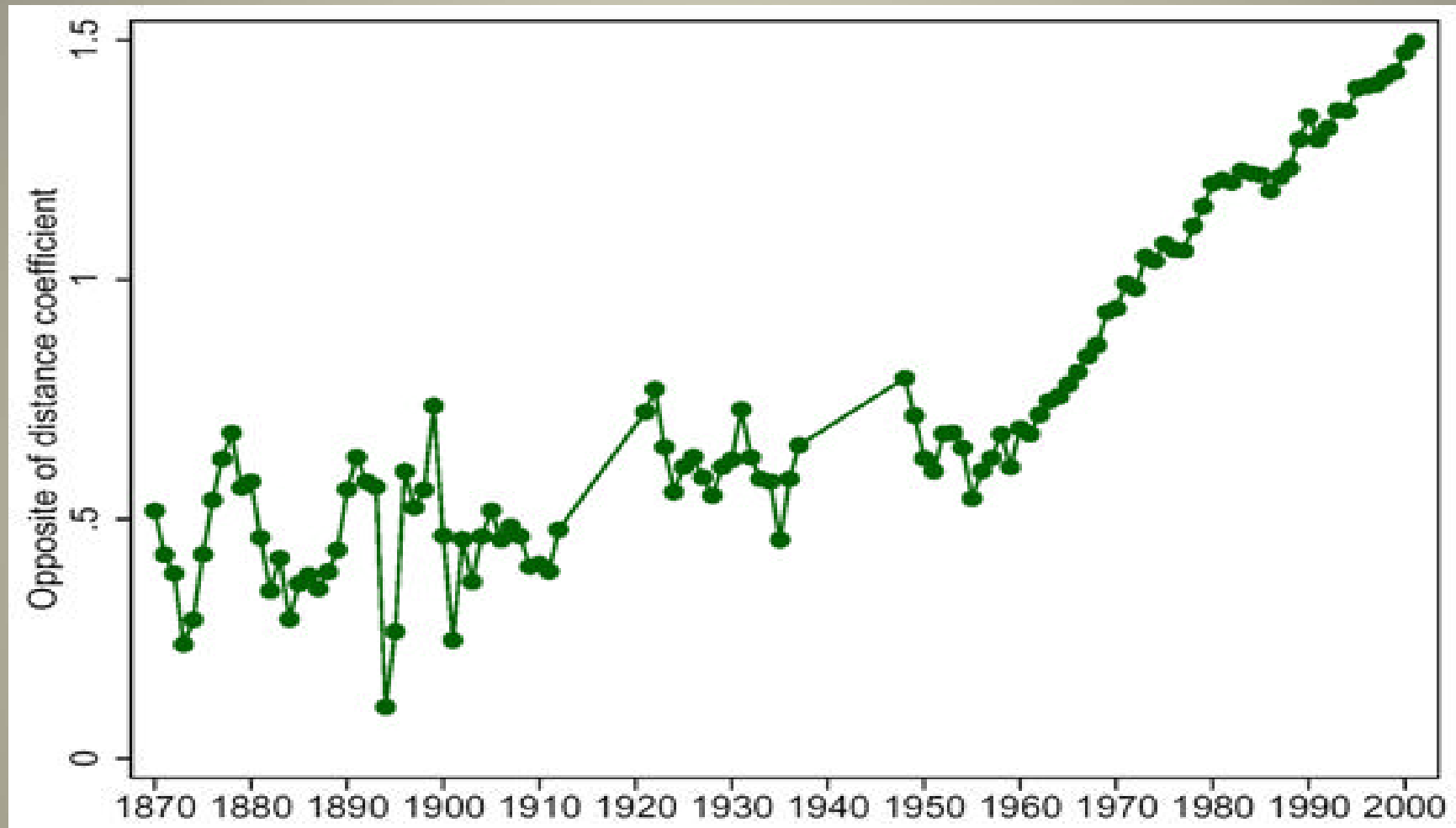
# Gravity equation

$$X_{rs} = G \frac{\gamma_r^{\alpha} \gamma_s^{\beta}}{d_{rs}^{\delta}}$$

The exponent  $\delta$  is slightly lower than **1**

(Disdier and Head)





**The impact of distance on trade (1870-2001)**

# “The Four Ts”

(i) **T**ransaction costs

(ii) **T**ariff and non-tariff costs

(iii) **T**ransport costs

(iv) **T**ime costs

(i) + (ii) + (iii) + (iv) = **T**rade Costs

# Trade costs

**170%** of the **average mill** price of  
manufactured goods

**55%** arise from internal costs and

**74%** from international costs

$$(1.7 = 1.55 \times 1.74 - 1)$$

International costs are broken down in turn into  
**21%** arising from transport costs and **44%** from  
costs connected with border effects

$$(1.74 = 1.21 \times 1.44)$$

for differentiated digital products (such as music or electronic games)

a 1% increase in distance reduces the number of websites visits by 3.25%

once controlled for other key-determinants such as language or internet penetration

## **Part III: What Is New**

# **Economic Geography About**

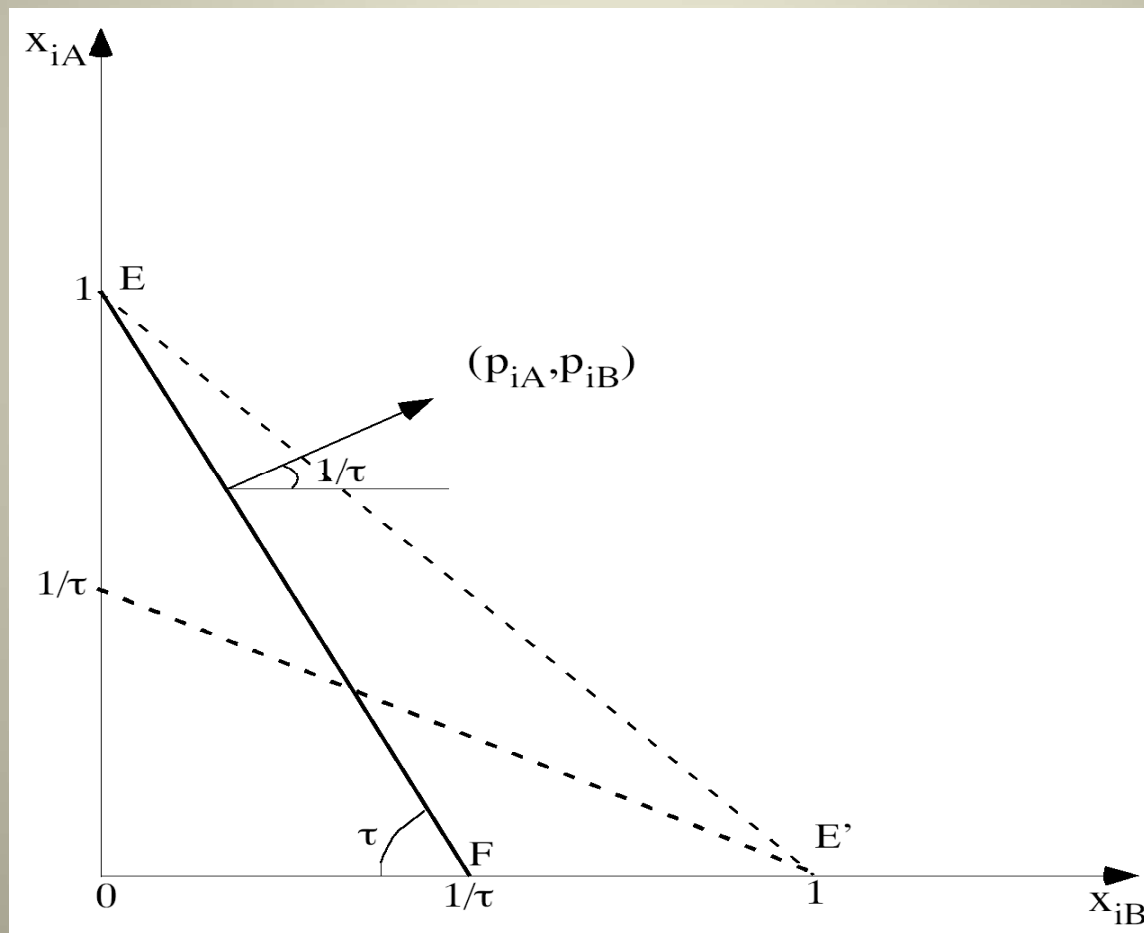
## Ohlin

“international trade theory cannot be understood except in relation to and as part of the general location theory, to which the lack of mobility of **goods** and **factors** has equal relevance”

but “transport costs are almost universally ignored in trade models in the **sanguine hope** that if included they would not materially affect the results”

(Deardorff)

# The Spatial Impossibility Theorem (backyard capitalism)





# What Are the Alternative Strategies?

- Comparative advantage: monocentric city
- Agglomeration externalities: spillover effects
- Imperfect competition:
  - (i) oligopolistic competition (spatial competition)
  - (ii) monopolistic competition (Dixit-Stiglitz)

# **Part IV: The Beginnings of New Economic Geography**

# 1. The Principle of Differentiation

Spatial differentiation **relaxes** price competition

$$P_i(x) \equiv \frac{\exp -(p_i + t|x - y_i|) / \mu}{\sum_{j=1}^n \exp -(p_j + t|x - y_j|) / \mu}$$

Agglomeration at the market center  
is a Nash equilibrium if  **$t / 2\mu \leq 1$**

## 2. The Home-market Effect

**Two** regions: H is **bigger** than F

**Two** production factors: (immobile) **labor** and (mobile) **capital**

**Two** production sectors

Using labor, one sector operates under **constant** returns,  
**perfect** competition and **zero** trade costs

Using labor and capital, the other sector operates under  
**increasing** returns, **monopolistic** competition and  
**positive** trade costs

# Samuelson's iceberg trade costs

preference for variety (CES)

$$Q = \left( \int_0^M q(v)^{\frac{\sigma-1}{\sigma}} ds \right)^{\frac{\sigma}{\sigma-1}}$$

**Trade-off: Market Access versus Market Crowding**

**HME:** when one region is larger in terms of population and/or purchasing power, this region attracts a **more than proportional** share of firms

an initial size advantage is **magnified** by trade liberalization

# **Part V: The Core-periphery Structure**

## 1. A tale of two types of capital

When *physical* capital is replaced  
by *human* capital

When workers move to a new place,  
they bring with them both their **production**  
and **consumption** capabilities

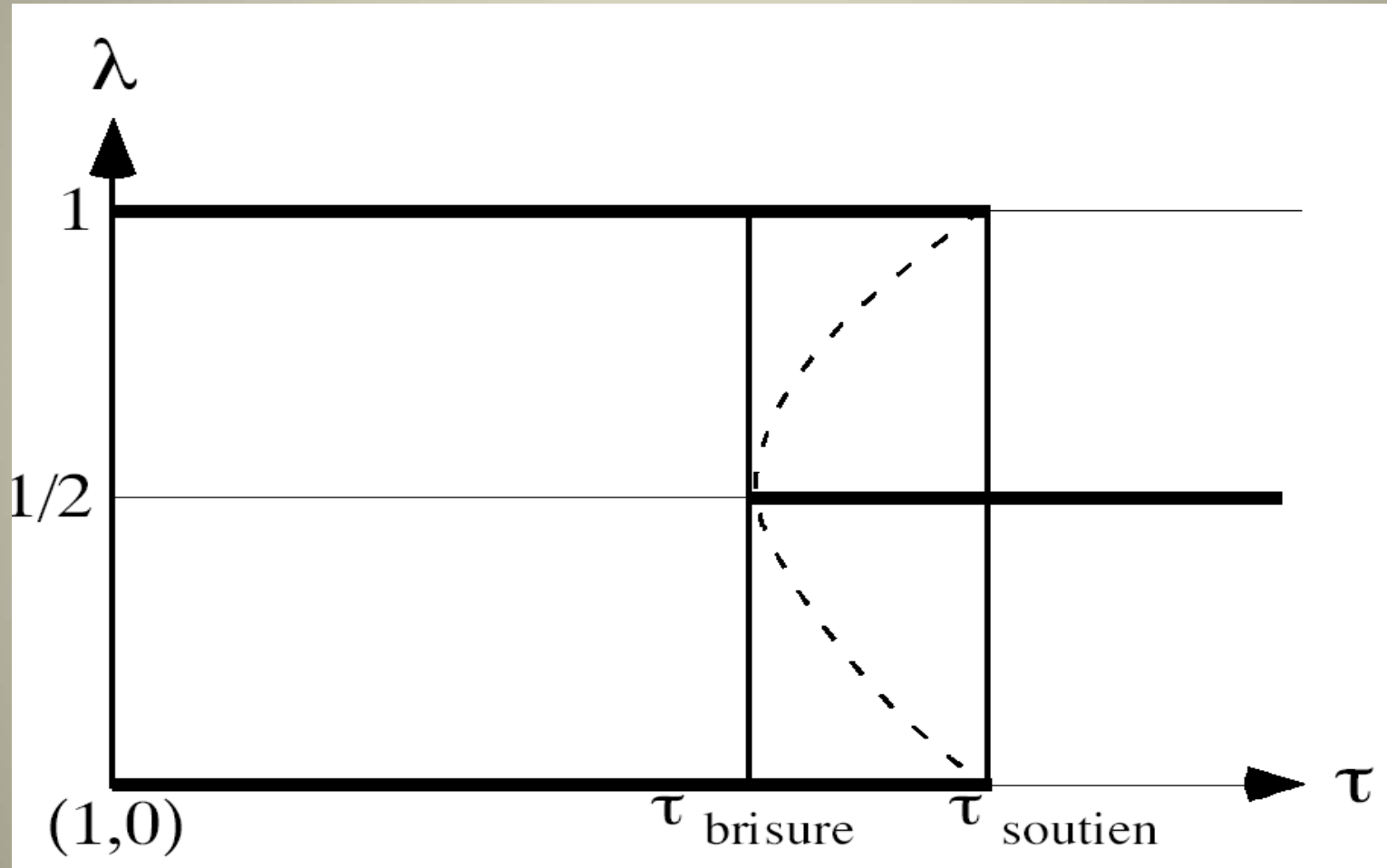


there is **circular causation** (à la Myrdal) :

“manufactures production will tend to concentrate where there is a **large** market, but the market will be large where manufactures production is concentrated”

(Krugman)

# Share of the mobile sector and the level of trade costs



**Market integration and  
better transport infrastructure  
might well  
exacerbate regional disparities**

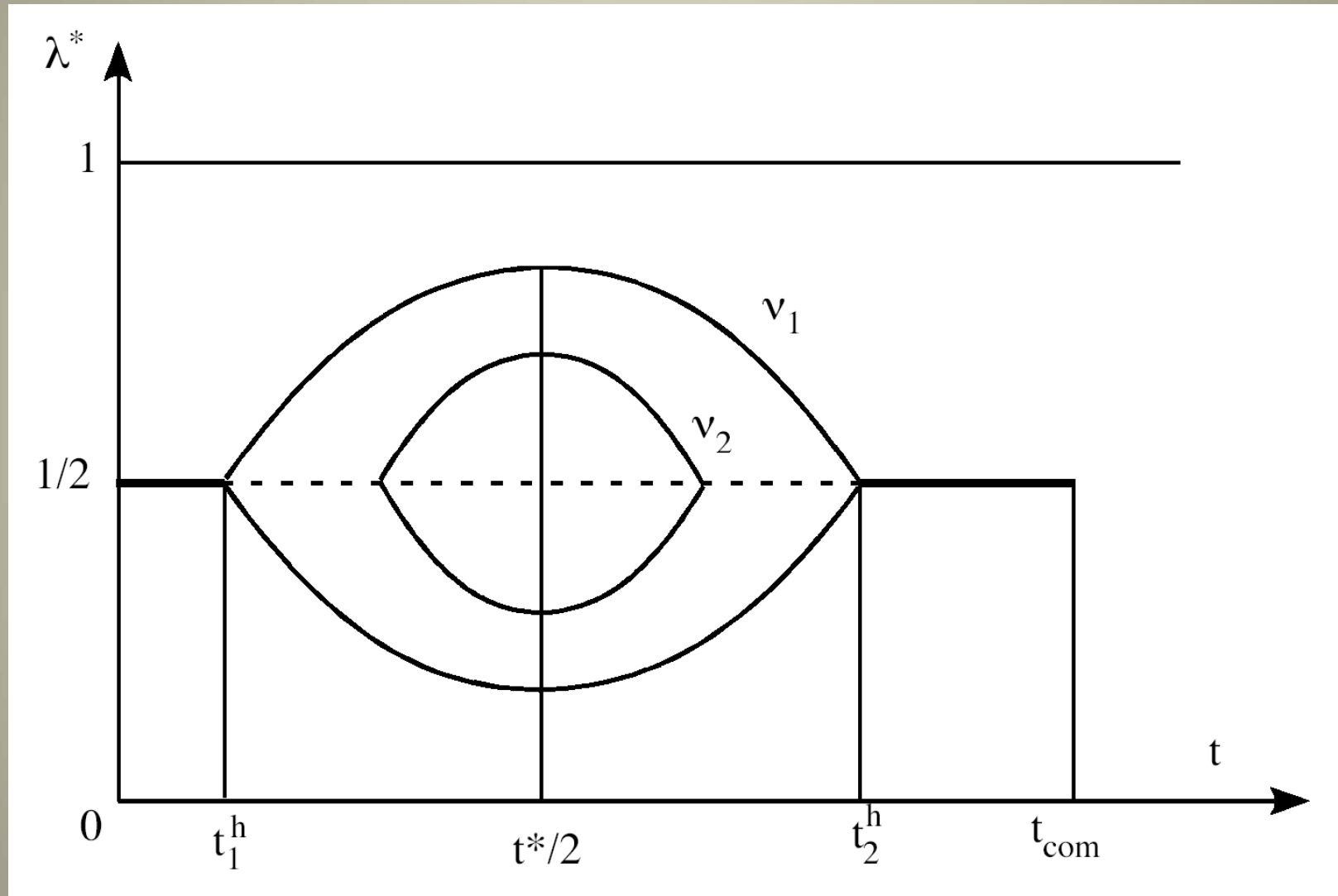
## 2. Input-output Linkages

The agglomeration of the **final** sector in a particular region occurs because of the concentration of the **intermediate** industry in the same region, and conversely

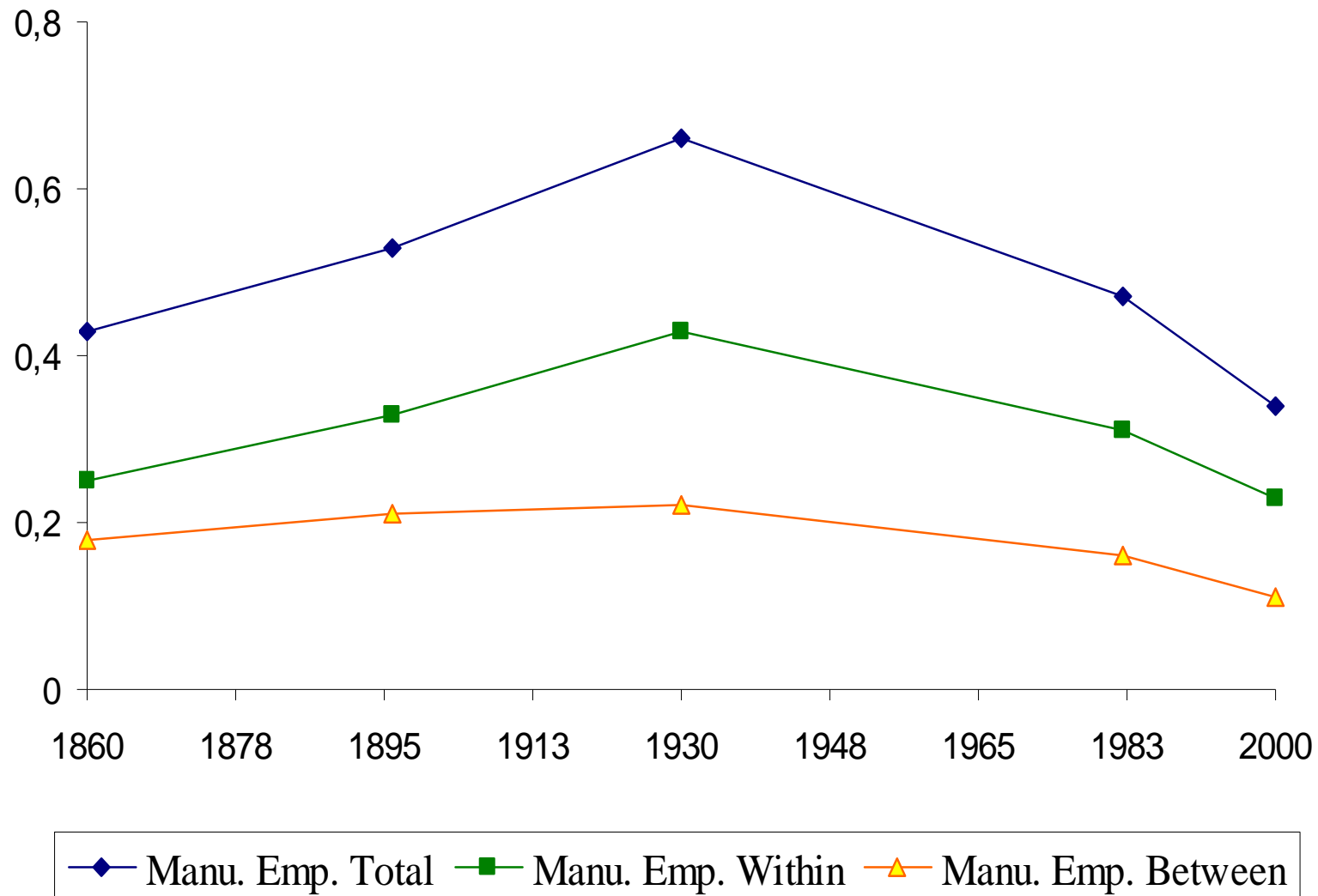
### 3. Heterogeneous Workers → Inverted U-shaped Curve

meaning that geographical concentration  
**first** increases, and **then** decreases  
with economic integration

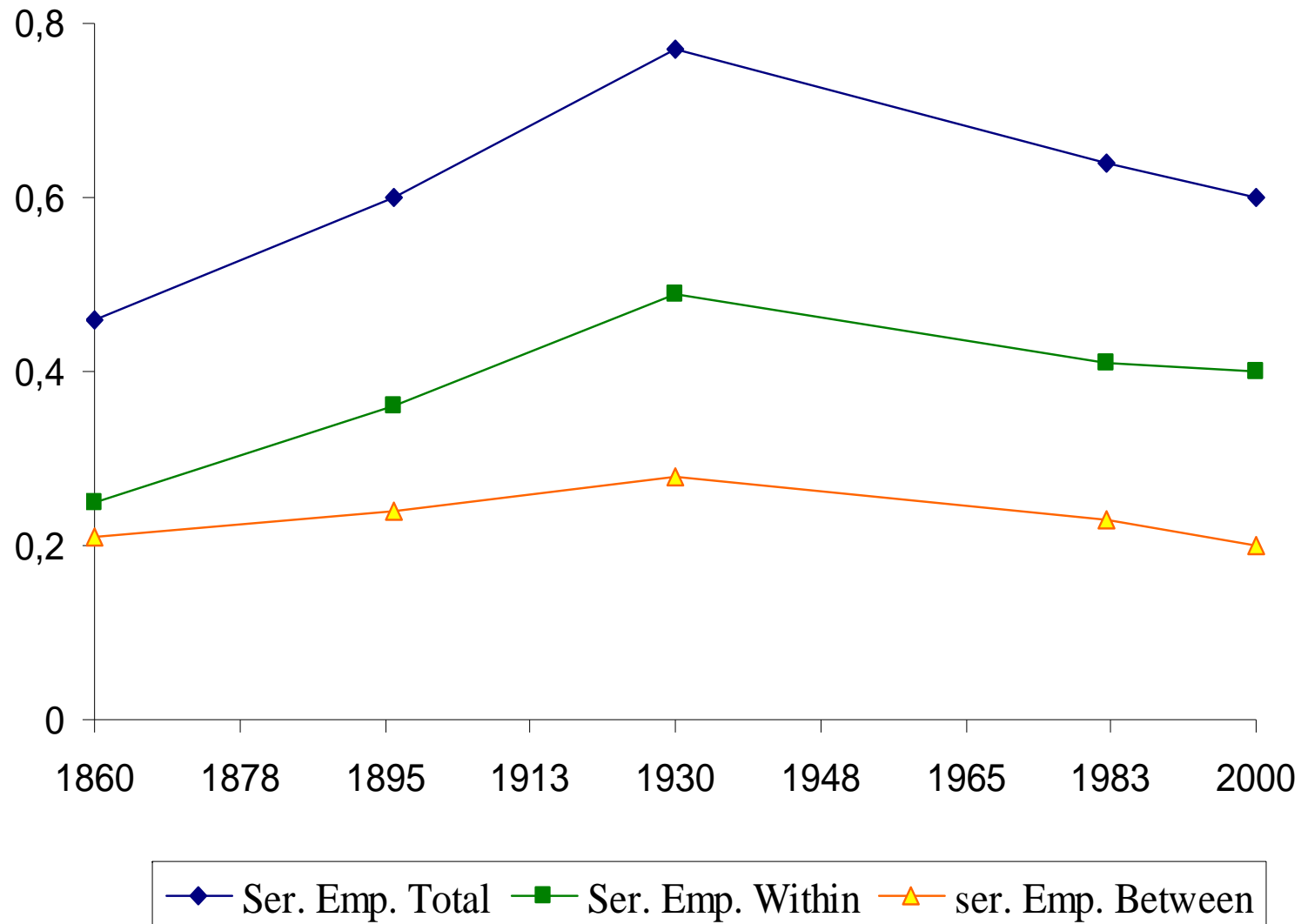
# Share of the mobile sector and the level of trade costs



**Figure 2: Theil indices for the manufacturing sector**



**Figure 3: Theil indices for the service sector**





# **Part V: Agglomeration Economies**

“density economies”

$$\log \text{lp} = \alpha + \beta \log \text{den} + \varepsilon$$

$\beta$  ranges from 3 to 11%

endogeneity → simultaneity & omitted variables

even when we account for a large number  
of explanatory variables and  
econometric issues, agglomeration  
economies remain important

$\beta$  is about 3%

the elasticity of wages with respect  
to density is largely explained by  
differences in **workers' skill**

# **Part VI: Where Do We Stand?**

Well, there is a lot of work to be done

Nevertheless, we have learned that

(i) **density and distance matter**

(ii) regional disparities reflect (to a large extent) the geographical distribution of **human capital**

(iii) the lower disparities on the **international** (interregional) level may be accompanied by increasingly large disparities on the **intra-national** (intra-regional) level

## The bottom line

*“what is near still has more influence  
than what is far”*

*Thank you for your attention*