

Toward a Unified Theory of Economic Geography and Urban Economics

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Location theory may be divided into
three subfields:

- + *Spatial competition theory* (Hotelling)
- + *Urban economics* (Alonso)
- + *Economic geography* (Krugman)

There is a need for a unified theory in order to understand better how forces acting at different **spatial scales** shape the space-economy

1. A **primer** in economic geography (commissioned by Gilles)

2. **Two remarks** about economic geography and urban economics

The primer

Gilles wants a simple framework that can be solved analytically by means of high-school math

- 2 sectors (the **M-sector** and the **I-sector**)
- 2 regions (**East** and **West**)
- 2 production factors: the former is the only input of the **M-sector** and is supposed to be **mobile** between regions; the latter is the only input of the **I-sector** and is supposed to be **immobile**

Preferences: a quasi-linear utility
embodying a quadratic sub-utility

$$U = \left(1 - \frac{q}{2}\right)q + q_0$$

and n oligopolistic firms competing
in quantities (Cournot)

equilibrium quantities

$$q_{WW}^* = sp_W^*$$

$$q_{WE}^* = (1 - s)(p_E^* - \tau)$$

equilibrium price in West

$$p_W^* = \frac{1}{n+1} + \tau \frac{(1 - \lambda)n}{n + 1}$$

$$\pi_W^* = s(p_W^*)^2 + (1 - s)(p_E^* - \tau)^2$$

intra-industry trade arises when
trade costs and the number of firms
are not too large

The footloose capital model

profit differential

$$\pi_W^*(\lambda) - \pi_E^*(\lambda) \propto \left[2\left(1 - \frac{\tau}{2}\right)\theta - \left(1 - \frac{n+1}{2}\tau\right) - \tau\lambda n \right]$$

which yields

$$\lambda^* - \frac{1}{2} = \frac{2-\tau}{n\tau} \left(\theta - \frac{1}{2} \right) > \theta - \frac{1}{2}$$

Home Market Effect

The mobile labor model

indirect utility

$$V = S + w.$$

utility differential

$$V_W(\lambda) - V_E(\lambda) = S_W - S_E + w_W - w_E \propto \tau(\tau^* - \tau) \cdot (\lambda - 1/2)$$

What Next?

(i) On the interaction between the
local and the global

Add t : unit commuting costs

$$R_w(x) = t \left(\frac{\lambda L}{2} - x \right)$$

$$V_W(\lambda) - V_E(\lambda) \propto [(a - b\tau)\tau - t] \left(\lambda - \frac{1}{2} \right)$$

High trade costs now trigger the agglomeration of the M-sector

Add communication costs

- ✦ job decentralization **within** the metropolis allows the core regions to retain their primacy
- ✦ job decentralization may occur both in the **small** and in the **large**

(ii) The dimensionality problem

✦ the **accessibility** to spatially dispersed markets varies across regions (\neq trade costs)

a possible way out: an **infinity** of sectors (Neary) and regions (Hotelling) to simplify

✦ **multiple** equilibria

a possible way out: the **heterogeneity** of agents may restore uniqueness

If we academics wonder about **why** cities exist and grow (or shrink) and **why** sizable and persistent gaps between and within countries occur, what people and policy-makers care about is **where** these things happen

Thank you for your attention