Paul Krugman’s New Economic Geography: past, present and future

J.-F. Thisse
CORE-UCLouvain (Belgium)
Economic geography seeks to explain the riddle of unequal spatial development (at different spatial scales)
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Does Geography Matter?

“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)*
The Beginnings of NEG

The Principle of Differentiation

The Home Market Effect
The Principle of Differentiation

Spatial differentiation relaxes price competition

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

Agglomeration at the market center is a Nash equilibrium if \( t/2\mu \leq 1 \)
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 sector operates under **increasing** returns, **monopolistic** competition and **positive** trade costs
Samuelson’s iceberg trade costs

Dixit-Stiglitz’ monopolistic competition: CES

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

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
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an initial size advantage is magnified by trade liberalization
The Core-periphery Structure

or 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)
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

urban costs $\rightarrow$ bell-shaped curve:
spatial concentration first increases, then decreases
Figure 2: Theil indices for the manufacturing sector
Figure 3: Theil indices for the service sector
What Next?

(i) More general models

(ii) Strategic considerations

(iii) The dimensionality problem

“the Heckscher-Ohlin theorem is derived from a model of only two of each of goods, countries, and factors of production. It is unclear what the theorem says should be true in the real world where there are many of all three” (Deardorff)
(iv) Local interactions → spatial scale

“density economies”:

\[ \log pl = \alpha + \beta \log den + \varepsilon \]

\(\beta\) ranges from 4 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.
(v) Cities + development

(vi) Cities + trade + growth

(vii) Cities + trade + the supply chain
Thank you for your attention