# The challenge of globalization for Finland and its regions: The new economic geography perspective

**Prepared within the framework of study *Finland in the Global Economy,* Prime Minister's Office, Helsinki**

Gianmarco I.P. Ottaviano, Dino Pinelli

# Plan of the presentation

- Background and objectives
- Part A - Theoretical framework and existing empirical evidence
  - 'new economic geography' (NEG)
  - [existing empirical evidence]
  - welfare implications
- Part B - Empirical analysis of Finland
  - methodology
  - results
- Conclusion
  - globalization, Finland and its regions
  - globalization, Finland and the world

- Globalization is creating a unique global market for goods, factors and ideas. Central question is:

> **How will this process change
> the position of Finland and its regions
> within the global economy?**

- Objectives
    - to tackle this question from a NEG perspective
    - to compare NEG predictions with empirical evidence
    - to draw implications for Finland

## Prelude

- Places differ in terms of natural resources, access to natural means of communication, climatic condition

**First Nature**

*This is not sufficient to explain observed dramatic differences in economic development*

- Other forces are necessary, that are inherent to the functioning of economic interactions and that are able to generate uneven development even across ex-ante identical places

**Second Nature**

# A. New Economic Geography (NEG)

- Various 'second nature' forces have been studied by economists, geographers and regional scientists

- NEG focuses on the interactions among firms and workers taking place in the market

- Intense scale returns and market power generate self-sustaining process of agglomeration

1. Location decision
2. Circular causation
3. Micro-structure
   - industry characteristics
   - accessibility and competition
   - countries
   - regions
   - globalization

- The location decision of a firm affects other firms profits and overall welfare

- No quid-pro-quo is paid for these impacts
  - NEG 'pecuniary' externalities: through market-interactions when firms have market power
  - 'technological' externalities: through non-market interactions

**Localized externalities**
Firm's location decisions jointly generate localized externalities that determine regional attractiveness
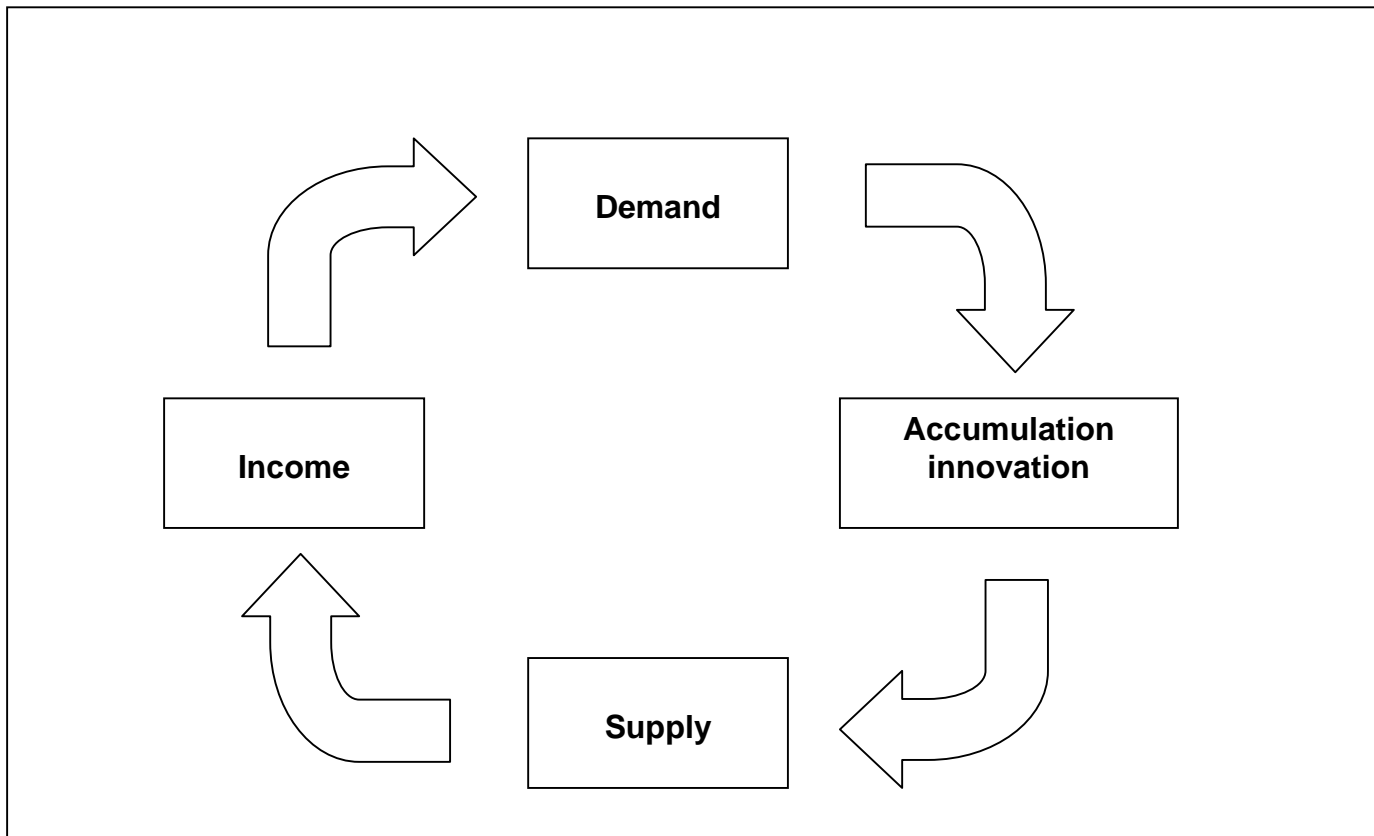
**Circular causation**
In the presence of localized externalities *small transitory* local shocks can give rise to *large permanent* spatial unbalances

- **General equilibrium modeling**:

  Location and prices are simultaneously determined

- **Solid micro-economic foundations**:

  Evolution of the spatial landscape related to key micro-economic parameters

**Result A.1**:
Positive externalities are stronger in sectors with pronounced scale economies and strong market power.
These sectors are more clustered.

- **Market potential** measures the location appeal of a region A in terms of customer and supplier proximity

- *Nominal Market Potential (NMP):* weighted *nominal* average expenditures across all regions that plant can tap if located in A
  - It measures customer proximity
  - It predicts the *sales* of the firm

- *Real Market Potential (RMP):* weighted *real* average expenditures across all regions that plant can tap if located in A
  - It measures customer and competitor proximity
  - It predicts the *profits* of the firm

- Since firms can freely pick plants location, they will be attracted by high RMP (ie, profits) areas

- In the long run competition will bring profits back to the same normal level everywhere

- RMP differences will eventually vanish as NMP differentials are capitalized in local price differences

**Result A.2:**
The sales and profits an average firm can make if located in a certain area are measured by the area's NMP and RMP.
Differences in RMP predict future evolution of the economic landscape.

- Start with two identical regions, 'home' and 'foreign'
  - in terms of expenditures, population, number of plants
- Positive shock to expenditure in the 'home' region
- Its NMP (ie, the sales) and RMP (ie, the profits) increase
    - as access to local customers is costless, but access to foreign customers is costly
- As profits rise, supply expands (ie, plants and population grow) until profits are back to the normal level everywhere

- **In the transition**
  - the home region grows faster as higher profits increase the returns to investment in both physical and human capital and the returns to innovation

- **In the end**
  - the larger region hosts more plants (and people) and, on average, these are larger, more productive, more profitable
  - because of imperfect competition the final supply gap is higher than the initial expenditure gap ('home market effect')

> **Result A.3:**
> Markets with higher NMP host more people and firms. These are larger, more productive and more profitable than firms in lower NMP

- When trade costs are large, some firms still find more profitable to locate close to customers in the foreign region
- When trade costs are low, there is little scope for using market location to boost market power

First nature is dominant when countries are isolated or highly integrated

Circular causation is more likely for intermediate level of trade costs

> **Result A.4:**
> Initially trade liberalization fosters agglomeration. However, further reductions in trade impediments trigger a reverse process of dispersion

- ## Interregional mobility of labour

**Result A.5**:
Labour mobility fosters regional divergence

- ## Internal geography and infrastructures

**Result A.6**:
Initially the implementation of interregional transport infrastructure fosters cross-region divergence. Further improvements in transportation trigger a reverse process of convergence.

- ## Multilocation economies

**Result A.7**:
The presence of transport 'hubs' and 'gate regions' makes clustering more likely

15

- **Equity**
  - young skilled and mobile workers win over older unskilled and immobile ones
- **Efficiency**
  - agglomeration is efficient in the presence of technological externalities
  - but

Agglomeration may not be efficient in the presence of pecuniary externalities. Specifically, for intermediate levels of trade costs:
➤ efficiency is achieved through equity
➤ efficient regional policy should aim at reducing agglomeration

- Methodology and data

- Descriptive analysis

- Econometric results

**Summary result**
NEG implications matter

- NMP captures customer/supplier proximity and measures expected sales
- RMP captures customer/supplier and competitors proximity and measures expected profits
- Cross-location RMP differentials will eventually vanish in the long run
  - as firms move to high RMP areas and NMP differentials are capitalised in local price differences
- Similarly, real wage differences (ie, RMP) should eventually vanish in the long run
  - as nominal wage differentials (ie, NMP) are capitalised in local price differences

- **Expected effects on factor prices**
  - Higher NMP should be associated with higher profits and higher nominal wages, and higher local prices in the long-run

- **Expected effects on factor quantities**
  - Positive shocks to NMP should attract both firms and workers

prices of non-tradables in $c$

Impact of market potential



Free migration

$C$

$A'$

$A$     $B$

Free entry ($NMP_{c'}>NMP_c$)

Free entry ($NMP_c$)

wages in $c$
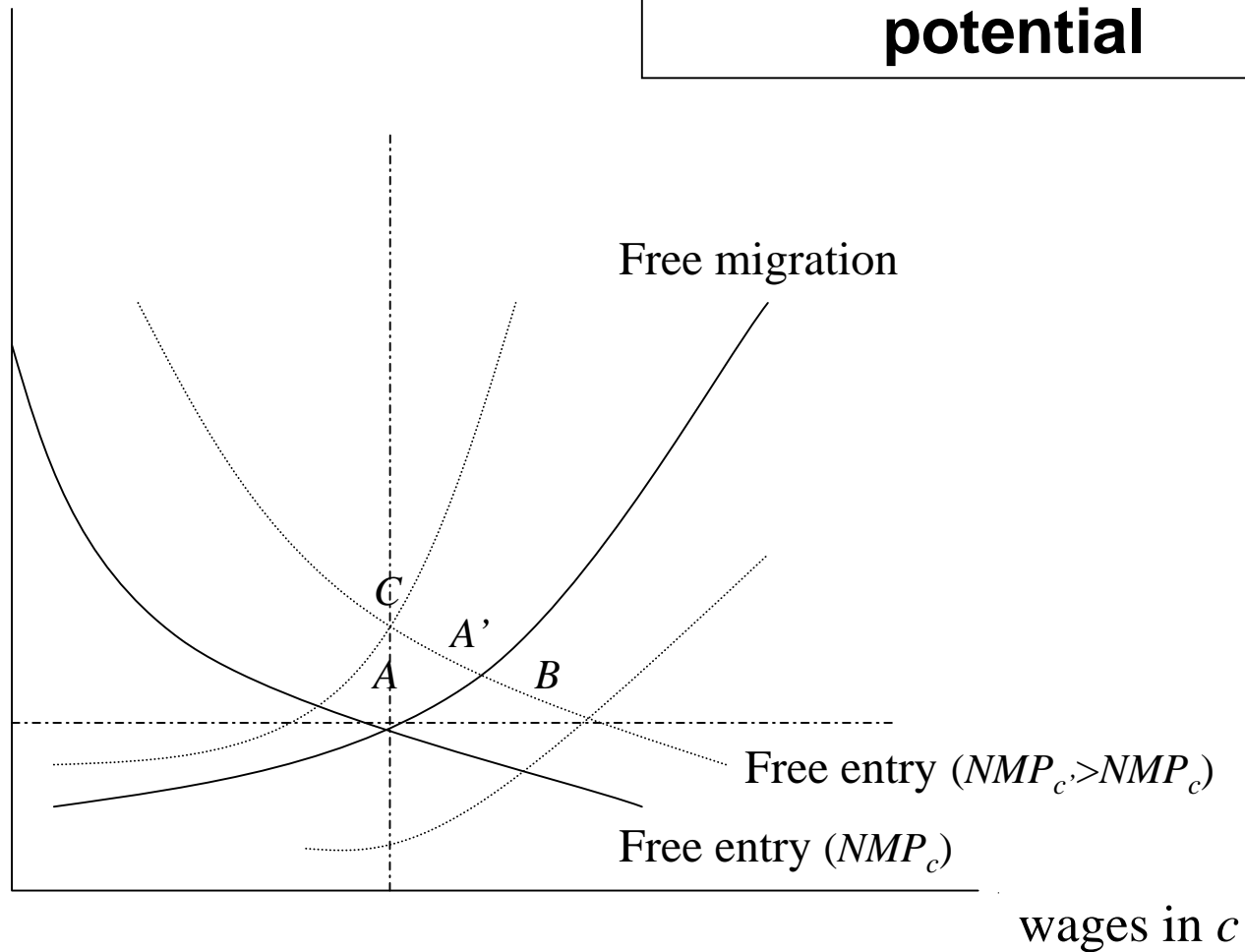
- Three indicators of regional performance
  - income per capita growth (taxable and primary)
  - population growth (adjusted and unadjusted for natality and mortality)
  - house prices growth

|  |  | Population/local price variation | |
|---|---|---|---|
|  |  | *Positive* | *Negative* |
| **Income/ wage variation** | *Positive* | Higher productivity | Lower quality of life |
|  | *Negative* | Higher quality of life | Lower productivity |

- Controlling for convergence
- Proximate sources of growth
  - human capital
    - % of population with tertiary education
  - knowledge capital
    - R&D expenditure, number of patents (in per capita terms)
- Wider influences
  - policies
    - unemployment rate
    - central government expenditure and central government grants to municipalities (in per capita terms)
  - international openness and infrastructures
    - distances from airports, ports and Russian border
  - industrial structure
    - % of employment in agriculture/manufacturing
    - % of employment in ICT

- **First nature**
  - natural communications
    - distance from ports
  - climate and natural conditions
    - % of land covered by lakes
    - average annual temperature
- **Second nature**
  - pecuniary externalities
    - market potential
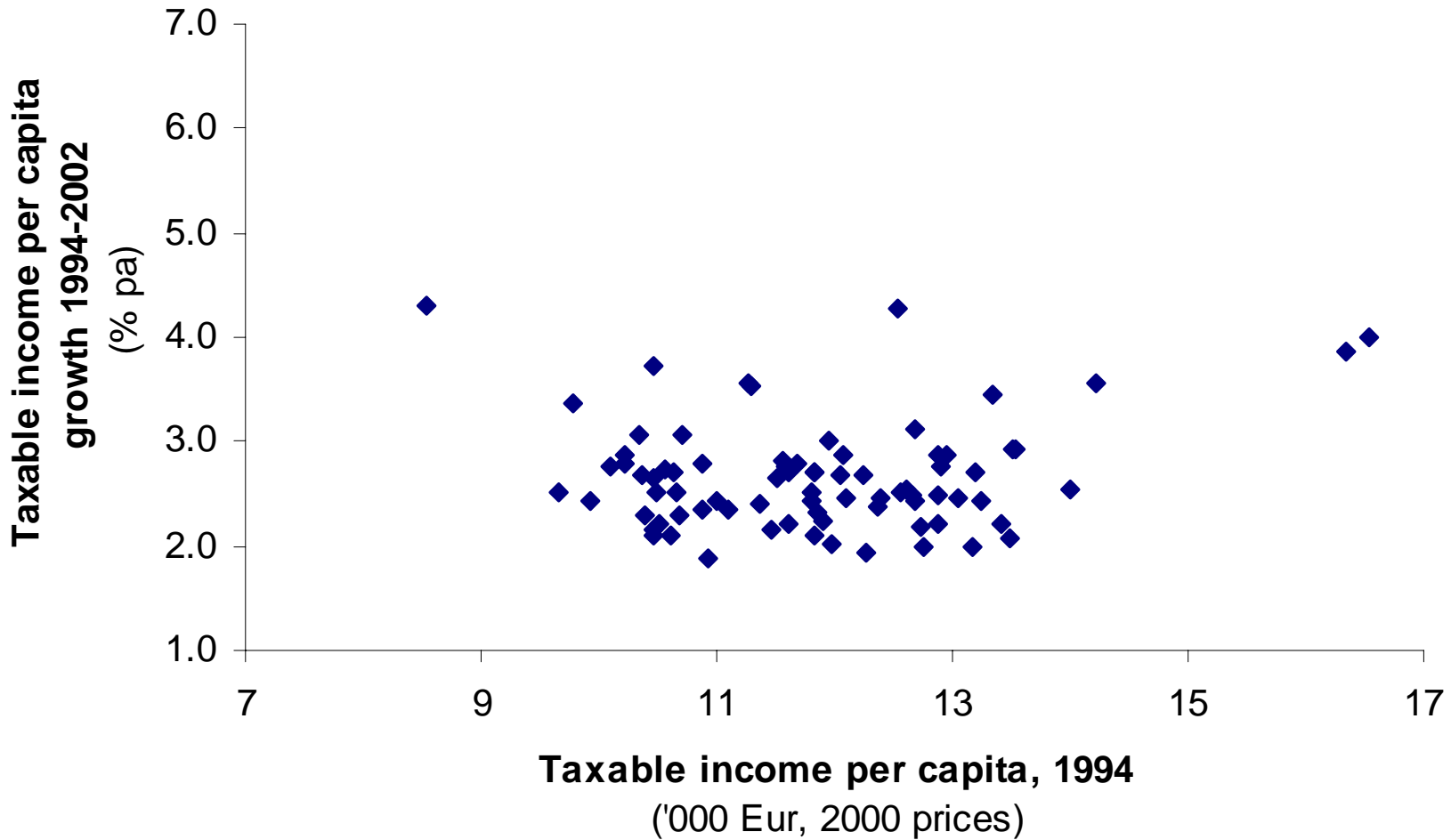  - technological externalities
    - density of the population

- Period of analysis:    1977-2002
- Two sub-periods:
  - Pre-recession:        1977-1990
                          (1987-1990 for house prices)
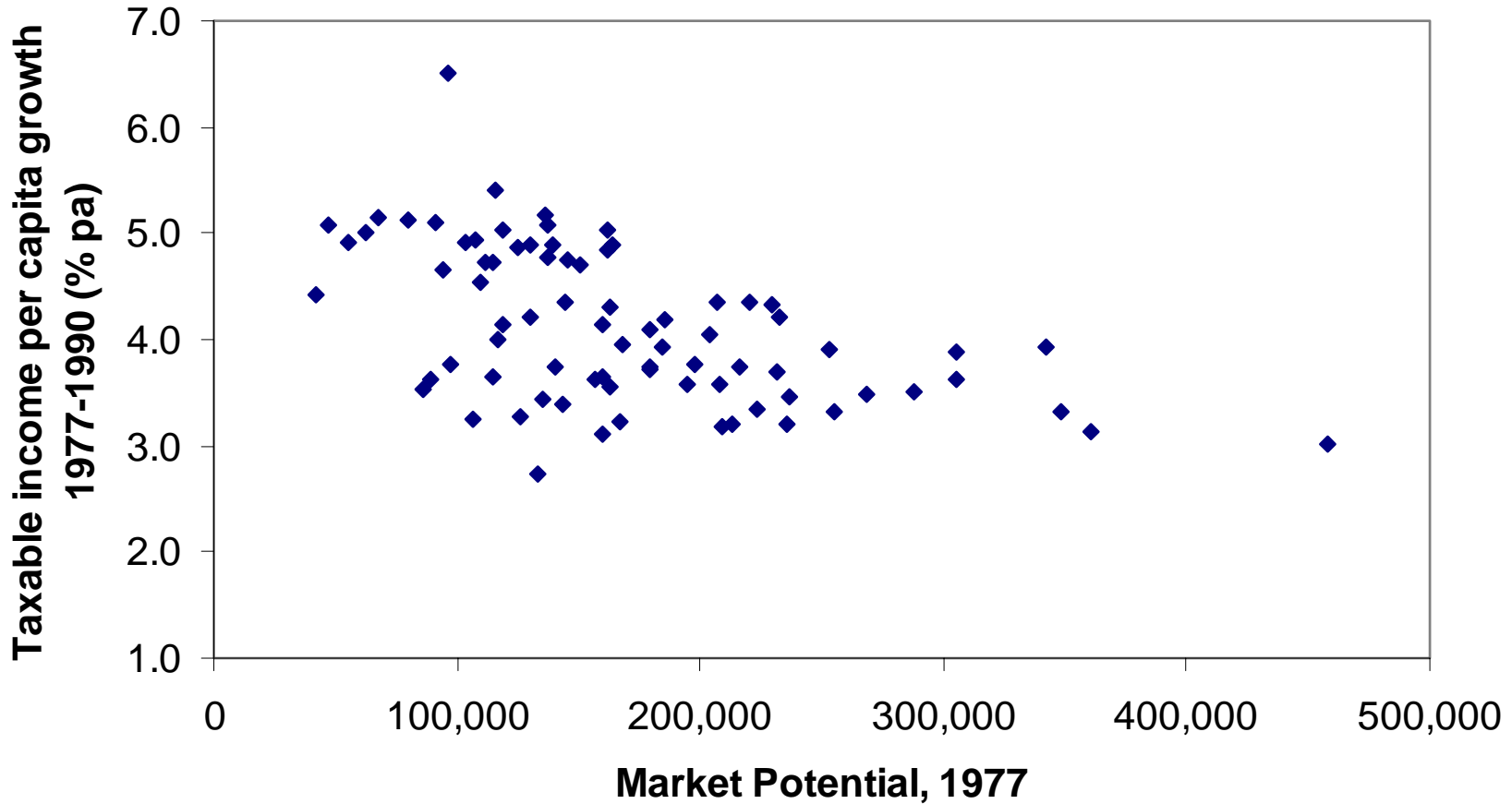  - Post-recession:       1994-2002

Taxable income per capita growth 1994-2002 (% pa) vs. Taxable income per capita, 1994 ('000 Eur, 2000 prices)
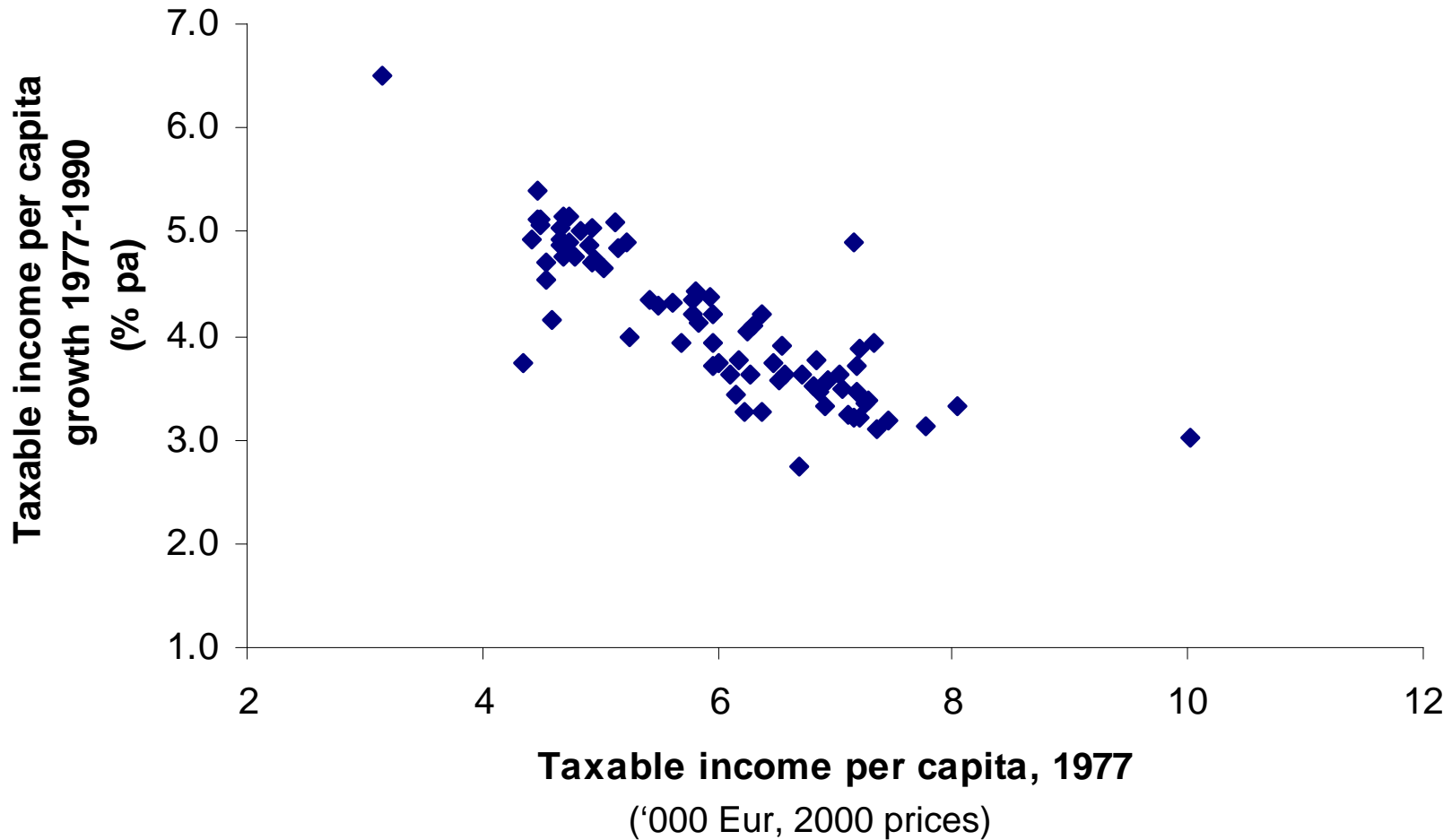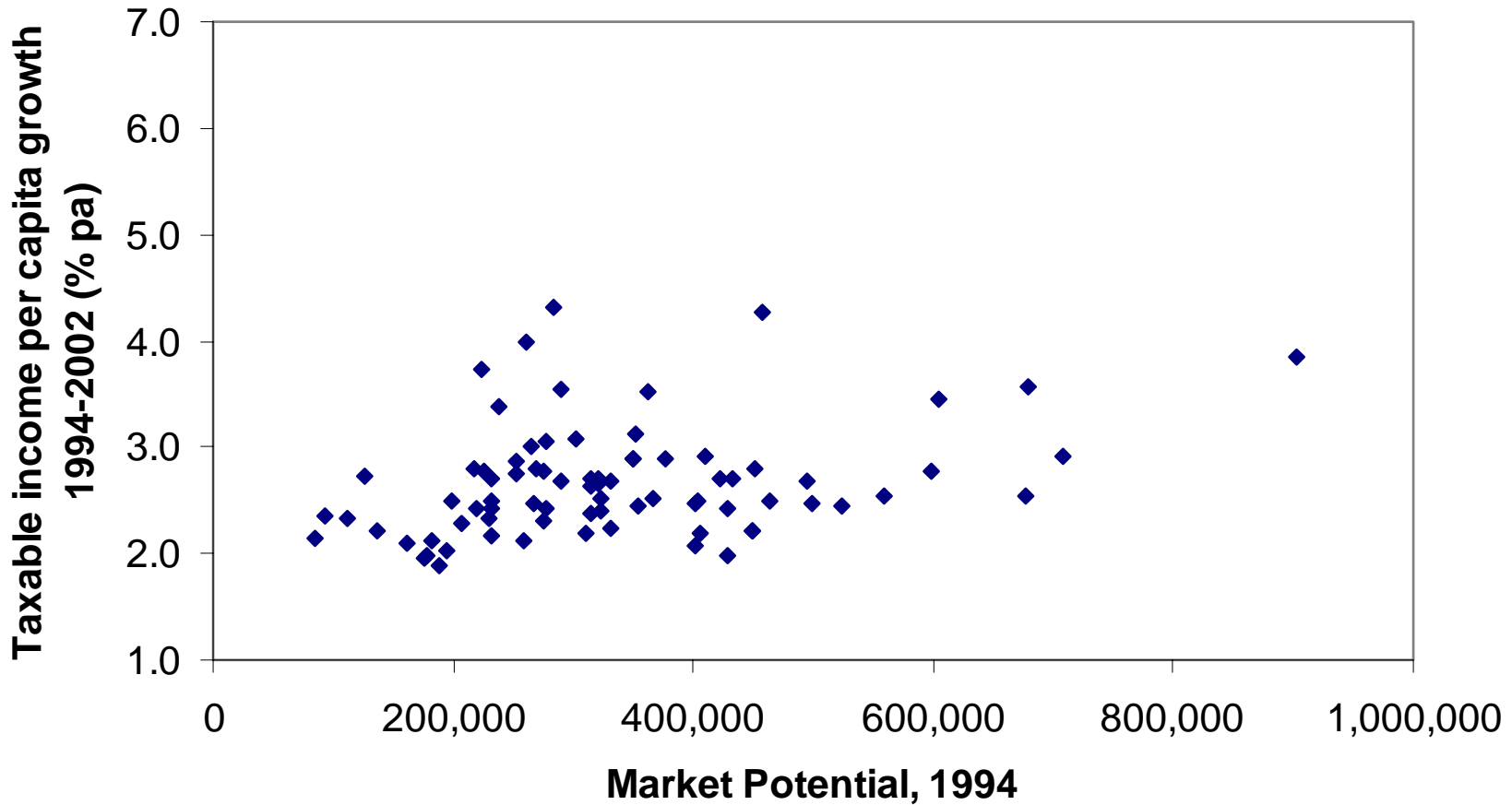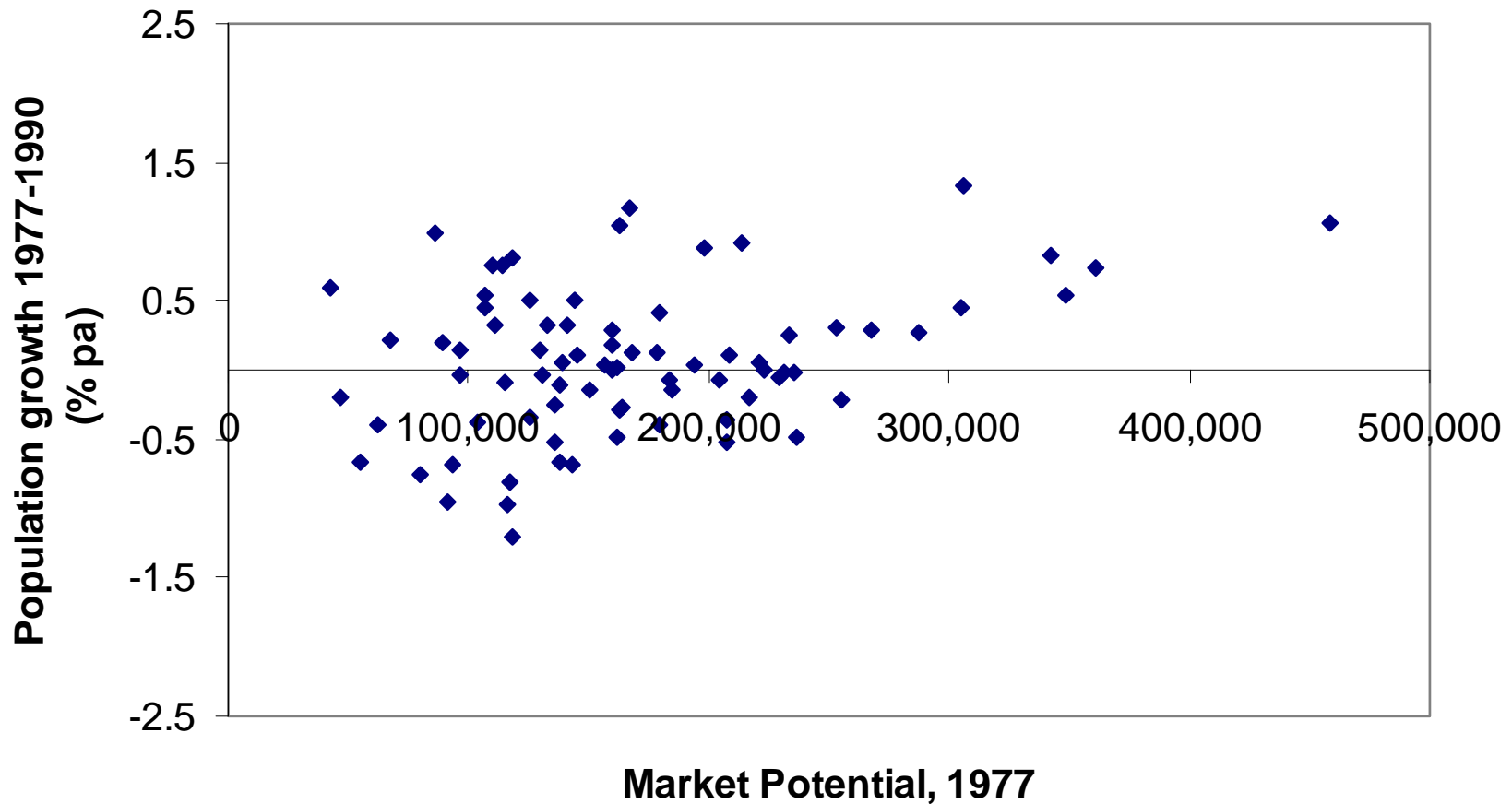
**Market Potential, 1977**

Population growth 1977-1990 (% pa)
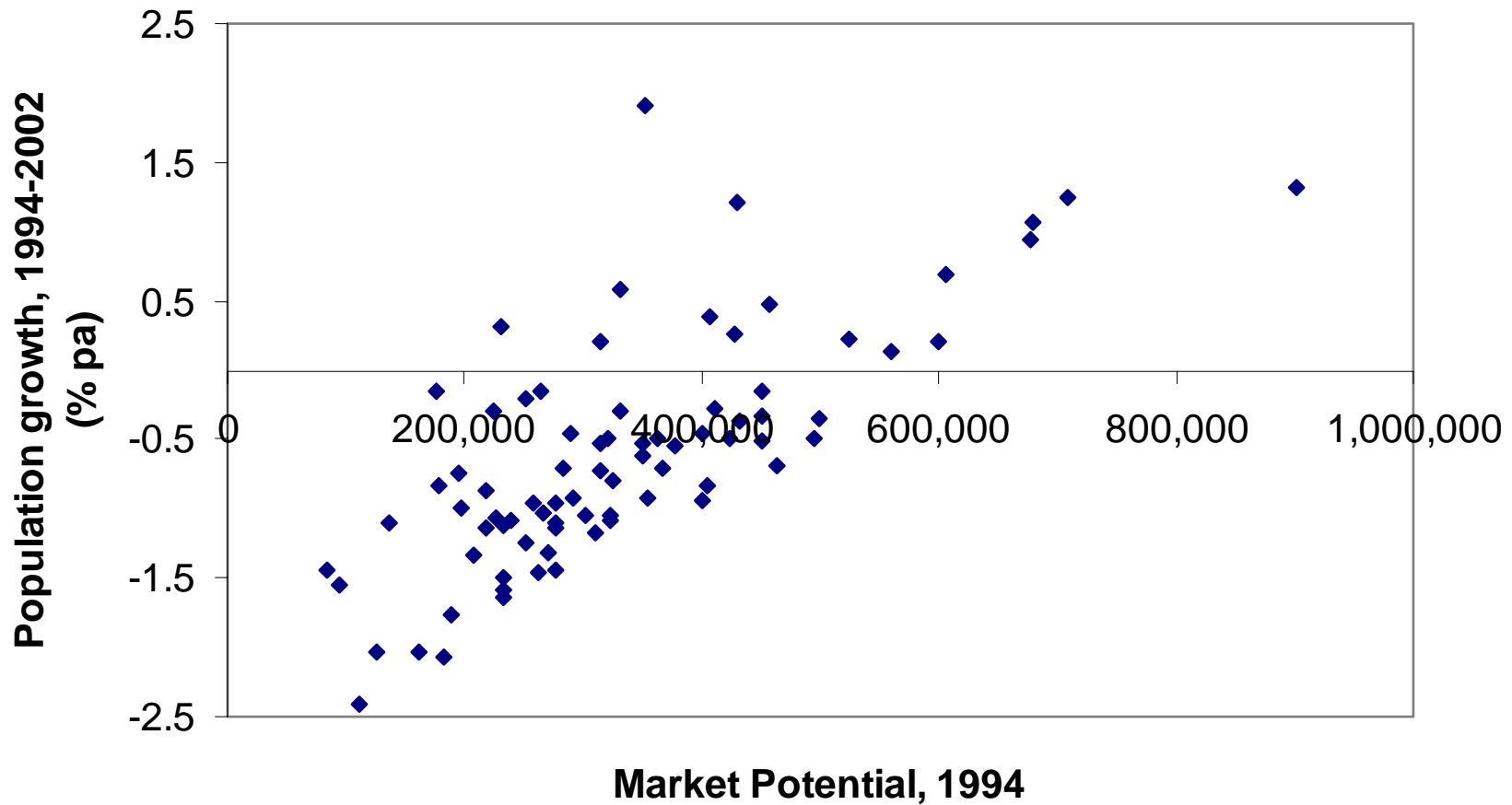
**LEGENDA**:

(**P+**) = positive impact on productivity

(**P-**) = negative impact on productivity

(**C+**) = positive impact on quality of life

(**C-**) = negative impact on quality of life

(**conv**) = regional convergence

(**div**) = regional divergence

**--** = no significant impact.

| Explanatory variables (⇓) \ Period (⇒) | 1977(87)-1990 | 1994 -2002 |
|---|---|---|
| Income per capita | (conv) | (conv) |
| Density of population | (conv) (P-) | -- |
| House price | (conv) | (div) |
| Median age | (P-), (C+) | (P-), (C+) |
| Level of education | (P+), (C+) | (P+), (C+) |
| Market potential | (P+) | (P+) |
| Share of employment in ICT | -- | (P+) |

33

| Explanatory variables (⇓) \ Period (⇒) | 1977(87)-1990 | 1994 -2002 |
|---|---|---|
| Distance from main airports | (P-), (C-) | -- |
| Distance from Russian crossing borders | (P+) | (P+) |
| Distance from ports | (P+) | -- |
| Unemployment rate | (C-) | (P-), (C+) |
| Share of manufacturing and construction | (P-) | -- |
| Lake covered land | (P+) | -- |

- No convergence after recession
- Regional productivity and quality of life
  - are promoted by education
  - are promoted by distance from Russia
- Regional productivity
  - is promoted by market potential
  - is affected by industrial specialisation
  - is hampered by unemployment
  - is unaffected by technological externalities
- Regional income per capita growth
  - is negatively associated with age

Successful regions are characterized by highly educated people, firms that are active in dynamic sectors, good access to national and international markets

- **Finland and its regions**
  - **hampering agglomeration?**
  - **or redistributing its benefits?**

Conditional on additional evidence that:

(i) there exists a non-linear relation between trade costs and agglomeration

(ii) agglomeration within countries is mainly shaped by interregional rather than international trade impediments

Then:

**Efficient regional policies should not hamper agglomeration within small- or large-sized areas**

- **Finland and the world**
  - **cons: peripherality and unemployment**
  - **pros: technology and education**