



Villingen – PSI, October 19<sup>th</sup> 2010

## Obstacles to the East-West mobility of researchers

F. Gliksohn – Extreme-Light-Infrastructure

- **The virtues of mobility:**
  - Individual level: career development
  - Scientific level: excellence in research
  - Economic level: mobility increases productivity and growth
- Mobility may be perceived differently from the point of view of the new EU Member States, who suffered from **brain drain** especially at the beginning of their economic transition
- Rather than discussing the obstacles to mobility, there is a need for a **definition of the type of mobility that the new Members should promote**
- Two **necessary conditions** for this new “model” of mobility:
  - It should contribute to the sustainable economic development of those countries
  - Harmful competition should be avoided
- An issue: the **lack of reliable statistical data**

- **Where do we stand?**

Overview of the current situation and trends in the new EU Member States

- **What drives mobility?**

Review of the drivers and obstacles

- **What investment in R&D for the new EU Member States?**

The issue of the appropriability of research results and its connection with mobility

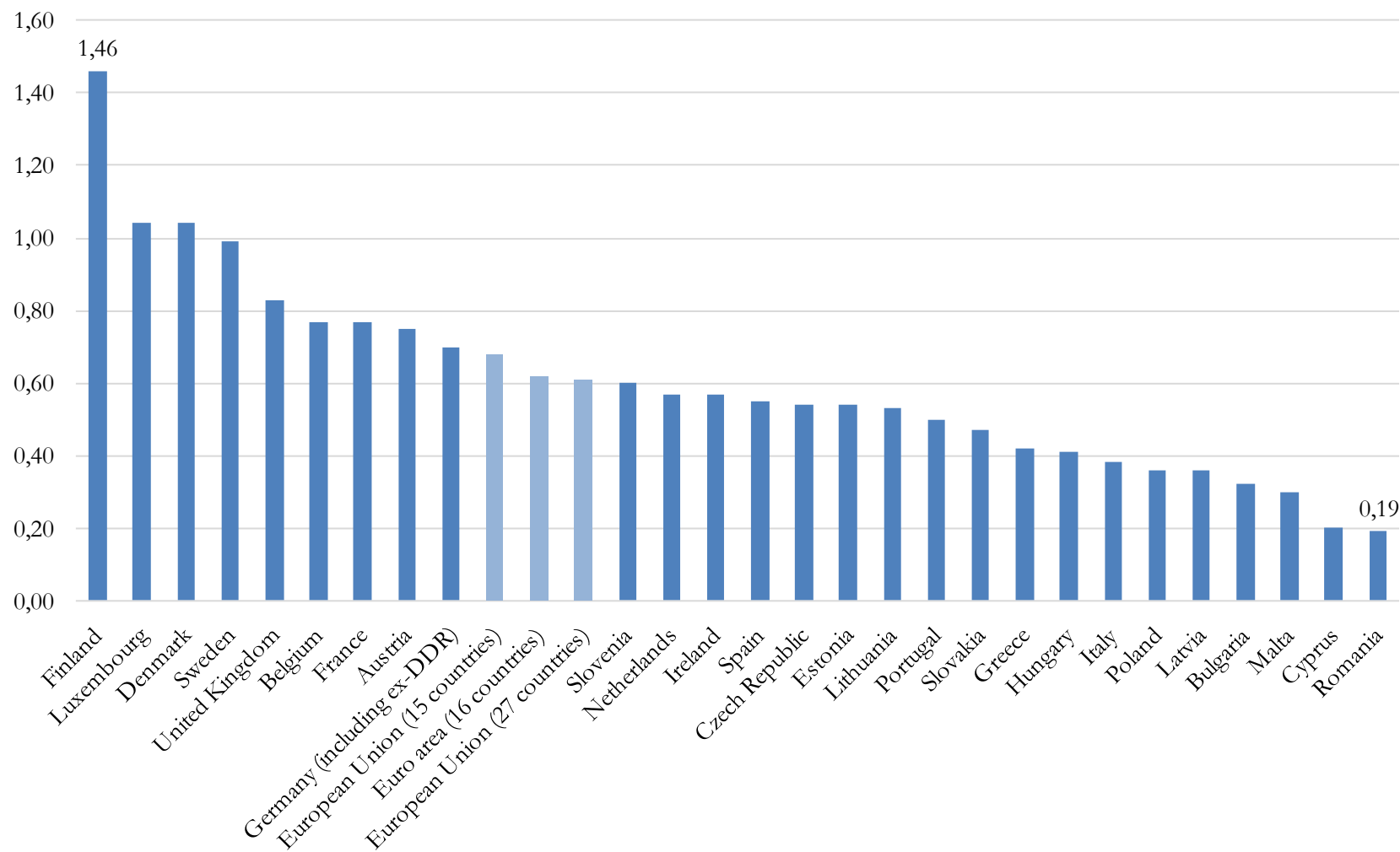
- **What approach to mobility for the new Member States?**

From “brain drain” to “brain circulation”

- **Examples**

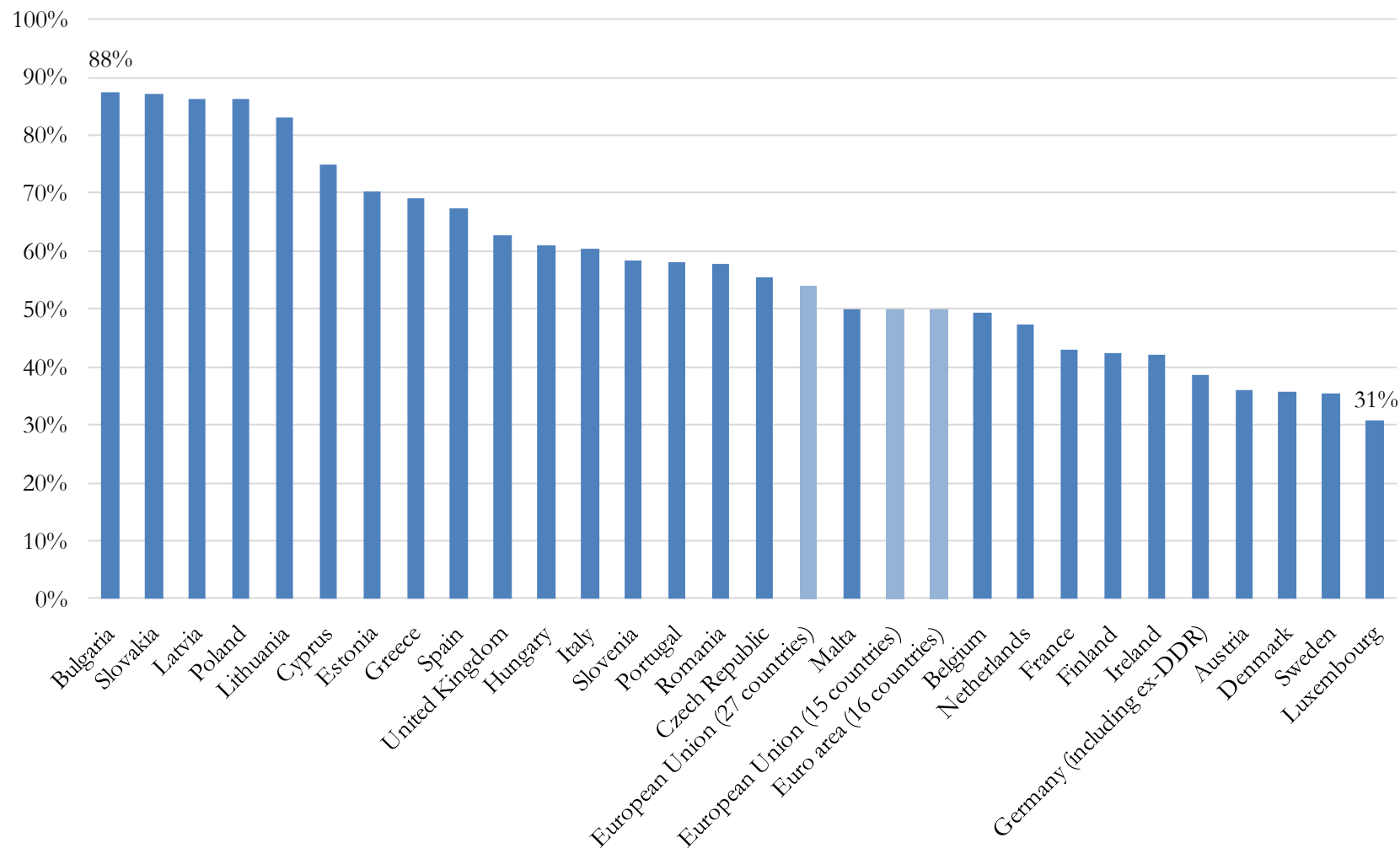


## RESEARCHERS AS % OF TOTAL LABOUR FORCE



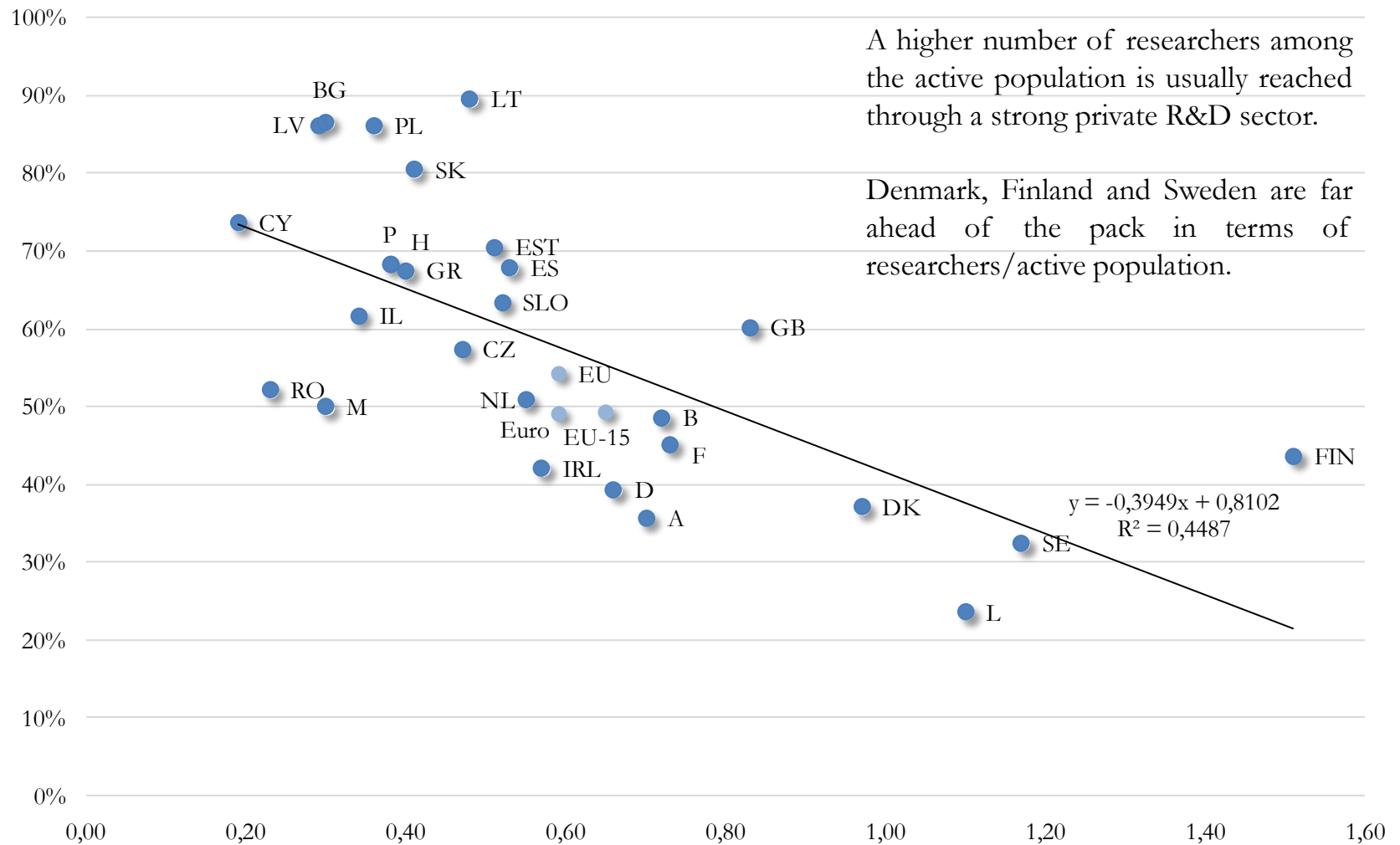
Source: Eurostat, 2007

# % OF RESEARCHERS IN HIGHER EDUCATION AND GOVERNMENT



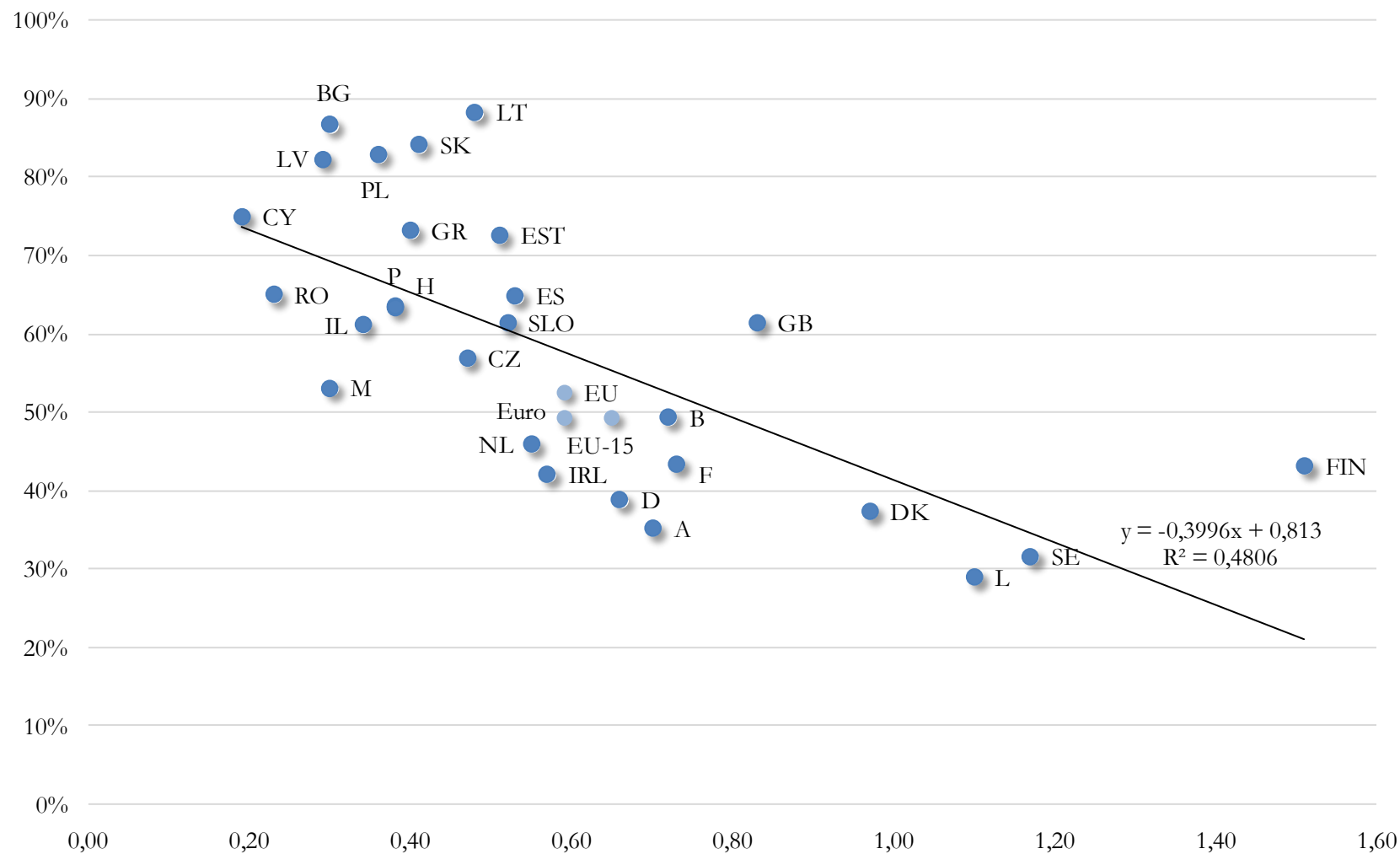
Source: Eurostat, 2007

# % OF RESEARCHER IN LABOUR FORCE AND % PUBLIC (2005)



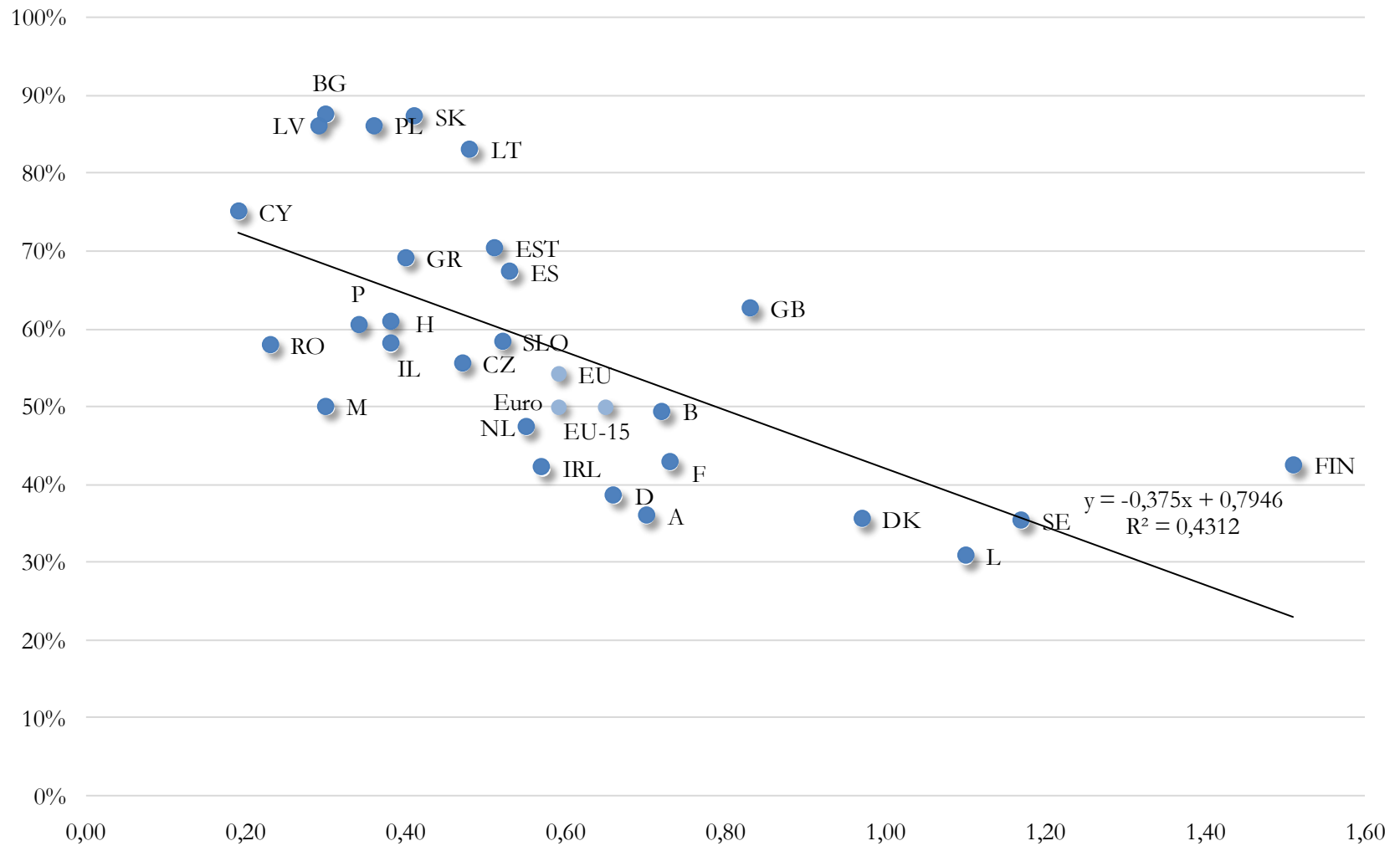
Source: Eurostat, 2005

# % OF RESEARCHER IN LABOUR FORCE AND % PUBLIC (2006)



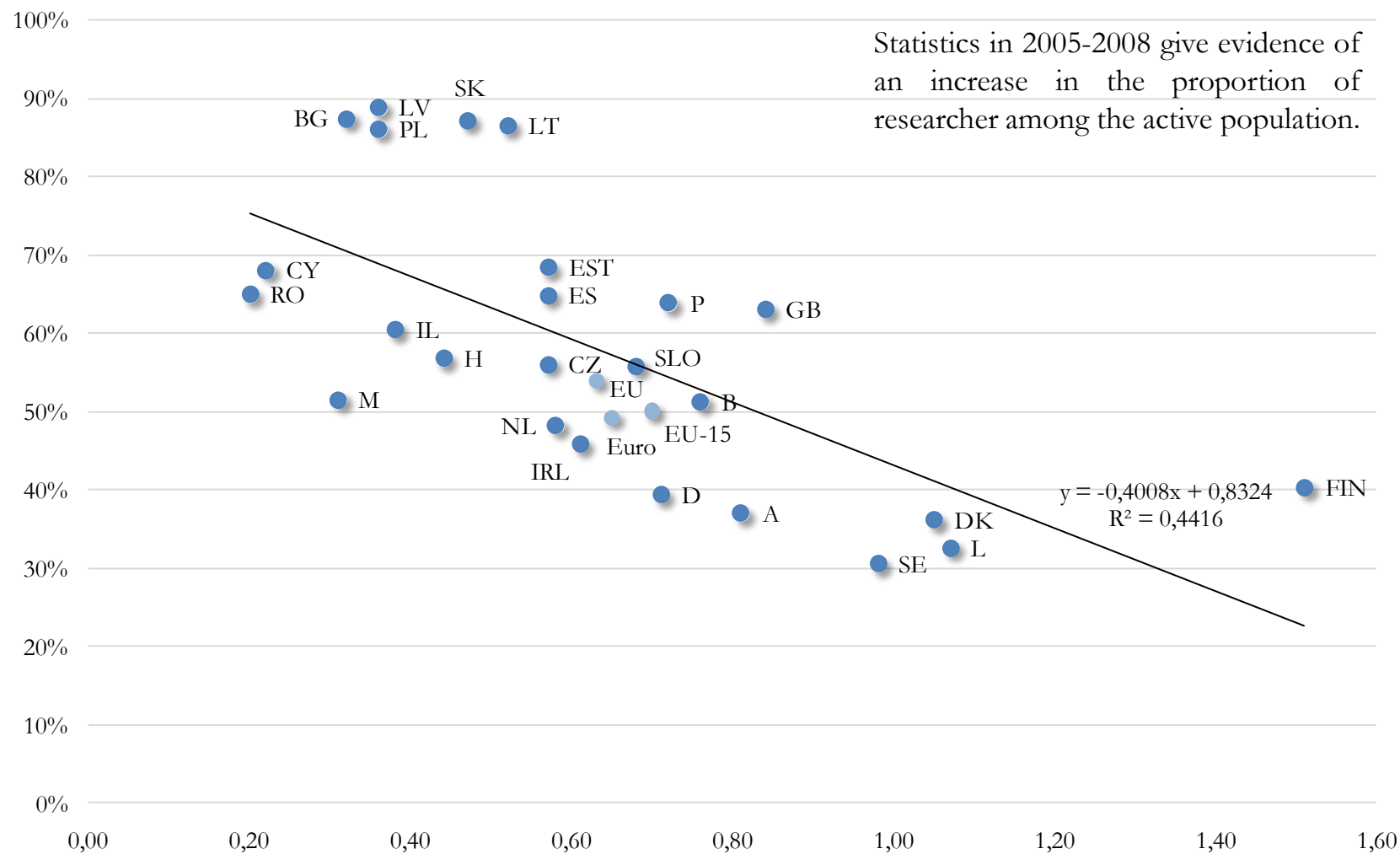
Source: Eurostat, 2006

# % OF RESEARCHER IN LABOUR FORCE AND % PUBLIC (2007)



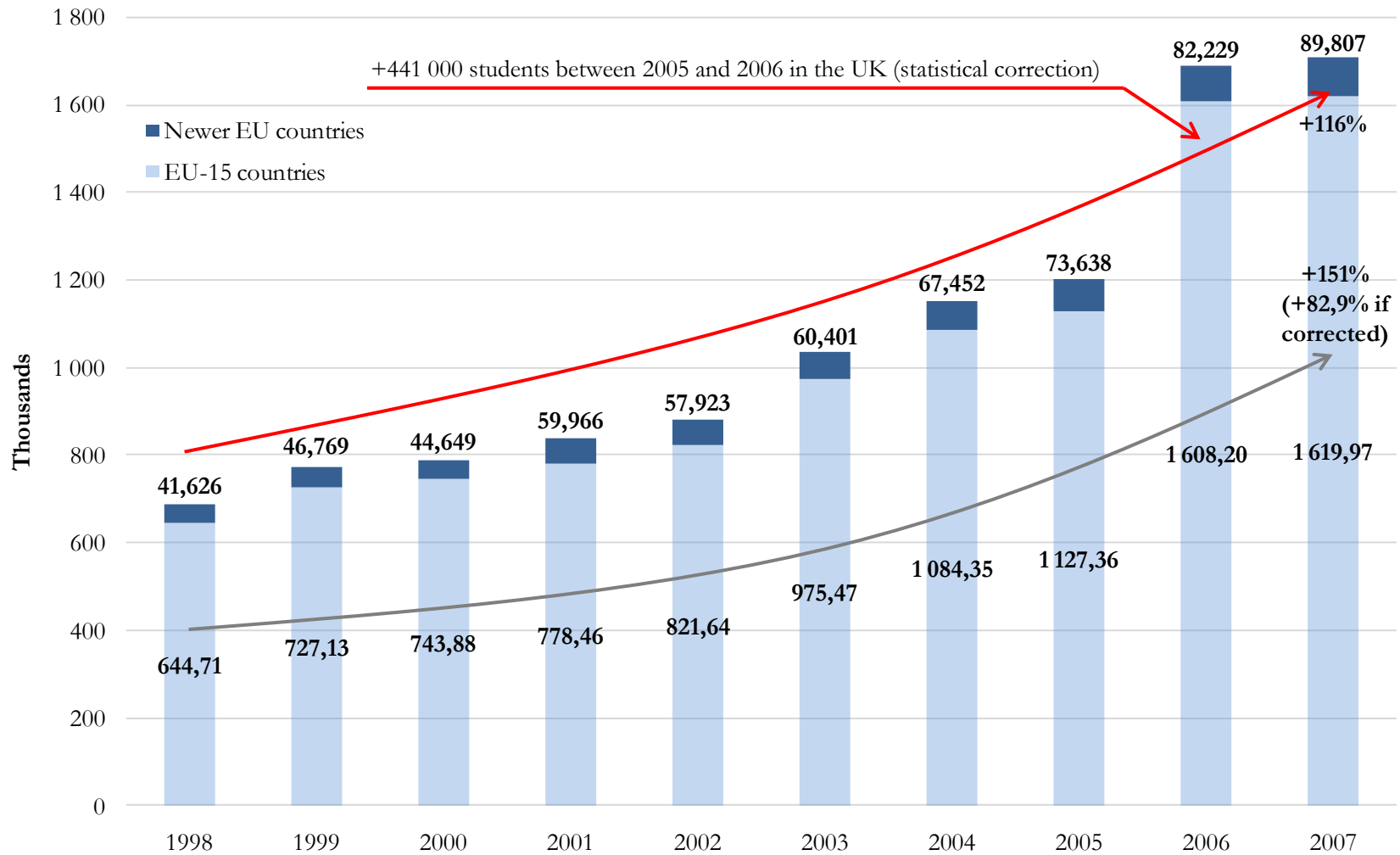
Source: Eurostat, 2007

# % OF RESEARCHER IN LABOUR FORCE AND % PUBLIC (2008)



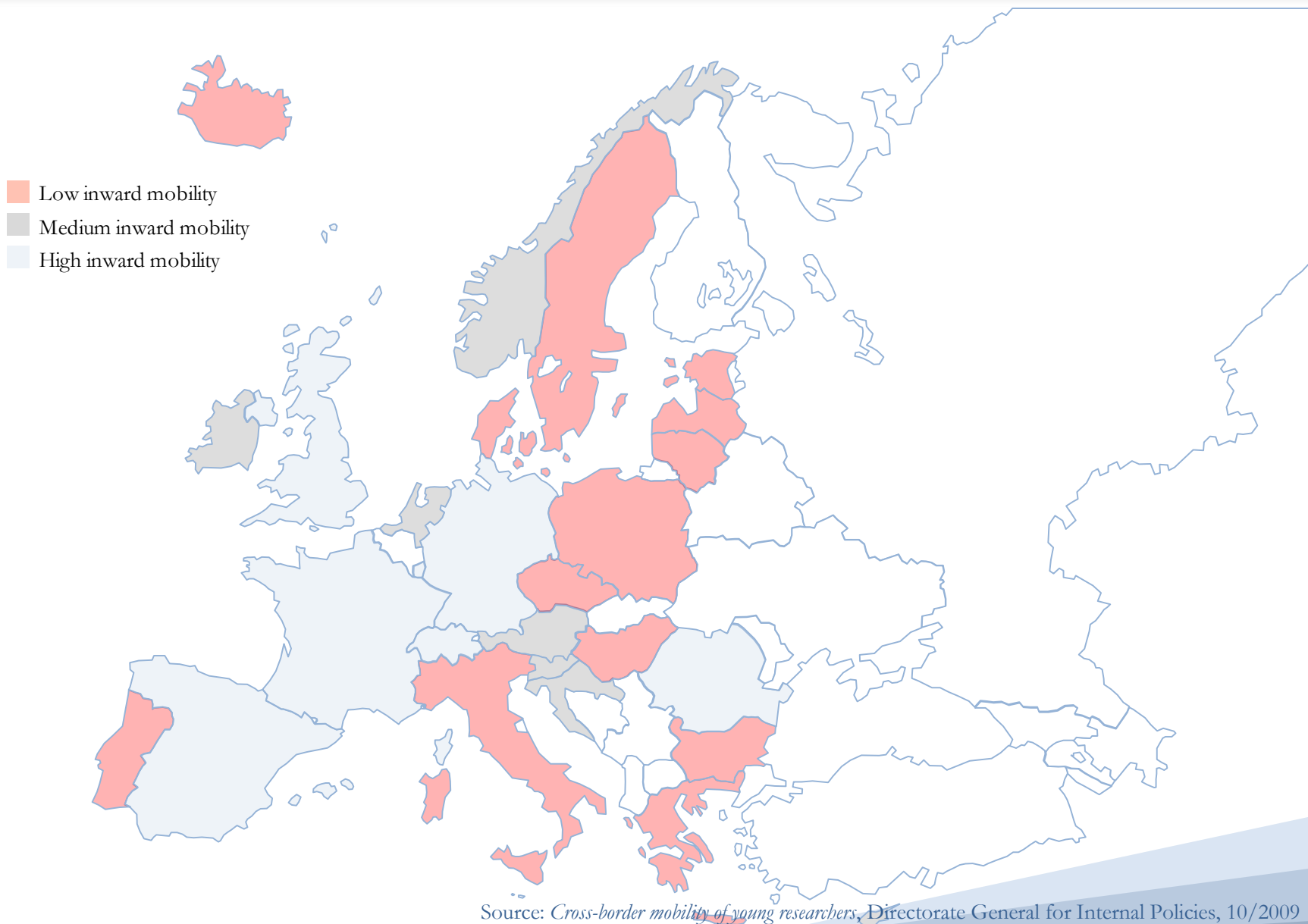
Source: Eurostat, 2008

# FOREIGN STUDENTS IN THE EUROPEAN UNION



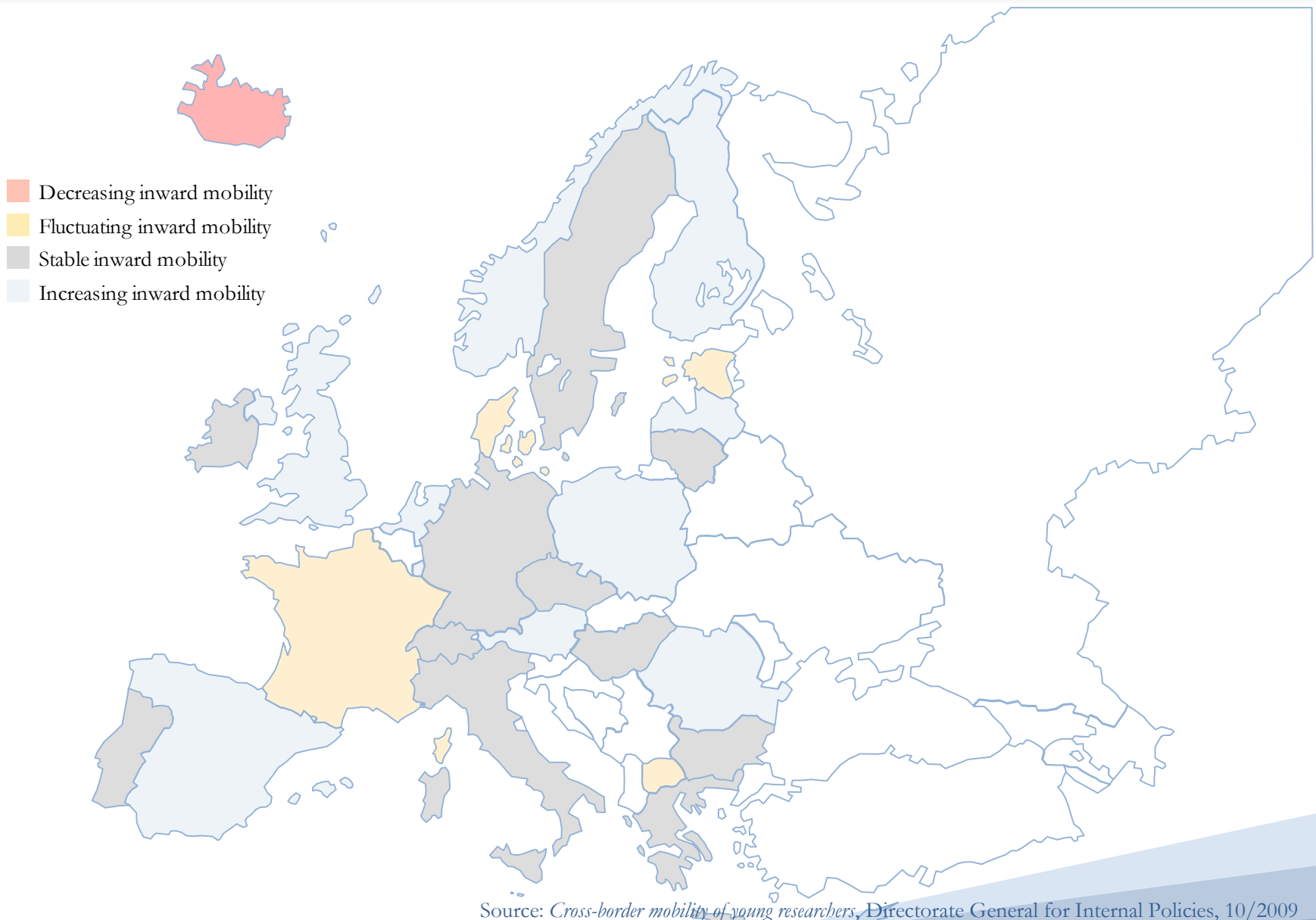
Source: Eurostat

## LEVEL OF RESEARCHER MOBILITY – INWARD MOBILITY



Source: *Cross-border mobility of young researchers*, Directorate General for Internal Policies, 10/2009

# EVOLUTION – INWARD MOBILITY

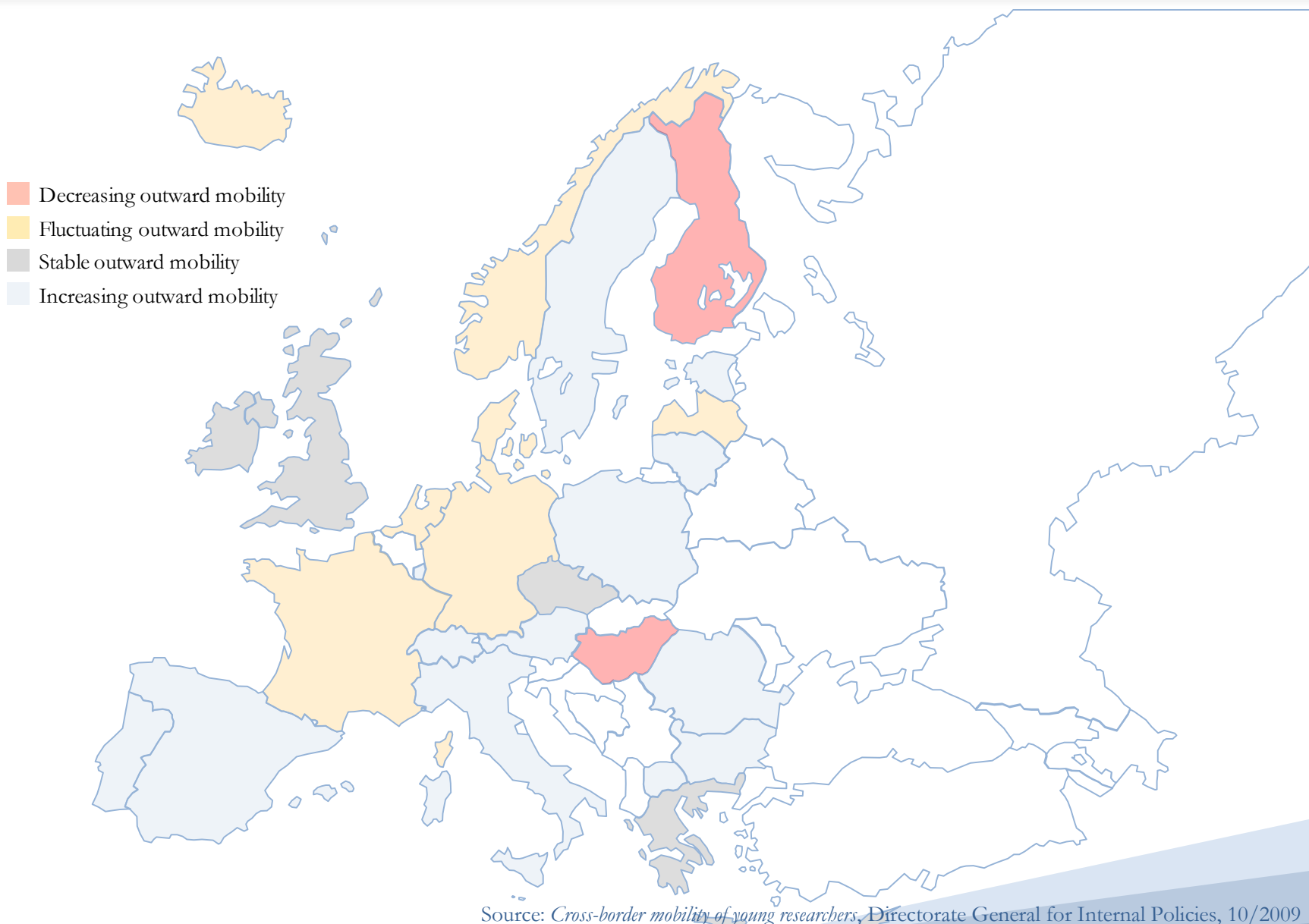


A map of Europe with countries colored according to their outward mobility of young researchers. The legend indicates three categories: Low outward mobility (red), Medium outward mobility (grey), and High outward mobility (light blue). Countries with low mobility include the United Kingdom, Ireland, Norway, Sweden, Finland, Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Greece, and Turkey. Countries with medium mobility include Spain, Portugal, France, Germany, Austria, Italy, and Cyprus. Countries with high mobility include Iceland, Denmark, Netherlands, Belgium, Luxembourg, Switzerland, and Slovenia.

Source: *Cross-border mobility of young researchers*, Directorate General for Internal Policies, 10/2009


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# EVOLUTION – OUTWARD MOBILITY



# DRIVERS AND OBSTACLES TO MOBILITY

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- Drivers of mobility
    - Economic conditions (low wages)
    - Limitation of public investment in R&D
    - Instability of public policies
    - Lack of good quality equipments
    - Limited career opportunities
    - etc.
  
  - Types of obstacles to mobility are similar to the ones identified in the rest of Europe:
    - Wages
    - Taxes and social security system
    - Insularity of research systems
    - Quality and reputation of the research system
    - Investment in R&D
    - Language
    - Personal and cultural barriers
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## FROM “BRAIN DRAIN” TO “BRAIN CIRCULATION”

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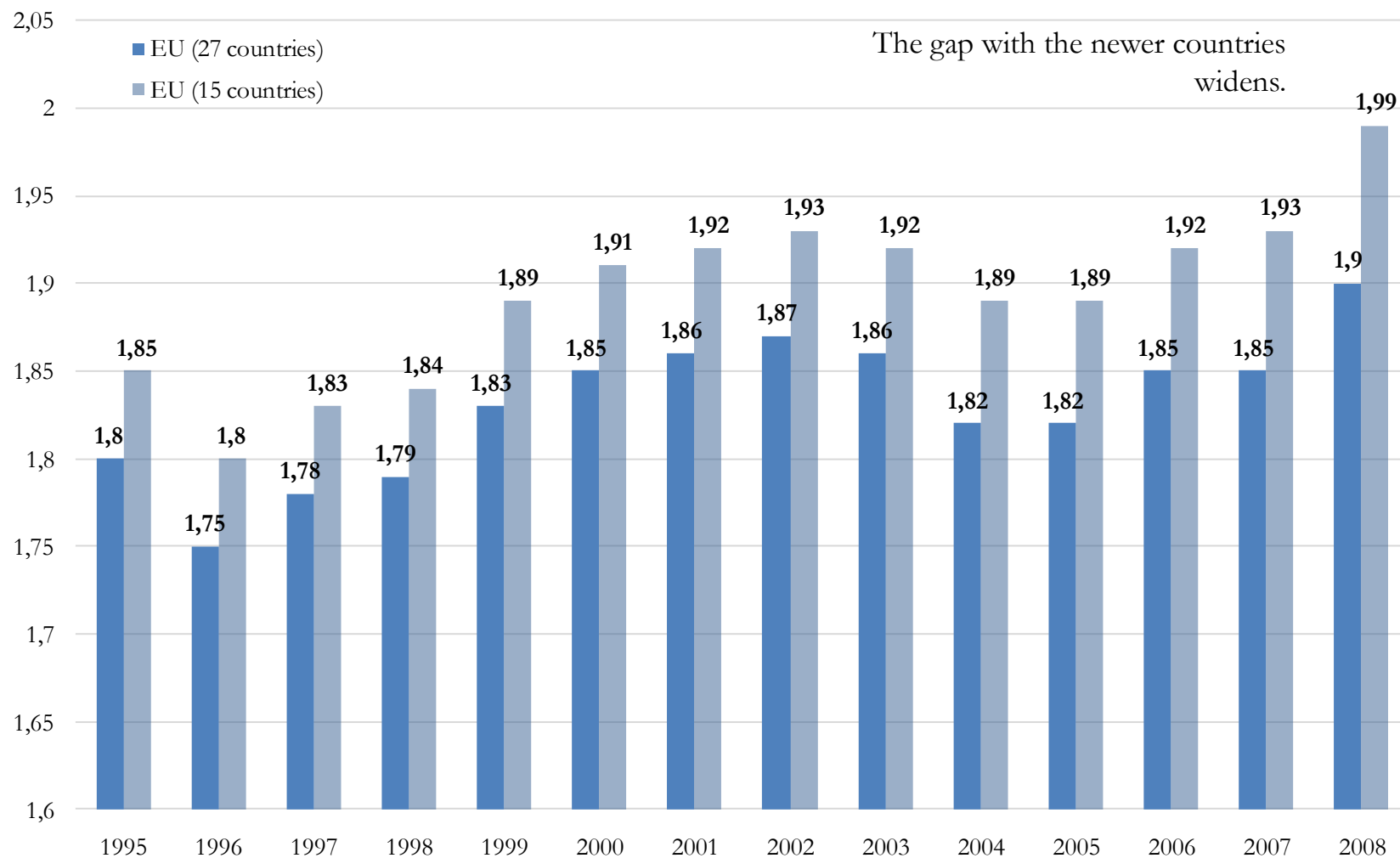
- How to fight “brain drain”?
  - Barriers and restrictions are not efficient
  - Need for the development of a favourable “eco-system” (“social filter”) through adequate long-term policies and the promotion of pull factors
- Instead of directly fighting “brain drain”, an appropriate strategy would consist for new Member States in developing their capacity to “capture” the benefits of mobility. Mobility can indeed result in remittances, technology and knowledge transfer, investment and trade
- This implies in particular promoting short-term mobility and long-term connections with expatriates or mobile researchers

## WHAT INVESTMENT STRATEGY FOR THE NEW MEMBER STATES?

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- Because of the **mobility of technology and knowledge**, decision-makers at local level face two basic options:
  - to **invest** in R&D to increase their region's knowledge capacity and competitiveness;
  - to rely on spill-over effects and **free-ride**.
- Free-riding may be an appealing option for new Members since their limited resources do not allow for strong cumulative effects (need for a critical mass). On the other hand, new Members may face difficulties in appropriating spill-over benefits because of their limited absorption capacities.
- Choosing between the two options depends on the **level of analysis** (national or sub-national for instance), but also on the **specific capacities of the region**.
  - “innovation-prone” regions: “regions capable of transforming a larger share of their own R&D into innovation and economic activity”
  - “innovation-averse” regions: regions whose internal characteristics “limit their capacity to transform their stock of resources in R&D and the innovation stemming from this stock into dynamic economic activity”

# R&D EXPENDITURES (IN % OF GDP)



Source: Eurostat

## FROM “BRAIN DRAIN” TO “BRAIN CIRCULATION”


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- Dilemma for the European Union and national administrations: “conflict” between the natural tendency to knowledge concentration (centres of knowledge) and the need to a balanced development of the European Research Area
- Regional policy in the field of R&D takes this into account by promoting the development of **“cores of the periphery”**
- Large-scale RIs in the periphery can be at the centre of the knowledge creation process and help prevent brain drain. The transmission of tacit knowledge leads to the creation of self-reinforcing virtuous circles of accumulation and to the creation of multiplier effects.
- Advantages of RIs with respect to mobility:
  - World-class research opportunities and access to excellent equipment
  - Promotion of international collaboration
  - User facilities: development of West-East short-term mobility
  - Long-term partnerships as a result of short-term mobility

### ■ **Extreme-Light-Infrastructure:**

- Implementation as a distributed RI in the Czech Republic, Hungary and Romania
- First infrastructure of such a magnitude implemented in new Member States
- Original use of structural funds
- Promotion of mobility between East and West (joint Marie Curie training programme, partnerships in technological development, etc.)
- Promotion of East-East mobility

### ■ **Accompanying measures: the Czech example**

- Mobility grants for foreign researchers in order to create research teams (Operational Programme “Education for Competitiveness”)
  - Mobility grants for top managers (project directors and scientific directors)
  - Repatriation programmes
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