Investment in Knowledge

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Introduction

- Needs for IK statistics?
- Difficulties associated with IK measurement?
- Level of IK across OECD countries
- Future challenges for statistician
- Conclusion

Difficulties associated with IK measurement?

- Lack of internationally acceptable definition

  "expenditures for all new goal-oriented activities within a country or disembodied tools used in a country." - [Cores 2000],

  "private expenditures on assets that are intangible and necessary to the creation and sale of new or improved products and processes." - [Nakamura, 2001],

  ""all forms of enterprise capital expenditure which are not physically embodied in matter. They embrace expenditures on staff training and professional development, innovation, marketing, management expertise, and workplace relations." – [Webster, 1999].

- Possible components

  - common in the literature [e.g. innovation/R&D, software, marketing, human capital, organisational capital]

- Lack of international comparable data

OECD definition

- Definition adopted by the OECD for IK

  - Expenditures directed towards activities with the aim of enhancing existing knowledge and/or acquiring new knowledge or diffusing knowledge.

  - R&D expenditure, education expenditure, software expenditure,

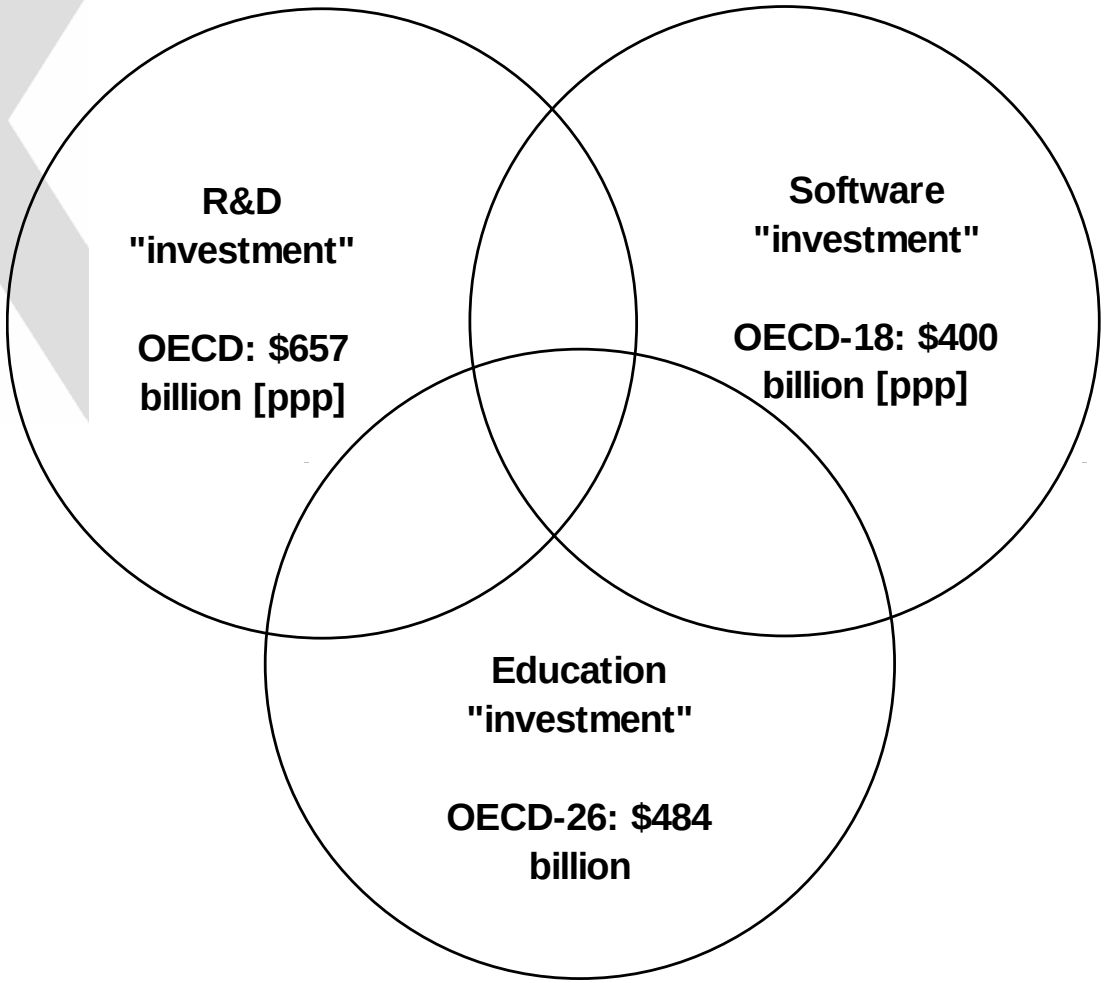
  - training expenditure, innovation expenditure, and industrial design expenditure.

- "Broad" and "Narrow" definition

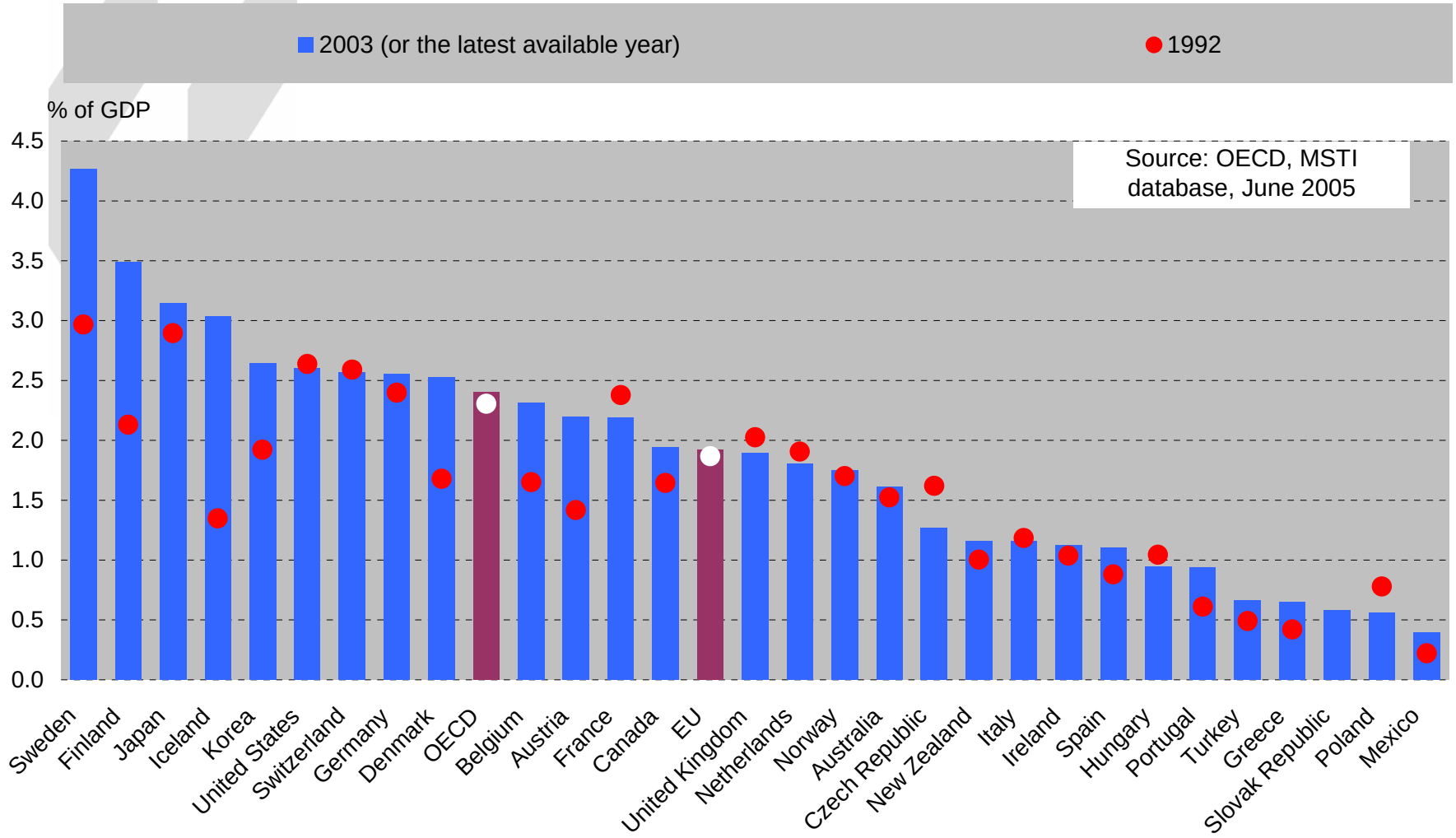
  - preference for the narrow definition (i.e. R&D, higher education, software).

  - exclude the overlap between: a) R&D and software; b) R&D and education; and c) education and software.

IK components included in the definition

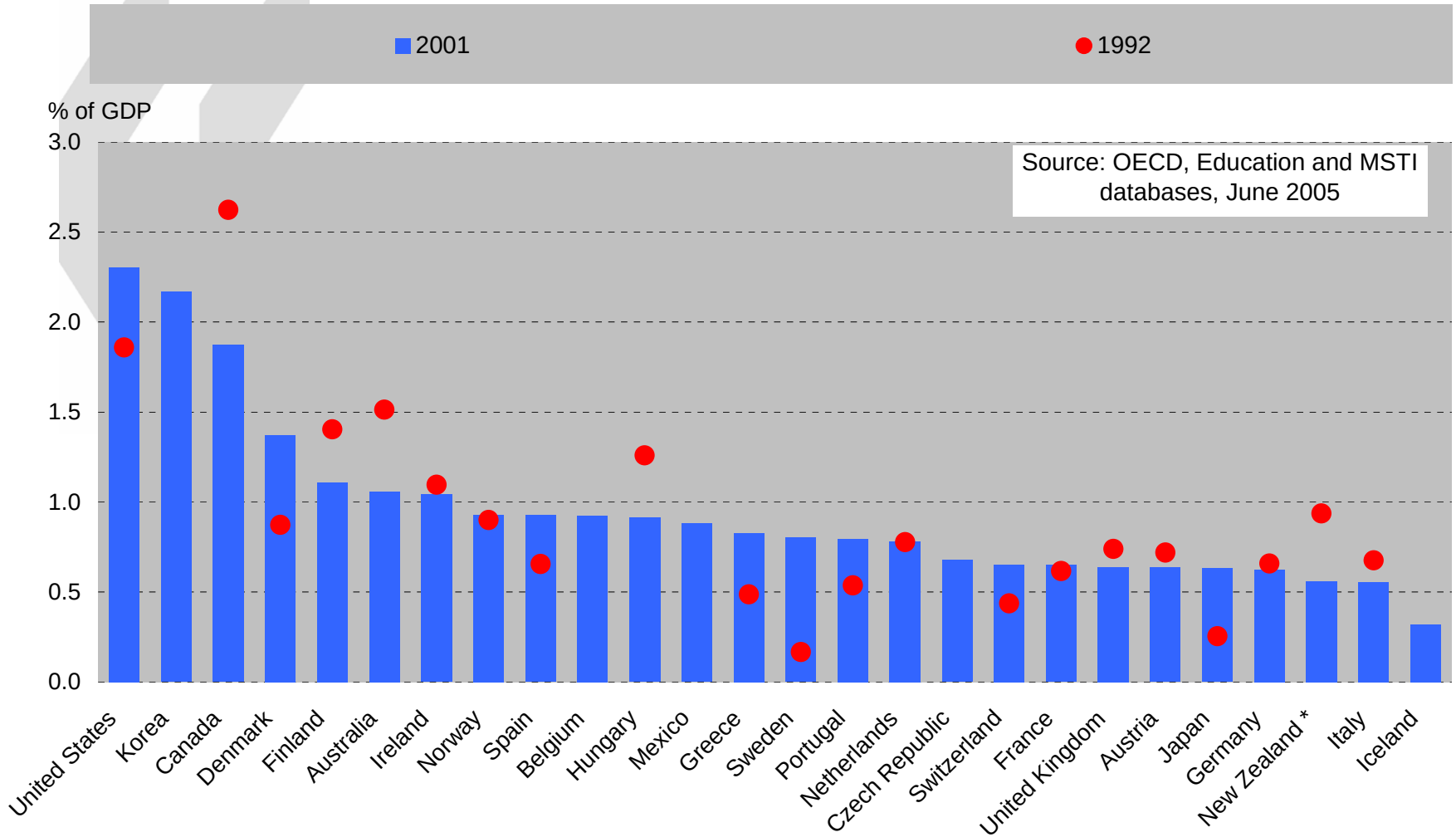


R&D component of IK



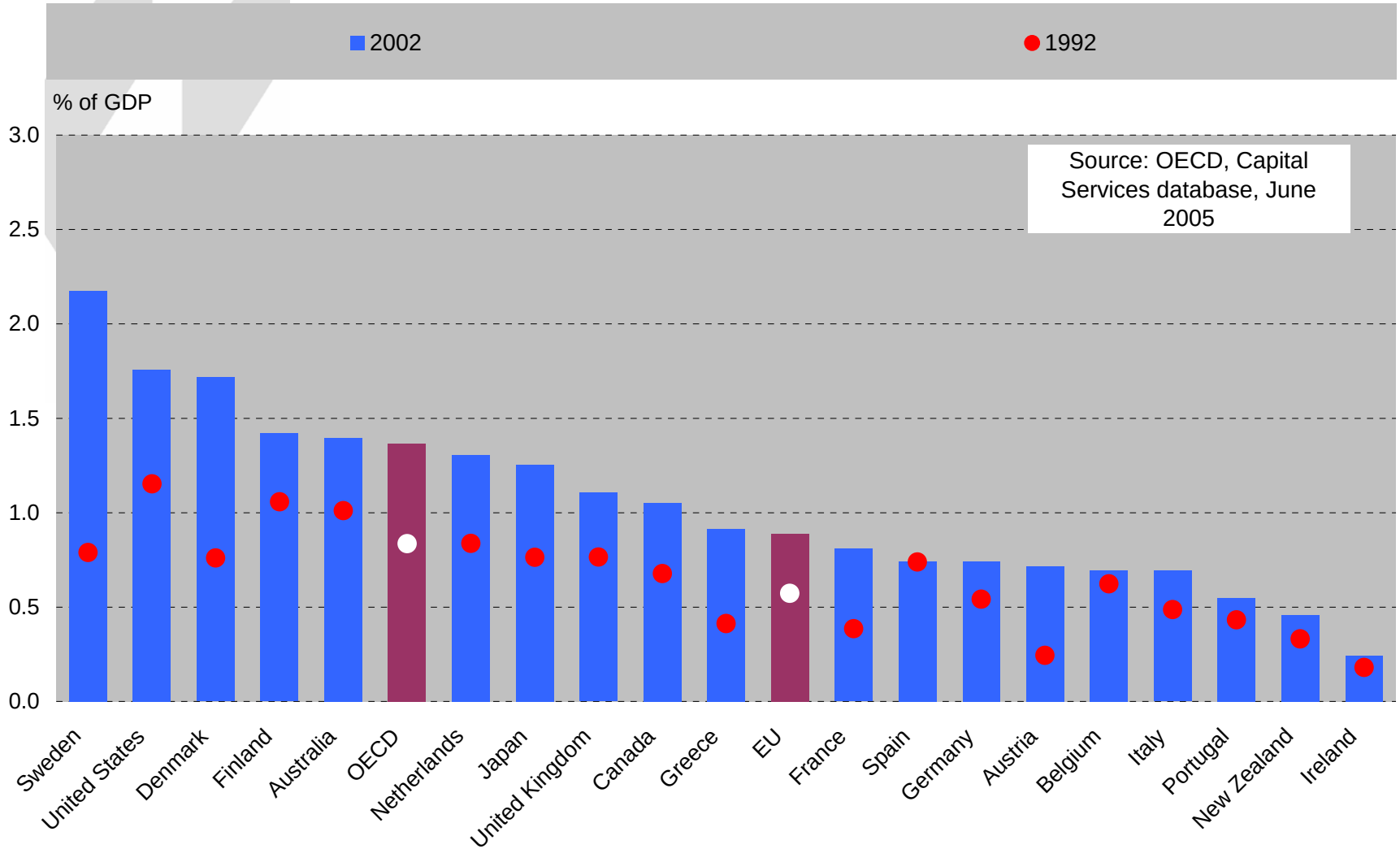
Note: OECD & EU total refers to 18 sample countries.

Education component of IK

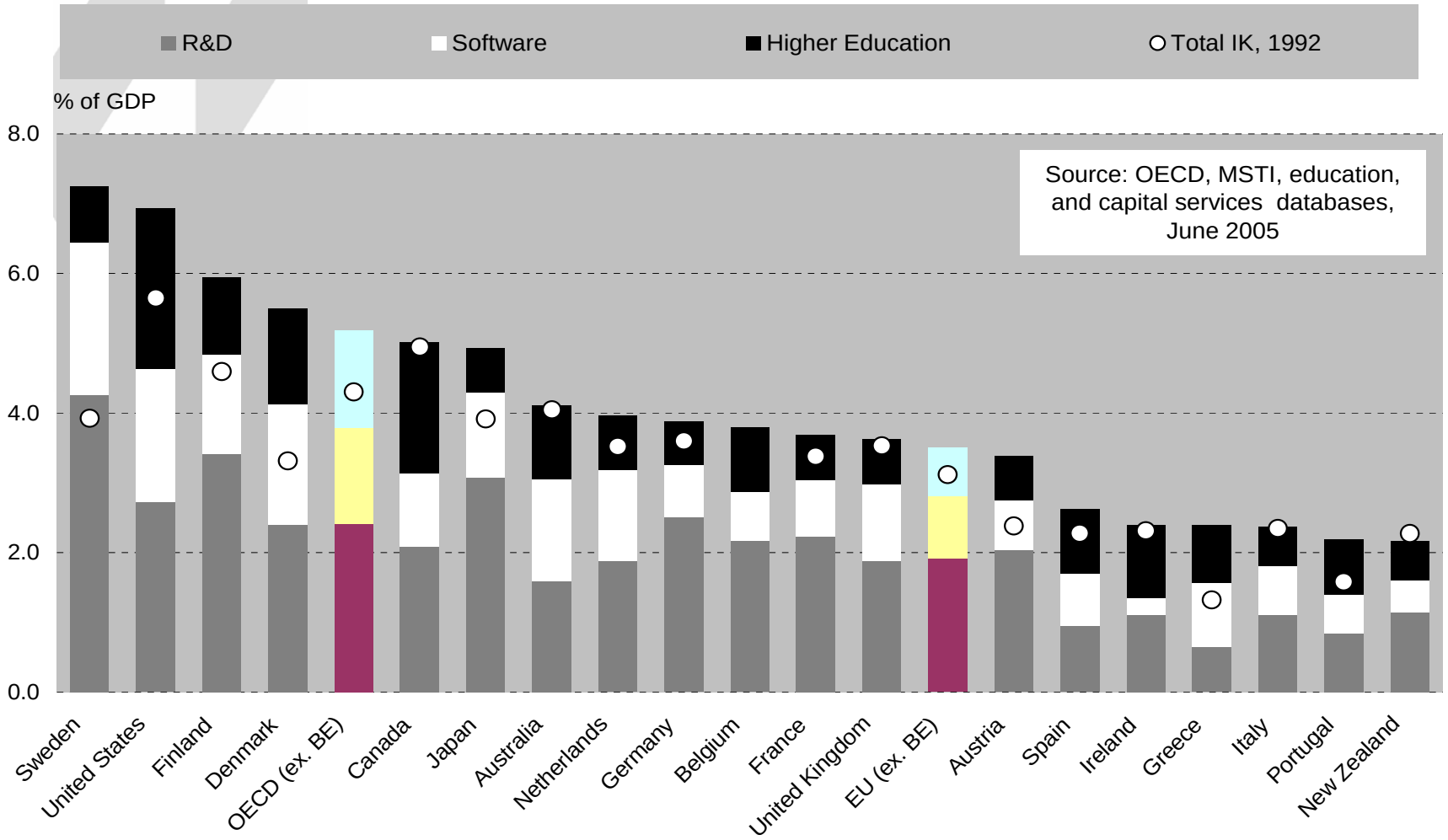


Note: New Zealand data do not include private educational expenditures.

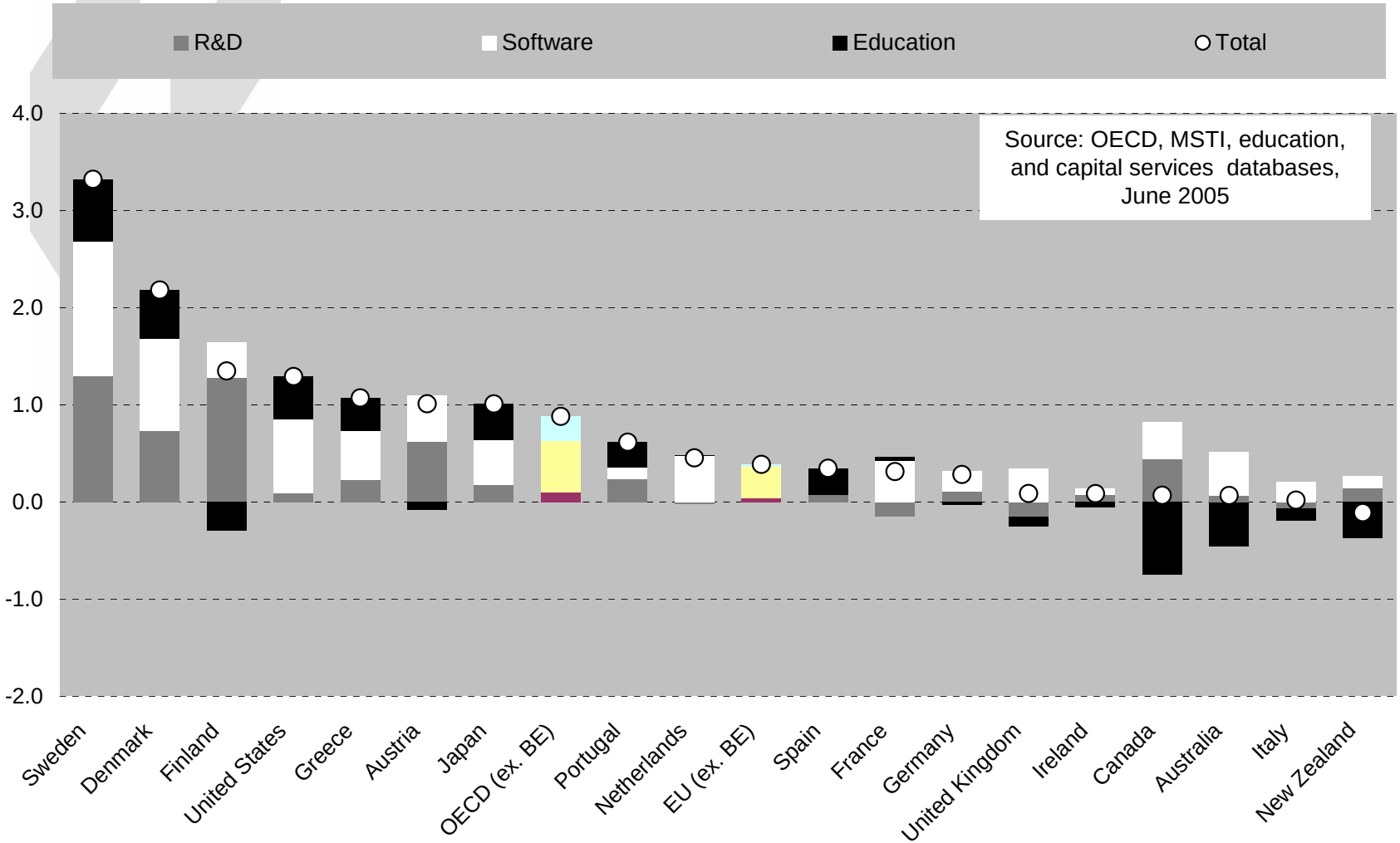
Software component of IK



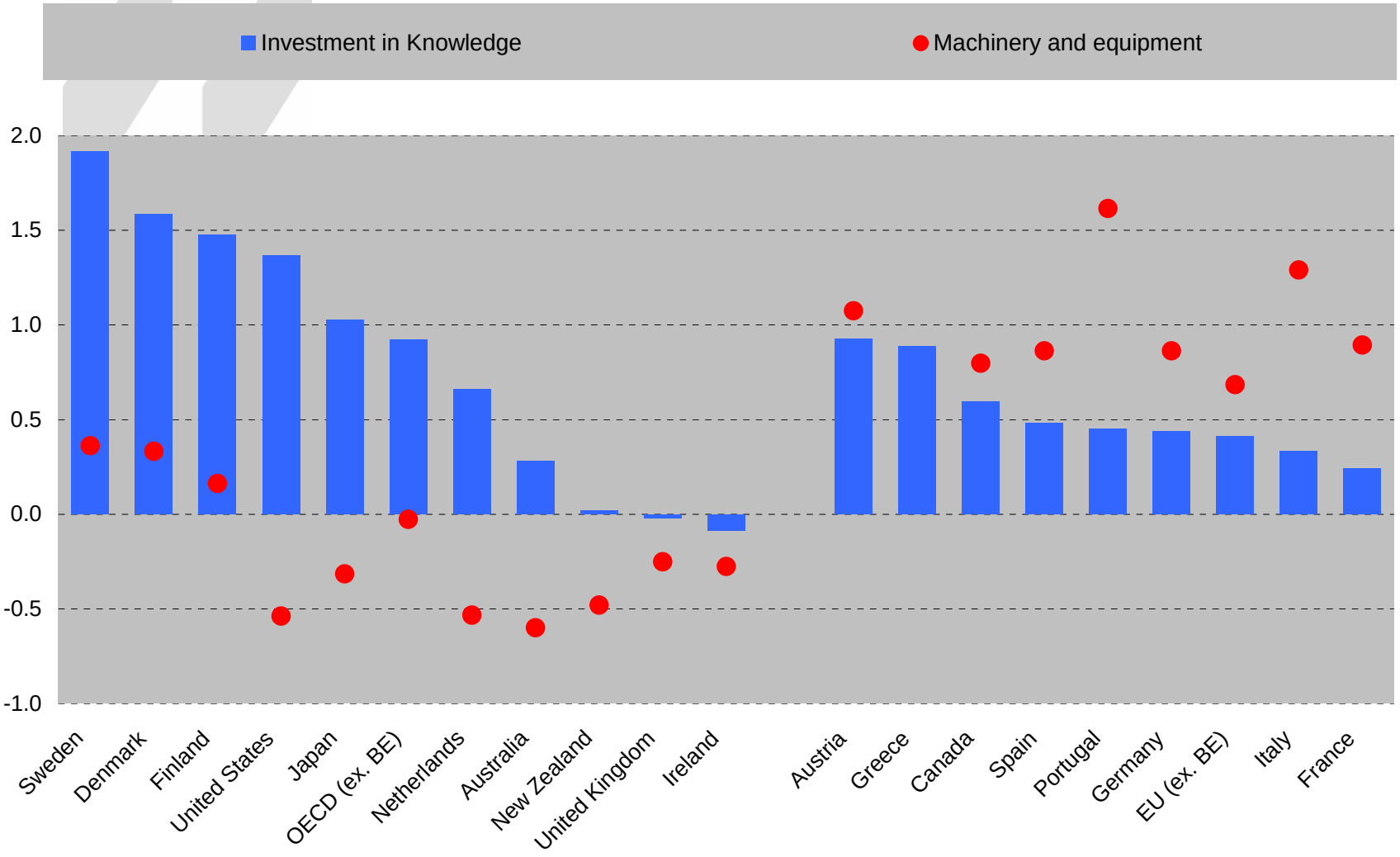
Total IK, based on narrow definition (2001 & 1992)



Source of change in IK (2001 & 1992)



Change in investment intensity ratio between 1995 & 2001



Future challenges

- Review the definition
- Data improvement

  - data for missing components (e.g. training)
  - enhance data quality (e.g. deflator of R&D)
  - increase country coverage

- Analytical / Policy related issues

Conclusion

- Crude measure, BUT possible to measure IK
- Accounts for a significant proportion of OECD-GDP
- For most countries IK/GDP in 2001 is > 1992
- The EU is lagging behind the US and Japan
- Nordic countries, US and Japan are the most knowledge-based economy