

Promoting efficiency, innovation and governance through research on education

Lorenz Lassnigg
(lassnigg@ihs.ac.at; www.equi.at)

Presentation at Meeting of Senior Officials from the Istanbul MoU Region:
„Overcoming the economic crisis: The role of human capital development“
18 November 2009, Zagreb

| Institute for Advanced Studies | Stumpergasse 56 | A-1060 Wien | Tel: +43 1 59991-0 | www.ihs.ac.at | www.equi.at |

Agenda

- **Views on efficiency and results of research:**
„external“ and „internal“ efficiency
- **Governance:** suggestions from economics of education and
views from pedagogy
- **Innovation:** differing views about education/training and
innovation
- **Educational R&D:** „evidence based policy and practice“
both are important, and sometimes not easy to have...

Agenda

- **Views on efficiency and results of research:**
„external“ and „internal“ efficiency

„External“ Efficiency related to **outcomes**

- High **average estimates** of human capital on economic growth and individual and social rates of return
 - Robust results since decades: investment in human capital has positive effects on economic growth
 - On average the interest rates are similar to other forms of capital investment
 - New results: Achievement measured by the large scale assessments (PISA etc.) do even better predict growth than finance or enrolment measures

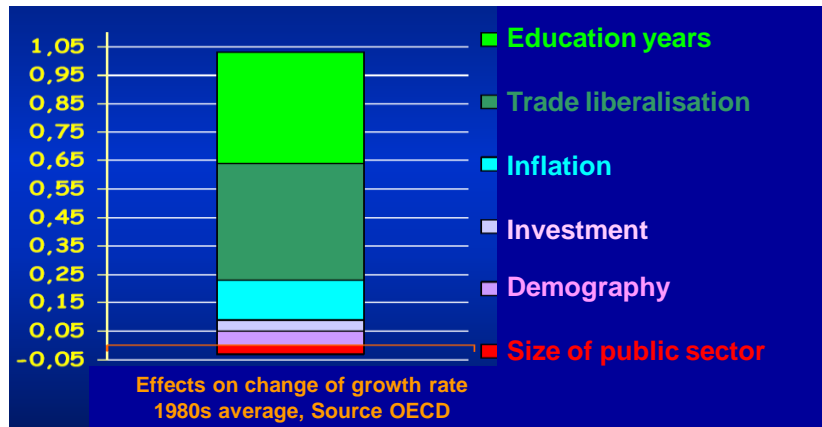
... **HOWEVER** ...

- ...there are **differing effects by countries**, and
- ...there are differences between **individual and social rates of return**

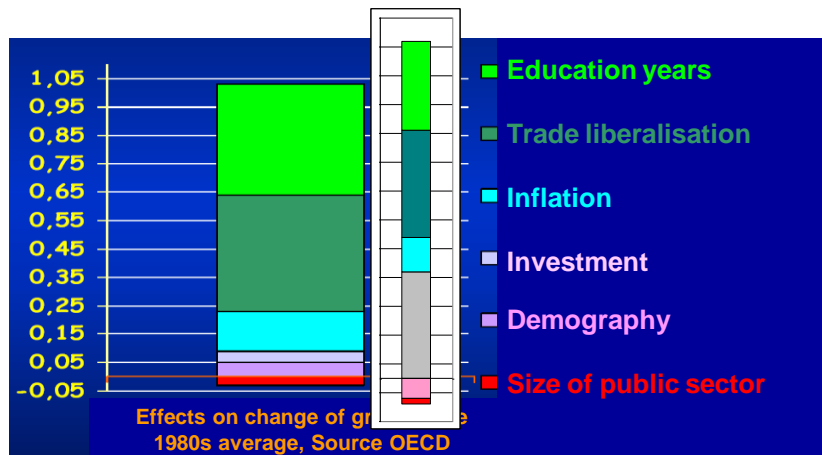
... **THEREFORE** ...

- ...**structures of education and training systems matter**

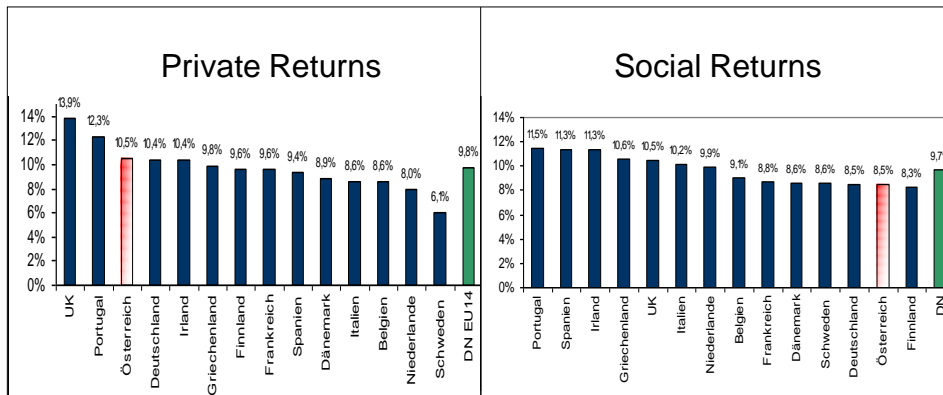
Effects on growth average



Effects on growth average and Austria



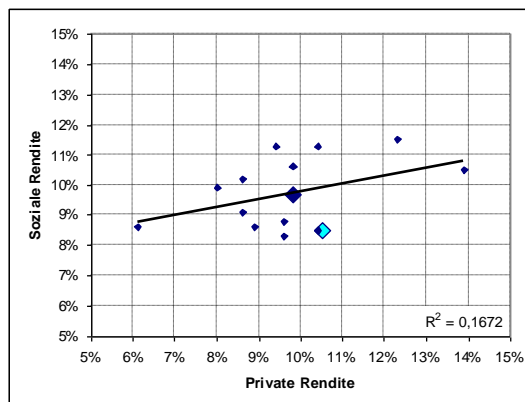
Private and social returns („interest rates“)



Source EU-Study: De la Fuente 2003

Relation of social and private returns

- Private returns related to differing social returns
 - (relatively) low social returns might imply (too) high public expenditure

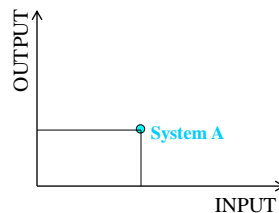


„Internal“ Efficiency related to outputs, processes

- Growth effects and returns might be influenced by „internal“ efficiency: How the „production factors“ (teachers, resources, students) are combined to achieve learning results
- New models („**efficiency frontier**“) compare the outputs that are reached by certain inputs in different systems

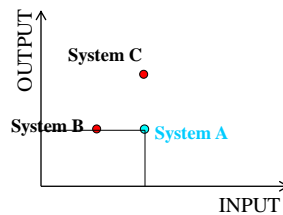
„Internal“ Efficiency related to outputs, processes

- Growth effects and returns might be influenced by „internal“ efficiency: How the „production factors“ (teachers, resources, students) are combined to achieve learning results
- New models („**efficiency frontier**“) compare the outputs that are reached by certain inputs in different systems



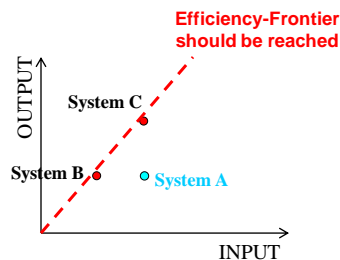
„Internal“ Efficiency related to outputs, processes

- Growth effects and returns might be influenced by „internal“ efficiency: How the „production factors“ (teachers, resources, students) are combined to achieve learning results
- New models („**efficiency frontier**“) compare the outputs that are reached by certain inputs in different systems



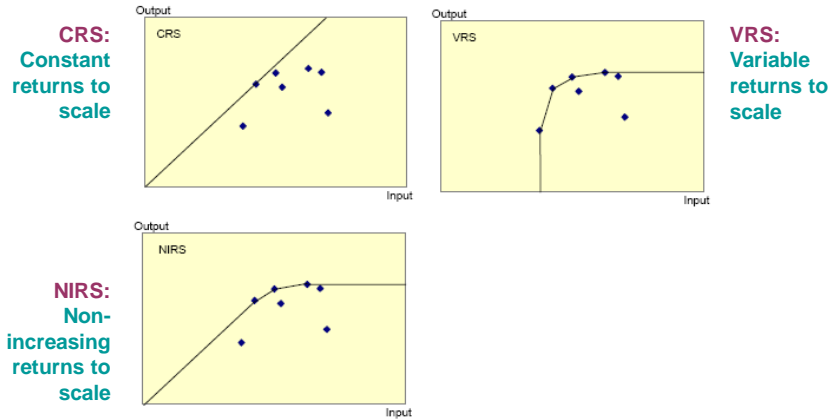
„Internal“ Efficiency related to outputs, processes

- Growth effects and returns might be influenced by „internal“ efficiency: How the „production factors“ (teachers, resources, students) are combined to achieve learning results
- New models („**efficiency frontier**“) compare the outputs that are reached by certain inputs in different systems



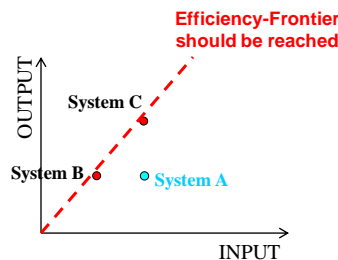
Assumptions about „efficiency frontier“

Figure. DEA efficiency frontiers



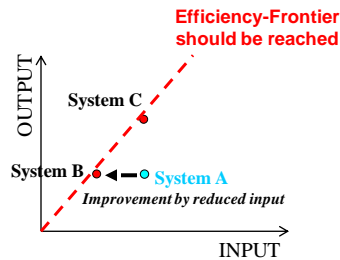
„Internal“ Efficiency related to outputs, processes

- Growth effects and returns might be influenced by „internal“ efficiency: How the „production factors“ (teachers, resources, students) are combined to achieve learning results
- New models („**efficiency frontier**“) compare the outputs that are reached by certain inputs in different systems



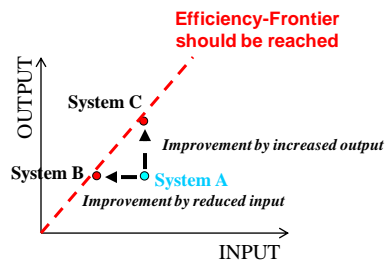
„Internal“ Efficiency related to outputs, processes

- Growth effects and returns might be influenced by „internal“ efficiency: How the „production factors“ (teachers, resources, students) are combined to achieve learning results
- New models („**efficiency frontier**“) compare the outputs that are reached by certain inputs in different systems



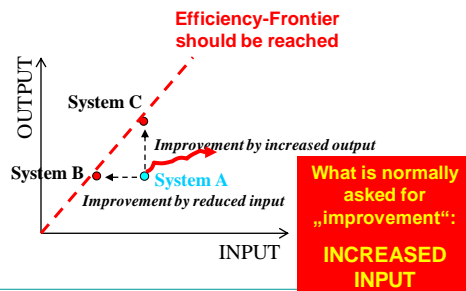
„Internal“ Efficiency related to outputs, processes

- Growth effects and returns might be influenced by „internal“ efficiency: How the „production factors“ (teachers, resources, students) are combined to achieve learning results
- New models („**efficiency frontier**“) compare the outputs that are reached by certain inputs in different systems

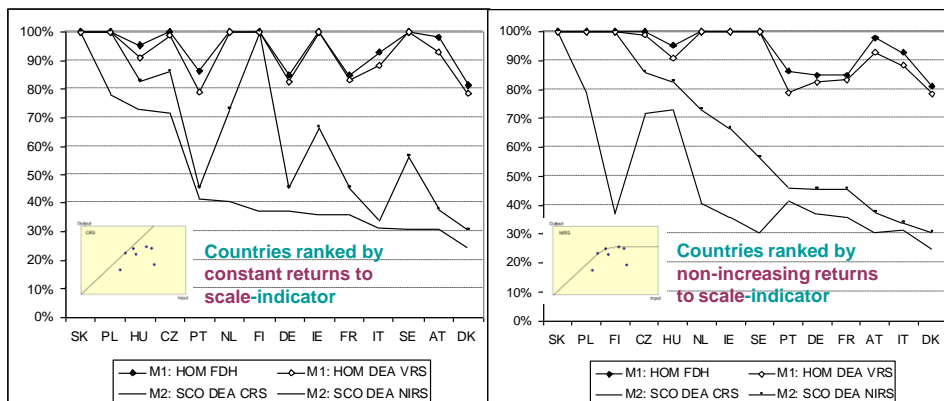


„Internal“ Efficiency related to outputs, processes

- Growth effects and returns might be influenced by „internal“ efficiency: How the „production factors“ (teachers, resources, students) are combined to achieve learning results
- New models („**efficiency frontier**“) compare the outputs that are reached by certain inputs in different systems

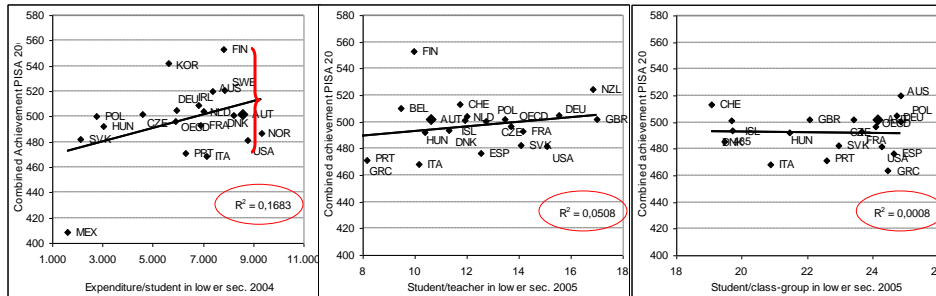


„Internal“ Efficiency Comparative estimation of models



- Pisa reading score: level, variance, by expenditure
- Different assumptions of shape of „efficiency frontier“

PISA 2006 score and inputs



Expenditure/student

student/teacher

class-size

- Big variance according to input variables, R^2 decreasing...
- Expenditure: big difference in score with similar expenditure

Agenda

- **Views on efficiency and results of research:** „external“ and „internal“ efficiency
- **Governance:** suggestions from economics of education and views from pedagogy

Governance matters stylised results

- Institutional factors add up to effects around 200 pts. (TIMSS), 100 pts. being an international S.D. and 40 pts. av. gained/year
- Institutional reforms more efficient than increase of resources within a system
- Empirically consolidated factors
 - Competition public-private schools*
 - Public finance secures choice*
 - School autonomy concerning process and personnel decisions*
 - Incentives and discretion of teachers for choice of appropriate methods*
 - Parents' involvement in schools*
 - Measuring pupils' progress by examinations*
 - External examinations for school accountability*
 - Combination of external examinations with school autonomy*
 - (Performance pay for teachers*
 - Early support vs. Tracking)*

Source: Wößmann 2006

Governance: stylised results from institutional model

- **Factors increasing quality/efficiency**
 - centralised examinations
 - central standards and control
 - attention of teachers for pupils' achievement
 - school autonomy for process and personnel issues
 - teachers' decisions about teaching methods
 - parents' influence
 - private schools with public support/financing
 - (medium level administration)
- **Factors decreasing quality/efficiency**
 - school autonomy about budget amount
 - teachers' decisions about workload
 - teachers' unions influence

Source: Bishop & Wößmann 2001, table 2

Agenda

- **Views on efficiency and results of research:**
„external“ and „internal“ efficiency
- **Governance:** suggestions from economics of education and views from pedagogy
- **Innovation:** differing views about education/training and innovation

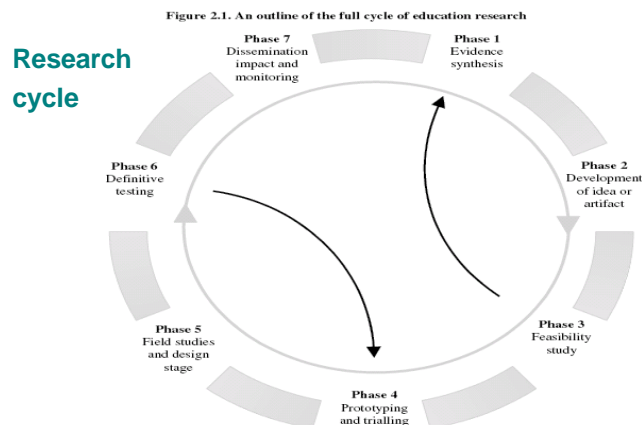
Innovation: How does ET translate into growth?

- Hypothesis of „technology frontier“: countries' economic structure differs according to the distance of the frontier („leading“ vs. „catching-up“)
- Some evidence that the position is related to different structures of education and training: the nearer to „frontier“ the more important gets higher education
- Medium level qualifications from vocational education and training (VET) important for diffusion of technology, higher education for creation
- Debates and questions about where a country/system is situated, and which choices should be taken

Agenda

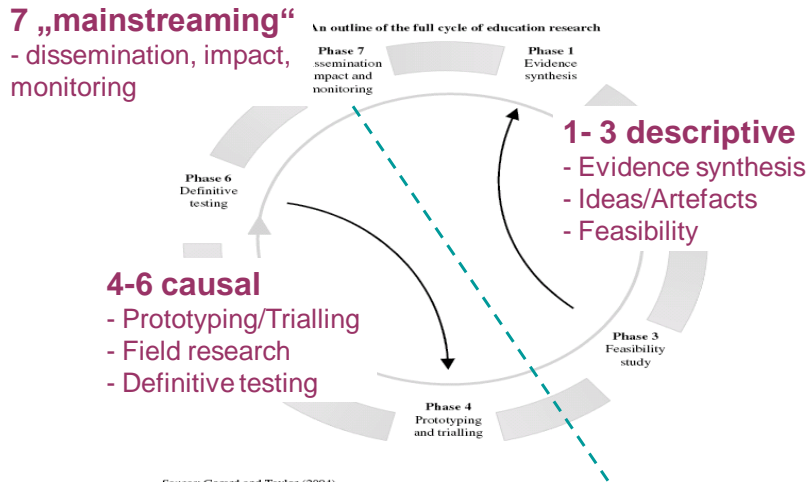
- **Views on efficiency and results of research:** „external“ and „internal“ efficiency
- **Governance:** suggestions from economics of education and views from pedagogy
- **Innovation:** differing views about education/training and innovation
- **Educational R&D:** „evidence based policy and practice“ both are important, and sometimes not easy to have...

What does „Evidence“ mean? descriptive und causal analysis (OECD'07)

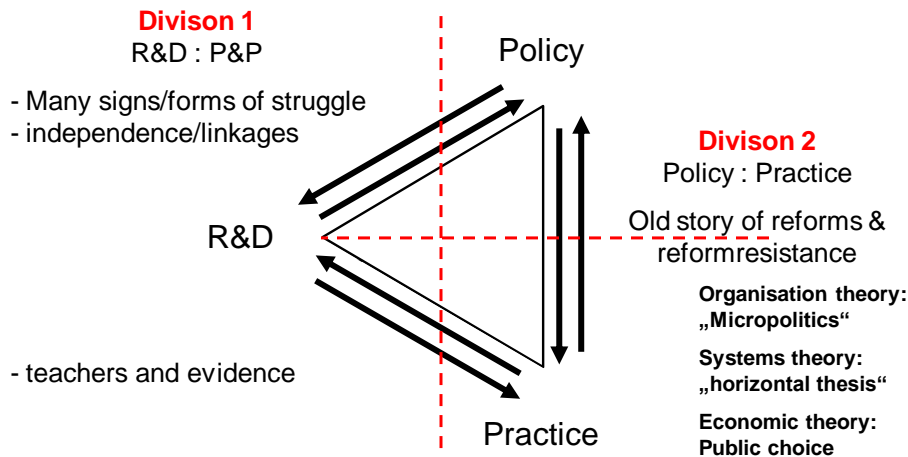


Source: Gorard and Taylor (2004).

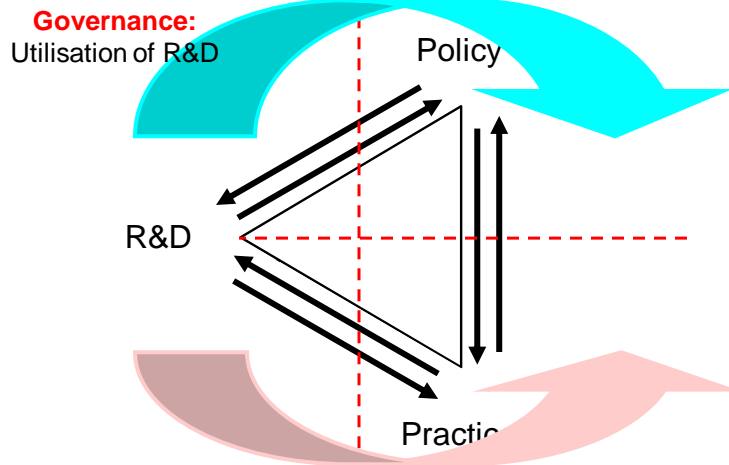
What does „Evidence“ mean? Research cycle: 2 sub-cycles



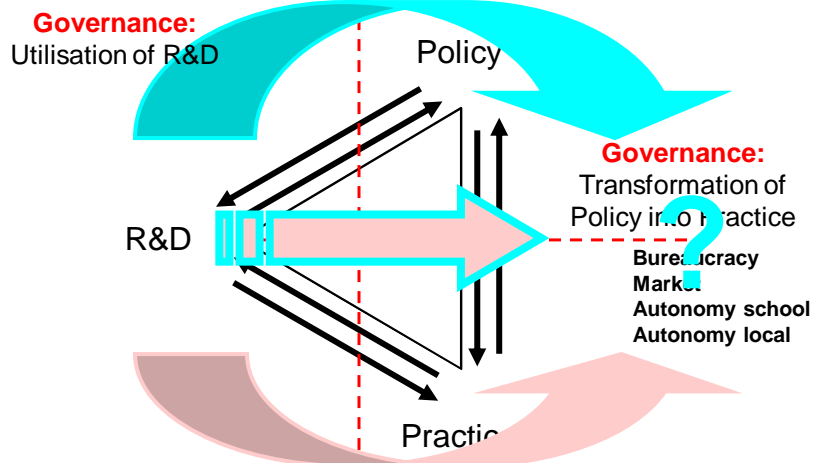
Transfer of R&D into P&P 2 Divisions



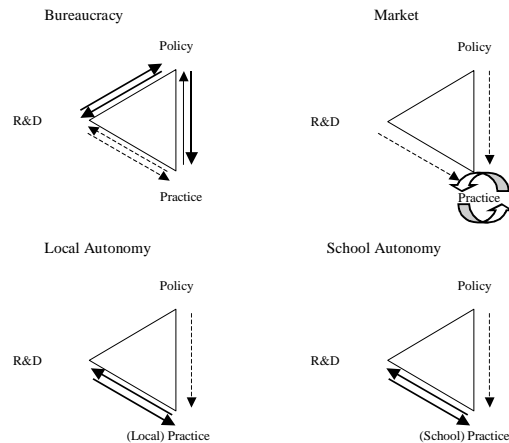
Transfer of R&D into P&P 3 channels



Transfer of R&D into P&P 3 channels



Relations EBPP and governance types



Main messages

- Education economics brings us important stylised insights and tools for analysis, however, implementation at national/systems level needs additional analysis
- Governance structures matter for efficiency
- Results of economic research are often against intuitive reasoning (little influence of extension of resources), and different views economics-pedagogy
- Educational R&D needs attention for policy and practice
- Governance matters for use of educational research
- Relation of innovation and growth important for education and training policy (VET & HE)

The End

**Thank you
for your attention!**

Material

www.equi.at