LLAKES
CENTRE FOR LEARNING AND LIFE CHANCES IN KNOWLEDGE ECONOMIES AND SOCIETIES

LLAKES is an ESRC-funded research centre led by the Institute of Education, University of London

# Skills and educational attainments around the world. The role of upper secondary education

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# Overview of LLAKES work on upper secondary/post-15 education

- Education systems characteristics and skills
- School-based programmes (after-school programmes) and educational achievement
- School-based social mechanisms (preservation of peer group). Proposing a model of educational attainment including both social and economic payoffs

# Education system characteristics and students skills' level and inequality

Most of the research on cross-country variation in students' skills has focused on students aged 9 to 15 using PISA and TIMSS data

More equal skills distributions and higher skills levels are likely to occur in countries when there is

- ❑ Early selection into tracks and types of schools
- ❑ Resources (+-)
- ❑ External exit exams
- ❑ Standardisation in curriculum and assessment

More unequal skills distributions and higher skills levels are likely to occur in countries where there is

- ❑ A higher proportion of privately funded schools

# Independent impact of upper secondary education?

- Tracking in upper secondary education has a distinctive significance as this phase precedes labour market entry
- Differentiation at the upper secondary level is likely to exacerbate skills inequality and lower skills levels
- However, when the vocational tracks are less segregated, have common curriculum elements, have a higher level of esteem in respect to the general track the effect of tracking might be mitigated or there could be a positive effect

# Hypotheses: larger life-course gains and mitigation of inequality are expected in systems with

- Greater standardisation across pathways with regard to the mandatory inclusion of Maths and the national language and the length of programmes

- More inclusive systems with high rates of ISCED3 completion and lower inequality of opportunity in ISCED3 attainment

- With greater ‘parity of esteem’ between academic and vocational tracks

# A typology of upper secondary education system types

- School-based general and vocational programs in different institutions (**Czech Republic, Denmark, Estonia, France, Finland, Greece, Italy, Japan, Poland and Russia**)
- Comprehensive school-based general and vocation provision in one institution (North American version: **Canada, USA**; North European version: **Norway; Sweden** )
- Tracked School-based general education and Dual Systems of Apprenticeship (**Austria, Germany**, Switzerland)
- Mixed Systems (Australia, **England, Northern Ireland, Ireland**, Scotland, **Spain** and New Zealand)

# A pseudo-cohort analysis

- Changes in literacy and numeracy skills after lower secondary schooling are estimated using a pseudo cohort derived from 15 year olds in PISA 2000 and 27 year olds in the Survey of Adult Skills, conducted 11 years later (proxied by 25-29s)

- The two surveys use different questions but are based on similar principles for assessing practical competences

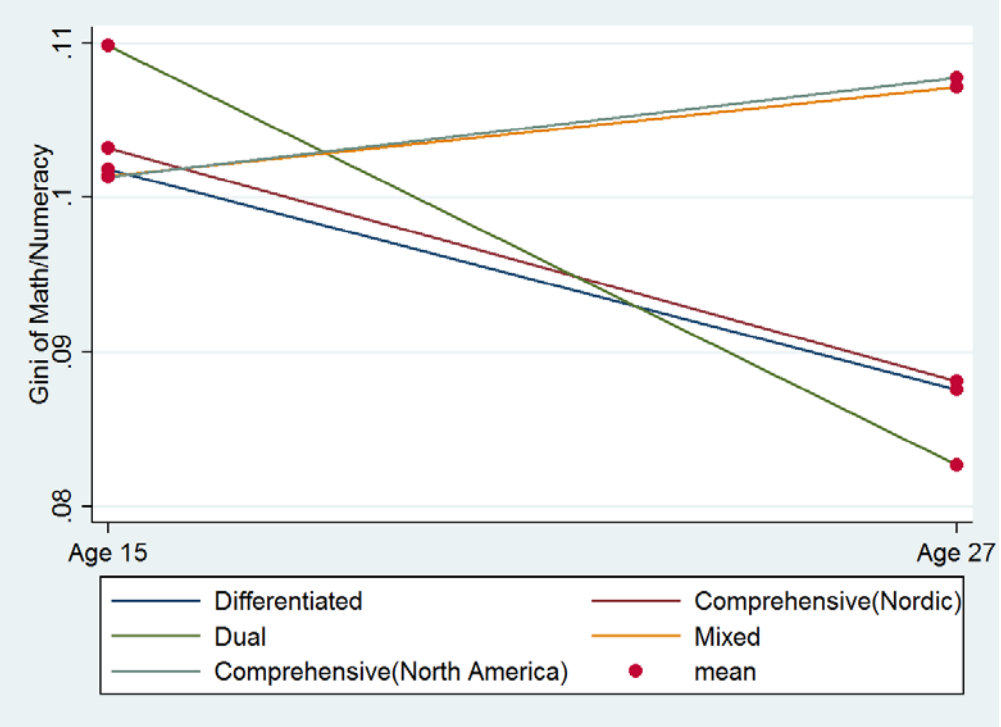
- Inequalities in skills distributions are measured using Gini coefficients

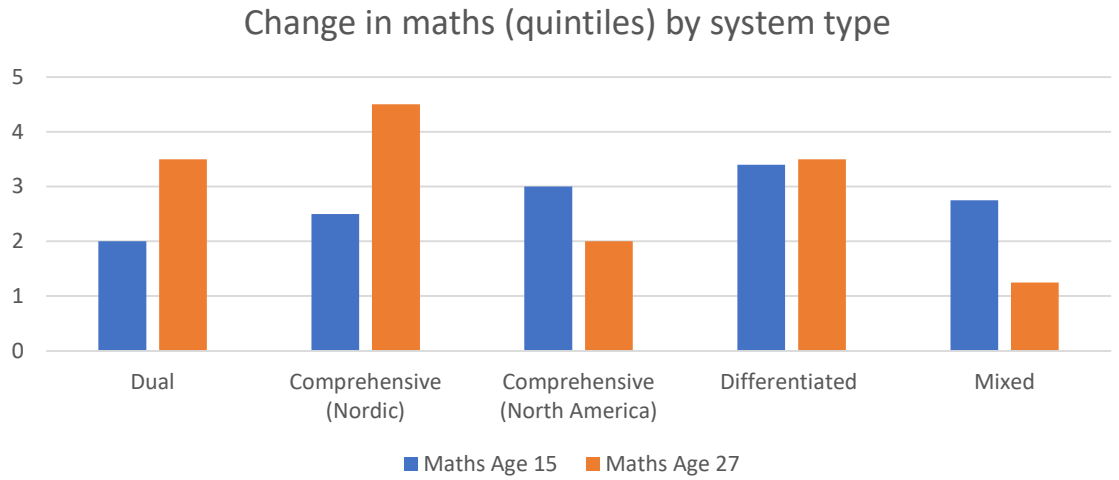
- Inequality of skills opportunity (the social gaps in achievement) is measured by comparing skills achievements of those with graduate parents compared to the those with parents with no more than lower secondary education (ratio)

- Difference-in-difference (DID) strategy. Comparing the over-time change across countries with different characteristics

$$\gamma = (\bar{i}\text{treat,after} - \bar{i}\text{treat,before}) - (\bar{i}\text{control,after} - \bar{i}\text{control,before})$$

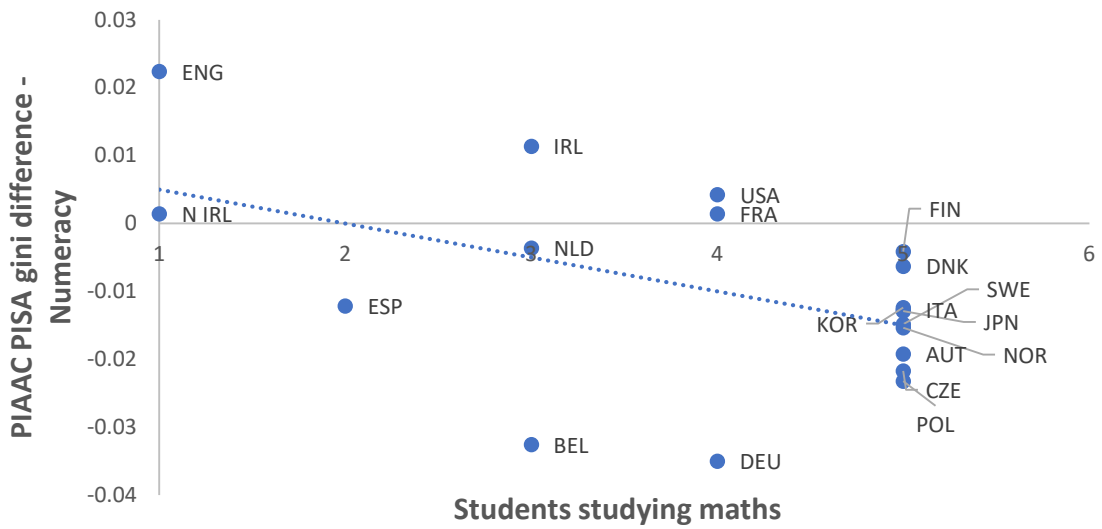
# Change in skills by education system - Numeracy

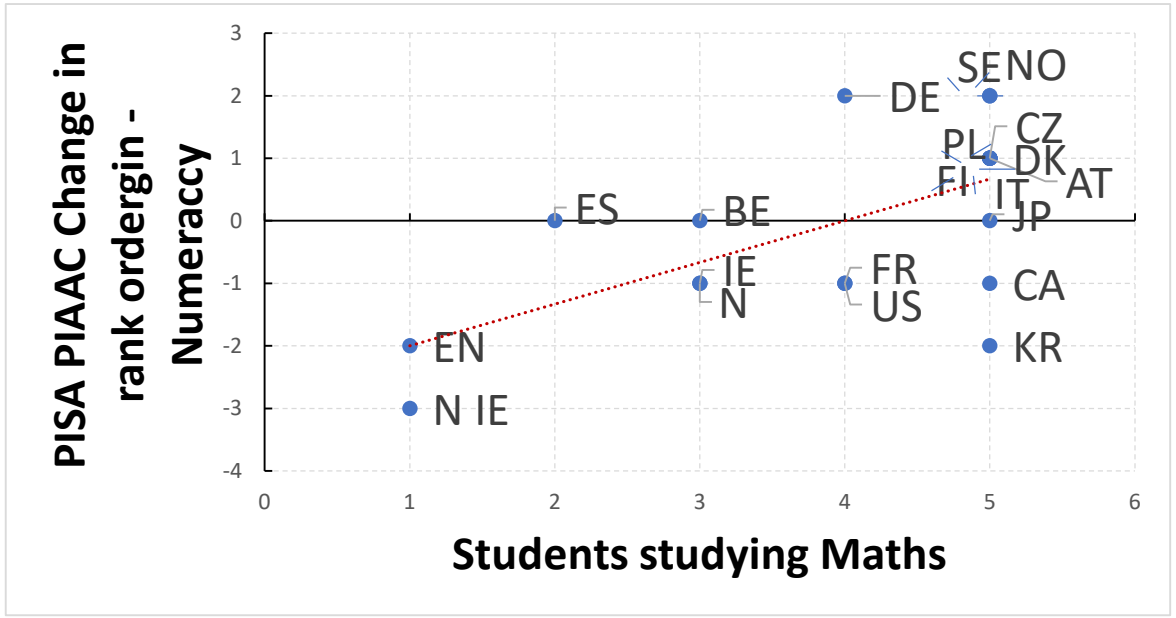



Countries are rank ordered by average competence levels for each test and score distributions are divided into five quintiles of countries

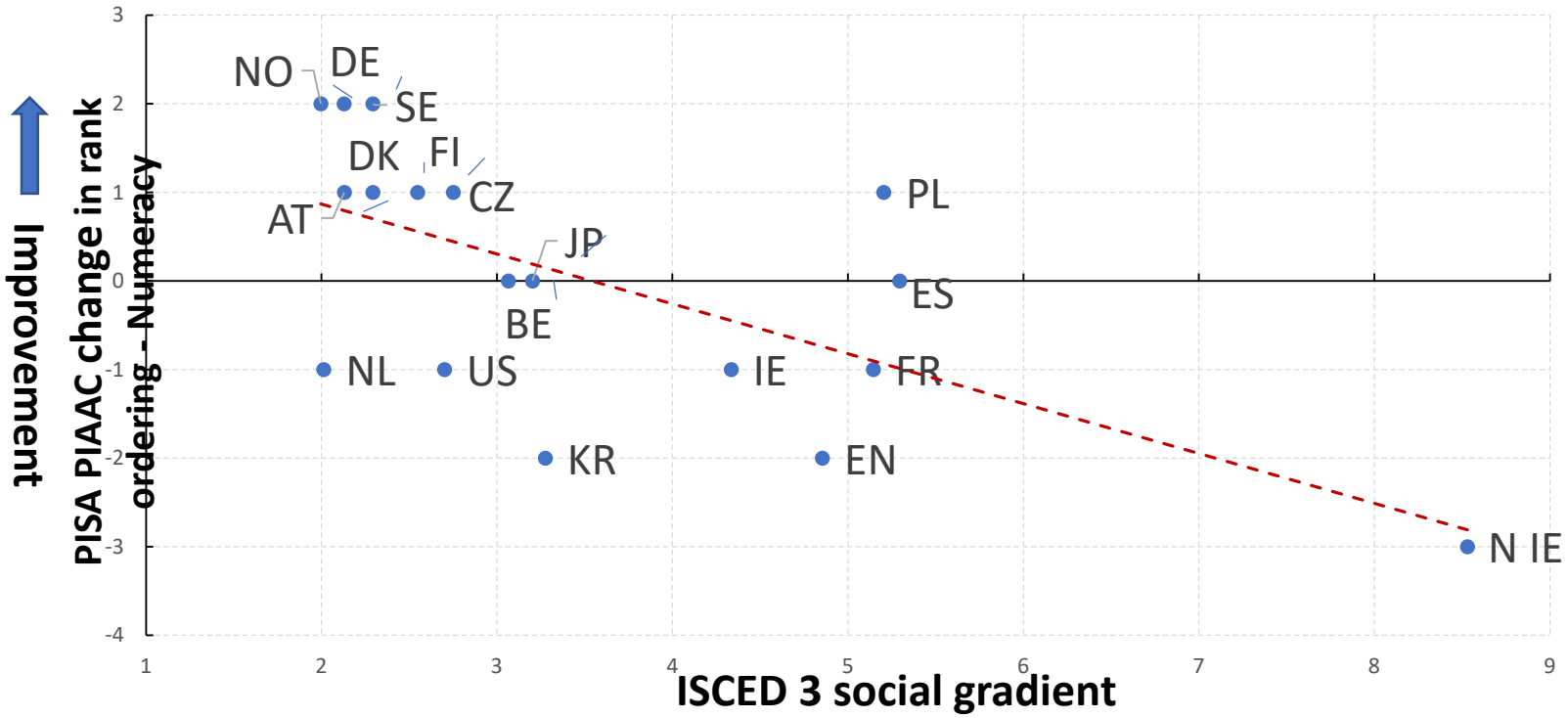
# Prevalence of maths study and skills



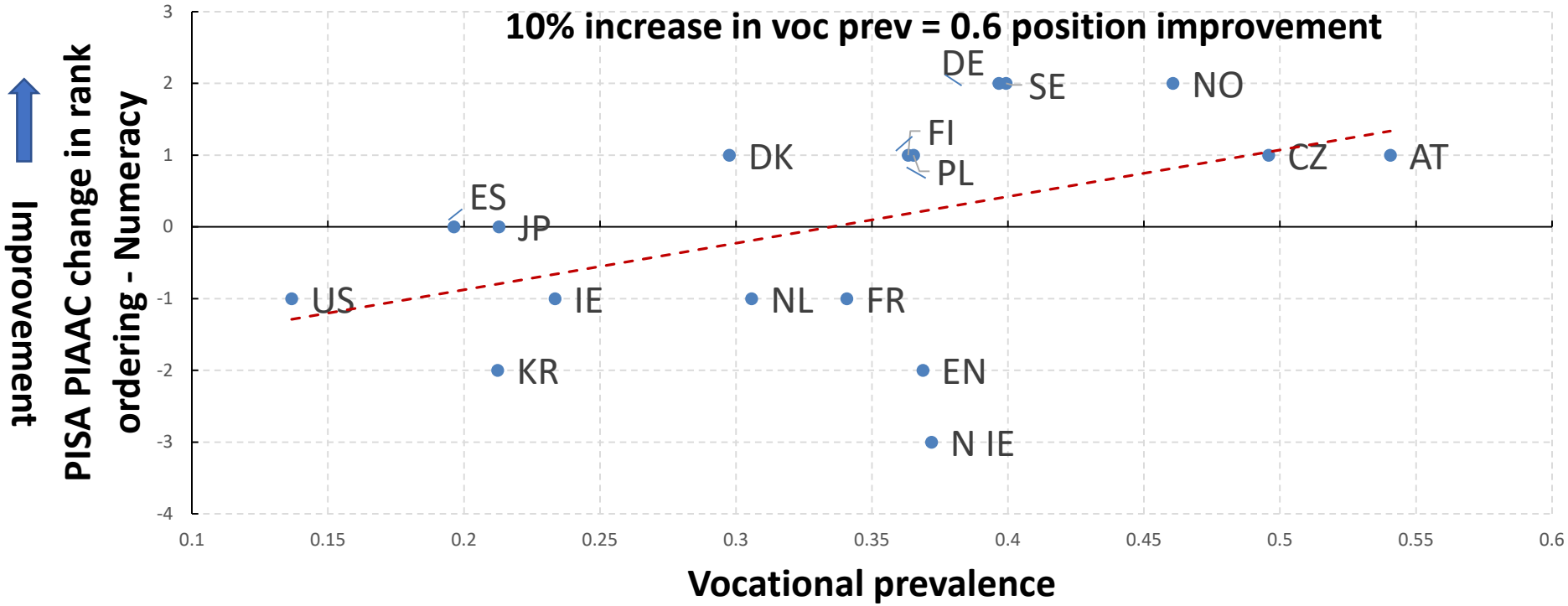




1 = 0-5%; 2= 6-20%; 3=21-50%; 4 = 51-80% and 5 = 81-94%

# The effect of social gradient of ISCED3 completion



# Vocational prevalence and skills



# Summary of the results

- The system characteristics most associated with skills:
  - High rates of completion at the full ISCED Level 3, mostly for skills inequality
  - HE entry rates, only for skills levels
  - Lower inequality of opportunity in ISCED level 3 attainment
  - Mandatory maths and national language learning on all programs
  - Relative parity of esteem between vocational and academic programmes
  - student-teacher ratio, only for skills levels

- Countries with Dual Systems (Austria and Germany) which combine all of these appear best at mitigating skills inequality and improving skills levels

- Central and eastern European countries and Nordic countries with high level 3 completion and low inequality of opportunity and mandatory core learning also seem relatively successful

- Countries with mixed systems with low level 3 completion, diverse program lengths and without mandatory maths and language learning are least successful

# School-based programmes: effectiveness of out-of-school-time (OST) study groups

- Can OST compensate for previous disadvantage and reduce the achievement gap between children from differing socio-economic groups?

| **The effect of teacher-led study groups at age 14/15 (year 10) on academic performance (GCSE scores, year 11) by social class: a PSM model for each group** | | |
|---|---|---|
| Social class | | |
| Long term unemployed and Routine occupations | 10.7* | |
| Semi-routine and Lower supervisory occupations | -2.8 | |
| Small employers and intermediate occupations | -0.1 | |
| Lower managerial and lower managerial occupations | 2.3 | |

- The analysis by subgroup shows that teacher-led study group are particularly beneficial to lower class students
- The effect for unemployed and routine classes amounts to 11 points=improving 2 grades in 1 subject or 1 grade in two subjects (out of best 8 GCSEs)

# What next?

- We are planning to extend our analysis of the effect of system characteristics
  - Using the second round of SAS/PIAAC
  - Trying to single out the effect of the upper secondary education by choosing different age groups

# What next?

- Educational choices and social interactions. Reassessing educational strategy in a divided society
  - Analysis of class differences in intentions to pursue higher education among those with equal academic attainment offering a more complete theoretical framework of the decision-making processes which considers *both* economic and social returns.