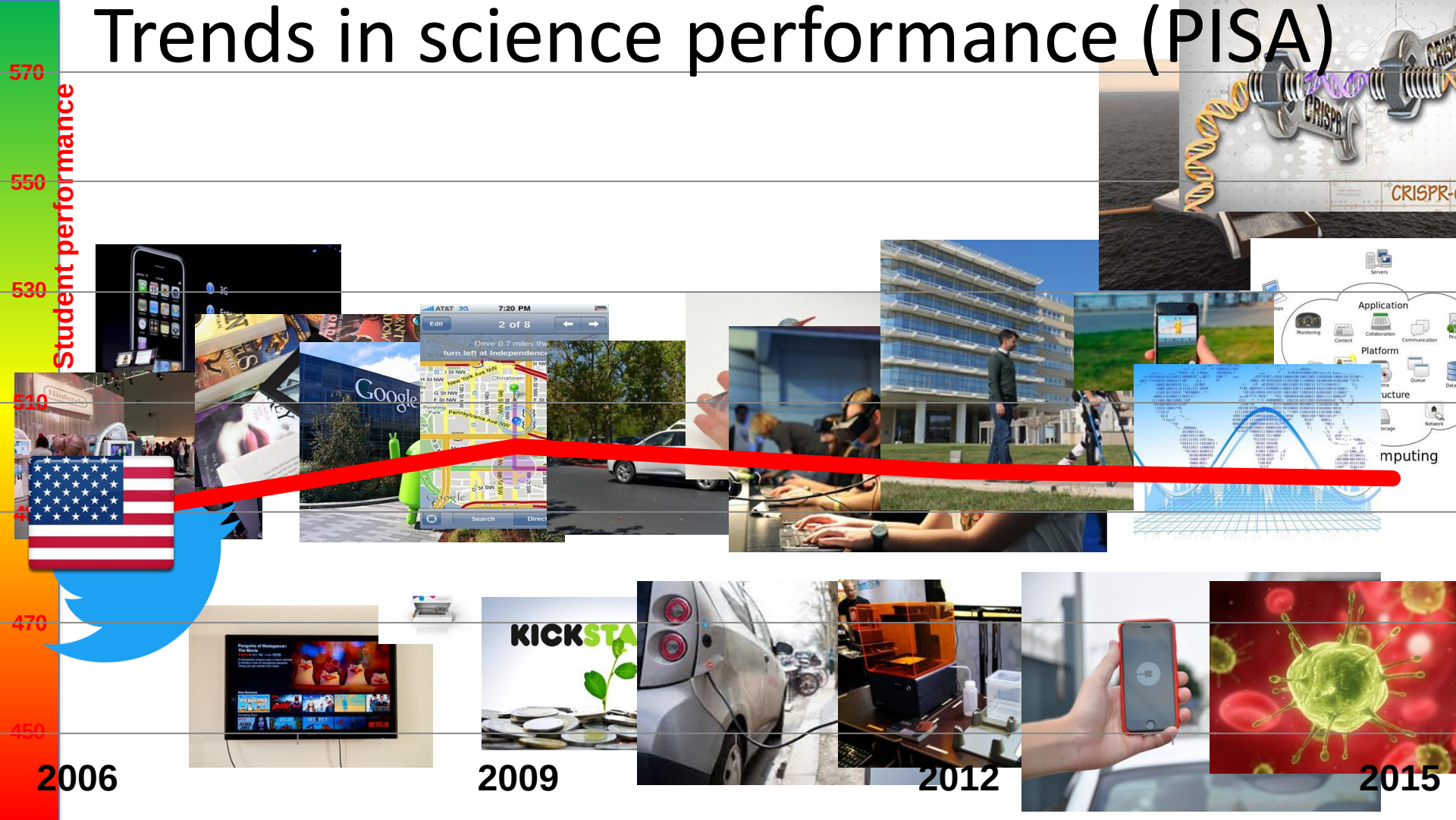
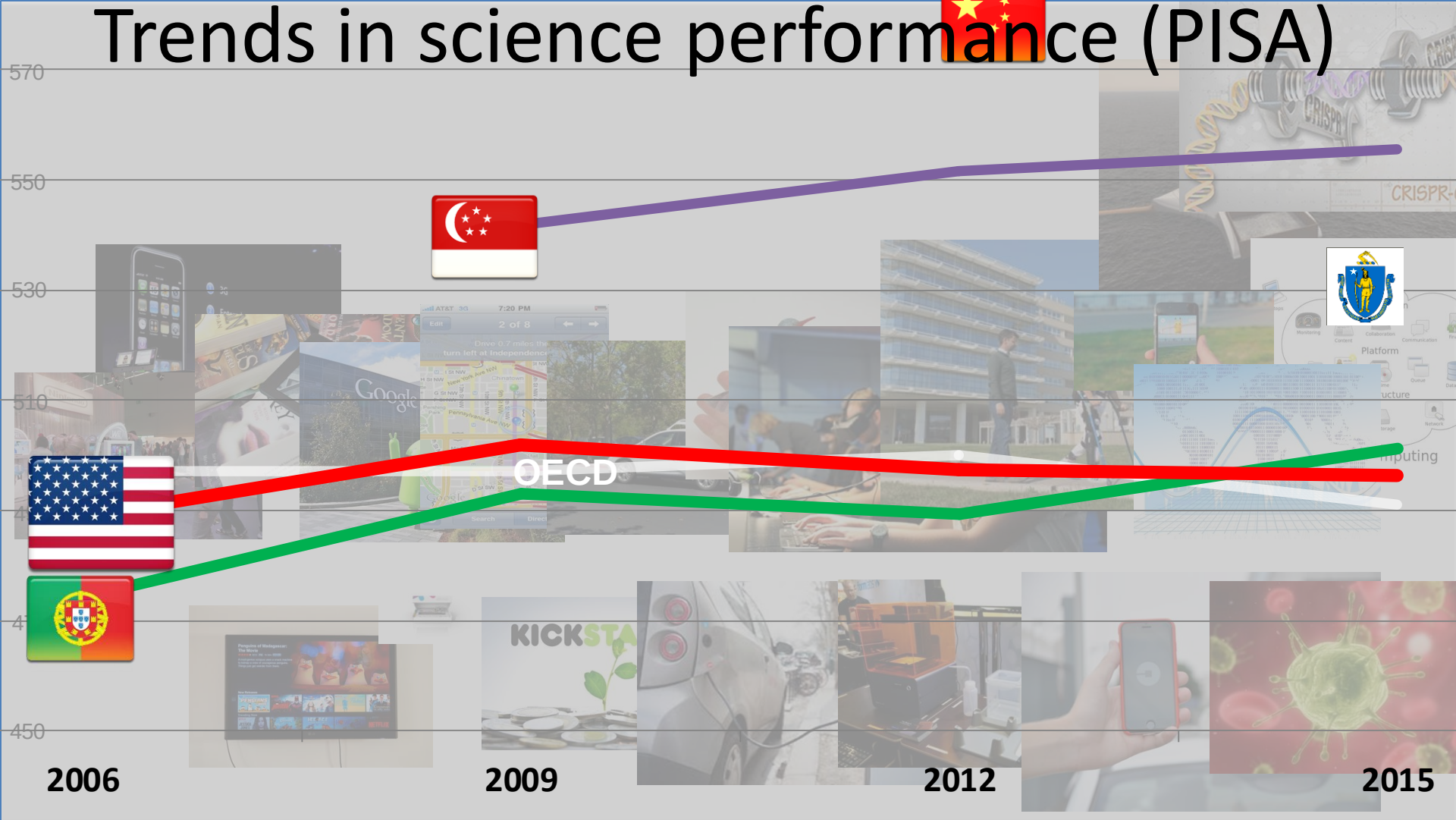
Reform
November 18

Andreas Schleicher

Trends in science performance (PISA)



Trends in science performance (PISA)



Money is necessary but not sufficient

Spending per student from the age of 6 to 15 and science performance

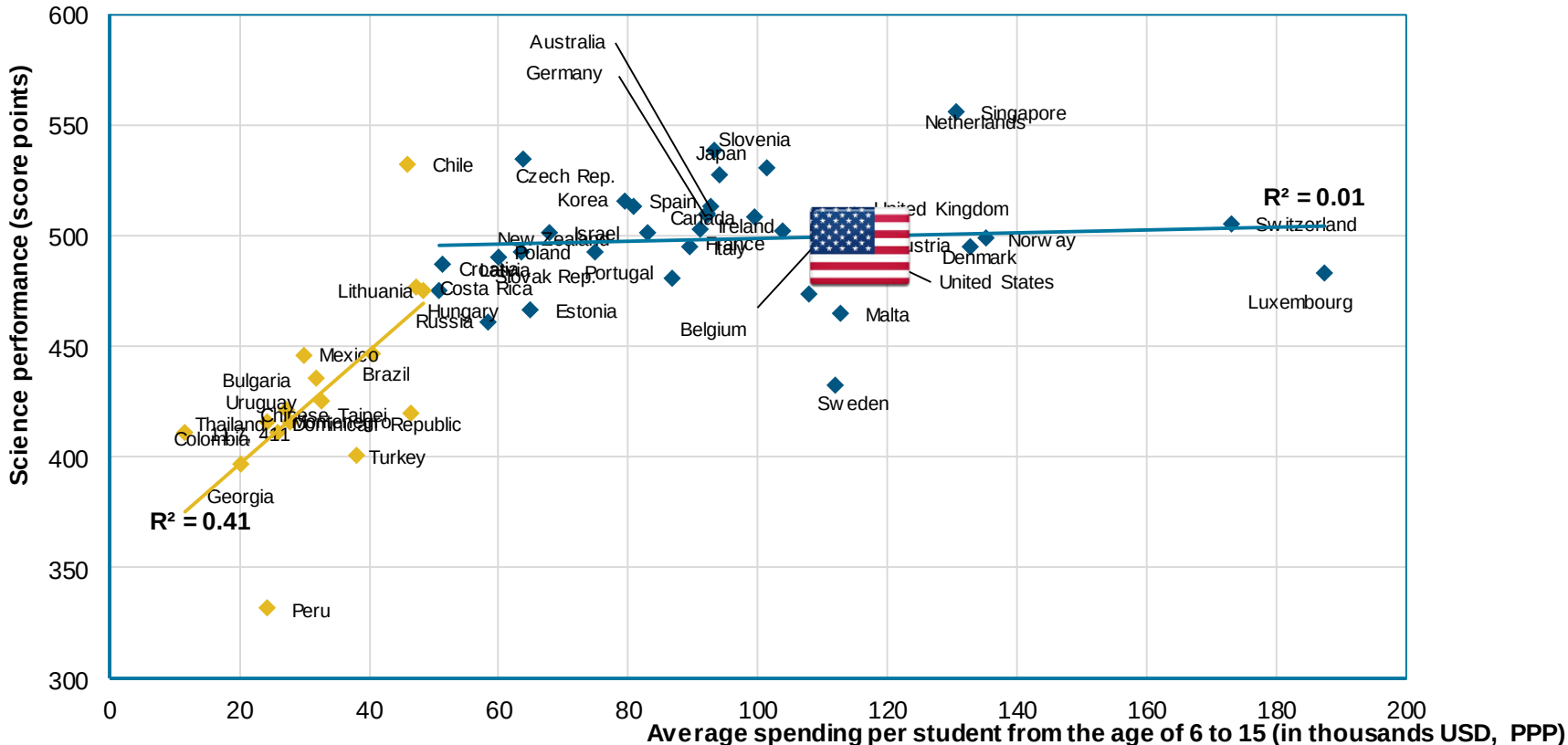
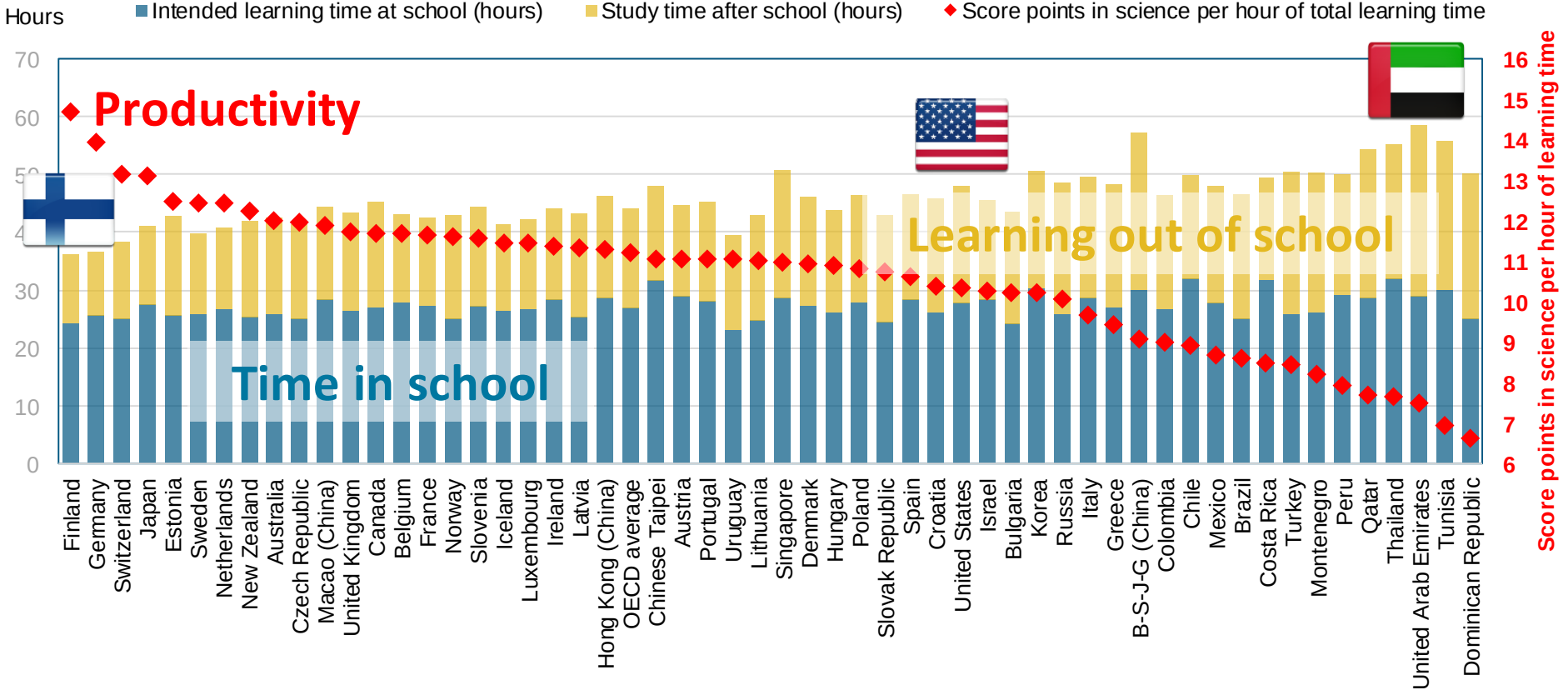


Figure II.6.23

Learning time and science performance (PISA)



Changing education can be like moving graveyards

- The status quo has many protectors
  - Everyone supports reform – except for their own children
  - Even those who promote reforms often change their mind when they understand what change entails for them
- The frogs rarely clear the swamp
  - The loss of privilege is pervasive because of the extent of vested interests
- Asymmetry of costs and benefits of educational reform
  - Costs are certain and immediate, benefits are uncertain and long-term
- Lack of supportive ecosystems
  - Lack of an 'education industry' that pushes innovation and absorbs risks
  - A research sector that is often disengaged from the real needs of real classrooms
- You can lose an election but you don't win one over education
  - Complexity and length of reform trajectory that extend electoral cycles
  - A substantial gap between the time when the cost of reform is incurred, and the time when benefits materialise

When fast gets really fast, being slow to adapt makes education really slow

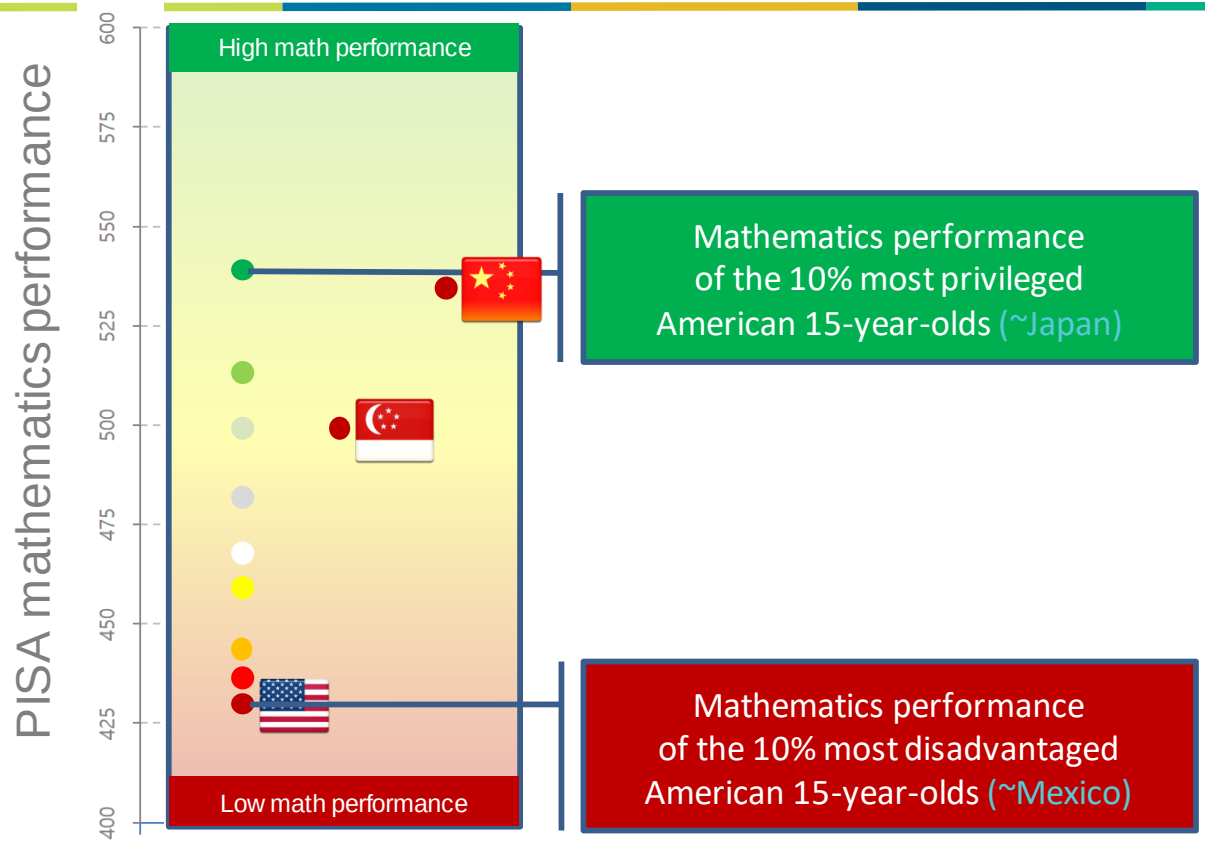
Industrial systems		World class systems
Some students learn at high levels	Student inclusion	**All** students need to learn at high levels
Routine cognitive skills	Curriculum, instruction and assessment	Complex ways of thinking and working
Standardisation and compliance	Teacher education	High-level professional knowledge workers
'Tayloristic', industrial	Work organisation	Flat, collegial, entrepreneurial
Primarily to authorities	Accountability	Primarily to peers and stakeholders


Some learn at high levels


All learn at high levels

Poverty need not be destiny:

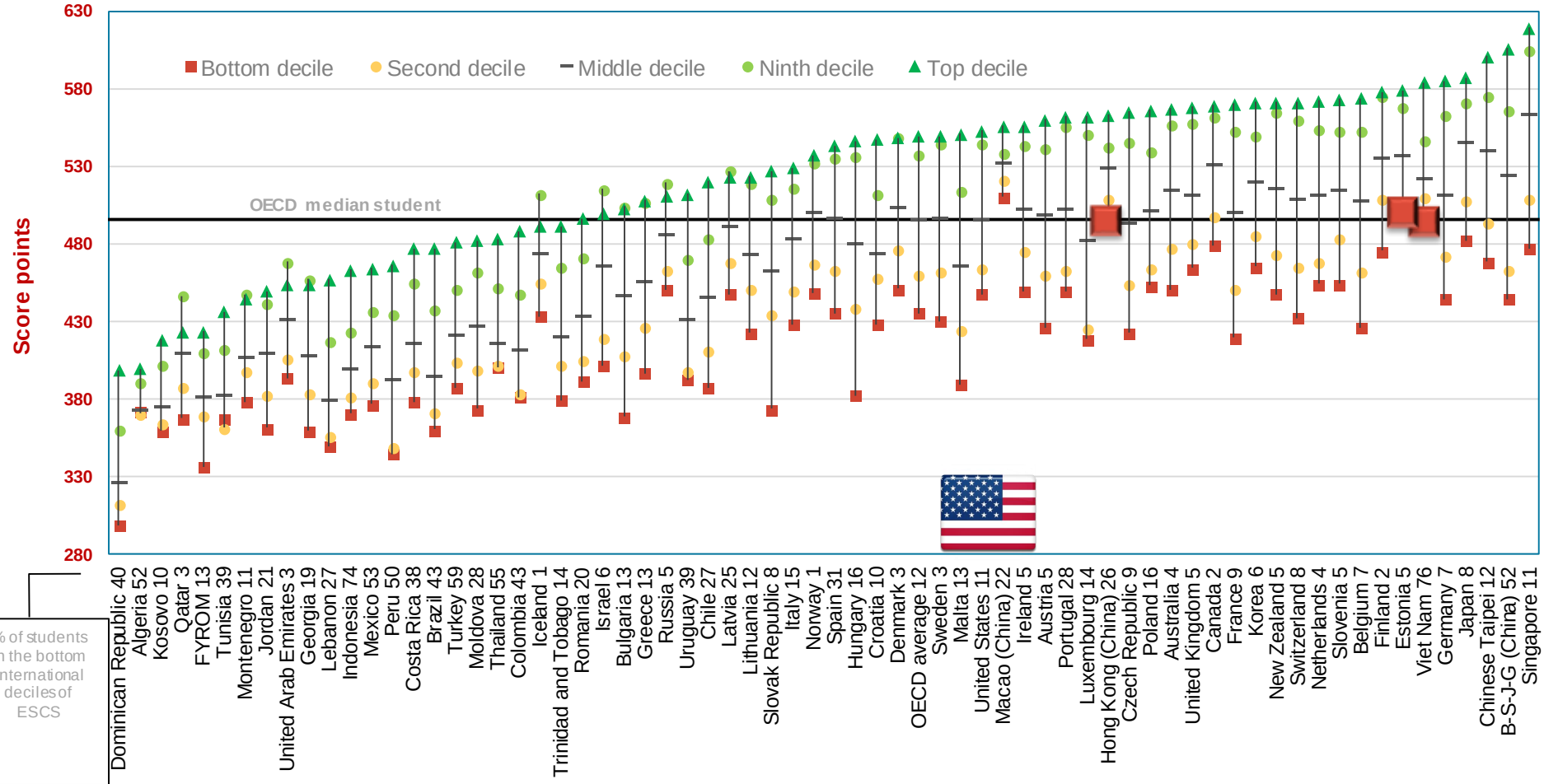
PISA math performance by decile of social background (2012)



Poverty need not be destiny

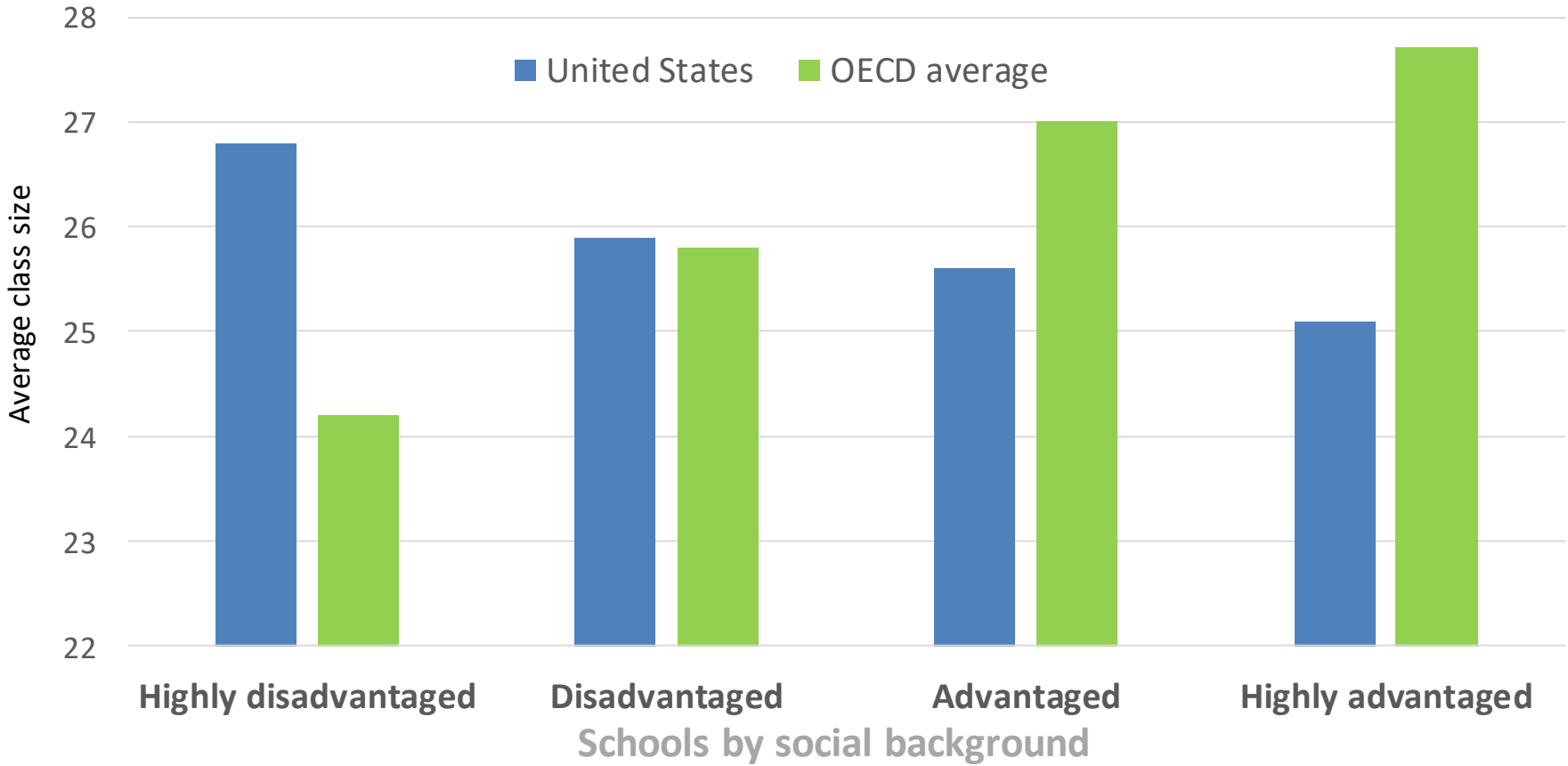
Figure I.6.7

Science learning outcomes by international deciles of economic, social and cultural status (ESCS) (2015)



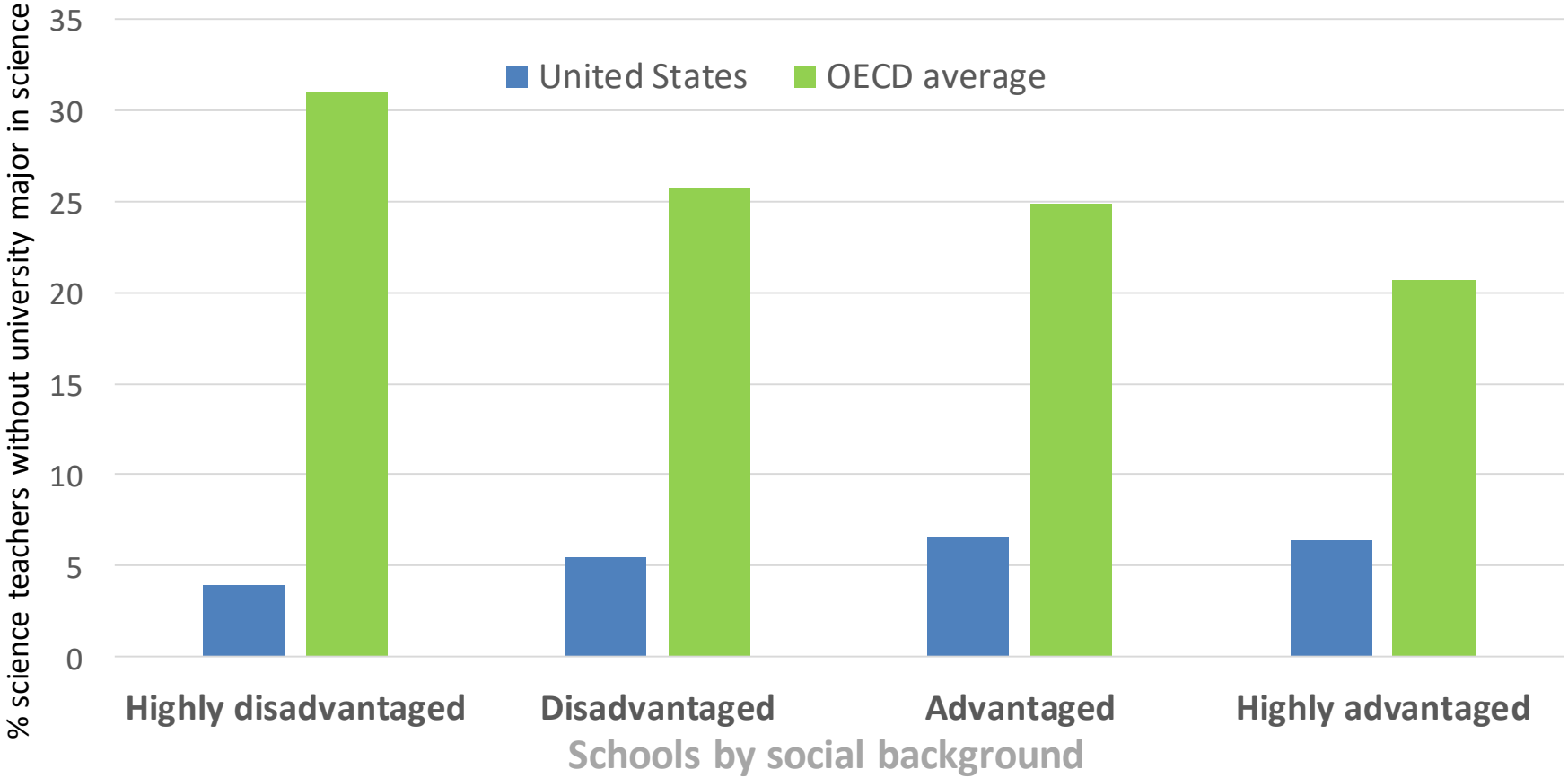
Aligning resources with needs

Average class size in <9th grade>, by quarter of school socio-economic profile

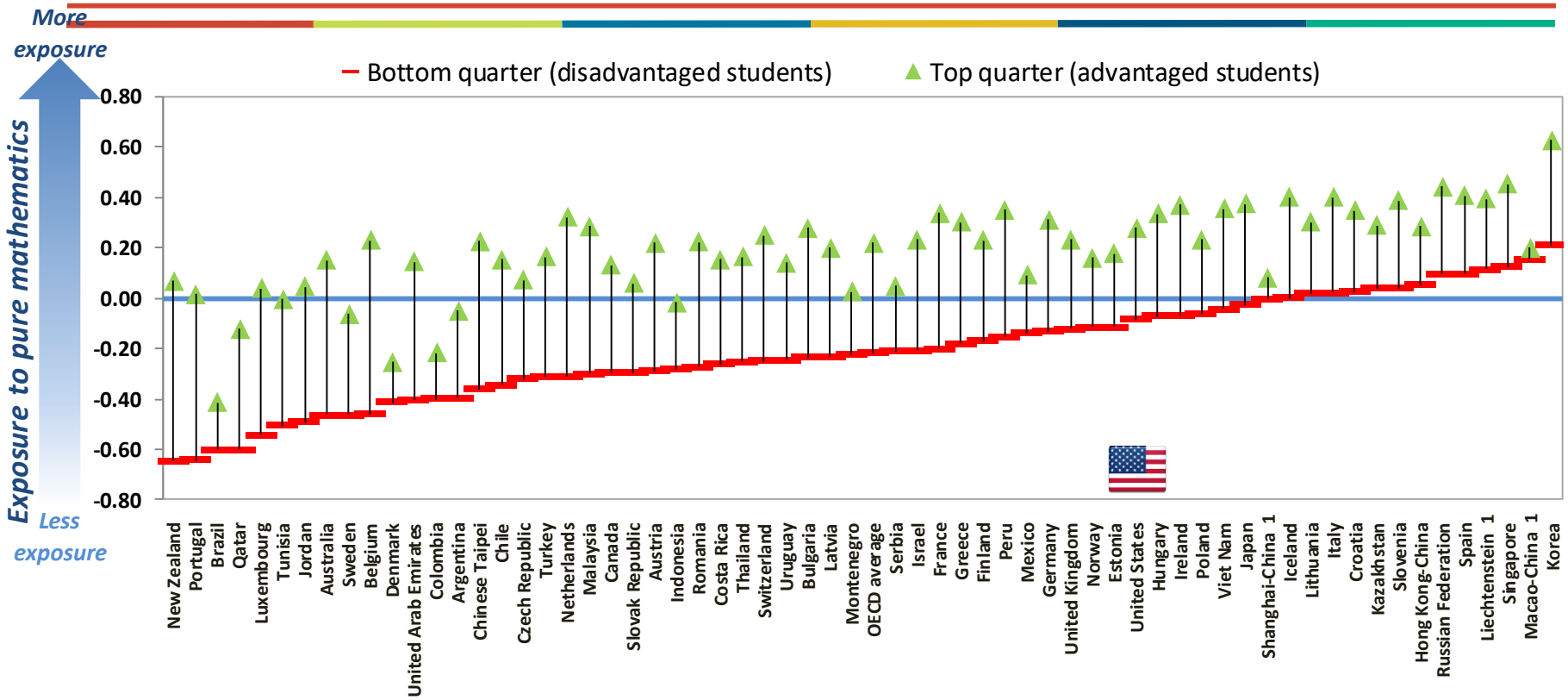


Aligning resources with needs

Science teachers without a university major in science, by school socio-economic profile (OECD Average)

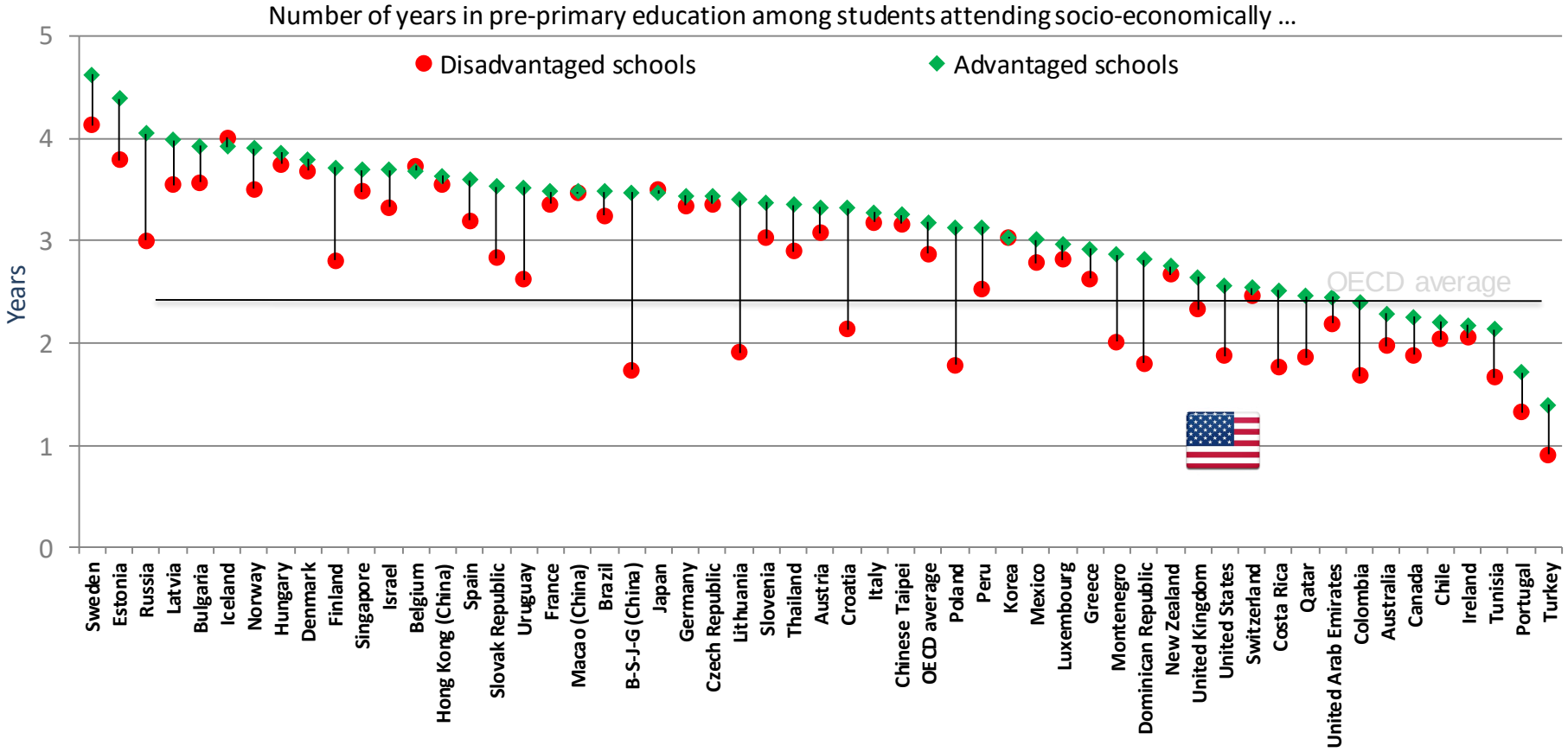


Students in disadvantaged schools have less exposure **conceptual understanding** in math



Attendance at pre-primary school

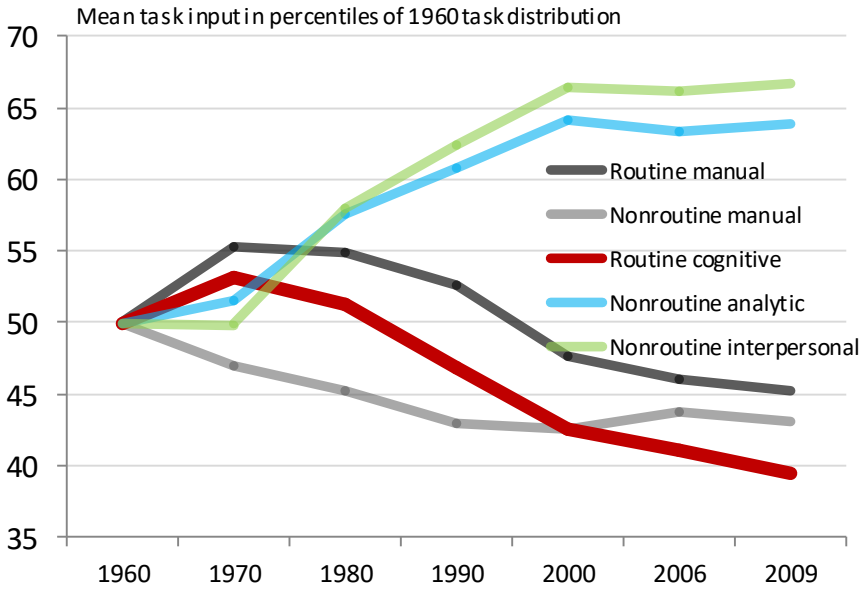
by schools' socio-economic profile




Reproducing knowledge


Creating knowledge
Think for yourself and work with others

The kind of things that are easy to teach are now easy to automate, digitize or outsource



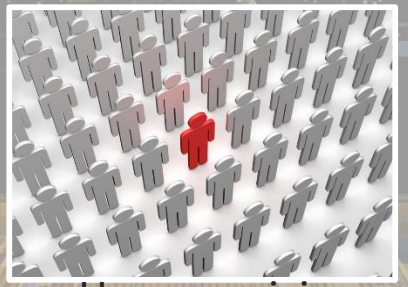
Digitalisation

Participating

Particularizing

Empowering

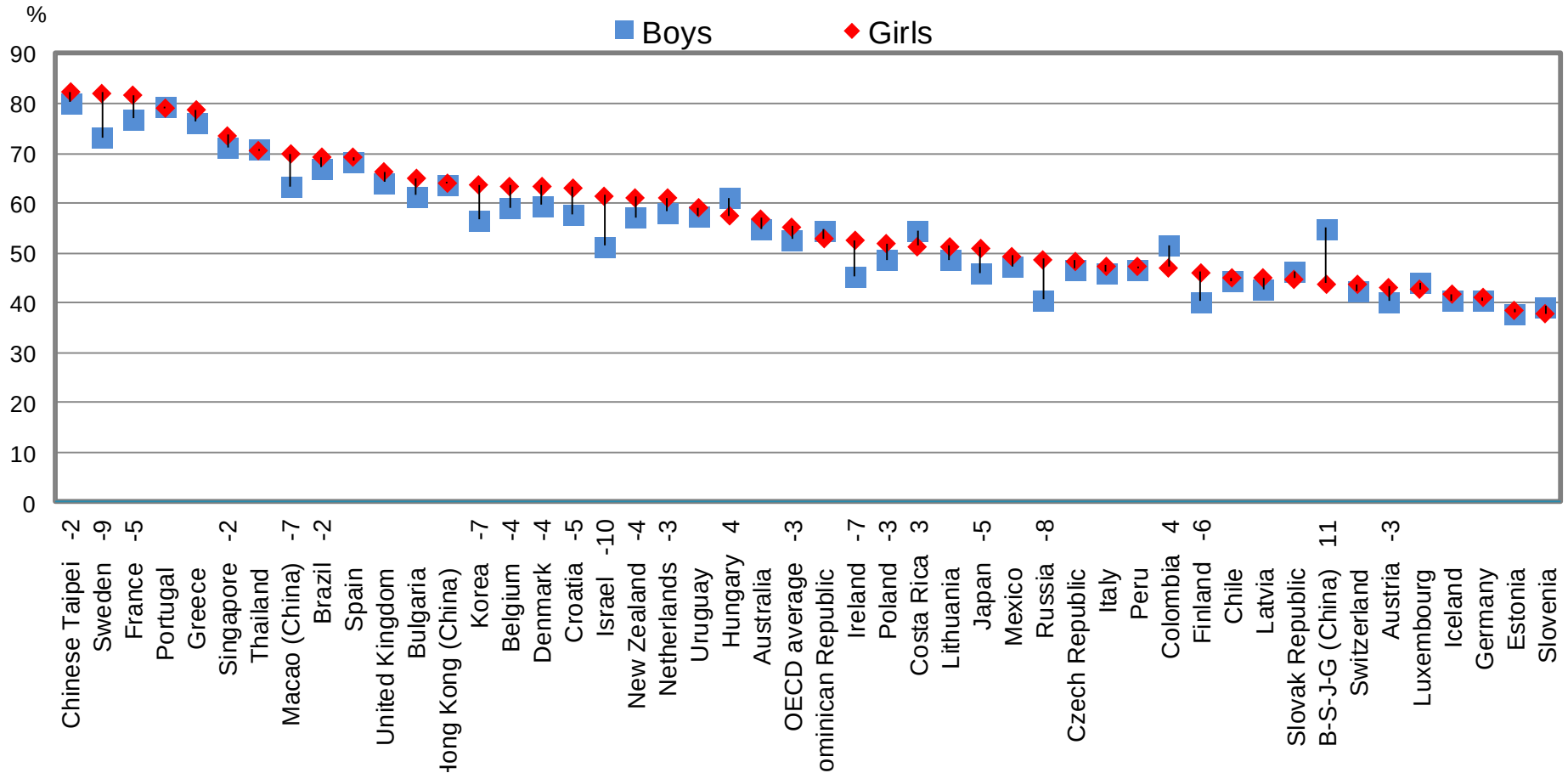
Concentrating



Homogenizing

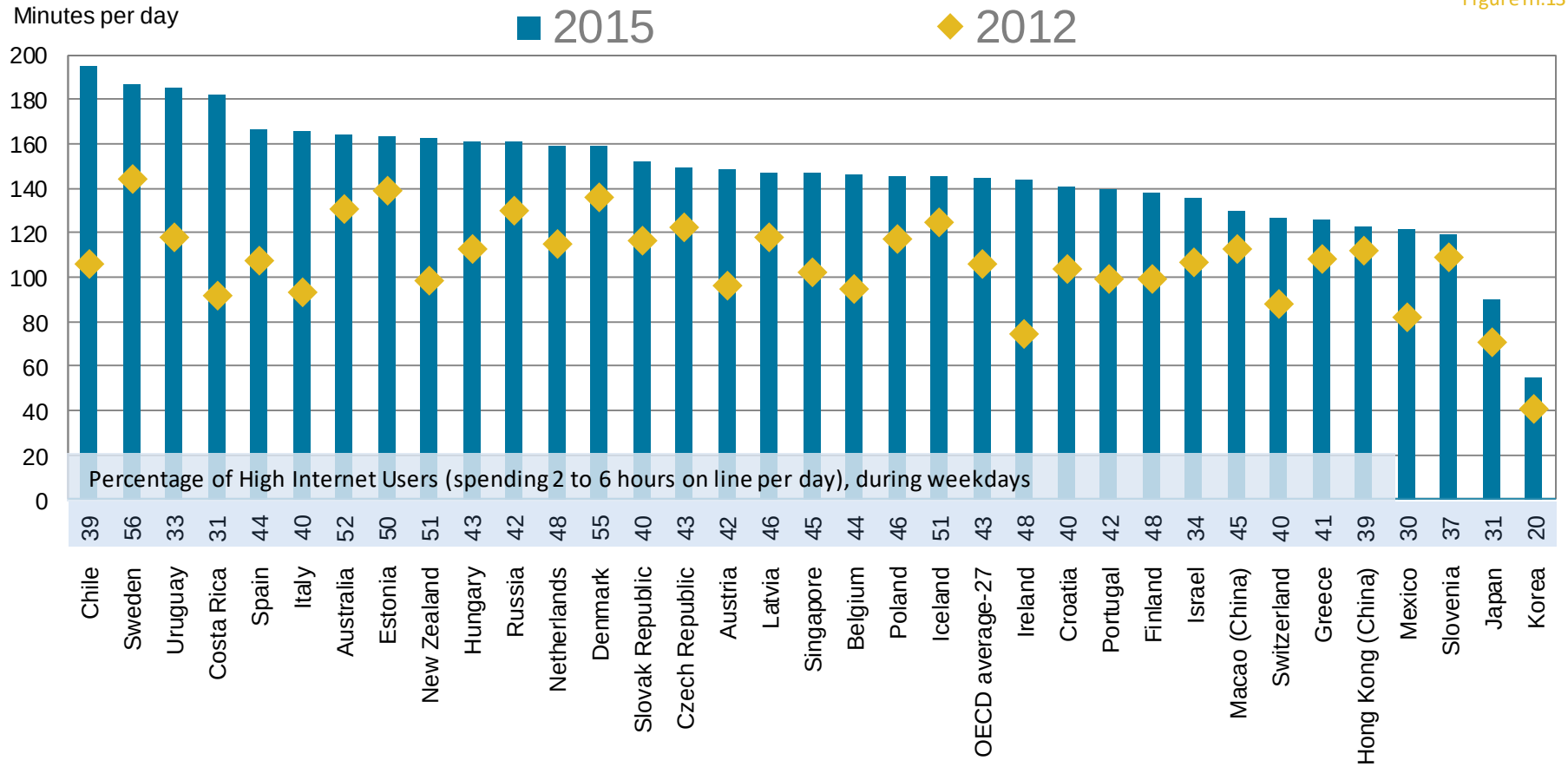
Disempowering

15-year-olds feeling bad if not connected to the Internet (PISA)

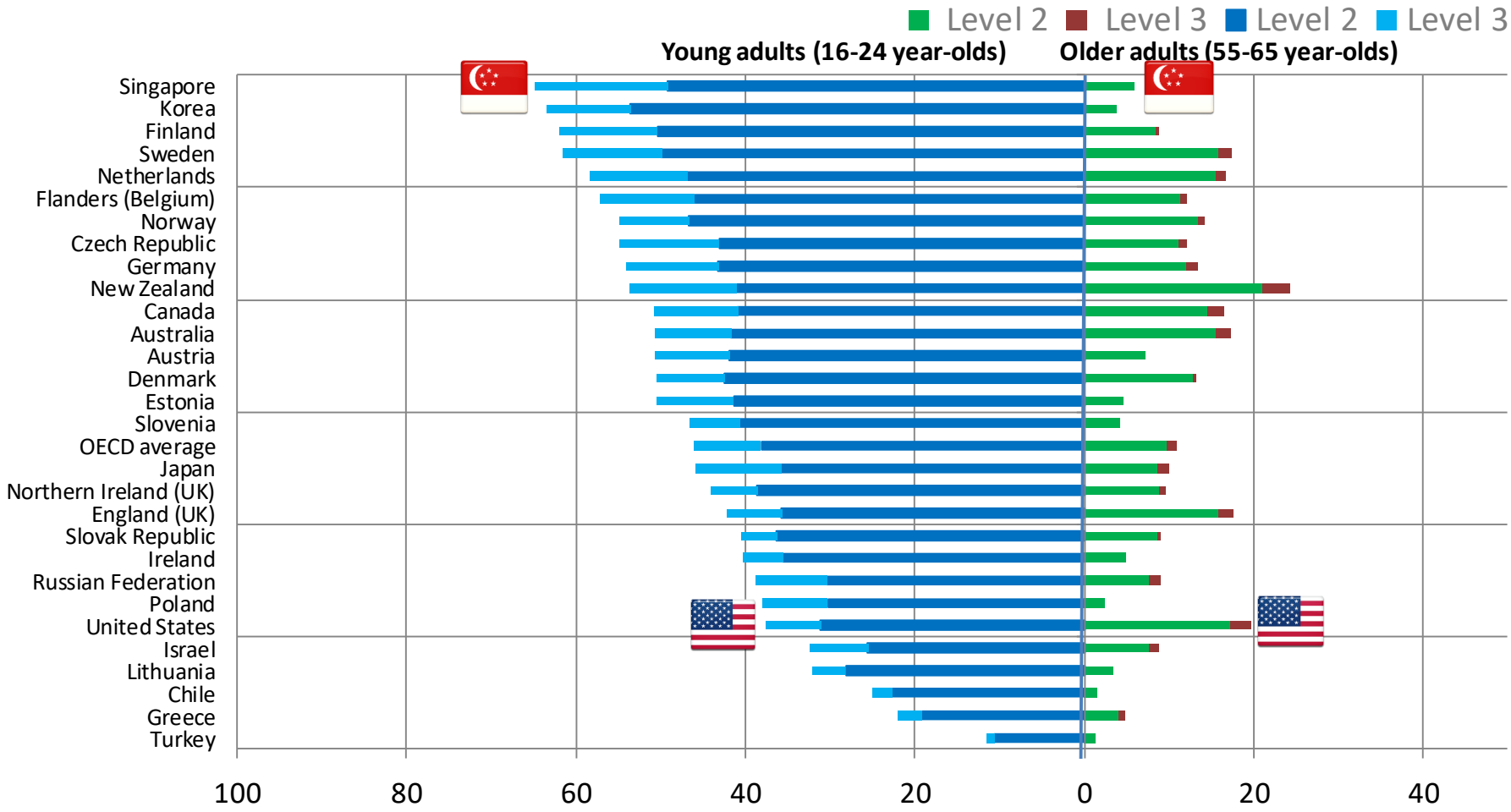


Students are using more time online outside school on a typical school day (PISA)

Figure III.13.3

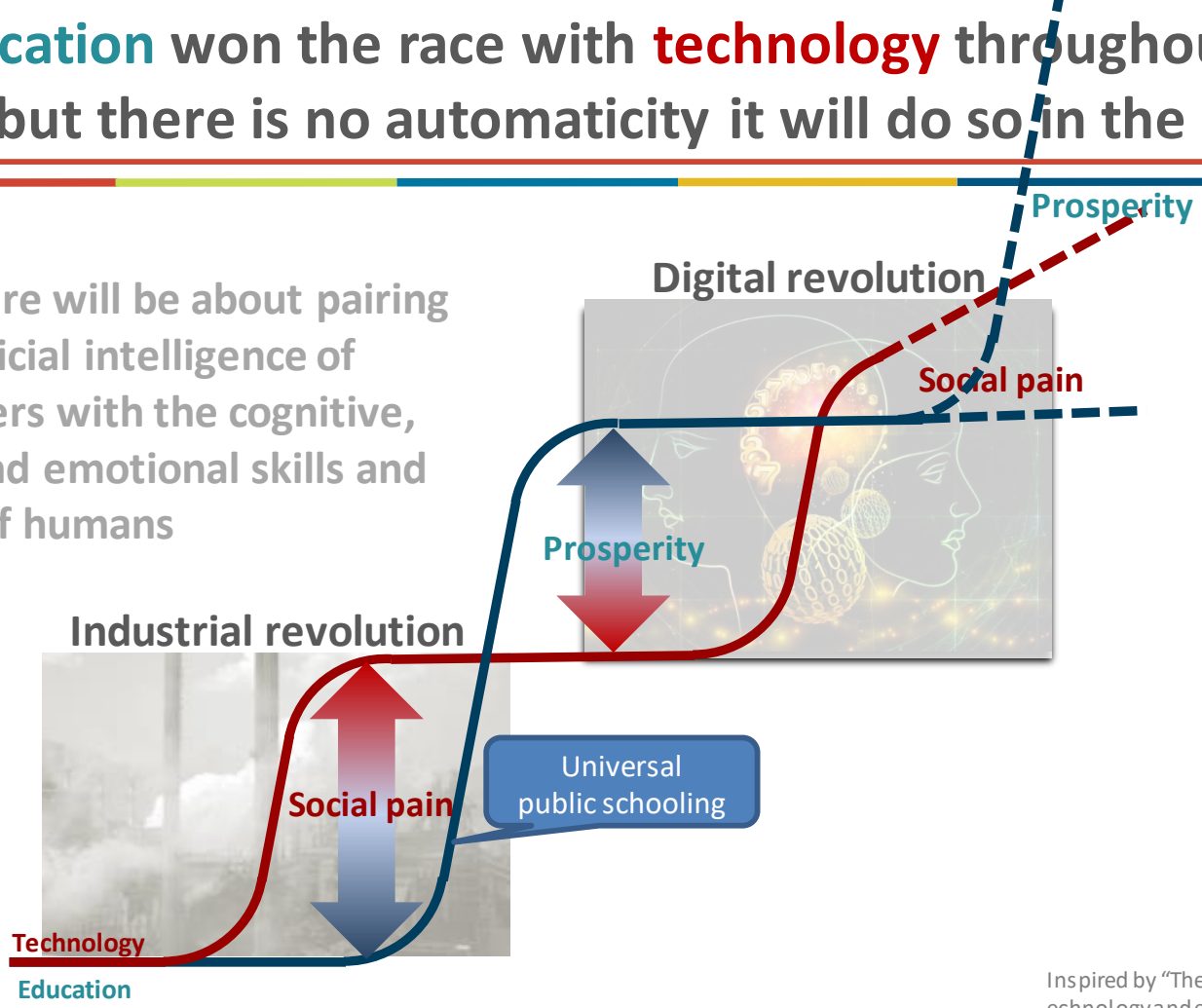


Skills to manage complex digital information



Education won the race with technology throughout history, but there is no automaticity it will do so in the future

The future will be about pairing the artificial intelligence of computers with the cognitive, social and emotional skills and values of humans



Inspired by "The race between technology and education"
Pr. Goldin & Katz (Harvard)

What teachers say and what teachers do


95% of teachers: My role as a teacher
is to facilitate students own inquiry


82%: Students learn best
by findings solutions on their own

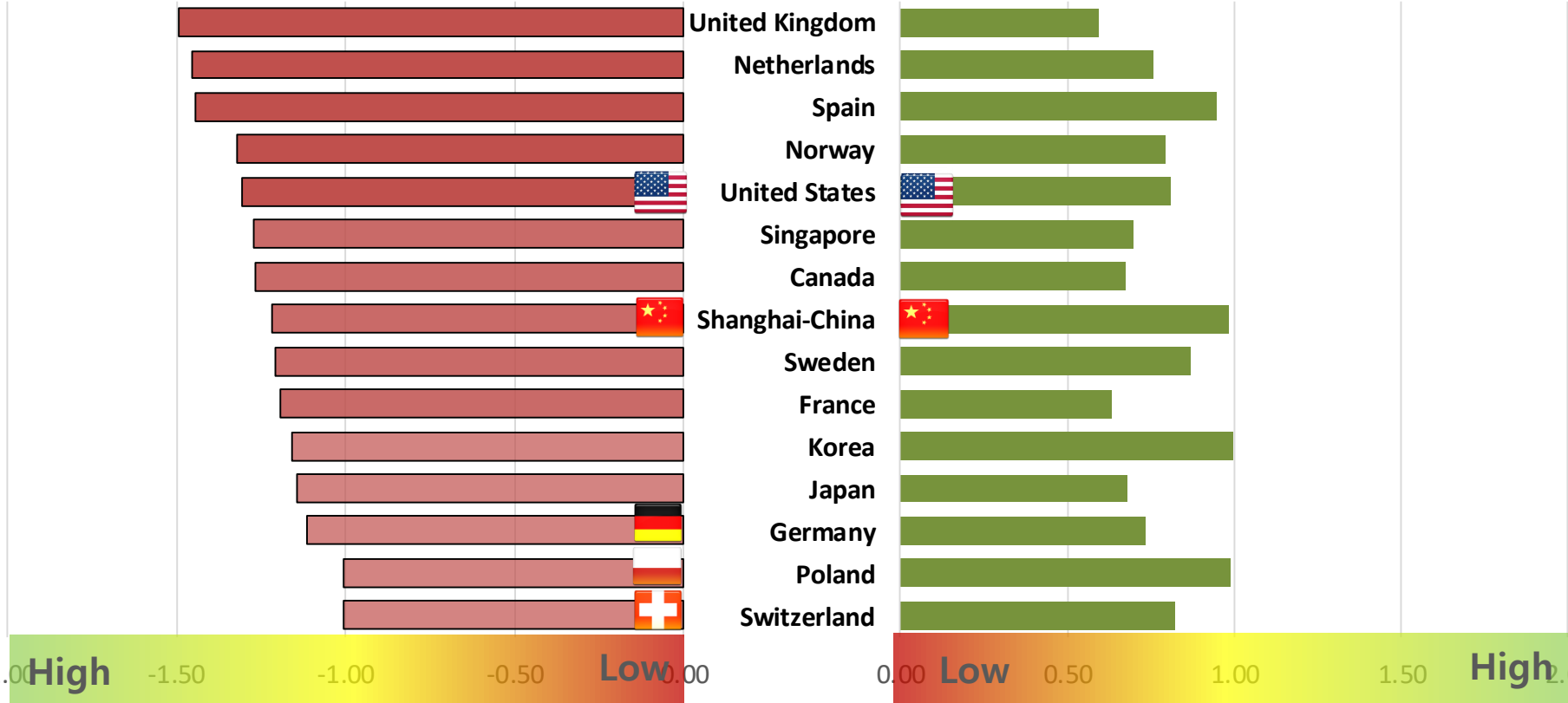
85%: Thinking and reasoning is more important than curriculum content

Prevalence of **memorisation**

rehearsal, routine exercises, drill and practice and/or repetition

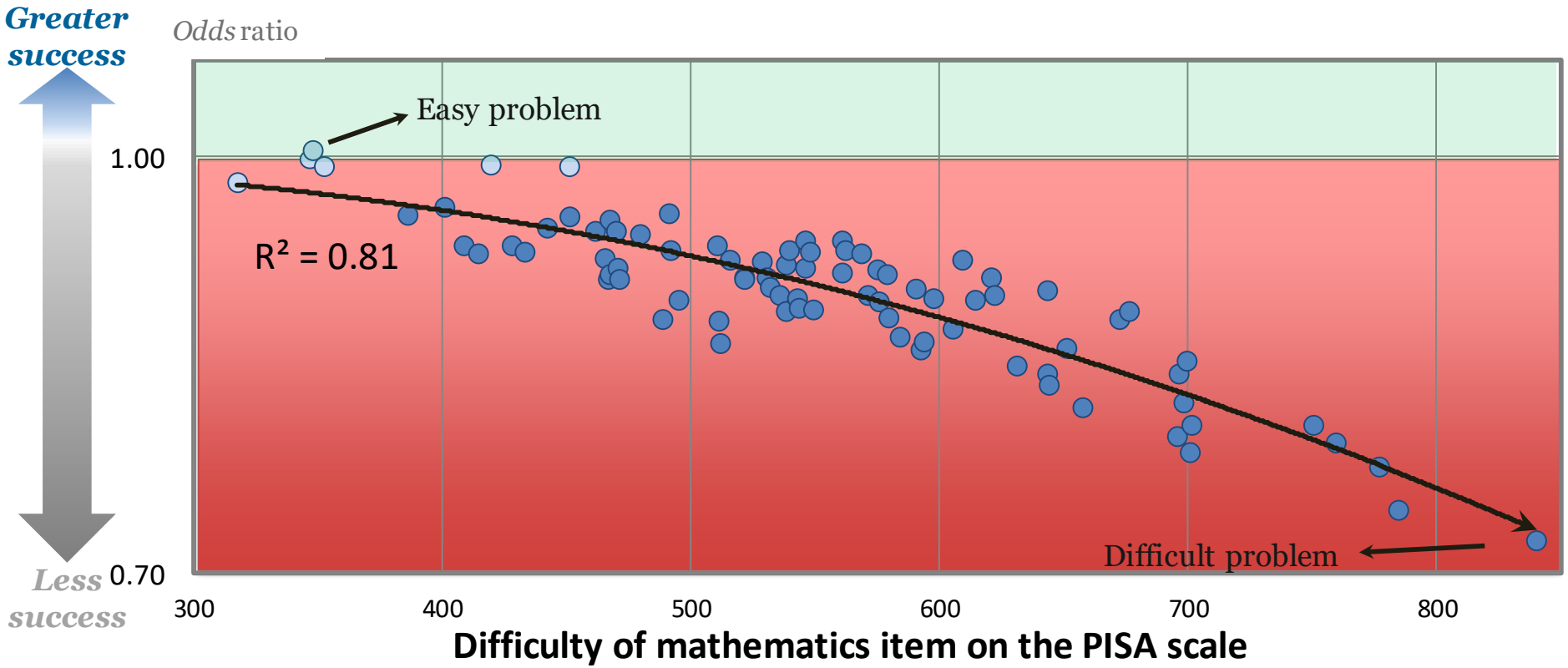
Prevalence of **elaboration**

reasoning, deep learning, intrinsic motivation, critical thinking, creativity, non-routine problems



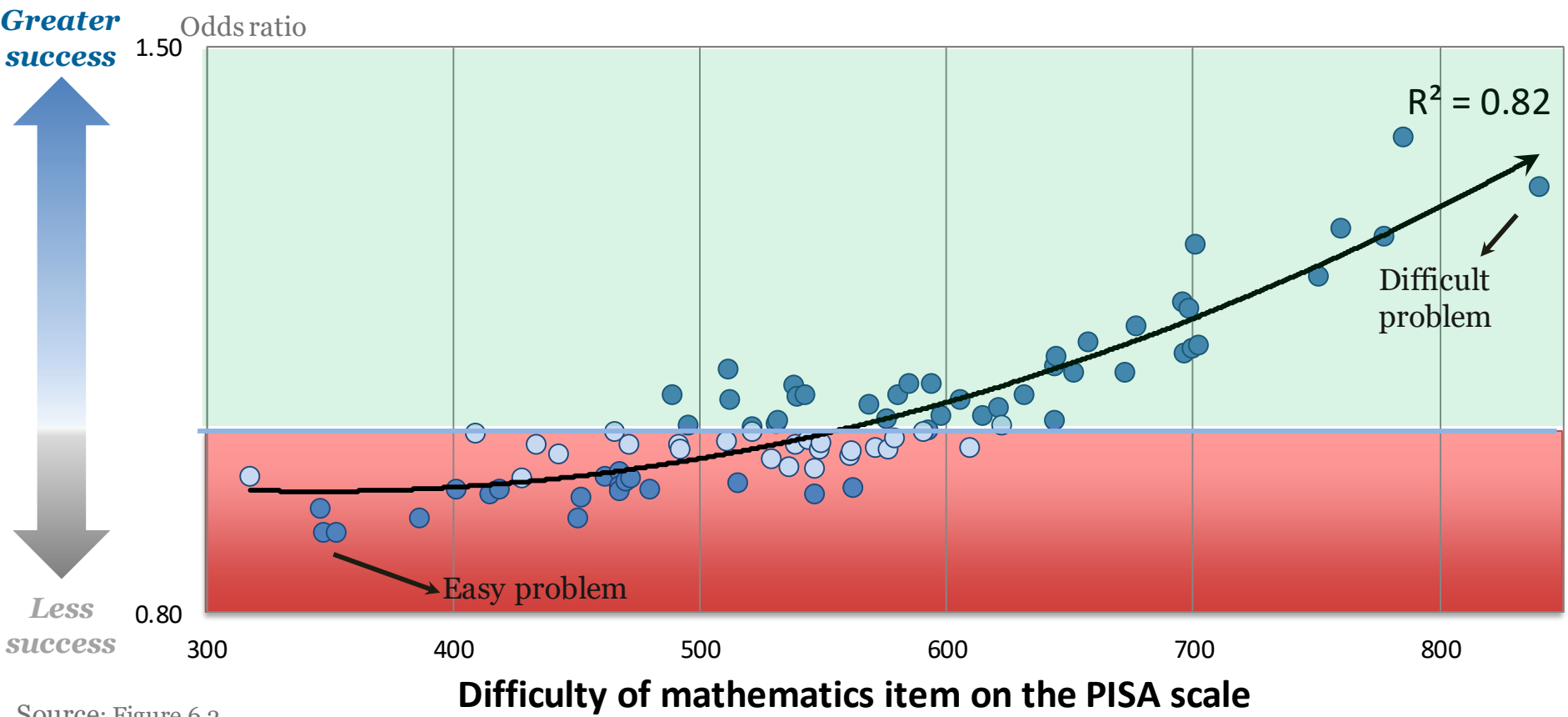
Memorisation is less useful as problems become more difficult

(OECD average)



Source: Figure 4.3

Elaboration strategies are more useful as problems become more difficult *(OECD average)*



Source: Figure 6.2

Some lessons from high performers

- Rigor, focus and coherence
- Remain true to the disciplines
  - but aim at interdisciplinary learning and the capacity of students to see problems through multiple lenses
  - Balance knowledge of disciplines and knowledge about disciplines
- Focus on areas with the highest transfer value
  - Requiring a theory of action for how this transfer value occurs
- Authenticity
  - Thematic, problem-based, project-based, co-creation in conversation
- Some things are caught not taught
  - Immersive learning propositions

The past was divided

Teachers and content divided by subjects and student destinations

Schools designed to keep students inside, and the rest of the world outside

The future is integrated

Integrated: Emphasising integration of subjects, integration of students and integration of learning contexts

Connected: with real-world contexts, and permeable to the rich resources in the community

Less subject-based, more project-based


Prescription

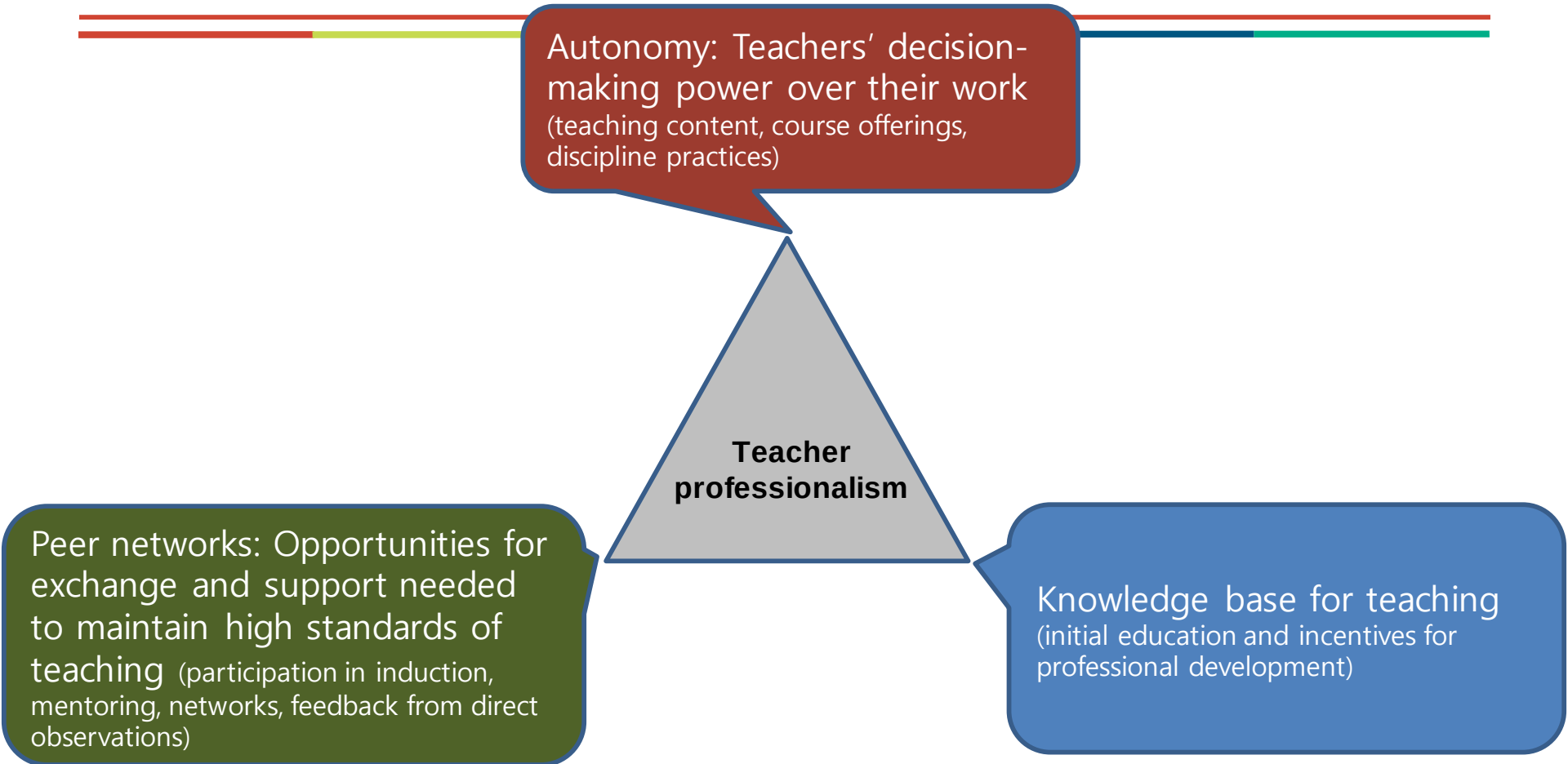
Ownership of professional practice

Powerful learning environments are constantly creating synergies and finding new ways to enhance professional, social and cultural capital with others. They do that with families and communities, with higher education, with other schools and learning environments, and with businesses.

Making teaching not just financially, but intellectually more attractive

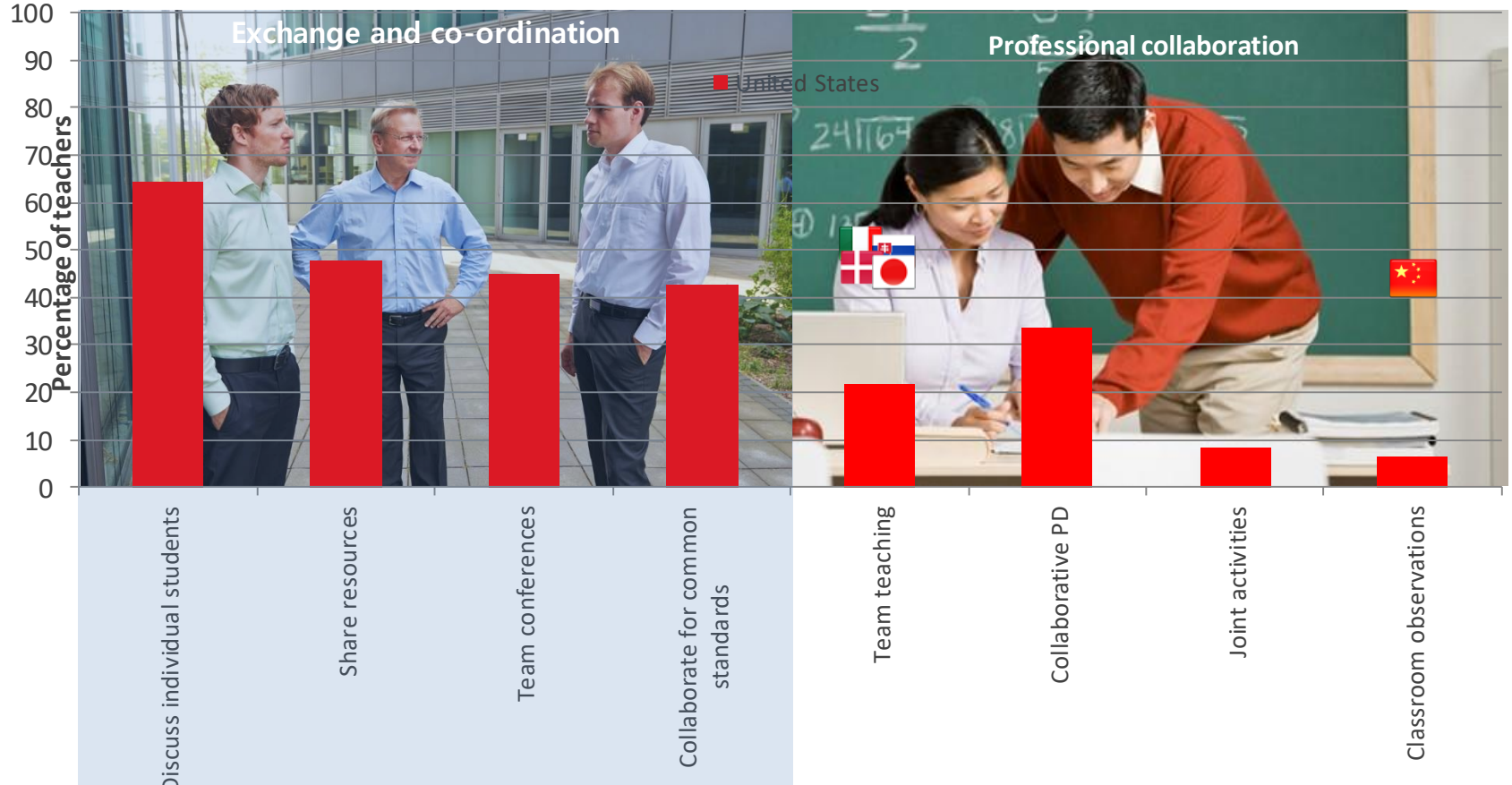
- Public confidence in profession and professionals
- Professional preparation and learning
- Collective ownership of professional practice
- Decisions made in accordance with the body of knowledge o the profession
- Professional responsibility in the name of the profession and accountability towards the profession

Policy levers to teacher professionalism

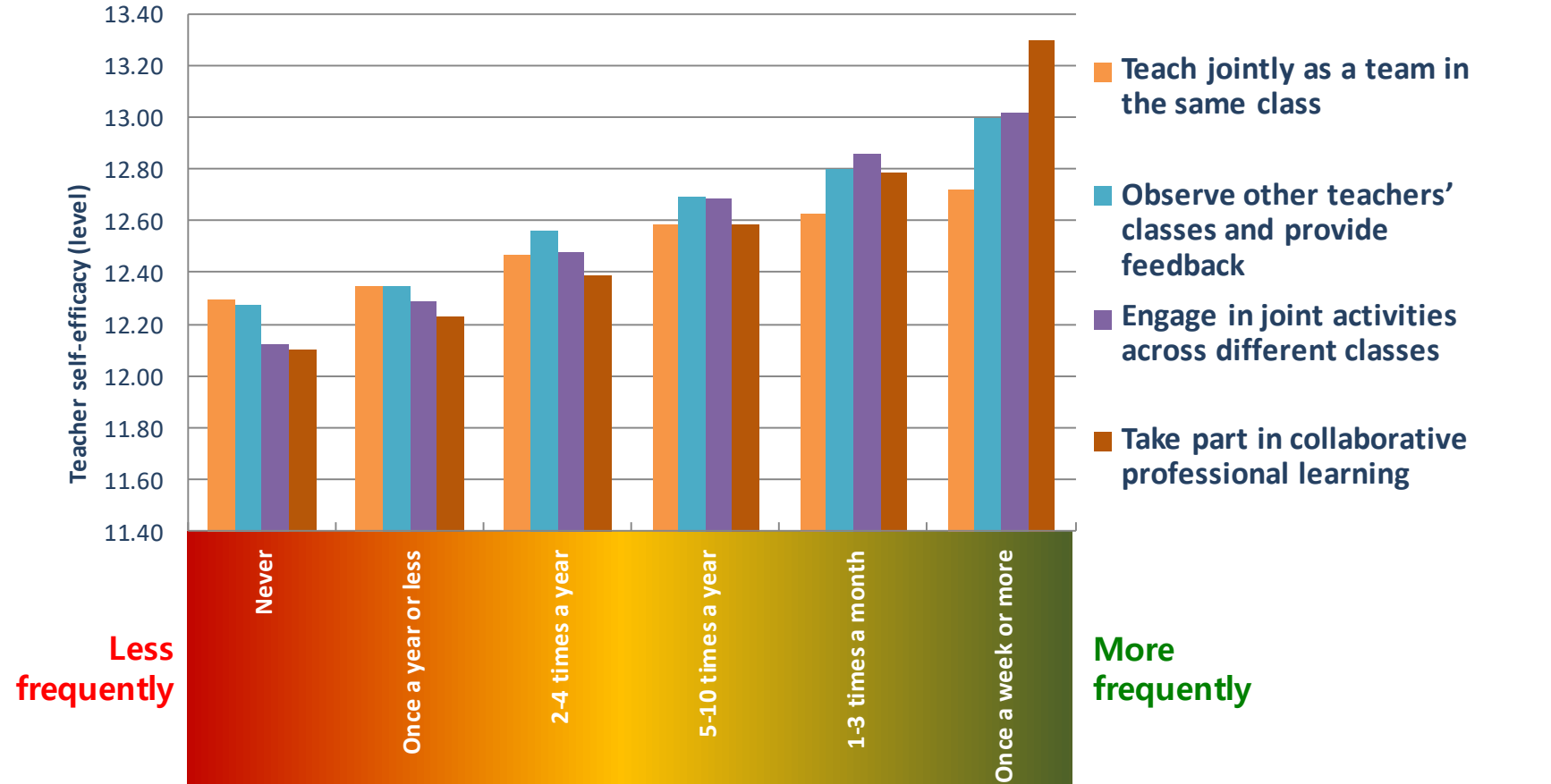


Teacher professional collaboration

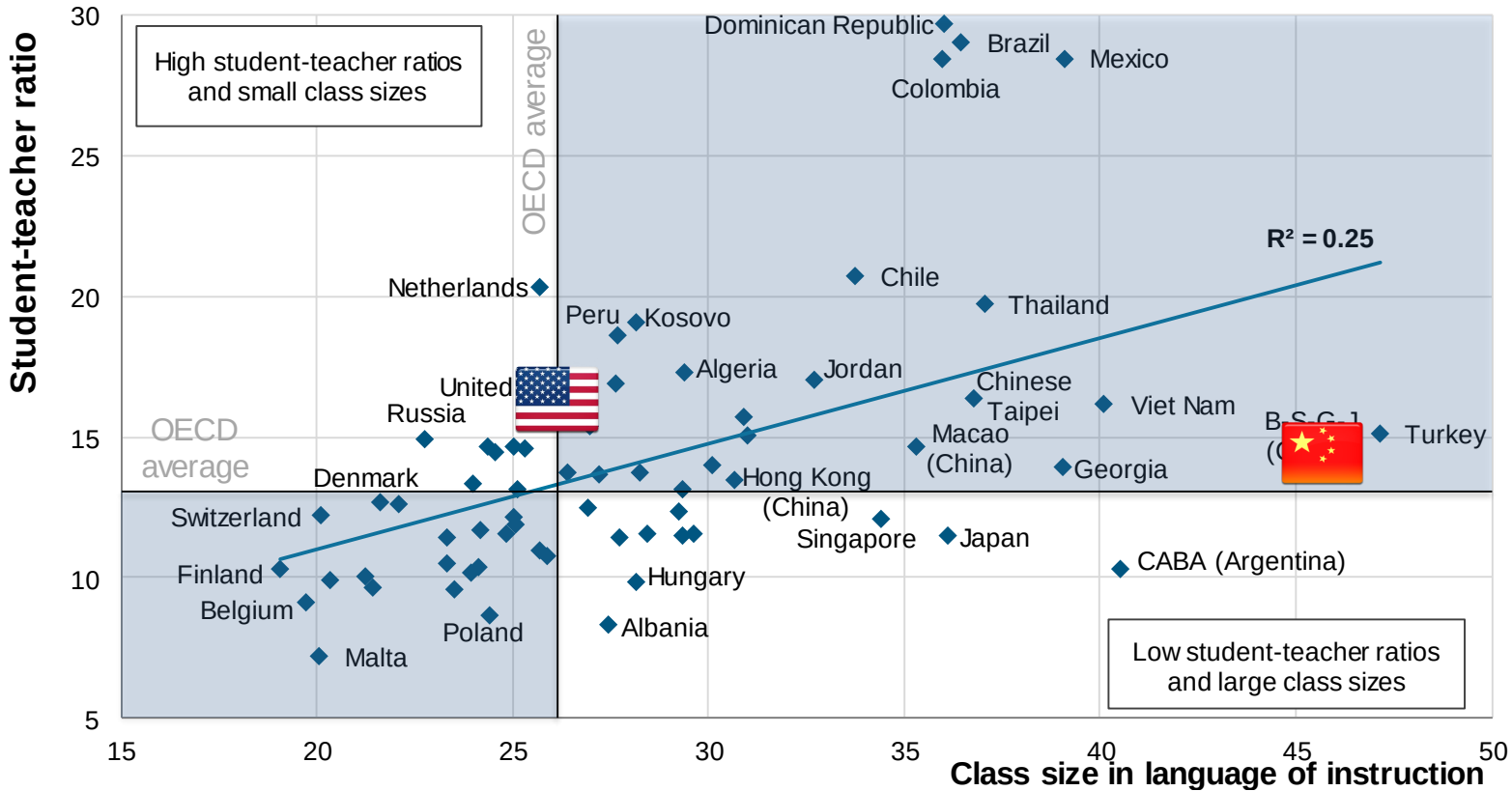
Percentage of lower secondary teachers who report doing the following activities at least once per month



Teachers' self-efficacy and professional collaboration

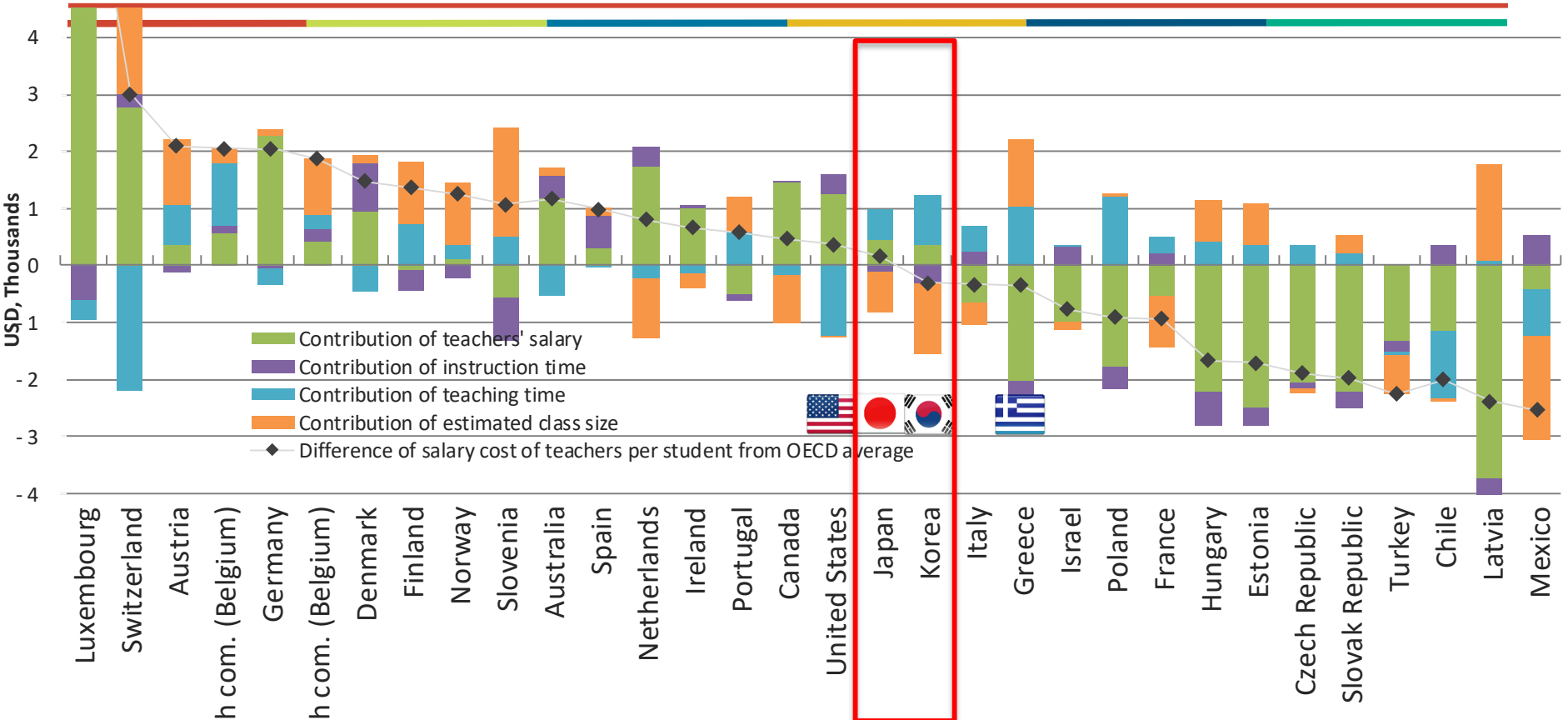


Student-teacher ratios and class size

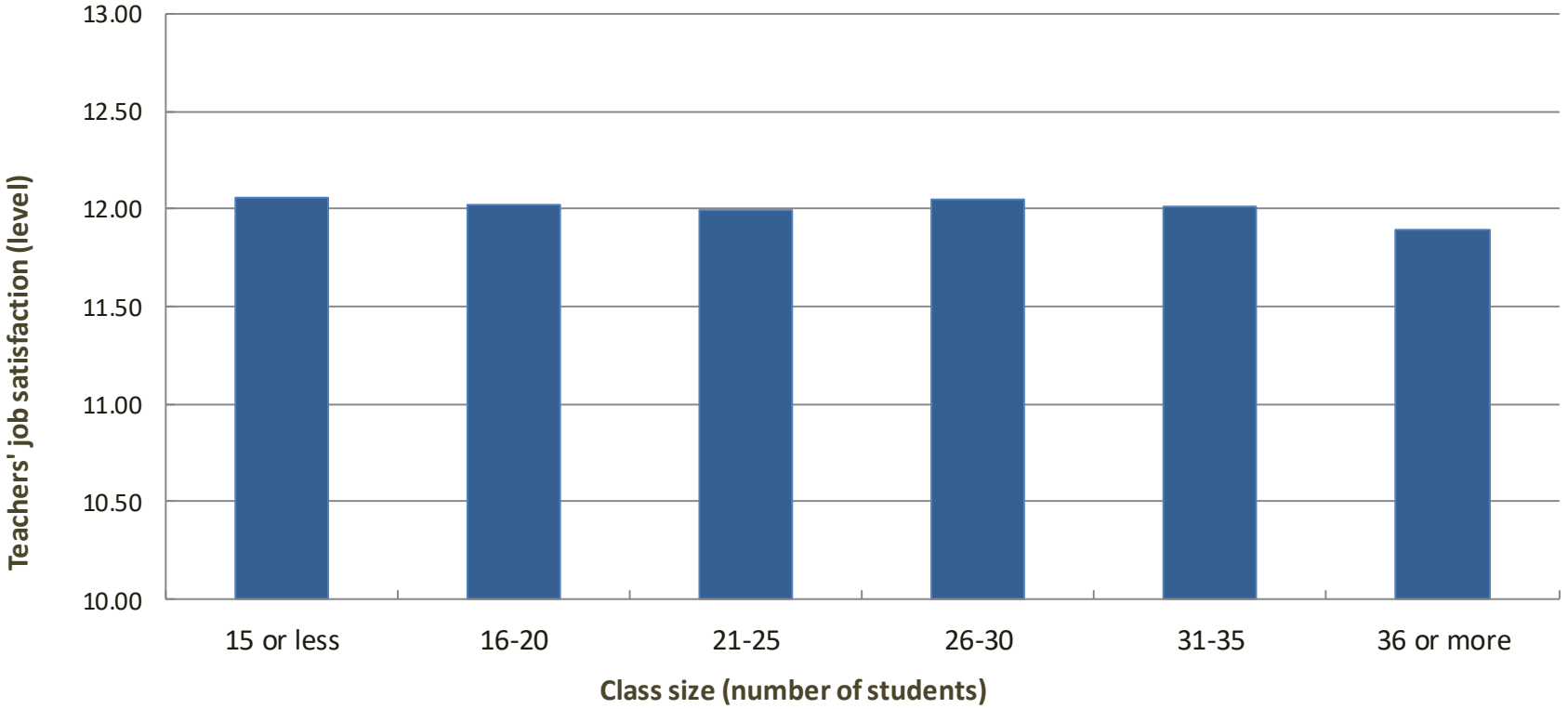


Countries spend their money differently

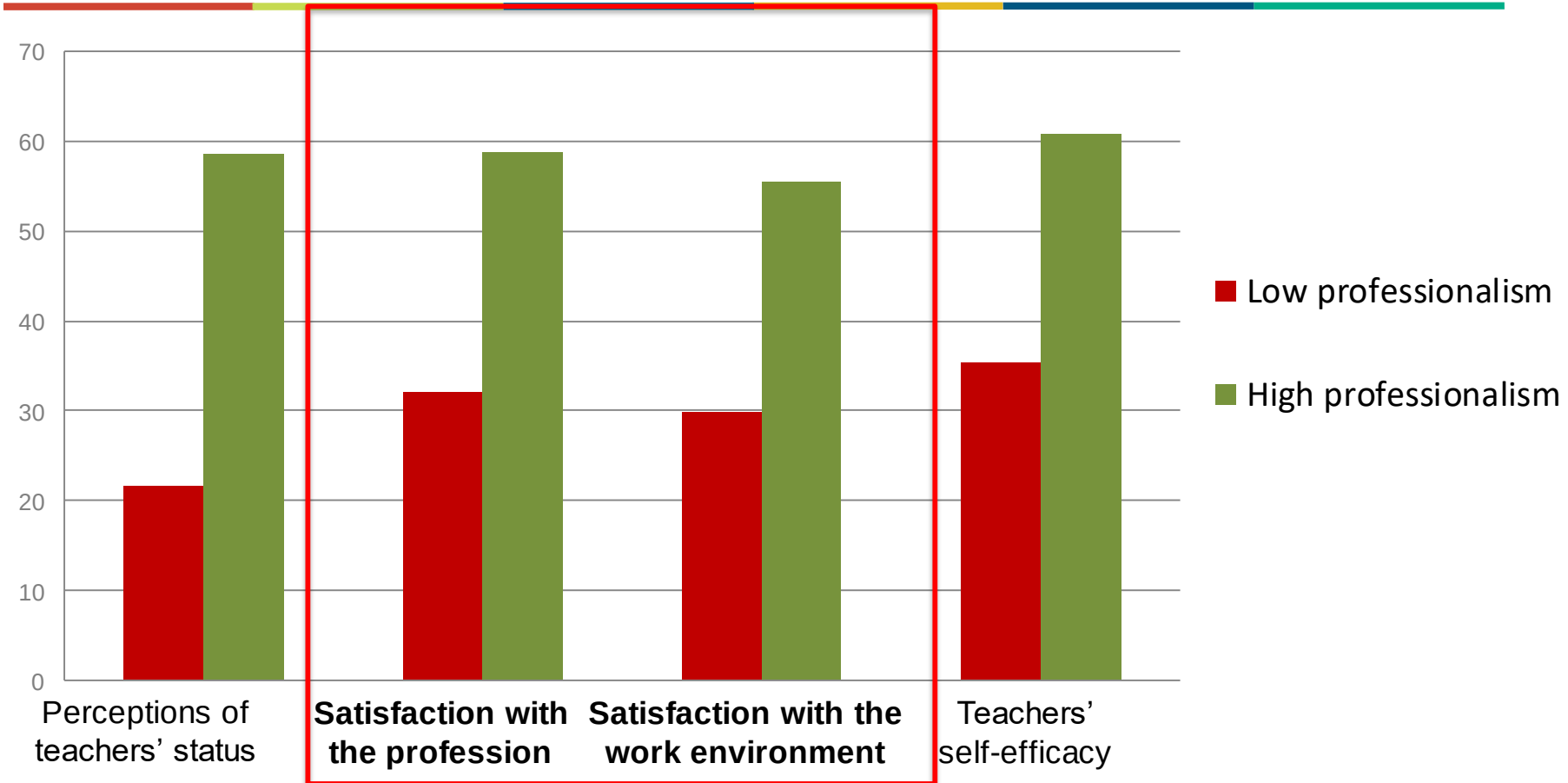
Contribution of various factors to salary cost of teachers per student in public institutions, lower secondary education (2015)



Teachers' job satisfaction and class size

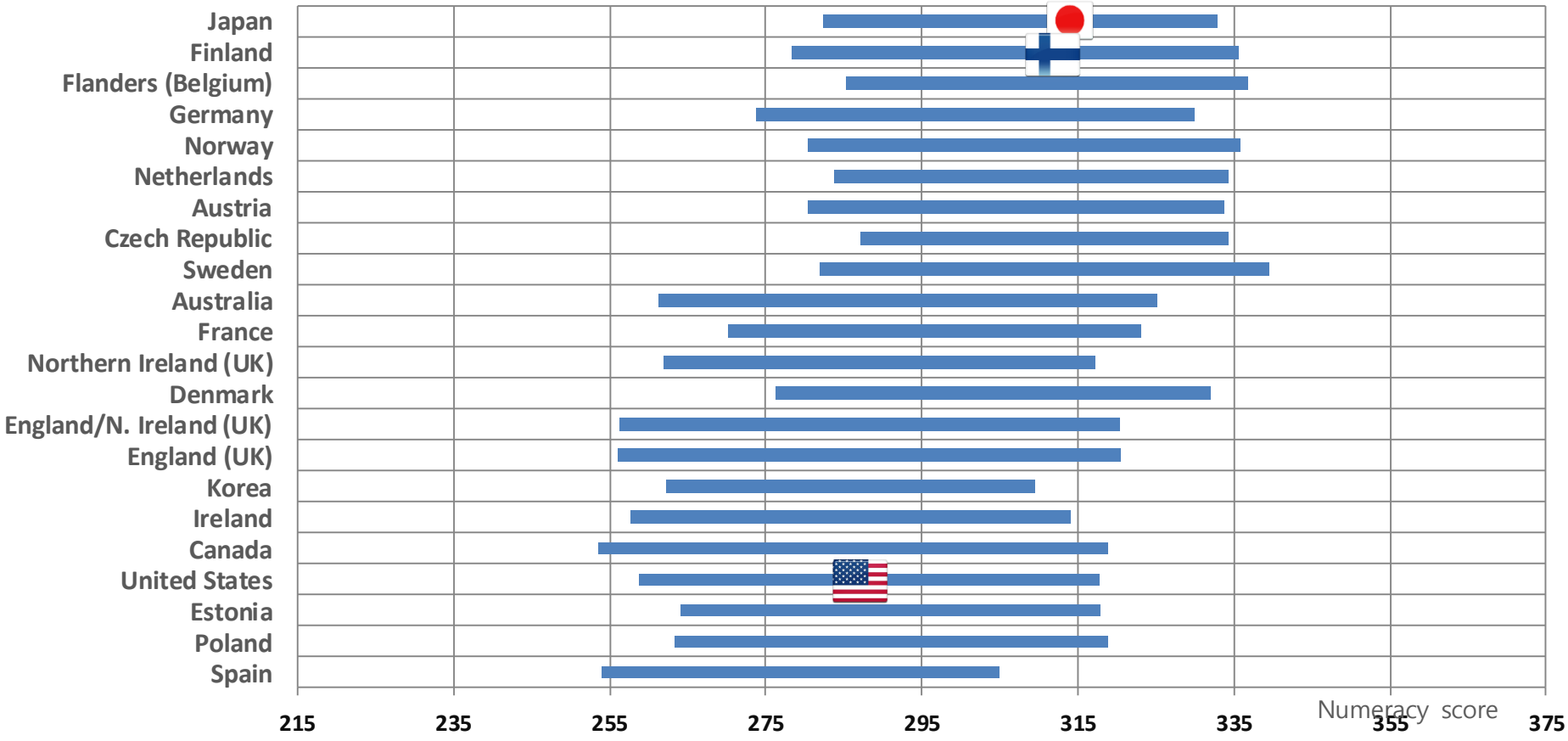


Teacher job satisfaction and professionalism



Teachers' skills

Numeracy test scores of tertiary graduates and teachers



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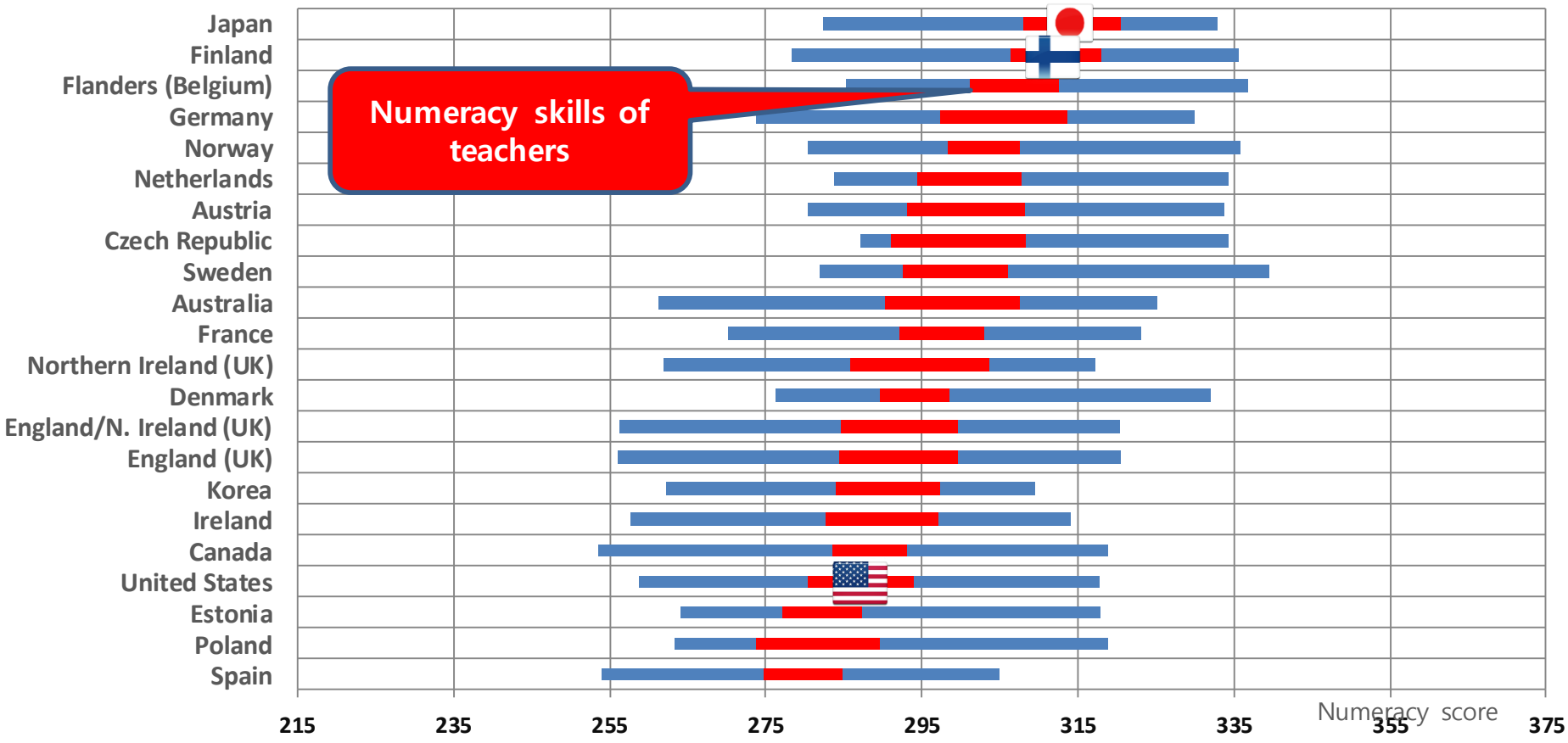
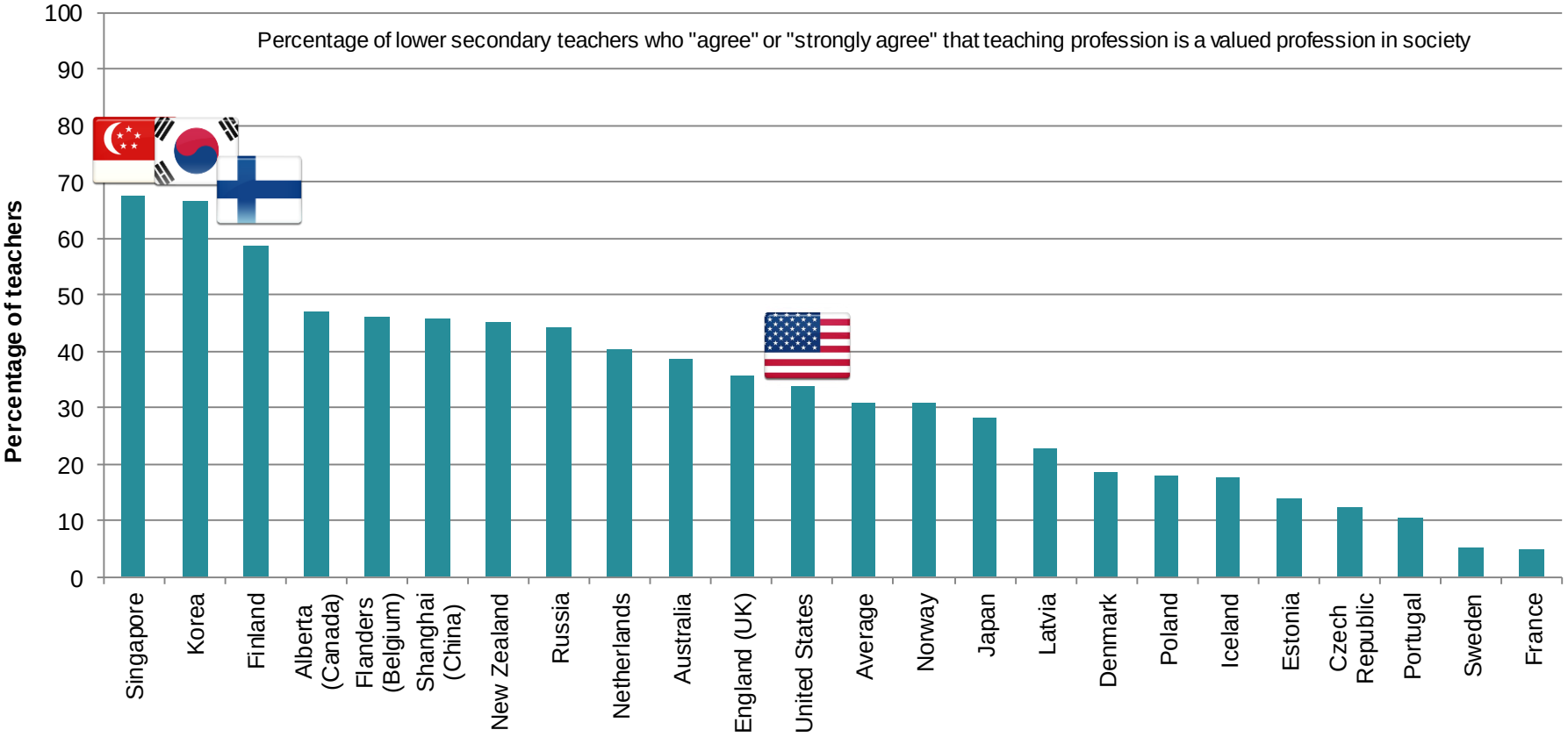
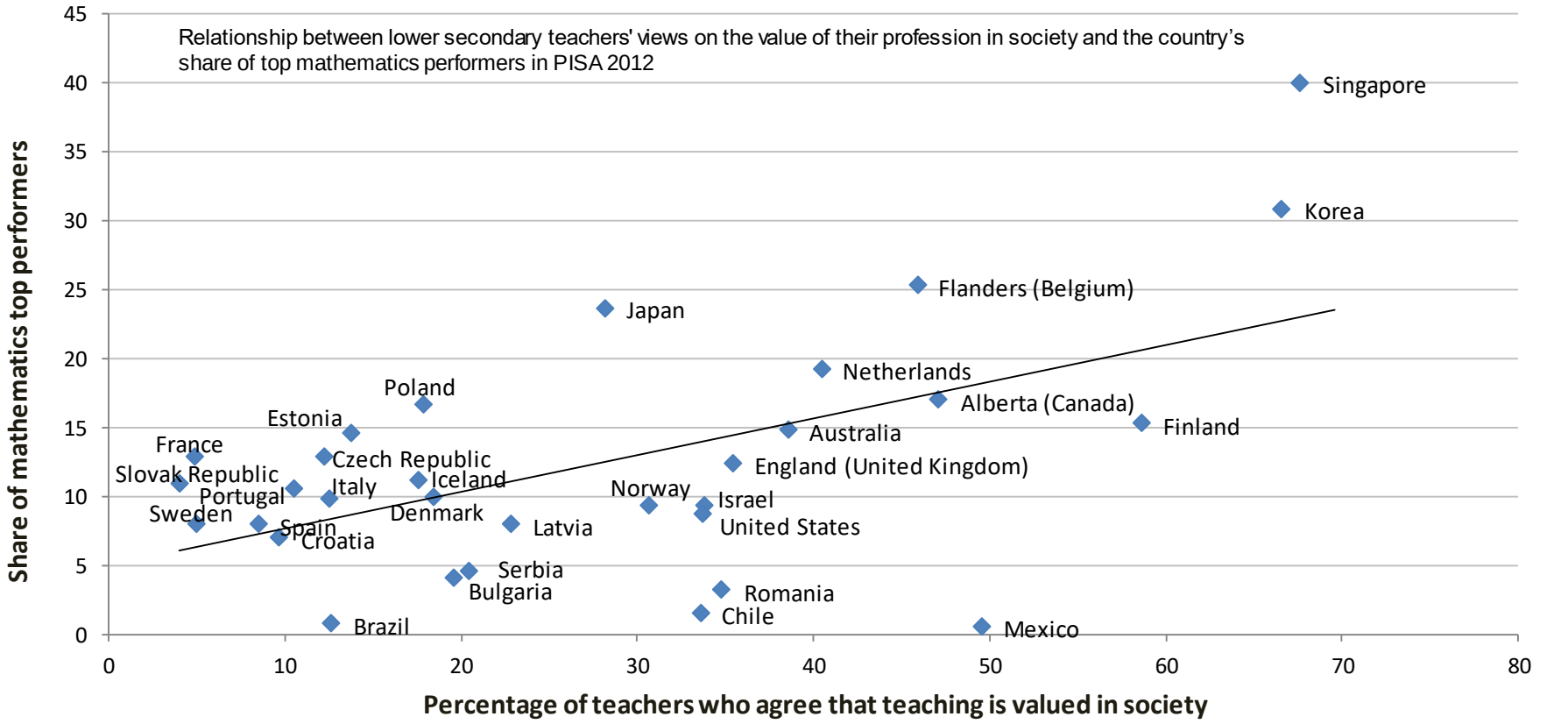


Teachers perception of the value of teaching



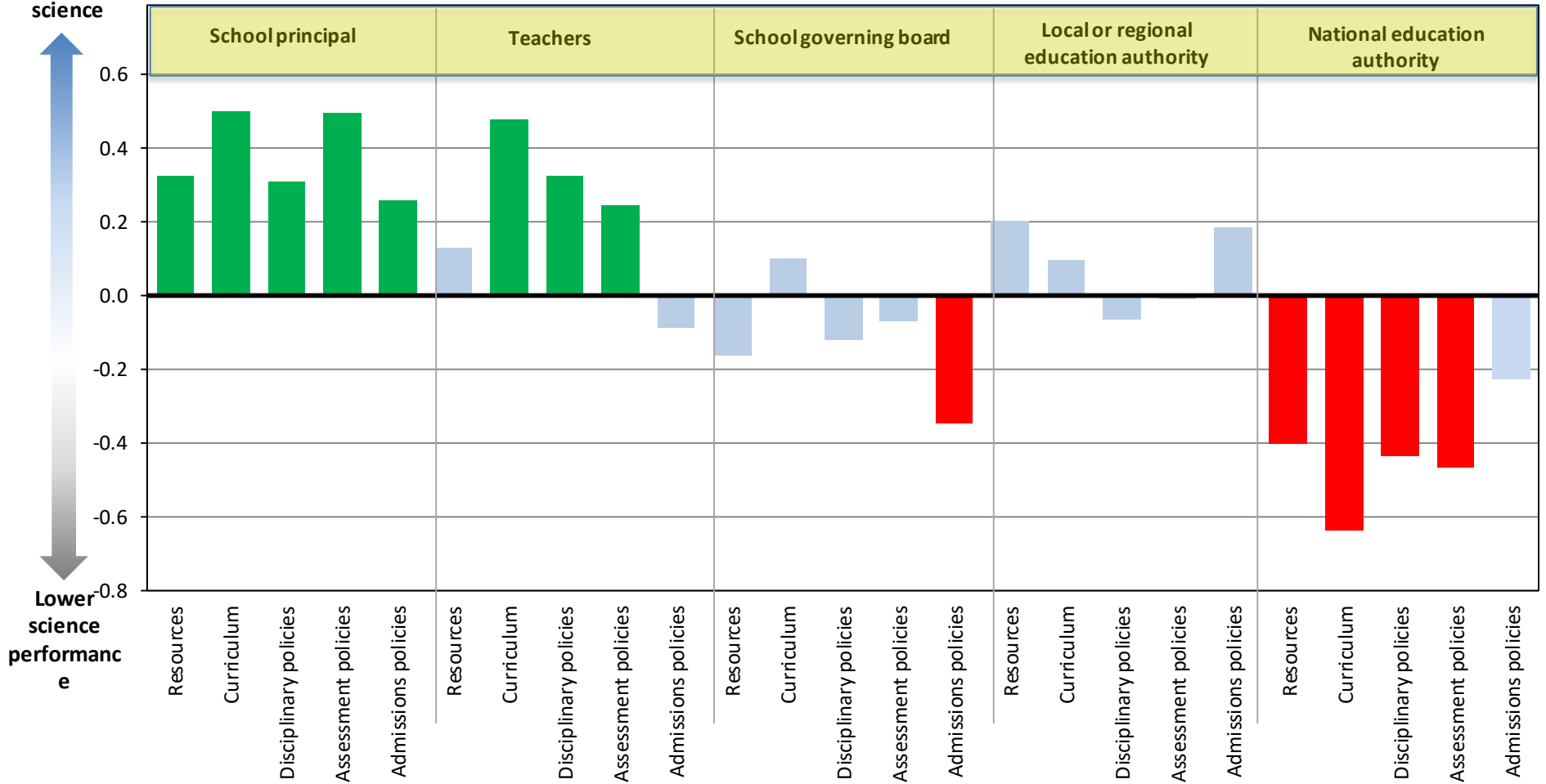
Countries where teachers believe their profession is valued show higher levels of excellence in learning outcomes (PISA)




Bureaucratic Look-up


Devolved Look-outward

Correlations between the responsibilities for school governance and learning outcomes

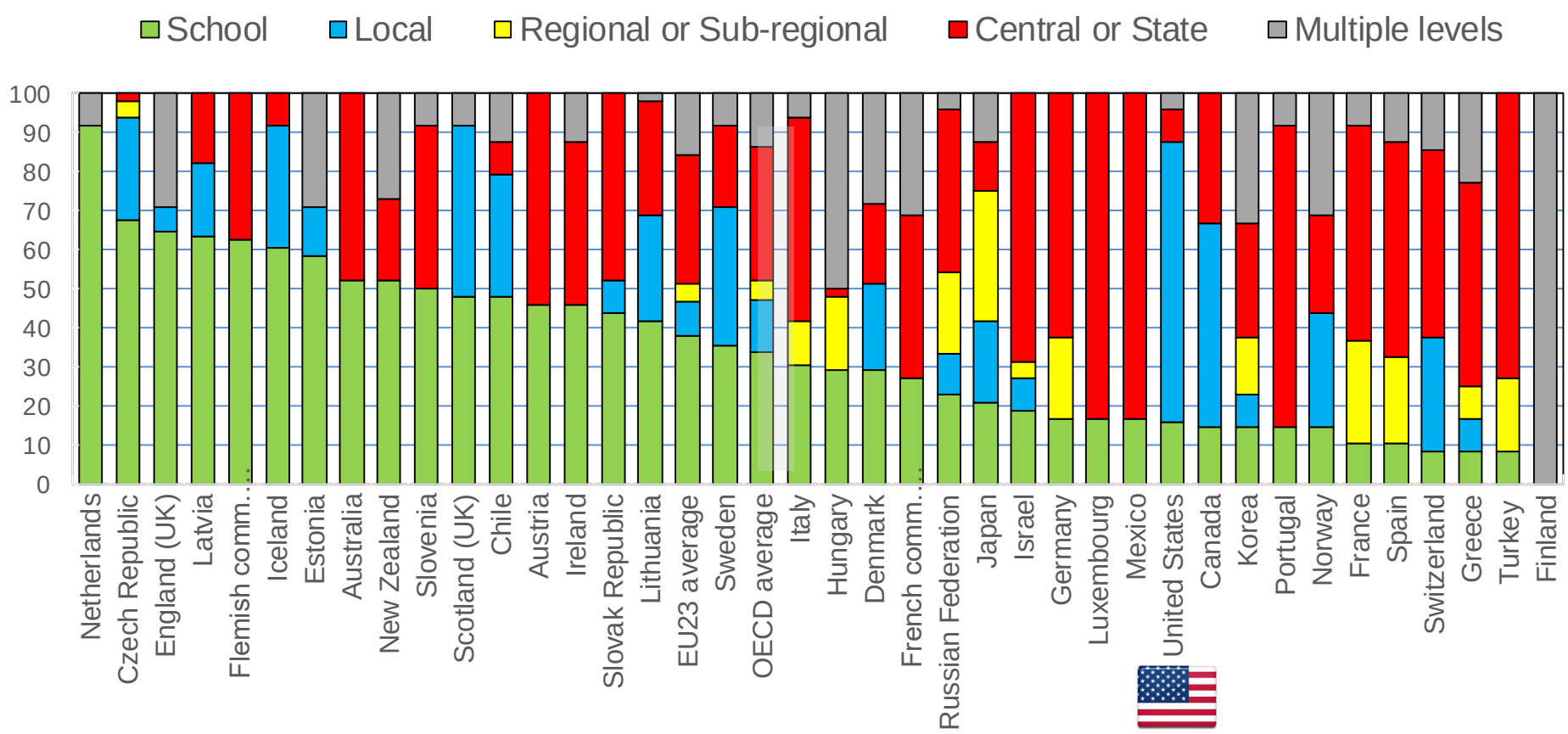


Source: OECD, PISA 2015 Database.

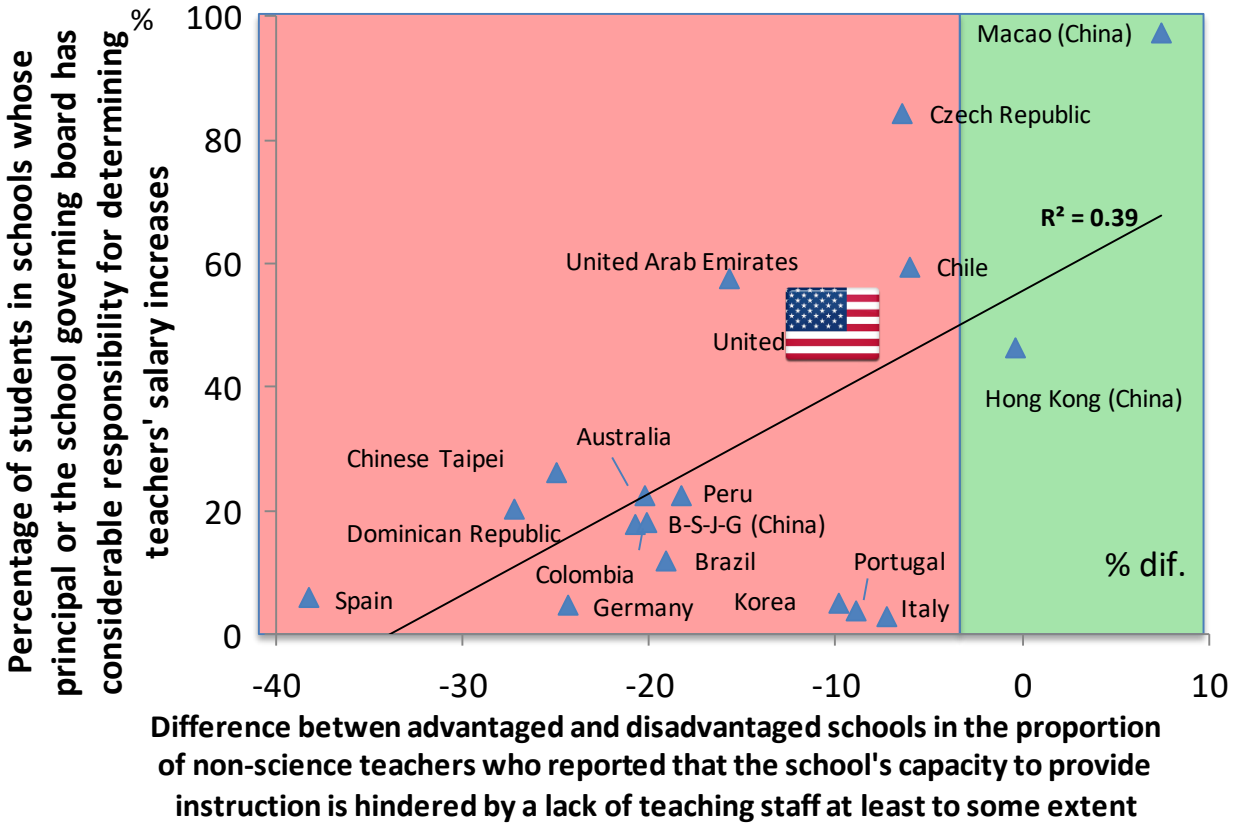
PISA Figure II.4.8

Who decides?

Percentage of decisions taken at each level of government in public lower secondary education (2017)

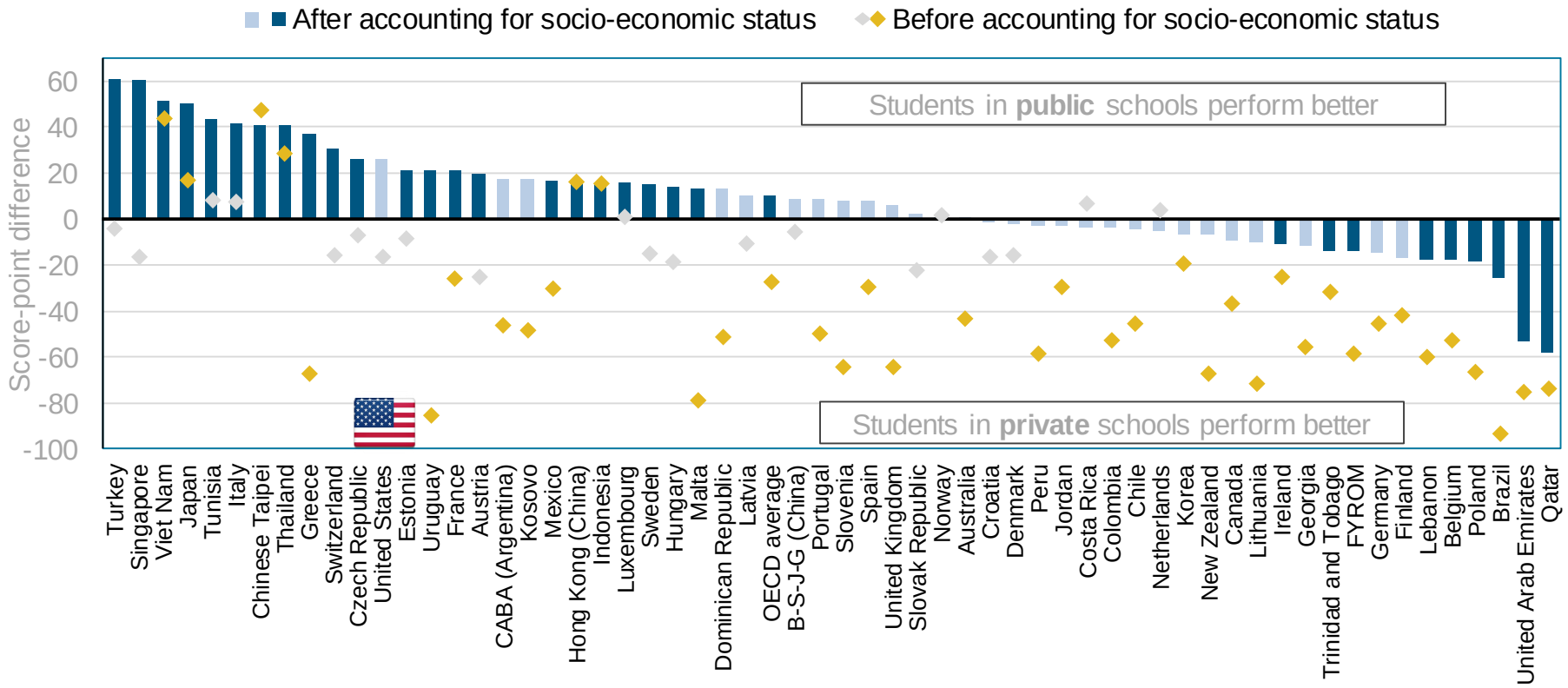


School autonomy and equity

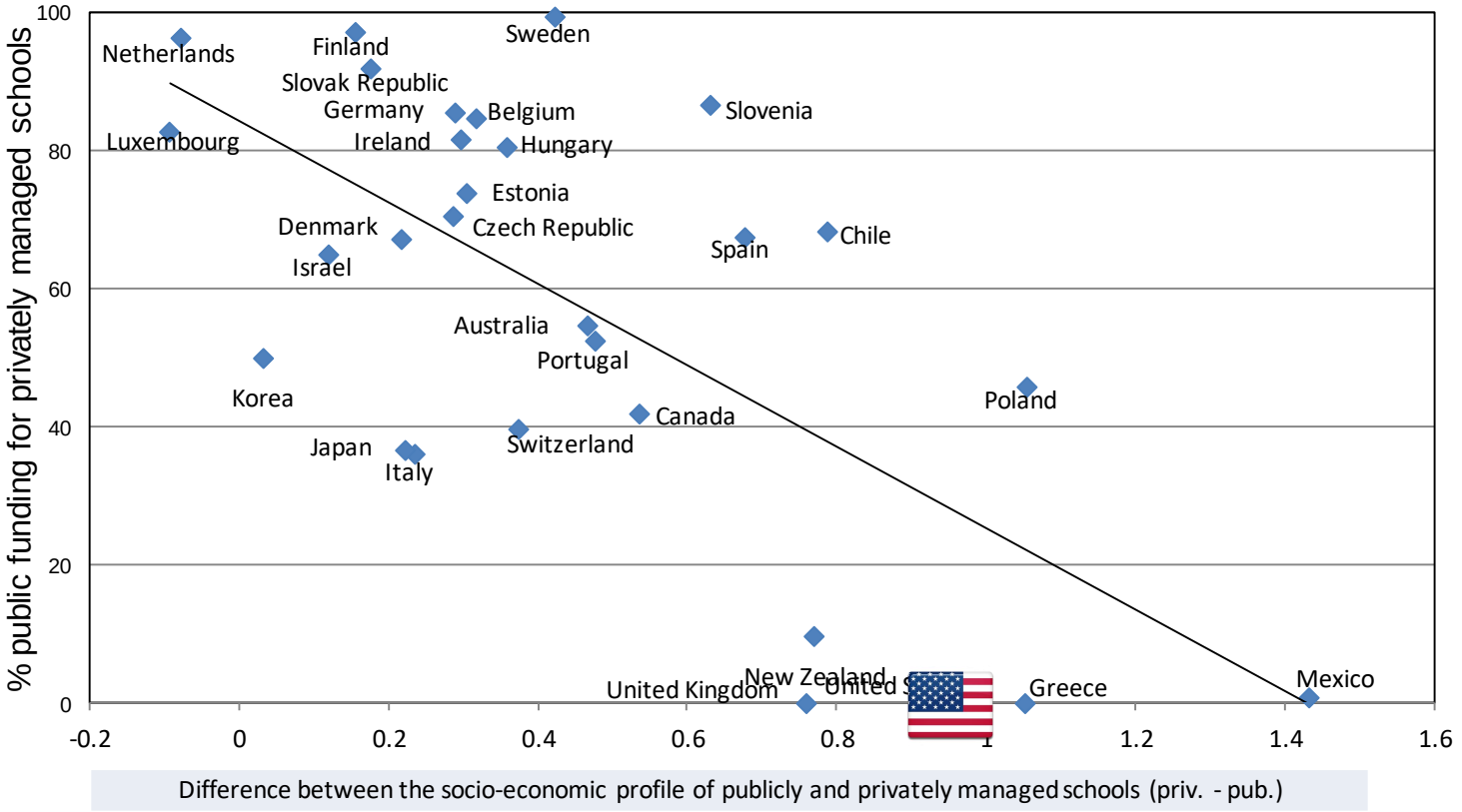


Where school responsibility for hiring teachers and setting salaries is greater, teacher allocation tends to be more equitable

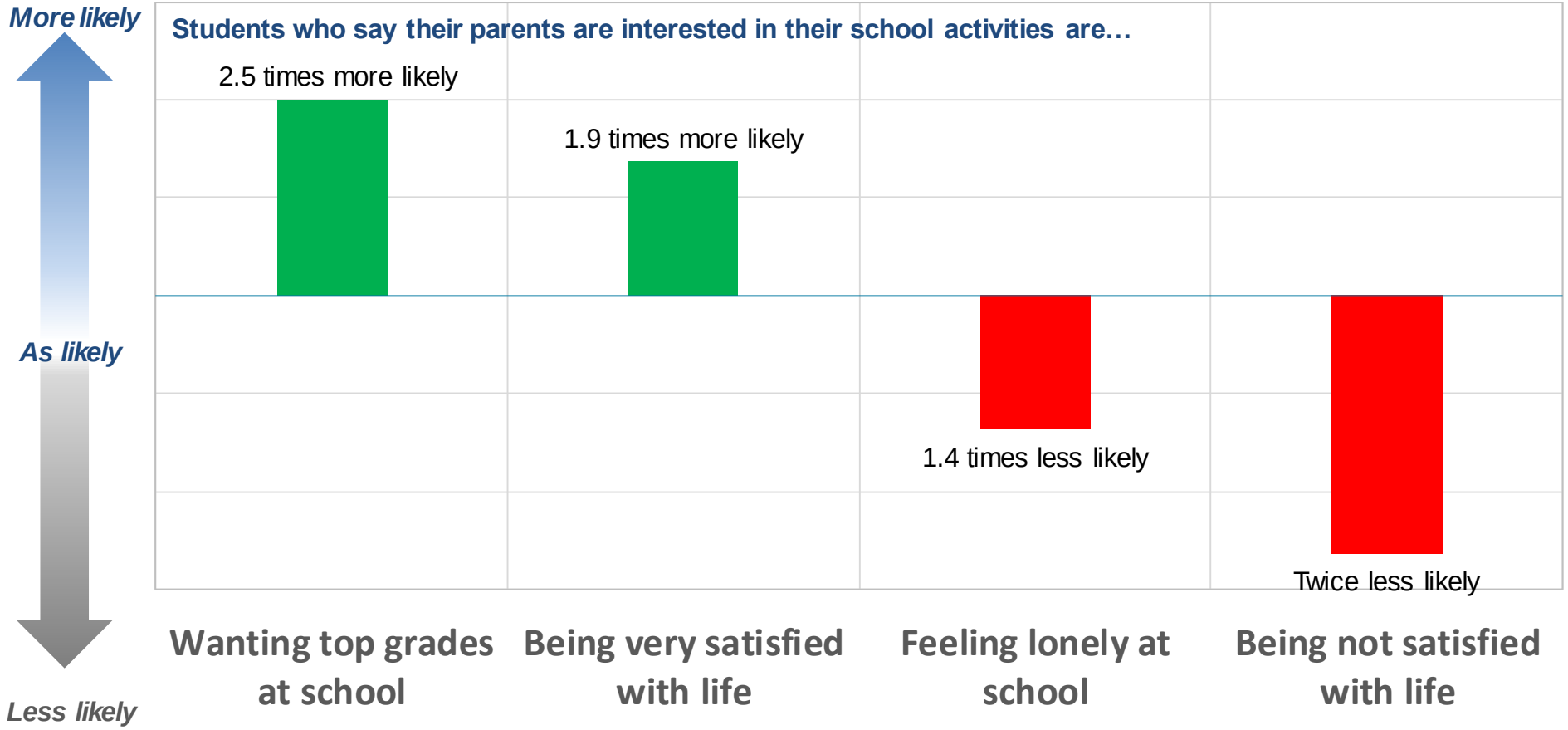
Science performance in public and private schools



Countries that invest more public funds in privately managed schools tend to have less of a difference between the socio-economic profiles of publicly and privately managed schools

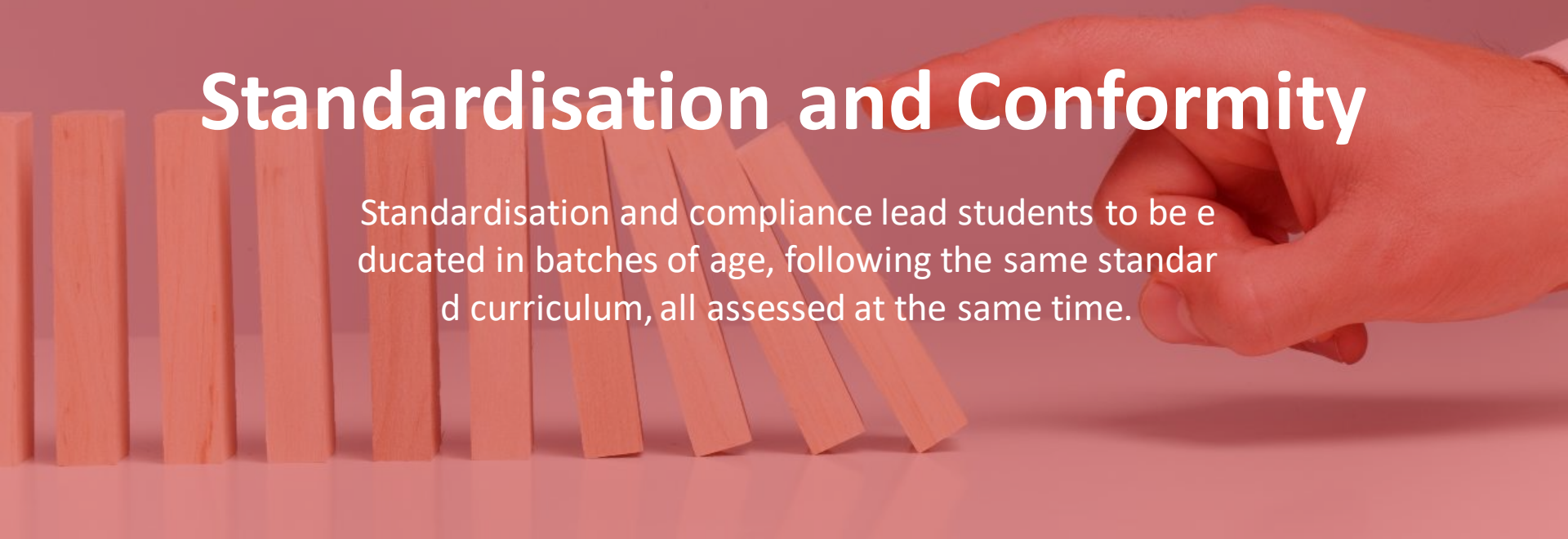


Parents' interest in their child's activities at school and well-being (average)



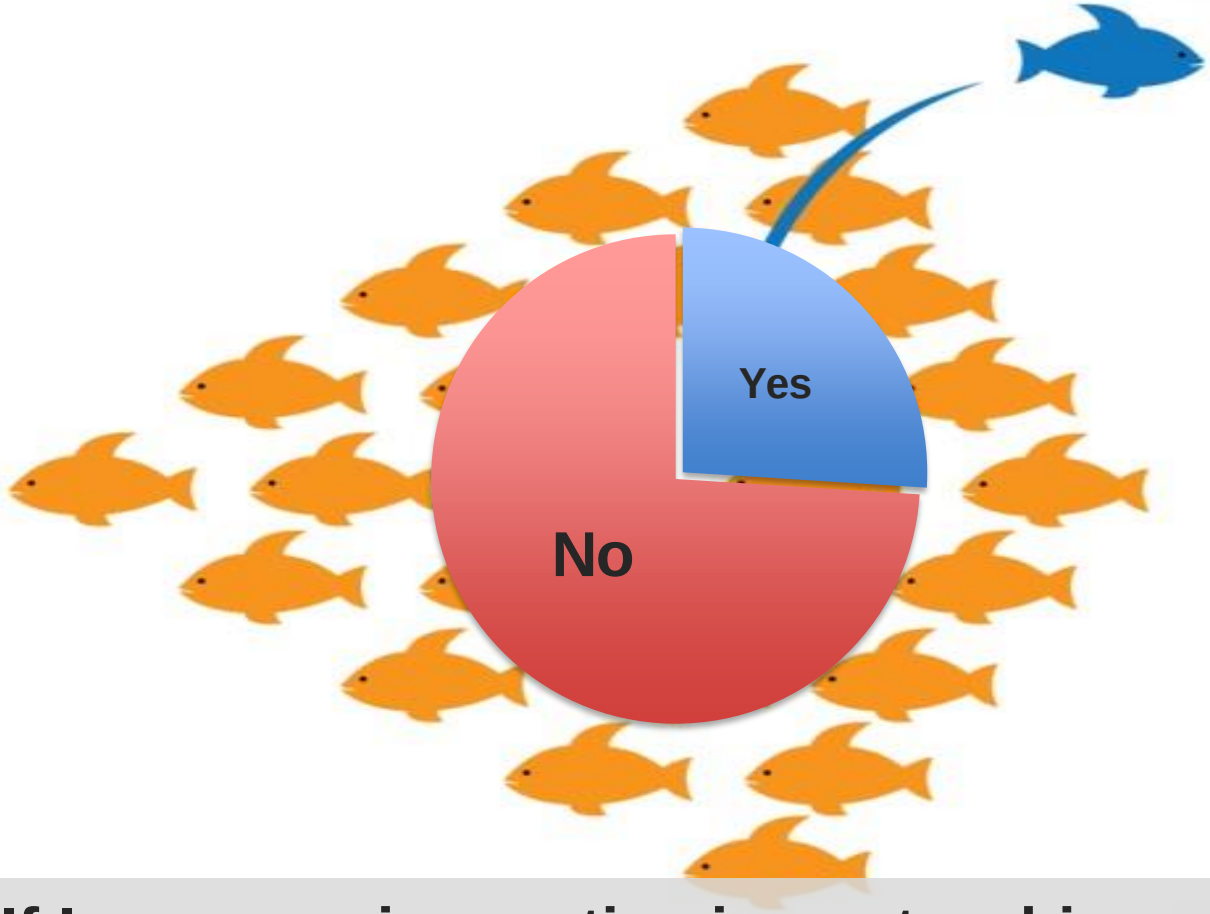
Standardisation and Conformity

Standardisation and compliance lead students to be e
ducated in batches of age, following the same standar
d curriculum, all assessed at the same time.



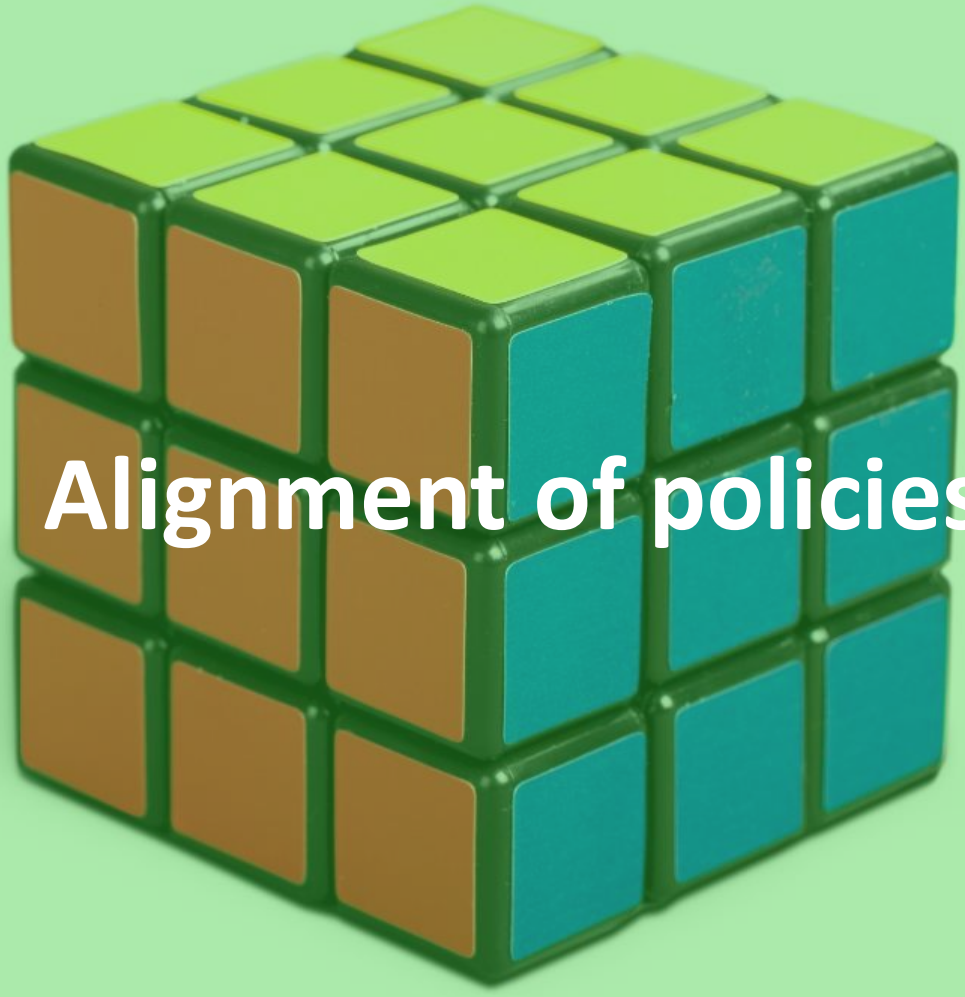
Ingenious

Building instruction from student passions and capacities, helping students personalise their learning and assessme nt in ways that foster engagement and talents.



If I am more innovative in my teaching I will be rewarded (country average)

Ideosyncratic policy



Alignment of policies

Making reform happen

Knowledge is only as valuable as our capacity to act on it, and the road of educational reform is littered with good ideas that were poorly implemented

Making reform happen

Setting the direction

People are more likely to accept changes that are not solely in their own interests if they understand the reasons for these changes and can see the role they should play within the broad strategy.

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Engaging the profession

Educational leaders are rarely successful with reform unless they build a shared understanding and collective ownership for change, and unless they build capacity and create the right policy climate, with accountability measures designed to encourage innovation rather than compliance

Building capacity

Looking outward

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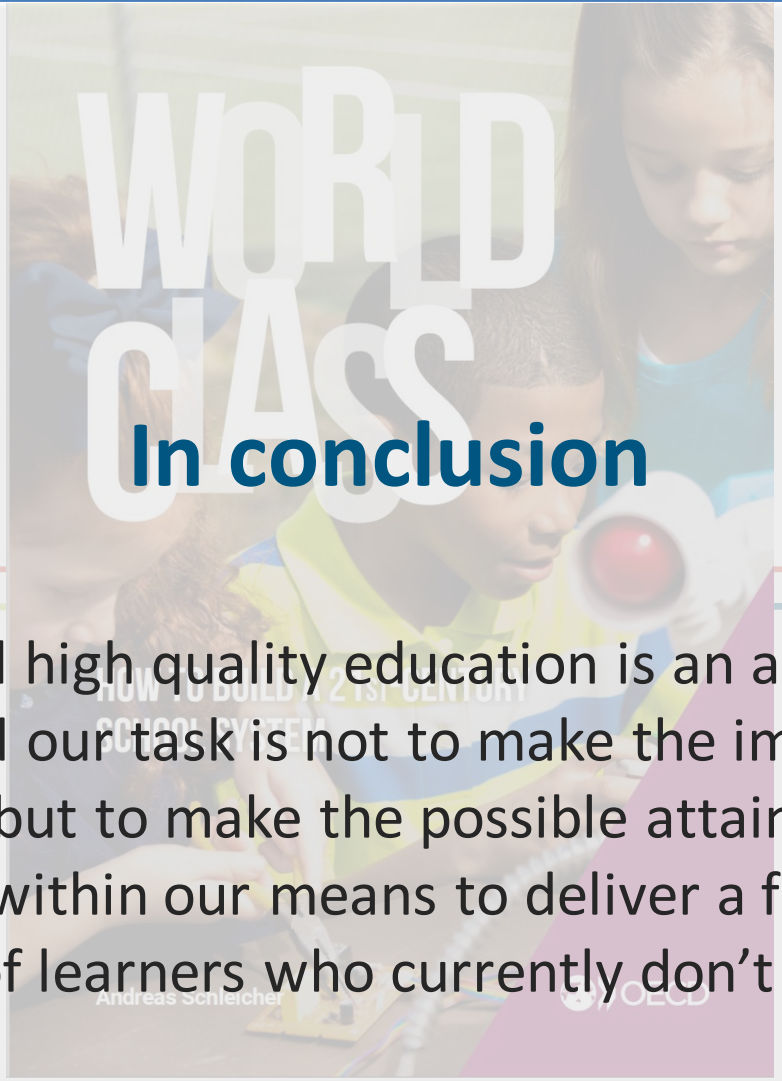
Looking outward

School systems that feel threatened by alternative ways of thinking get trapped in old practice. The ones that progress are those that are open to the world and ready to learn from and with the world's education leaders.



oe.cd/WorldClass

In conclusion

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Universal high quality education is an attainable goal, and our task is not to make the impossible possible, but to make the possible attainable. It is entirely within our means to deliver a future for millions of learners who currently don’t have one

Thank you

Find out more about our work at www.oecd.org/pisa

- **All publications**
- **The complete micro-level database**

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