Strong performers and successful reformers in education

IBAEM, 17 October 2014, Rome

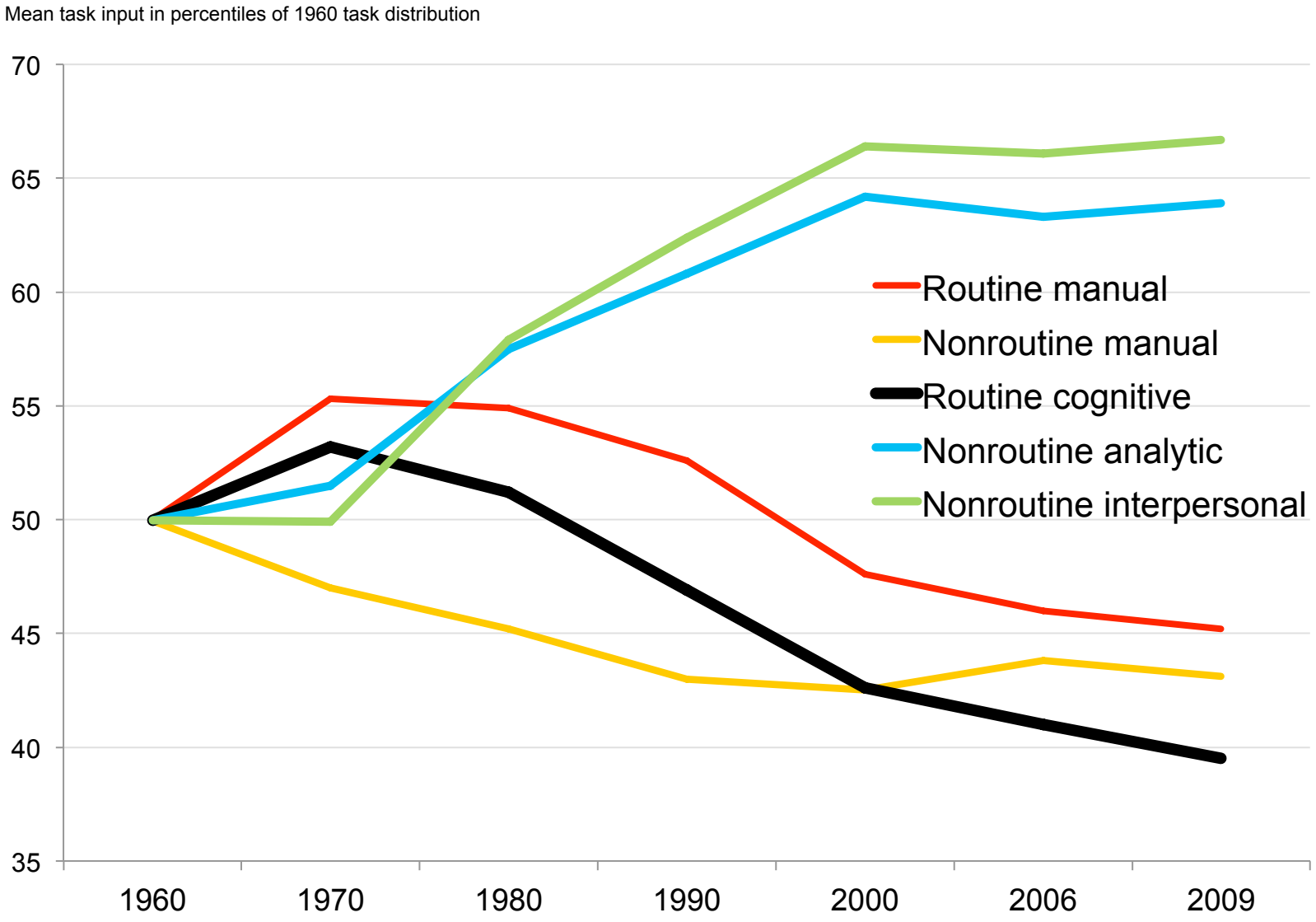
Andreas Schleicher

21st century skills

The dilemma for educators

The kinds of things that are easy to teach and test are also easy to digitise, automate and outsource

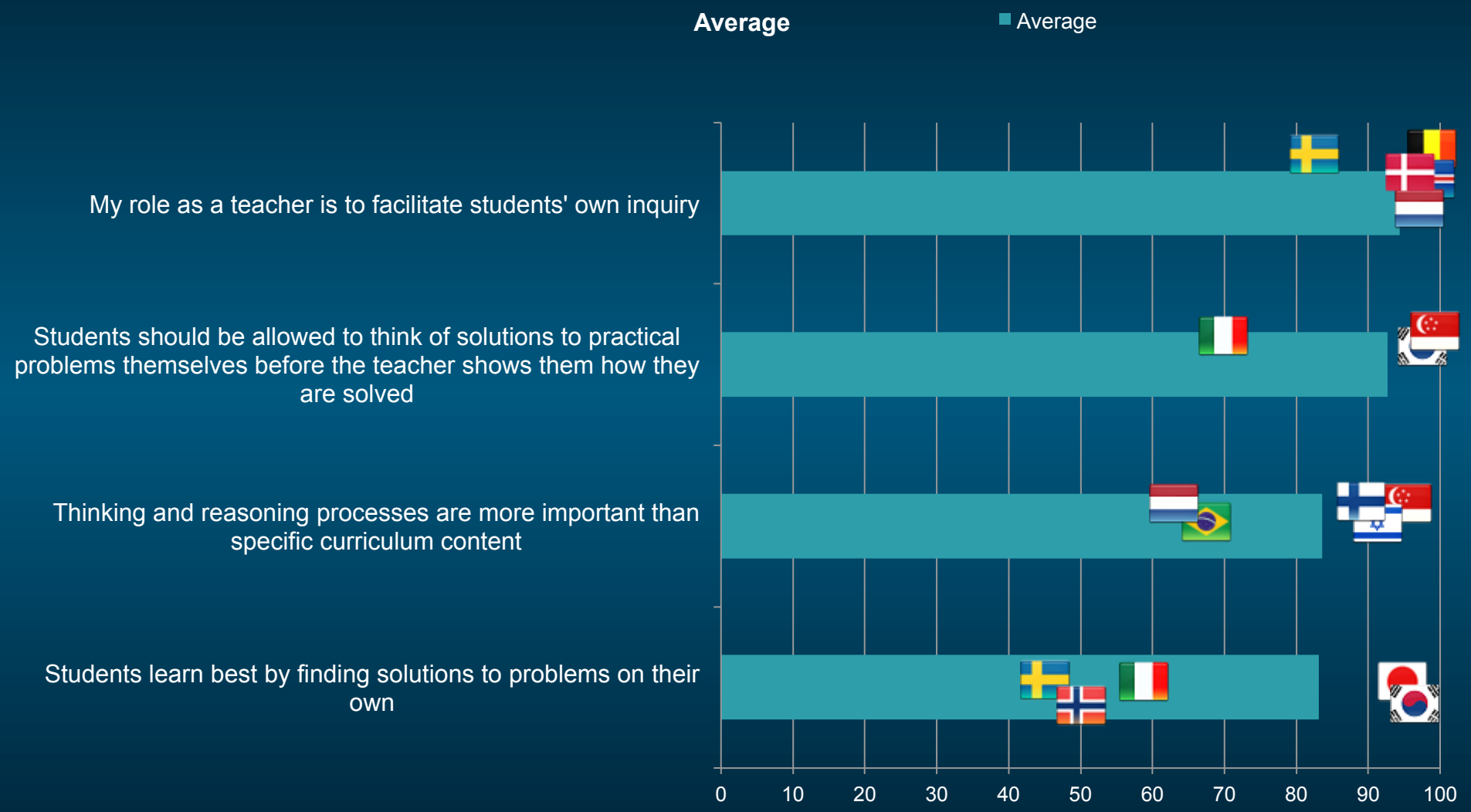
The modern world no longer rewards people just for what they know, but for what they can do with what they know



Source: Autor, David H. and Brendan M. Price. 2013. "The Changing Task Composition of the US Labor Market: An Update of Autor, Levy, and Murnane (2003)." MIT Mimeograph, June.

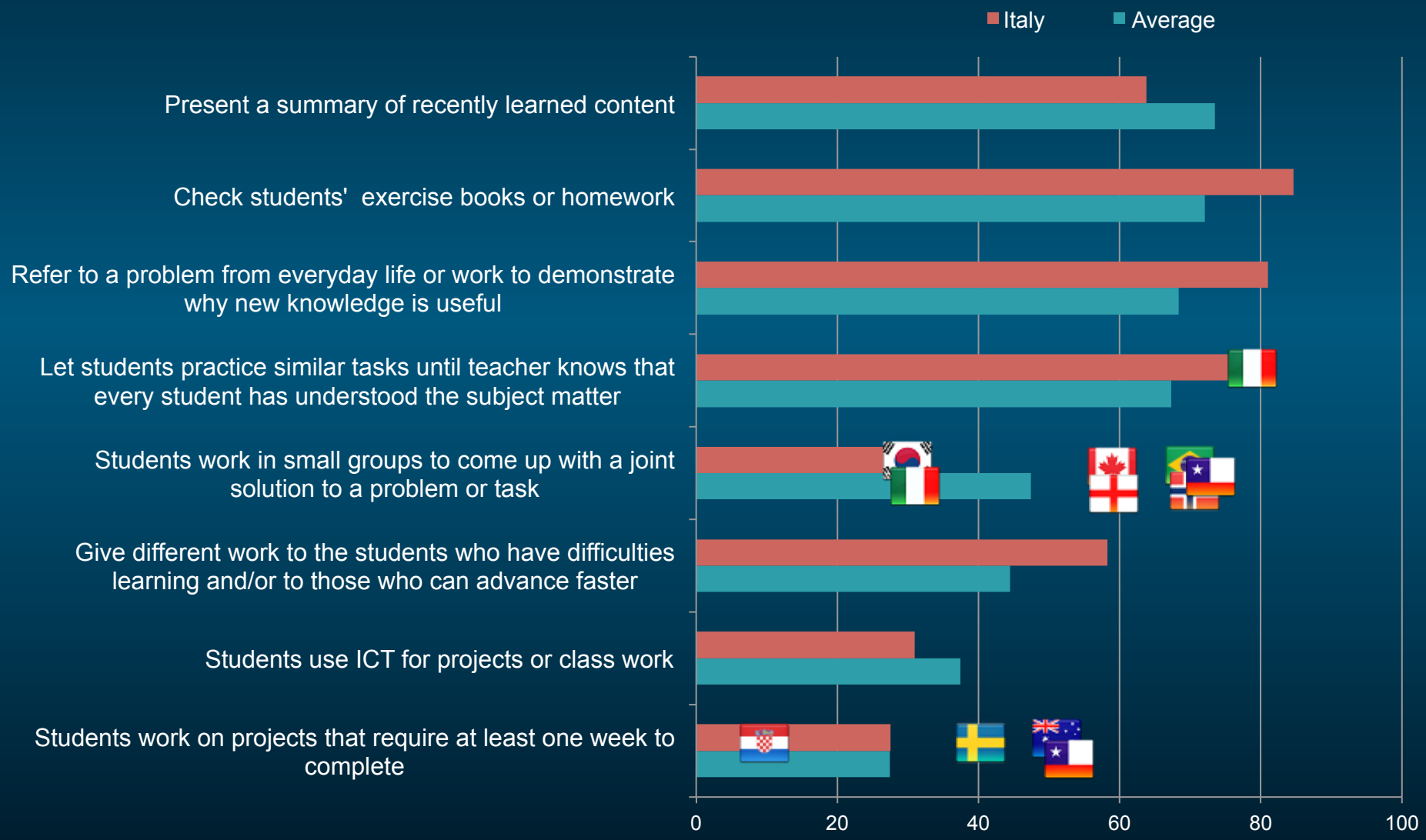
Most teachers value 21st century pedagogies…

Percentage of lower secondary teachers who "agree" or "strongly agree" that:



…but teaching practices do not always reflect that

Percentage of lower secondary teachers who report using the following teaching practices "frequently" or "in all or nearly all lessons"



Schooling outcomes

Assessing equity and excellence

PISA in brief

- **Over half a million students…**
  - **representing 28 million 15-year-olds in 65 countries/economies**

… took an internationally agreed 2-hour test…

- **Goes beyond testing whether students can reproduce what they were taught…**
- **… to assess students' capacity to extrapolate from what they know and creatively apply their knowledge in novel situations**
- **Mathematics,** reading, science, problem-solving, collaborative skills, global competencies
- **Total of 390 minutes of assessment material**

… and responded to questions on…

- **their personal background, their schools and their engagement with learning and school**

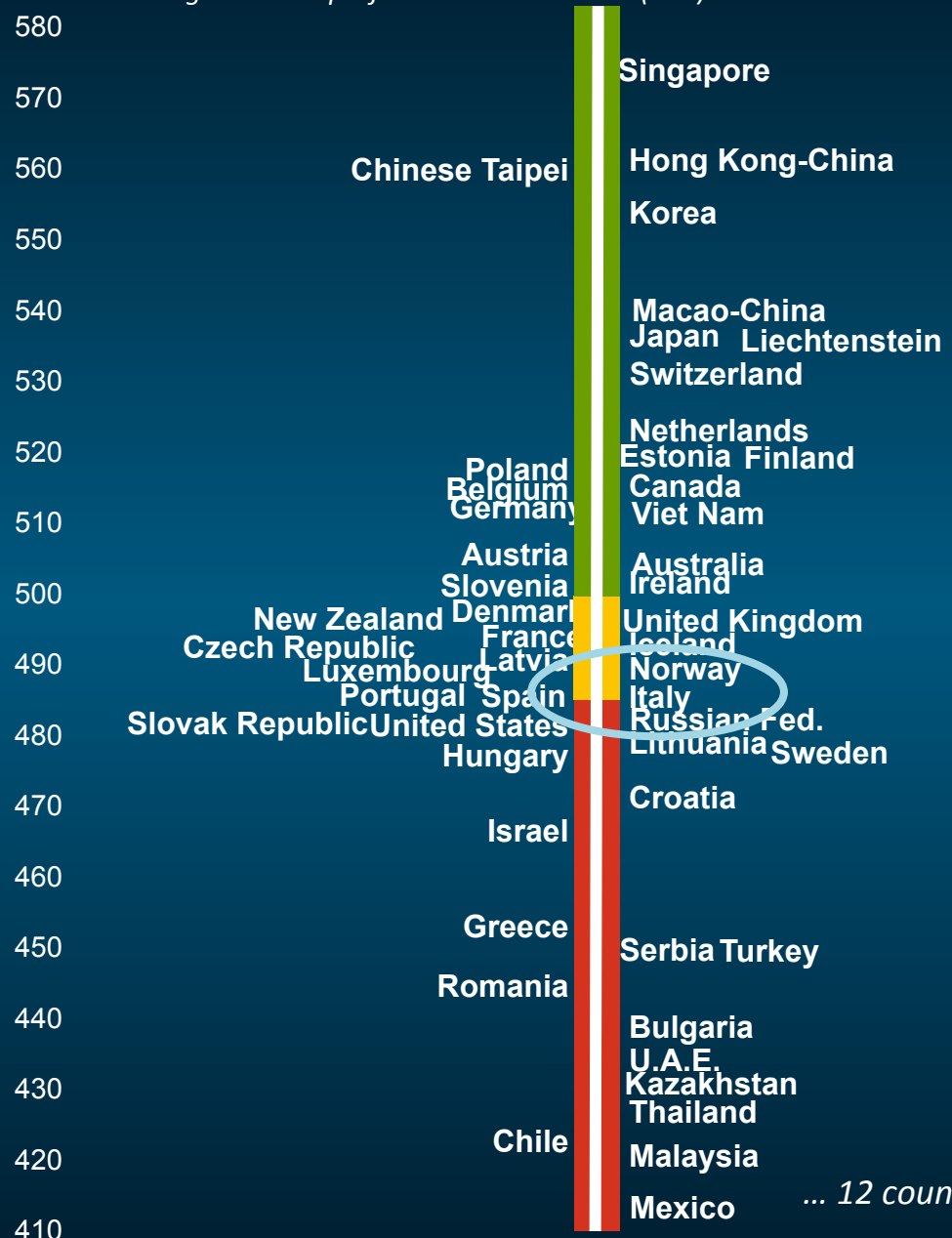
- **Parents, principals and system leaders provided data on…**
  - **school policies, practices, resources and institutional factors that help explain performance differences .**

PISA in brief

- **Key principles**
  - **'Crowd sourcing' and collaboration**
    - PISA draws together leading expertise and institutions from participating countries to develop instruments and methodologies…
    - … guided by governments on the basis of shared policy interests
  - **Cross-national relevance and transferability of policy experiences**
    - Emphasis on validity across cultures, languages and systems
    - Frameworks built on well-structured conceptual understanding of academic disciplines and contextual factors
  - **Triangulation across different stakeholder perspectives**
    - Systematic integration of insights from students, parents, school principals and system-leaders
  - **Advanced methods with different grain sizes**
    - A range of methods to adequately measure constructs with different grain sizes to serve different decision-making needs
    - Productive feedback, at appropriate levels of detail, to fuel improvement at every level of the system .

High mathematics performance

Mean score … *Shanghai-China performs above this line (613)*

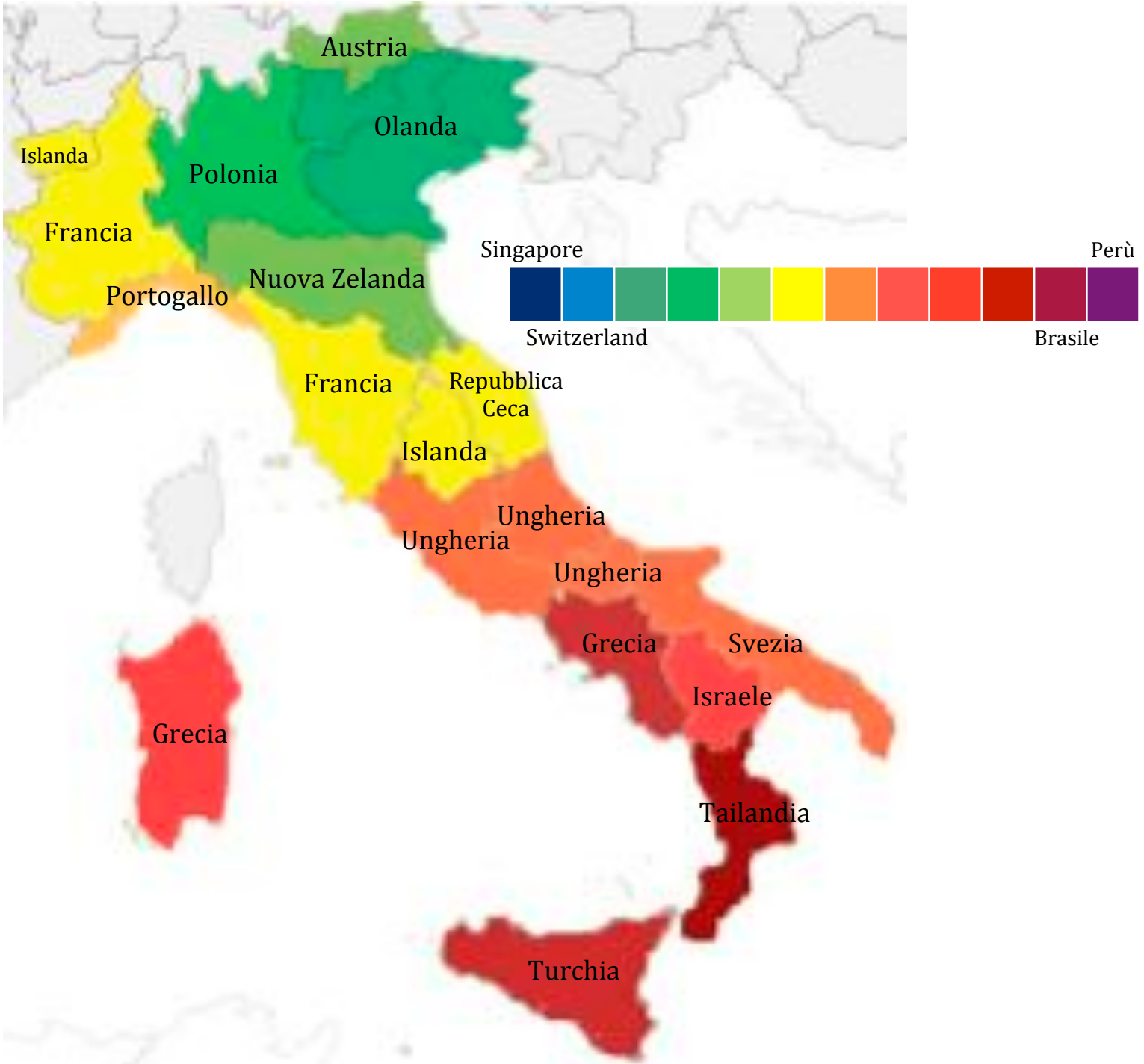


Average performance of 15-year-olds in Mathematics

Fig I.2.13

… *12 countries perform below this line*

Low mathematics performance


Austria
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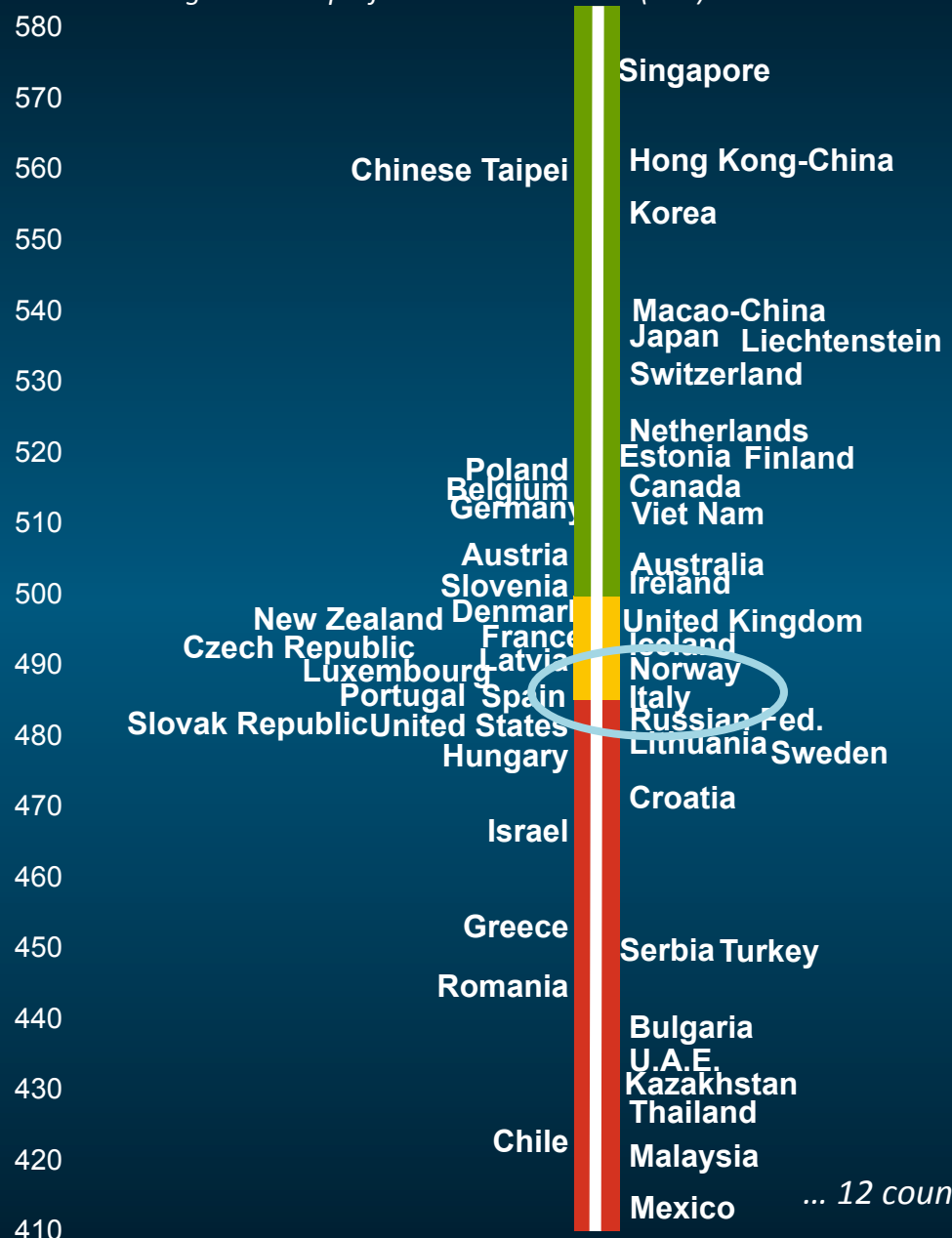

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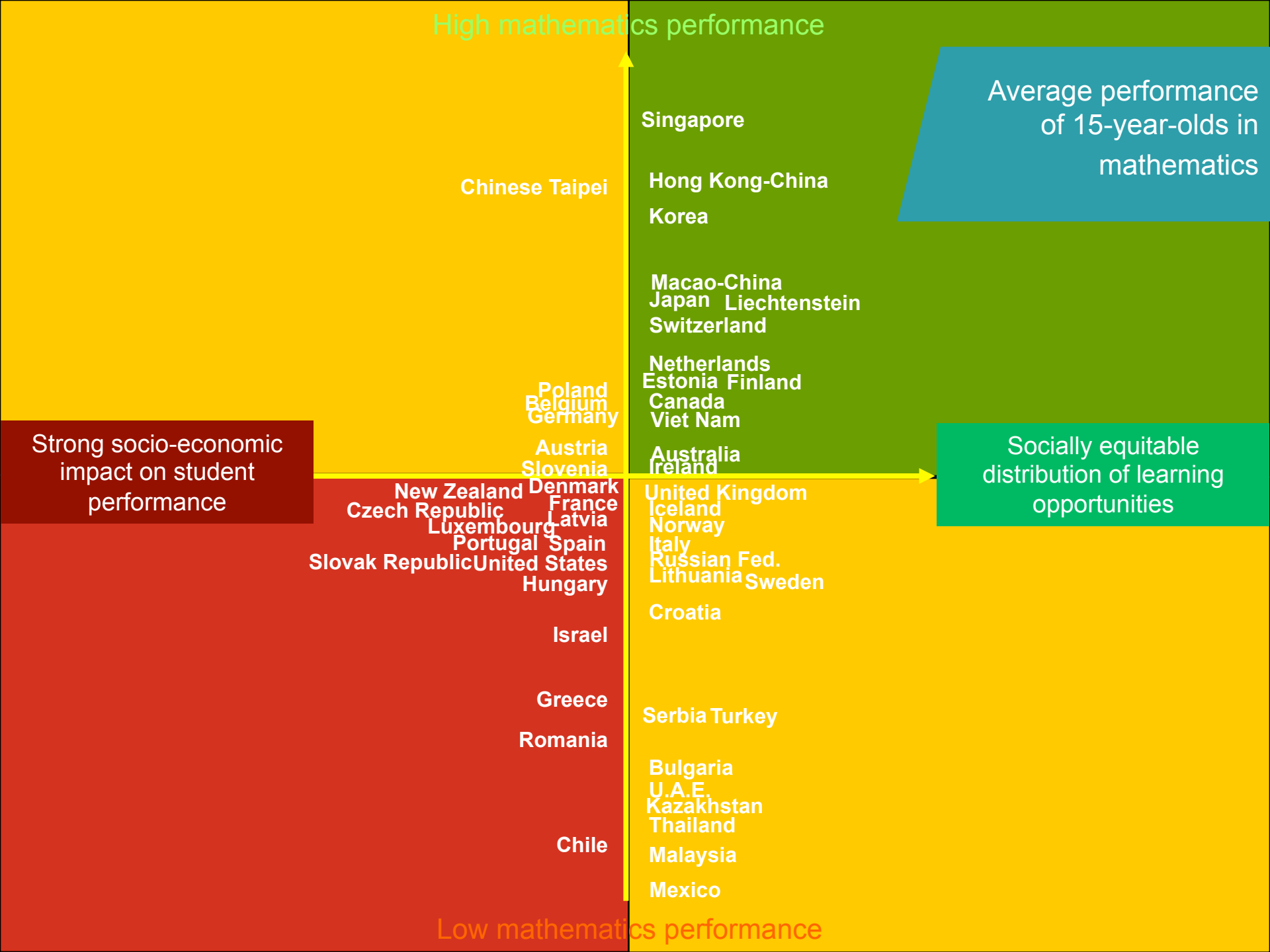
High mathematics performance
Average performance of 15-year-olds in mathematics
Strong socio-economic impact on student performance
Socially equitable distribution of learning opportunities
Low mathematics performance
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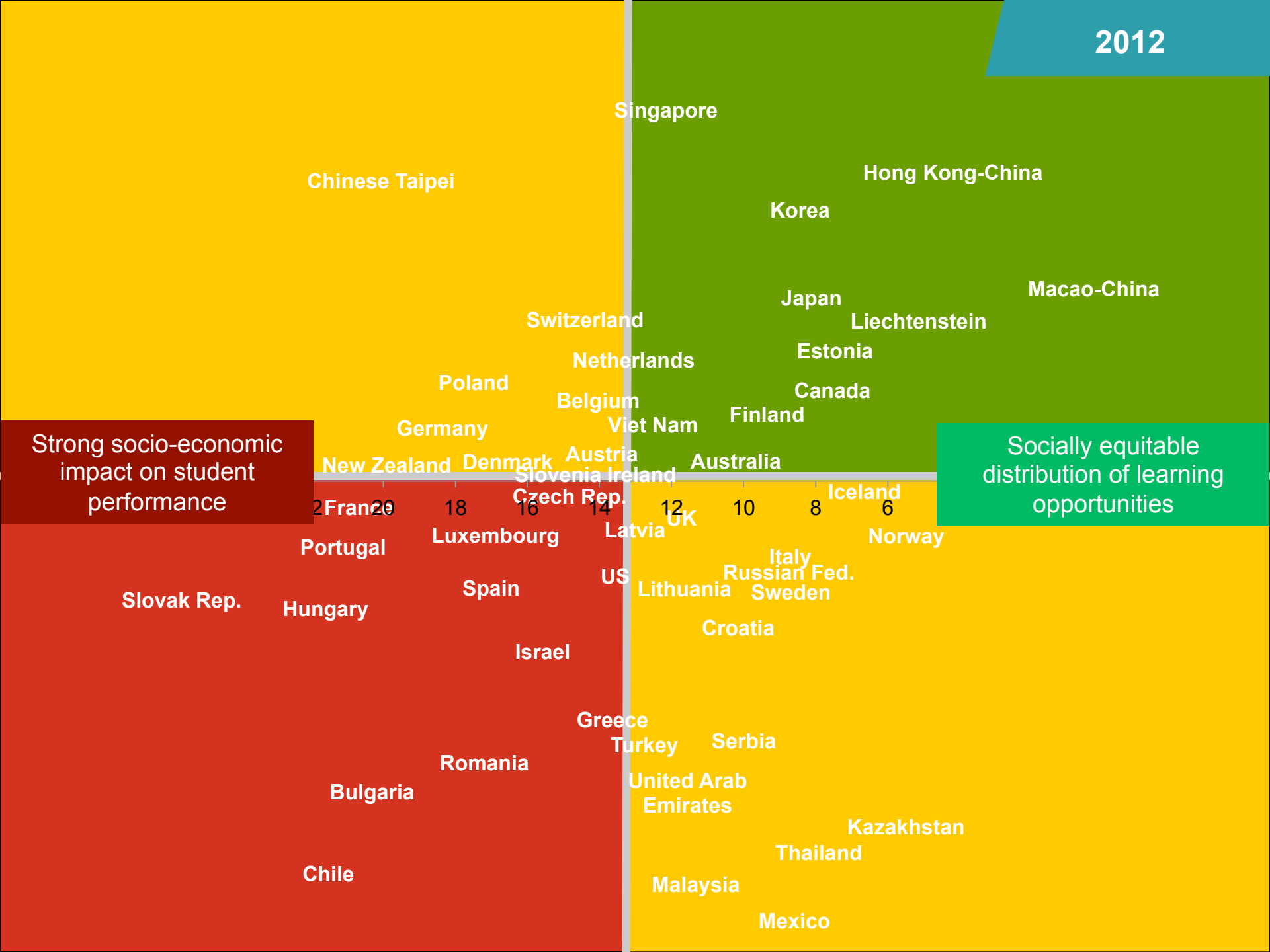
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Strong socio-economic impact on student performance
Socially equitable distribution of learning opportunities
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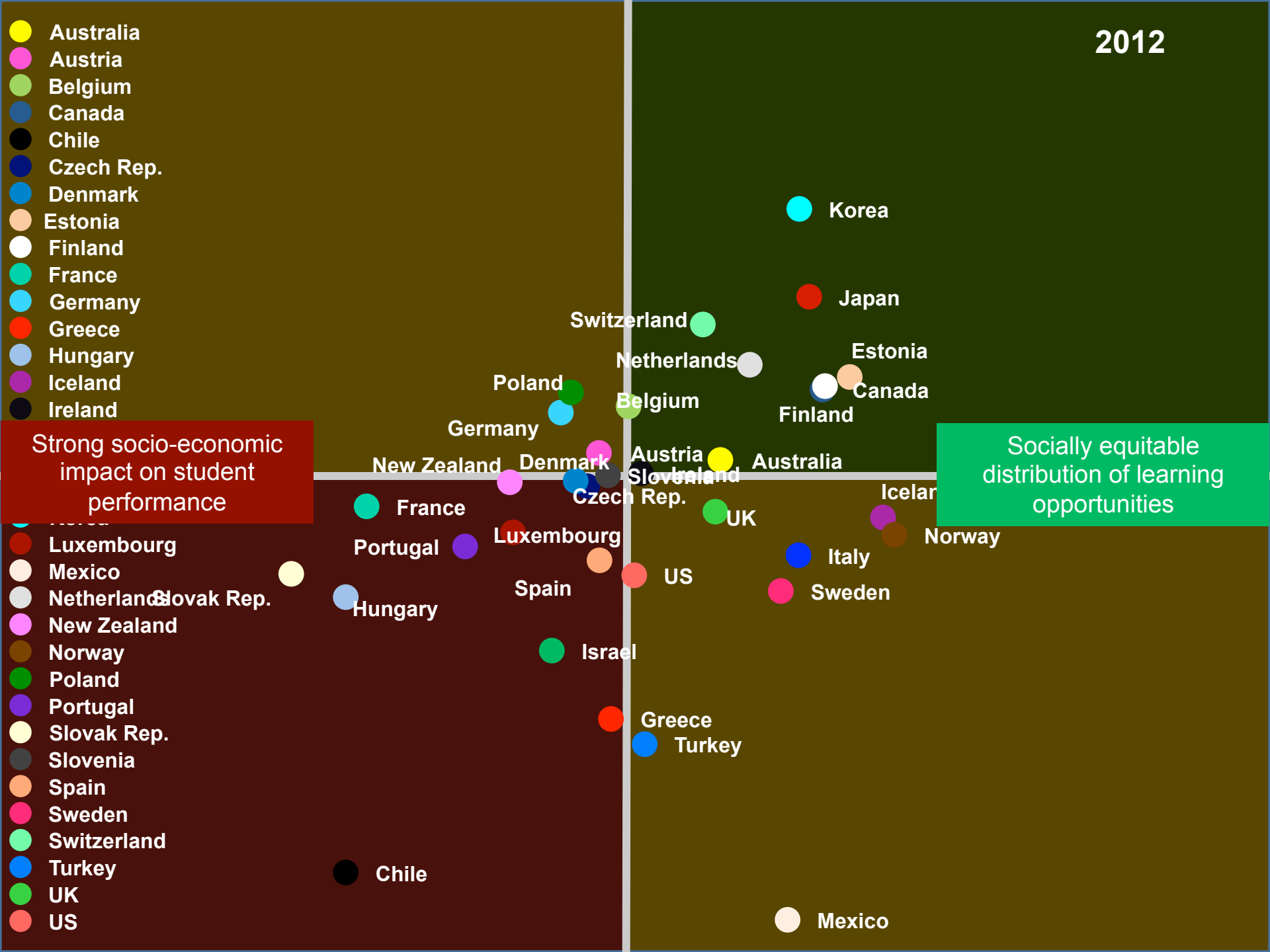
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Socially equitable distribution of learning opportunities
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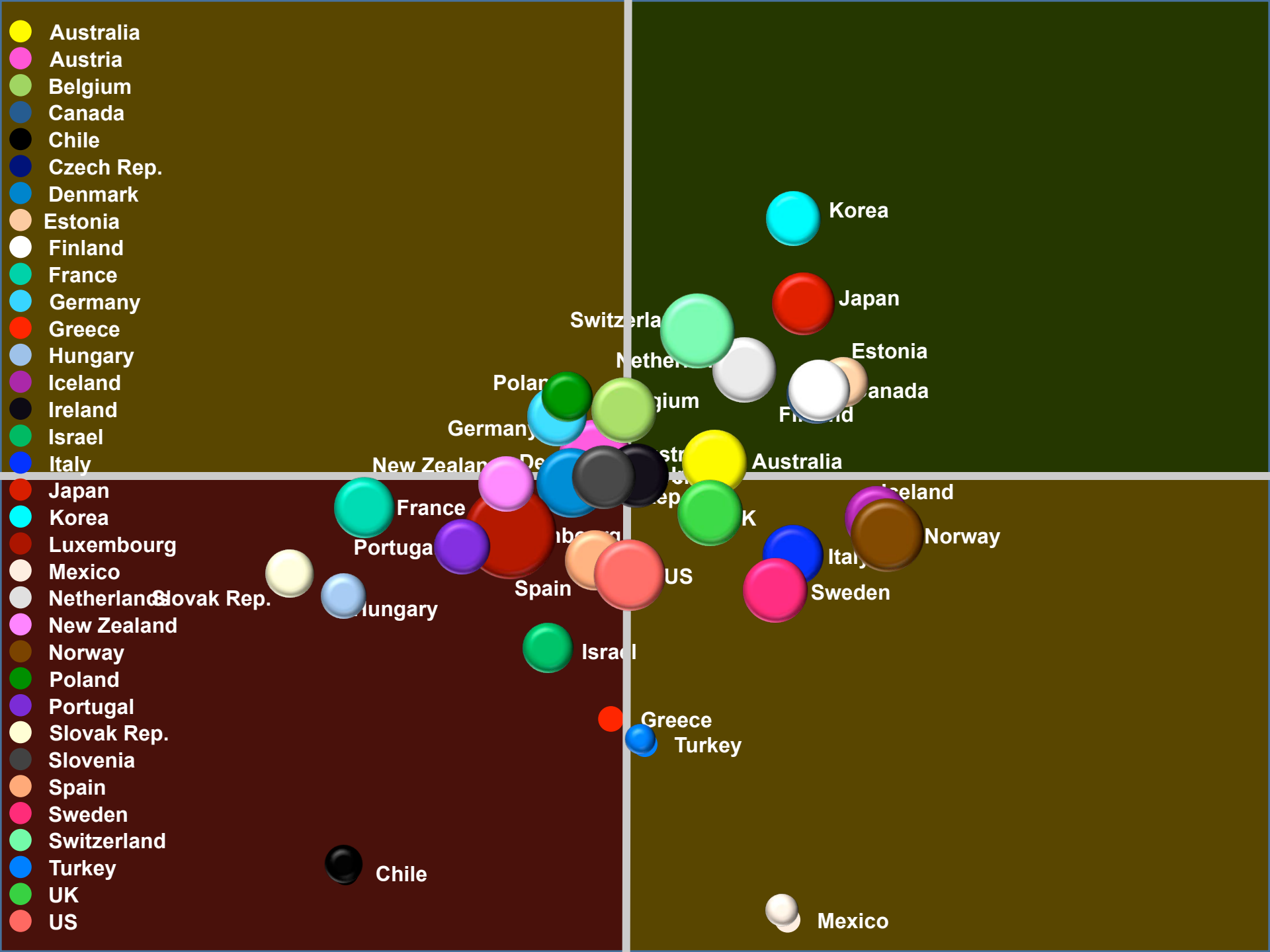
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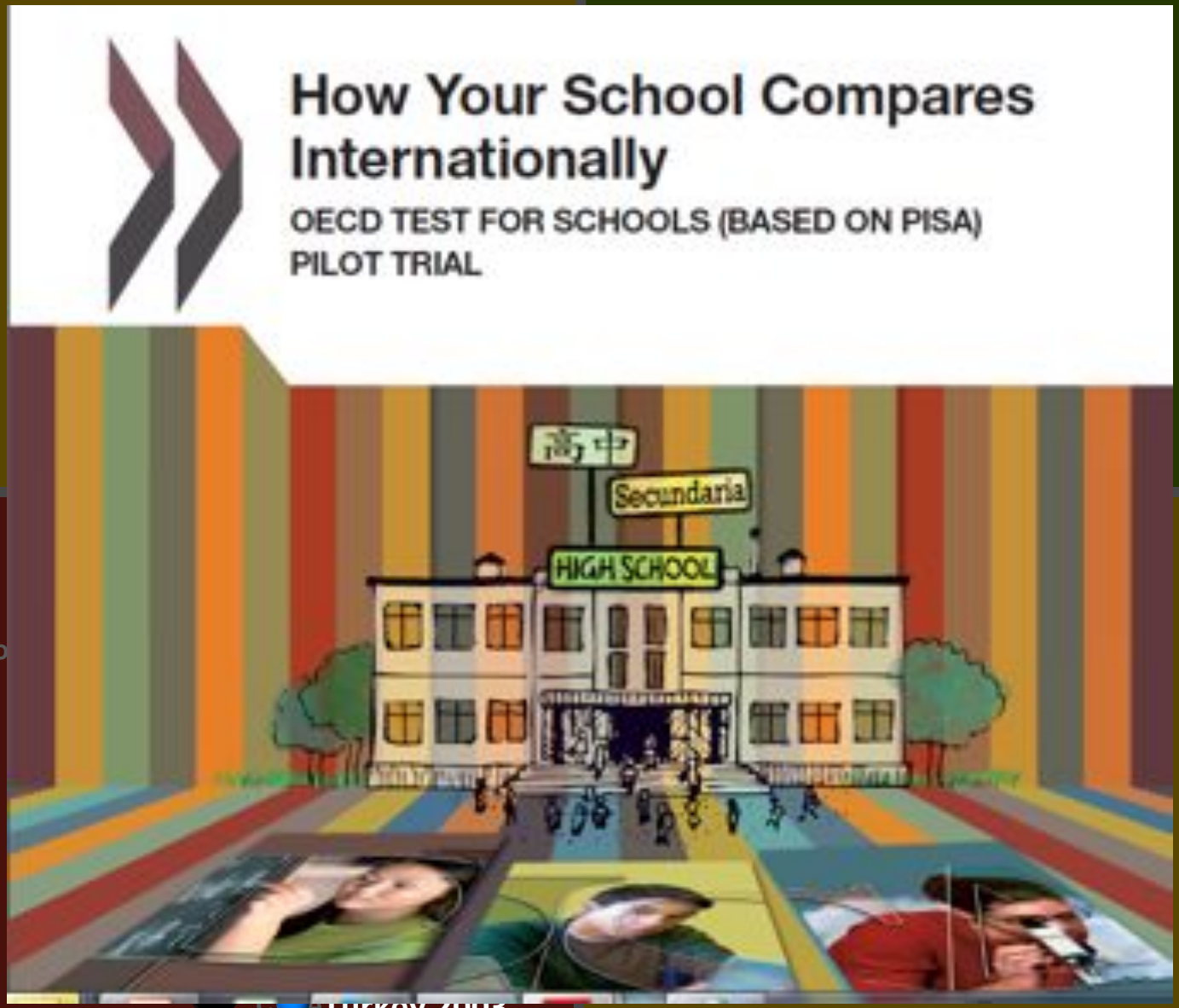
Shanghai

2003 - 2012

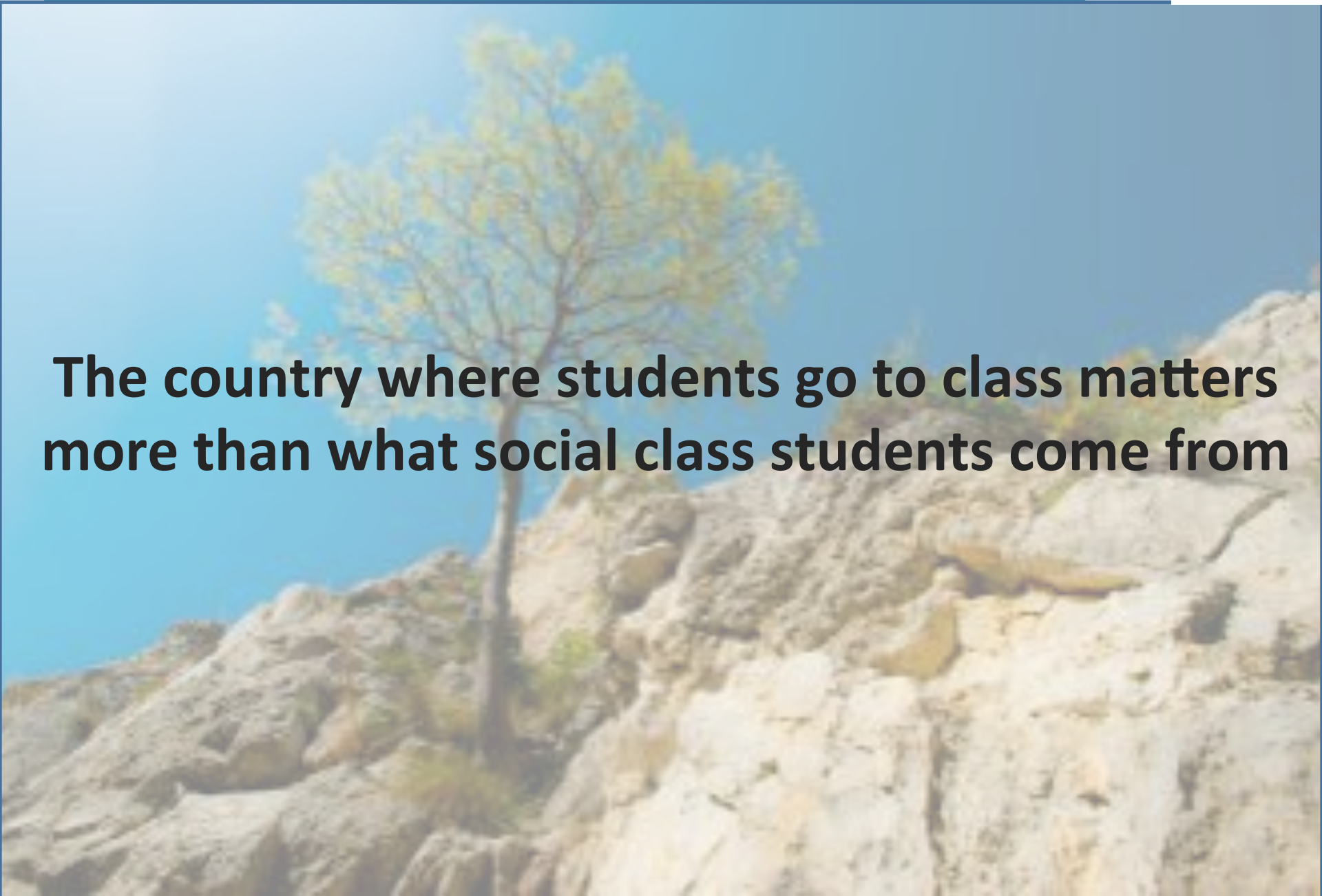


Turkey 2003

Chile 2001

Mexico

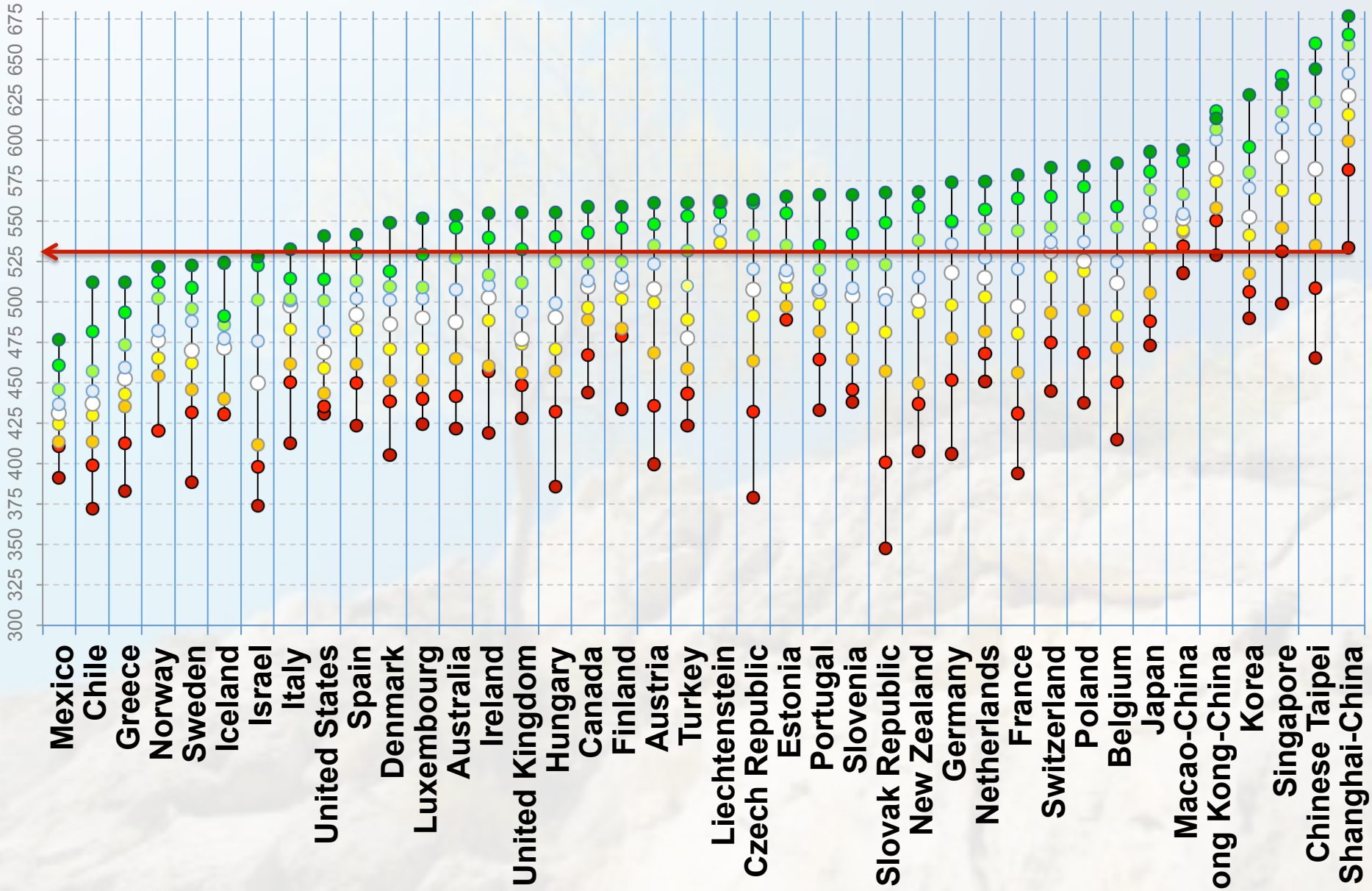
Fostering resilience



The country where students go to class matters more than what social class students come from

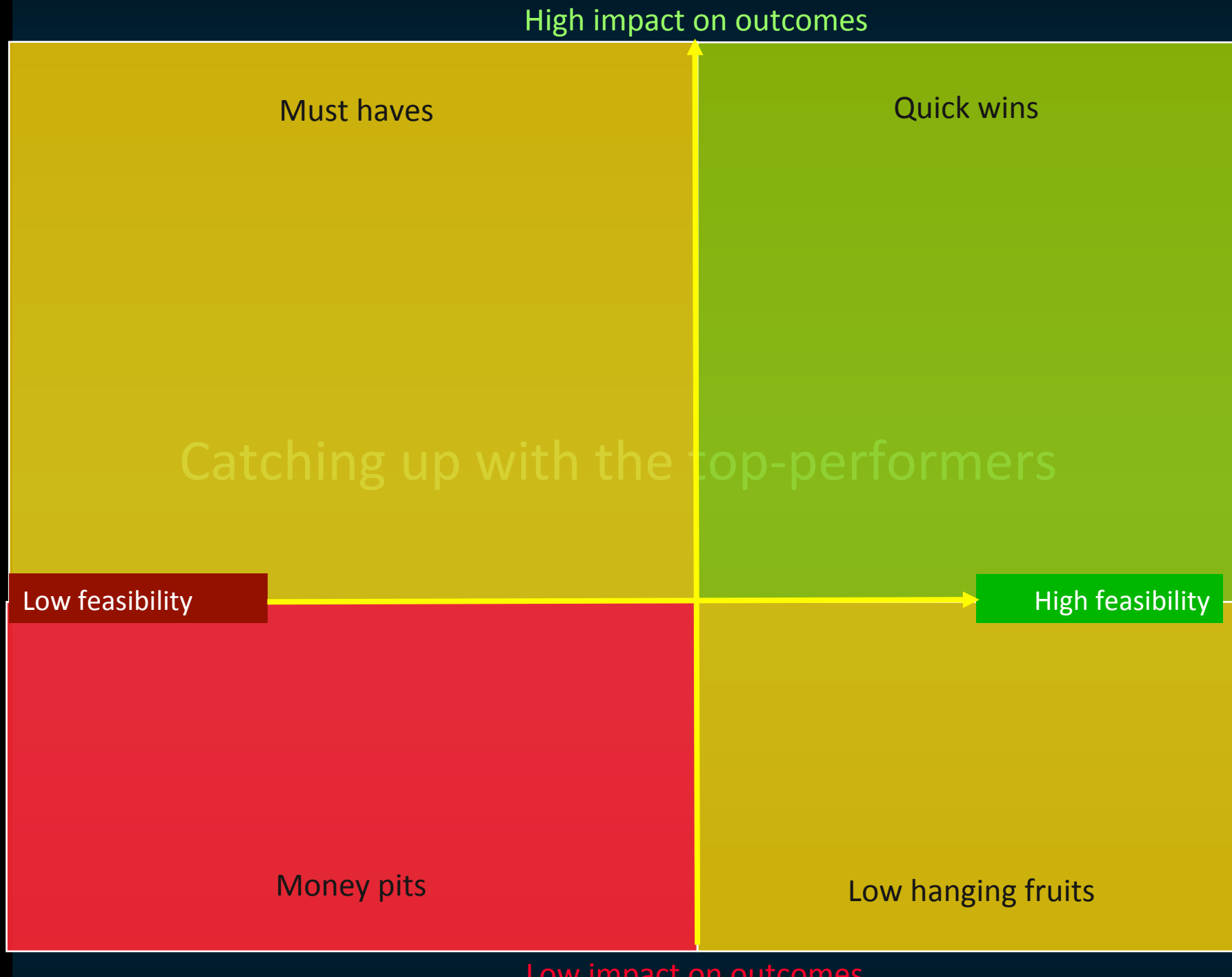
Resilience in education

PISA performance by decile of social background

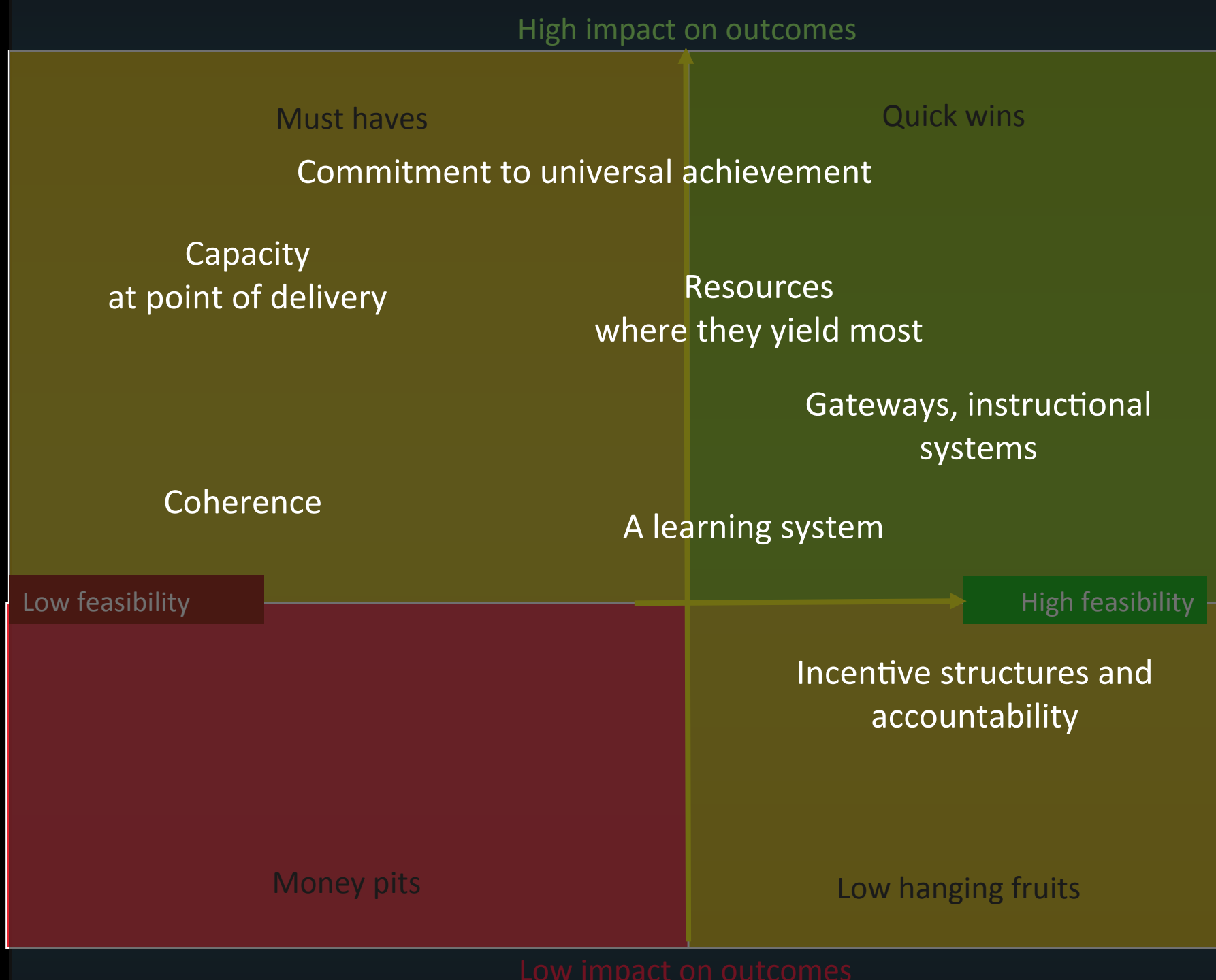


Source: PISA 2012

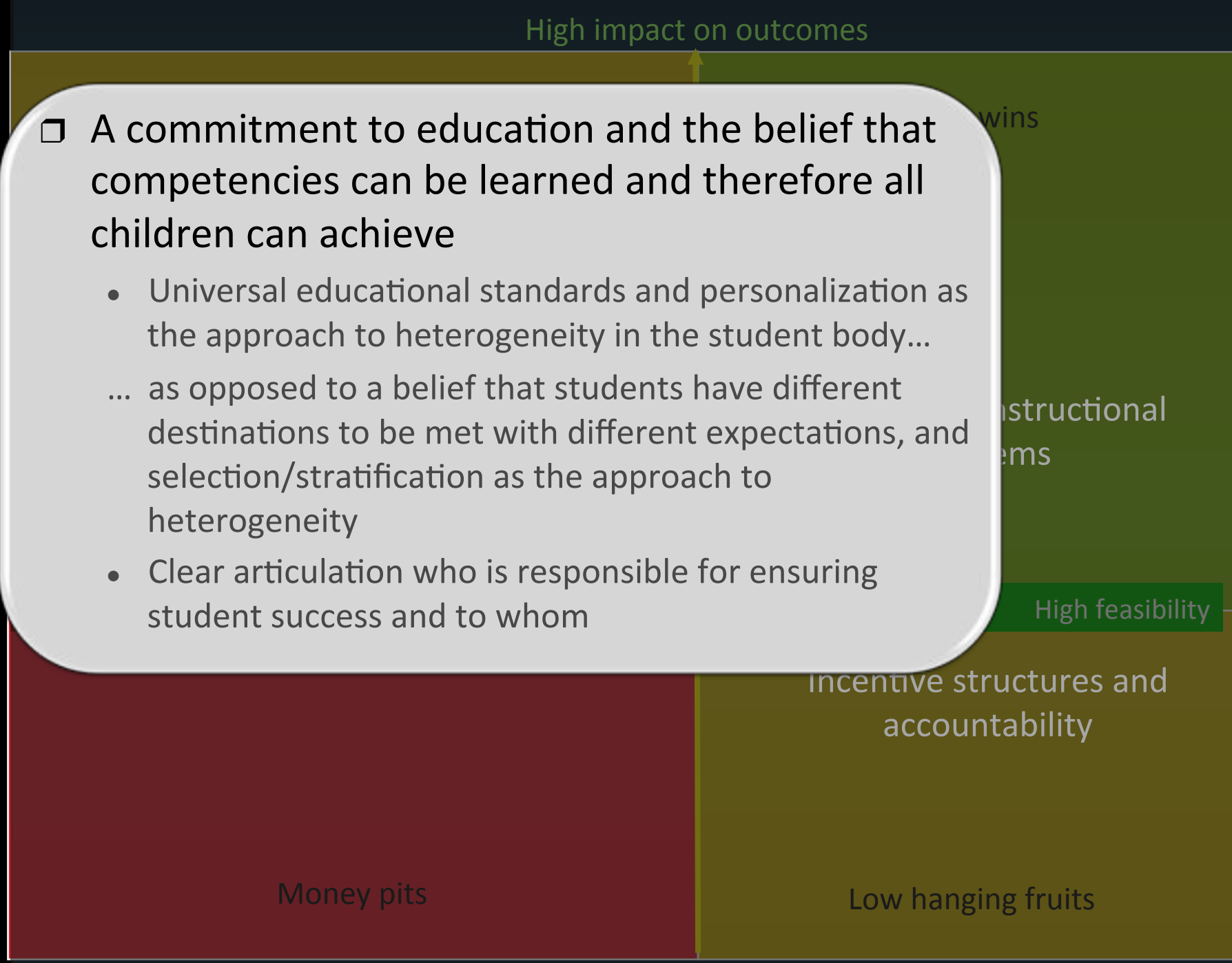
Lessons from high performers



Lessons from high performers



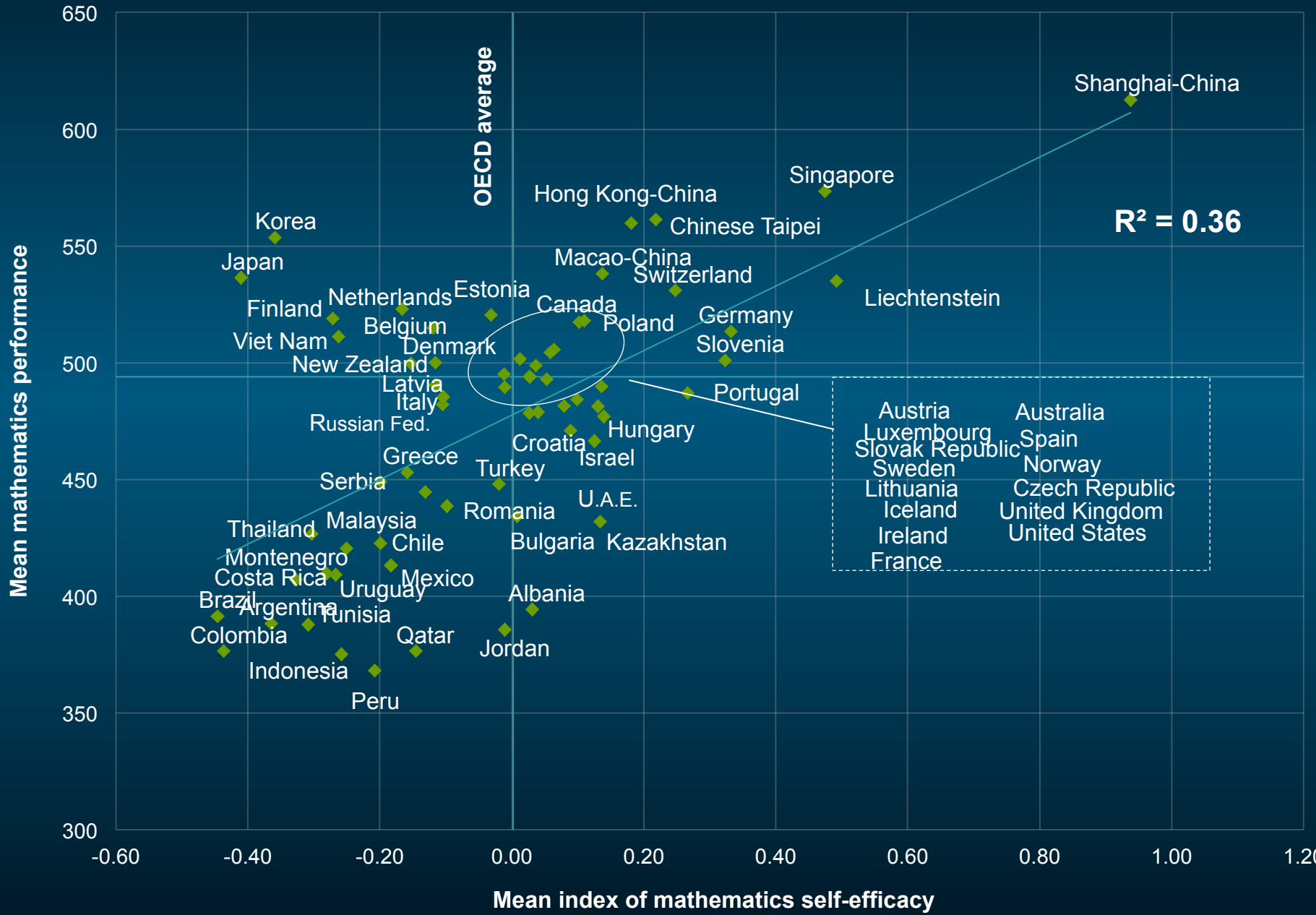
Lessons from high performers



- A commitment to education and the belief that competencies can be learned and therefore all children can achieve
  - Universal educational standards and personalization as the approach to heterogeneity in the student body…
  - … as opposed to a belief that students have different destinations to be met with different expectations, and selection/stratification as the approach to heterogeneity
  - Clear articulation who is responsible for ensuring student success and to whom

Countries where students have stronger beliefs in their abilities perform better in mathematics

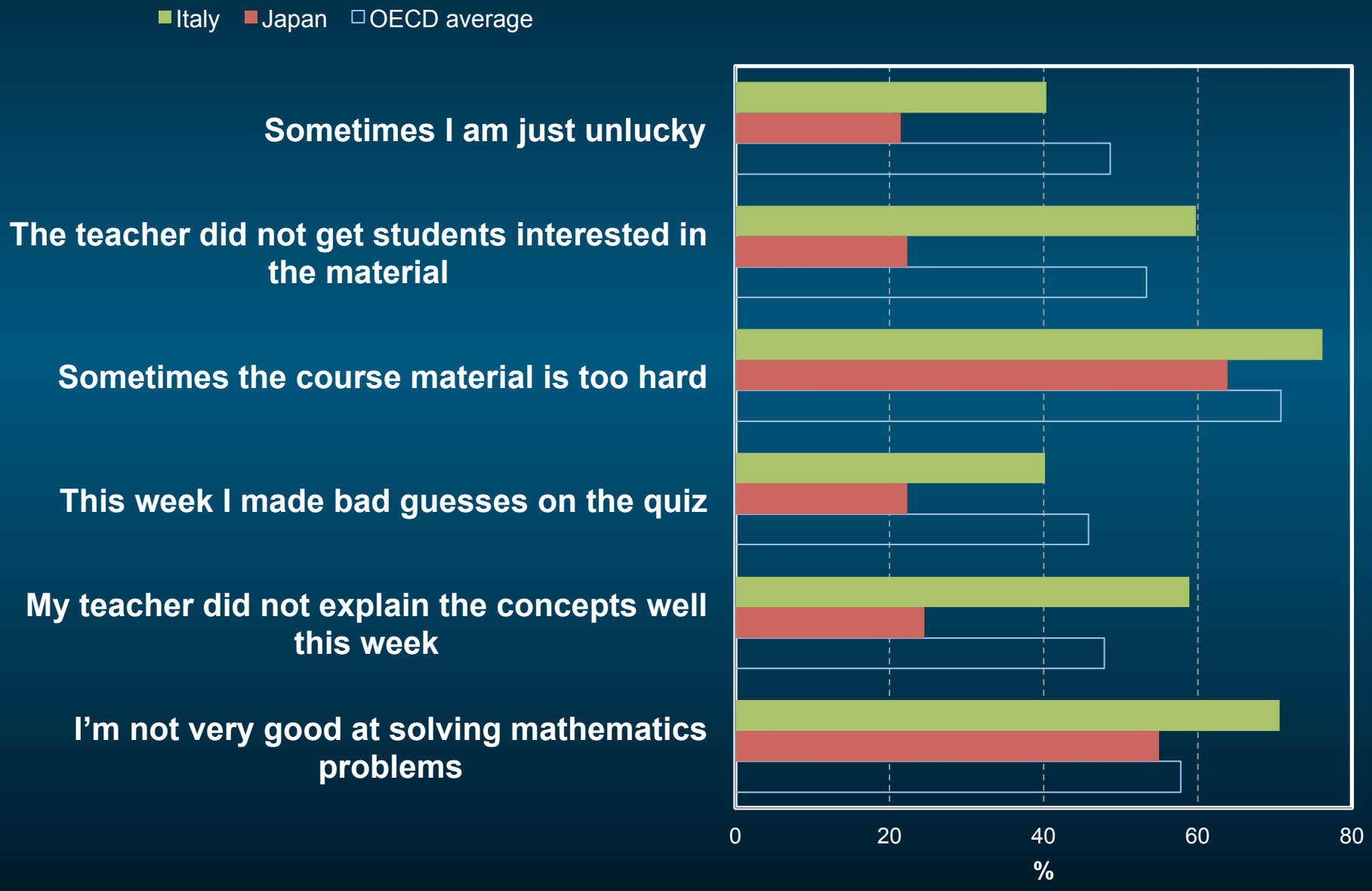
Fig III.4.5



Perceived self-responsibility for failure in mathematics

Fig III.3.6

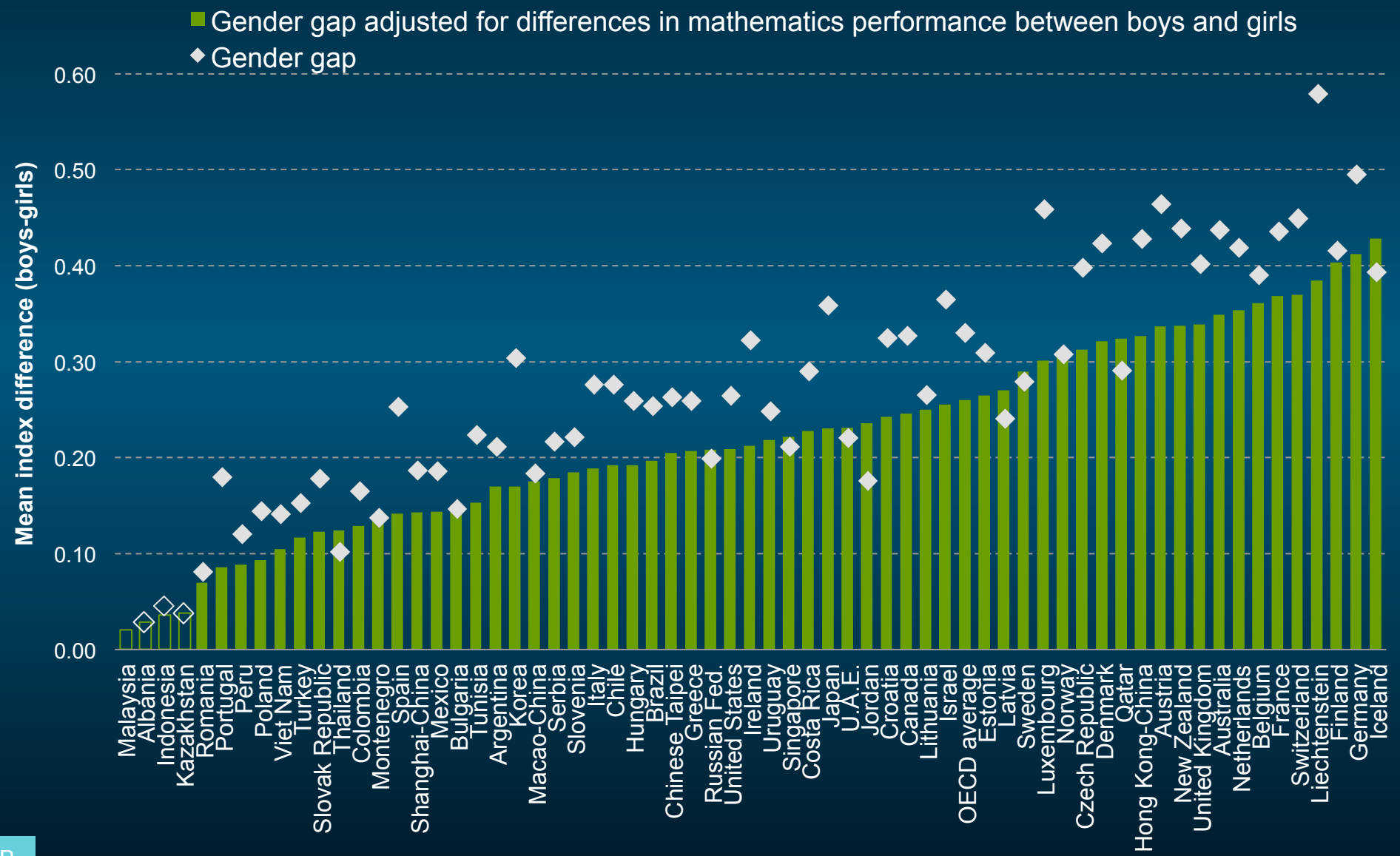
Percentage of students who reported "agree" or "strongly agree" with the following statements:



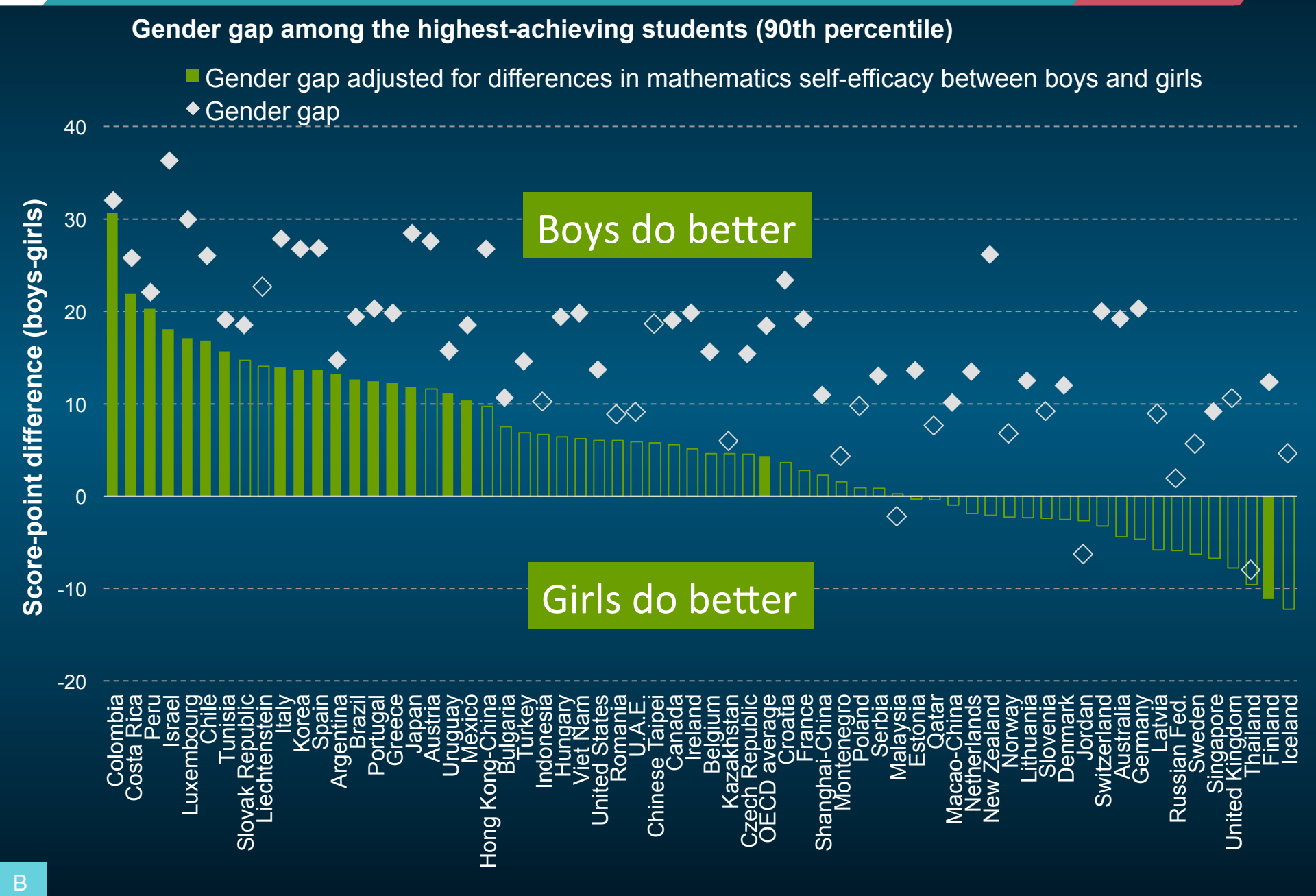
Boys tend to have greater beliefs in their mathematics abilities than girls

Fig III.7.7

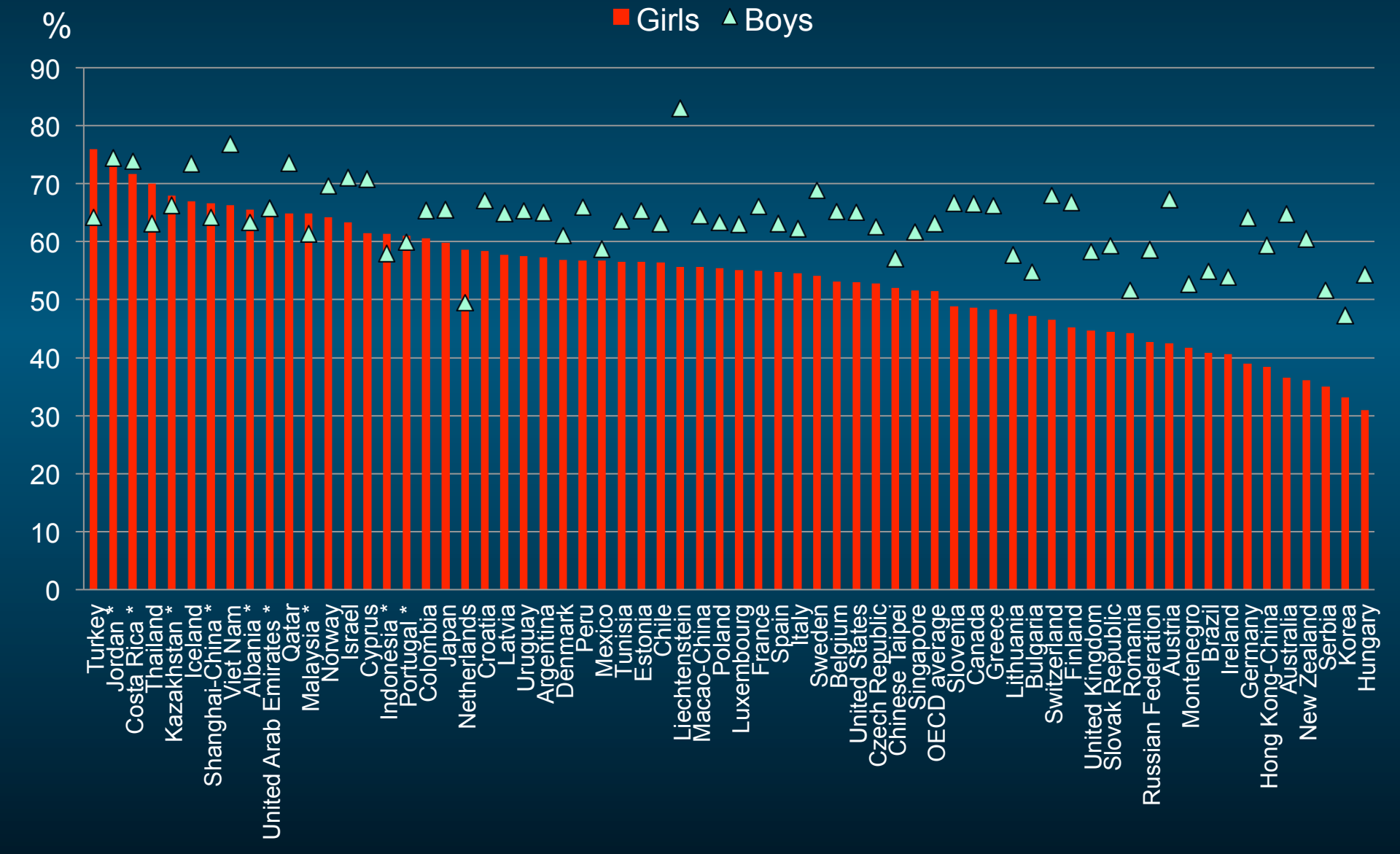
Difference in the mean index



Greater self-efficacy among girls could shrink the gender gap in mathematics performance, particularly among the highest-performing students



Percentage of girls and boys who intend to take additional mathematics, rather than language, courses after they leave school



A continuum of support

Make learning central, encourage engagement and responsibility

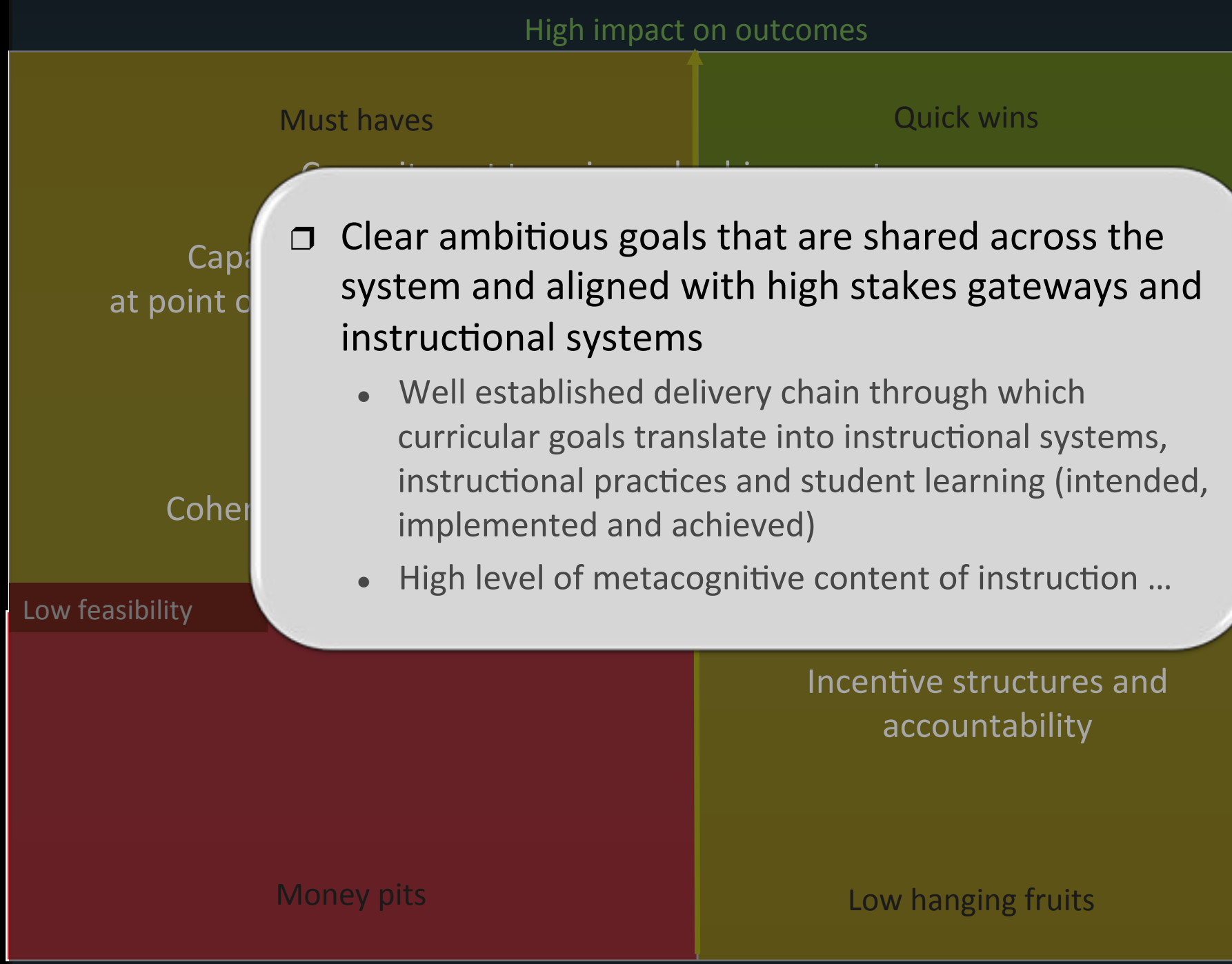
Be acutely sensitive to individual differences

Provide continual assessment with formative feedback

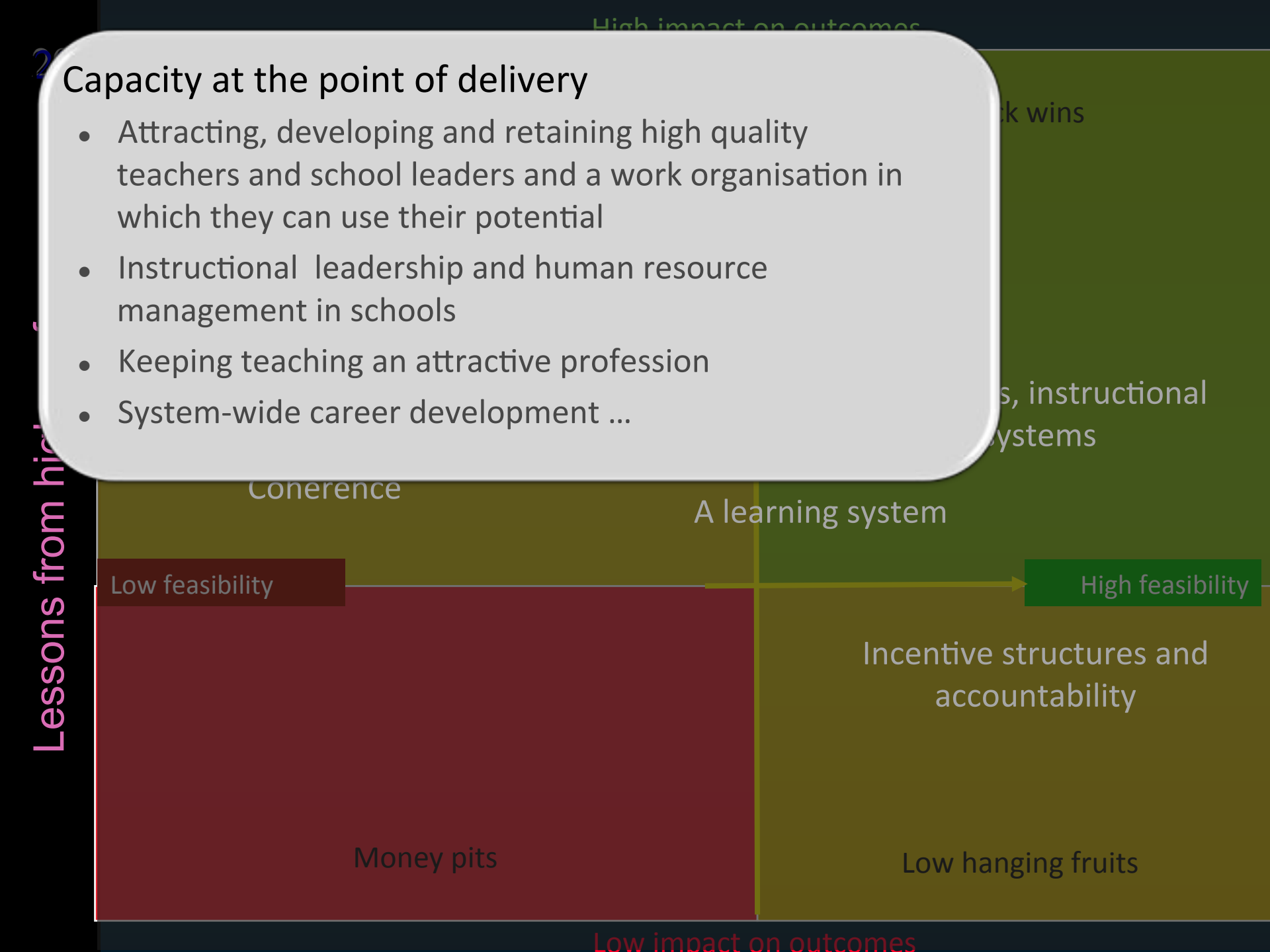
Be demanding for every student

Ensure that students feel valued and included and learning is collaborative

Lessons from high performers

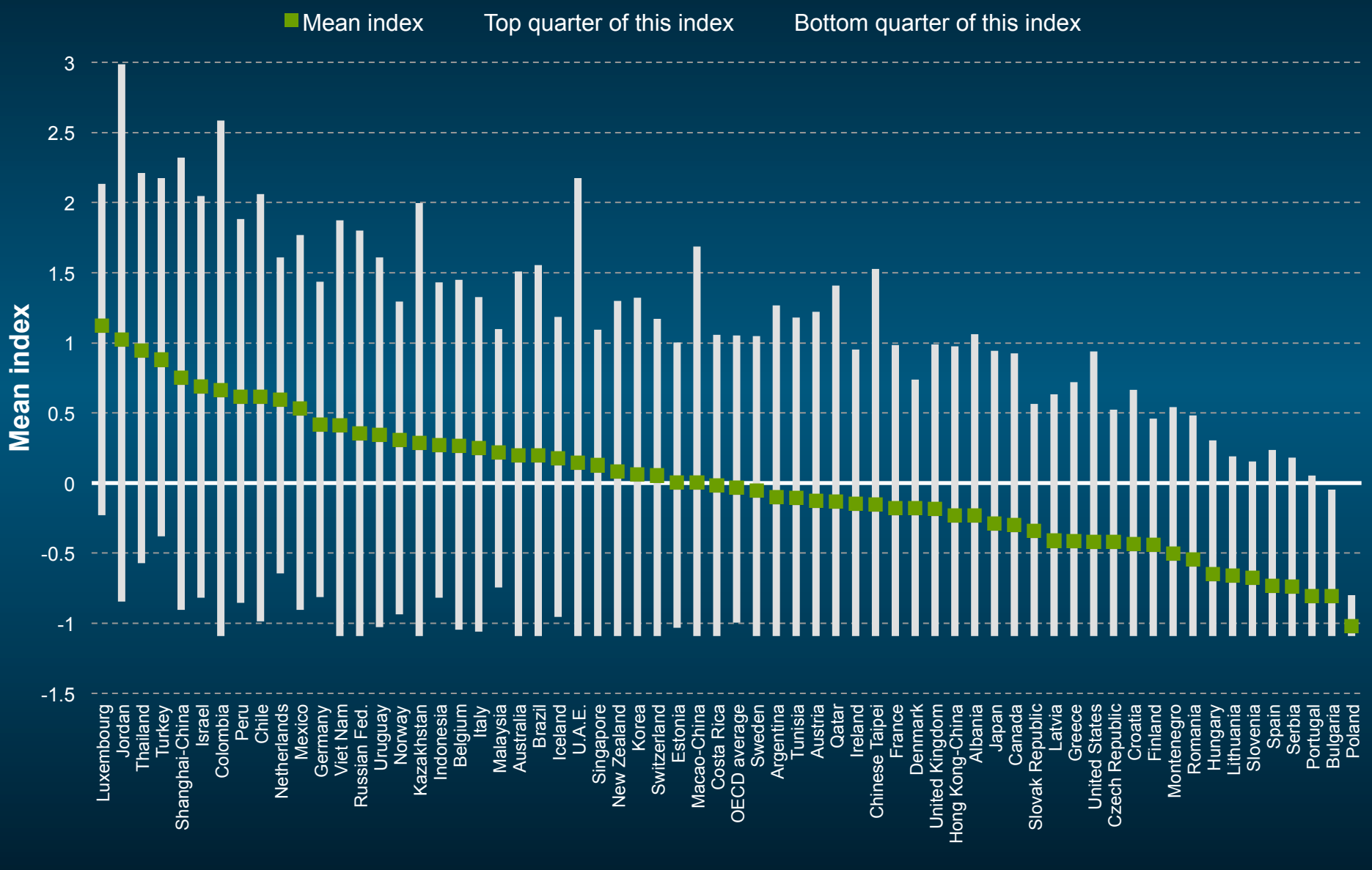


- Clear ambitious goals that are shared across the system and aligned with high stakes gateways and instructional systems
  - Well established delivery chain through which curricular goals translate into instructional systems, instructional practices and student learning (intended, implemented and achieved)
  - High level of metacognitive content of instruction …


Capacity at the point of delivery
• Attracting, developing and retaining high quality teachers and school leaders and a work organisation in which they can use their potential
• Instructional leadership and human resource management in schools
• Keeping teaching an attractive profession
• System-wide career development …
Lessons from high
High impact on outcomes
k wins
s, instructional
ystems
Coherence
A learning system
Low feasibility
High feasibility
Incentive structures and accountability
Money pits
Low hanging fruits
Low impact on outcomes

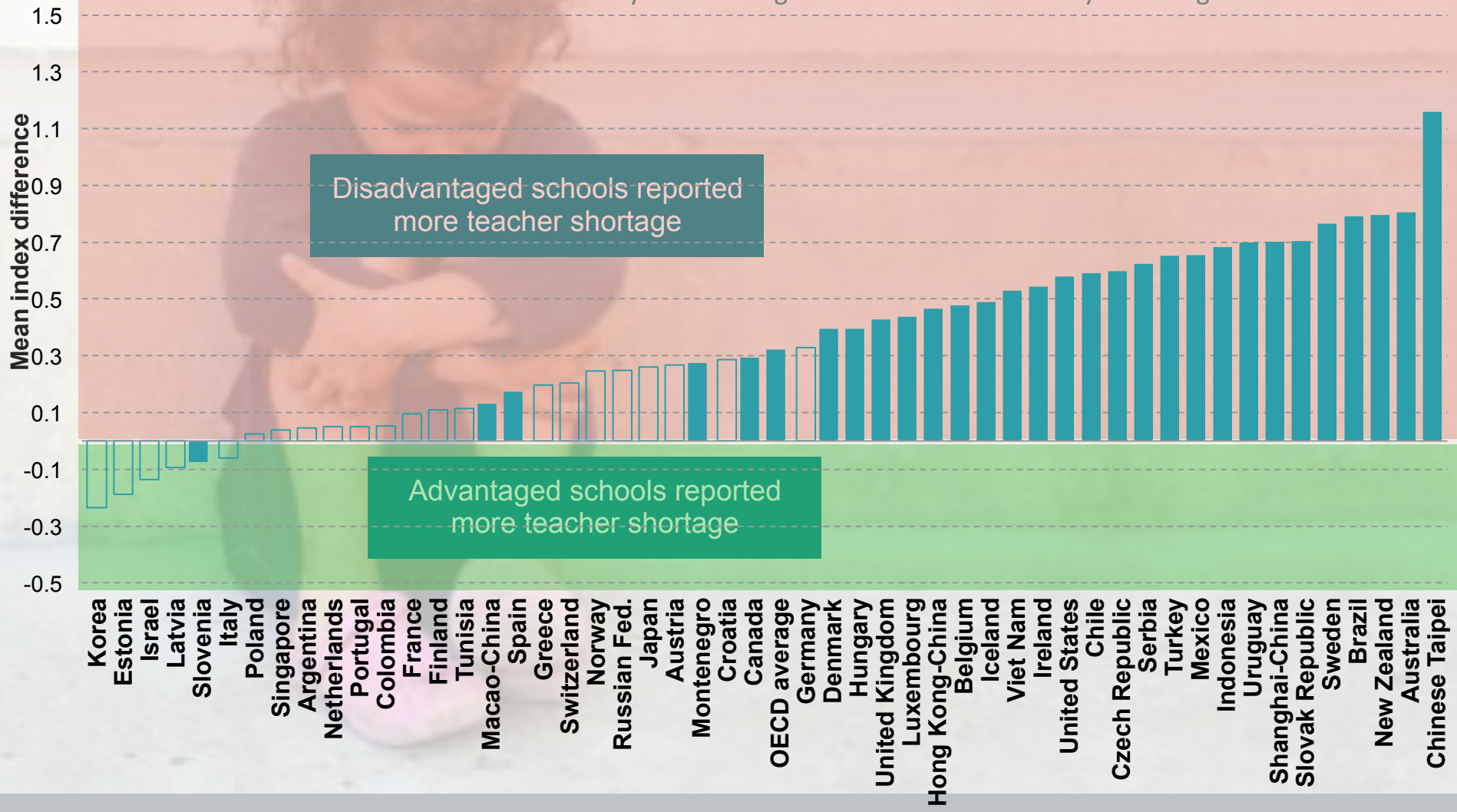
Teacher shortage

Fig IV.3.5



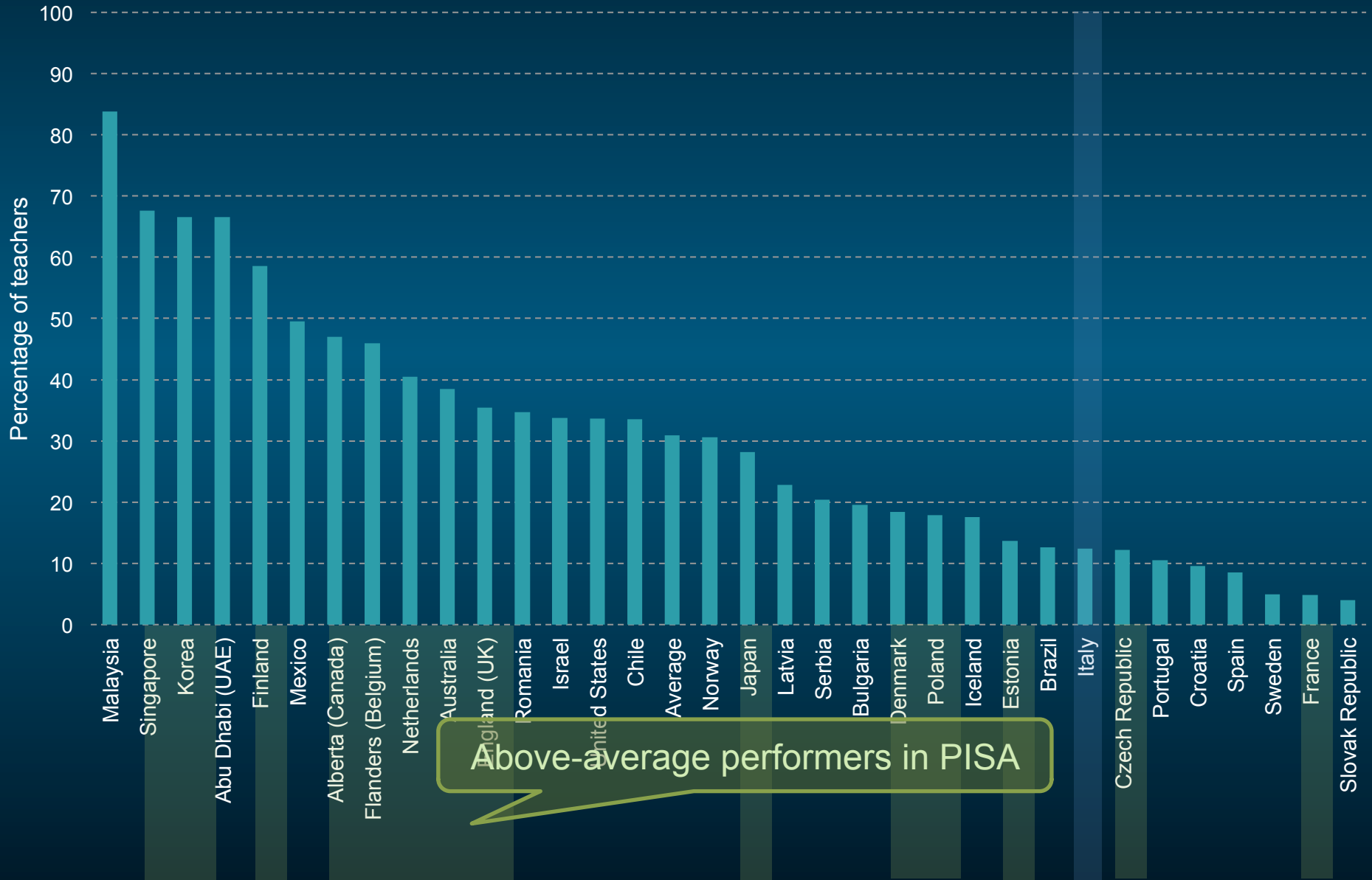
Adequate resources to address disadvantage

A shortage of qualified teachers is more of concern in disadvantaged schools



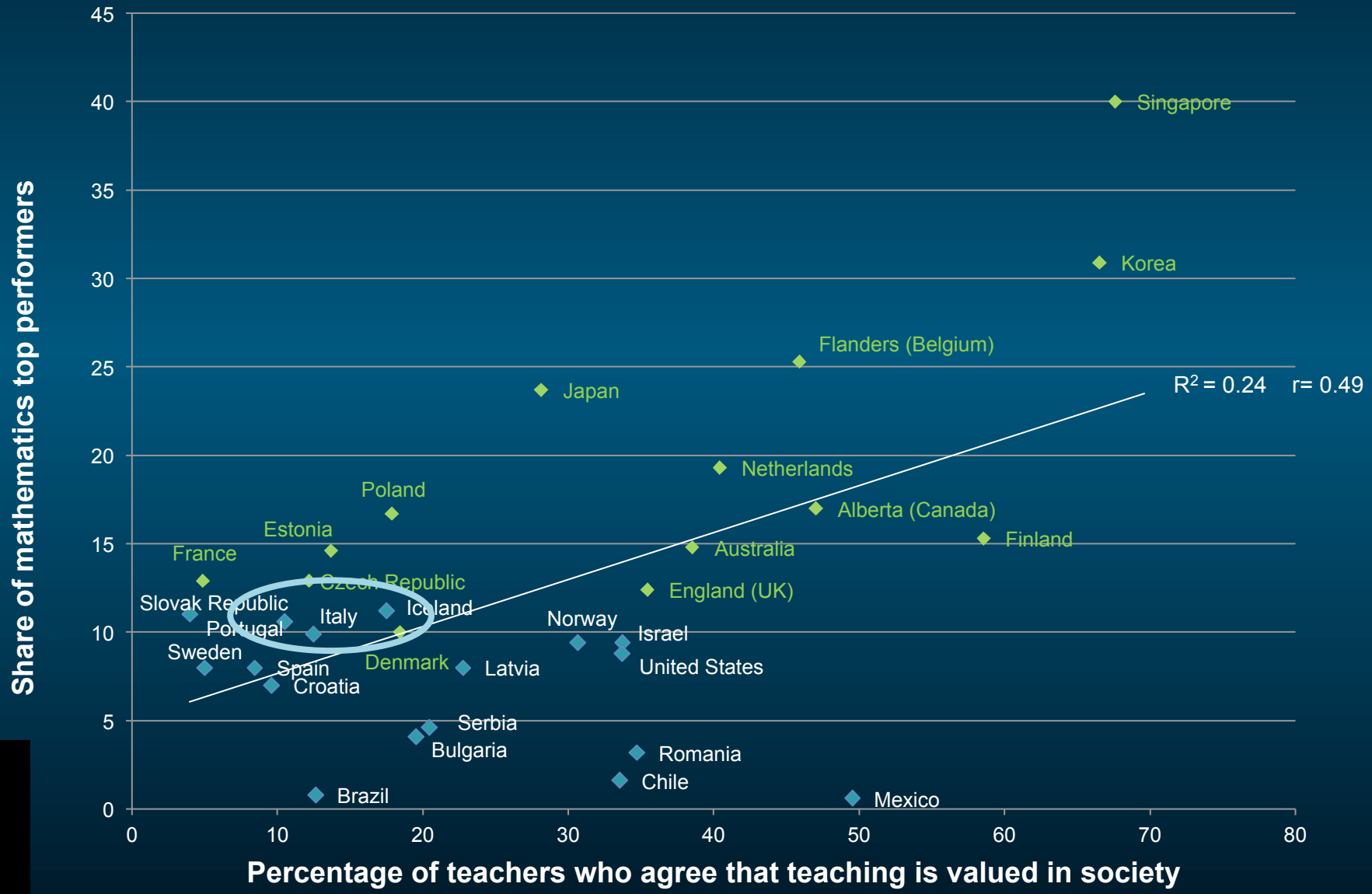
Teachers' perceptions of the value of teaching

Percentage of lower secondary teachers who "agree" or "strongly agree" that teaching profession is a valued profession in society



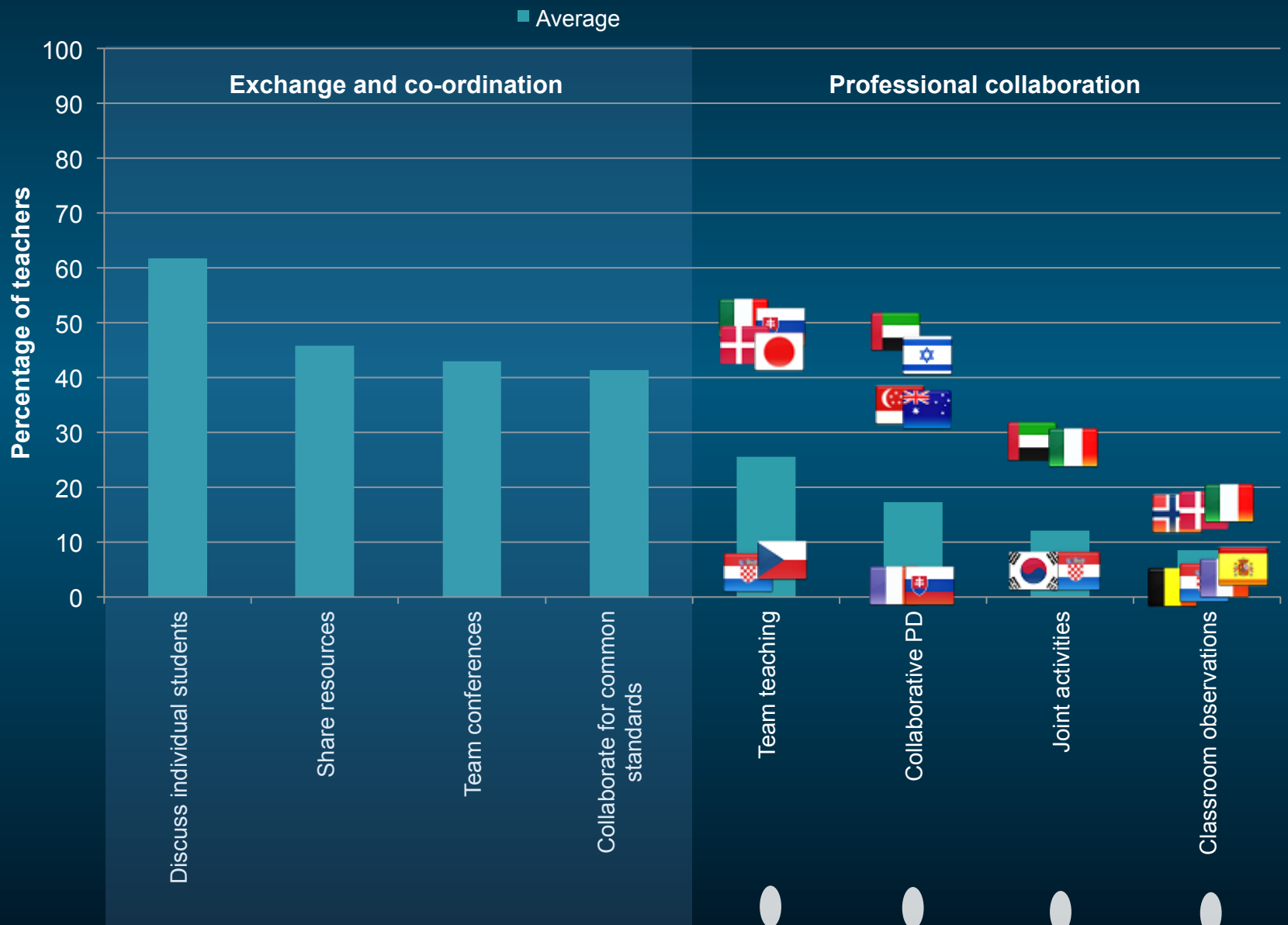
Countries where teachers believe their profession is valued s how higher levels of student achievement

Relationship between lower secondary teachers' views on the value of their profession in society and the country's s hare of top mathematics performers in PISA 2012



Teacher co-operation

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



Drivers of job satisfaction

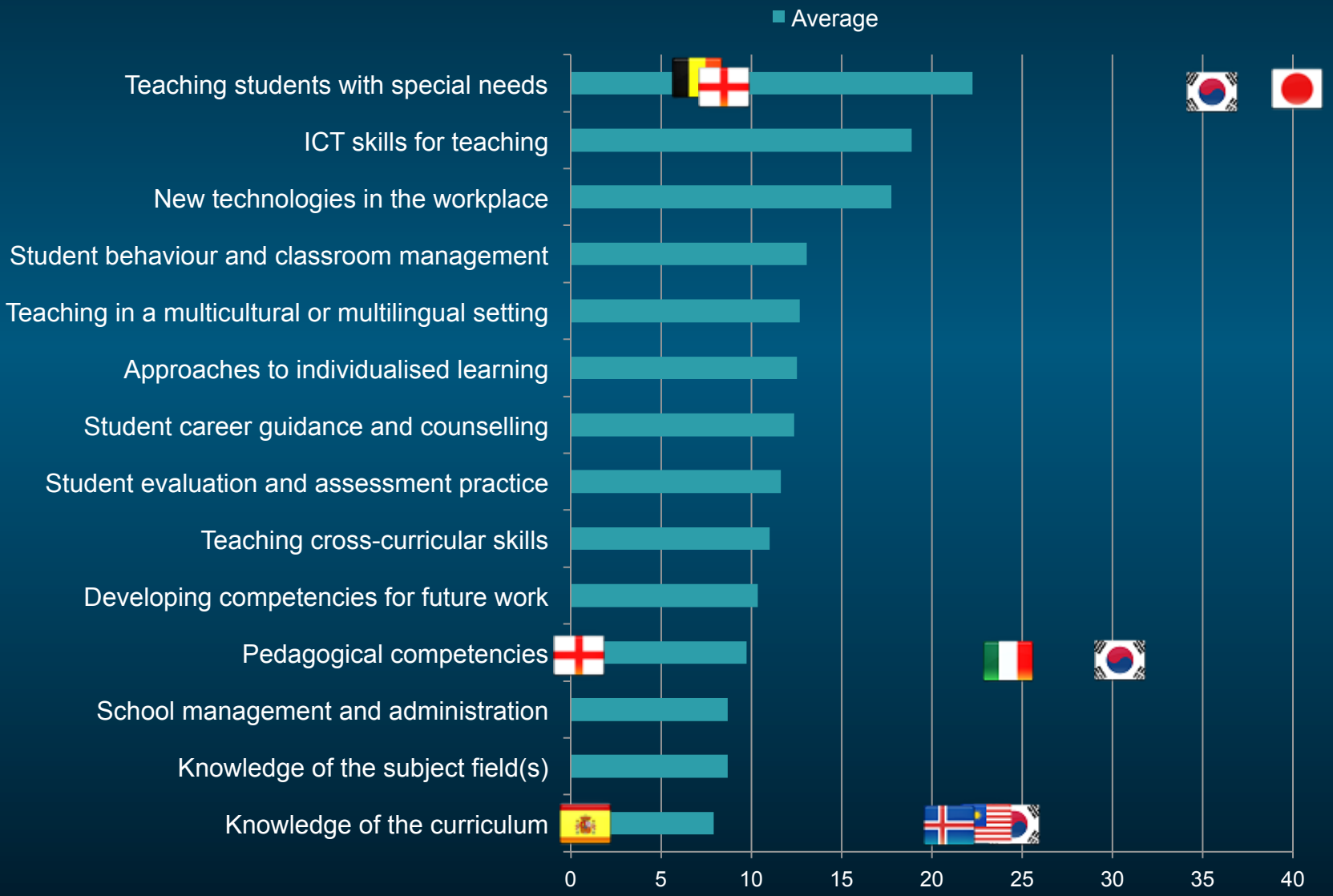
The more frequently that teachers report participating in ***collaborative practices*** with their colleagues,

the higher their level of ***self-efficacy***.

The same is true for ***job satisfaction***.

Teachers' needs for professional development

Percentage of lower secondary teachers indicating they have a high level of need for professional development in the fol lowing areas

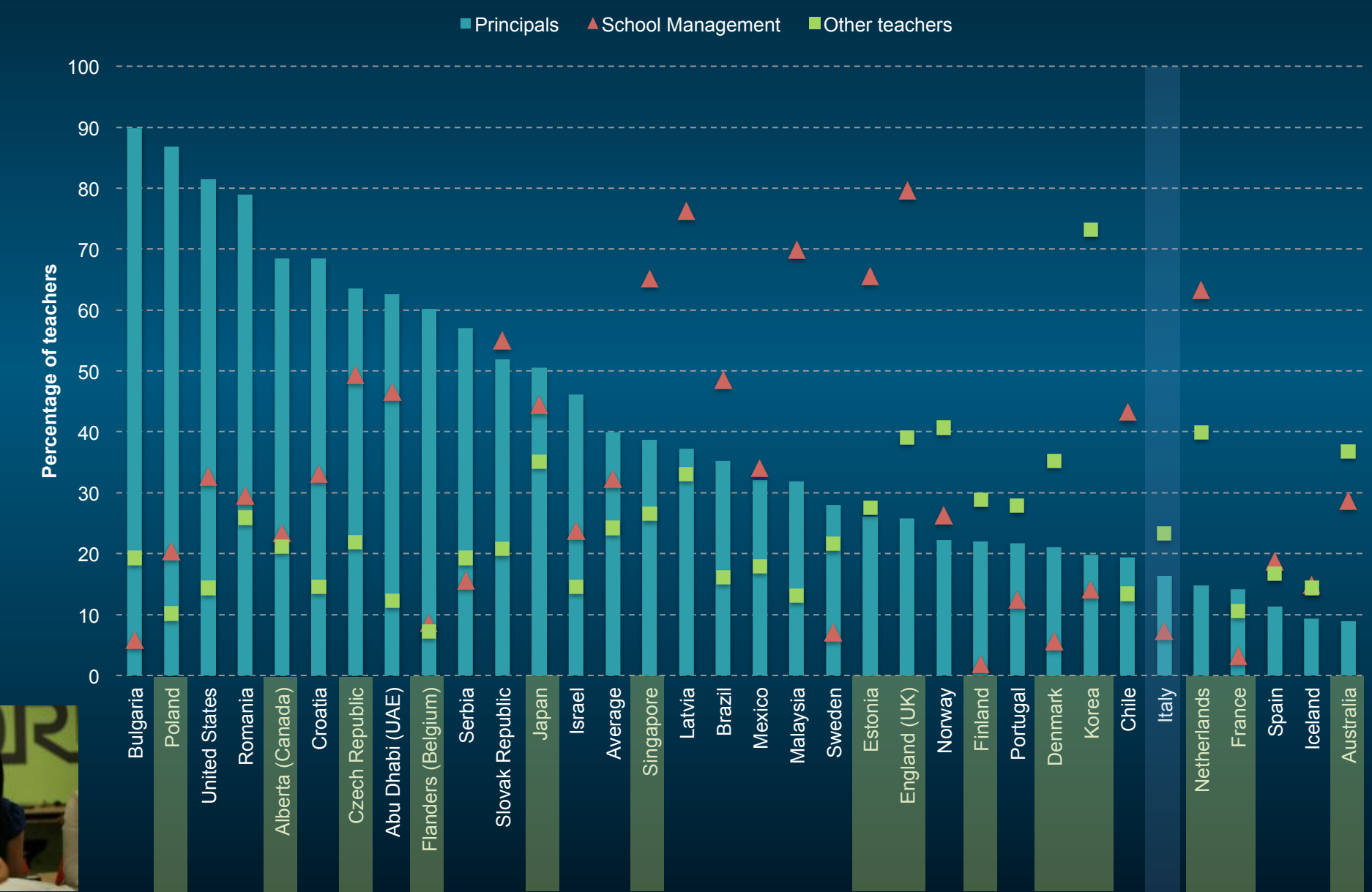


Impact of professional development

Regardless of the cont ent, ***over 3/4 of teache rs*** report that…

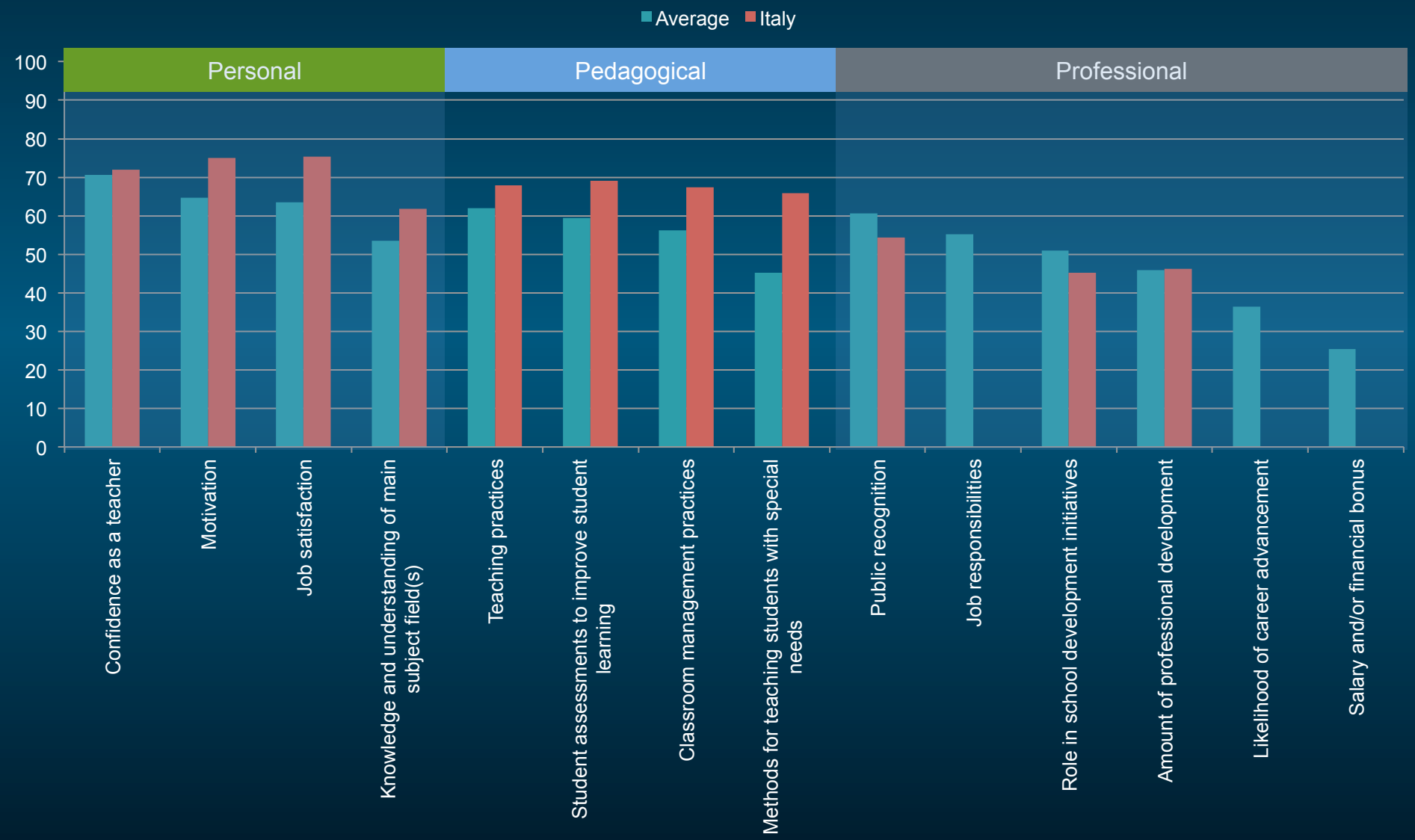
…the ***professional development*** in which they have participated h as had a ***positive impact on thei r teaching***.

Teachers feedback :
direct classroom observations



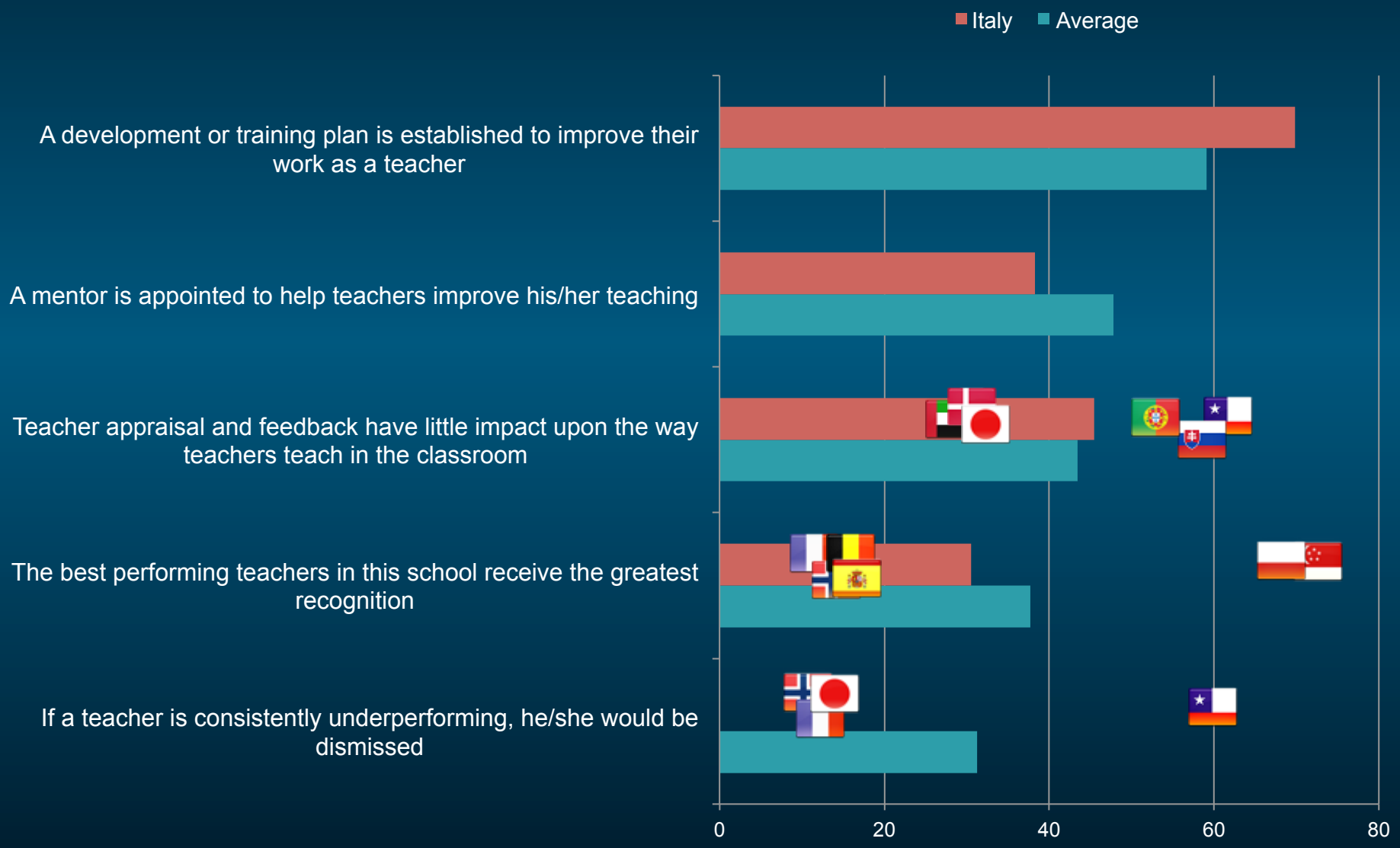
Feedback and change in behavior

Percentage of lower secondary teachers who report a "moderate" or "large" positive change in the following i ssues after they received feedback on their work



Consequences of feedback

Percentage of lower secondary teachers who "agree" or "strongly agree" that:



Teachers and feedback

On average across TALIS countries,

Just above half of the teachers report receiving ***feedback*** on t heir teaching from ***one or two sources***

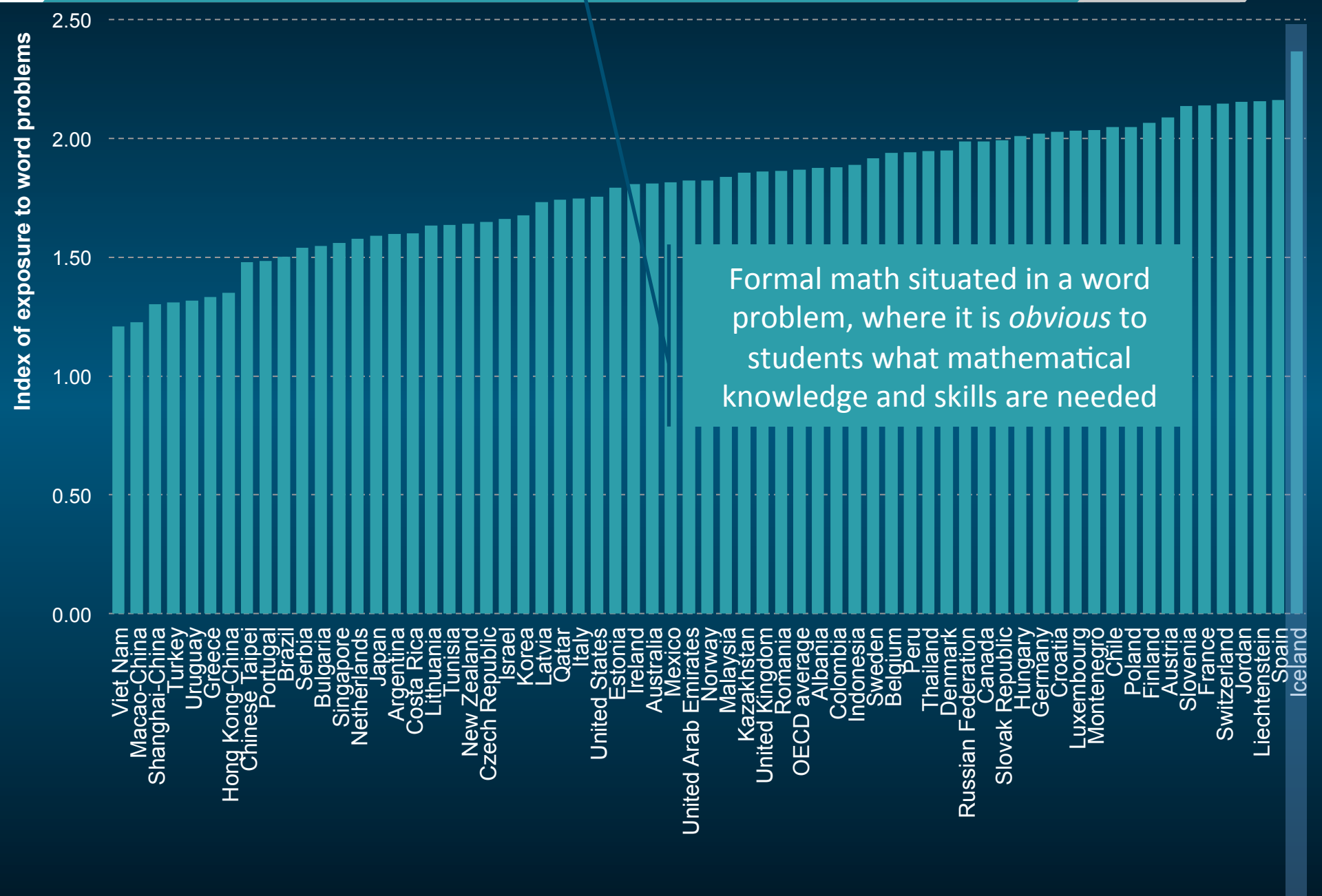
...and only one in 5 receive ***f eedback*** from ***three sources.***

Math teaching ≠ math teaching

PISA = reason mathematically and understand, formulate, employ and interpret mathematical concepts, facts and procedures

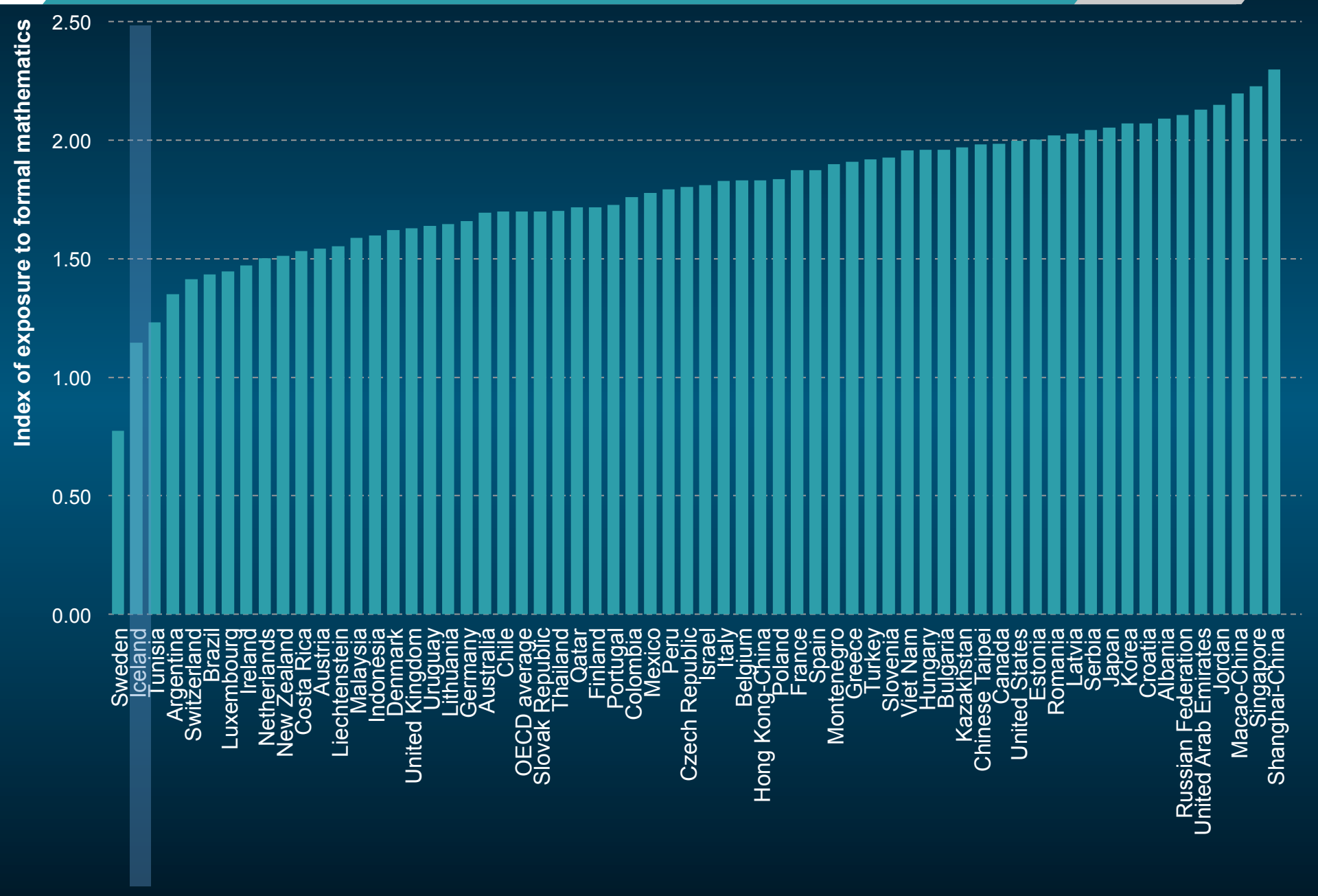
Focus on 'word problems'

Fig I.3.1a



Focus on 'conceptual understanding'

Fig I.3.1b



High impact on outcomes

- Incentives, accountability, knowledge management
  - Aligned incentive structures

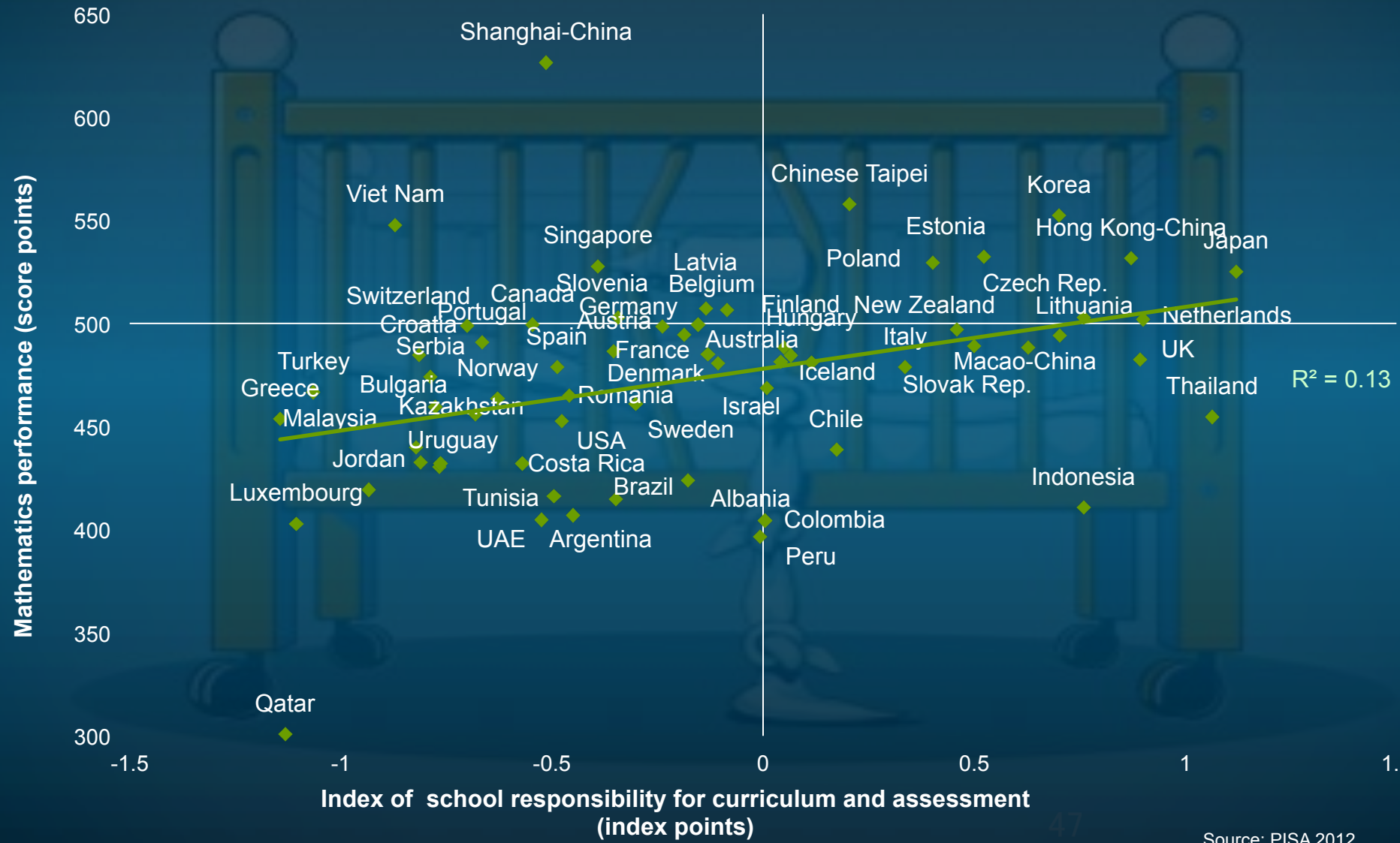
    For students
    - How gateways affect the strength, direction, clarity and nature of the incentives operating on students at each stage of their education
    - Degree to which students have incentives to take tough courses and study hard
    - Opportunity costs for staying in school and performing well

    For teachers
    - Make innovations in pedagogy and/or organisation
    - Improve their own performance and the performance of their colleagues
    - Pursue professional development opportunities that lead to stronger pedagogical practices
  - A balance between vertical and lateral accountability
  - Effective instruments to manage and share knowledge and spread innovation – communication within the system and with stakeholders around it
  - A capable centre with authority and legitimacy to act

Align autonomy with accountability

The question is not how many charter schools you have but how you enable every teacher to assume charter-like autonomy

Countries that grant schools autonomy over curricula and assessments tend to perform better in mathematics

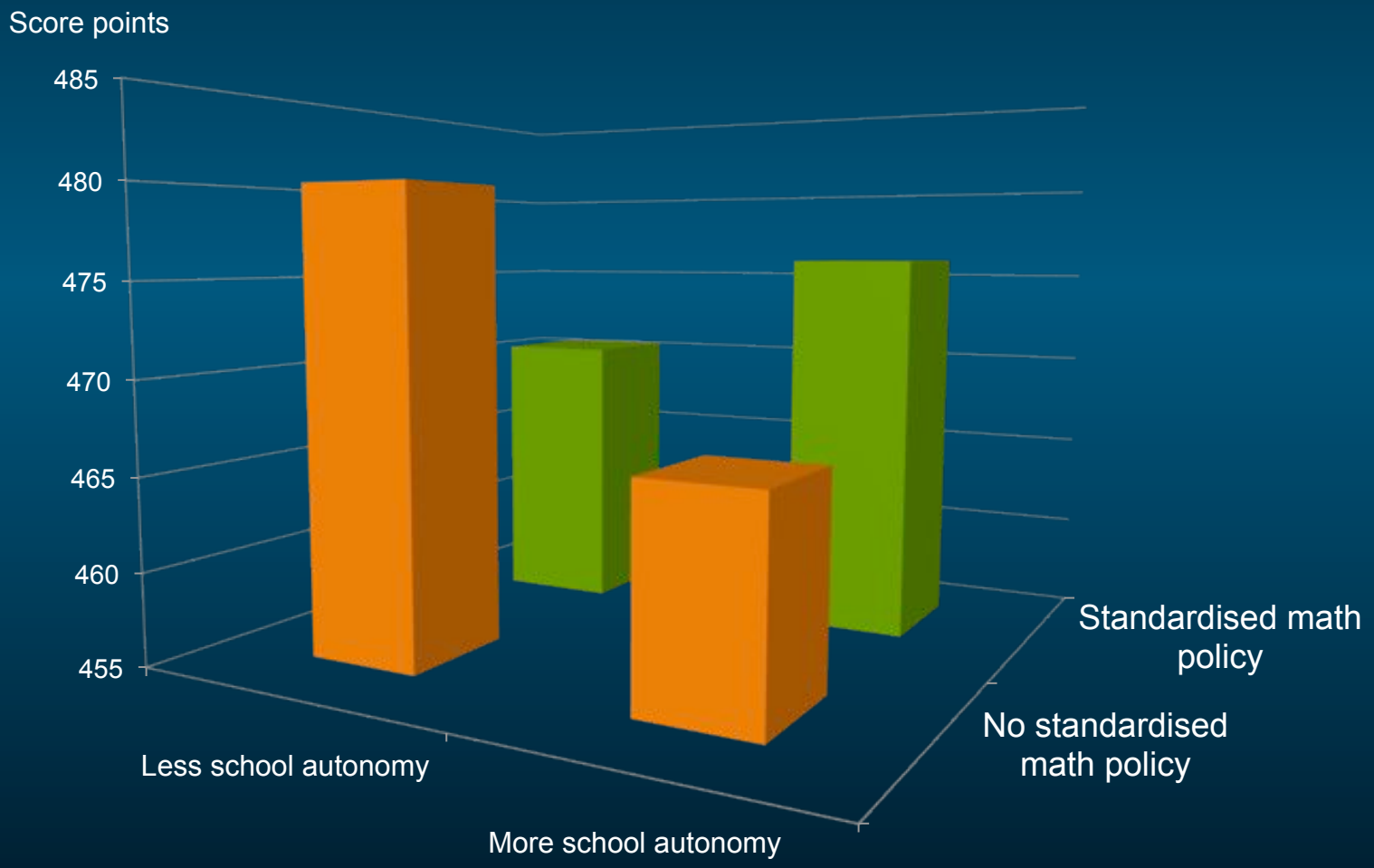


Source: PISA 2012

Schools with more autonomy perform better than schools with less autonomy in systems with standardised math policies

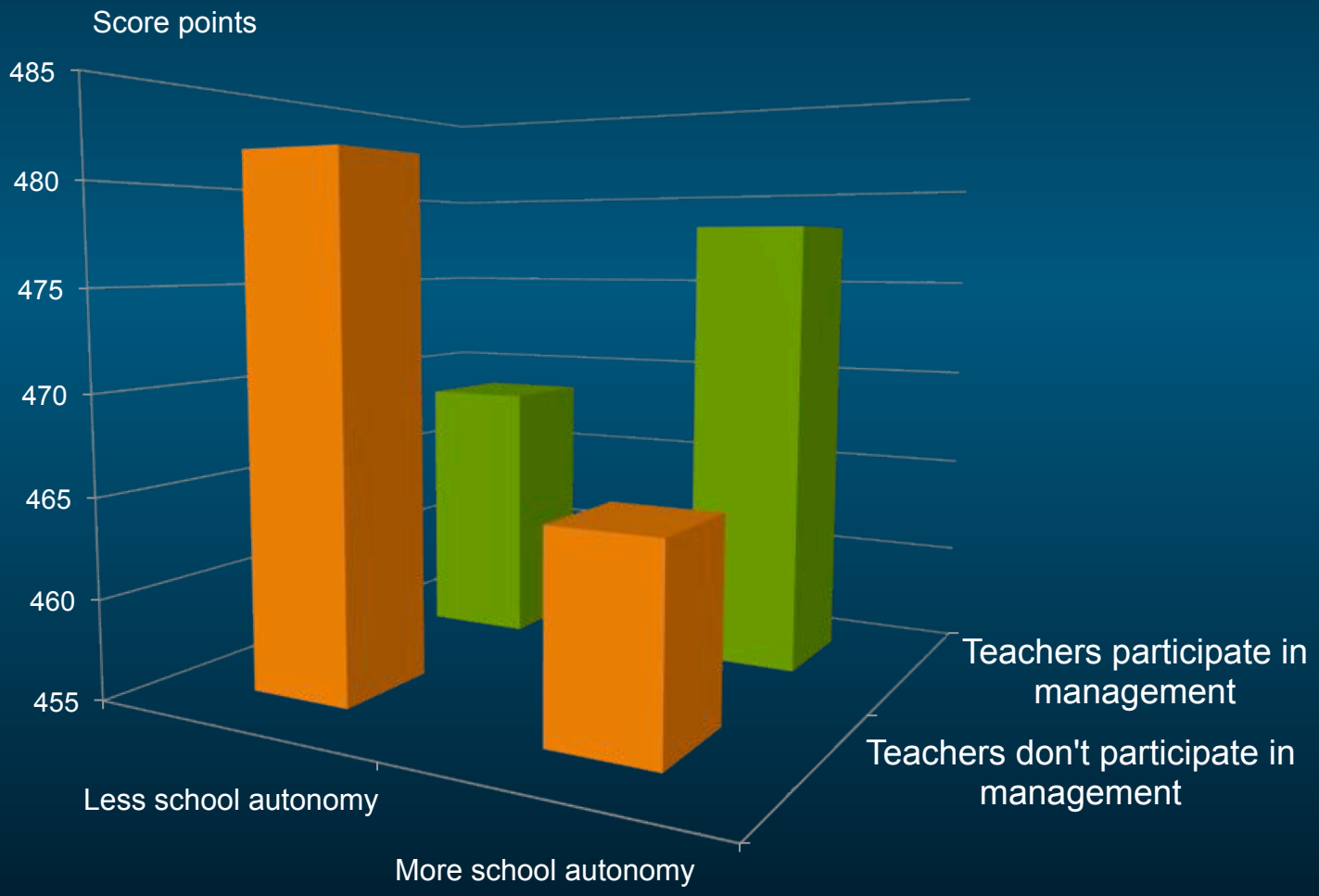
Fig IV.1.16

School autonomy for curriculum and assessment
x system's extent of implementing a standardised math policy (e.g. curriculum and instructional materials)



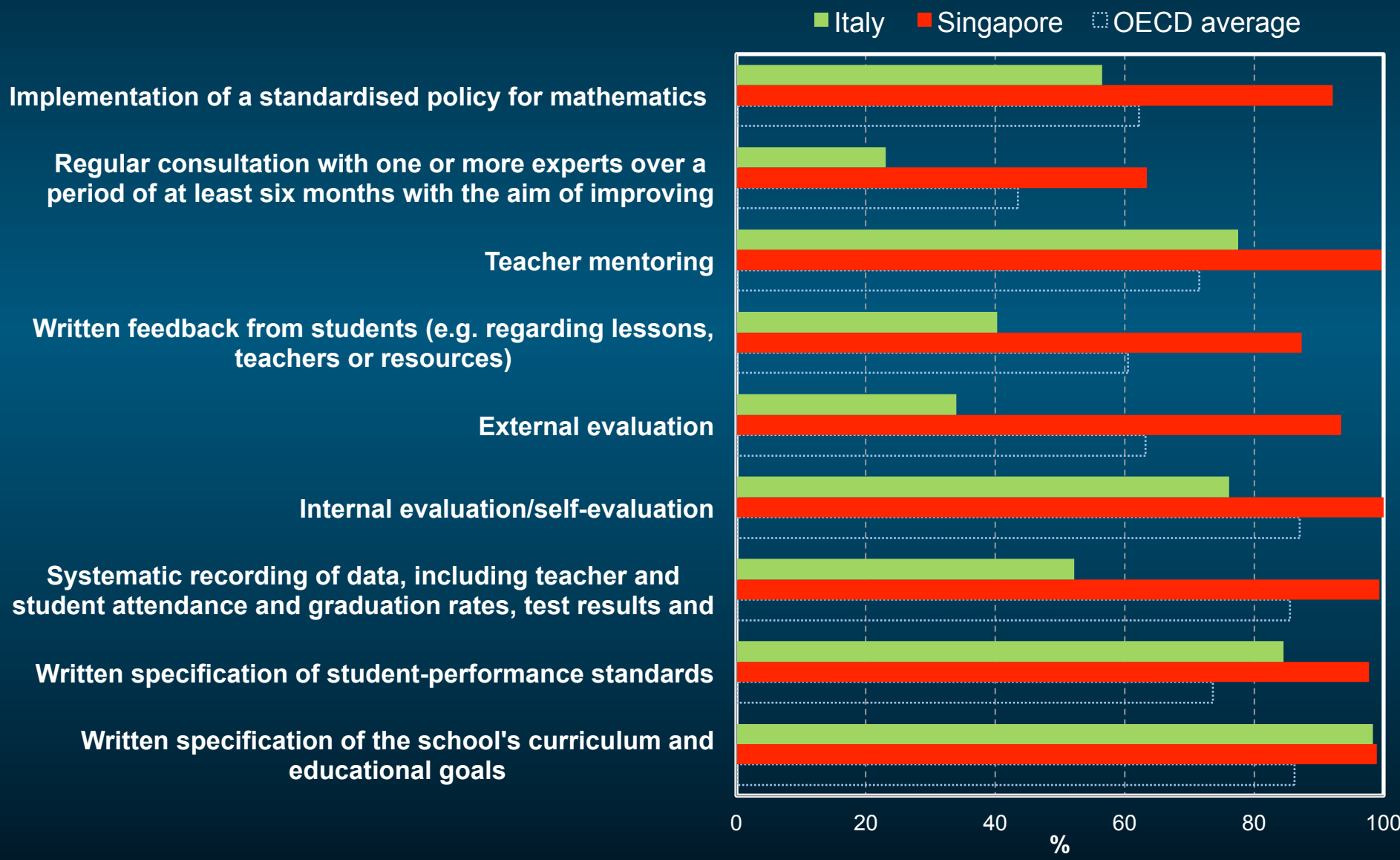
Schools with more autonomy perform better than schools with less autonomy in systems with more collaboration

School autonomy for resource allocation x System's level of teachers participating in school management
Across all participating countries and economies

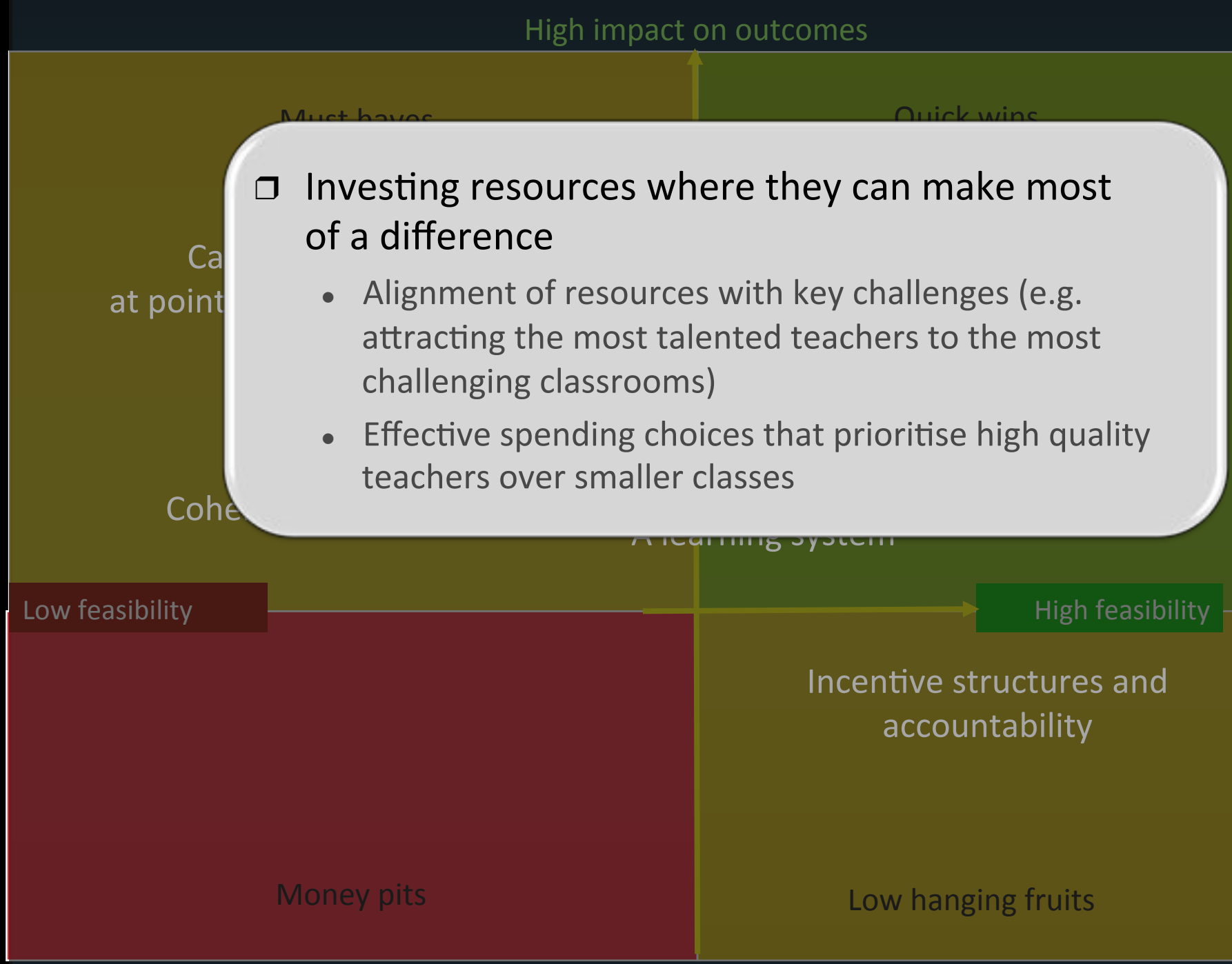


Quality assurance and school improvement

Percentage of students in schools whose principal reported that their schools have the following for quality assurance and improvement:



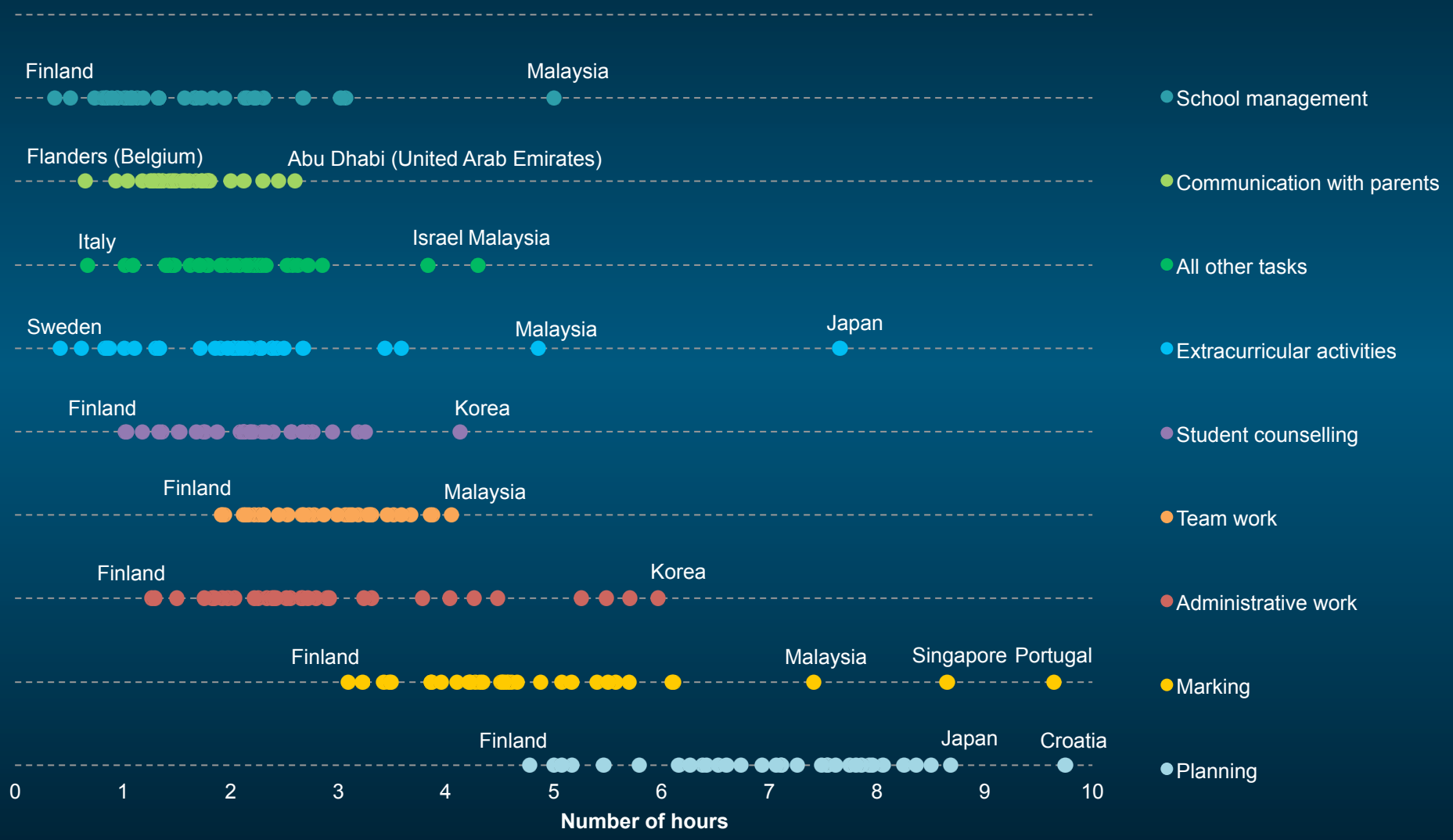
Lessons from high performers



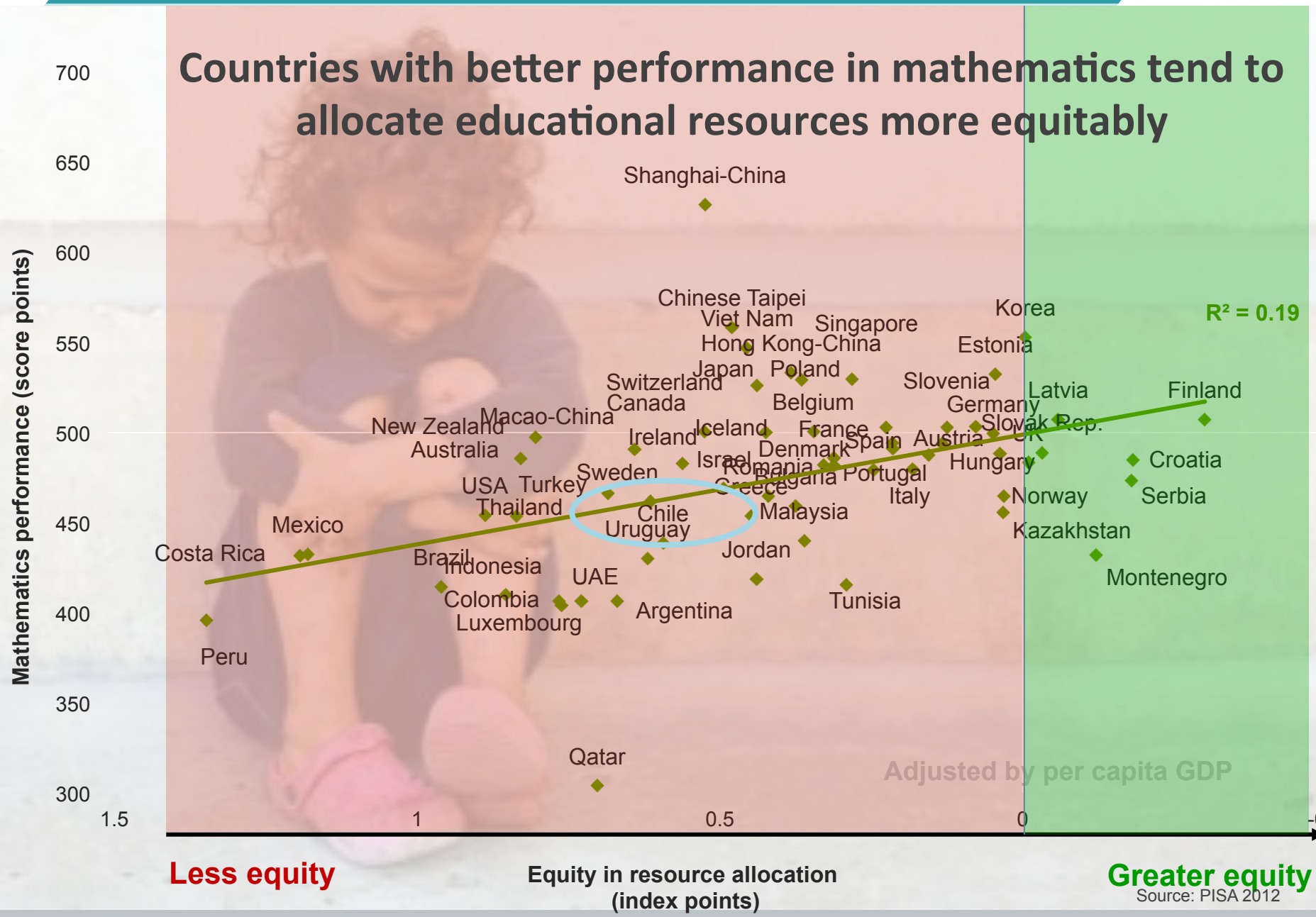
- Investing resources where they can make most of a difference
  - Alignment of resources with key challenges (e.g. attracting the most talented teachers to the most challenging classrooms)
  - Effective spending choices that prioritise high quality teachers over smaller classes

What teachers do beyond teaching

Average number of 60-minute hours teachers report spending on the following tasks in an average week



Align the resources with the challenges



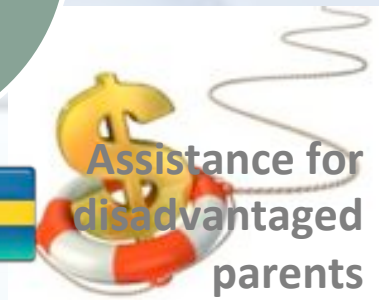
Source: PISA 2012

Square school choice with equity

Controlled choice

Financial incentives

Financial incentives

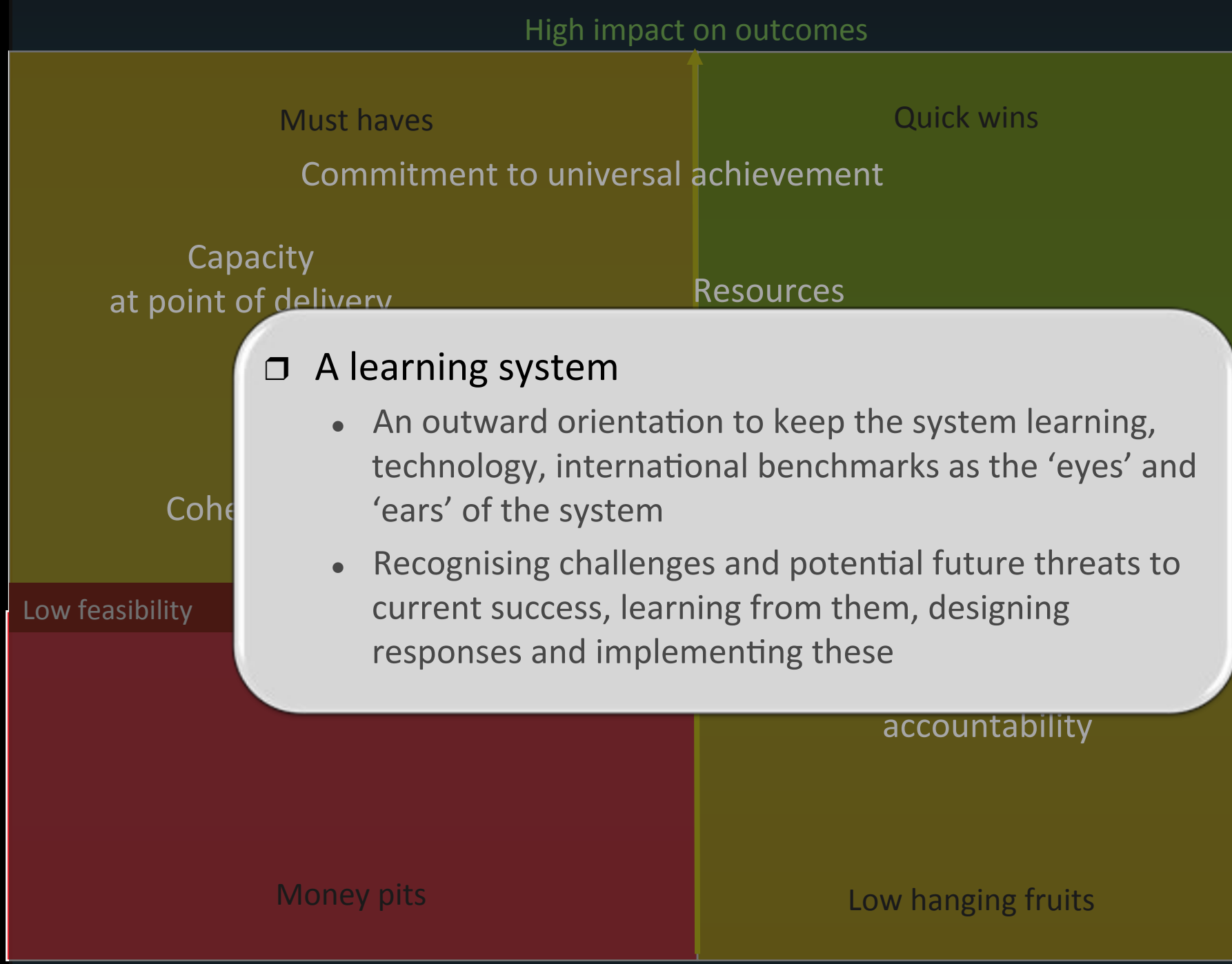


Inform parents

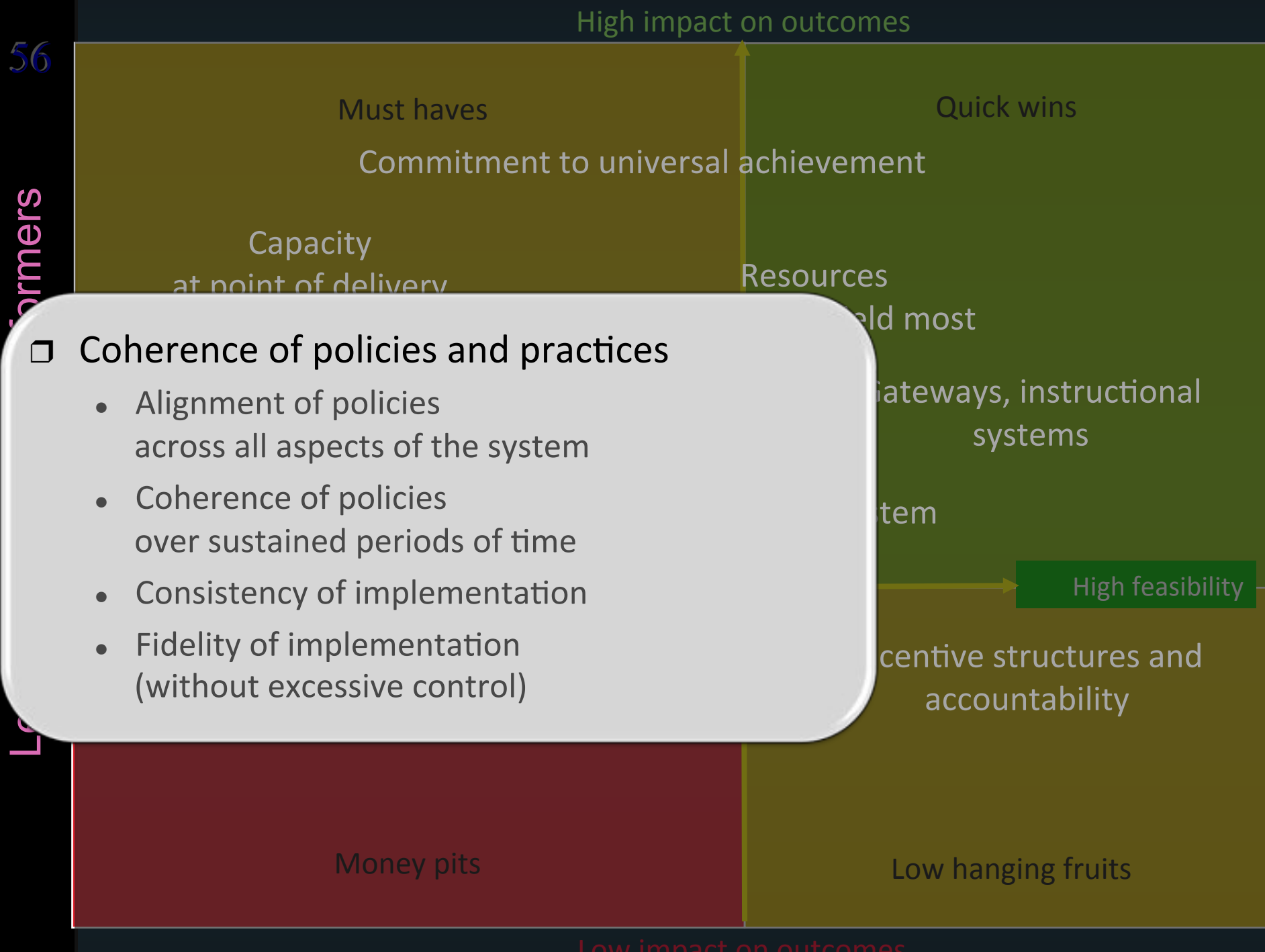
Foster collaboration among teachers and schools

Use student and school assessments

Lessons from high performers

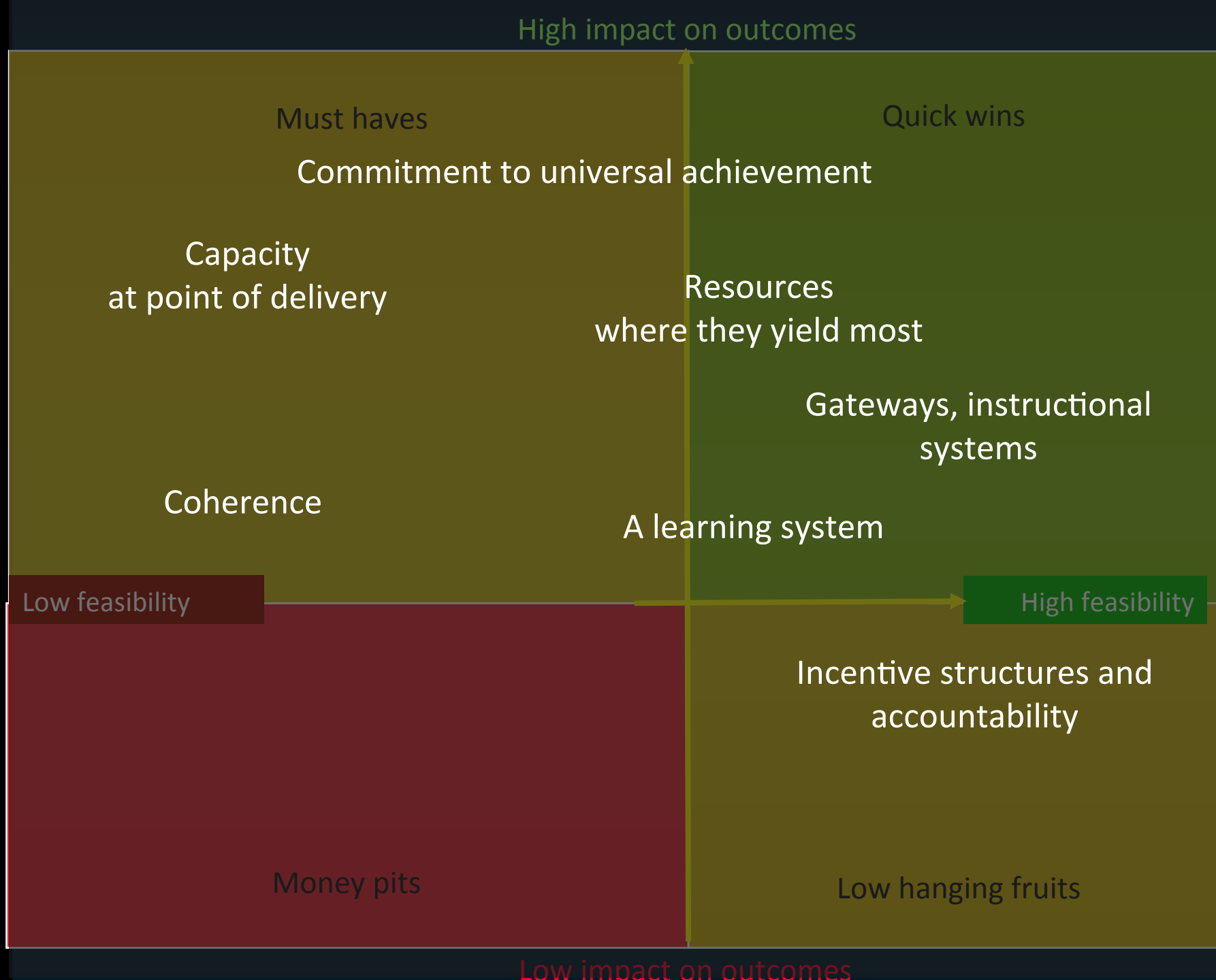


- A learning system
  - An outward orientation to keep the system learning, technology, international benchmarks as the ‘eyes’ and ‘ears’ of the system
  - Recognising challenges and potential future threats to current success, learning from them, designing responses and implementing these



- Coherence of policies and practices
  - Alignment of policies across all aspects of the system
  - Coherence of policies over sustained periods of time
  - Consistency of implementation
  - Fidelity of implementation (without excessive control)

Lessons from high performers



Average school systems		High performers in PISA
Some students learn at high levels	→	**All** students learn at high levels
Uniformity	→	Embracing diversity
Curriculum-centred	→	Learner-centred
Learning a place	→	Learning an activity
Prescription	→	Informed profession

What it all means

The old bureaucratic system		The modern enabling system
Some students learn at high levels	Student inclusion	**All** students need to learn at high levels
Routine cognitive skills, rote learning	Curriculum, instruction and assessment	Learning to learn, complex ways of thinking, ways of working
Few years more than secondary	Teacher quality	High-level professional knowledge workers
'Tayloristic', hierarchical	Work organisation	Flat, collegial
Primarily to authorities	Accountability	Primarily to peers and stakeholders

Thank you

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and remember:

Without data, you are just another person with an opinion