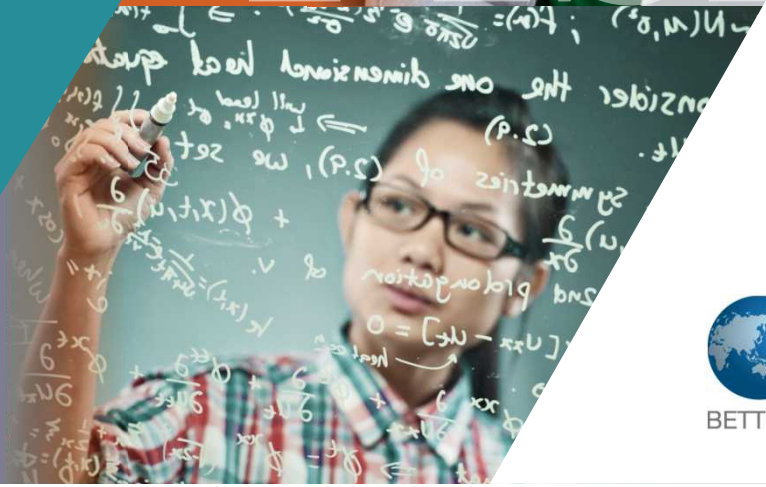
Strong performers and successful reformers

Lessons from PISA



Andreas Schleicher
Tokyo, February 2014

OECD
BETTER POLICIES FOR BETTER LIVES

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, financial literacy
- **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 .**

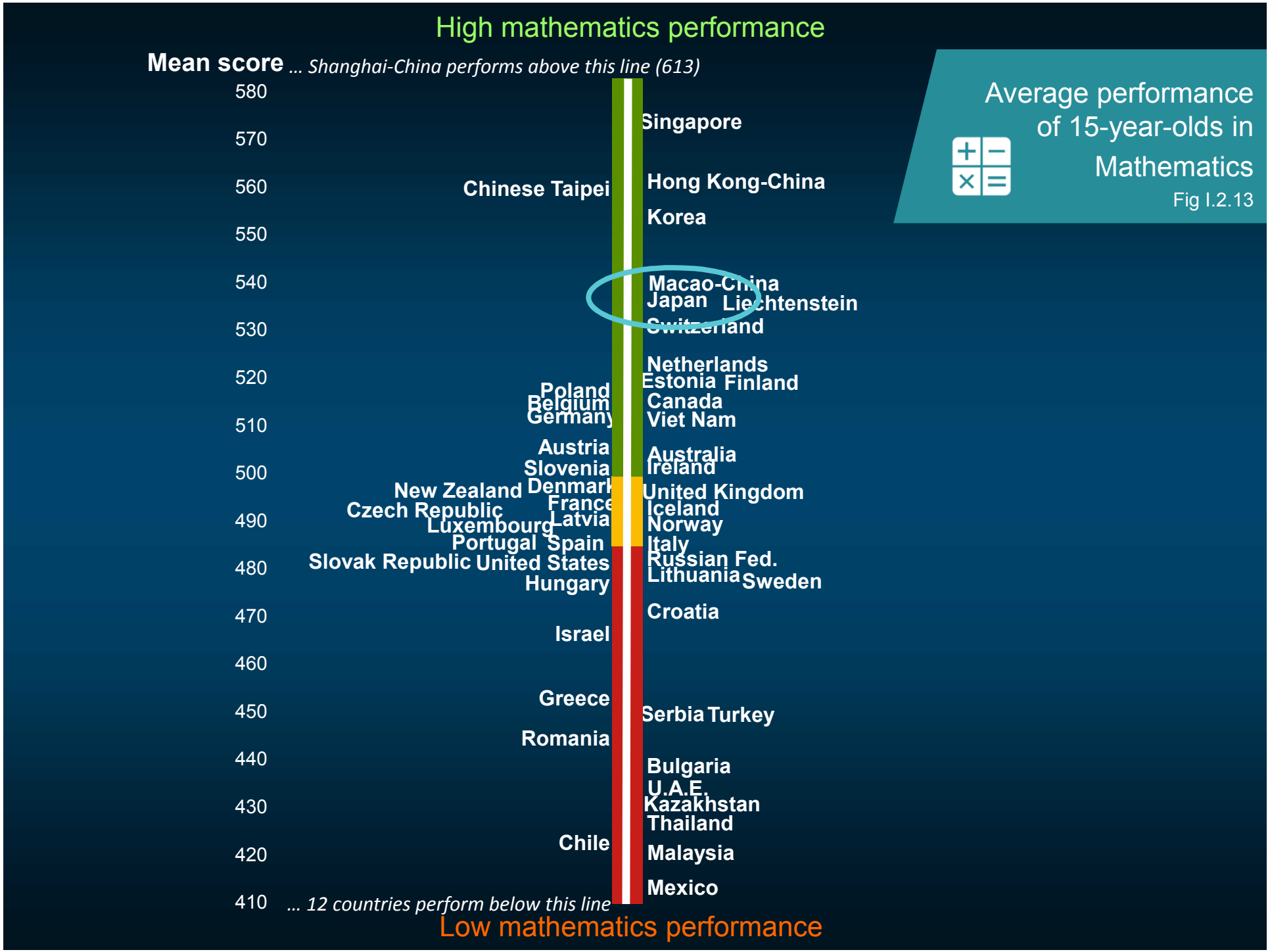
PISA in brief

- **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 .

What do 15-year-olds know…
…and what can they do with what they know?

No country improved learning outcomes faster than Brazil…

…but Brazil still has a long way to go


High mathematics performance
Mean score
... Shanghai-China performs above this line (613)
Average performance of 15-year-olds in Mathematics
Fig I.2.13
580
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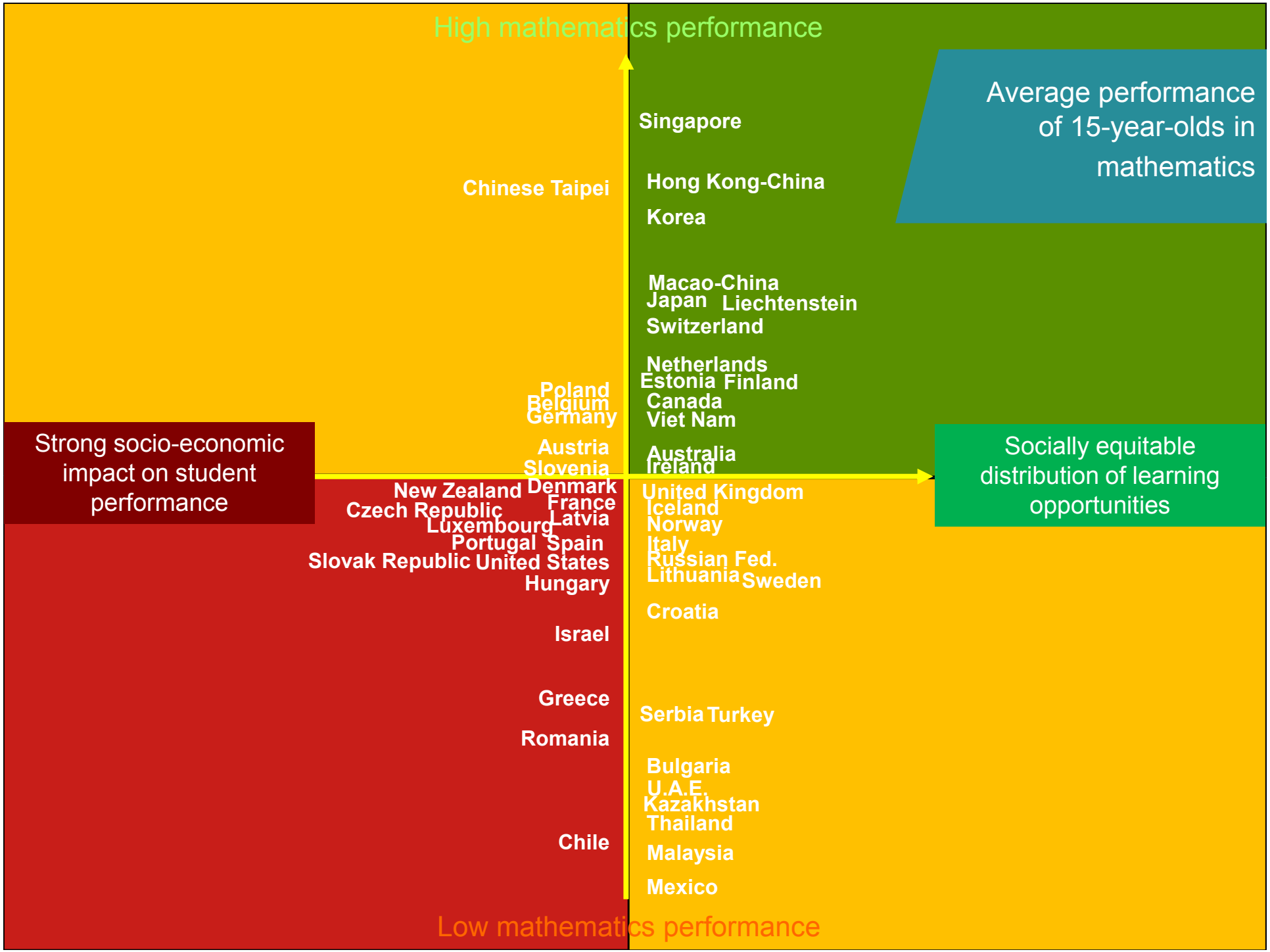
... 12 countries perform below this line
Low mathematics performance


High mathematics performance
Average performance of 15-year-olds in mathematics
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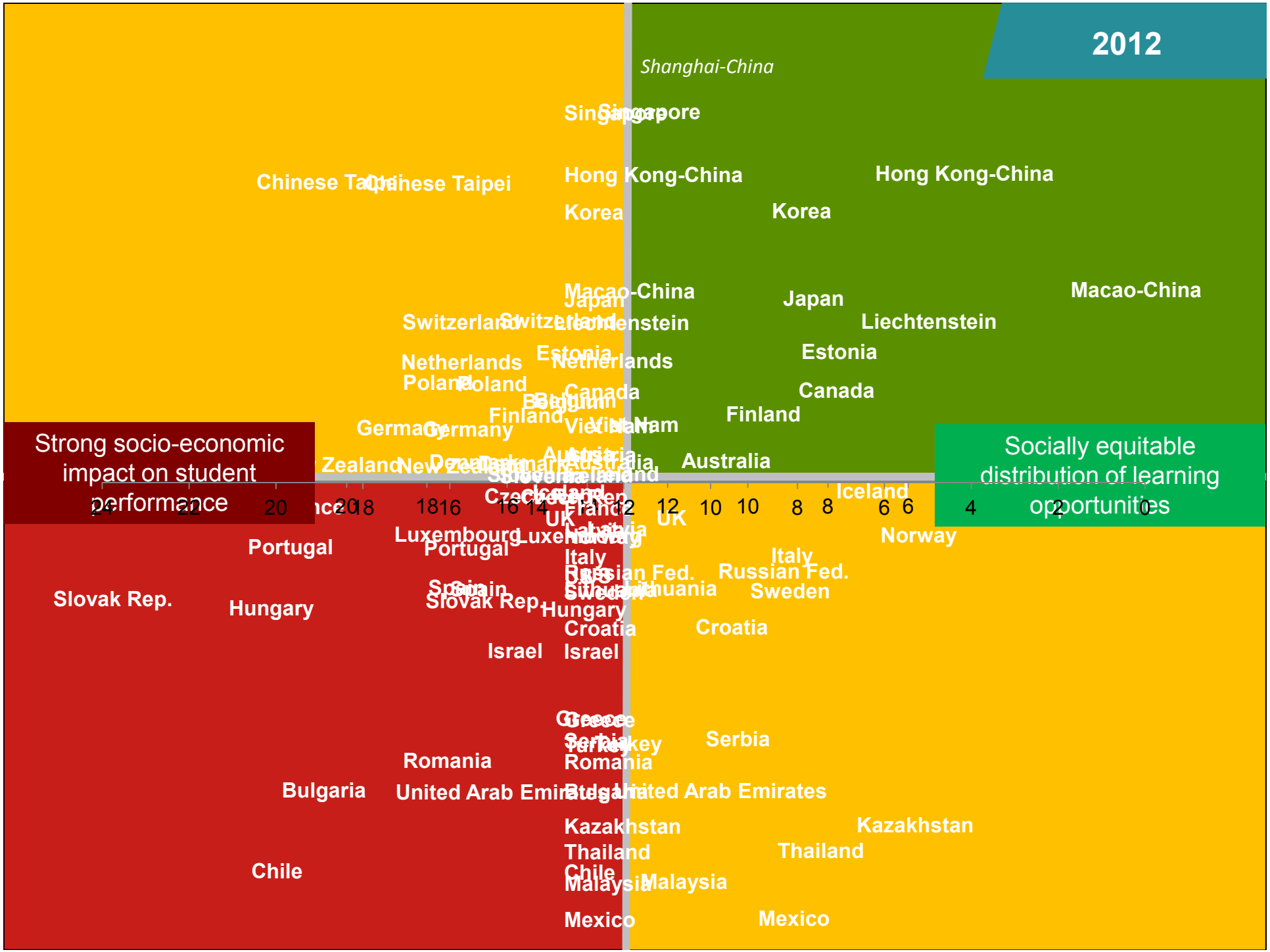
Strong socio-economic impact on student performance
Socially equitable distribution of learning opportunities
Low mathematics performance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Shanghai-China
Strong socio-economic impact on student performance
Socially equitable distribution of learning opportunities
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Strong socio-economic impact on student performance
Socially equitable distribution of learning opportunities
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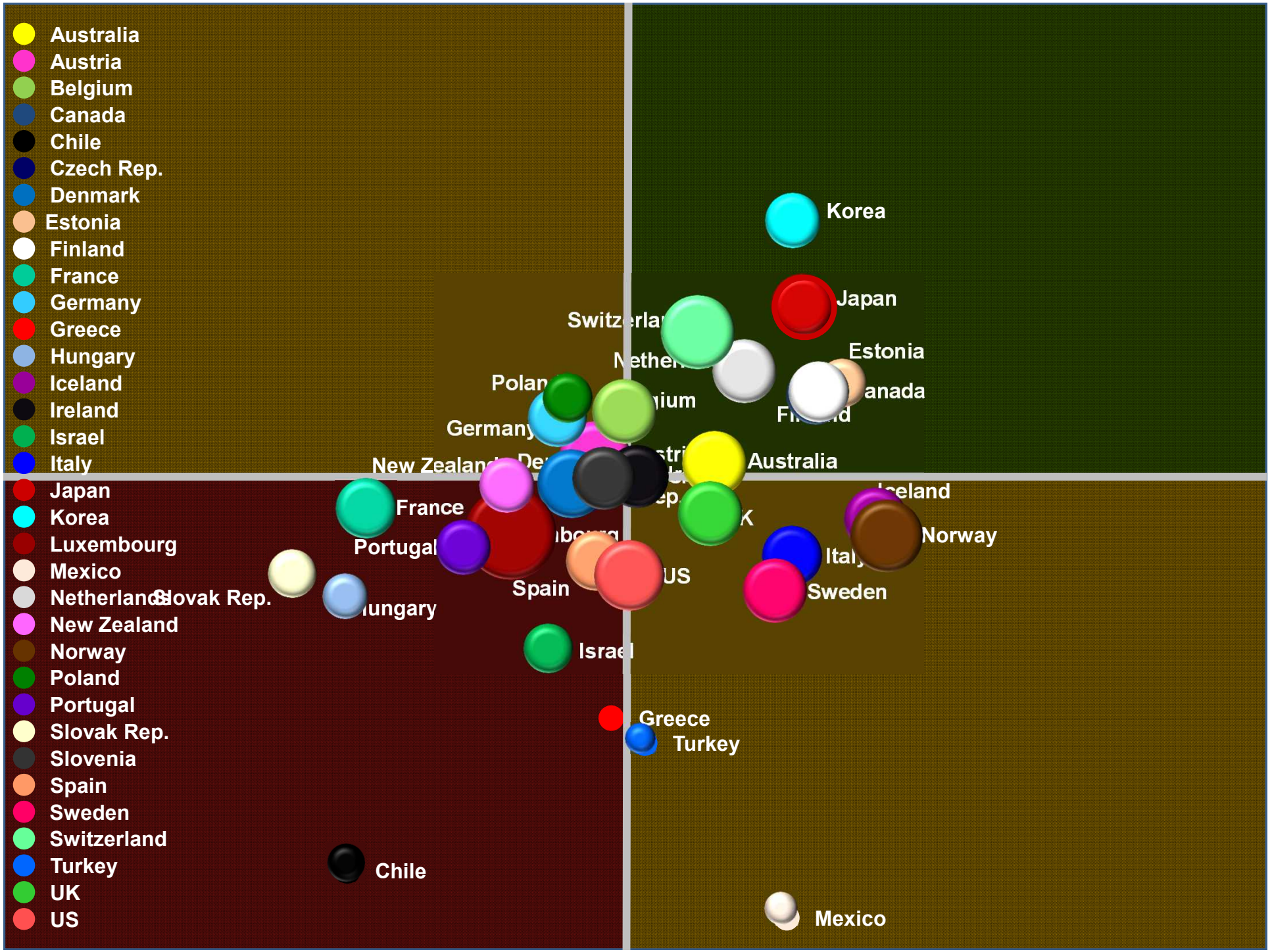
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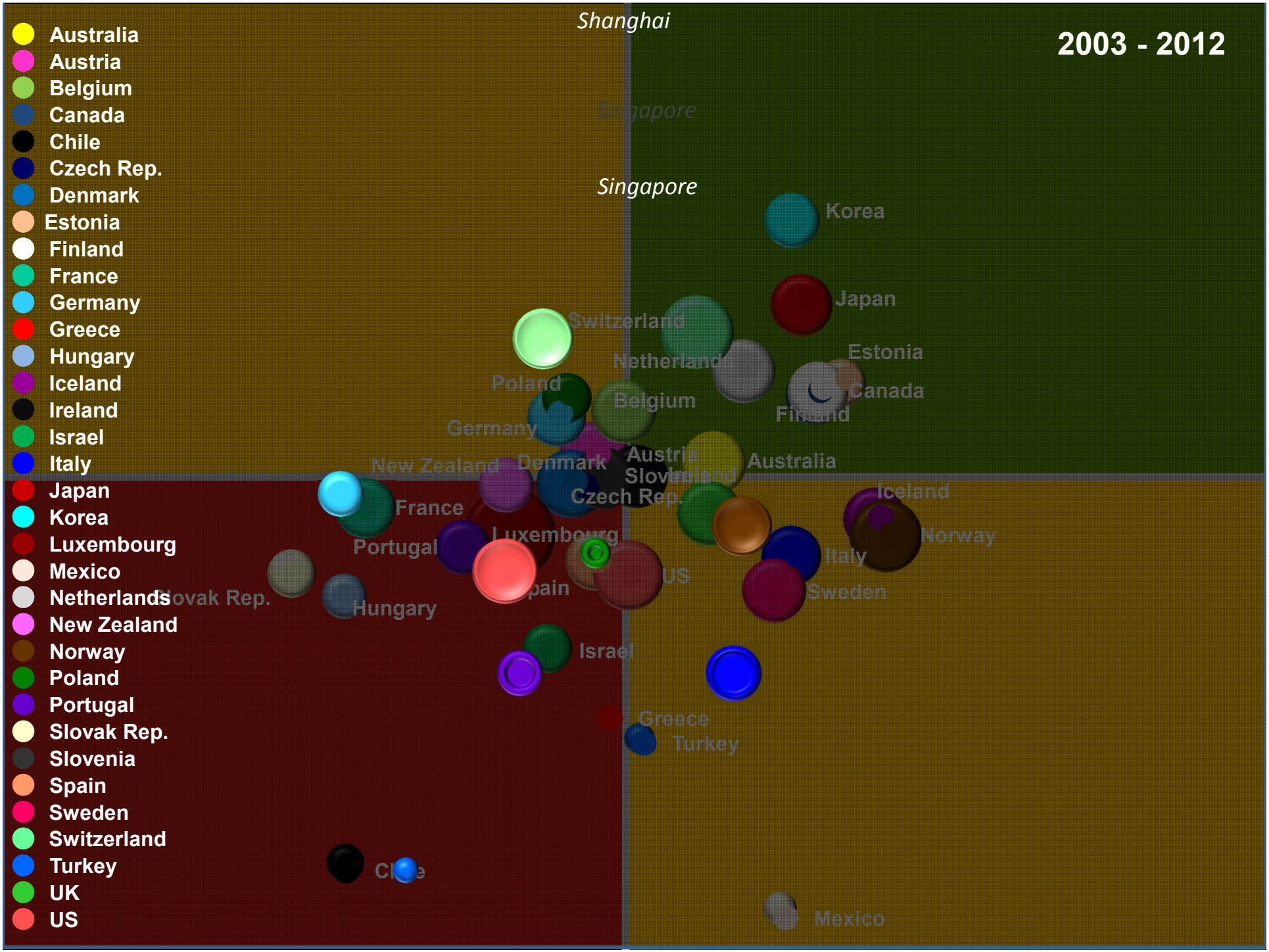
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Of the 65 countries…
…40 improved at least in one subject .

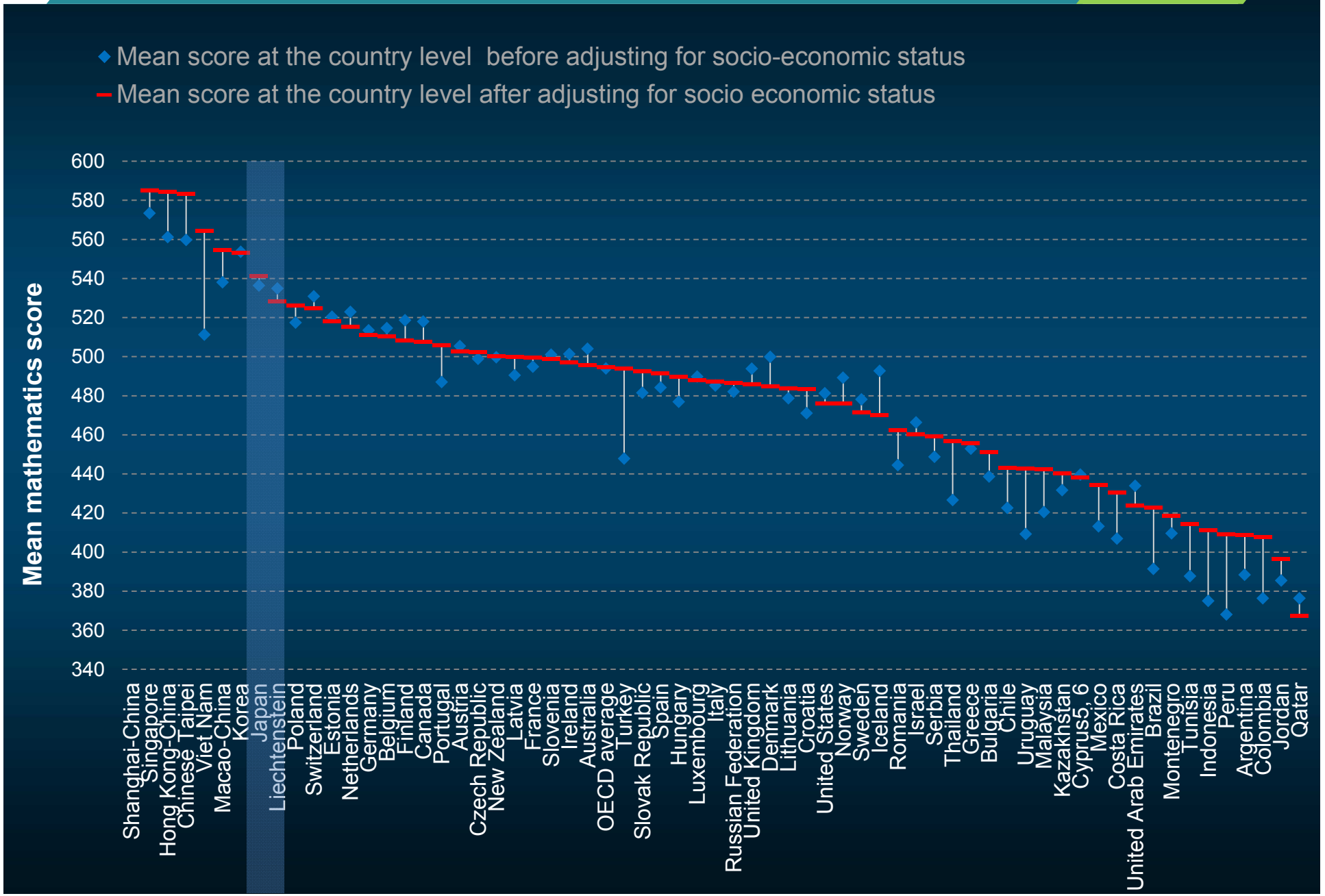
Performance of countries in a level playing field

How the world would look if students around the world were living in similar social and economic conditions

Mathematics performance in a level playing field

Mean mathematics performance after accounting for socio-economic status

Fig II.3.3

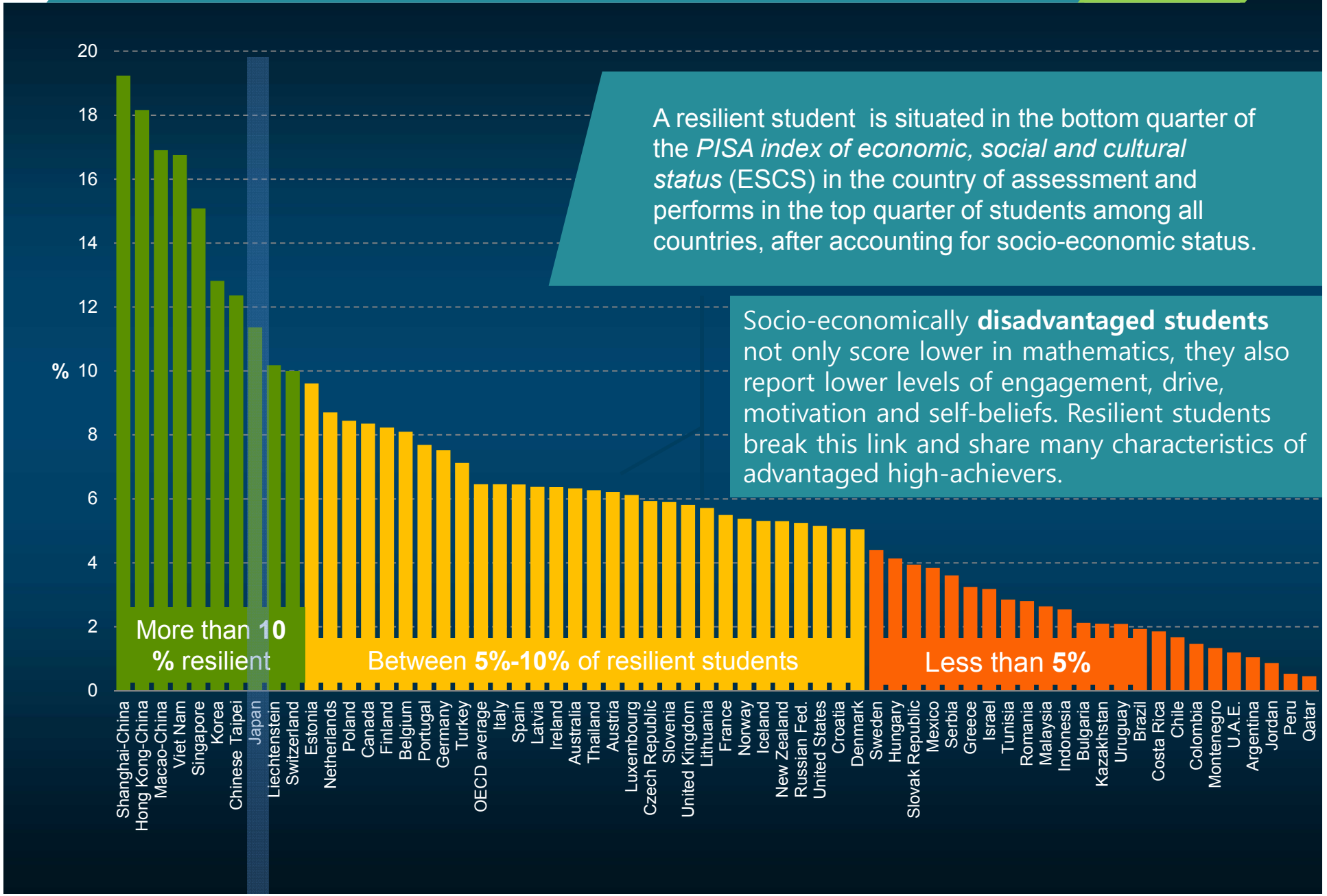


The dream of social mobility

In some countries it is close to a reality

Percentage of resilient students

Fig II.2.4

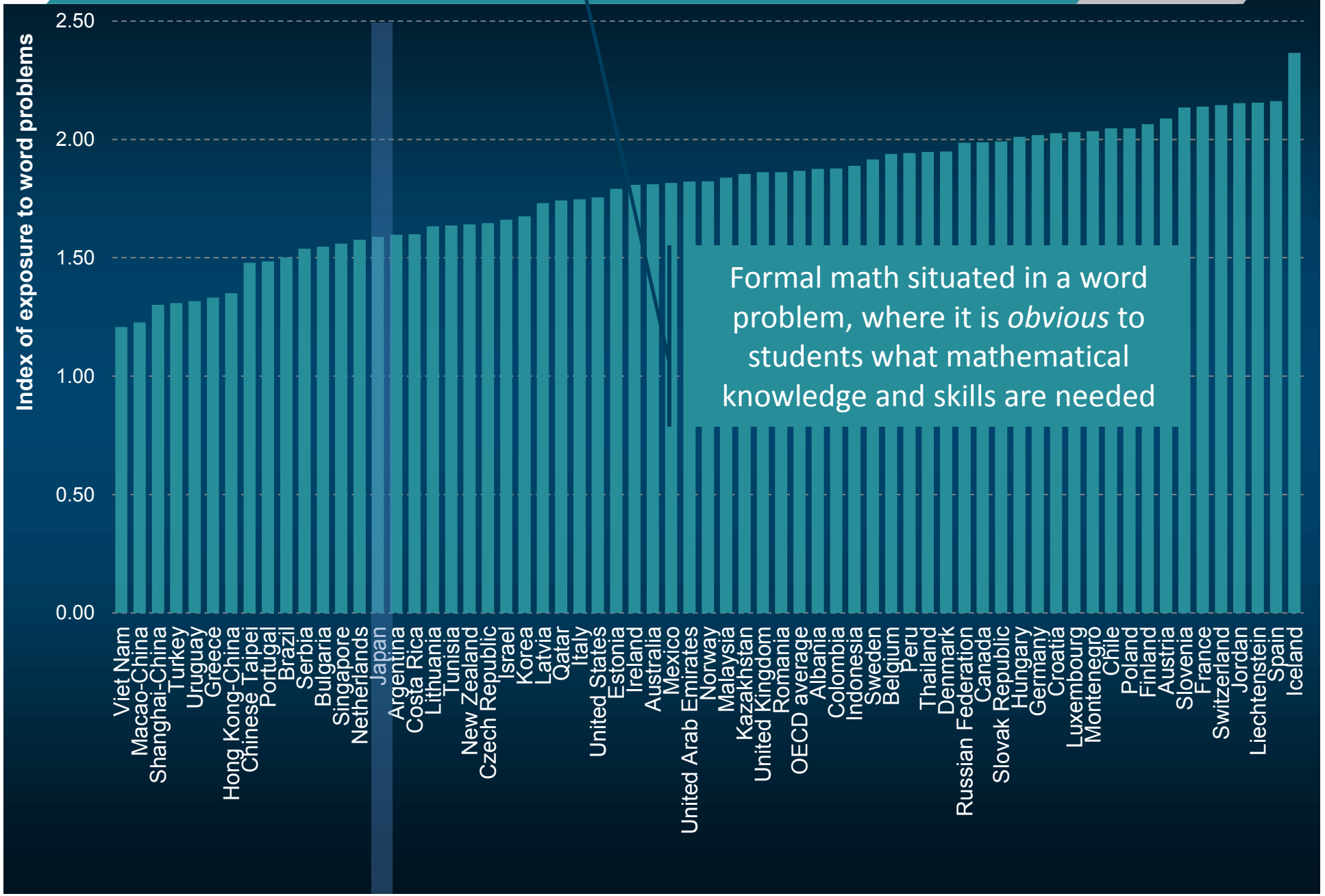


Math teaching ≠ math teaching

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

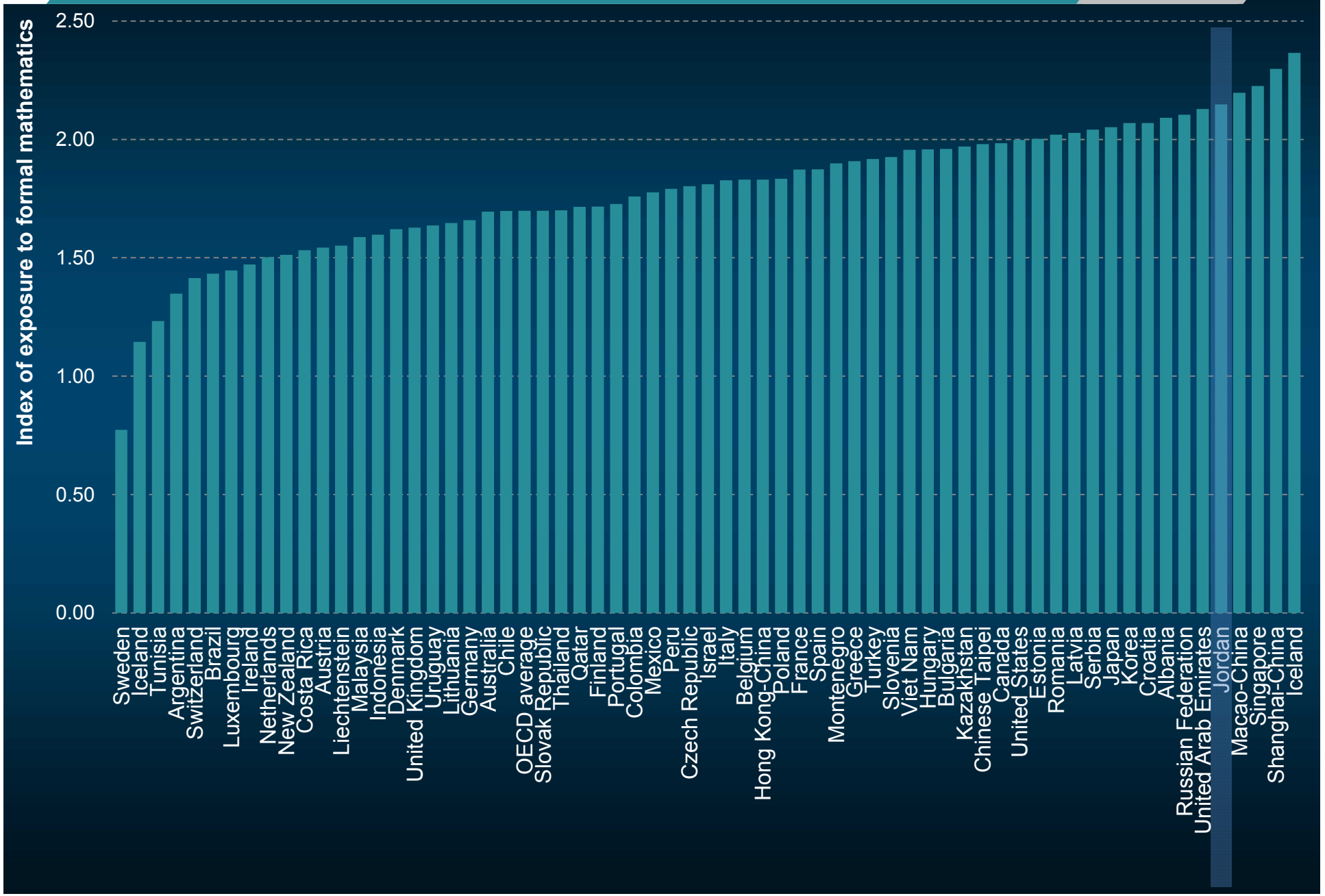
Students' exposure to word problems

Fig I.3.1a



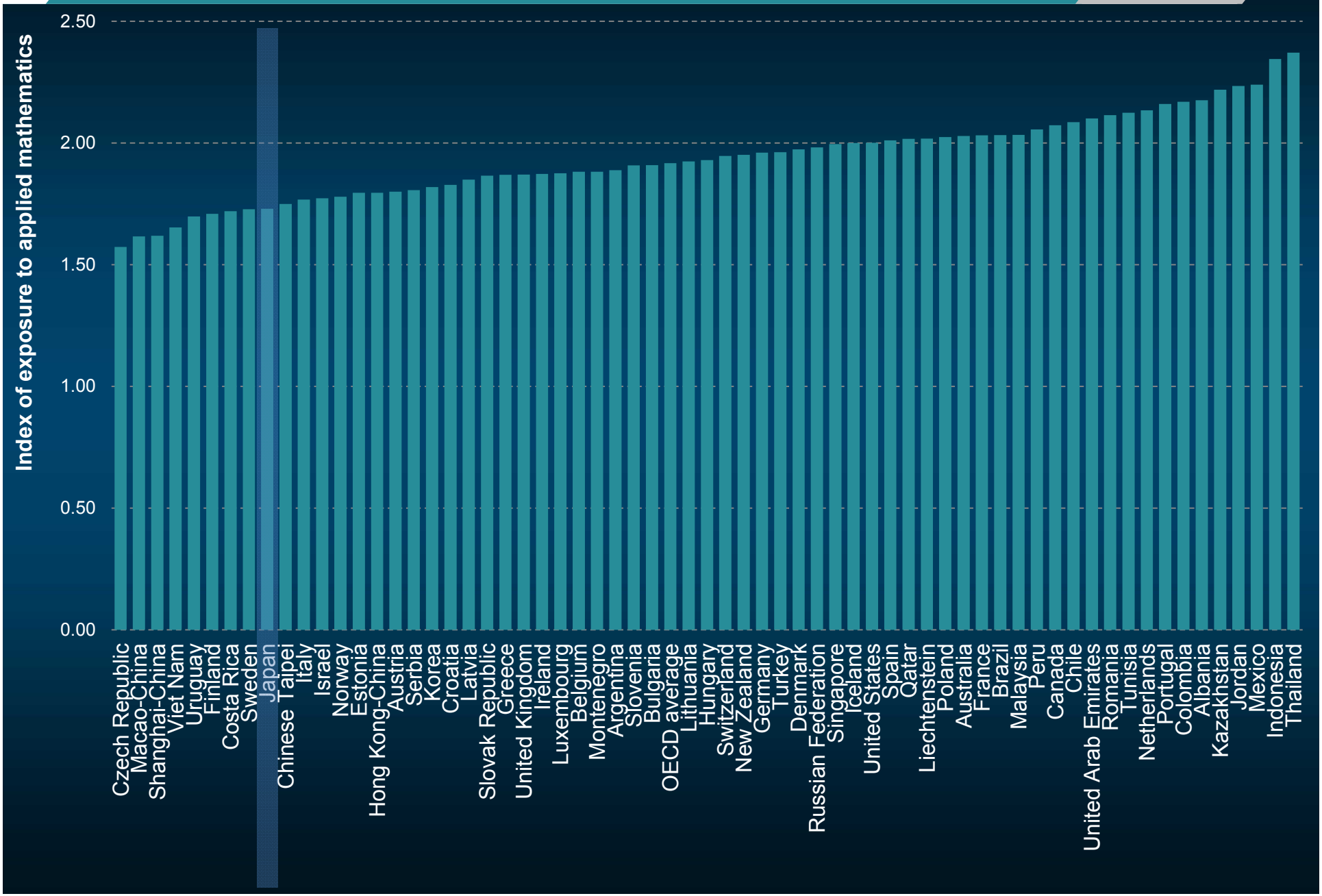
Focus on conceptual understanding

Fig I.3.1b



Students' exposure to applied mathematics

Fig I.3.1c



Relationship between mathematics performance and students' exposure to applied mathematics

Fig I.3.2