



Preparing Students for their future

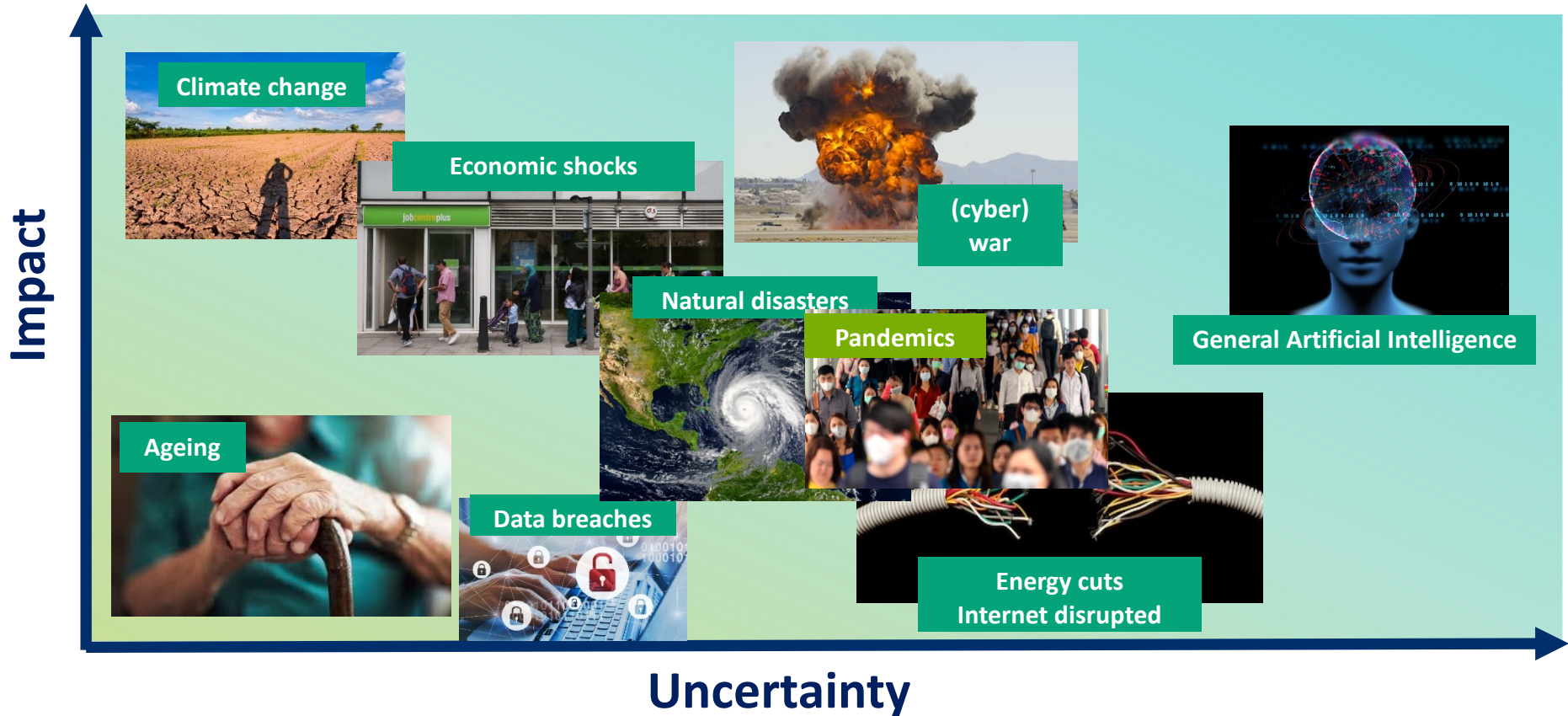
2023 Malaysian Education Publishers Forum

Andreas Schleicher

Directorate for Education and Skills

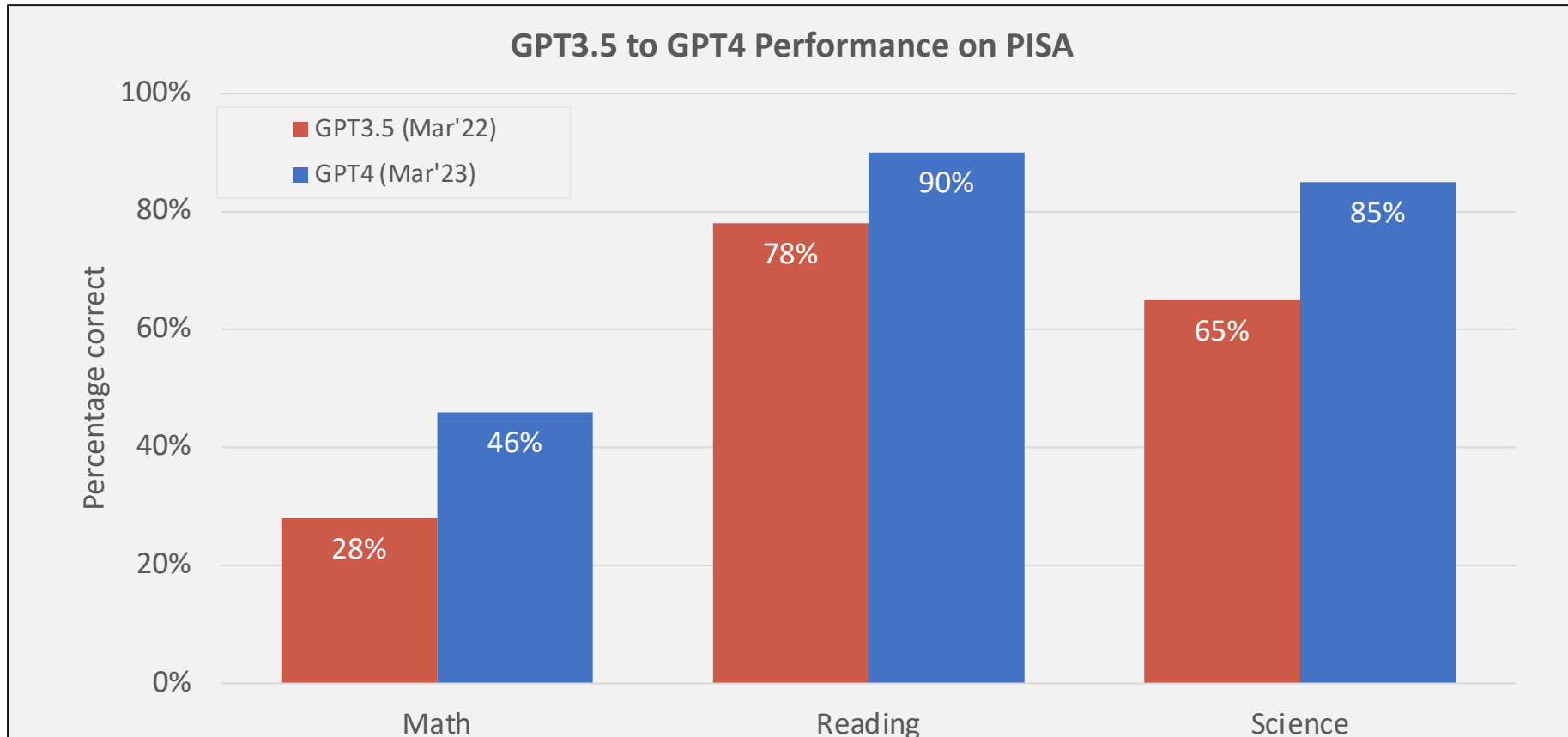


The future will always surprise us





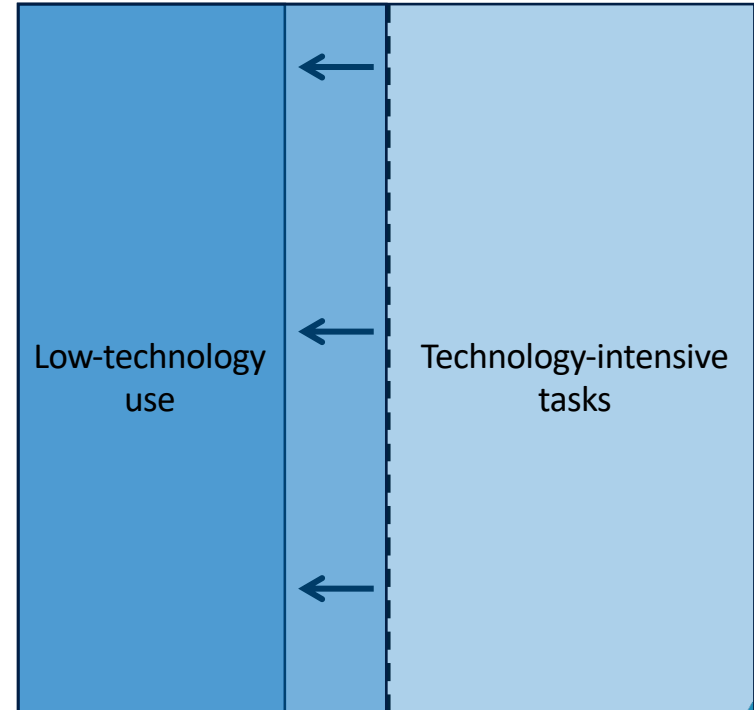
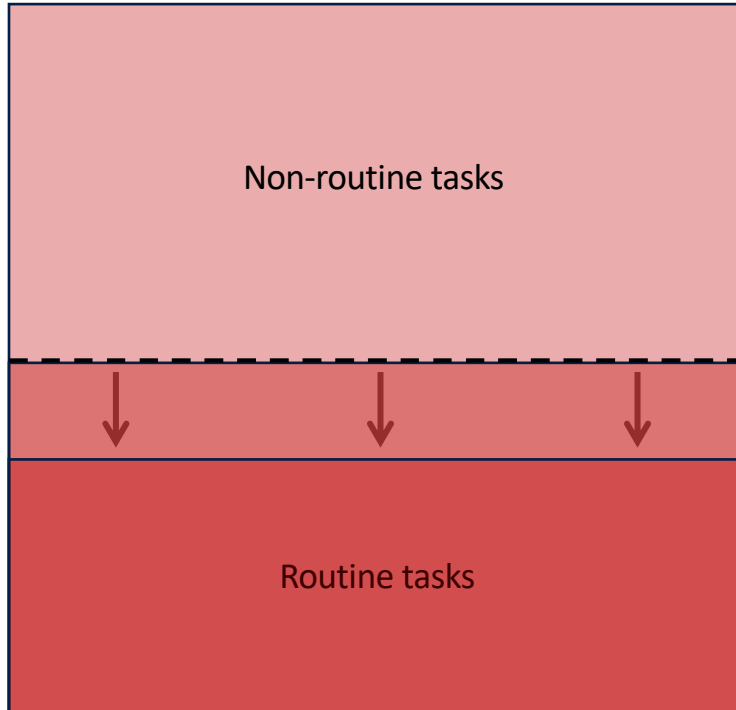
GPT Performance on PISA student assessments





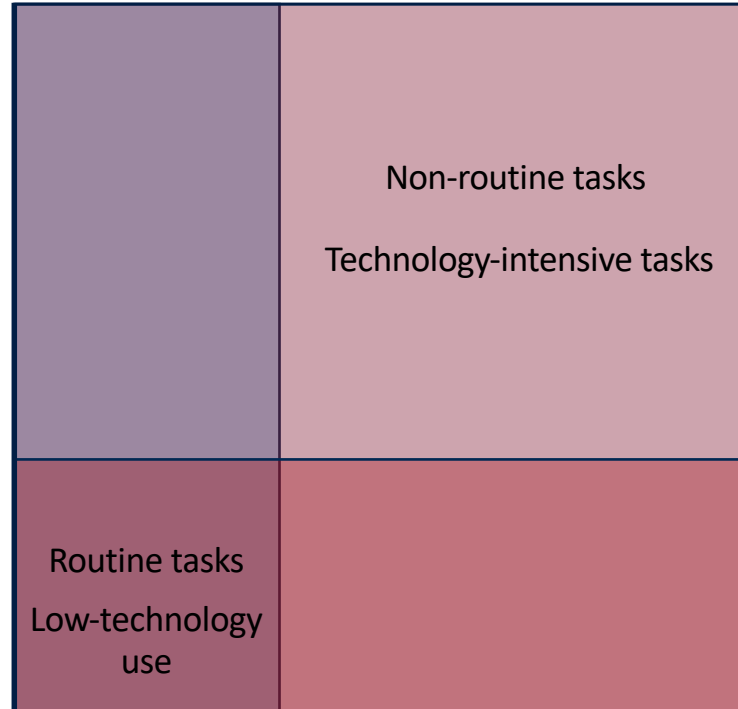
The kinds of things that are easy to teach...

... have now become easy to digitise and automate



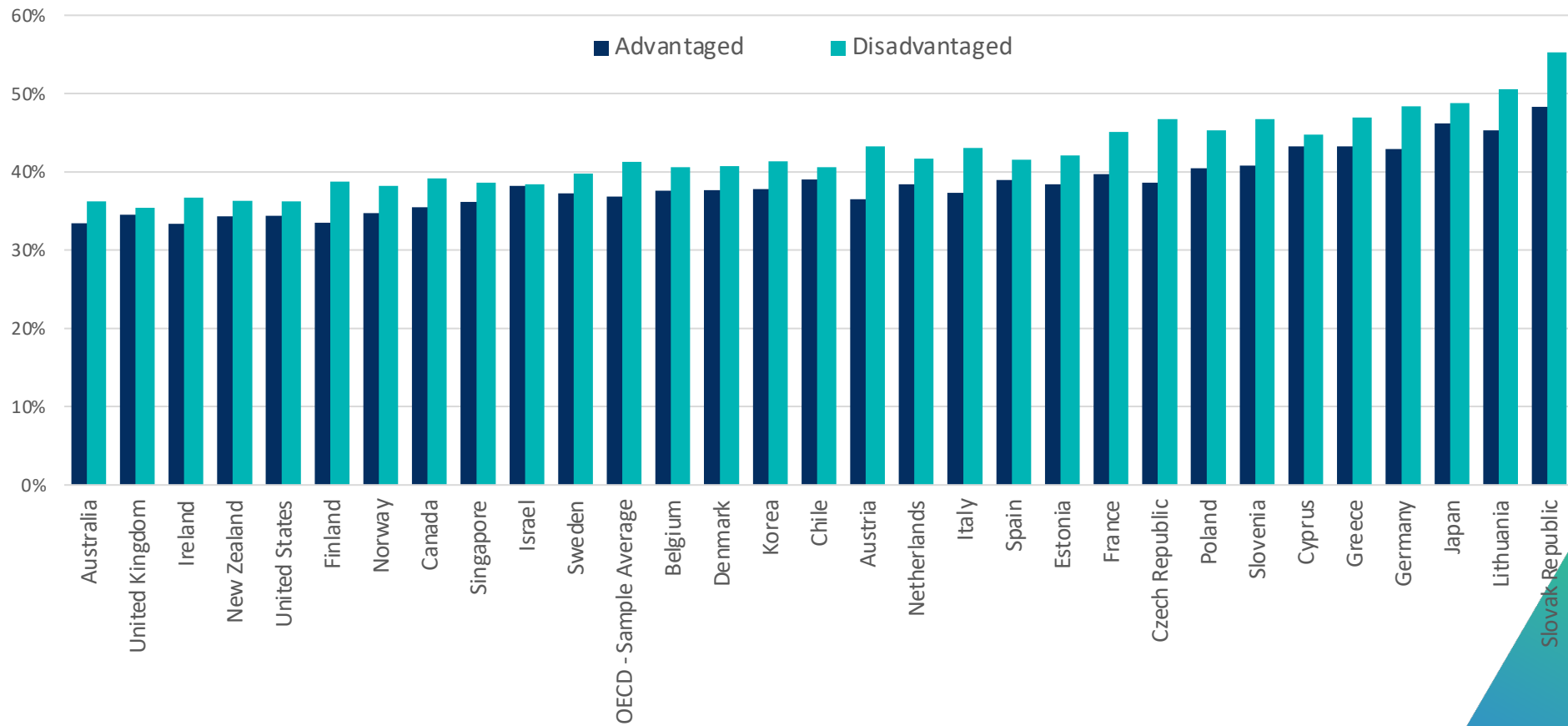


The kinds of things that are easy to teach...
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Many teenagers aspire to jobs that are at high risk of automation (PISA)

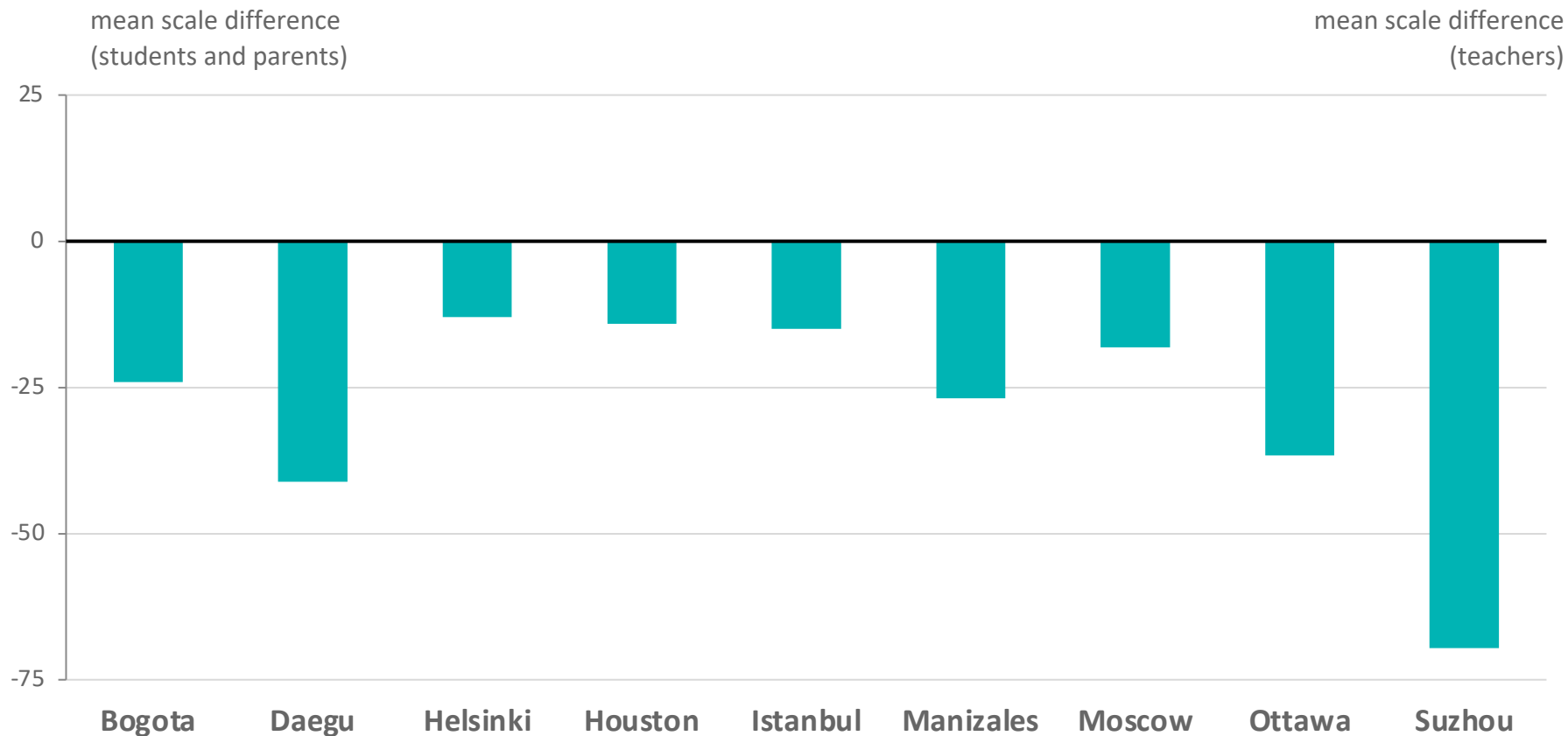




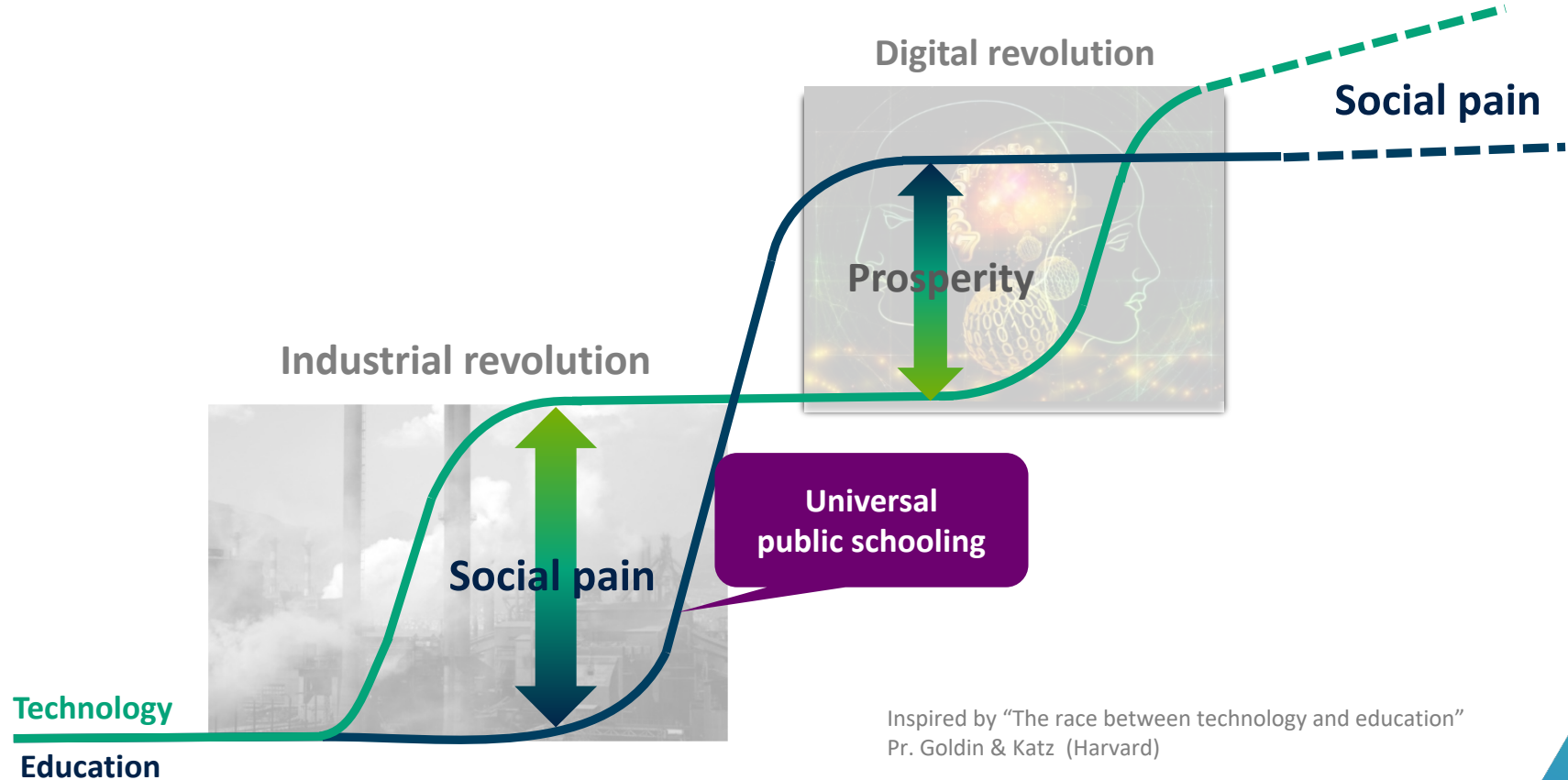
15-year-olds report **lower creativity** than 10-year-olds

Age gaps in creativity

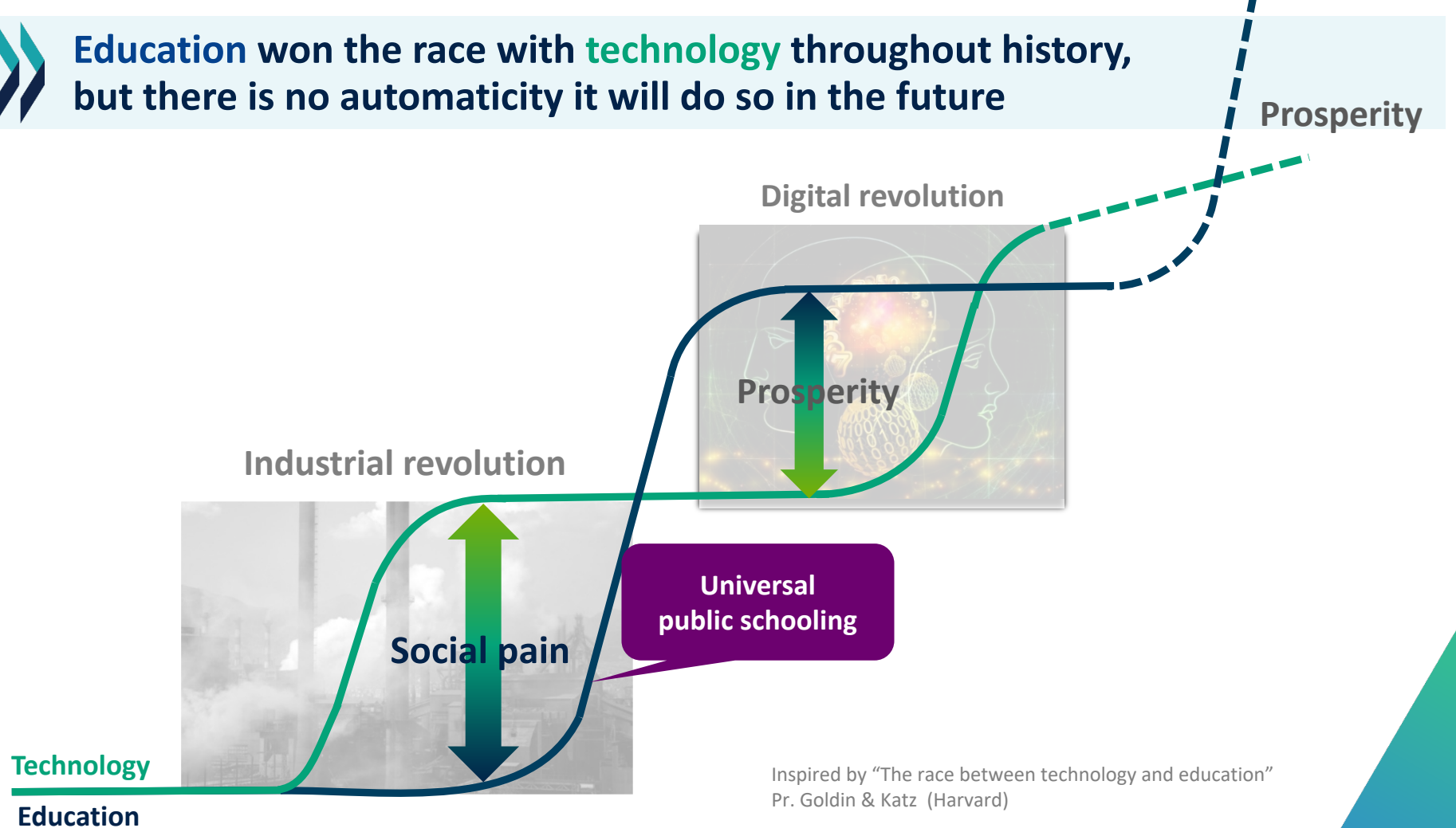
Figure 4.3



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



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



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

Growth mindset and reading performance

 $R^2 = 0.47$

Similar relationship
within most countries
(Figure III.14.2)

Average reading score

Higher performance

OECD average

OECD average

More students holding a growth mindset

Percentage of students who disagreed or strongly disagreed that their intelligence cannot change very much (%)

25

35

45

55

65

75

85

530

480

430

380

330

Hong Kong (China)

Poland

Macao (China)

B-S-J-Z (China)

Singapore

Slovenia

France

Czech Republic

Croatia

Netherlands

Greece

Italy

Belarus

Malta

Slovak Republic

Chile

Türkiye

Luxembourg

Switzerland

Hungary

Israel

Ukraine

Latvia

Lithuania

Iceland

Austria

Denmark

Germany

United Kingdom

New Zealand

Australia

Portugal

Japan

Sweden

Finland

Canada

United States

Ireland

Estonia

United Arab Emirates

Romania

Moldova

Malaysia

Mexico

Montenegro

Jordan

Qatar

Costa Rica

Bulgaria

Colombia

Brazil

Bosnia and Herzegovina

Peru

Baku (Azerbaijan)

Georgia

Kazakhstan

Argentina

Brunei Darussalam

Morocco

Lebanon

Saudi Arabia

Thailand

Philippines

Dominican Republic

Kosovo

Panama

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B-S-J-Z (China)
Singapore

Hong Kong (China)
Poland

Macao (China)

Korea
Chinese Taipei

Slovenia
France
Czech Republic

Netherlands
Croatia
Belarus

Greece
Italy
Türkiye

United Arab Emirates
Serbia
Uruguay

Romania
Mexico
Costa Rica
Bulgaria

Montenegro
Jordan
Qatar
Bosnia and Herzegovina

Colombia
Brazil
Argentina
Peru
Baku (Azerbaijan)

Thailand
Brunei Darussalam
Georgia
Kazakhstan

Morocco
Lebanon
Dominican Republic

Finland
United States
Canada
Ireland
New Zealand
United Kingdom

Sweden
Japan
Australia
Portugal
Denmark
Germany

Switzerland
Hungary
Israel
Ukraine
Latvia
Lithuania
Iceland

Austria

Chile

Malta

Malaysia

Panama

Kosovo

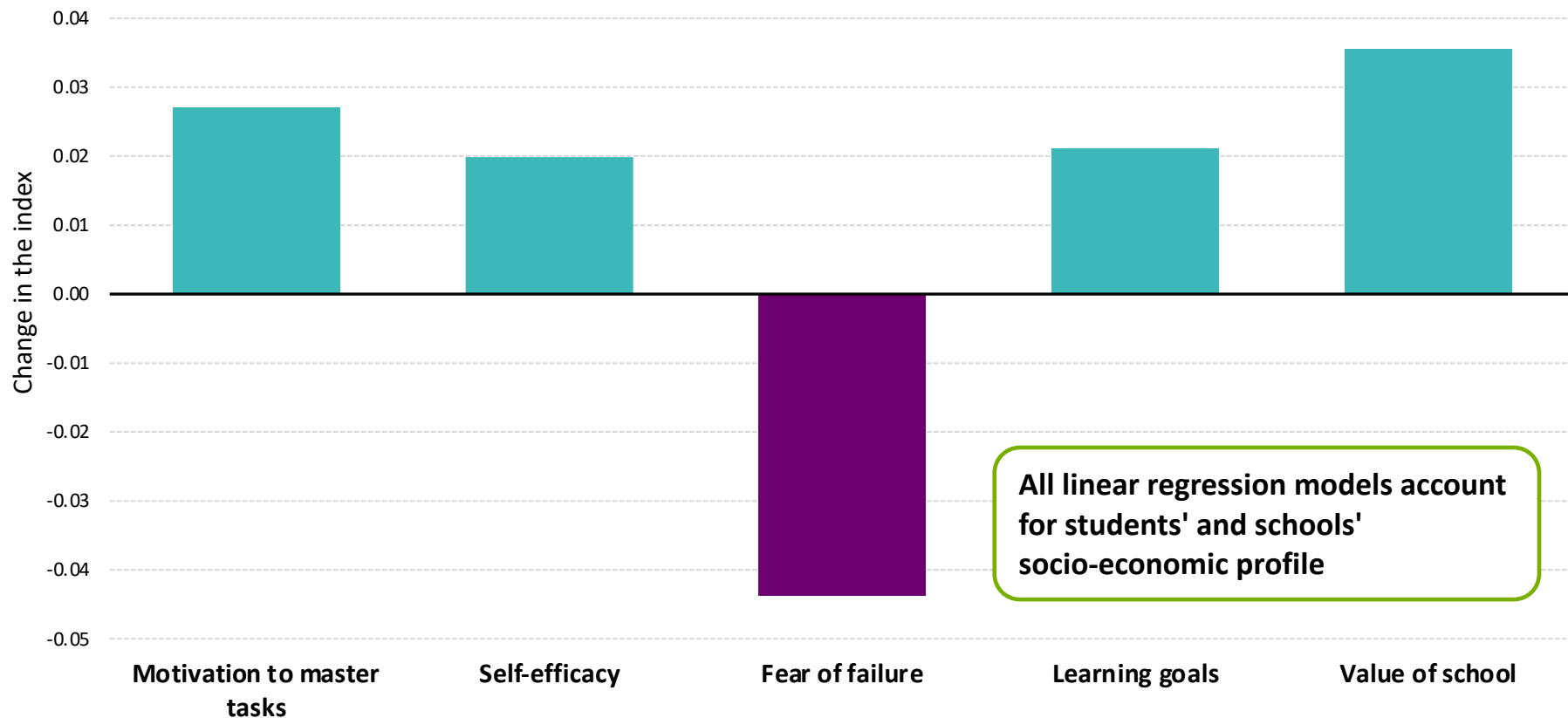
Philippines



Growth mindset and student attitudes

Change in the following indices when students disagreed or strongly disagreed that "your intelligence is something about you that you can't change very much":

Fig III.14.5





The future of education and skills

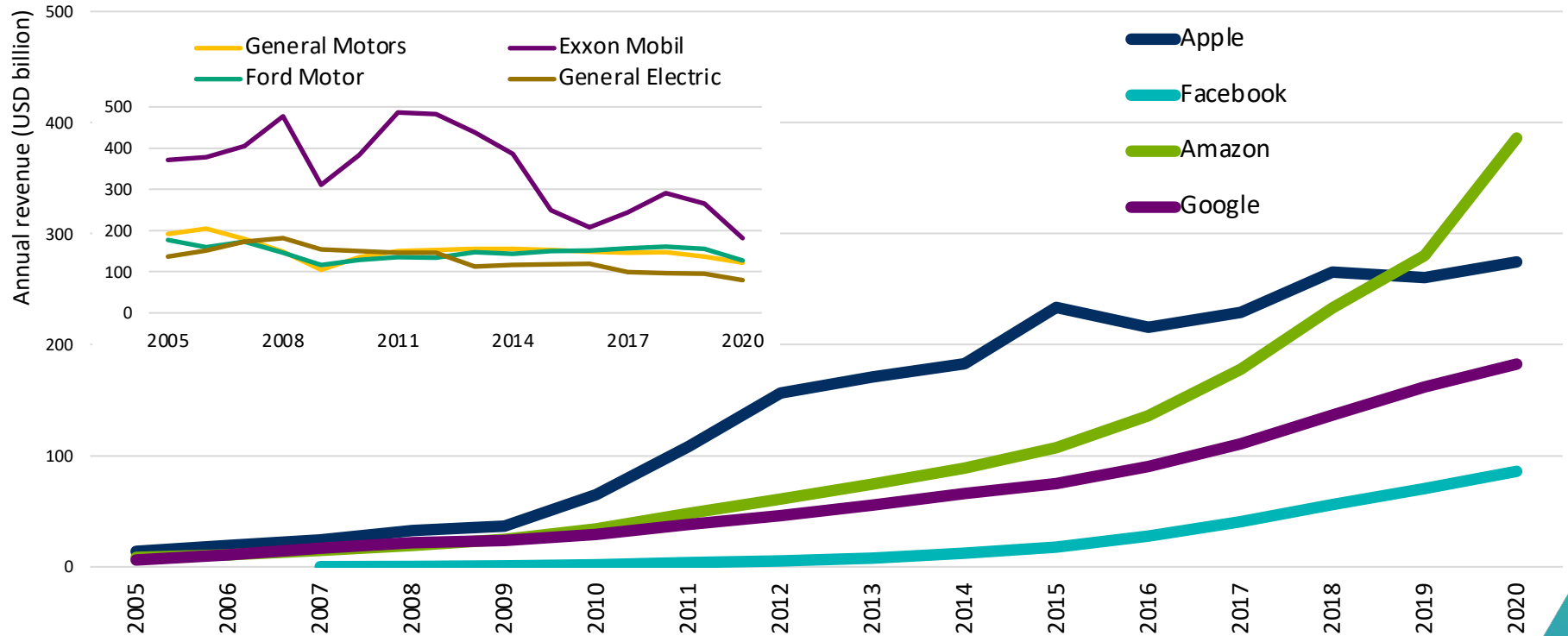
The rise of intangibles





The rise of Big Tech

Annual revenue of top four companies from the Fortune 500 in 1960 vs “Big Four” tech companies, 2005-2020 Figure 1.4



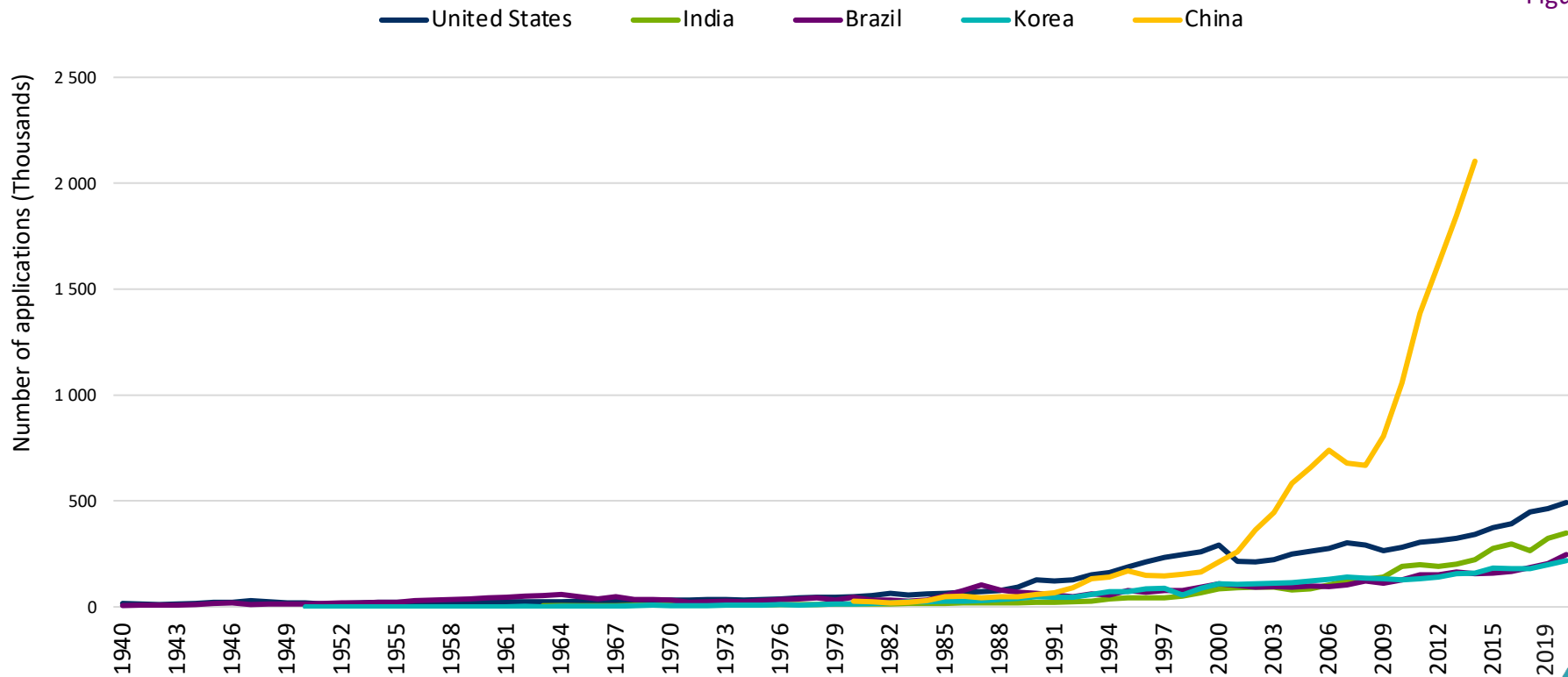
Source: OECD(2019), *An Introduction to Online Platforms and Their Role in the Digital Transformation*, <https://doi.org/10.1787/53e5f593-en>; 'companies' annual reports; and <https://macrotrends.net>



Intangible innovation

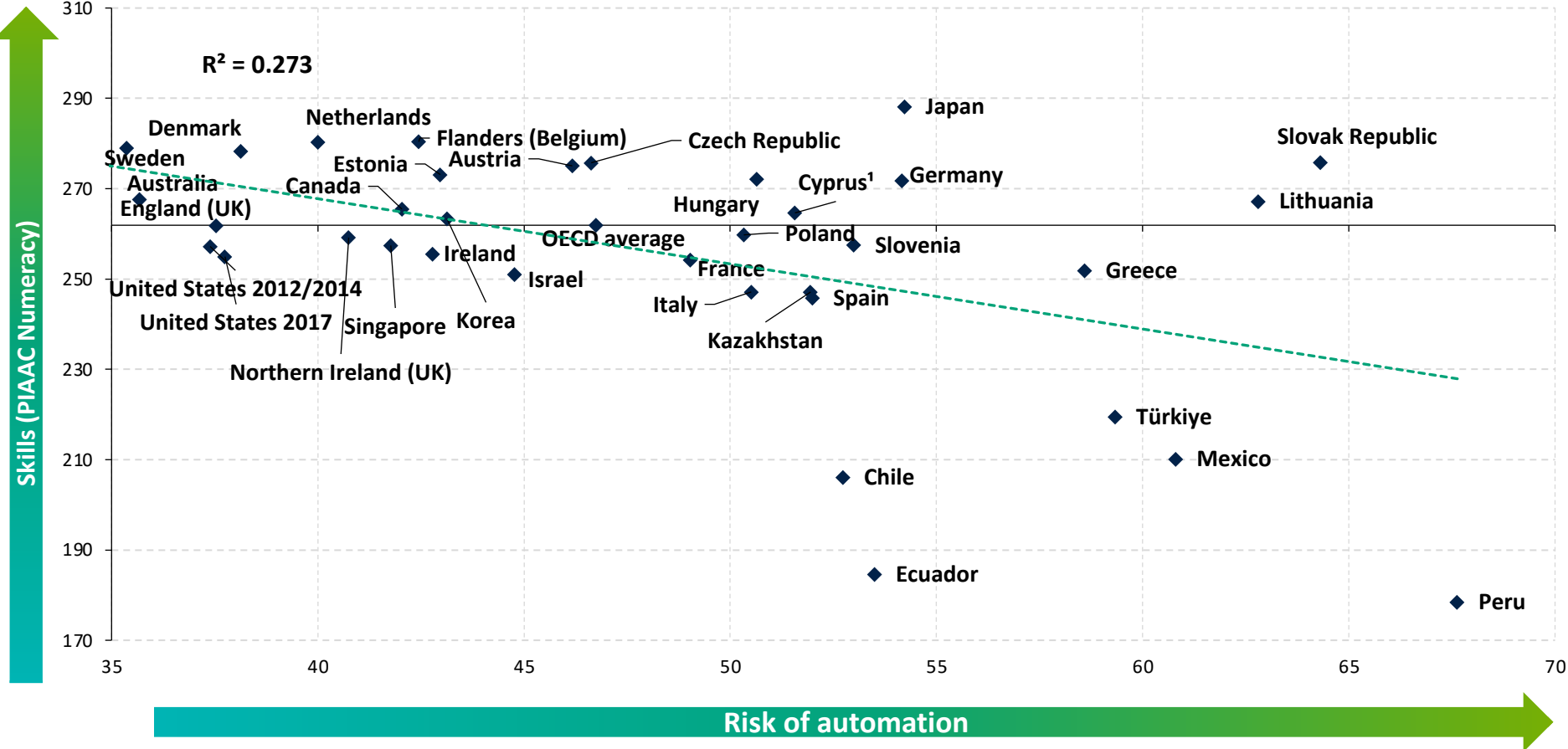
Trademark applications for the top five offices, 1940-2019

Figure 1.3





Skills and the risk of automation





The future of education and skills

Learning for the digital world, learning in the digital world

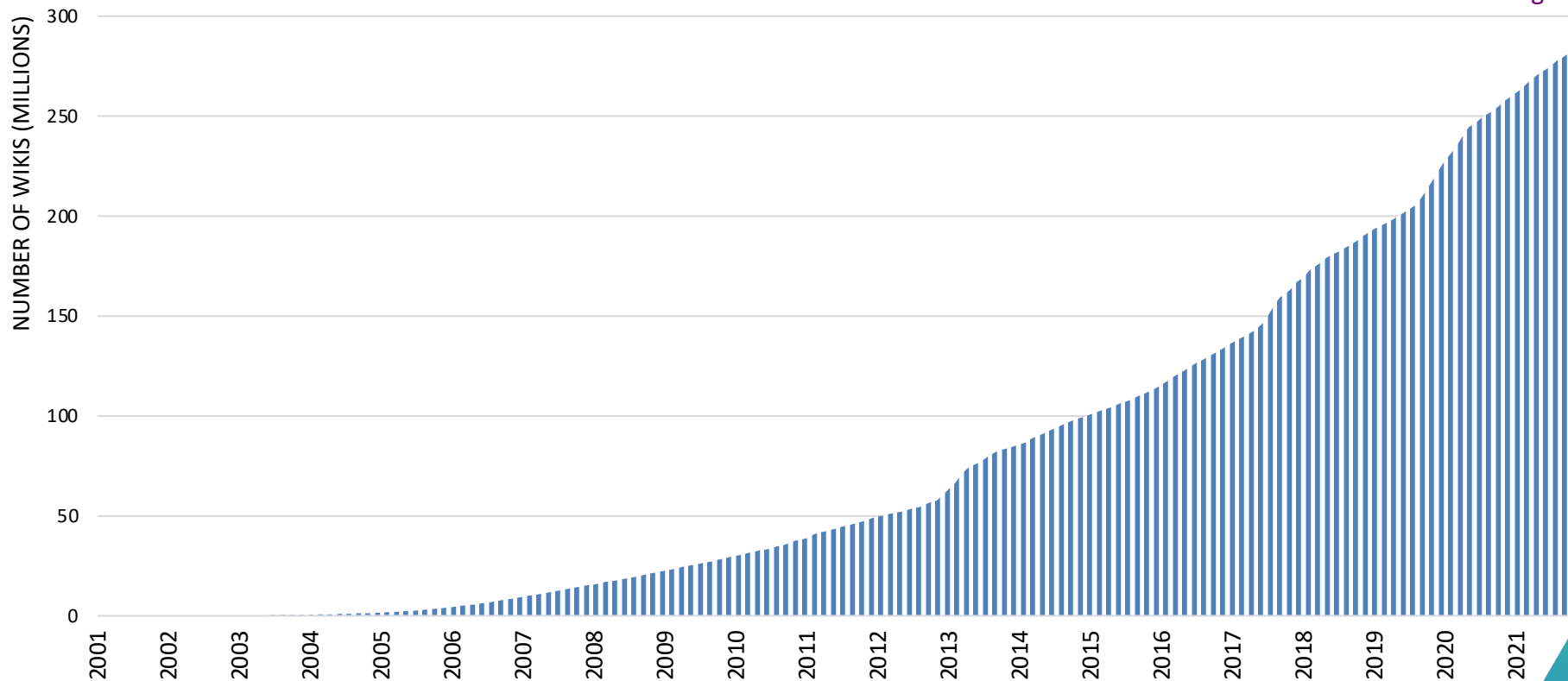




The wisdom of crowds

Number of pages in all wikis, 2001-2021

Figure 3.2

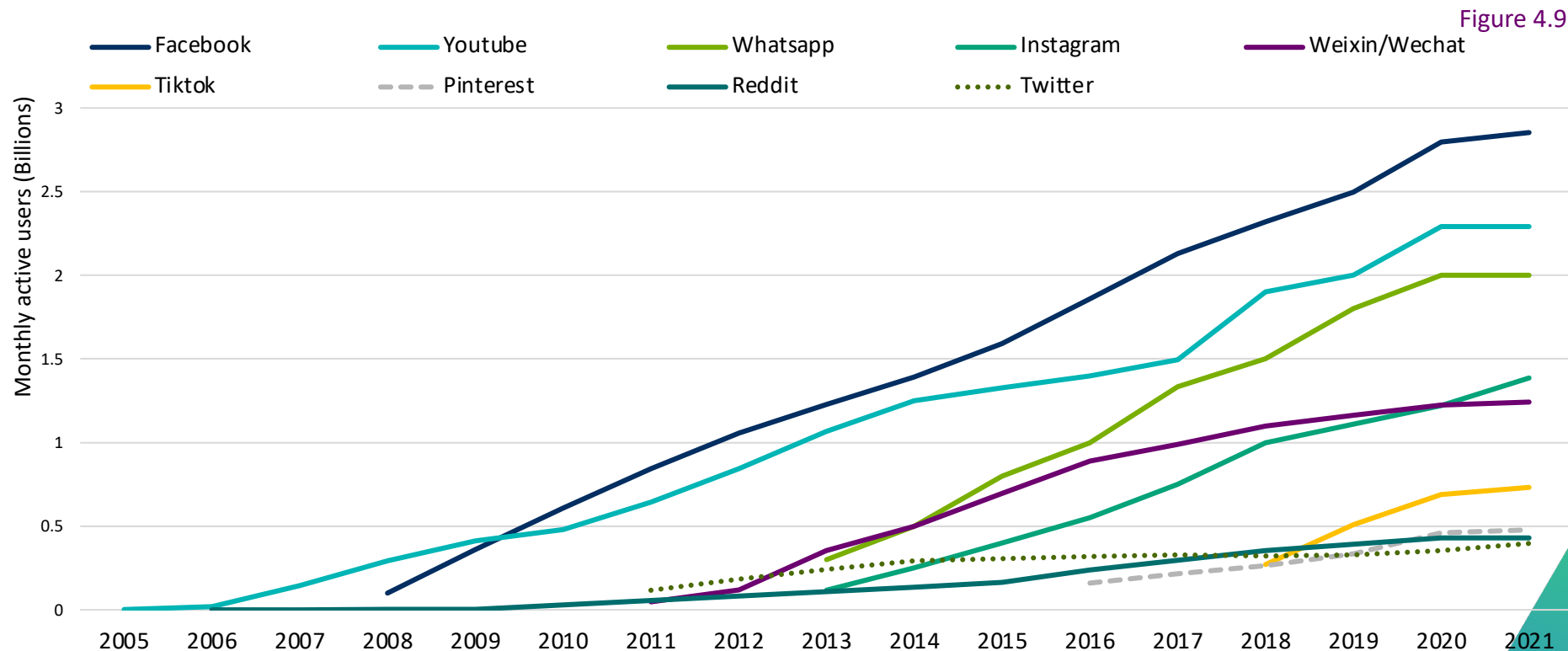


Source: Wikimedia (2021), Pages to Date, All Wikis, <https://stats.wikimedia.org/>



I post, therefore I am

Number of monthly active users on social media platforms, 2004-2021

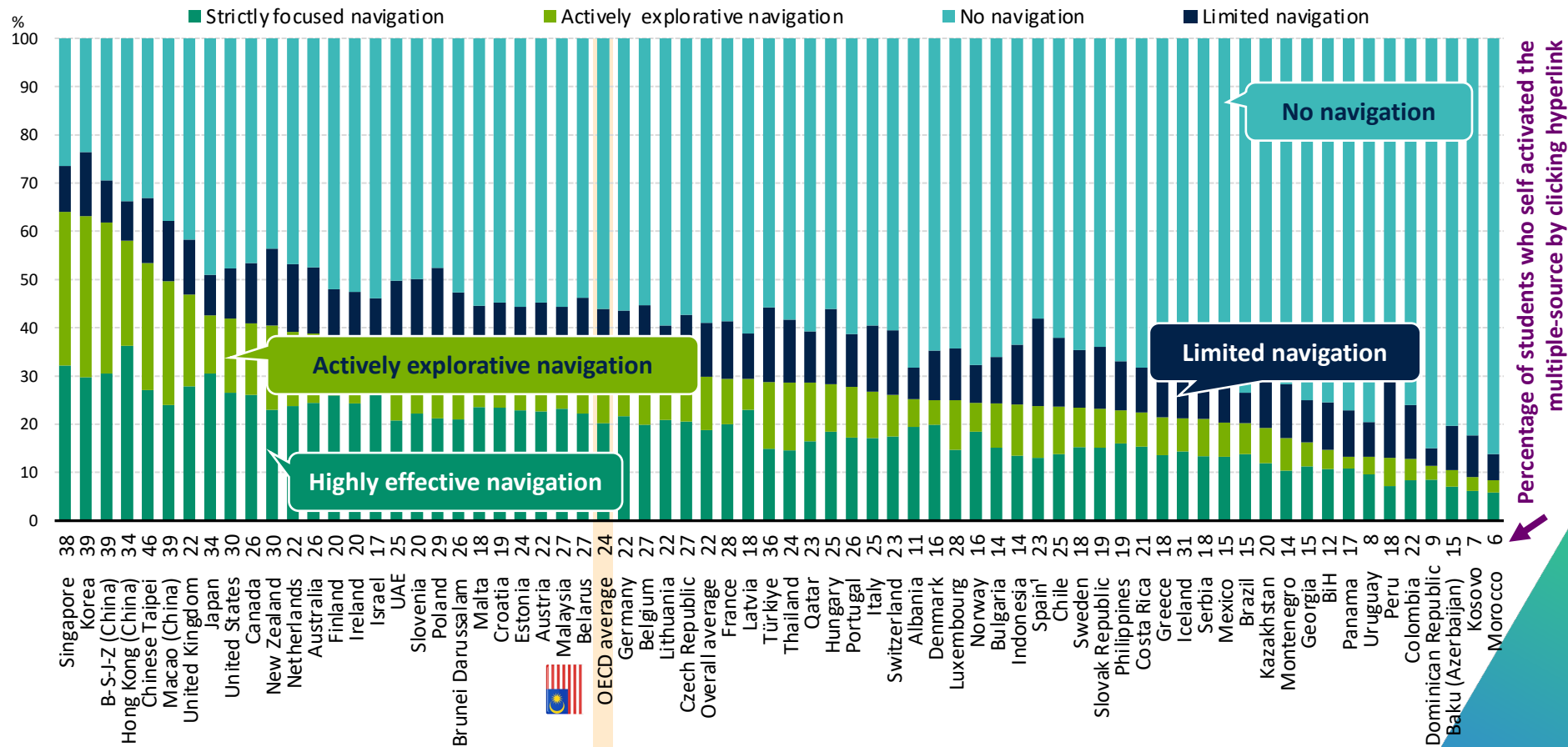


Source: OECD calculations from companies' annual reports; Ortiz-Espina (18 September 2019), <https://ourworldindata.org/>; Iqbal (13 May 2021), <https://www.businessofapps.com/>; Sherman (24 August 2020), <https://www.cnn.com/>; Statista (2021), <https://www.statista.com/>.



Digital navigation skills (PISA 2018)

Figure 3.7





The future of education and skills

No Planet B

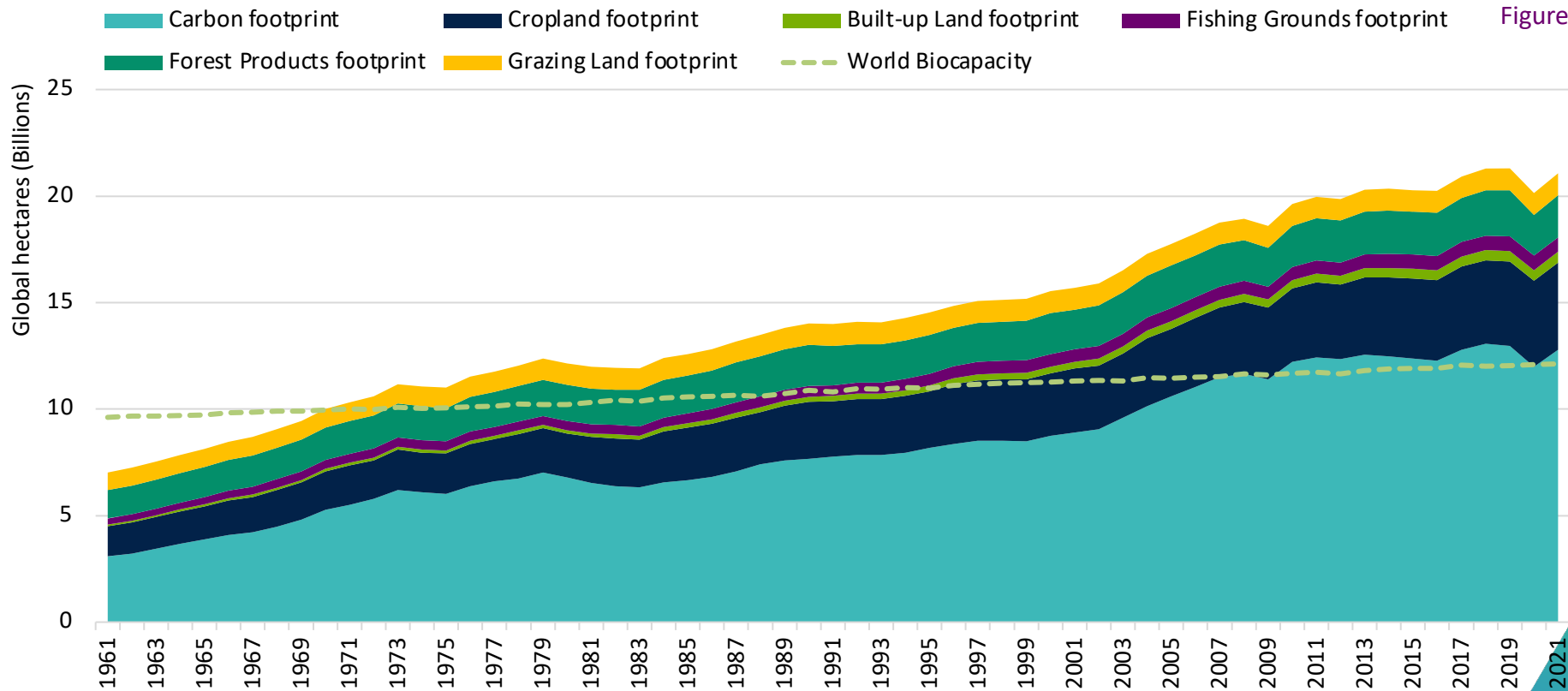




An outsized ecological footprint

Humanity's ecological footprint by land type against Earth's biocapacity, global hectares (gha), 1961-2021

Figure 5.1

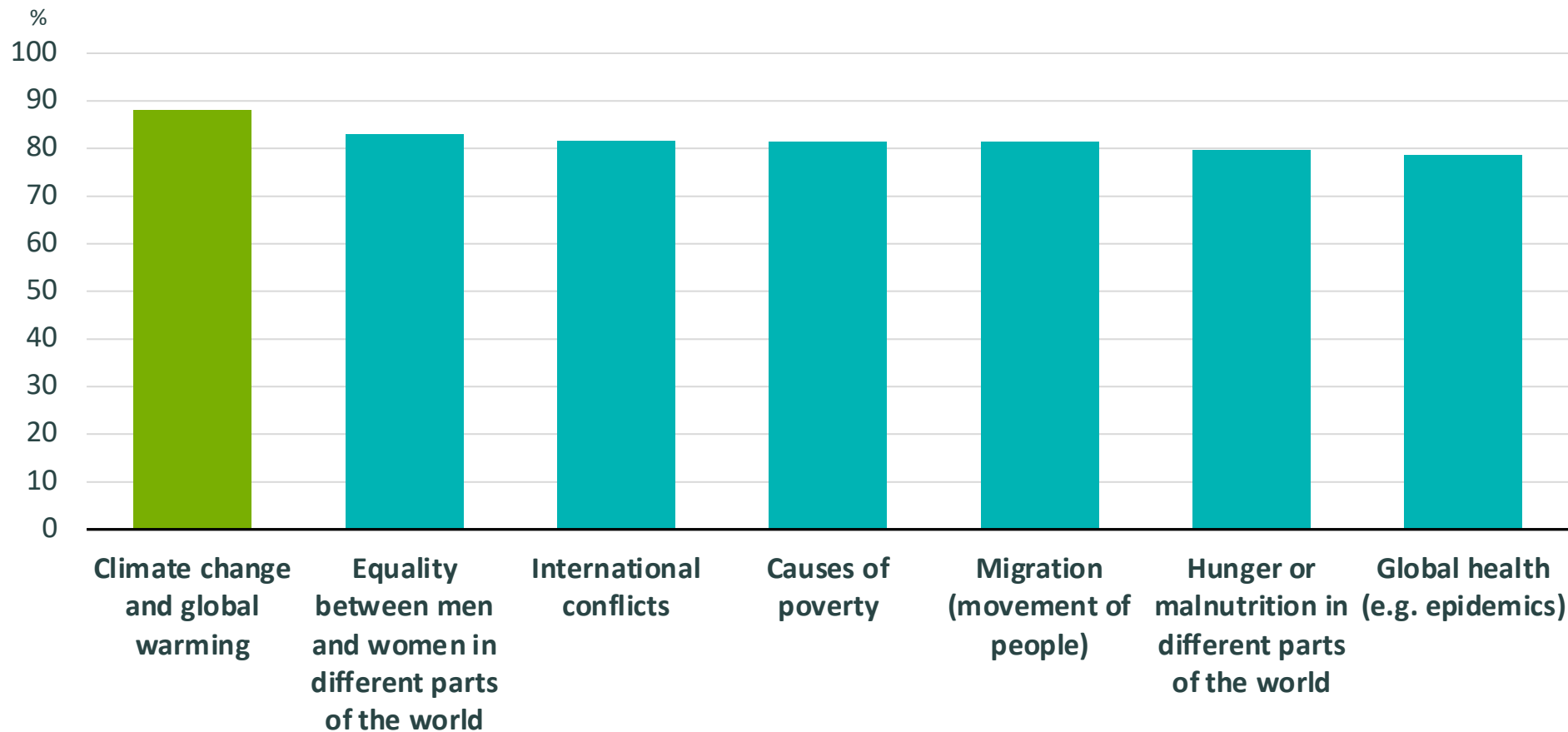


Source: Global Footprint Network (2021), National Footprint and Biocapacity Accounts, <https://data.footprintnetwork.org/>;
Lin, Wambersie and Wackernagel (2021), "Estimating the Date of Earth Overshoot Day 2021", <https://www.overshootday.org/>



Sustainability issues covered in the curriculum (PISA)

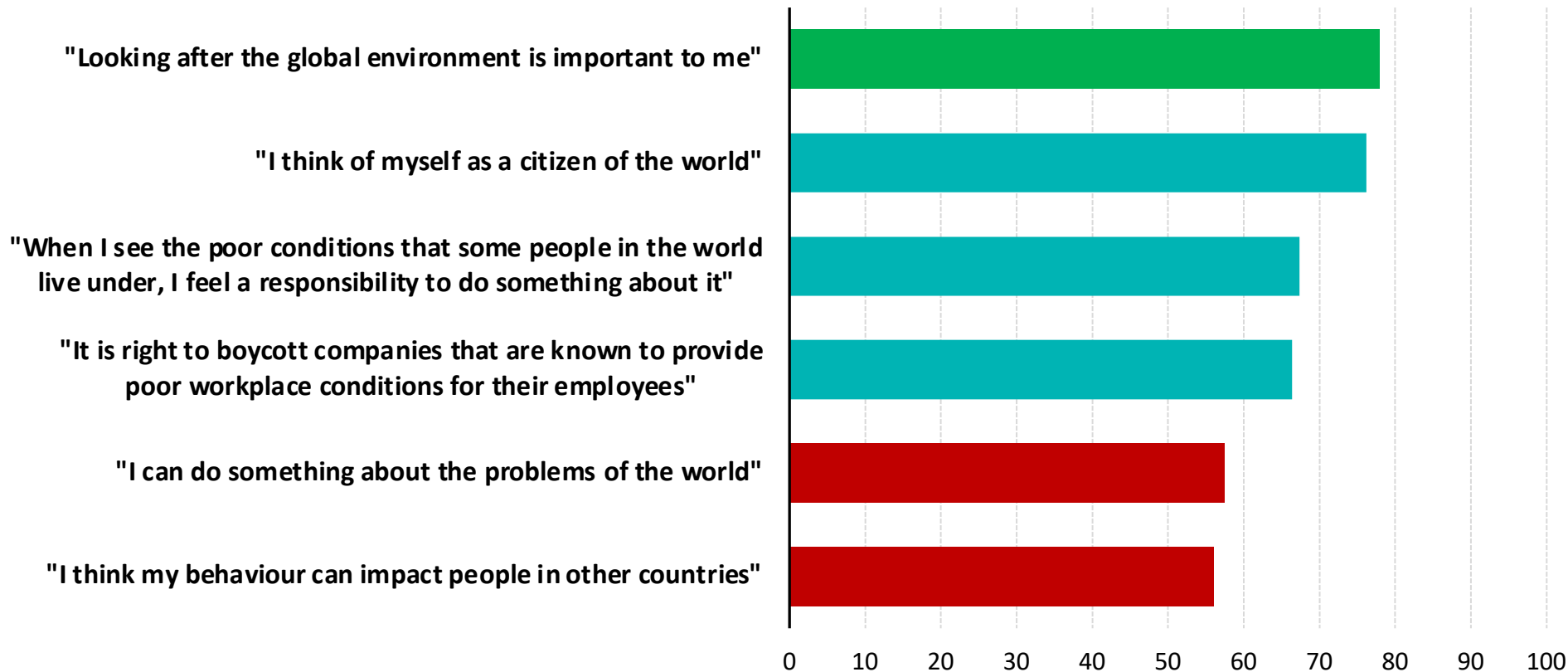
Share of principals who reported that there is a formal curriculum for the following topics:





Students' **agency** regarding sustainability issues

Percentage of students who agreed or strongly agreed with the following statements





Environmental awareness and optimism (15-year-olds, PISA)

ENVIRONMENTAL AWARENESS

The consequences of clearing forests for other land use

The increase of greenhouse gases in the atmosphere

Nuclear waste

The use of genetically modified organisms

Air pollution

Clearing of forests for other land use

Extinction of plants and animals

Water shortages

Nuclear waste

ENVIRONMENTAL OPTIMISM

OECD average

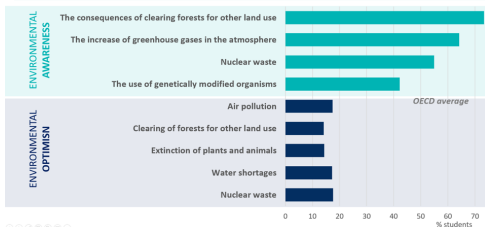
0 10 20 30 40 50 60 70
% students



Who are the environmentally optimistic and aware students (PISA age 15)?

OECD average

Environmental awareness and optimism (15-year-olds, PISA)



Less environmental optimism

Greater environmental awareness

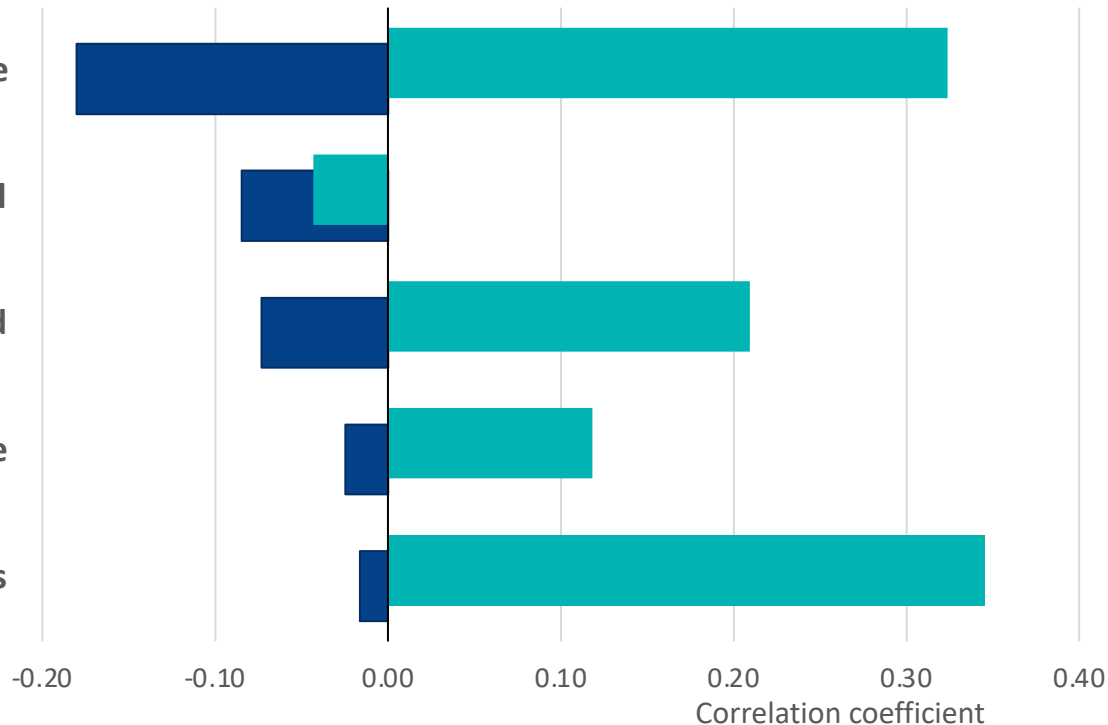
Science score

Student is a girl

Student is socio-economically advantaged

Student expects to pursue a career in science

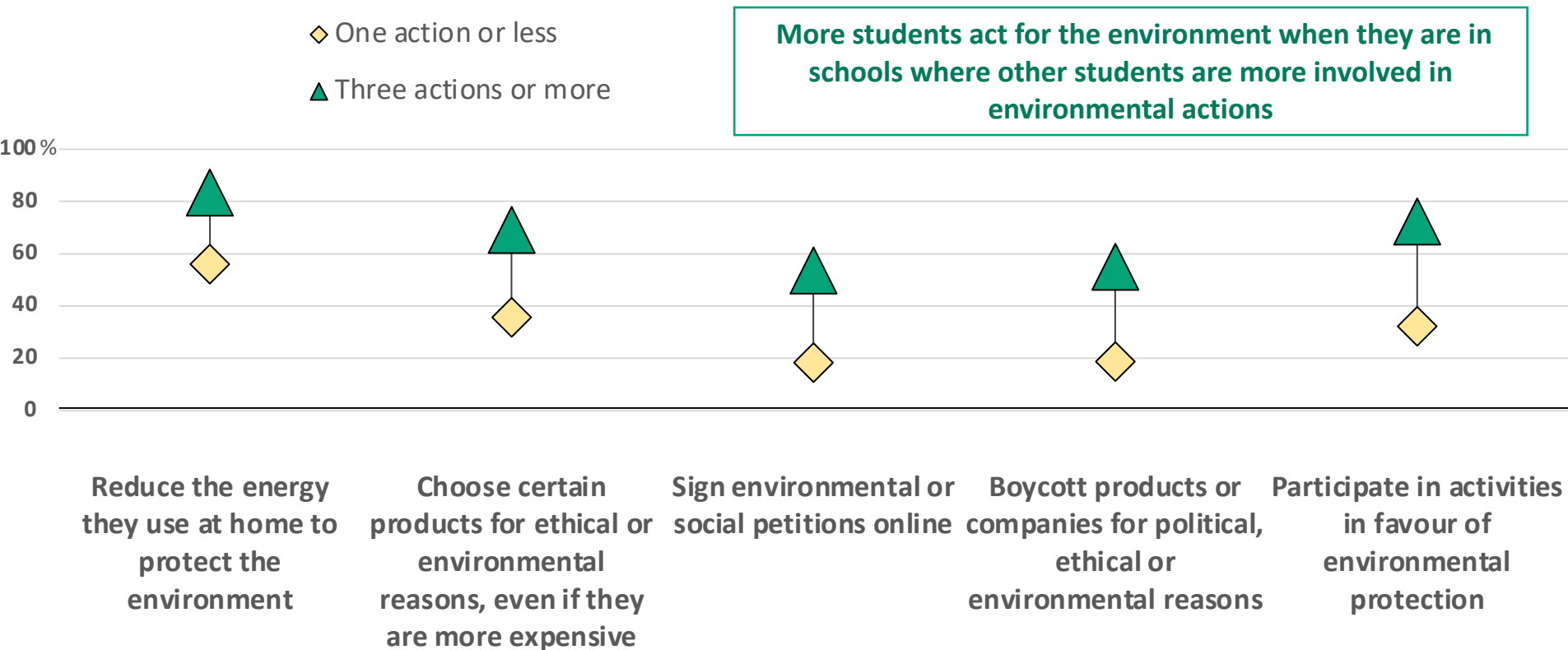
Interest in broad science topics





Involvement in environmental actions and school peers

Percentage of students who take part in environmental actions, by the average number of environmental actions that students in the school take part in ("school peers' effect")





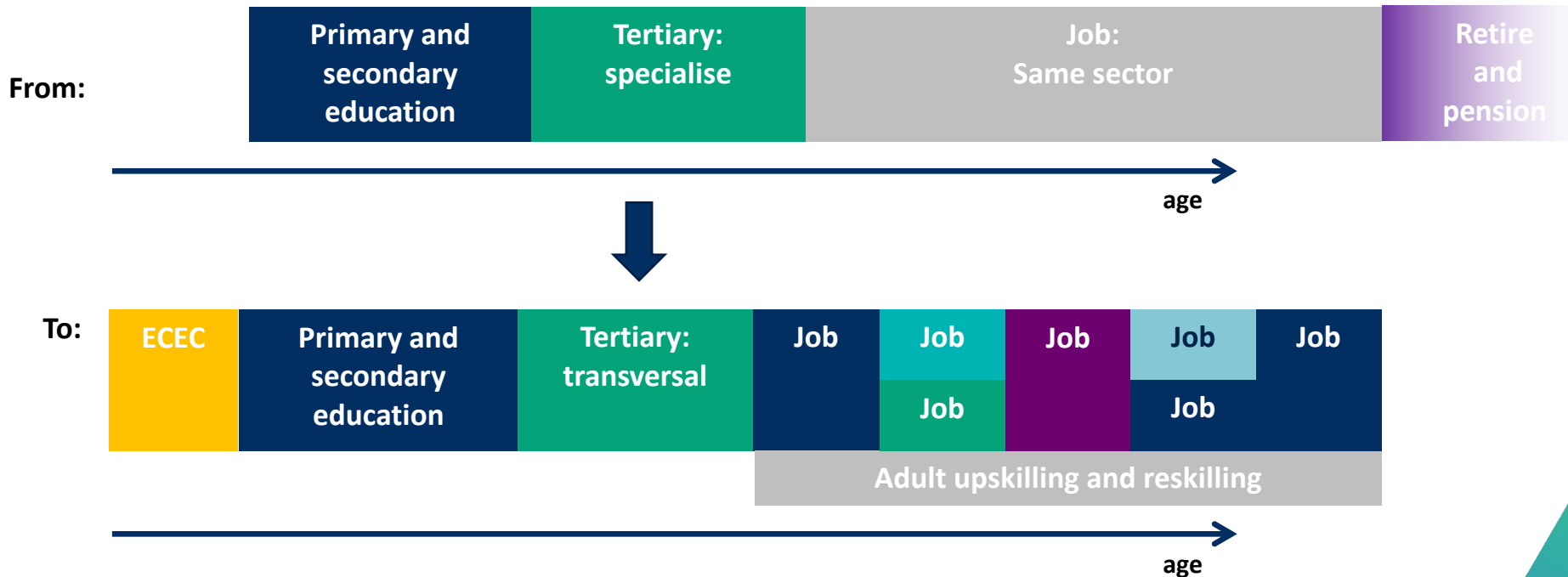
The future of education and skills

We used to learn to do the work,
now learning is the work





We used to learn to do the work, now learning is the work





Implications for education and training

Increased demand for skills means education systems have to respond

Education and training systems need to deliver:

- Higher skills levels for more people in **initial education and training**
- Opportunities to **upskill and reskill** throughout life



Front-loaded learning to lifelong learning



Multiple pathways



Combining work & study

Responding to priority skills needs (as well as core competencies)



Motivating & incentivising individuals



Assessing risks, leveraging opportunities

Tensions and paradoxes require smart responses



MODERNISING



DISRUPTING



NEW GOALS



OLD STRUCTURES



GLOBAL



LOCAL



INNOVATION



RISK AVOIDANCE



POTENTIAL



REALITY



VIRTUAL



FACE-TO-FACE



LEARNING



EDUCATION





**EDUCATION
& SKILLS**

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PISA Data Explorer: www.oecd.org/pisa/data

Email: Andreas.Schleicher@OECD.org

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Wechat: [AndreasSchleicher](#)

and remember:

Without data, you are just another person with an opinion

