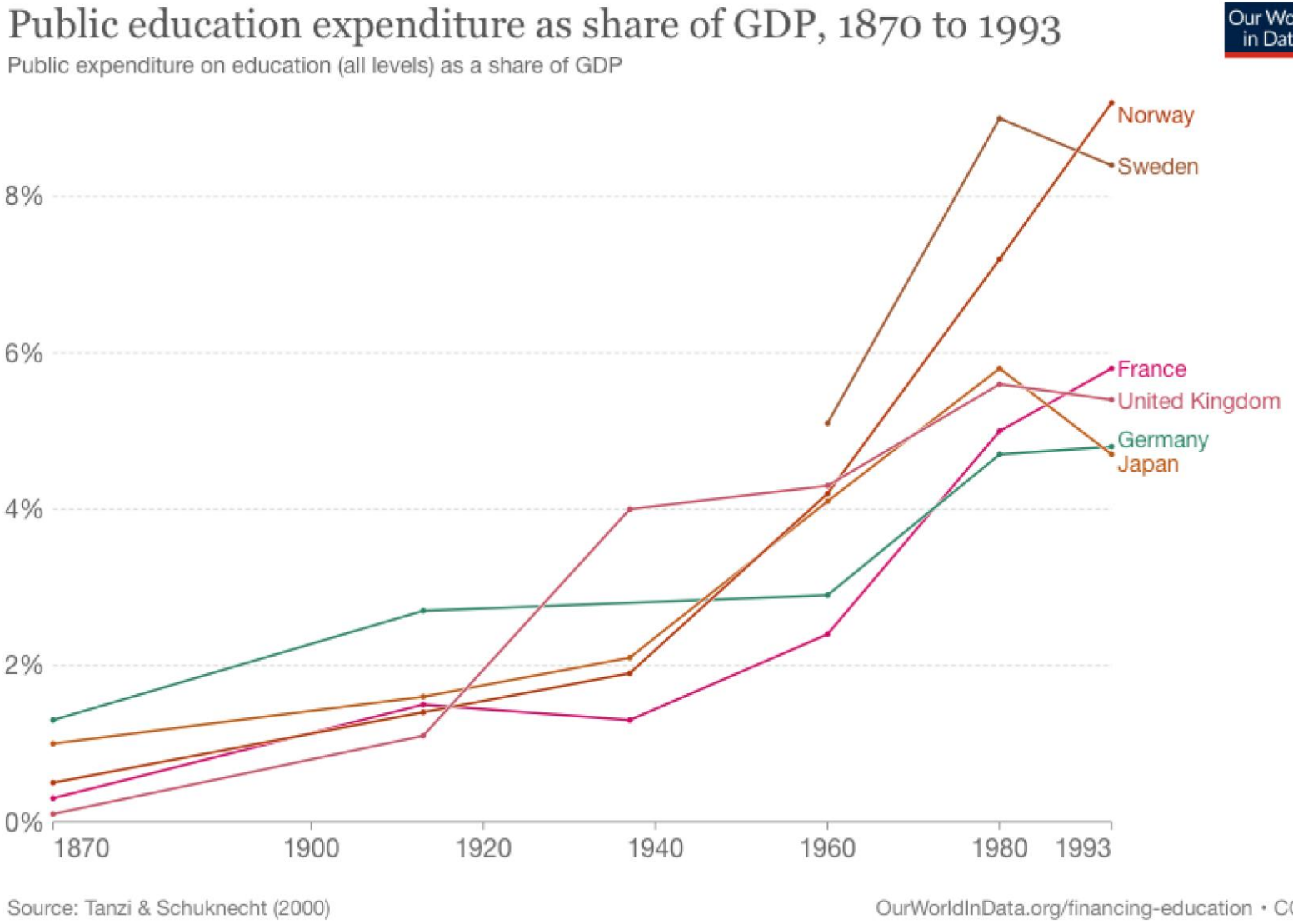
Production of education

HS 156_Economics of Health and Education

When did the provision of education first become a public policy priority?

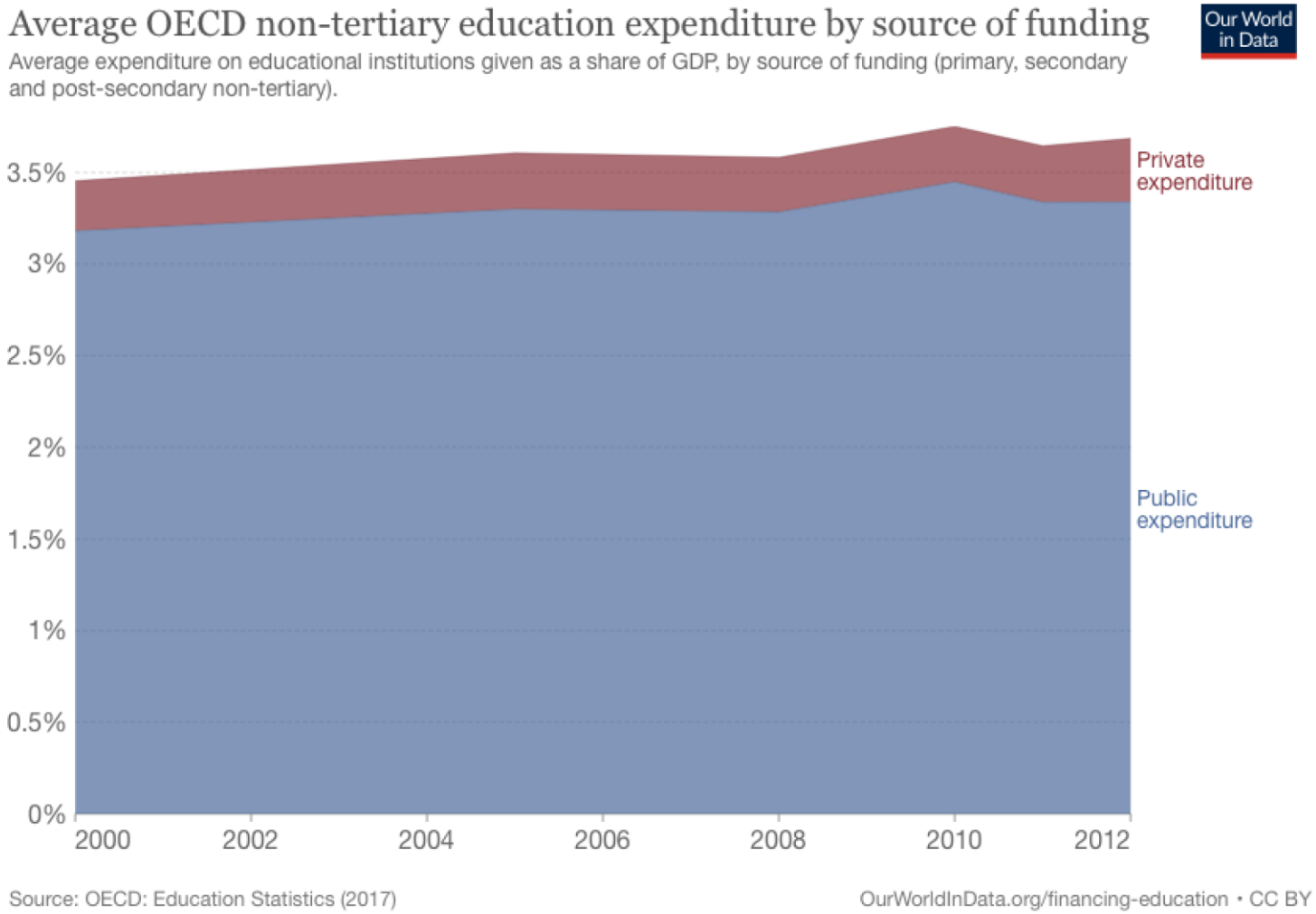
- The advancement of the idea to provide education for more and more children only began in the mid 19th century, when most of today's industrialized countries started expanding primary education.

- The visualization, plotting public expenditure on education as a share of Gross Domestic Product (GDP) for a number of early-industrialized countries, shows that this expansion took place mainly through public funding.



Primary education continues to be publicly funded in industrialized countries

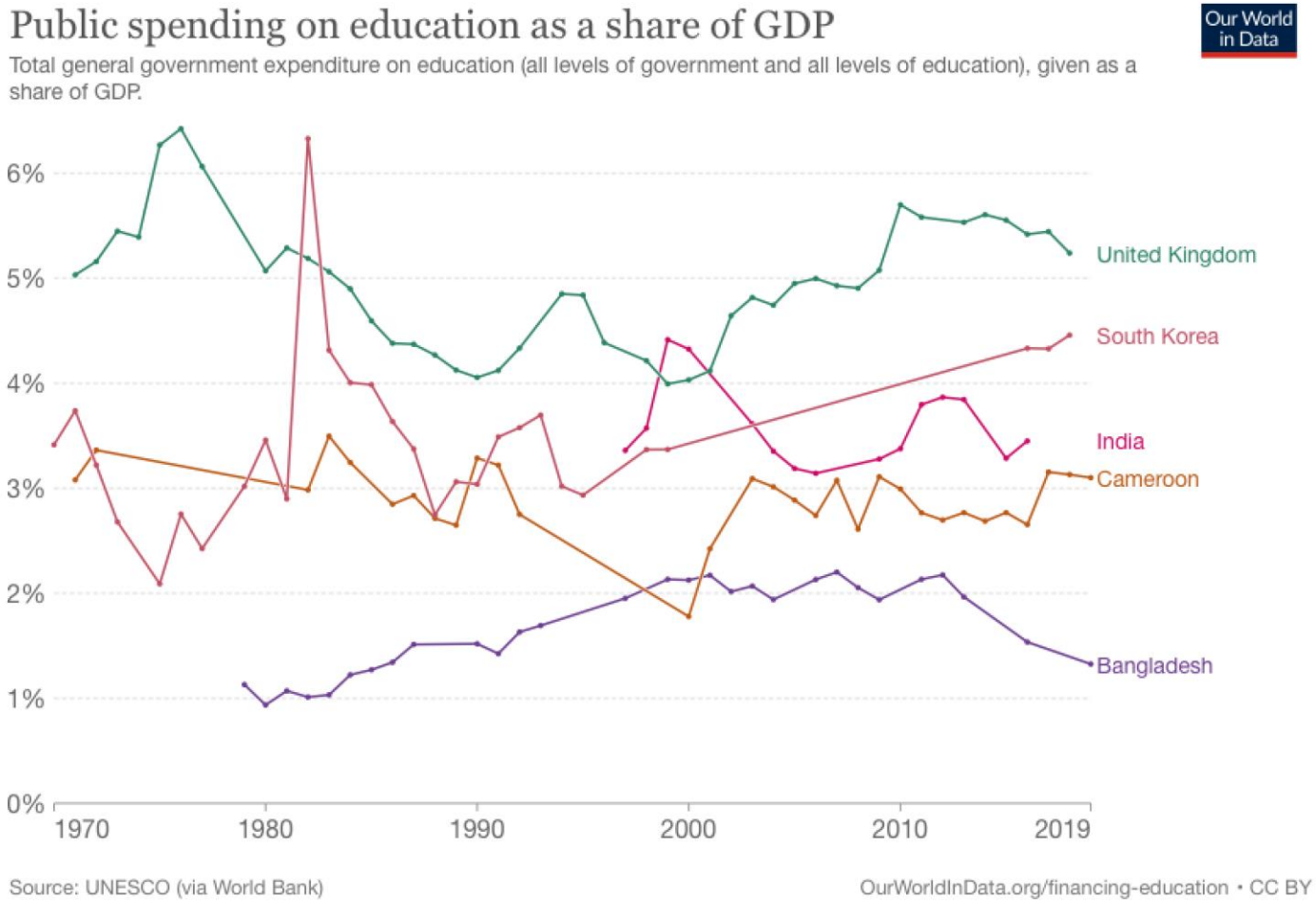
- Those countries that pioneered the expansion of primary education in the 19th century – all of which are current OECD member states – relied heavily on public funding to do so.
- Today, public resources still dominate funding for the primary, secondary and post-secondary non-tertiary education levels in these countries.
- While in the last decade the share of public funding for these levels of education has decreased slightly, the broad pattern is remarkably stable.
- The visualization presents OECD-average expenditure on education institutions by source of funds.



- United States
- Türkiye
- United Kingdom
- Denmark
- France
- Germany
- Costa Rica
- Sweden
- Poland
- Spain
- South Korea
- Belgium
- Czechia
- Chile
- Estonia
- Austria
- Netherlands
- Australia
- Canada
- Finland
- Greece
- Hungary
- Iceland
- Italy
- Ireland
- Israel
- Luxembourg
- Norway
- Portugal
- Switzerland
- Slovakia
- Slovenia
- New Zealand
- Lithuania
- Latvia

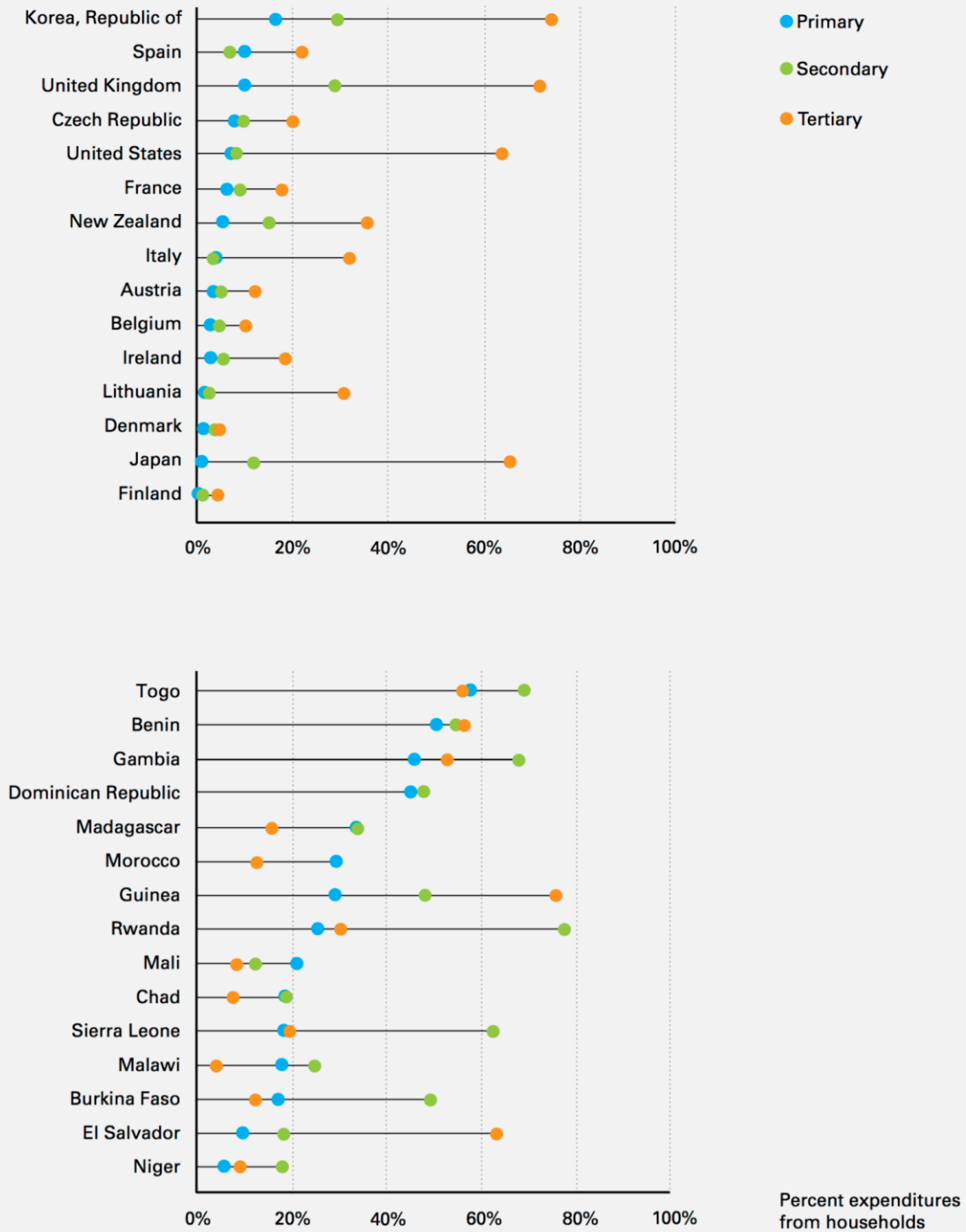
The world is expanding funding for education today

- The last two decades have seen a small but general increase in the share of income that countries devote to education.
- The chart plots trends in public expenditure on education as a share of GDP.
- Although the data is highly irregular due to missing observations for many countries, we can still observe a broad upward trend for the majority of countries.
- As incomes – measured by GDP per capita – are generally increasing around the world, this means that the total amount of global resources spent on education is also increasing in absolute terms.



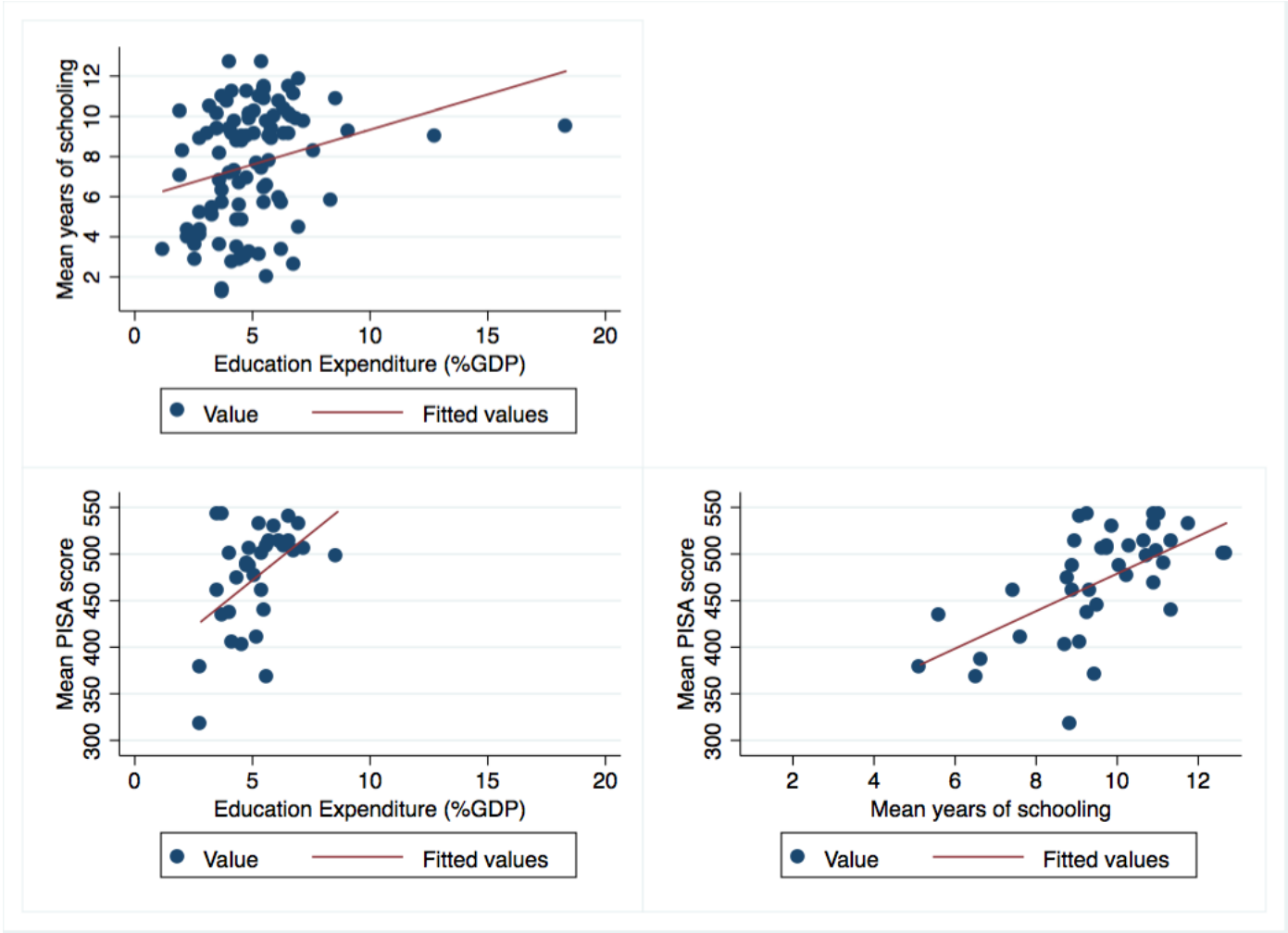
In high-income countries households shoulder a larger share of education expenditures at higher education levels than at lower levels – but in low-income countries this is not the case

- The visualization shows the percentage of total education expenditures contributed directly by households in 15 high income countries and 15 low/middle income countries (most recent data available on 2014).
- The top chart in this figure, corresponding to high income countries, shows a very clear pattern: households contribute the largest share of expenses in tertiary education, and the smallest share in primary education.
- Roughly speaking, this pattern tends to be progressive, since students from wealthier households are more likely to attend tertiary education, and those individuals who attend tertiary education are likely to perceive large private benefits.
- In contrast, the bottom chart shows a very different picture: in several low-income countries households contribute proportionally more to primary education than to higher levels.
- Malawi is a notable case in point – tertiary education is almost completely subsidised by the state, yet household contribute with almost 20% of the costs in primary education.
- Such distribution of private household contributions to education is regressive.


Korea, Republic of
Spain
United Kingdom
Czech Republic
United States
France
New Zealand
Italy
Austria
Belgium
Ireland
Lithuania
Denmark
Japan
Finland
Togo
Benin
Gambia
Dominican Republic
Madagascar
Morocco
Guinea
Rwanda
Mali
Chad
Sierra Leone
Malawi
Burkina Faso
El Salvador
Niger
0%
20%
40%
60%
80%
100%
Primary
Secondary
Tertiary
Percent expenditures from households

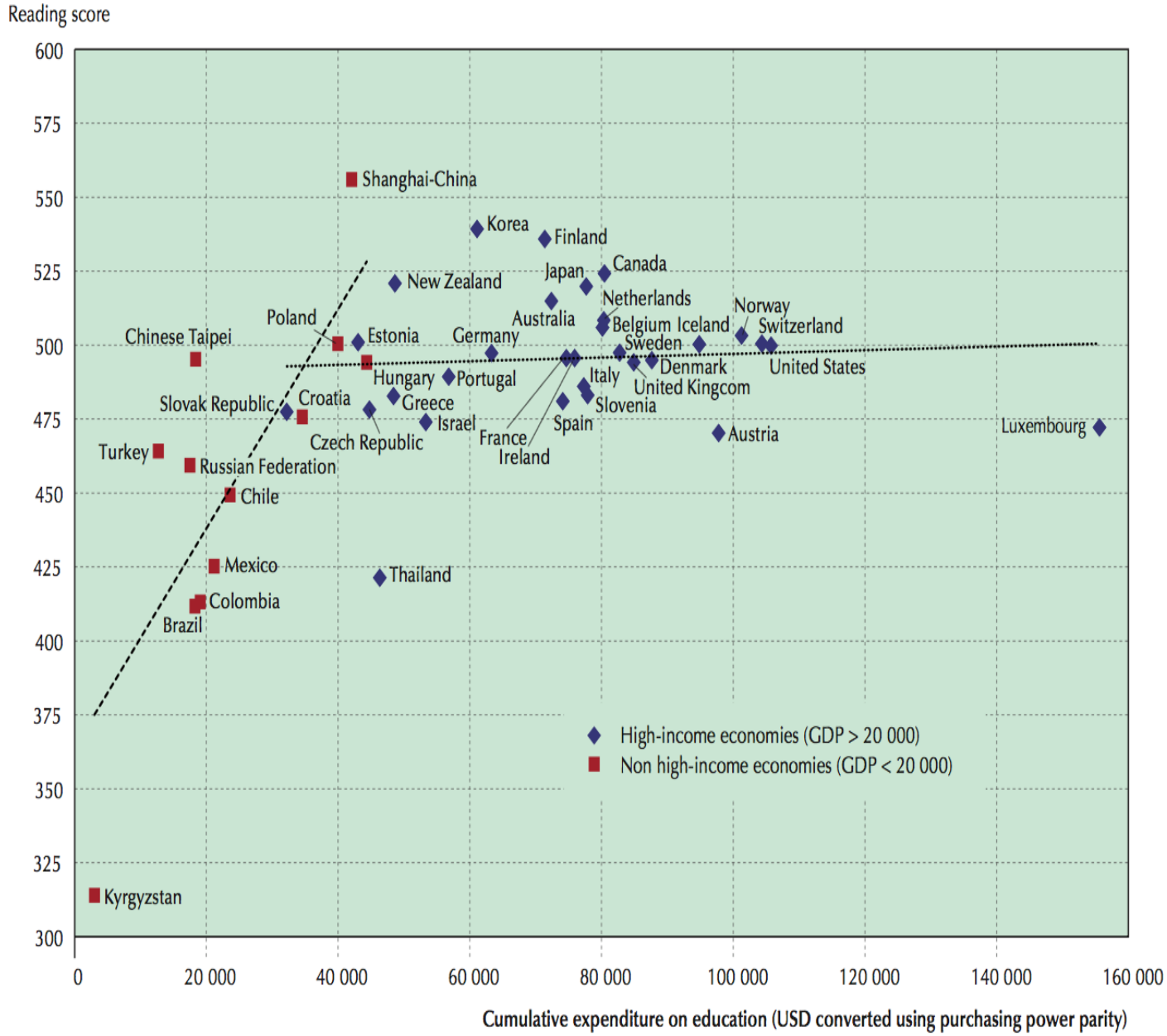
Do countries that spend more public resources on education tend to have better education outcomes?

- The visualization presents three scatter plots using 2010 data to show the cross-country correlation between (i) education expenditure (as a share of GDP), (ii) mean years of schooling, and (iii) mean PISA test scores.
- At a cross-sectional level, expenditure on education correlates positively with both quantity and quality measures.
- The quality and quantity measures also correlate positively with each-other.
- But correlation does not imply causation: there are many factors that simultaneously affect education spending and outcomes.
- These scatterplots show that despite the broad positive correlation, there is substantial dispersion away from the trend line.
- In other words, there is substantial variation in outcomes that does not seem to be captured by differences in expenditure.



Does cross-country variation in government education expenditure explain cross-country differences in education outcomes?

- The visualization presents the relationship between PISA reading outcomes and average education spending per student, splitting the sample of countries by income levels.
- It shows that income is an important factor that affects both expenditure on education and education outcomes:
- We can see that above a certain national income level, the relationship between PISA scores and education expenditure per pupil becomes virtually inexistent.
- Several studies with more sophisticated econometric models corroborate the fact that expenditure on education does not explain well cross-country differences in learning outcomes.



What inputs enter the 'education production function'?

- The fact that expenditure on education does not explain well cross-country differences in learning outcomes is indicative of the intricate nature of the process through which such outcomes are produced.
- The 'production function' provides a conceptual framework to think about the determinants of learning outcomes.
- This conceptualization highlights that, for any given level of expenditure, the output achieved will depend on the input mix.
- And consequently, this implies that in order to explain education outcomes, we must rely on information about specific inputs.

$$\boldsymbol{A} = \boldsymbol{a}(\boldsymbol{s}, \boldsymbol{Q}, \boldsymbol{C}, \boldsymbol{H}, \boldsymbol{I})$$

$where\ \boldsymbol{A}\ is\ skills\ learned\ (achievement)$

$\boldsymbol{s}\ is\ years\ of\ schooling$

$\boldsymbol{Q}\ is\ a\ vector\ of\ school\ \&\ teacher\ characteristics\ (quality)$

$\boldsymbol{C}\ is\ a\ vector\ or\ child\ characteristics\ (including\ innate\ ability)$

$\boldsymbol{H}\ isa\ vector\ of\ household\ characteristics$

$\boldsymbol{I}\ is\ a\ vector\ of\ school\ inputs\ under\ the\ control\ of\ households\ such\ as\ children's\ daily\ attendance,\ effort\ in\ school\ and\ in\ doing\ homework, and\ purchases\ of\ school\ supplies$

- Available evidence specifically on the importance of school inputs, suggests that learning outcomes may be more sensitive to improvements in the **quality of teachers**, than to improvements in class sizes.
- And regarding household inputs, the recent experimental evidence suggests that **interventions that increase the benefits of attending school (e.g. conditional cash transfers)** are particularly likely to increase student time in school; and that those that **incentivise academic effort (e.g. scholarships)** are likely to improve learning outcomes.
- Policy experiments have also shown that pre-school investment in demand-side inputs leads to large positive impacts on education – and other important outcomes later in life.
- The environment that children are exposed to early in life, plays a crucial role in shaping their abilities, behavior and talents.

Source

https://ourworldindata.org/global-education