こどもの機会均等研究センター
Center for Research on Equality of Opportunity for Children

Keio University

Educational and Economic Inequality in Japan in a Global Perspective

Introductory Lecture for
KKC Fellowship Program for North American Social Studies Teachers

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June 24th, 2024

Table of Contents

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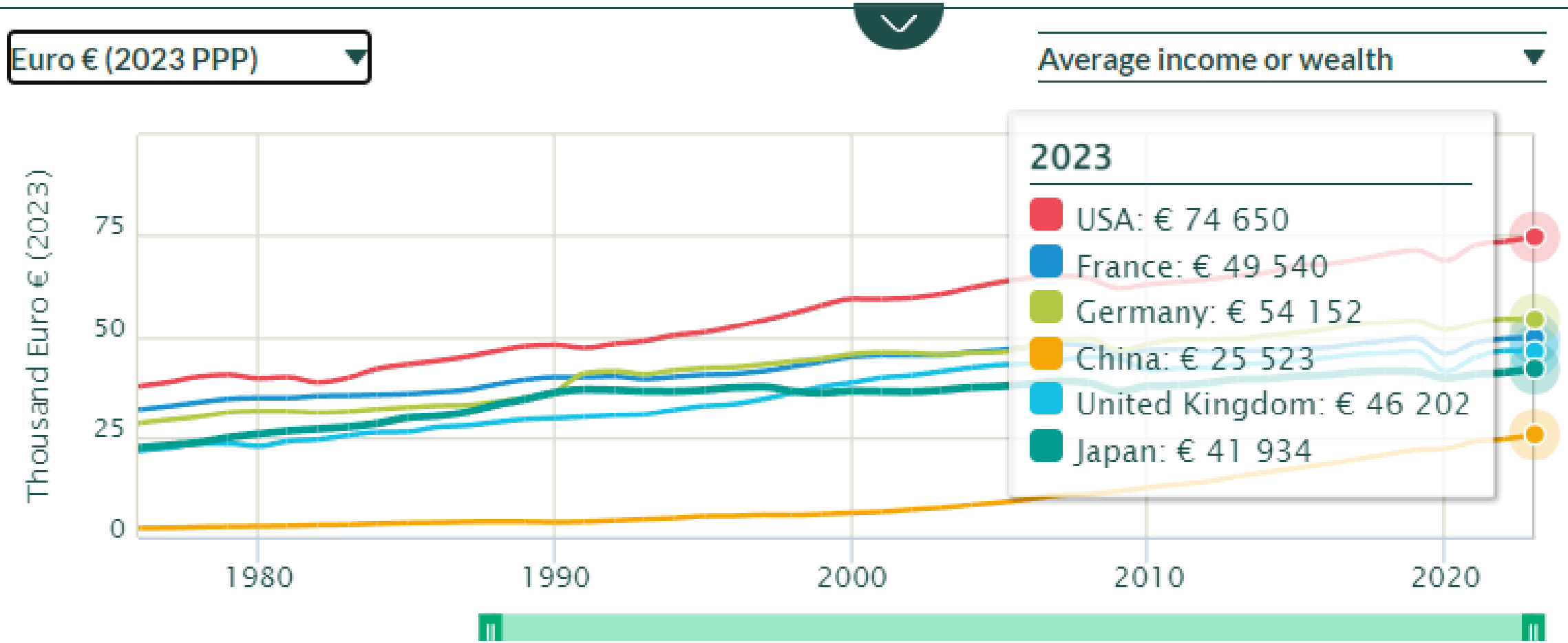
Japanese Economy Background

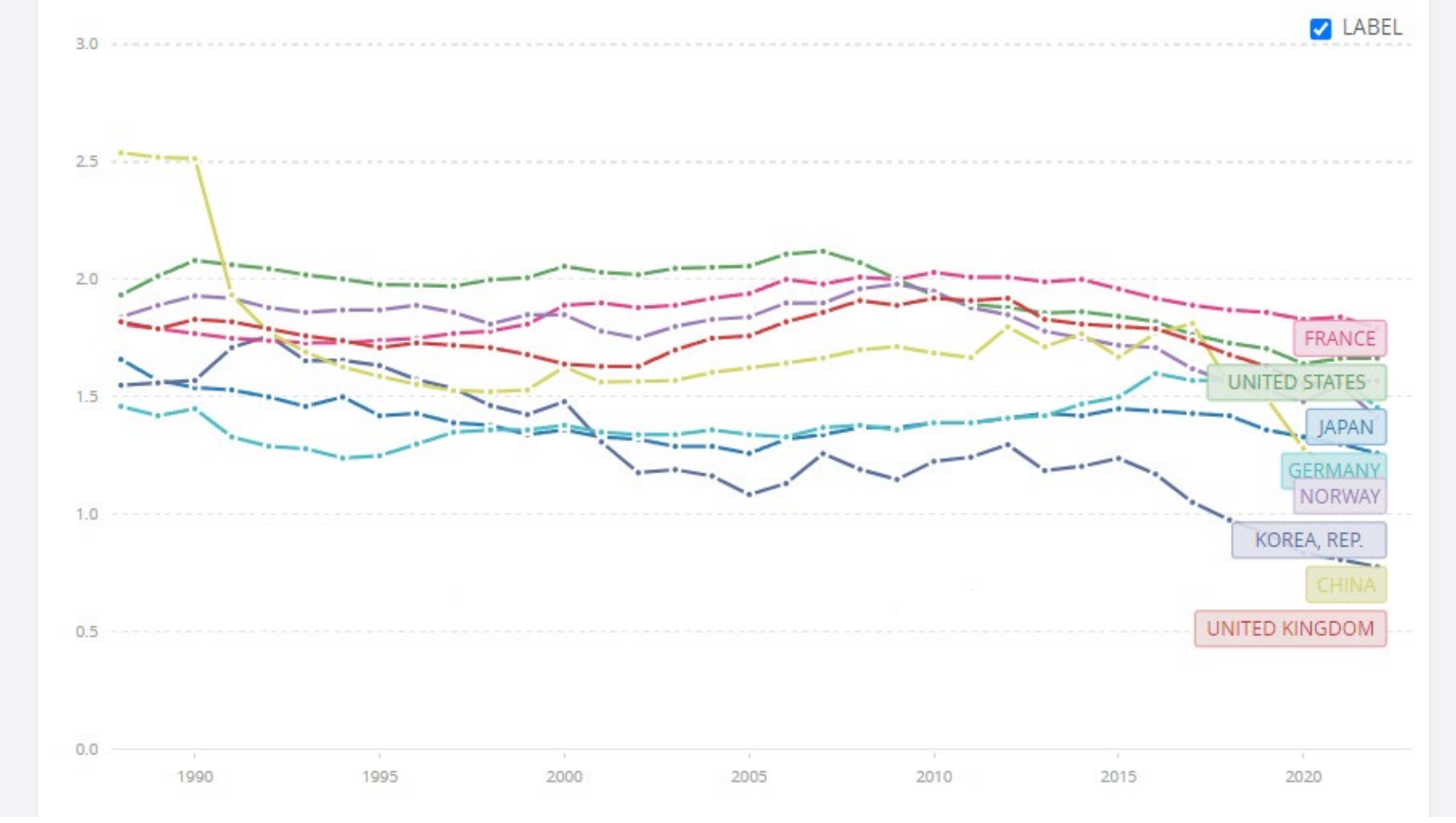
GDP per capita

https://wid.world/world/#agdpro_p0p100_z/US;FR;DE;CN;GB;JP/last/eu/k/p/yearly/a/false/0/100000/curve/true/country



Fertility rate

https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?end=2022&locations=JP-US-KR-FR-DE-NO&start=1982&view=chart



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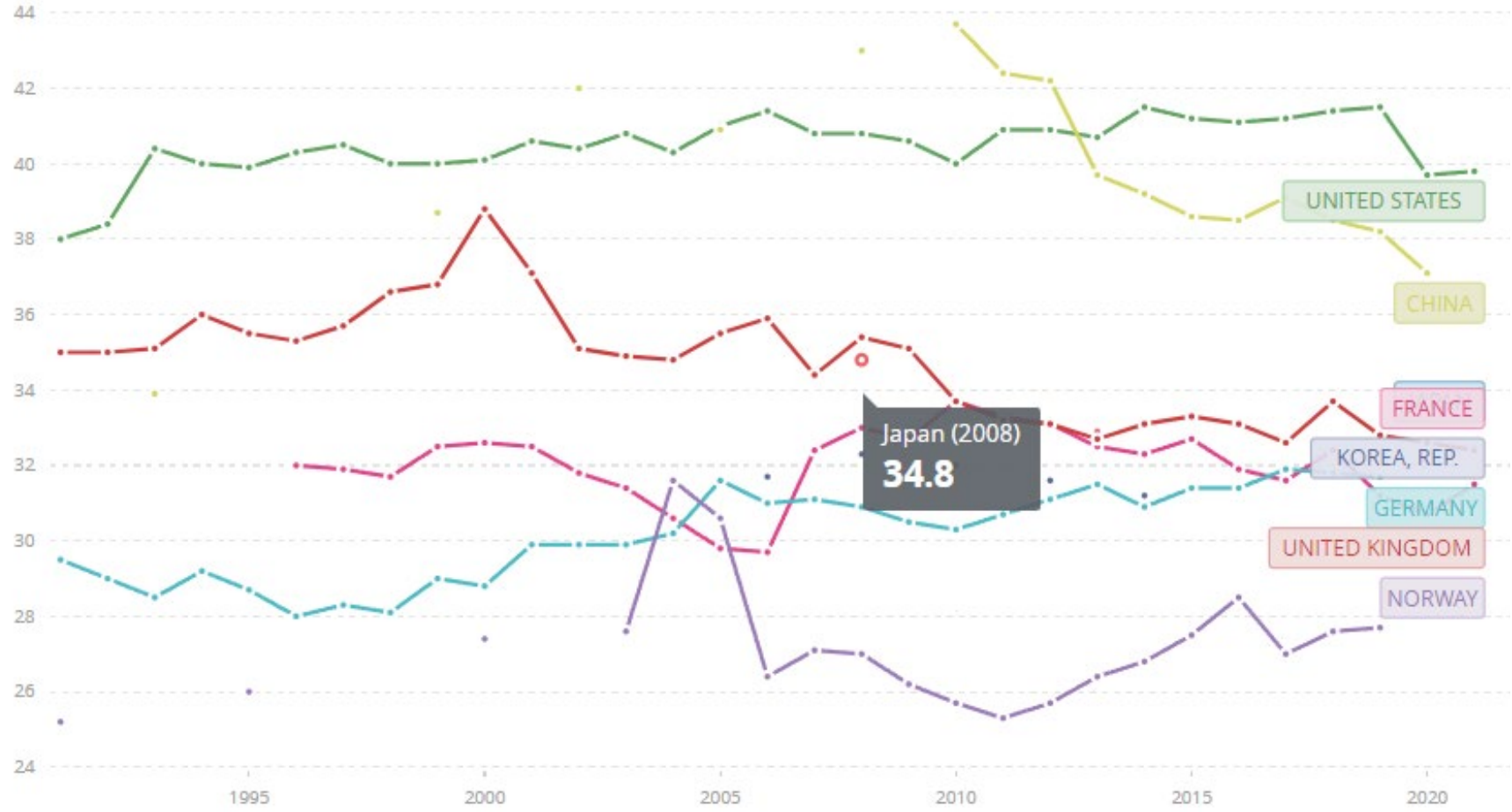
Japanese Economy
Inequality

Income inequality: Gini index

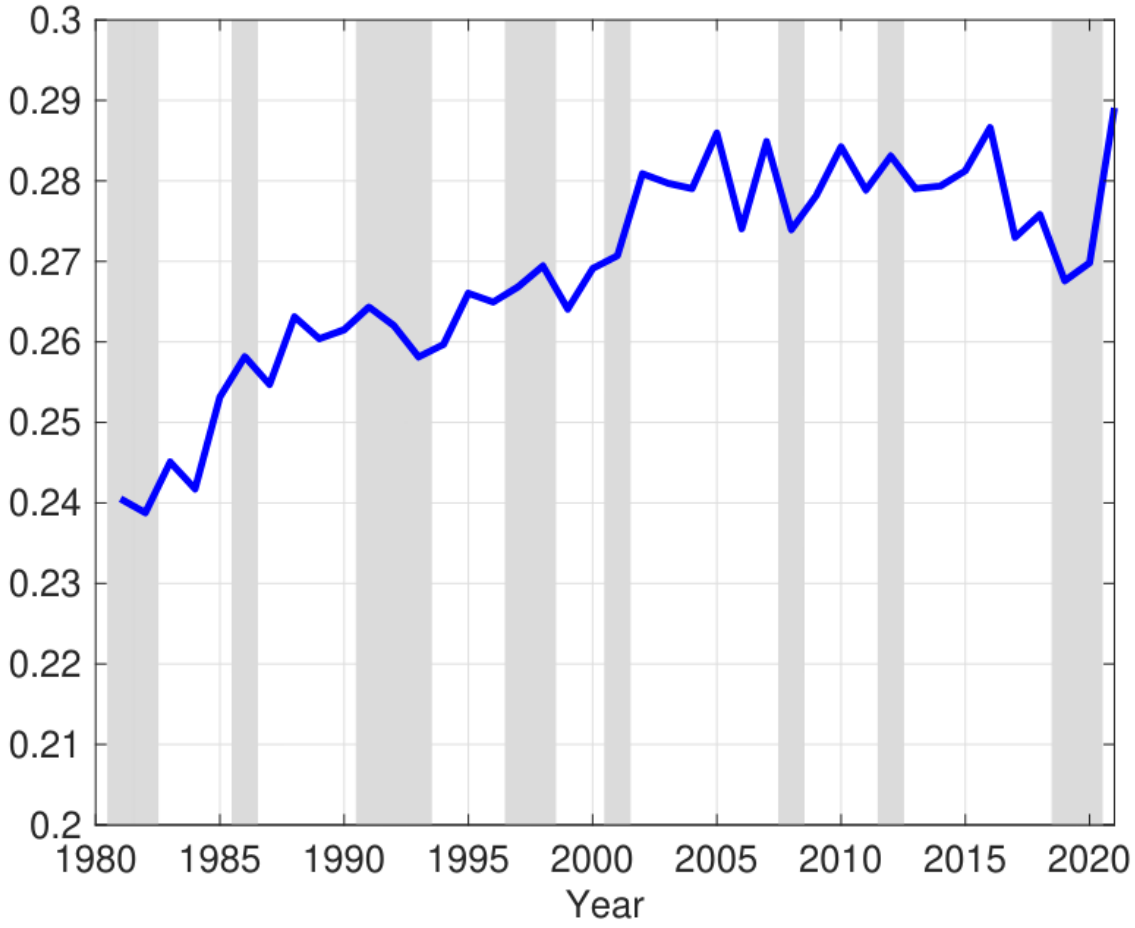
- Higher Gini means more unequal

https://data.worldbank.org/indicator/SI.POV.GINI?end=2021&locations=JP-US-KR-FR-DE-NO-CN-GB&start=1991



Trend in Gini index in Japan

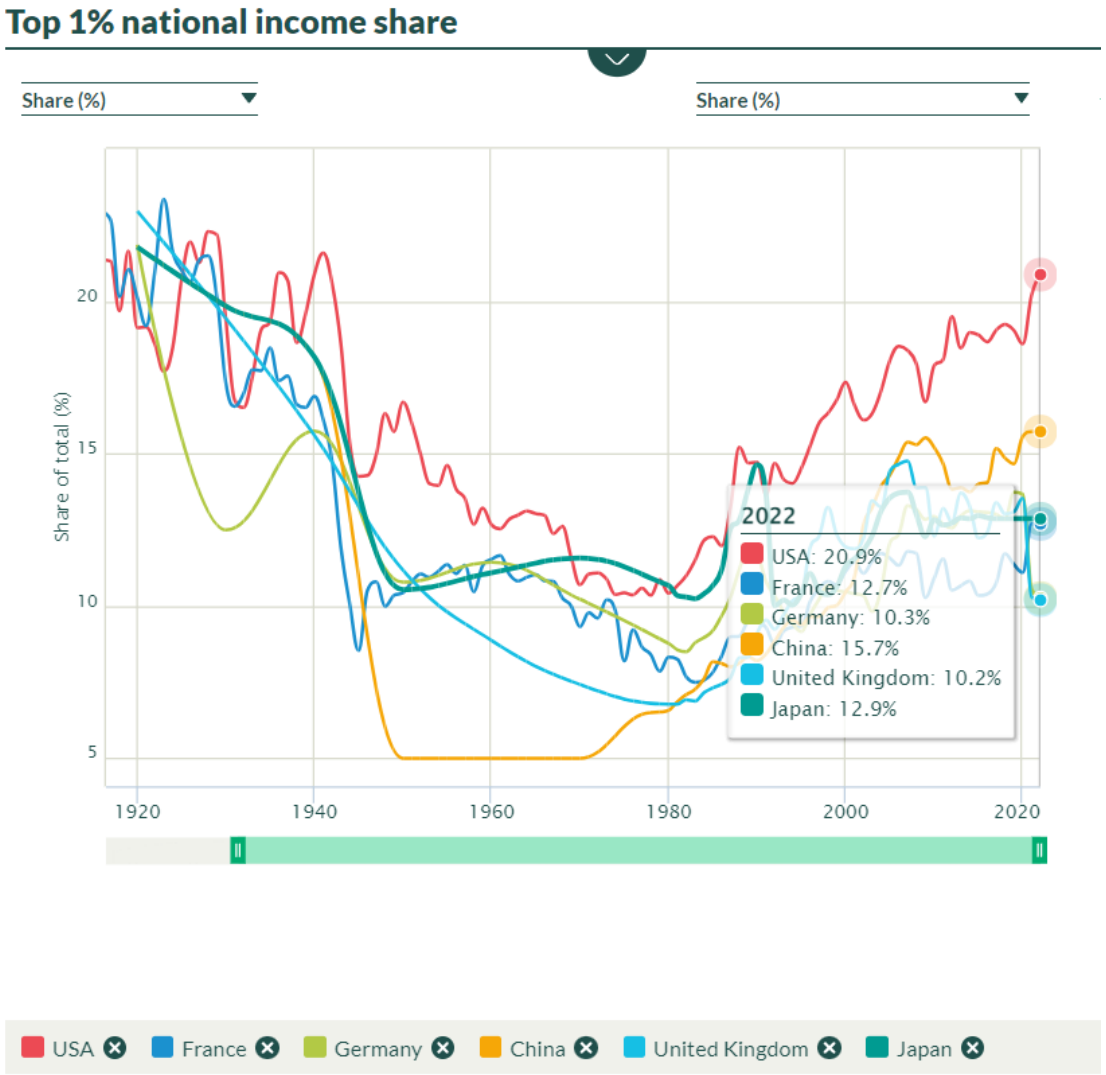
Kitao & Yamada (2024)



(b) Gini

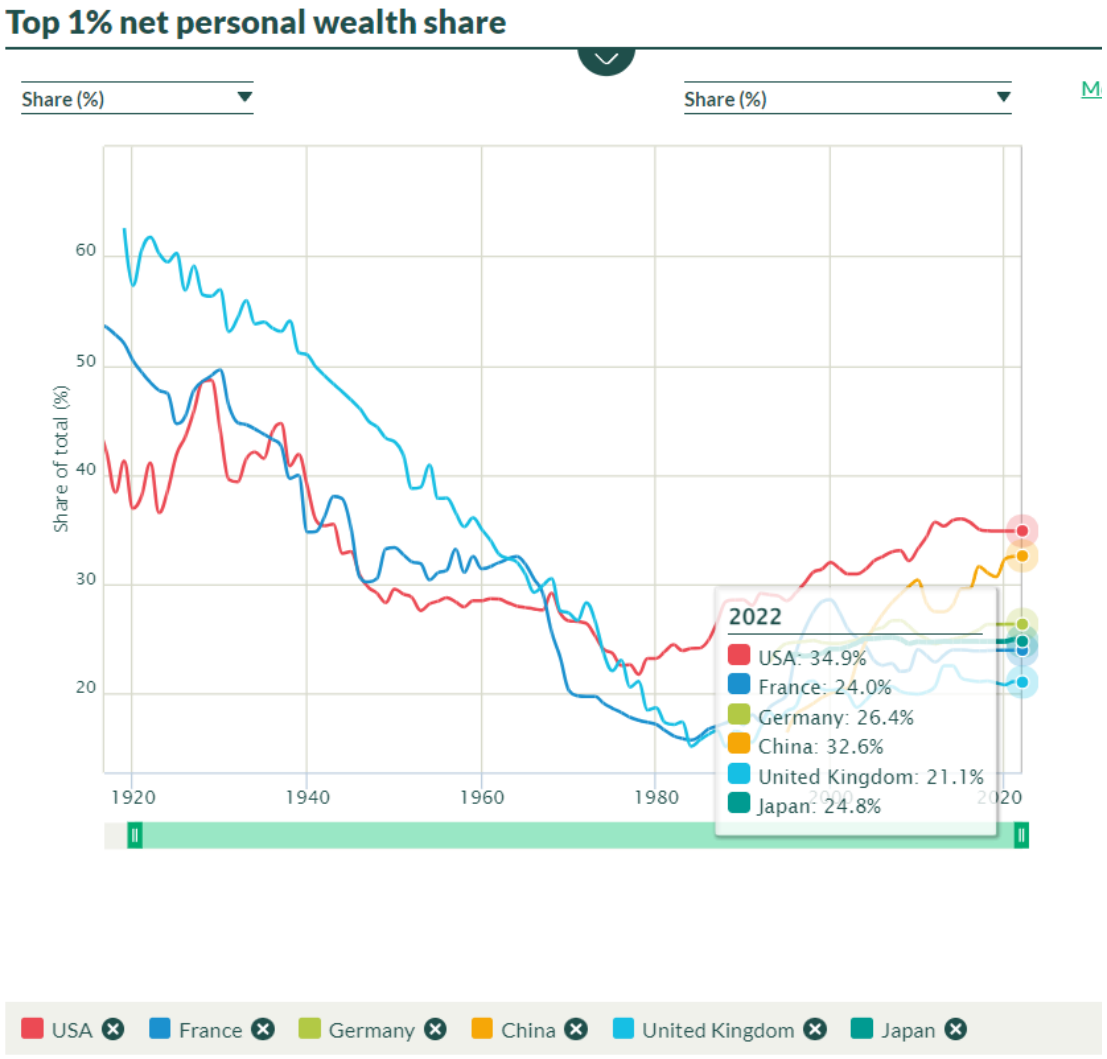
Income Inequality: Top 1 % income share

https://wid.world/world/#sptinc_p99p100_z/US;FR;DE;CN;GB;JP/last/eu/k/p/yearly/s/false/3.7/35/curve/true/country



Wealth Inequality: Top 1 % income share

https://wid.world/world/#shweal_p99p100_z/US;FR;DE;CN;GB;JP/last/eu/k/p/yearly/s/false/12.2715/80/curve/true/country



Poverty rates of children

(UNICEF 2023)

Figure 1.
Child poverty rates, 2019–2021

Figure 10.
Relative income poverty for children living in households with one or two parents, OECD countries, 2018 or most recent data

Great Gatsby Curve (OECD)

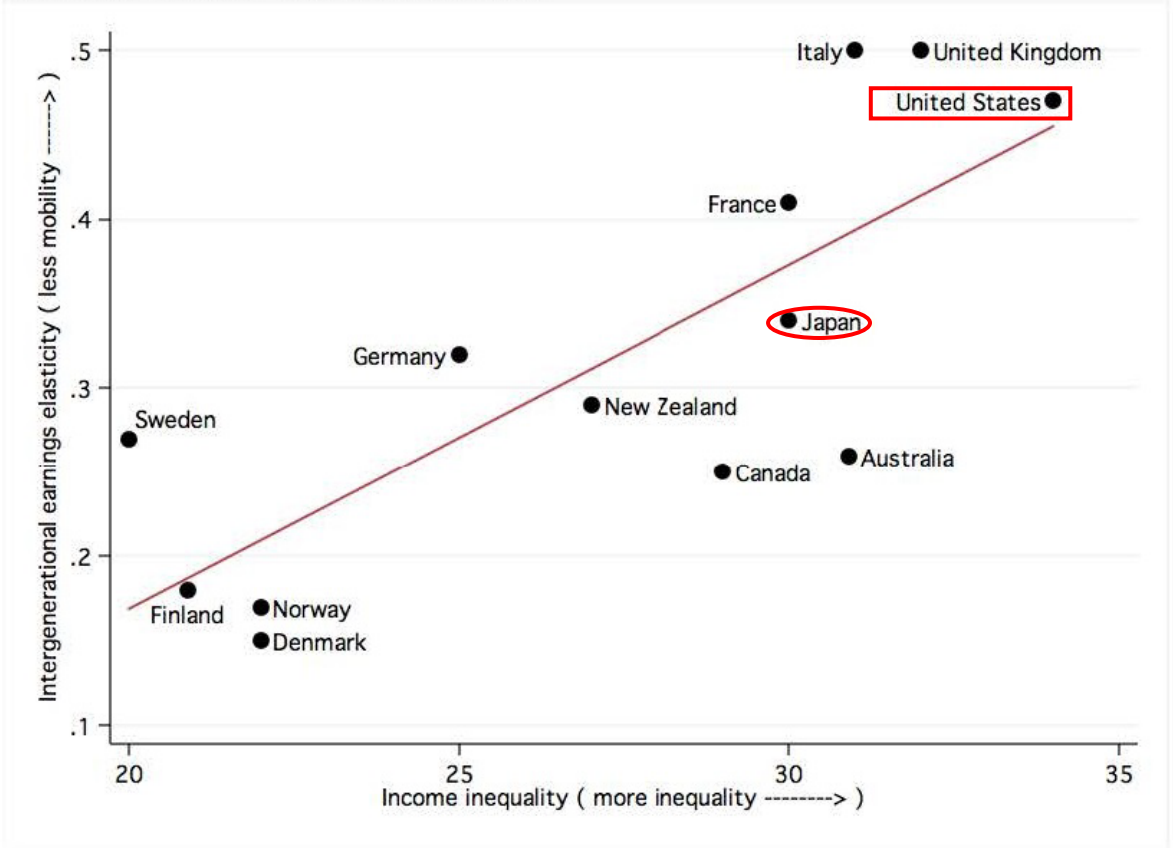
Gini and IGE (Intergenerational elasticity of earnings)

- Higher IGE means less equal opportunity for children

(Corak 2013)

Figure 1

The Great Gatsby Curve: More Inequality is Associated with Less Mobility across the Generations



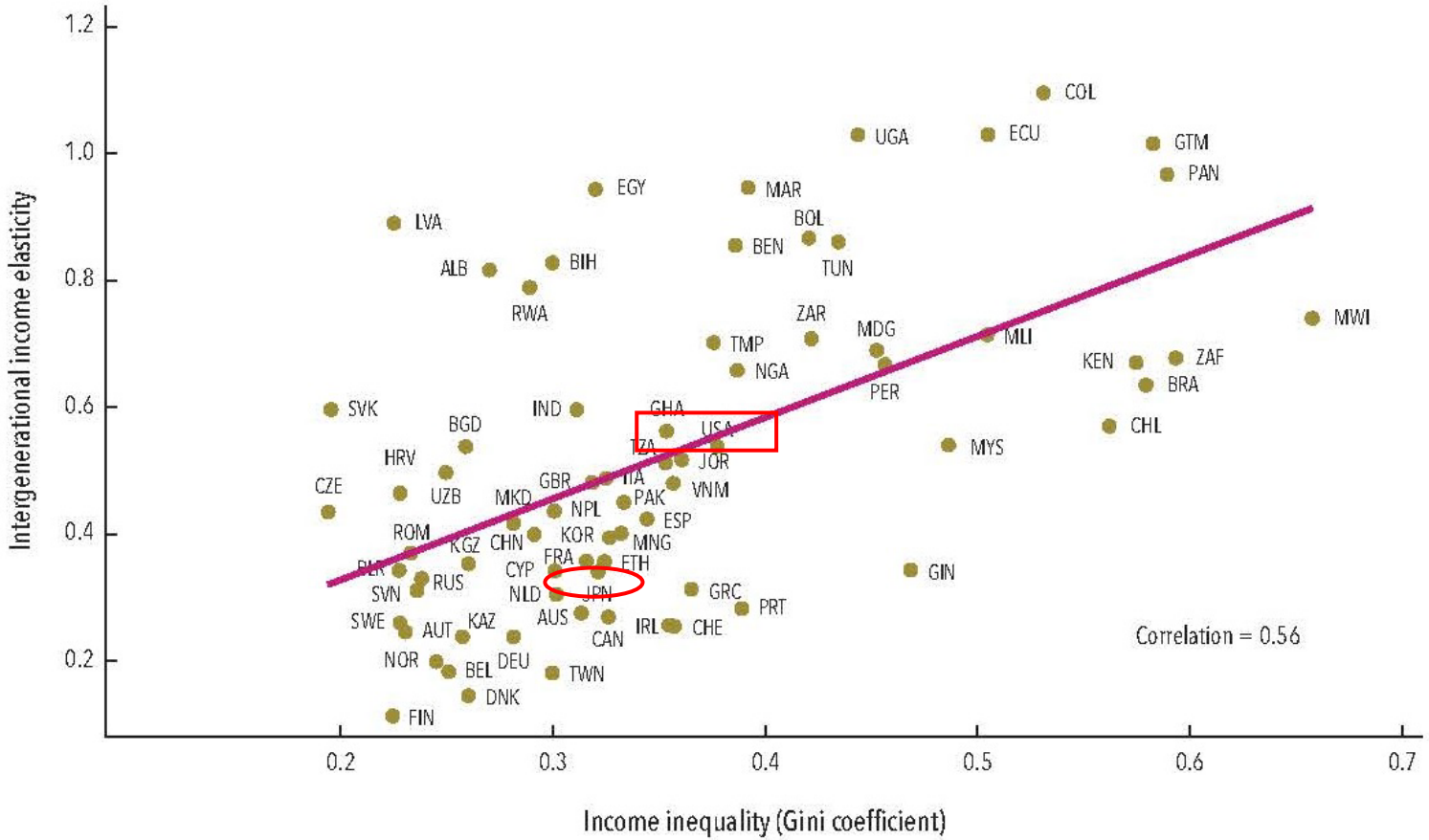
Source: Corak (2013) and OECD.

Among developed countries, more unequal societies give a less equal chance?

Great Gatsby Curve (World)

Correlation between Gini and IGE
(Narayan et al. 2018)

FIGURE O.11 **Higher relative IGM in income is associated with lower income inequality**



Source: Equalchances 2018, compiled from multiple studies; GDIM 2018 (World Bank); World Development Indicators for income inequality.
Note: Higher intergenerational income elasticity indicates lower relative intergenerational mobility (IGM).

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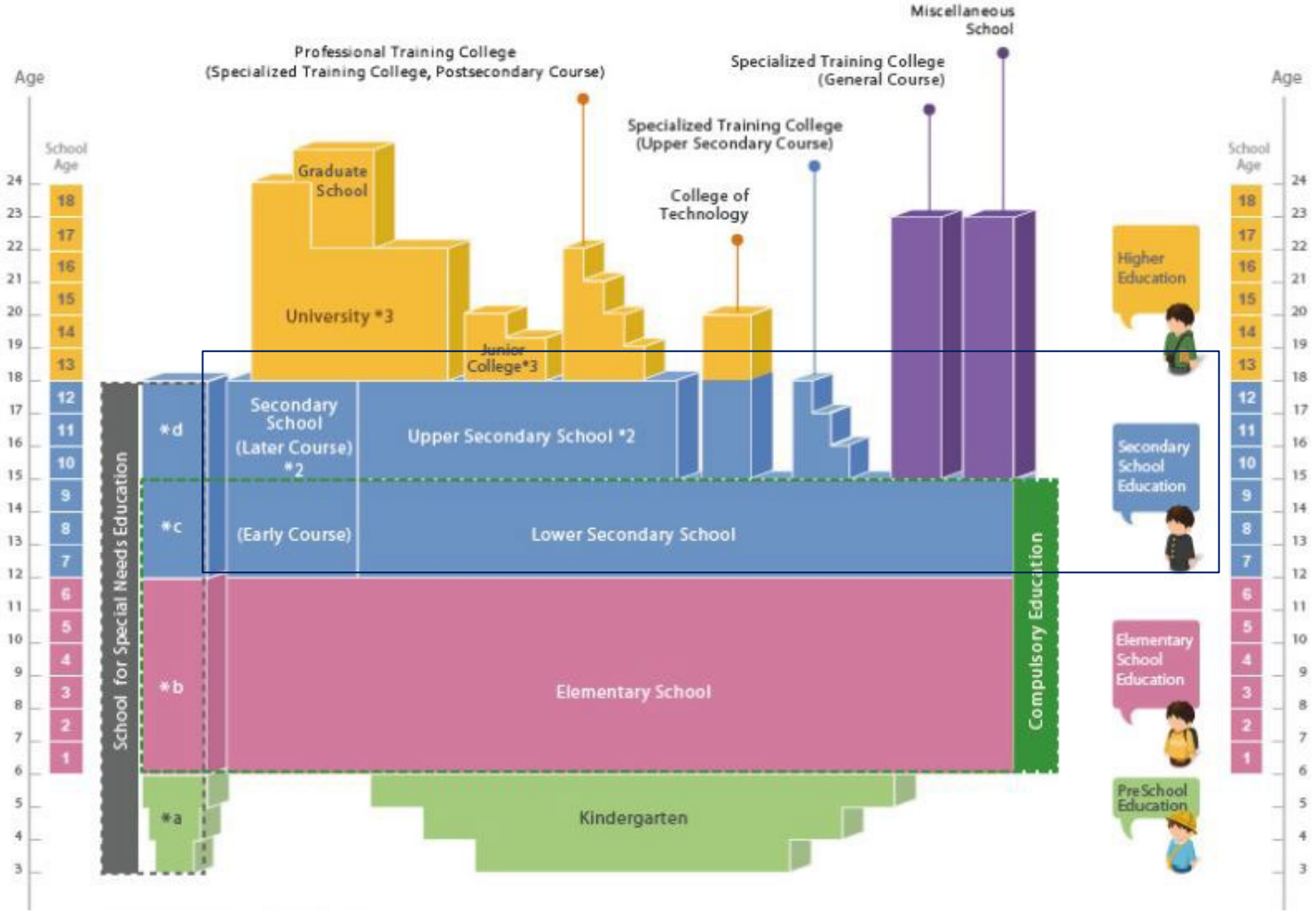
Japanese Education Overview

Educational System in Japan

Source: Ministry of Education, Culture, Sports, Science and Technology (MEXT)



Educational System in Japan

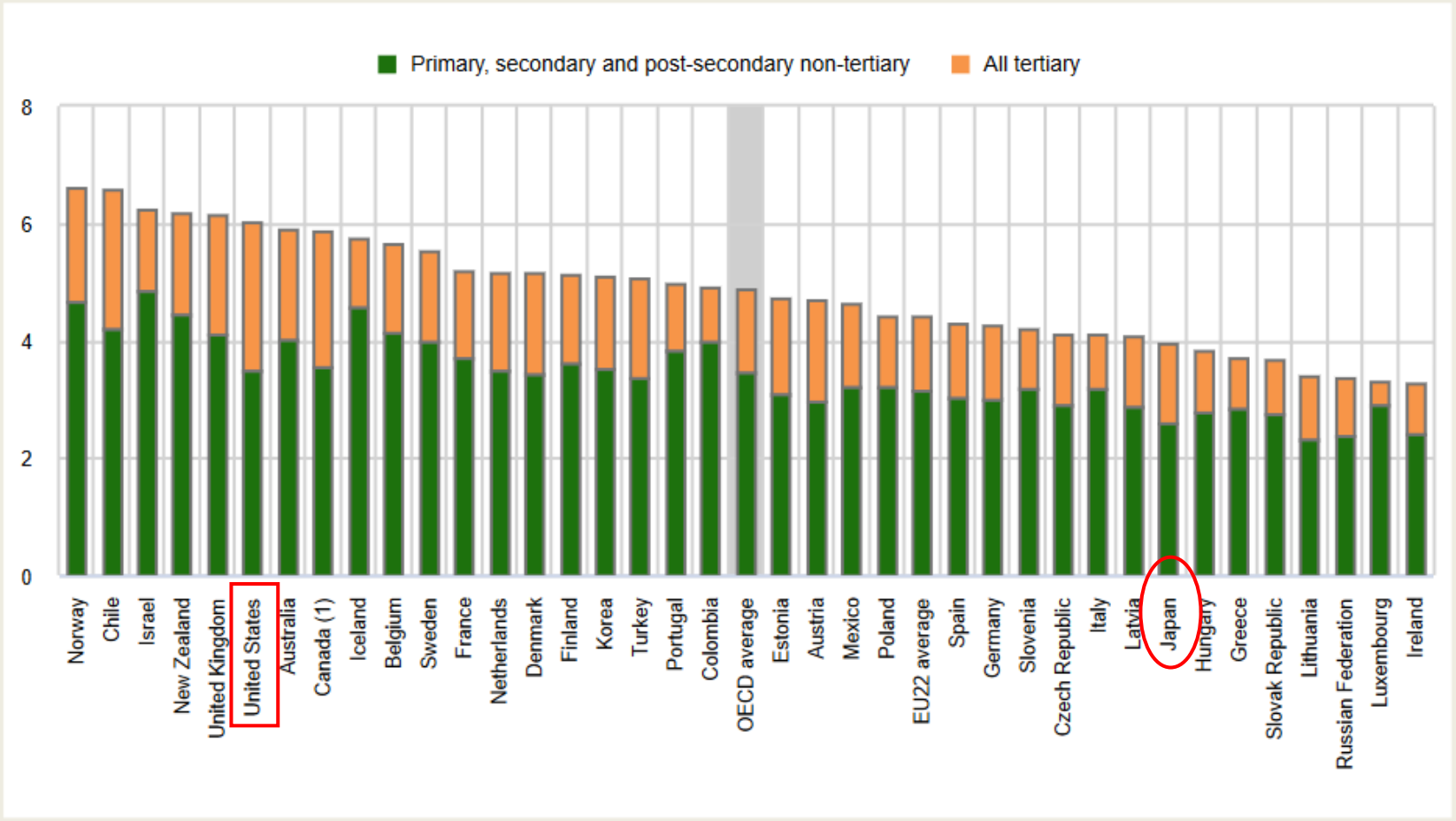
- Mandatory education
  - From age 6 to 14 (9 years).
  - Grades 1-6 are “elementary,” Grades 7-9 are “junior high.”
  - Max class size is currently changing from 40 to 35 (shortage of teachers)
- High school
  - Optional 3-year high school.
  - Enrollment is 97%.
  - All schools set their own standard by written entrance exam.
  - Most schools are academic (73%), some vocational and comprehensive.
- Preschool
  - 2–3-year kindergarten (half-day) or nursery school (full-day).
  - Enrollment at age 5 is 94% (half-day 54%, full-day 39%)
- Private schools
  - Student share 1.2% (elementary), 7.0%, (junior HS), 31.4% (HS).
  - Approved by local government.
  - Use national curriculum and school hours (more freedom than public).
  - Government subsidy is allowed (but there is a freedom of screening and tuition level).

Total expenditure on educational institutions as a percentage of GDP

OECD (2021)

Figure C2.1. Total expenditure on educational institutions as a percentage of GDP (2018)

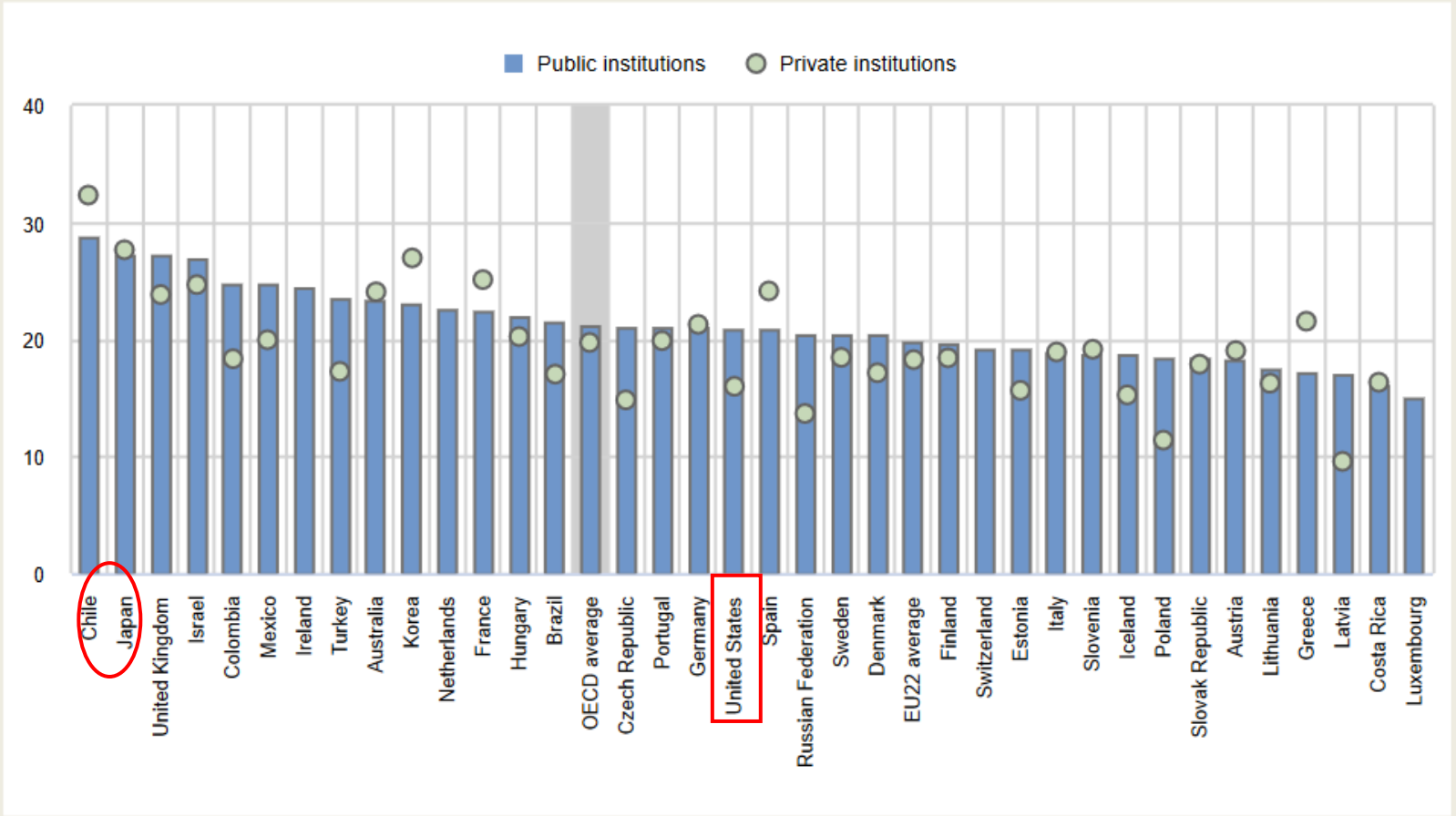
From public, private and international sources, by level of education, in per cent



Compare your country: https://www.compareyourcountry.org/education-at-a-glance-2021/en/5/3059+3060+3061+3062+3063+3064/default

Average class size
OECD (2021)

Figure D2.1. Average class size in primary education, by type of institution (2019)
In number of students per class



Compare your country: https://www.compareyourcountry.org/education-at-a-glance-2021/en/6/all/default
Countries are ranked in descending order of class size in primary education public institutions.

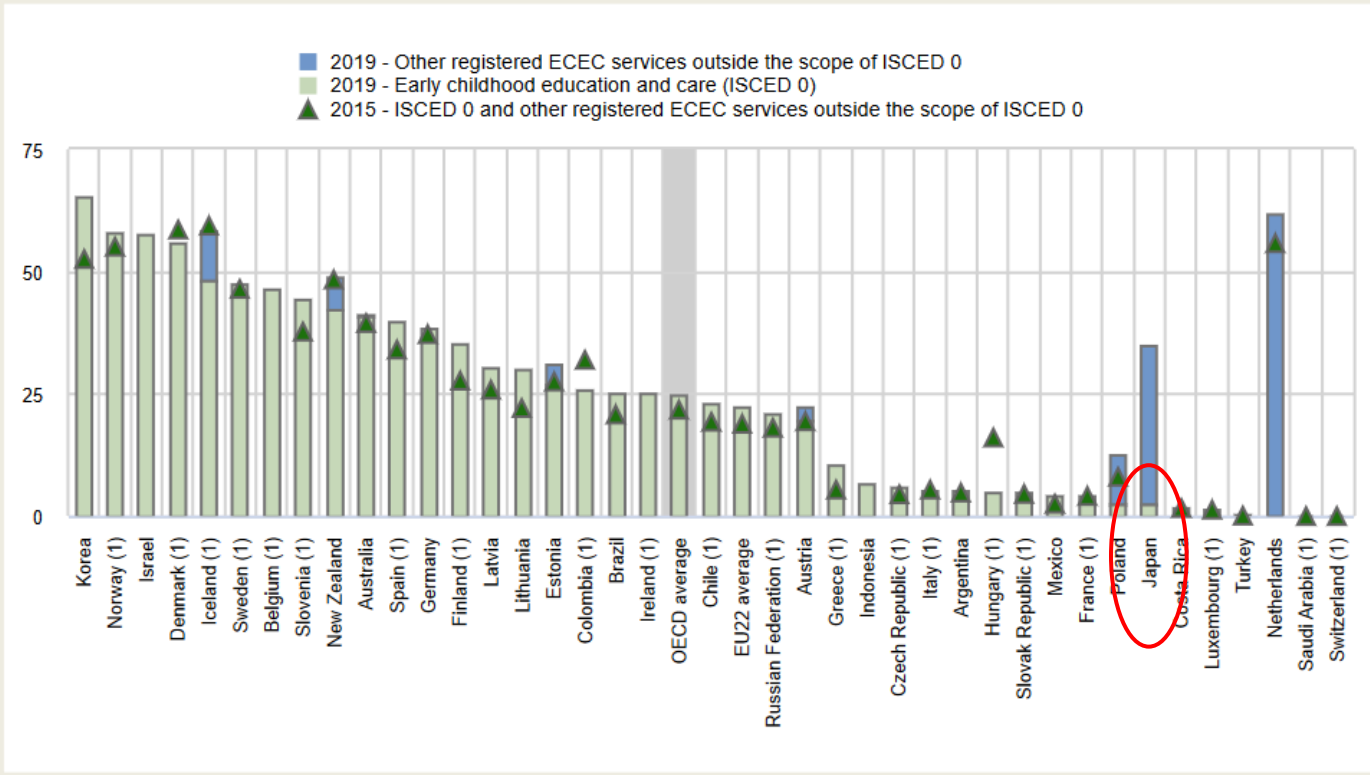
Nursery school and kindergarten

ECEC enrollment rate at age 3

OECD (2022)

Figure B2.1. Enrolment rates of children under age 3 in early childhood education and care, by type of service (2015 and 2019)

ISCED 0 and other registered ECEC services outside the scope of ISCED, in per cent



Note: 2015 refers to both early childhood education and care (ISCED 0) and other registered ECEC services outside the scope of ISCED 0 (except for OECD and EU averages which only cover services within ISCED 0).

1. Data for 2015 excludes other registered ECEC services..

Comments based on our research

- Are there any quality differences between kindergarten and nursery school?
  - Akabayashi et al (2023)
    - Based on data from 1980-90s, children from kindergarten performed academically better than children from nursery schools.
  - Akabayashi and Tanaka (2024)
    - Based on data from 1950-70, the social rates of return of nursery school attendance were higher than those of kindergarten attendance.

- Does a large class size in Japan harm the academic performance of Japanese children?
  - Akabayashi and Nakamura (2014)
    - Smaller class size has a favorable effect on Japanese test scores of elementary students better, but not on math scores or scores of junior high school students.

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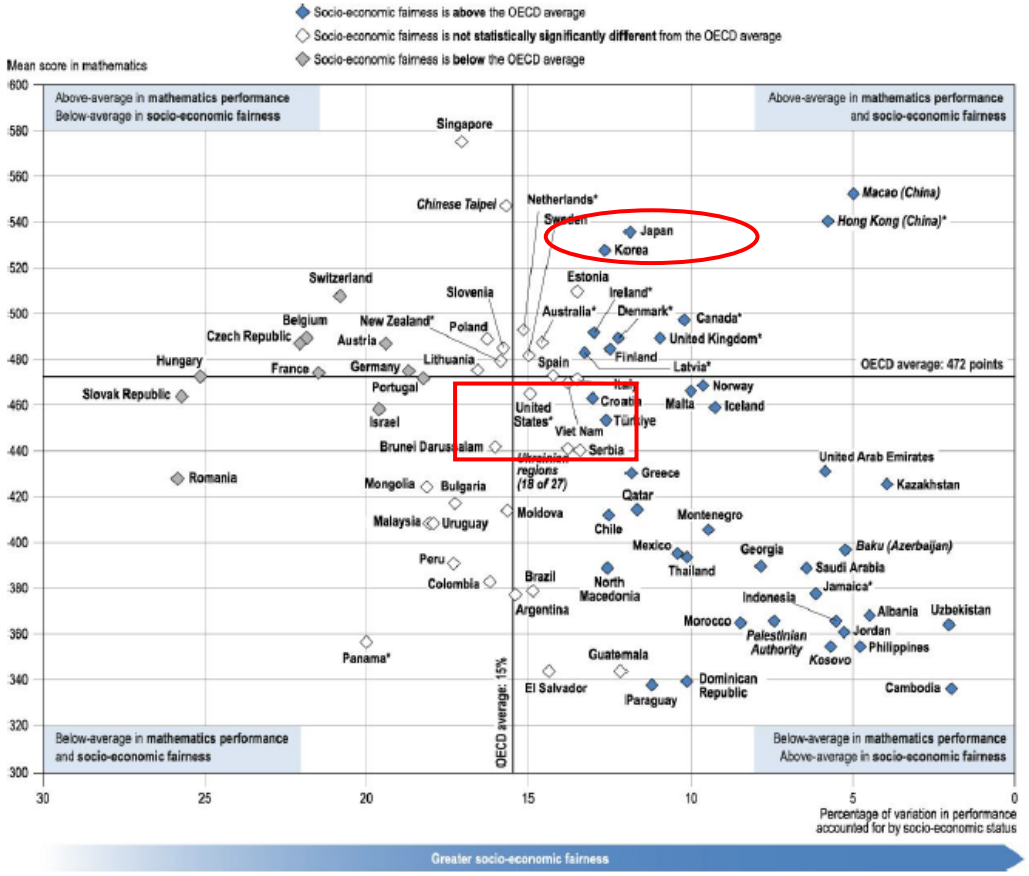
Japanese Education Inequality

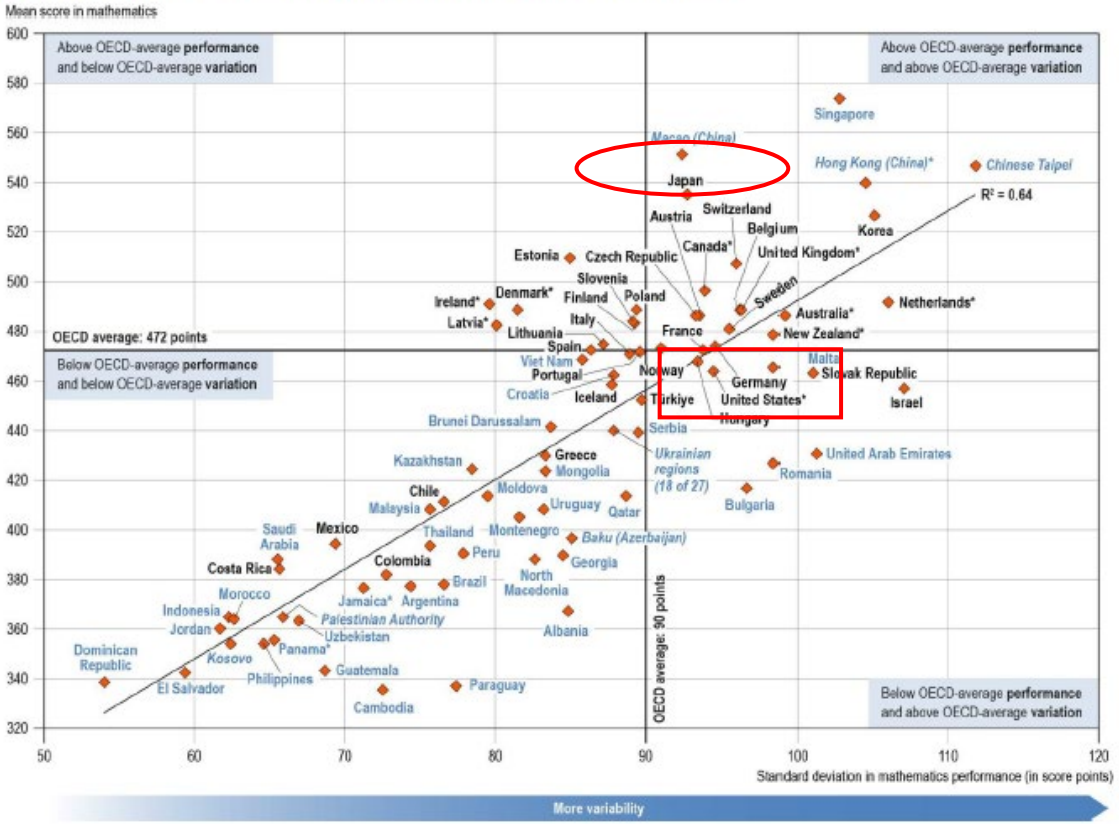
Average math score, variance, and its association wit family socioeconomic status: (PISA 2022)

Figure I.4.2. Strength of socio-economic gradient and mathematics performance



Notes: Only countries and economies with available data are shown.

Figure I.2.3. Average performance in mathematics and variation in performance



Source: OECD, PISA 2022 Database, Table I.B1.2.1.

Preschool use gap by parental education across 6 countries (Waldfogel et al 2023)

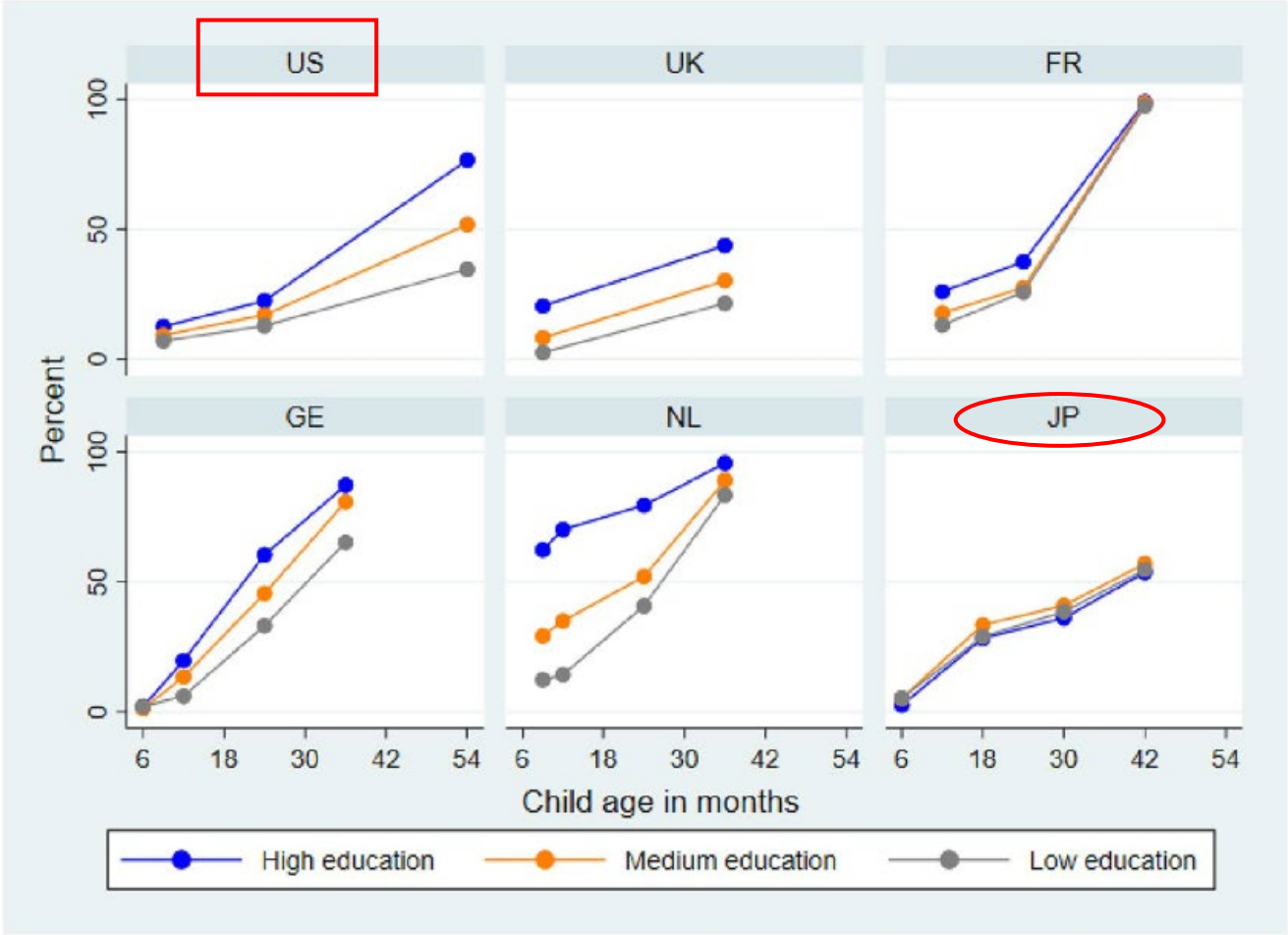
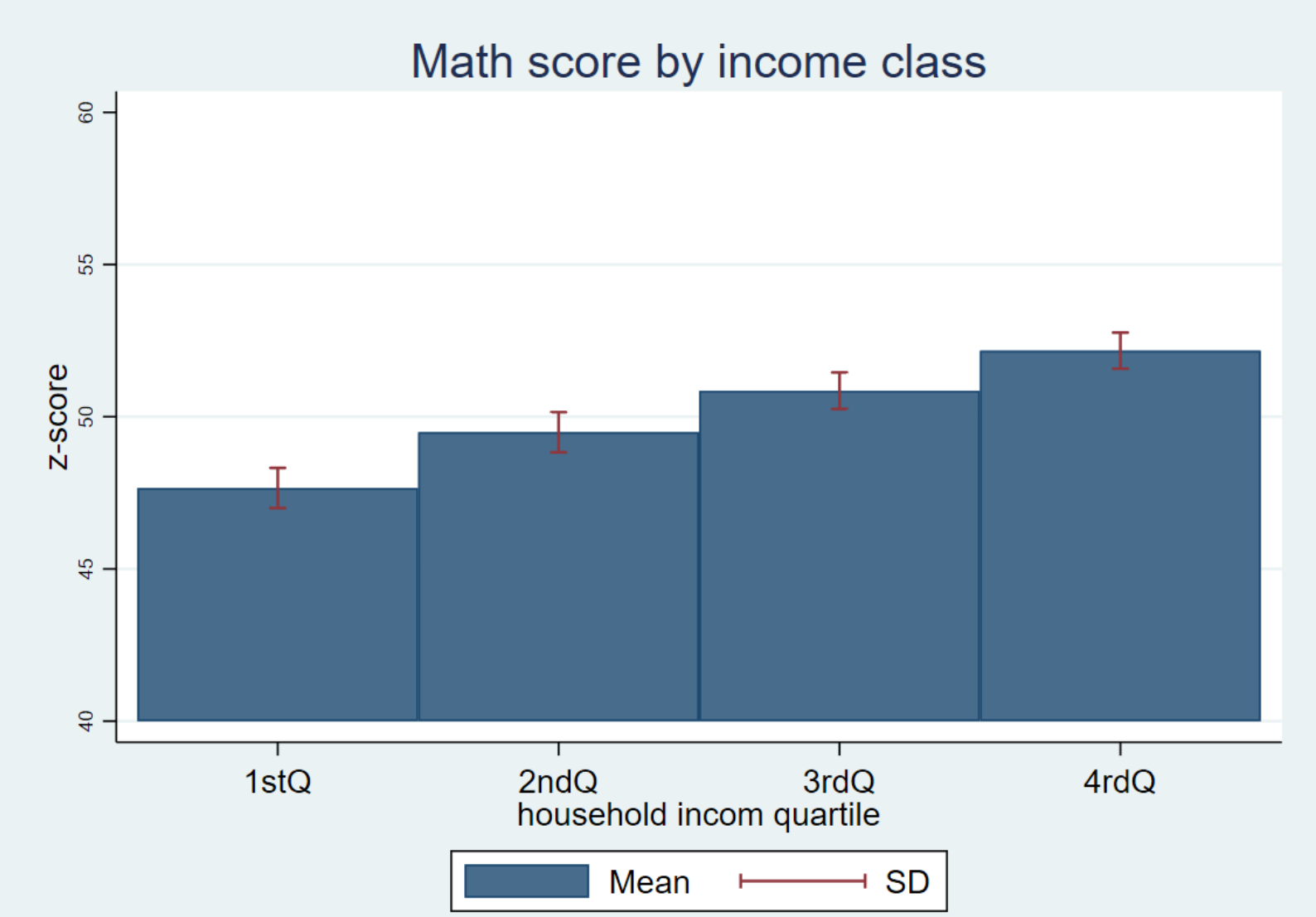


Fig. 1 Variation by parental education in center-based care in the first 3–4 years of life

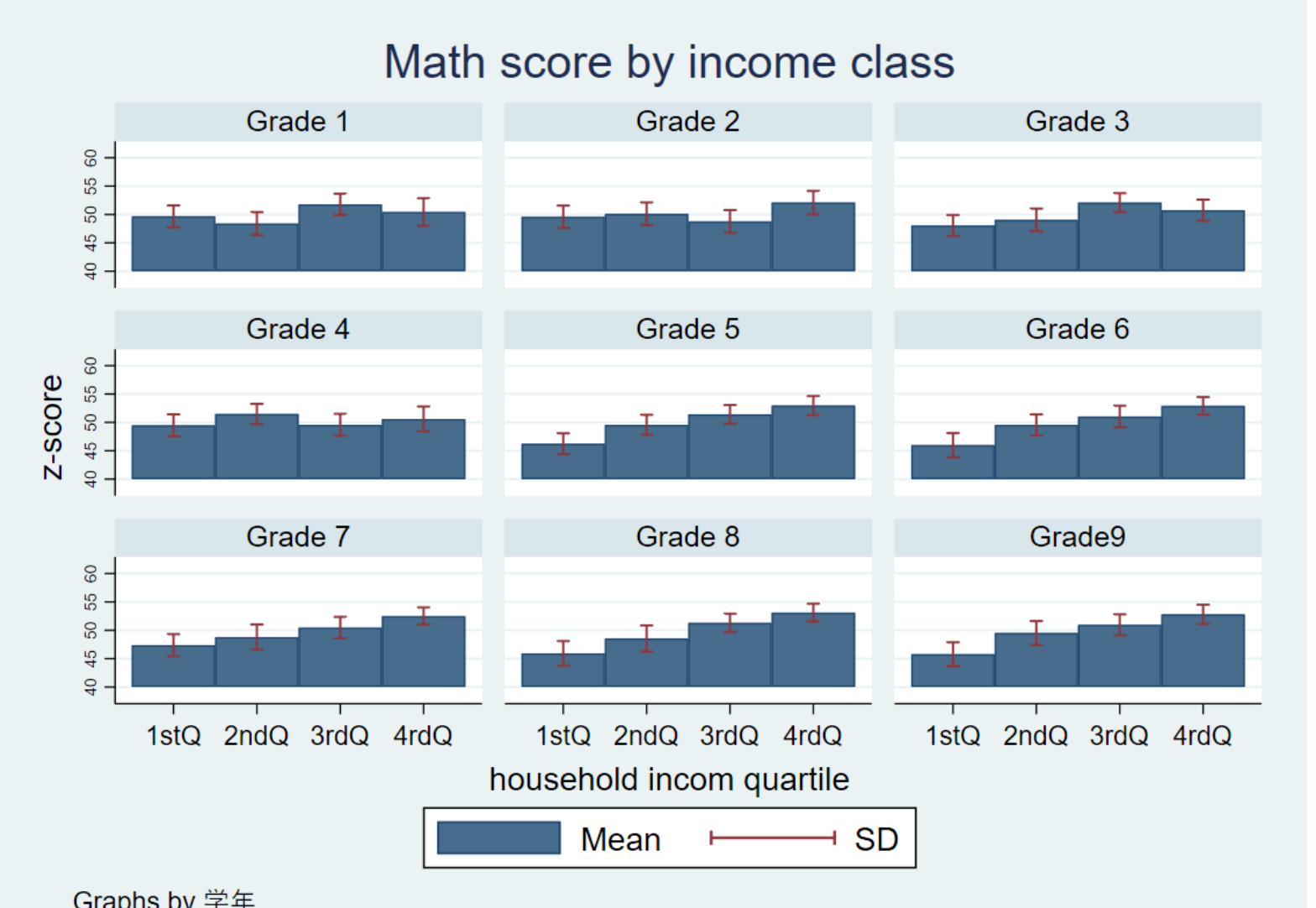
Family background

Japan Child Panel Survey (JCPS) is a national representative data of children of 7-15 collected by the Panel Data Research jointly with Center Research on the Opportunity of Equality for Children both at Keio University

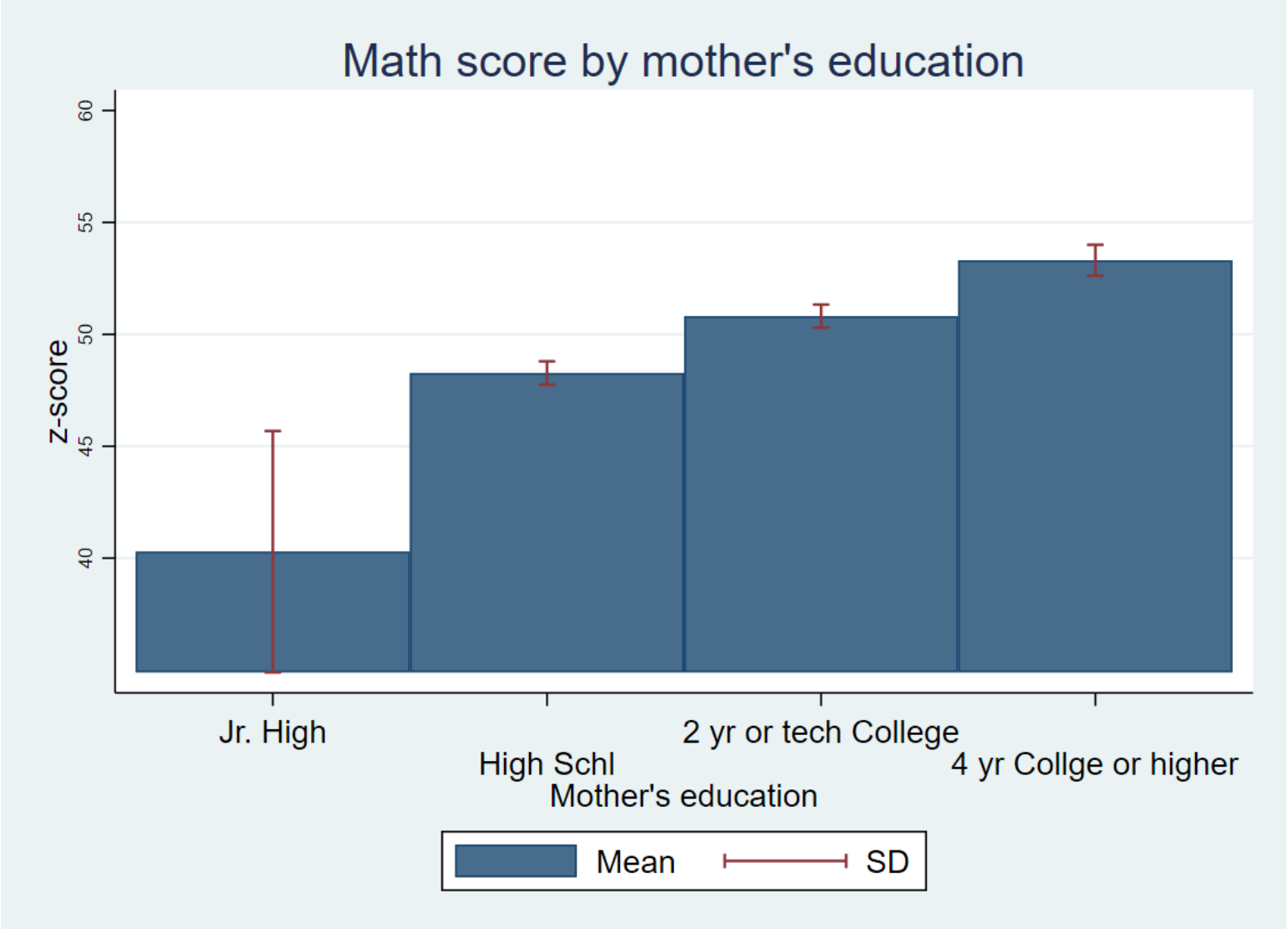
Math score gap by family income in Japan (JCPS 2010-2018)



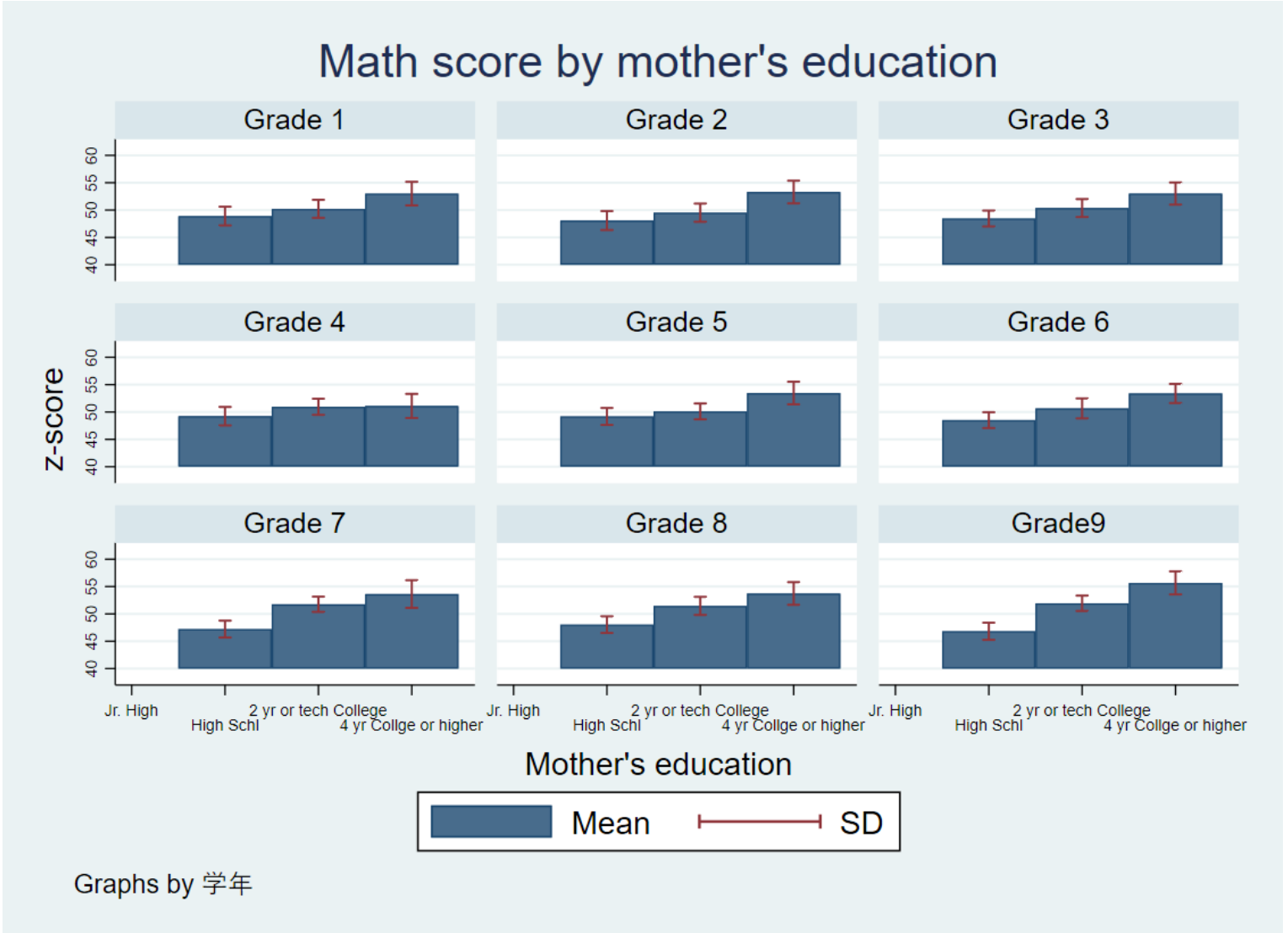
Math score gap by family income and grade in Japan (JCPS 2010-2018)



Math score gap by mother's education in Japan (JCPS 2010-2018)



Math score gap by mother's education and grade in Japan (JCPS 2010-2018)



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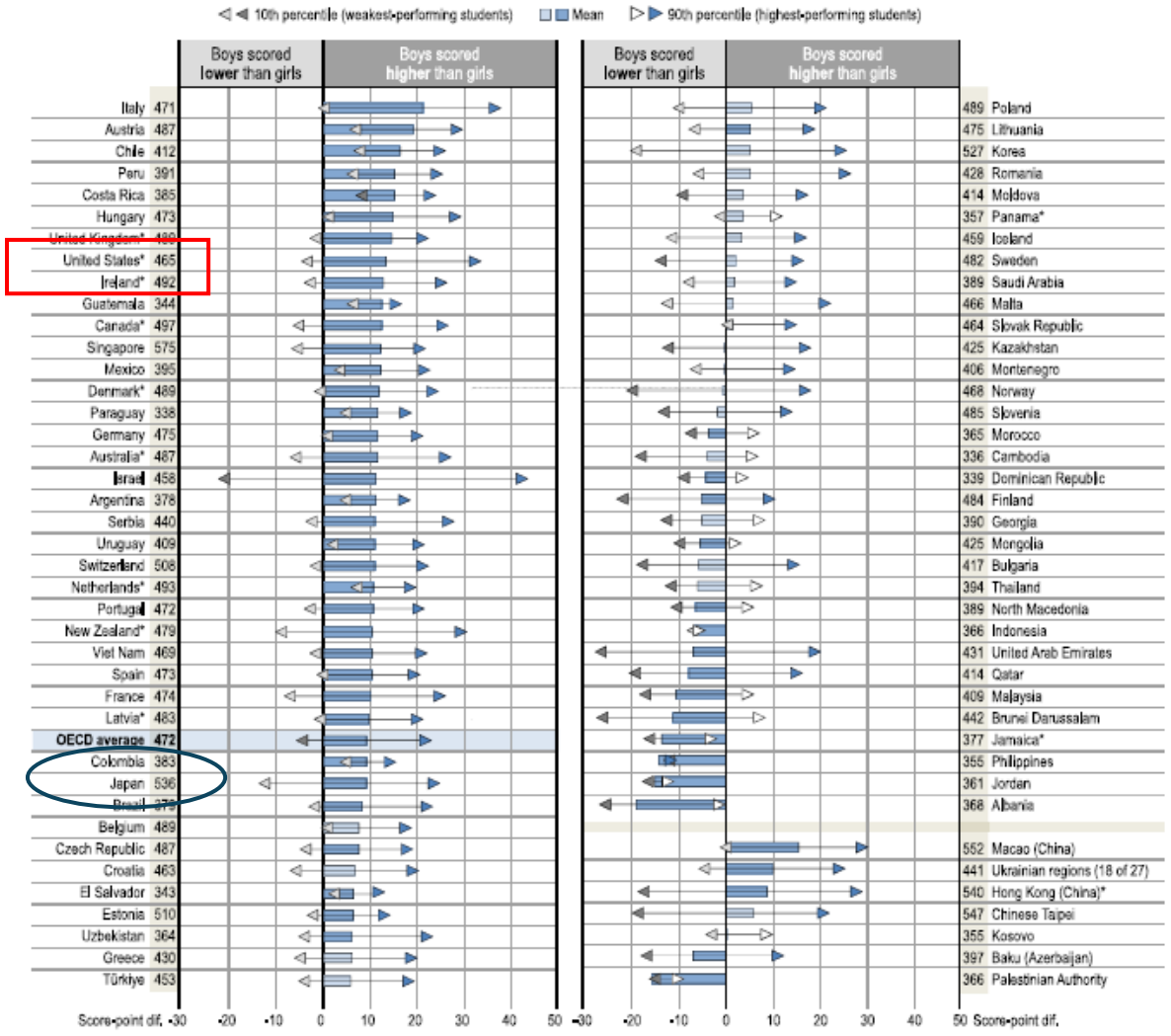
Gender

Gender gap in math and reading scores: PISA 2022

Figure I.4.7. Gender gap in mathematics performance

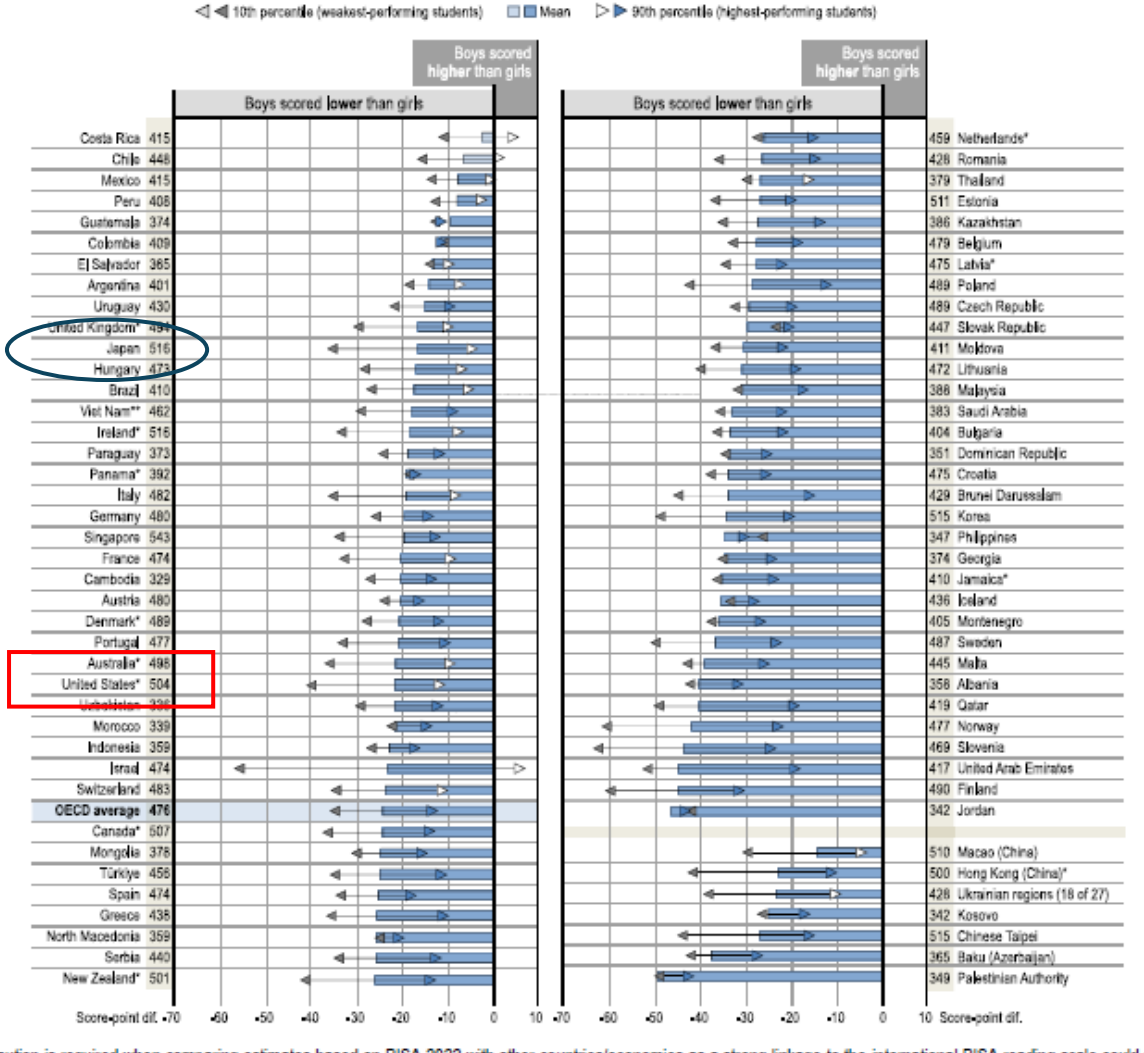
Score-point difference in mathematics between boys and girls



Notes: The mean score in mathematics is shown next to the country/economy name.

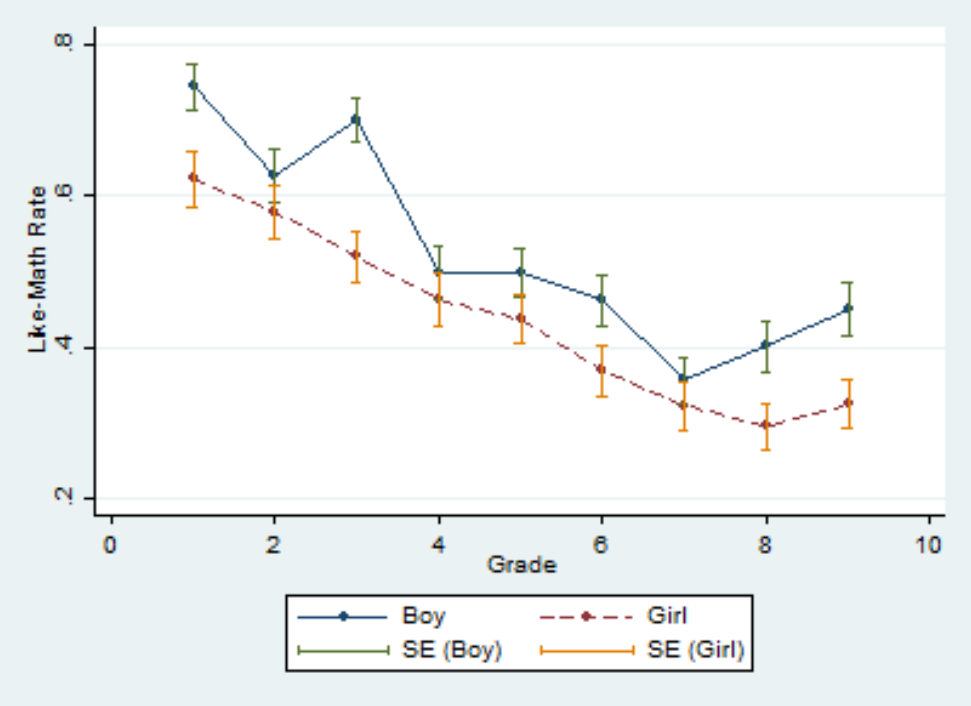
Figure I.4.8. Gender gap in reading performance

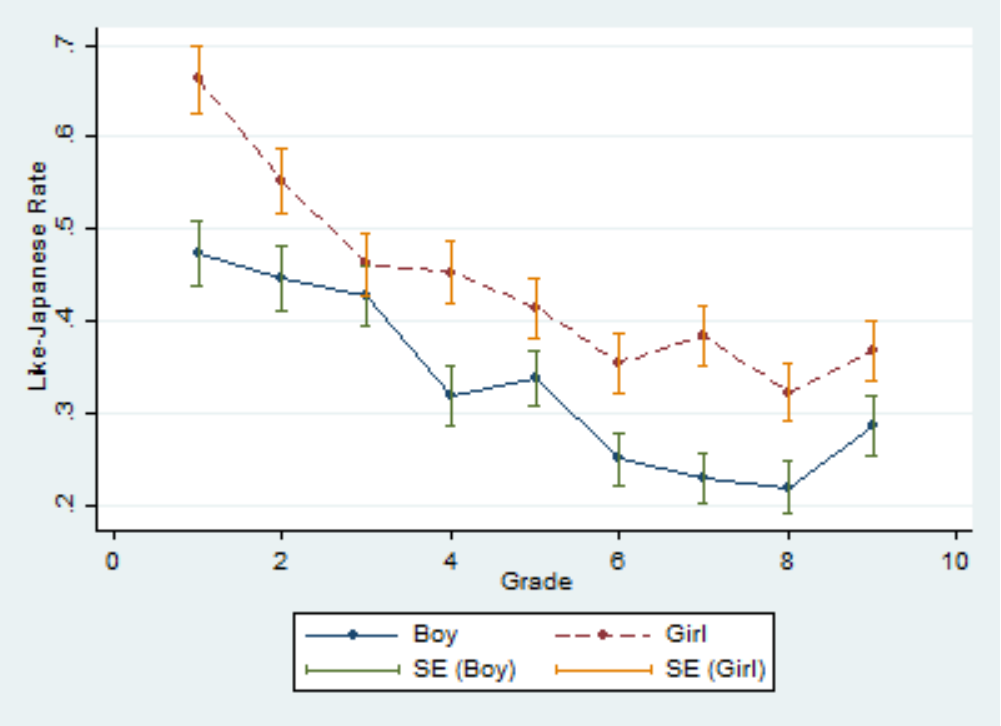
Score-point difference in reading between boys and girls



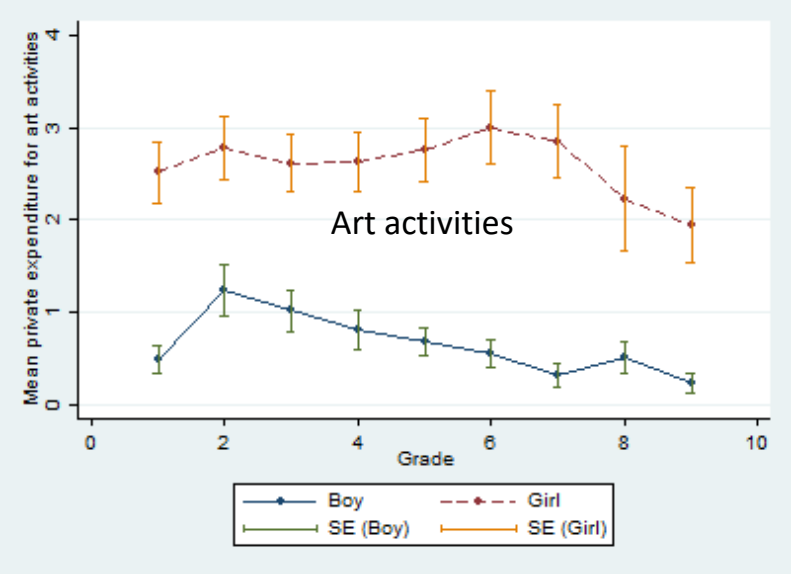
** Caution is required when comparing estimates based on PISA 2022 with other countries/economies as a strong linkage to the international PISA reading scale could n

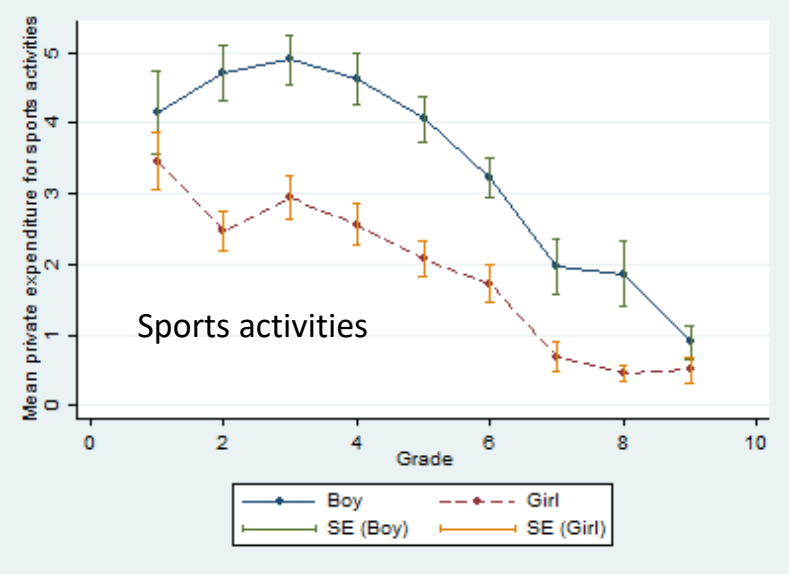
Preferences for math and Japanese by gender and grade (JCPS 2010-2016)

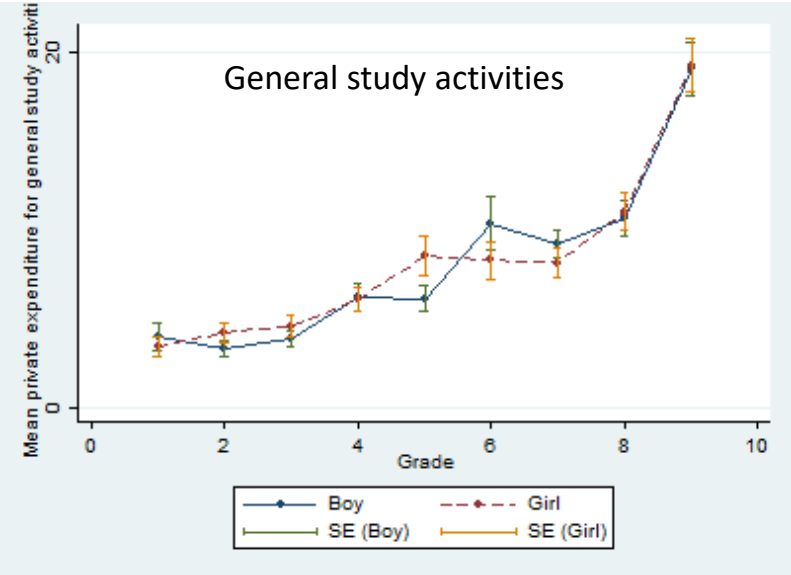


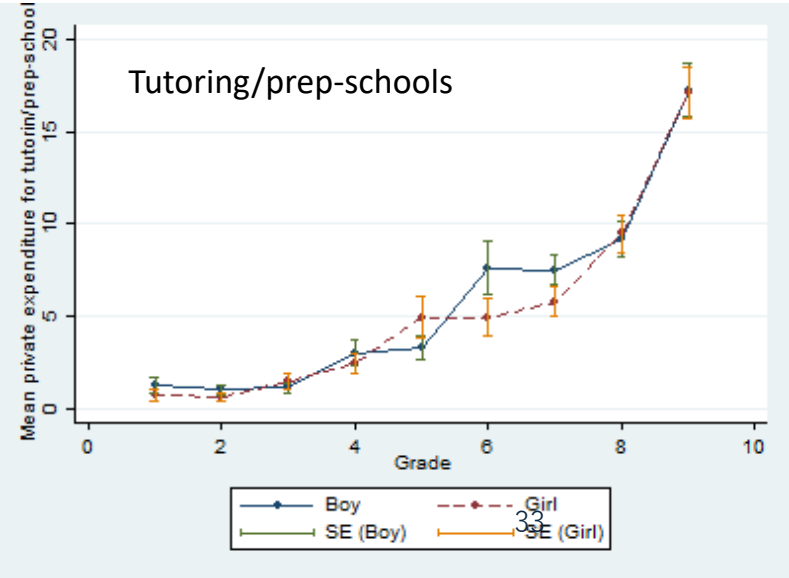


Private expenditure for different out-of-school activities by gender and grade (JCPS 2010-2016)









Comments based on our research

- Akabayashi et al (2020)
  - Effects of household income on gender
    - In Japan, the effects of income on test scores are larger for girls than for boys.
    - In the U.S., the opposite is true. The effects of income are larger for boys than girls.
    - In China, the effect of income is gender-neutral.

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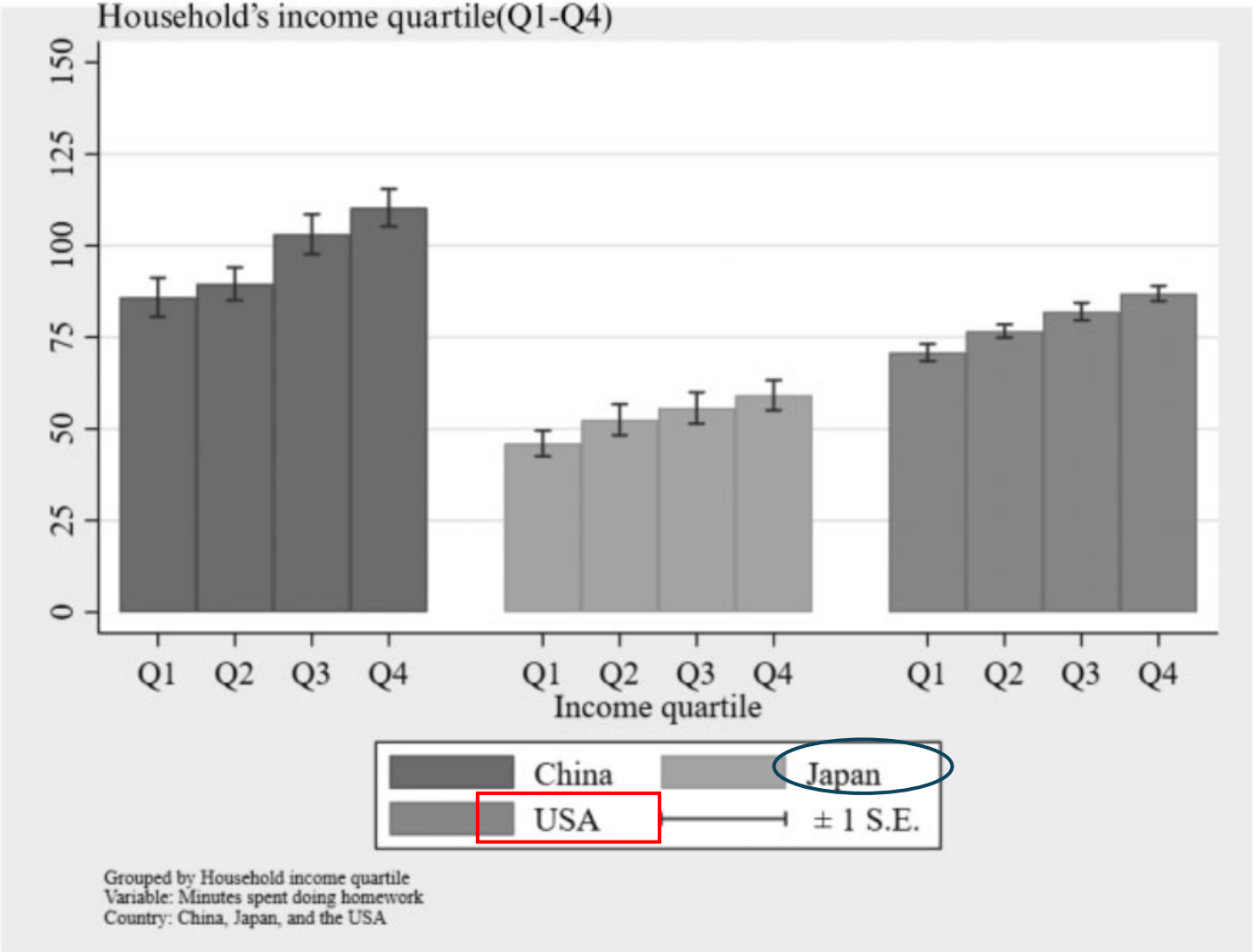
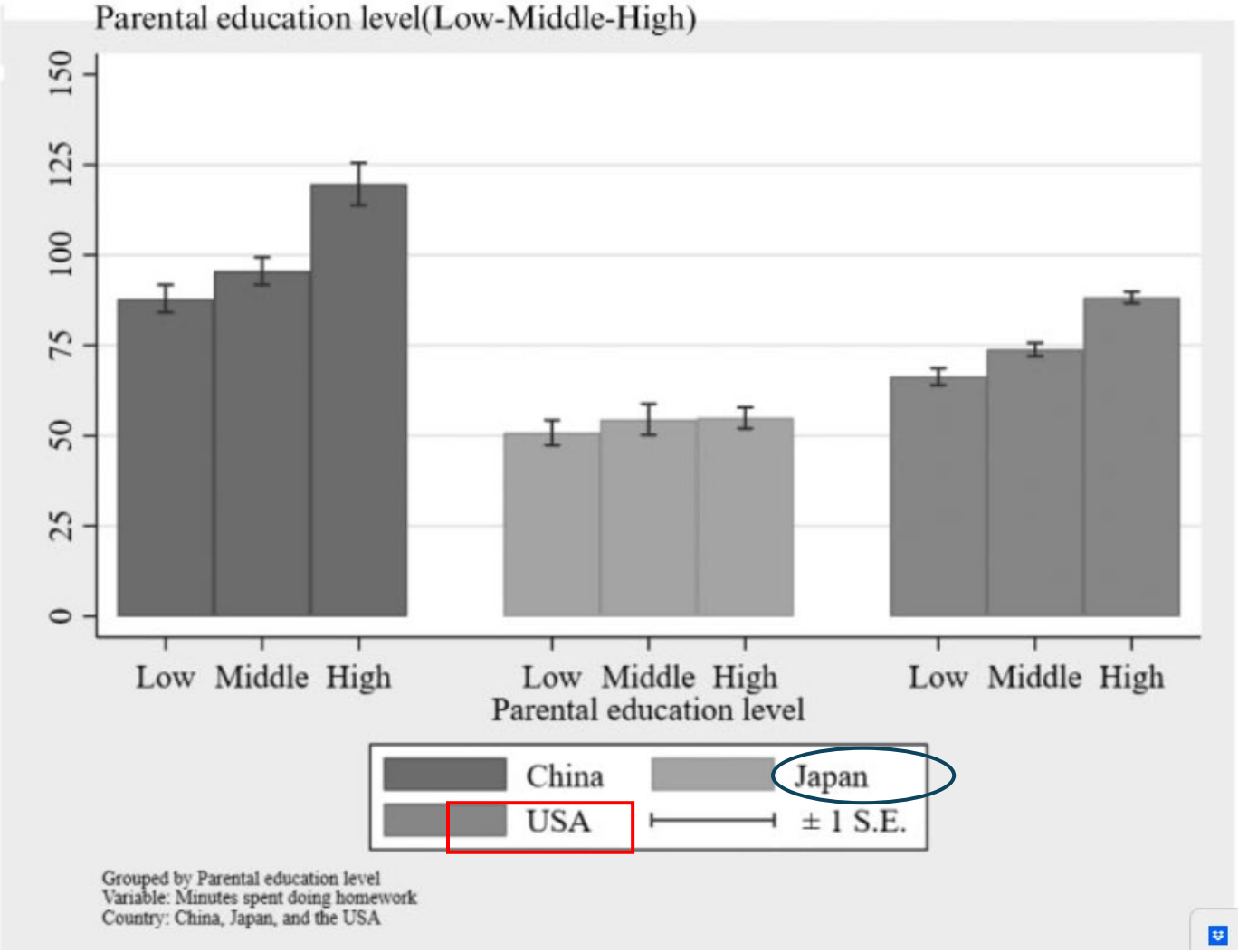
Children at home

Homework time at home by family income level – China, Japan, and USA
Minutes spent on weekdays by 8th-grade children (Nakamura et al 2020)



Homework time at home by the highest education of parents – China, Japan, and USA

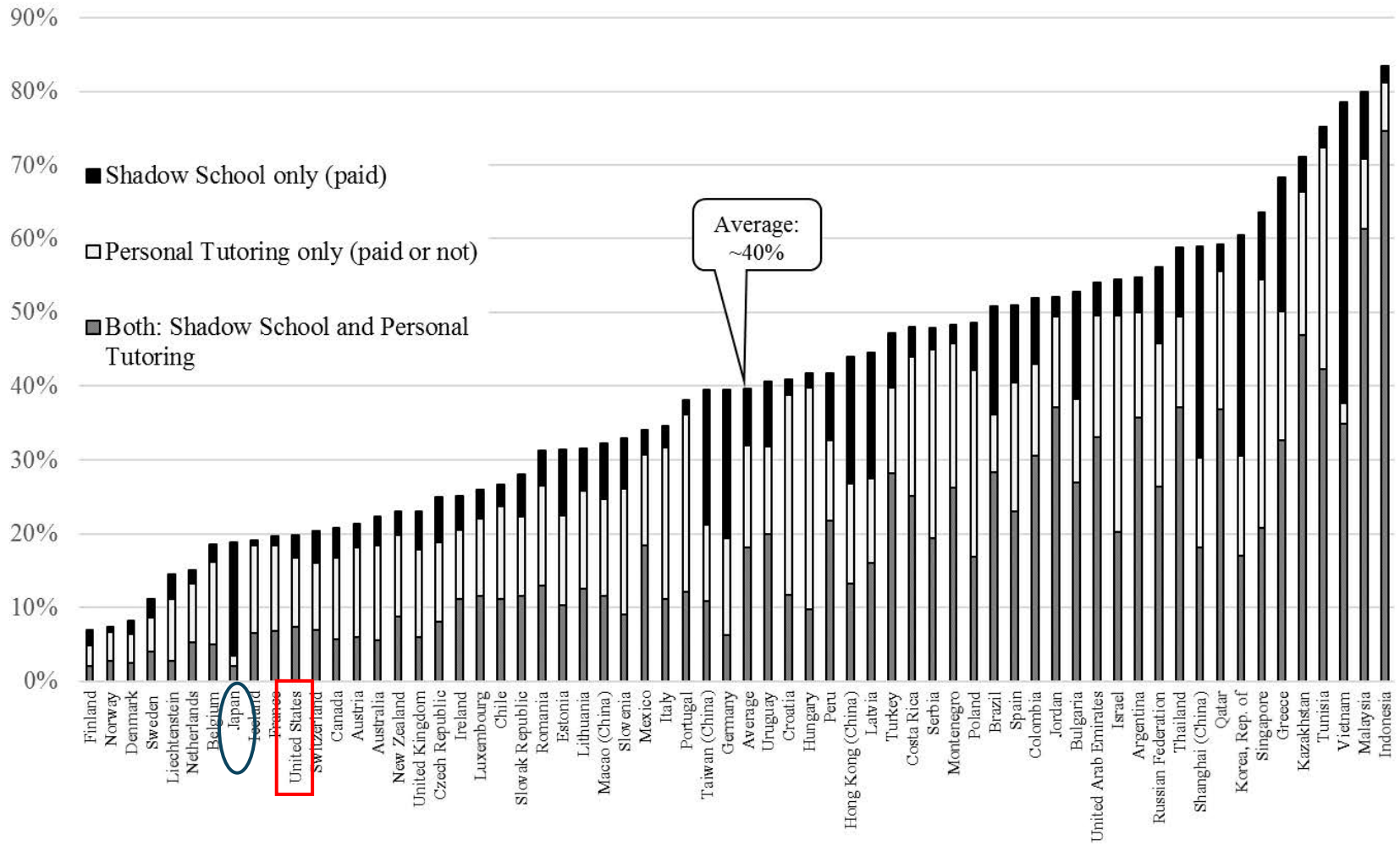
Minutes spent on weekdays by 8th-grade children (Nakamura et al 2020)



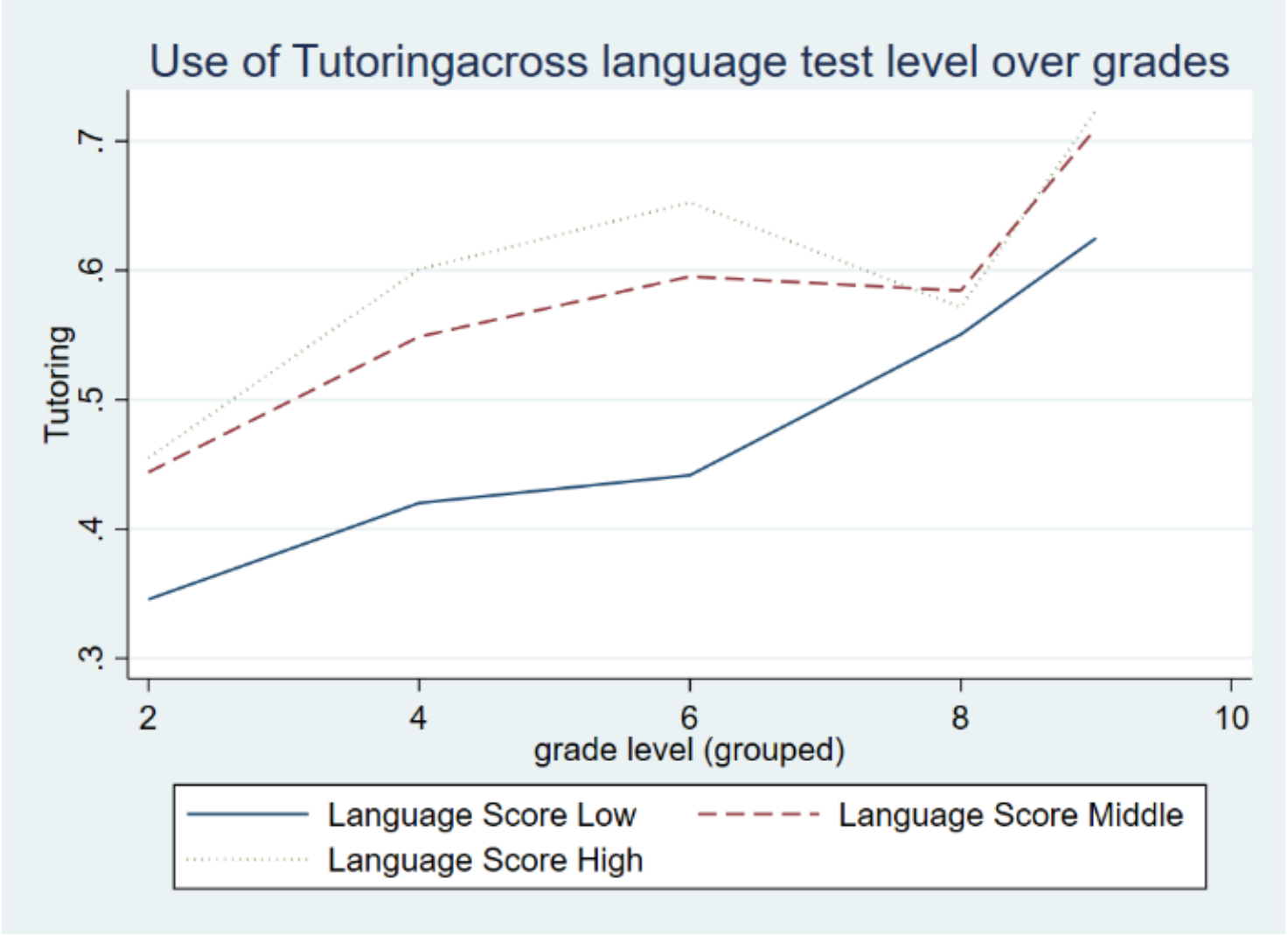
Use of shadow education (private tutoring)

Entrich (2020) based on PISA 2012

Fig. S1: *Scale* of shadow education in 63 societies, differentiated by use of type (all subjects, 15-year olds, in %)

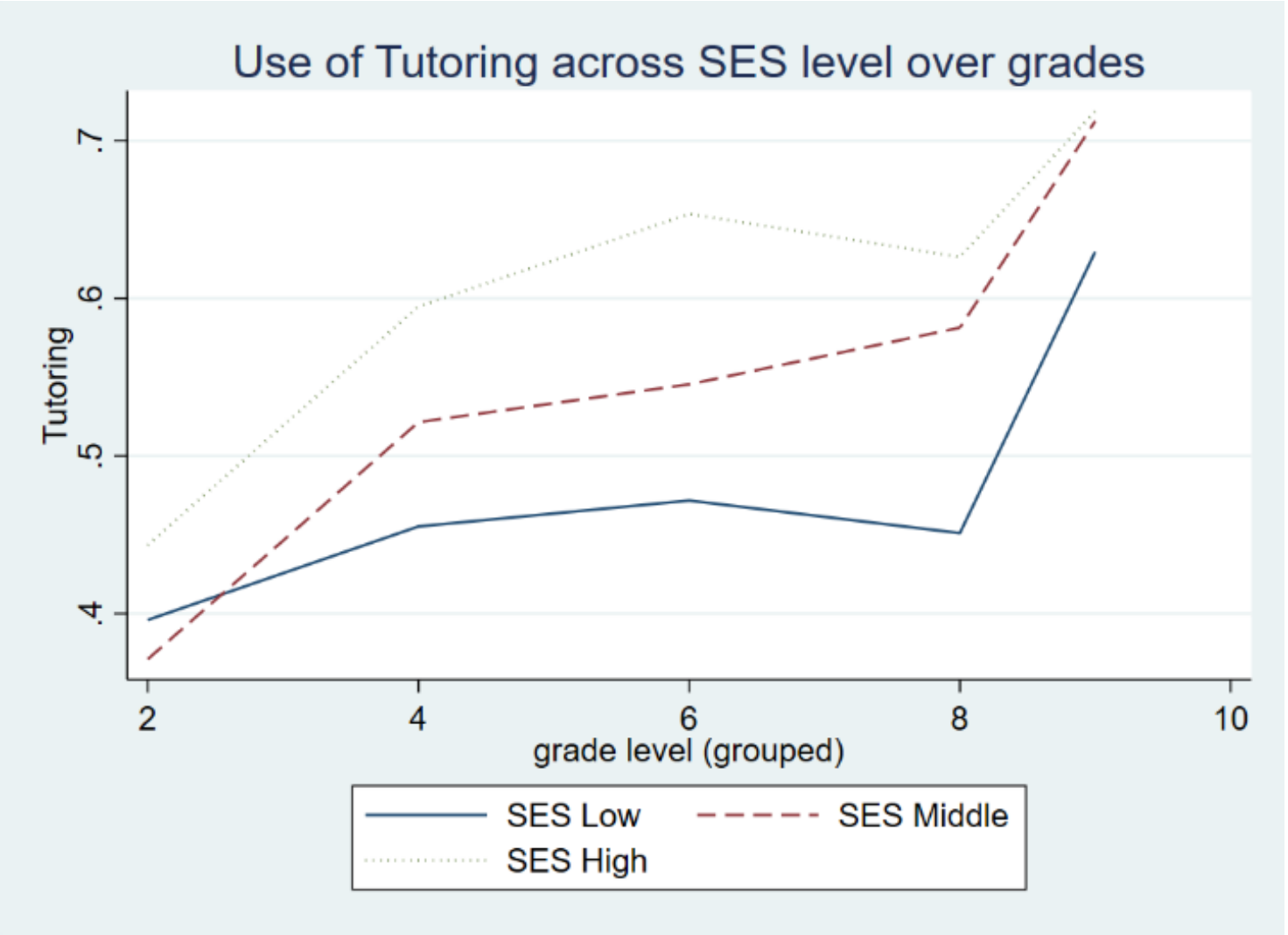


Who uses tutoring in Japan? Test scores and grades (JCSP 2010-2018, in progress)



Who uses tutoring in Japan? Family SES (highest education level of parents) and grades

(JCSP 2010-2018, in progress)



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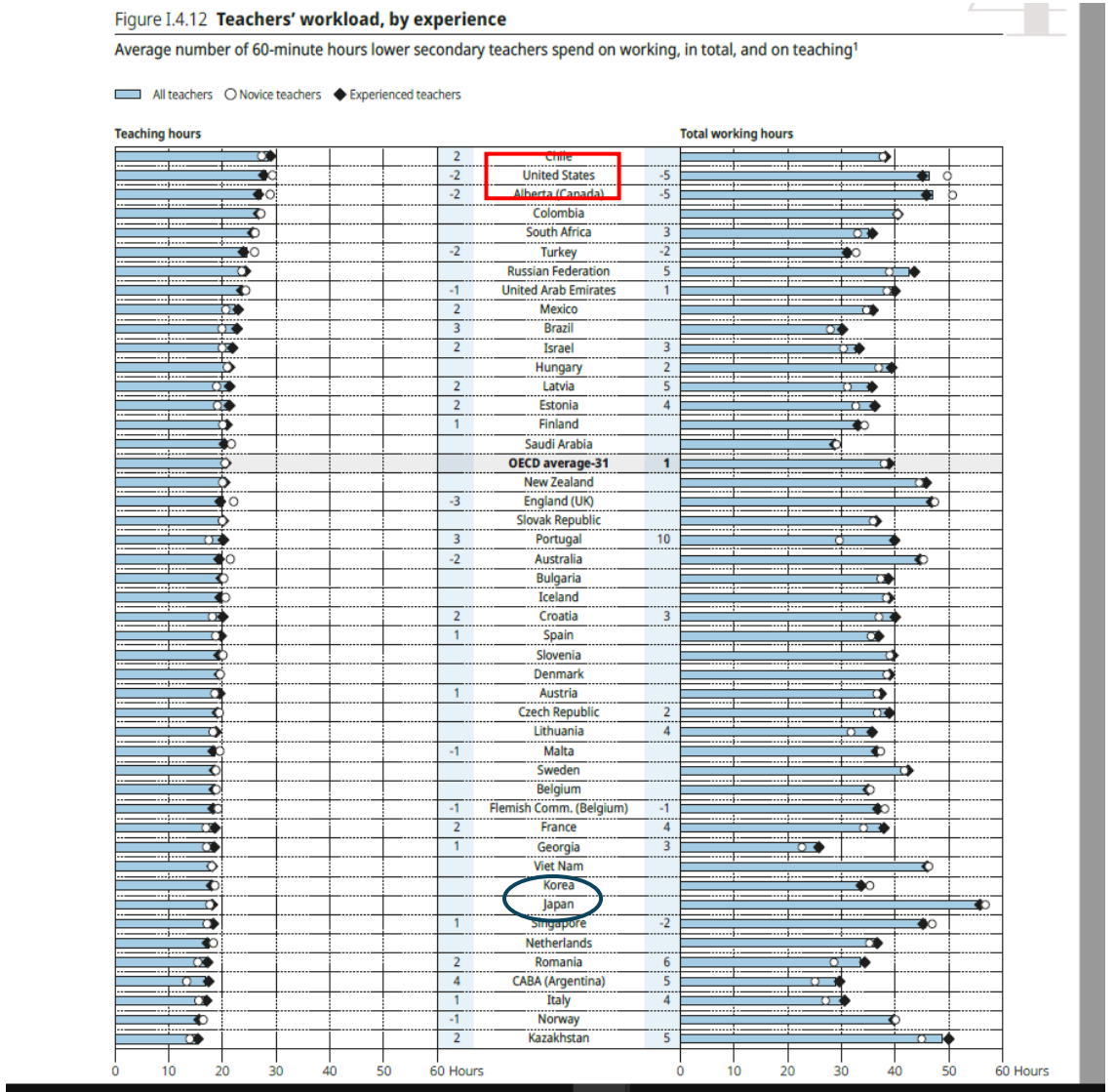
Teachers

Teachers' teaching and total working hours

TALIS 2018, OECD (2019)

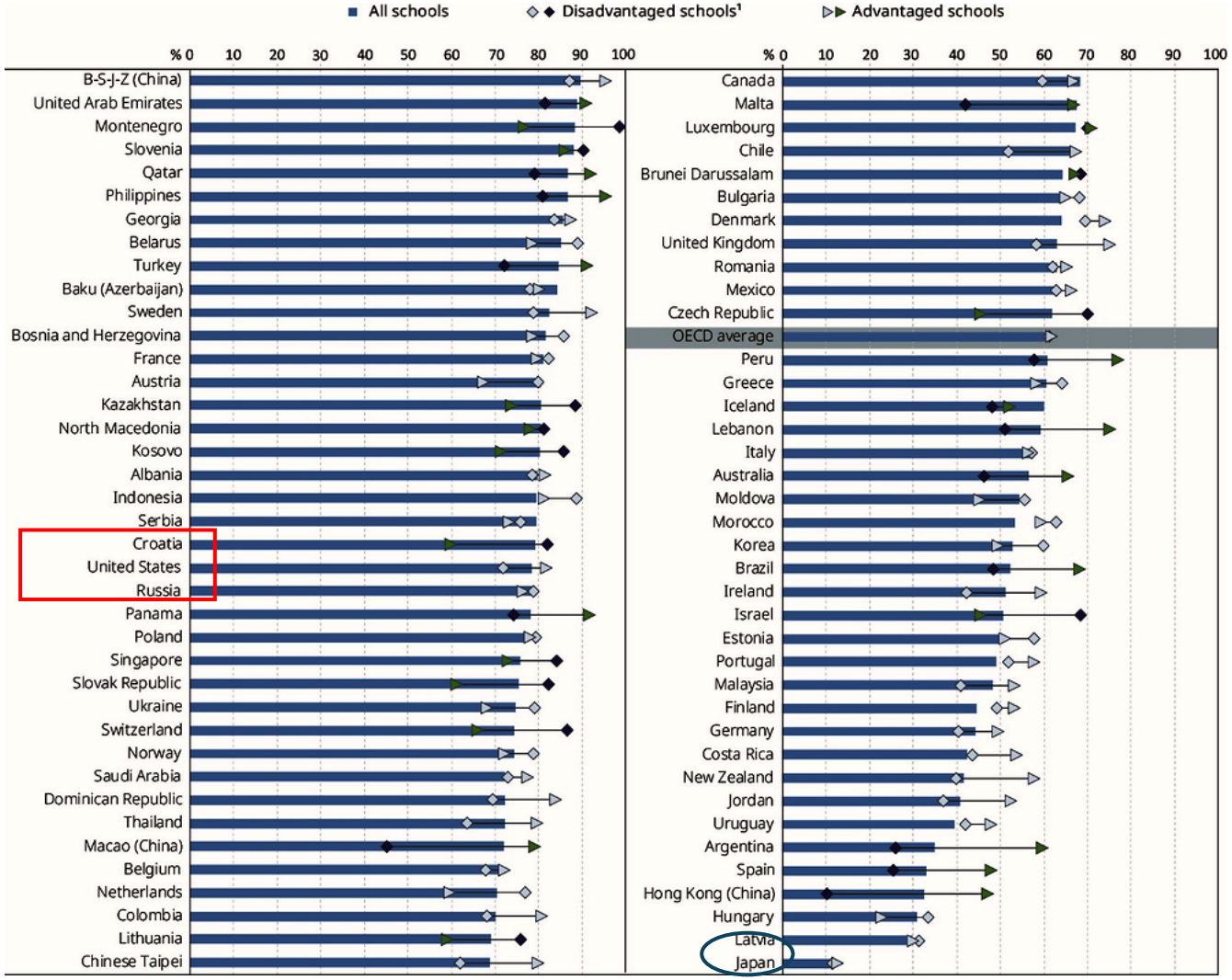
Despite below-average teaching hours, Japanese teachers work the longest hours in OECD.



Teachers' time to prepare lessons integrating digital devices (PISA 2018)

% of students in schools whose principal agreed or strongly agreed that teachers have sufficient time to prepare lessons integrating digital devices, PISA 2018

Japanese teachers do not have sufficient time to develop or use IT skills



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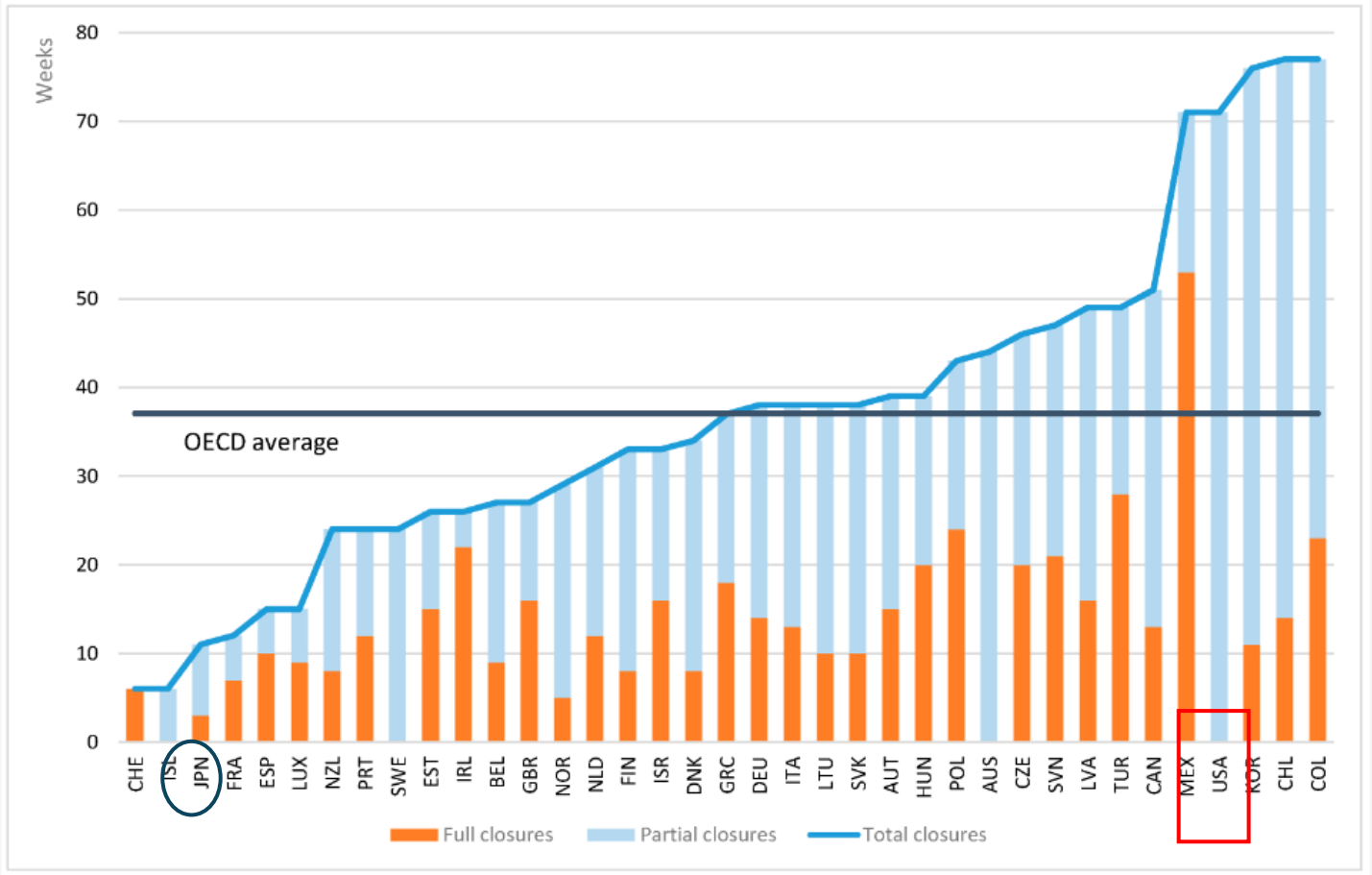
Covid19

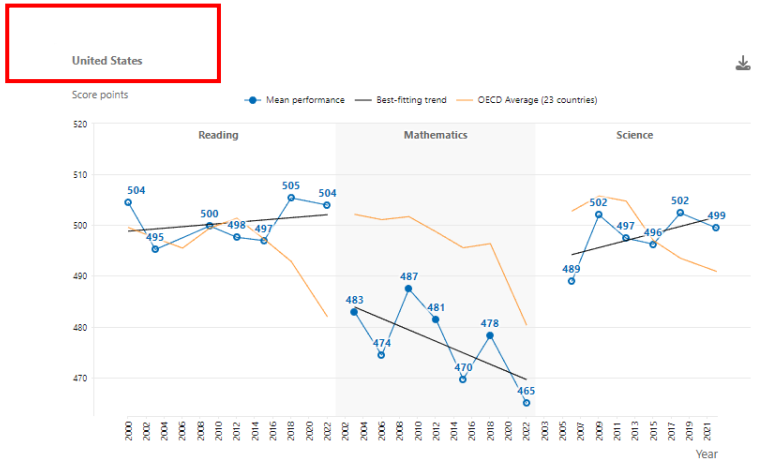
Duration of school closure
(De La Maisonneuve et al 2023)

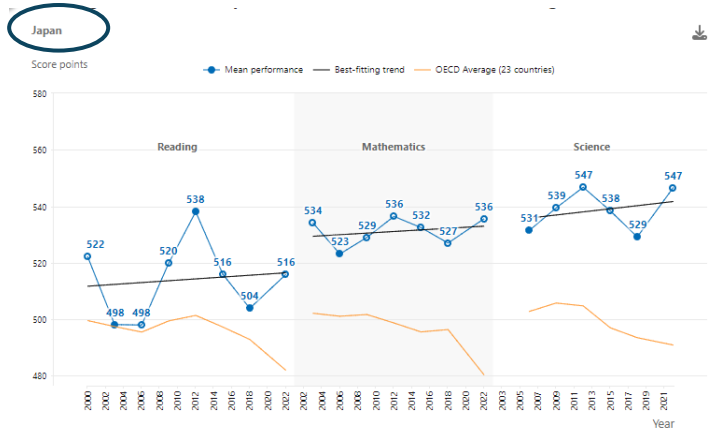
Figure 1. Duration of school closures between March 2020 and October 2021. Note: Full school closures refer to situations where all schools were closed nation-wide due to COVID-19. Partial school closures refer to school closures in some regions or for some grades, or with reduced in-person instruction. Total closures are defined as the simple unweighted sum of these two aggregates. Source: UNESCO.

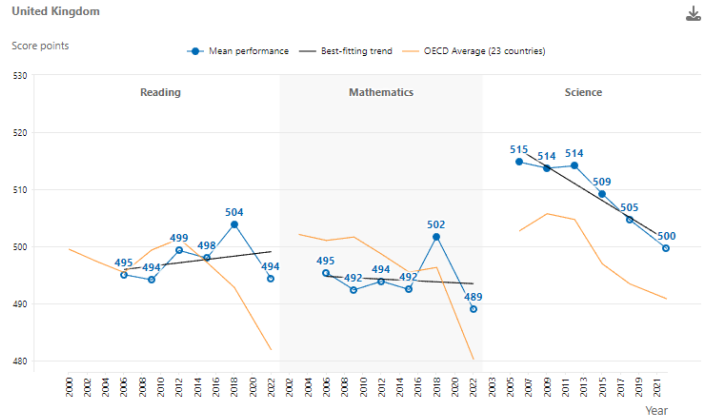


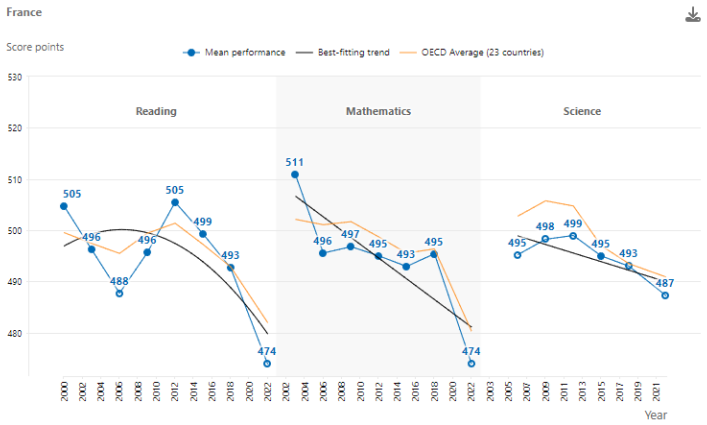
Trends of PISA scores in six countries

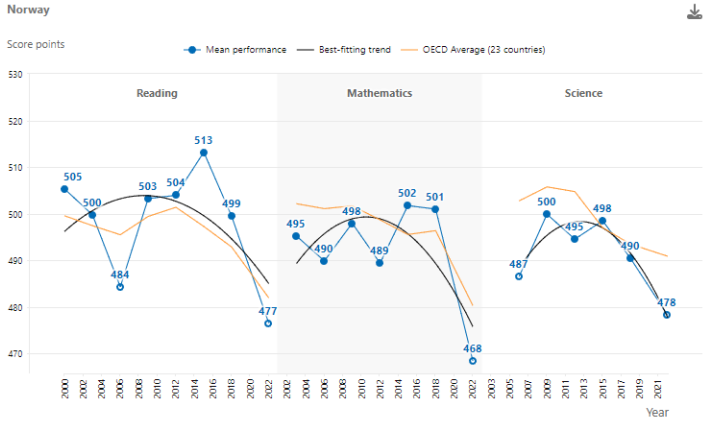
https://www.oecd.org/publication/pisa-2022-results/country-notes/

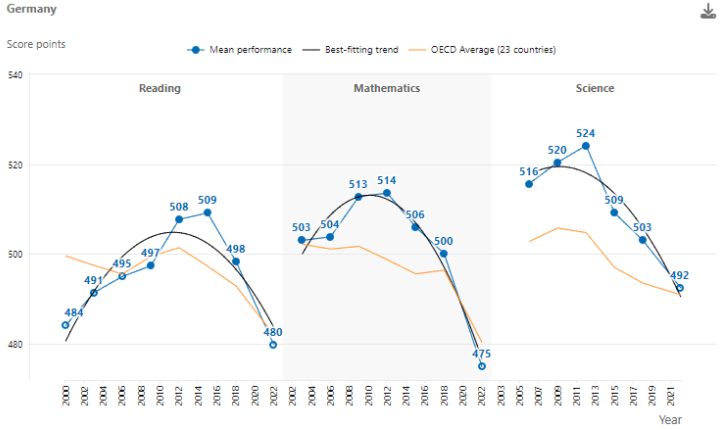












Comments based on our research

- Akabayashi et al (2023)
  - Educated and higher-income families quickly used online shadow education during the closure.
  - Parents preferred in-person classes.
- Akabayashi et al (2024)
  - Teachers with higher ICT skills were less likely to work overtime around the Covid19 school closure period.

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