

SHŌR'ĔSH נִשְׁרֵשׁ

n. root, source, basis, primary

Dan Ben-David

President and founder, Shores Institute for Socioeconomic Research

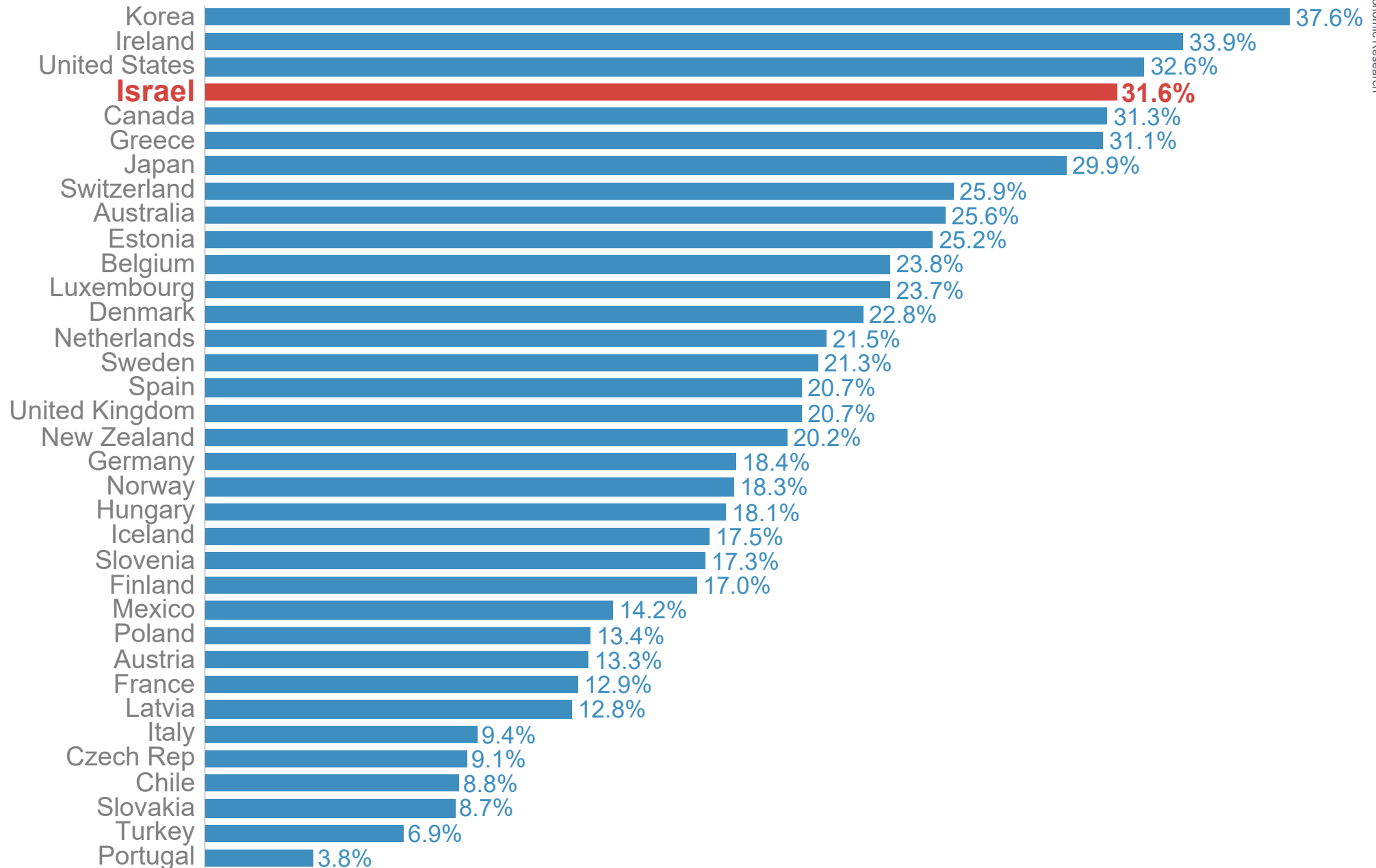
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Share of individuals with an academic degree

35-54 year olds, 2010

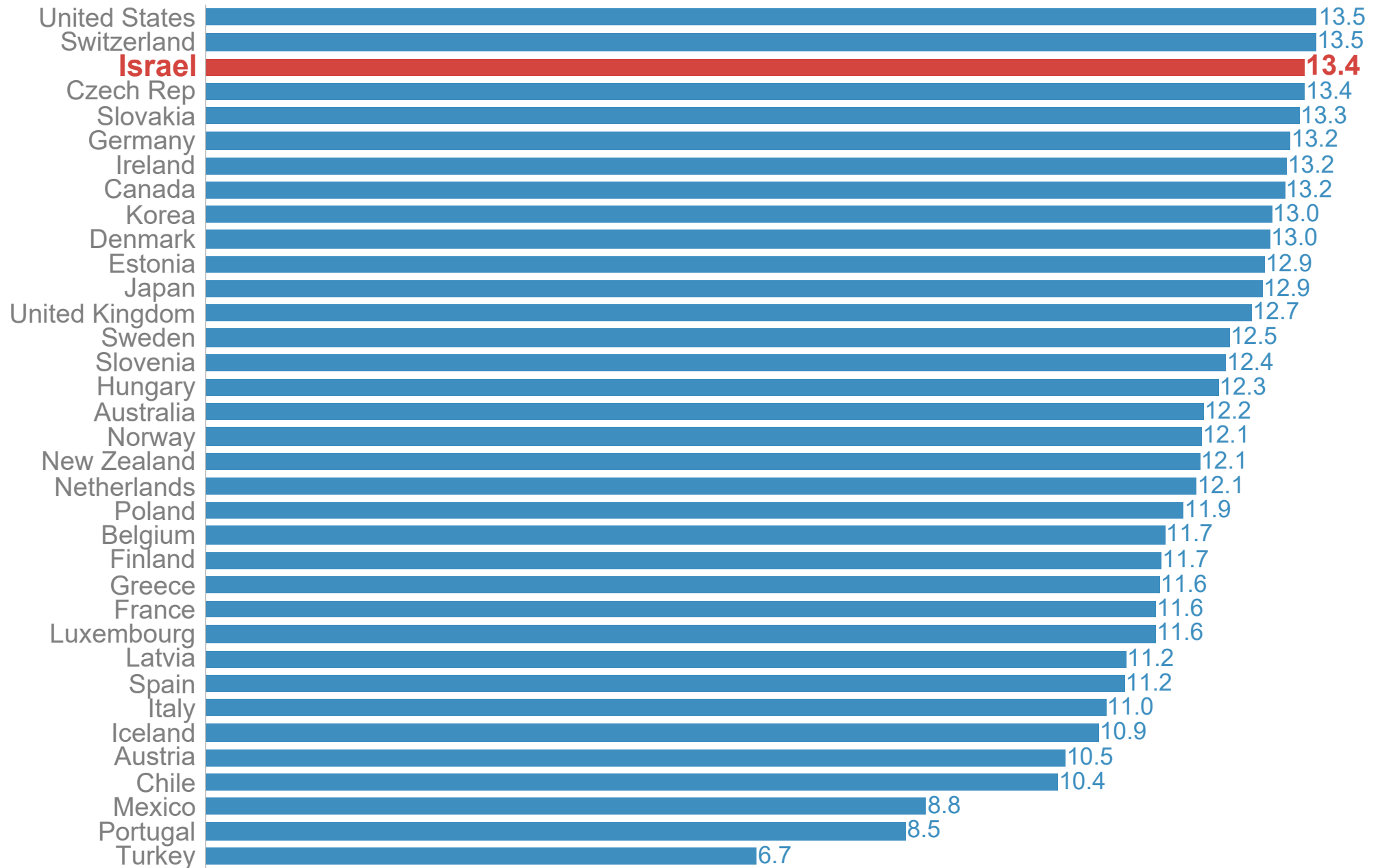


Source: Dan Ben-David, Shores Institution and Tel-Aviv University

Data: Barro and Lee (2016)

Average years of schooling per person

35-54 year olds, 2010

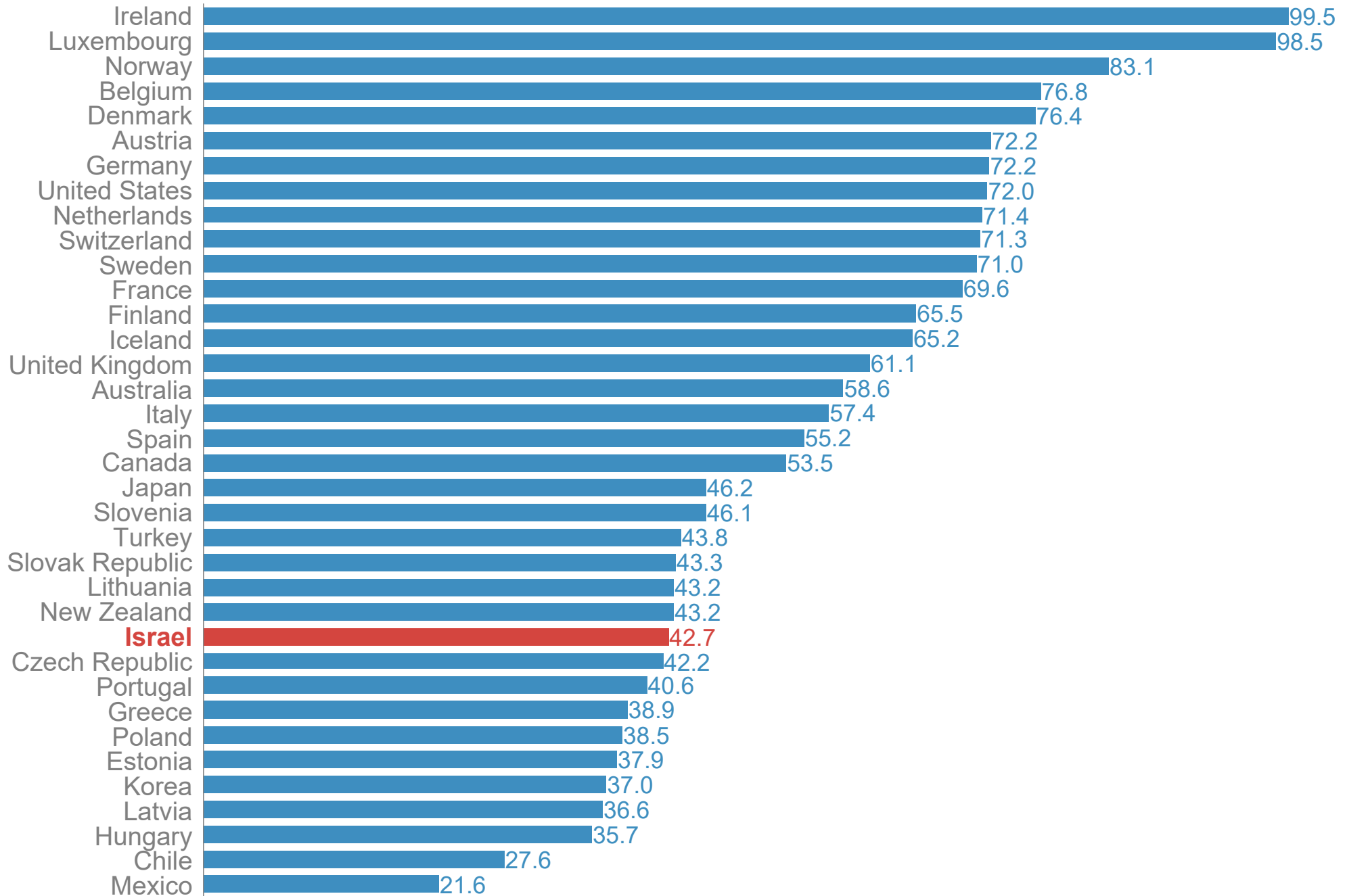


Source: Dan Ben-David, Shores Institution and Tel-Aviv University

Data: Barro and Lee (2016)

Labor Productivity in 2017

GDP per hour worked in 36 OECD countries*



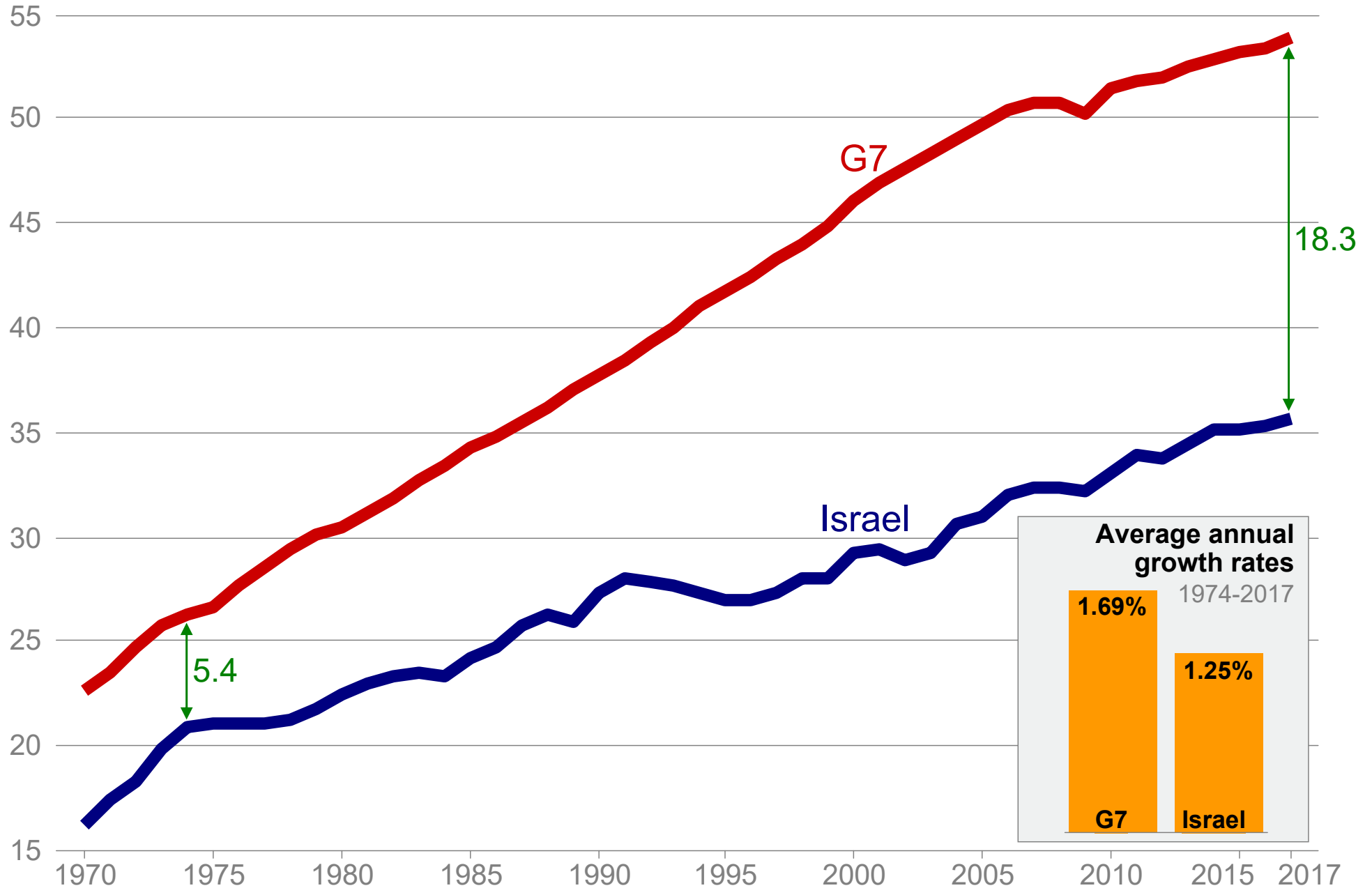
Source: Dan Ben-David, Shores Institution and Tel-Aviv University

Data from OECD

* in current PPP-adjusted dollars

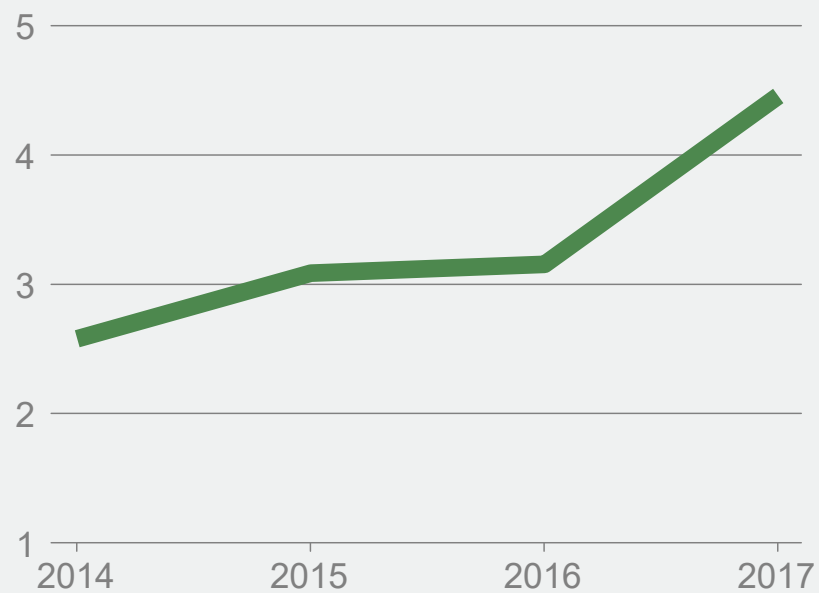
Labor Productivity, 1970-2017

GDP per hour worked*



Ratio of academic emigrants to returnees

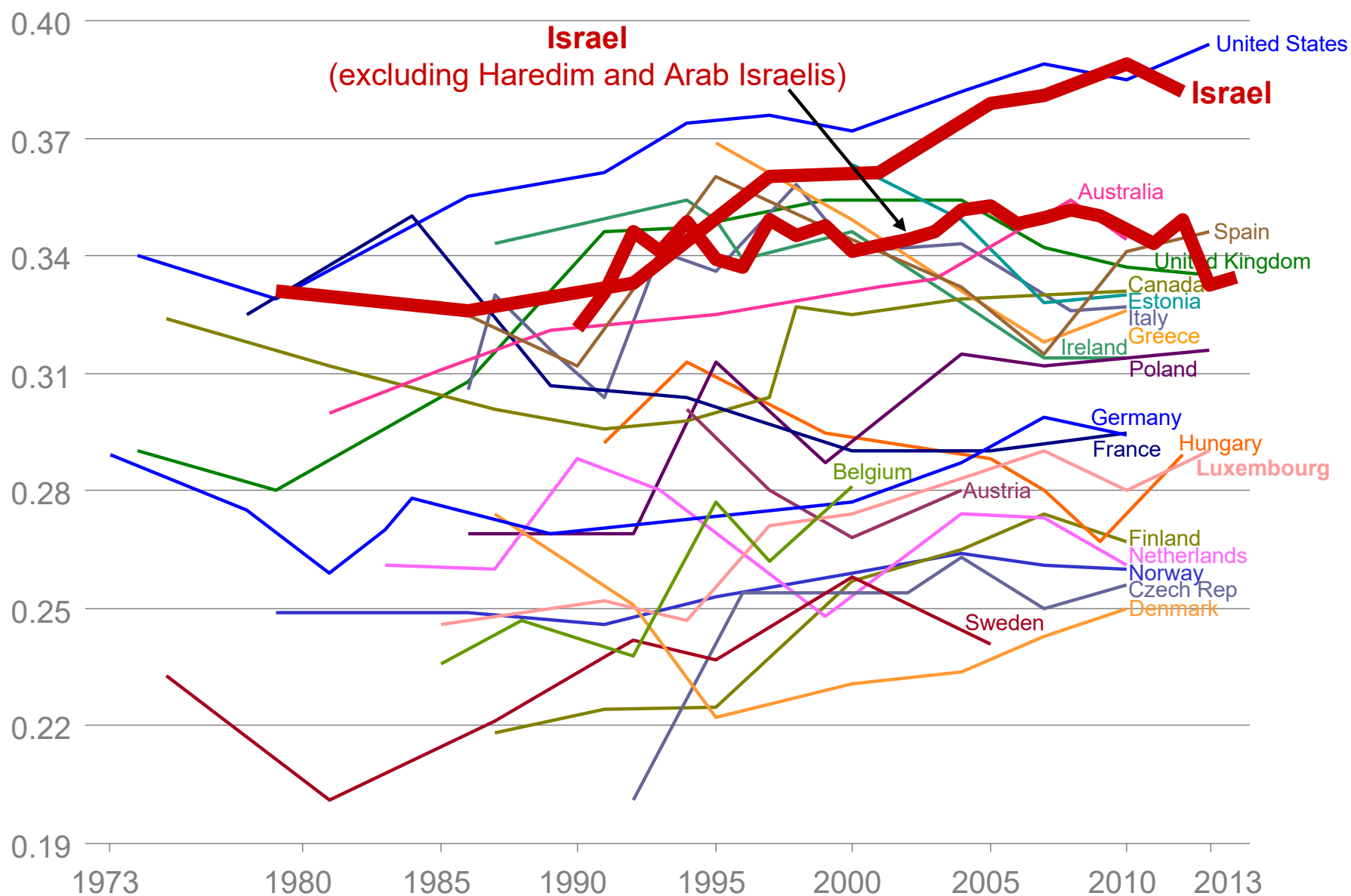
Relative flows of past academic graduates*, 2014-2017



Source: Dan Ben-David, Shores Institution and Tel-Aviv University
Data: Central Bureau of Statistics

Income inequality among households

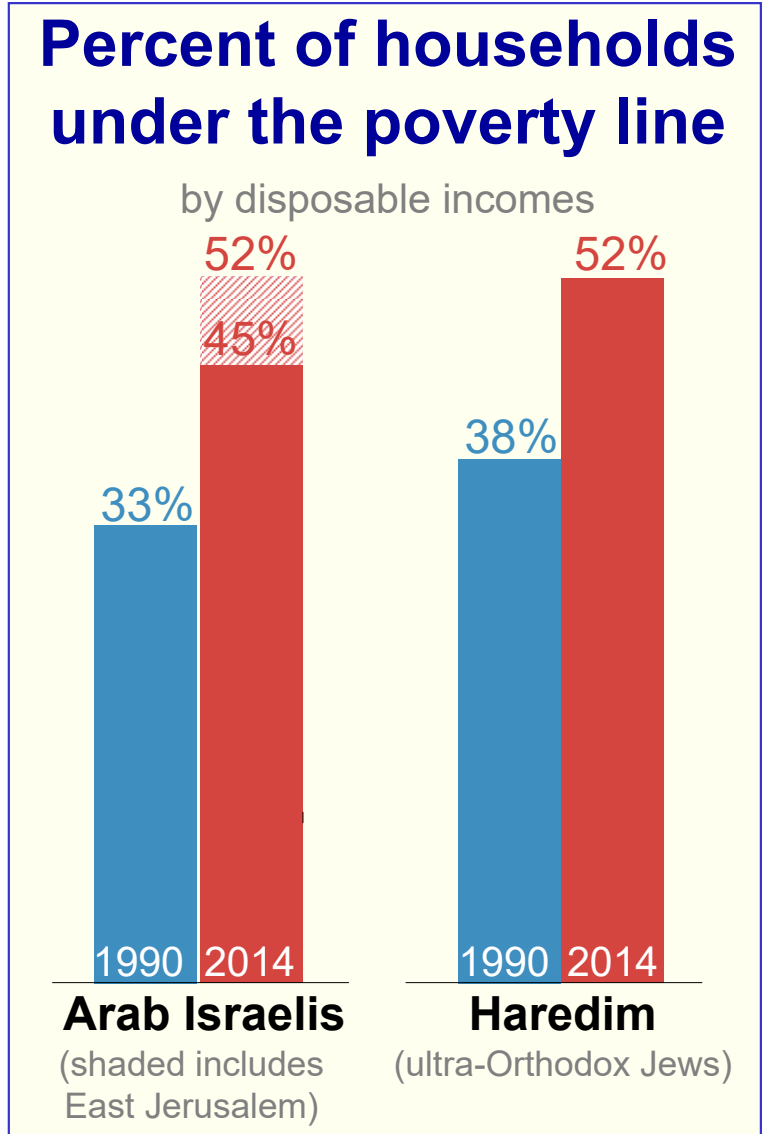
Gini coefficient in disposable incomes, 23 OECD countries, 1973-2013



Source: Dan Ben-David and Sarit Menahem Carmi, Shores Institution

Data: Luxembourg Income Study and Israel's Central Bureau of Statistics

* Gini coefficient based on individual weights



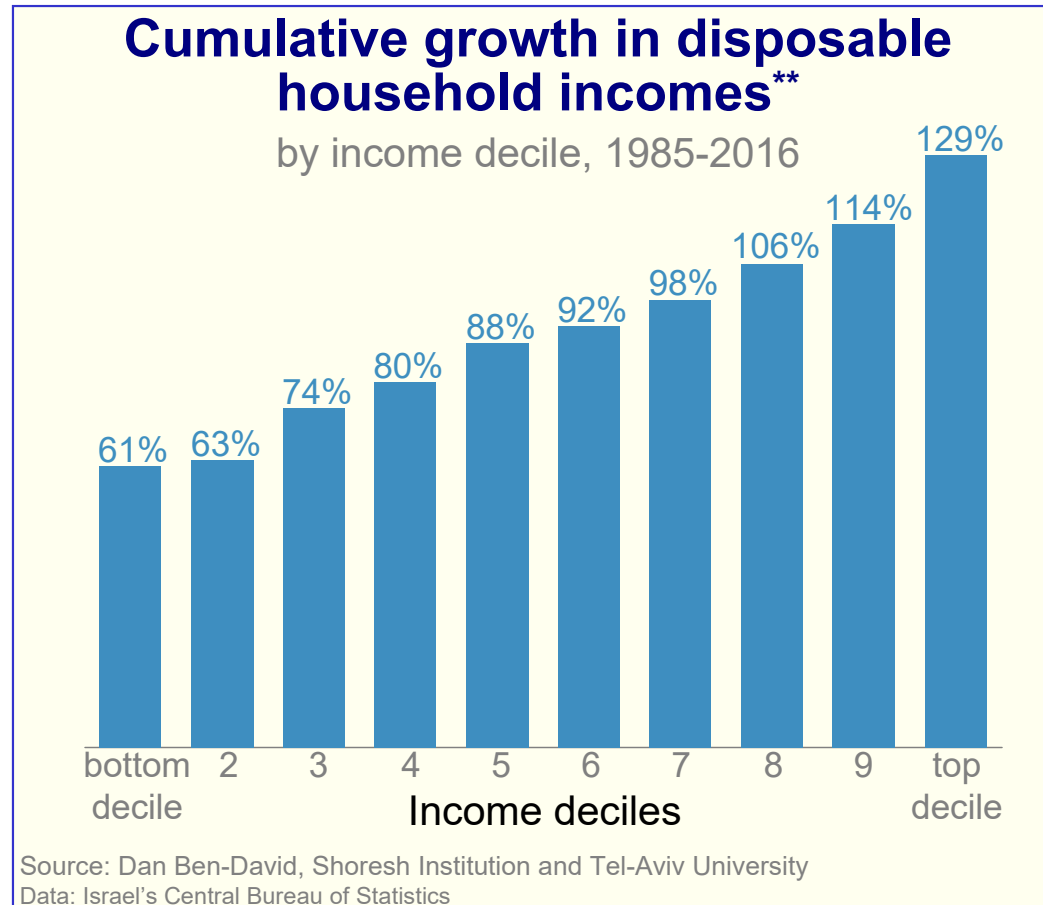
Source: Dan Ben-David and Sarit Menahem Carmi, Shores Institution

Data: Luxembourg Income Study and Israel's Central Bureau of Statistics

Educational inequality**

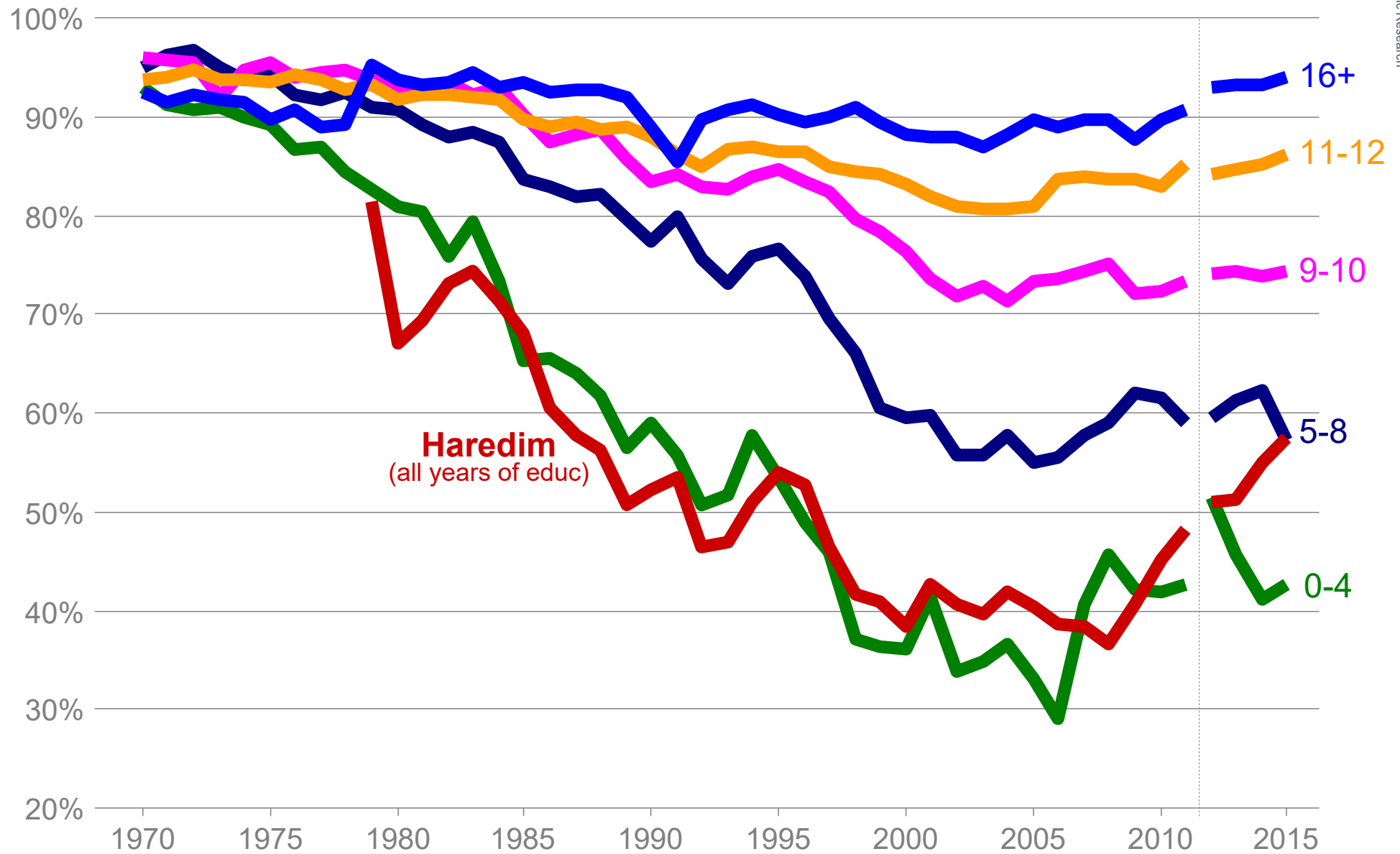
(Israel not including ultra-orthodox Jews)

year	exam	number of participating countries (out of 25)	Israel's ranking
1999	TIMSS	14	first place
2000	PISA	23	first place
2003	TIMSS	14	first place
2006	PISA	25	first place
2007	TIMSS	11	first place
2009	PISA	25	first place
2011	TIMSS	11	first place
2012	PISA	25	first place
2015	TIMSS	13	first place
2015	PISA	25	first place



Male employment Rates, 1970-2015*

by education levels, 35-54 year olds**



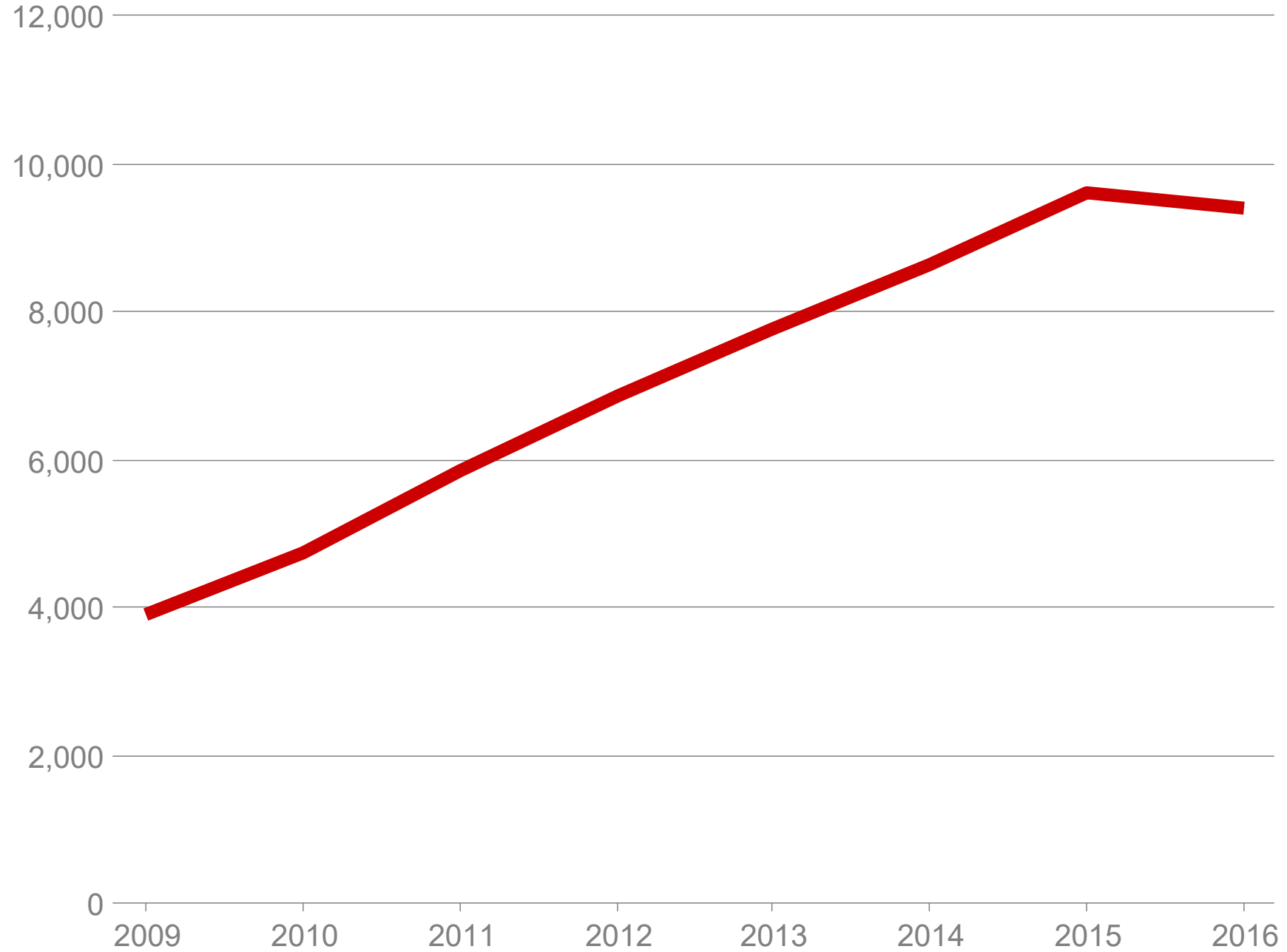
Source: Dan Ben-David and Oren Tirosh, Shores Institution
Data from Israel's Central Bureau of Statistics

* As of 2012, the Central Bureau of Statistics changed the method of labour force survey estimation .

** 1970-1978 includes haredim, After 1979 excludes haredim

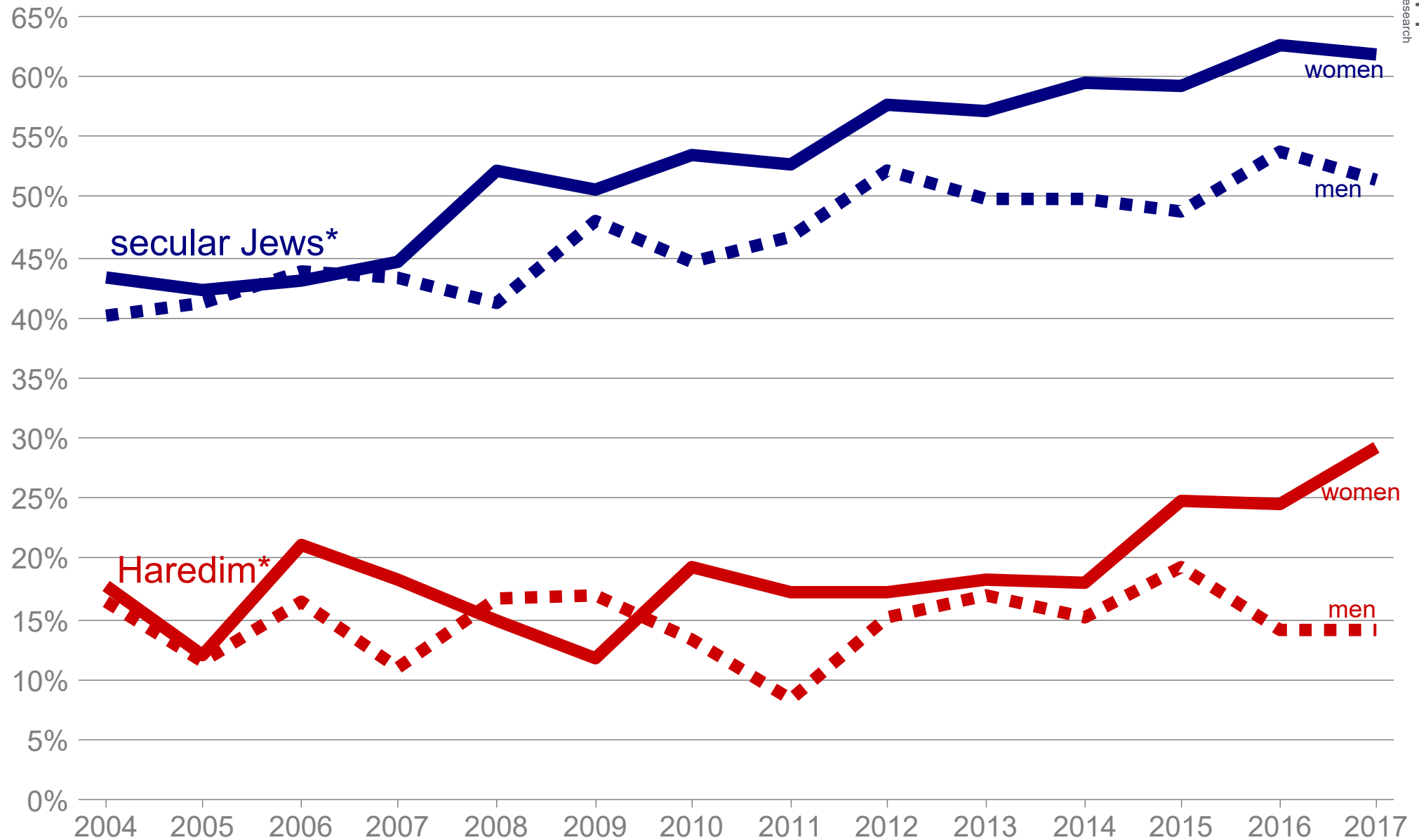
Haredi students in higher education

2009-2016



Share of prime working age Israelis with academic degrees

ages 35-54 (unless specified otherwise), 2004-2017



Source: Dan Ben-David, Shores Institute and Tel-Aviv University

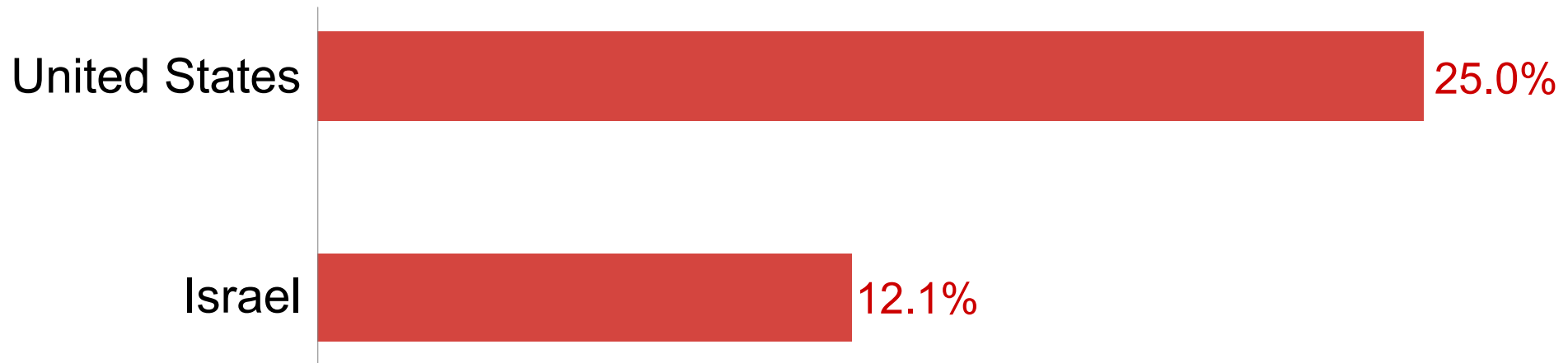
Data: Central Bureau of Statistics.

* non-religious Jews

** ultra-Orthodox Jews

*** from traditional-religious through Orthodox Jews

Share of Haredim with an academic degree*, 2013



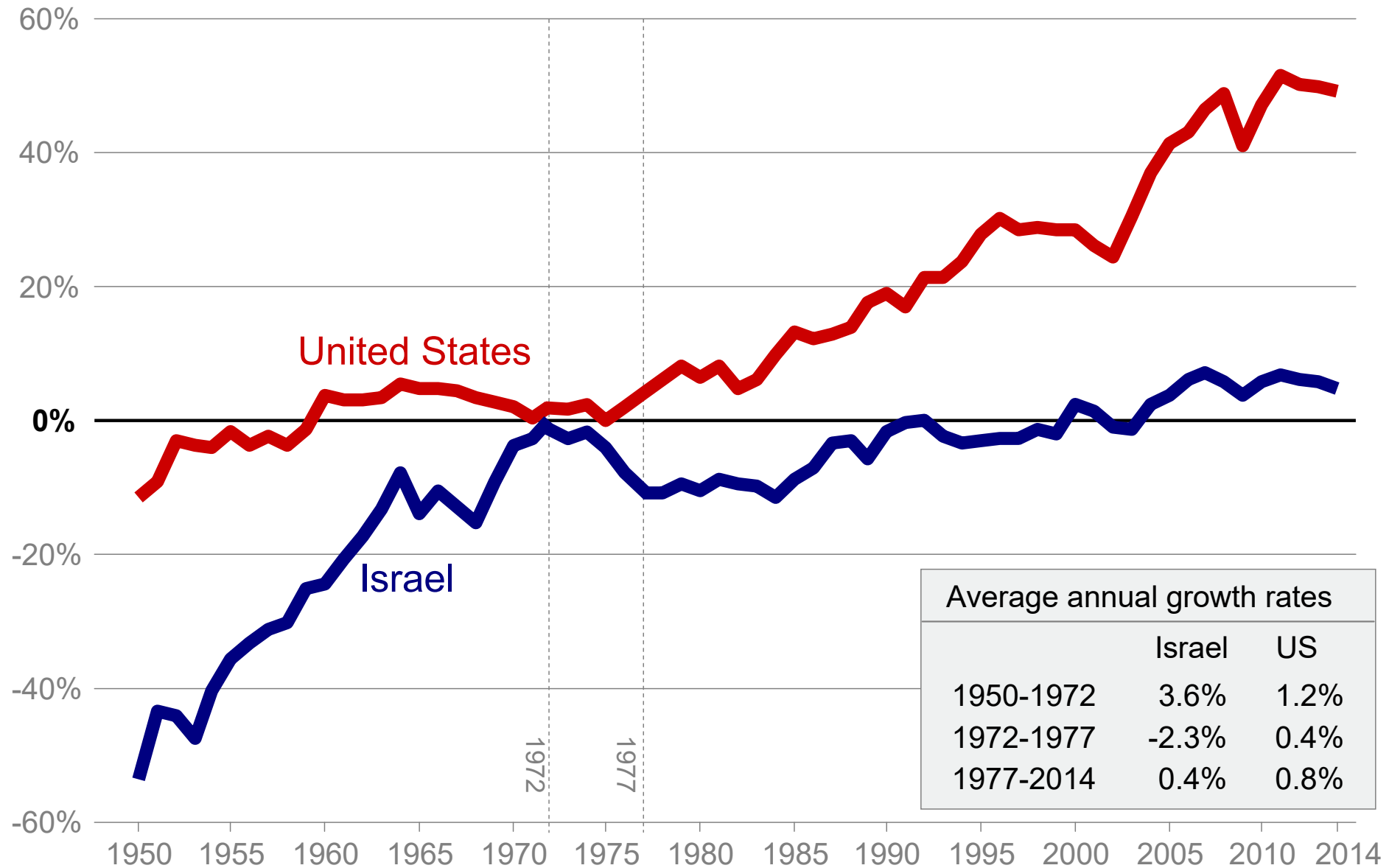
What happened?

Several decades ago,

**Israel changed
its national priorities**

Total factor productivity* in Israel and the US, 1950-2014

in constant prices, both countries relative to Israel in 1972**

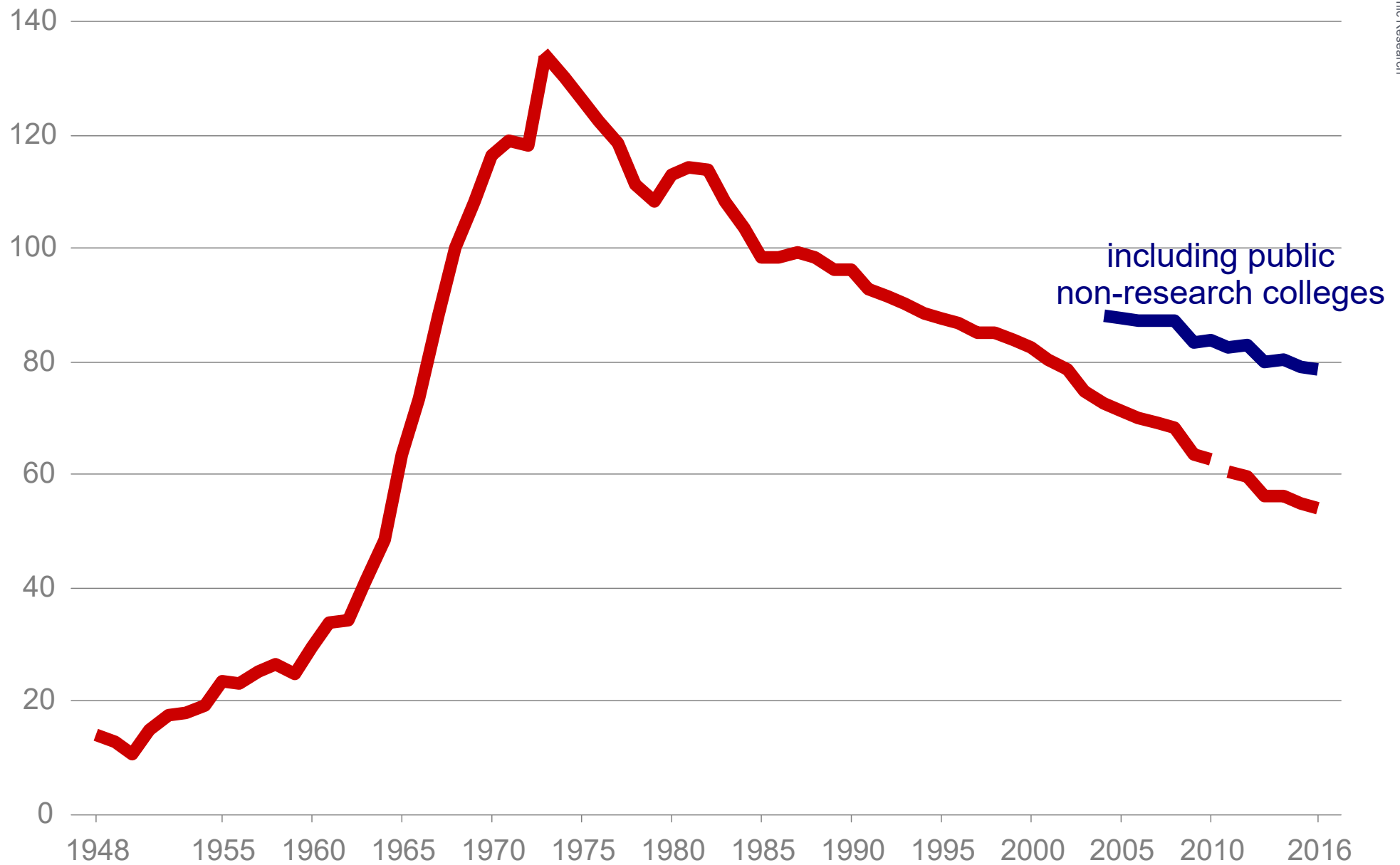


Source: Dan Ben-David, Shores Institution and Tel-Aviv University
Data: Feenstra, Inklaar and Timmer (PWT 9.0, 2016)

* Total factor productivity (TFP) reflects the part of GDP growth not explained by increases in labor and capital inputs. TFP is considered to be the primary engine underlying the economic growth of nations.
** percent point difference between all observations for each country and Israel in 1972.

Senior research faculty in universities*

Senior research faculty per 100,000 people, 1948-2016

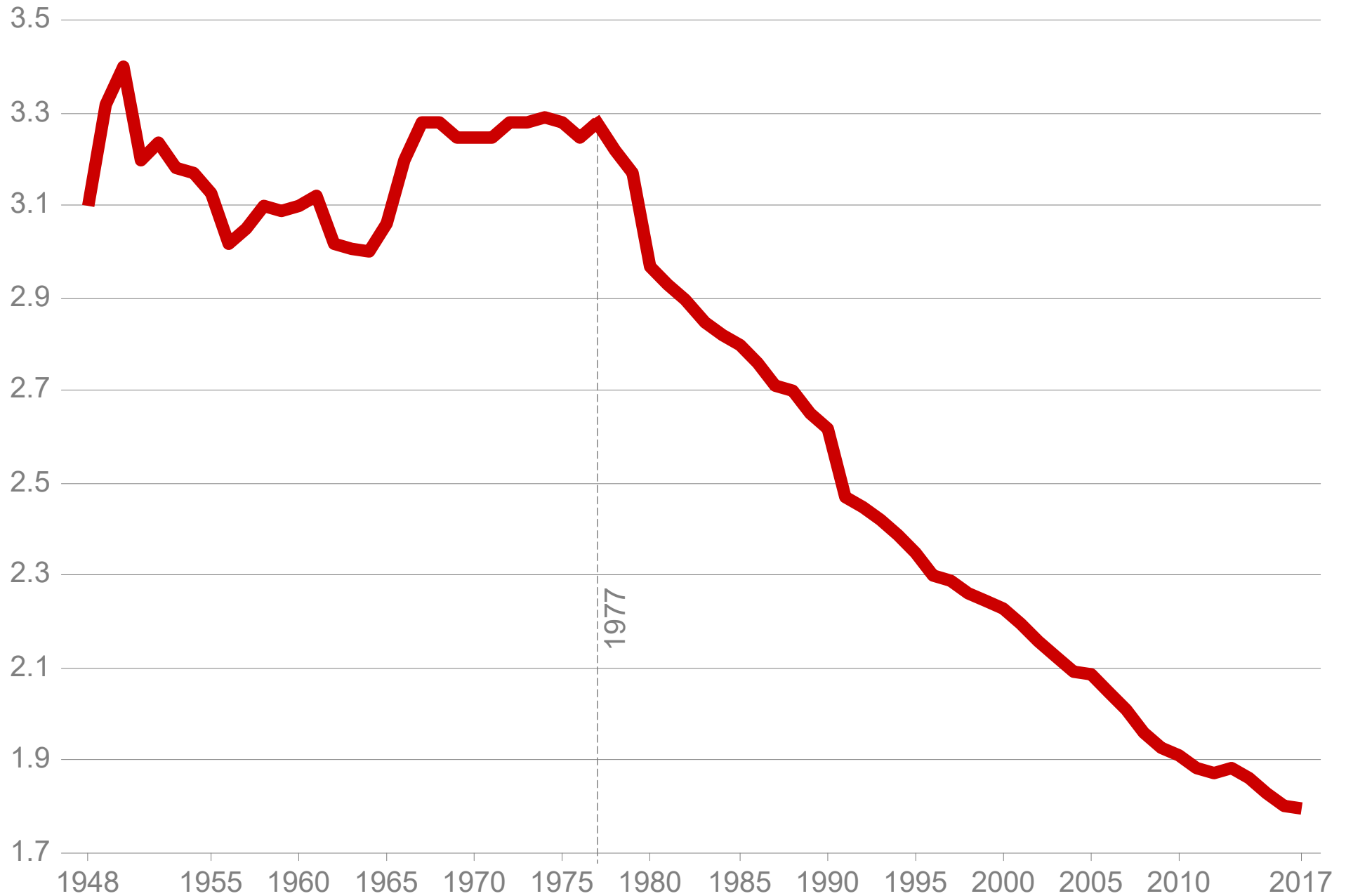


source: Dan Ben-David, "Brain Drained" (2008) updated
data: Israel's Central Bureau of Statistics and the Council for Higher Education

* Senior research faculty includes full professors, associate professors, senior lecturers and lecturers. Basis of data changed in 2011.

Hospital beds*

per 1,000 population, 1948-2017

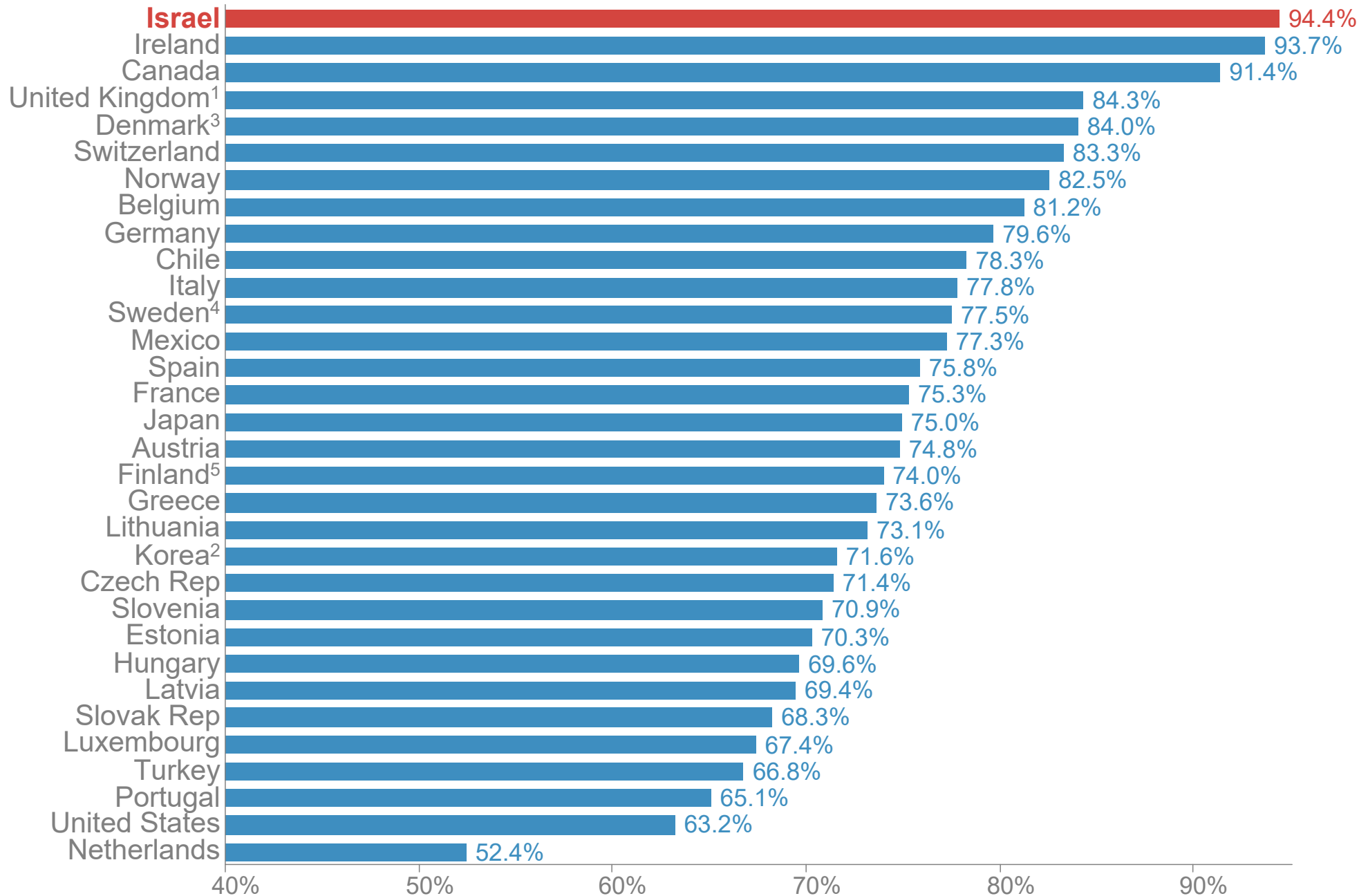


source: Dan Ben-David, Shores Institute and Tel-Aviv University
data: Israel's Central Bureau of Statistics

* Curative (acute) care hospital beds

Hospital occupancy rates

as percent of available beds, average for 2012-2016



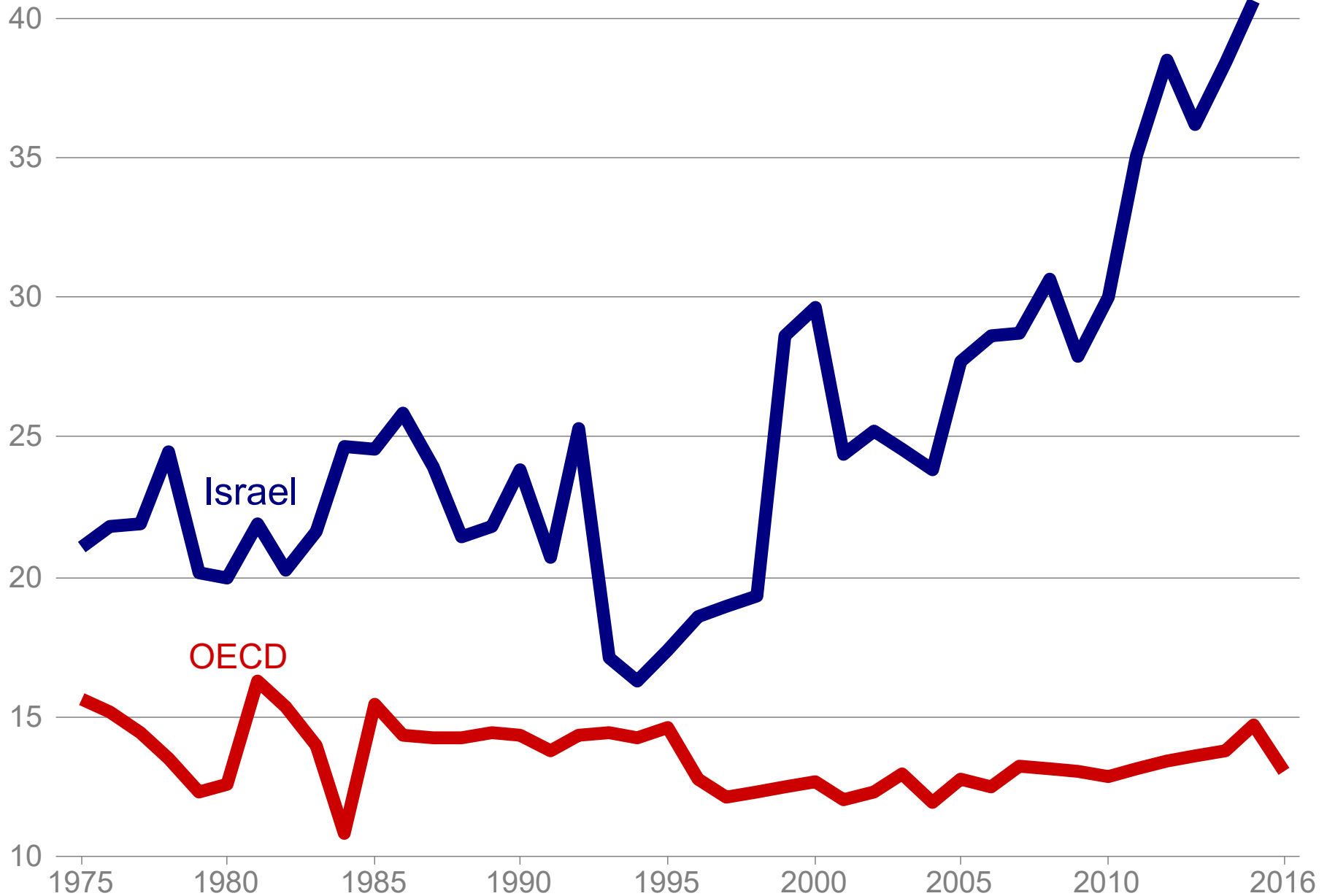
source: Dan Ben-David, Shores Institution and Tel-Aviv University

data: OECD

¹ 2010, ² 2003, ³ 2001, ⁴ 1996, ⁵ 1995

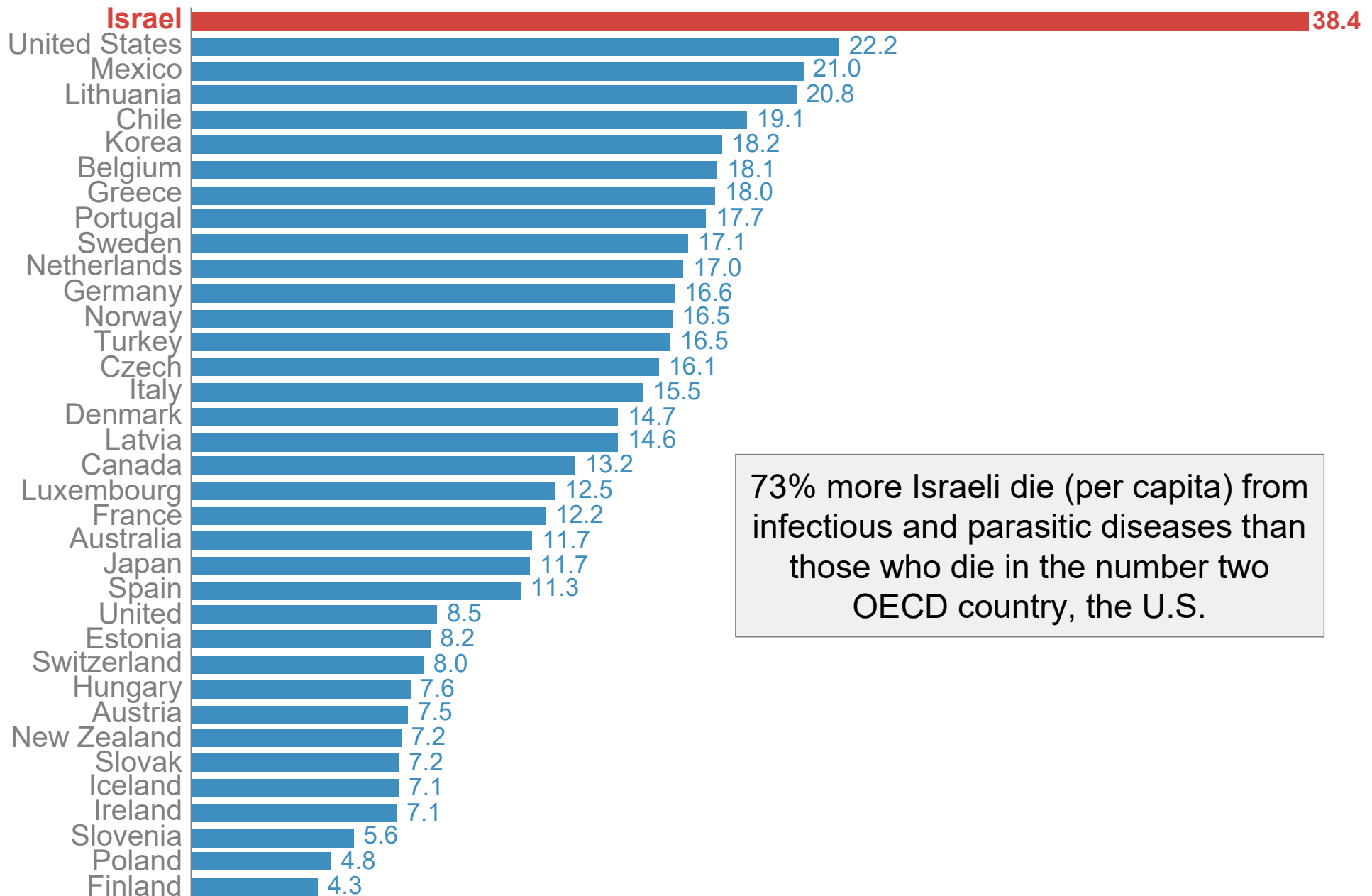
Deaths from infectious and parasitic diseases

per 100,000 population*, 1975-2016



Deaths from infectious and parasitic diseases

per 100,000 population*, averages for 2013-2016



73% more Israeli die (per capita) from infectious and parasitic diseases than those who die in the number two OECD country, the U.S.

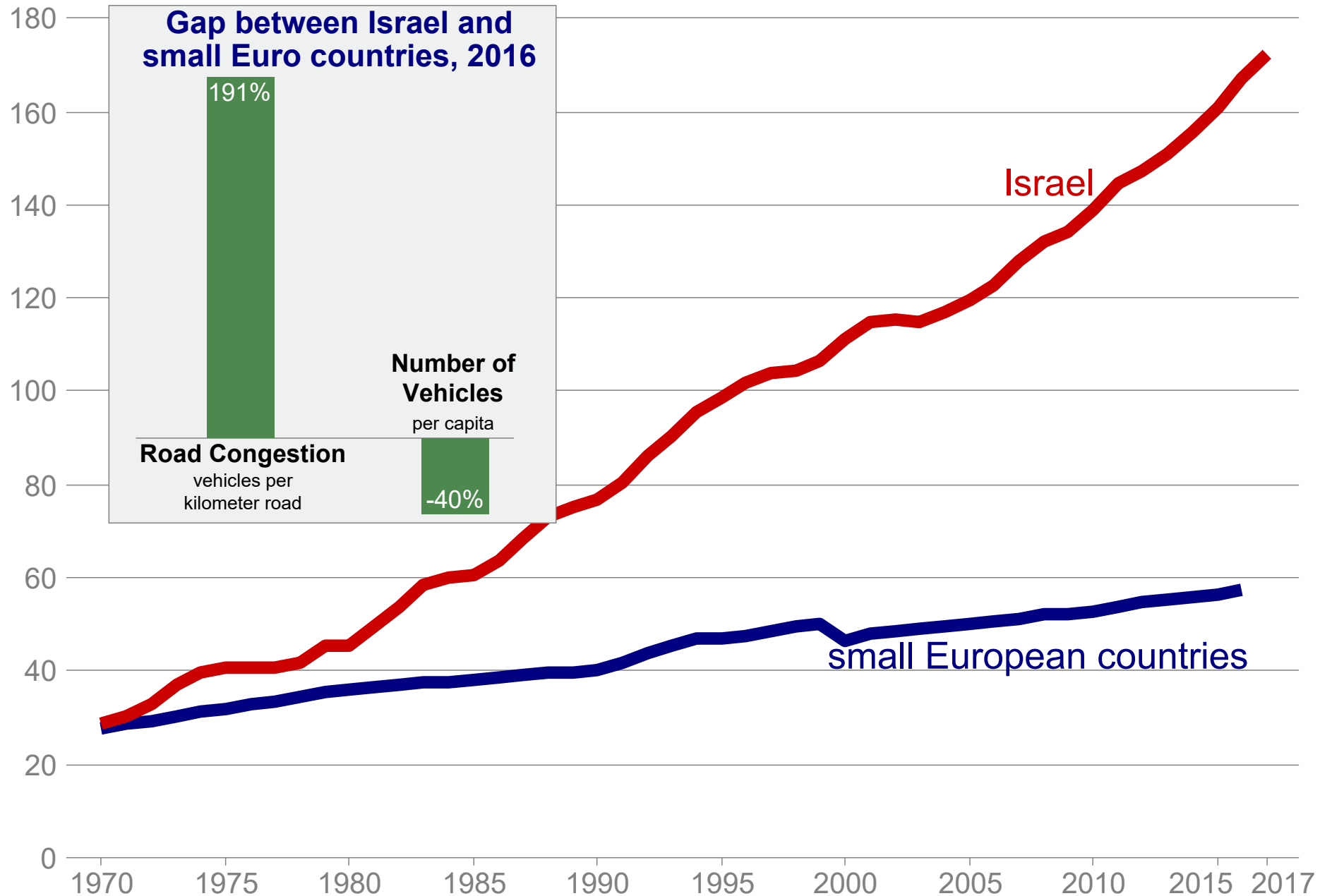
source: Dan Ben-David, Shores Institution and Tel-Aviv University

data: OECD

* adjusted by the ratio of standardized population to actual population

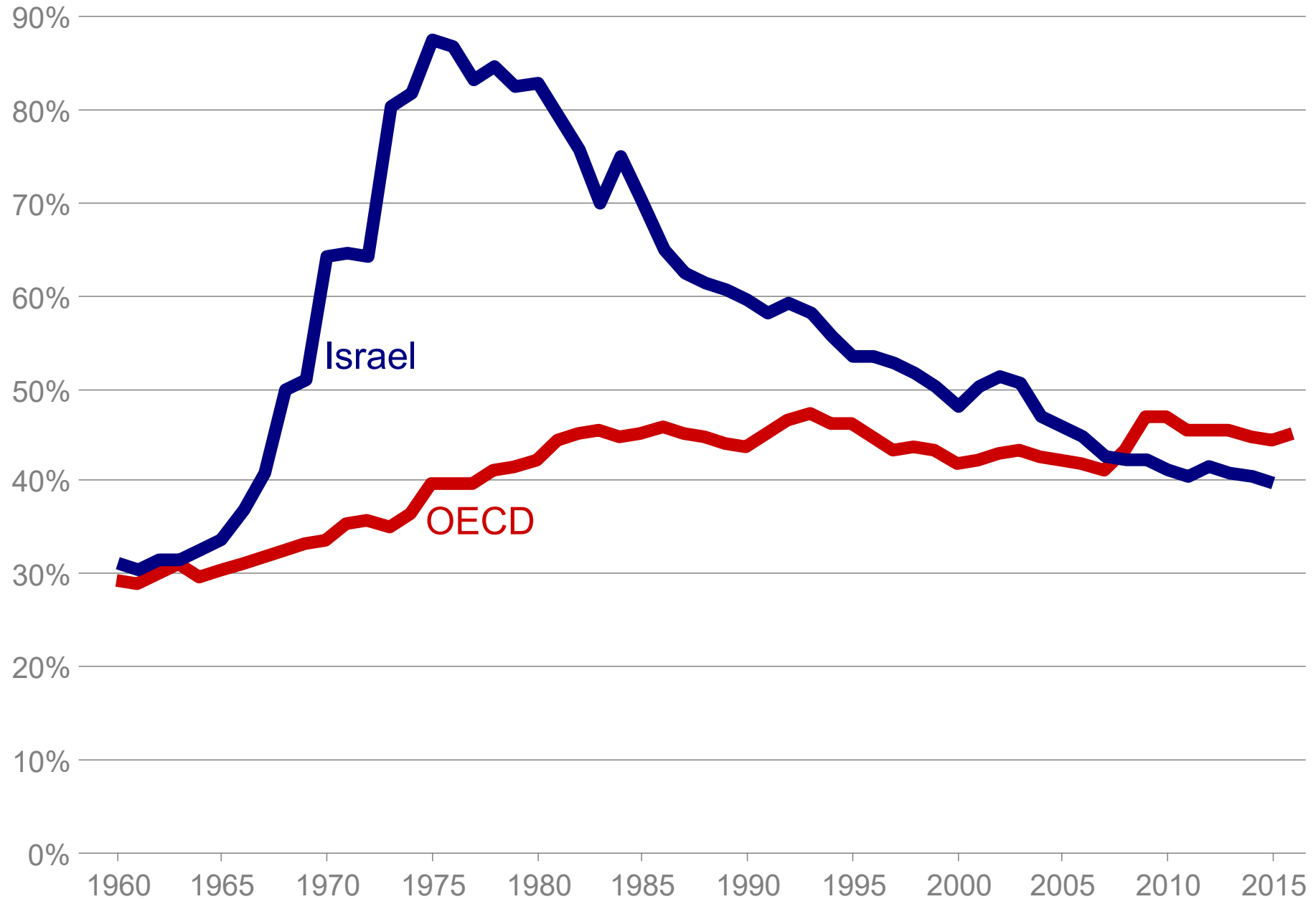
Congestion on roads

number of vehicles per km of road in Israel and small European countries*, 1970-2017



Government expenditures*

in Israel and OECD** as percent of GDP, 1960-2016



Source: Dan Ben-David, Shores Institution and Tel-Aviv University

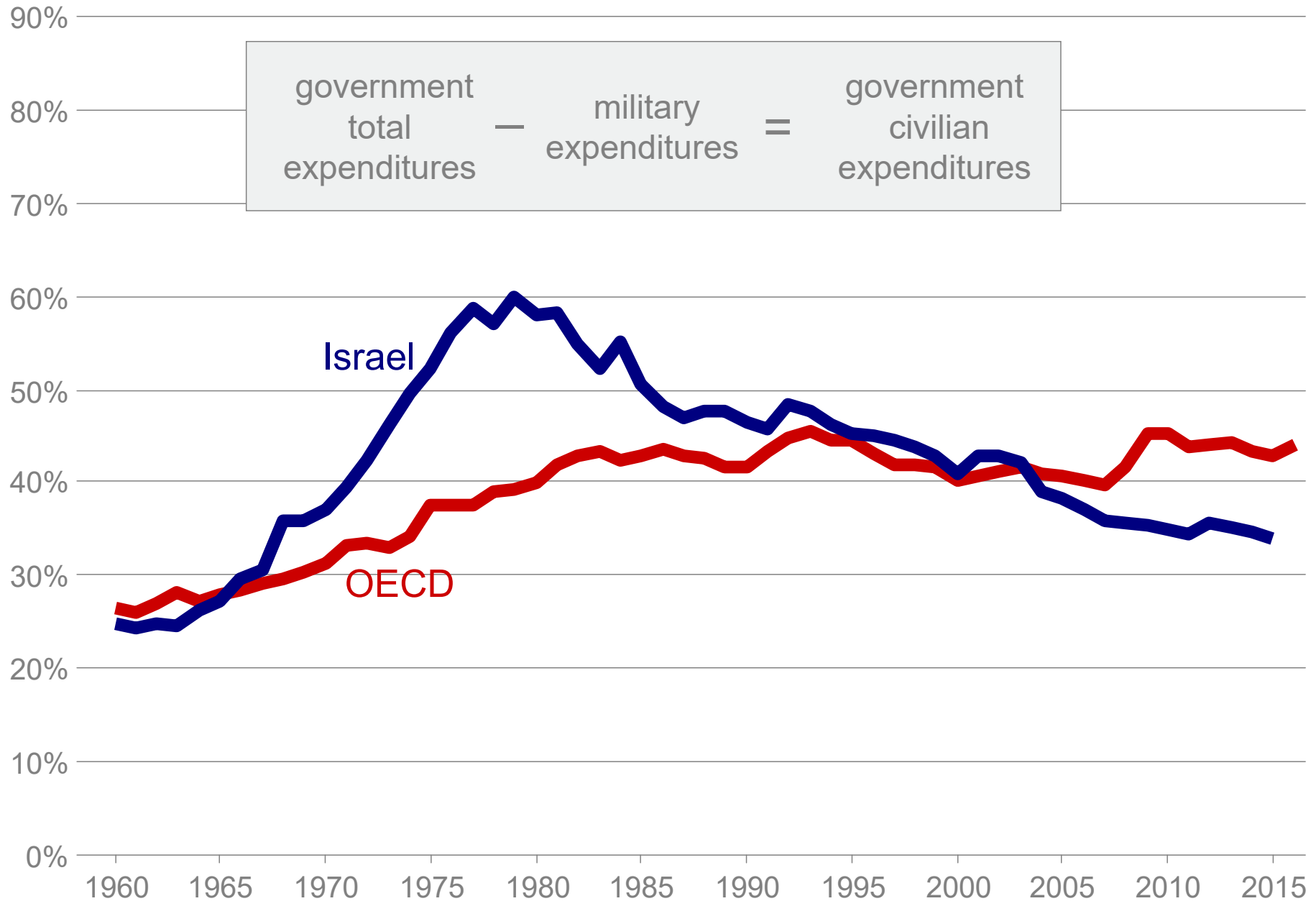
Data: OECD, World Bank and Bank of Israel

* General government expenditures

** average for 31 OECD countries

Government expenditures*

in Israel and OECD** as percent of GDP, 1960-2016



Source: Dan Ben-David, Shores Institution and Tel-Aviv University

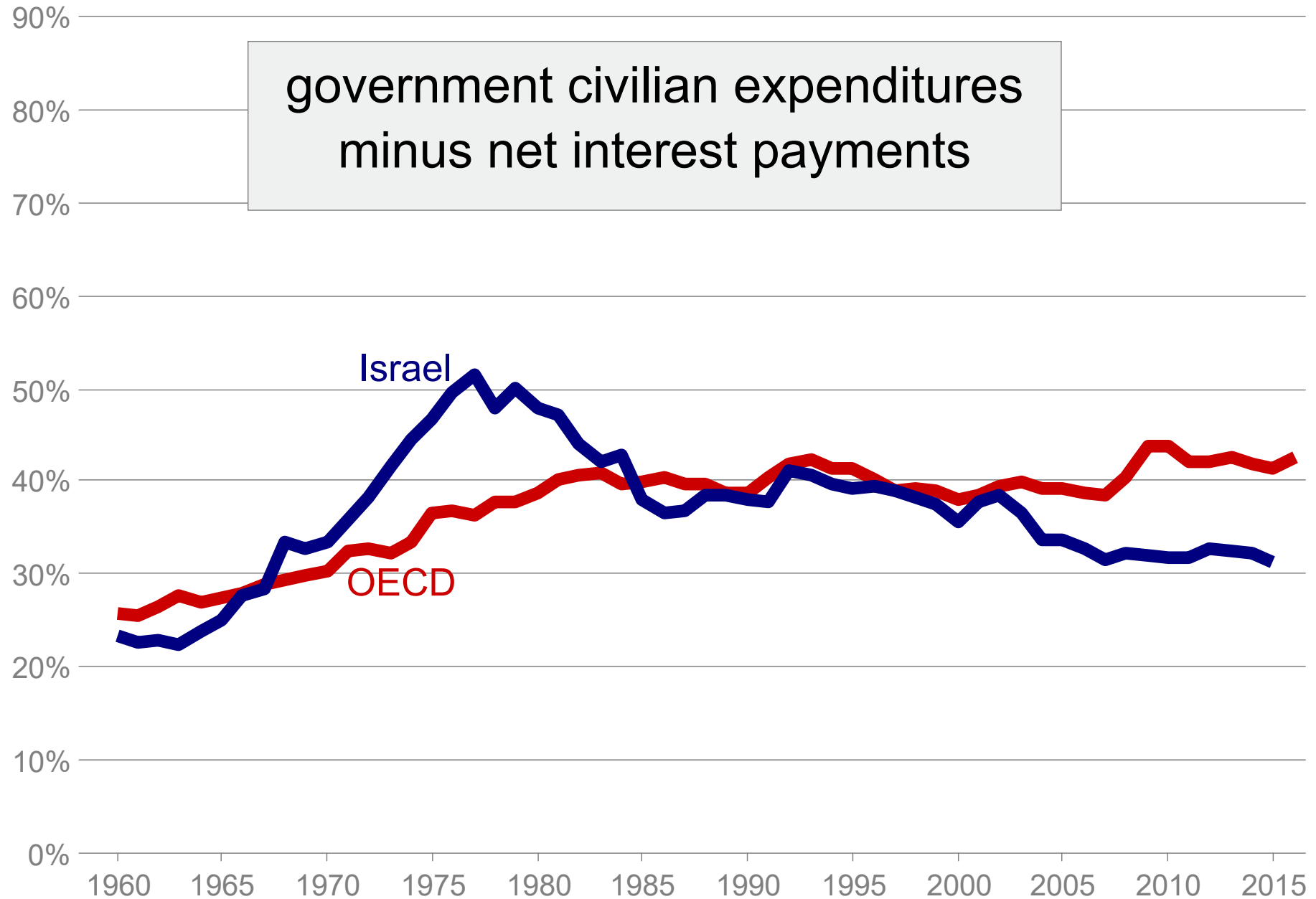
Data: OECD, World Bank and Bank of Israel

* General government expenditures

** average for 31 OECD countries

Government expenditures*

in Israel and OECD** as percent of GDP, 1960-2016



Education Quality
versus
Education Quantity

Percentage of examinees passing the Bar exam, 2018

by academic institution*

4 institutions in which
over $\frac{2}{3}$ passed

↑ 14% of
all those
taking
the exam
↓

Hebrew University (76% pass rate)
Tel-Aviv University (71% pass rate)
Sapir College (70% pass rate)
Bar-Ilan University (69% pass rate)

72%
average
pass rate

3 institutions in which
 $\frac{1}{2}$ to $\frac{2}{3}$ passed

↑ 14% of
all those
taking
the exam
↓

Colman College of Management (57% pass rate)
Haifa University (53% pass rate)
Interdisciplinary Center (53% pass rate)

55%
average
pass rate

50% pass line

32% = national pass rate

2,930 = total number of examinees

10 institutions in
which the majority
failed

↑ 71% of
all those
taking
the exam
↓

19%
average
pass rate

Peres Academic Center (23% pass rate)
Academic Center of Law and Science (21% pass rate)
Ono Academic College (21% pass rate)
College of Law and Business (21% pass rate)
Zefat Academic College (19% pass rate)
Netanya College (19% pass rate)
Carmel Academic College (17% pass rate)

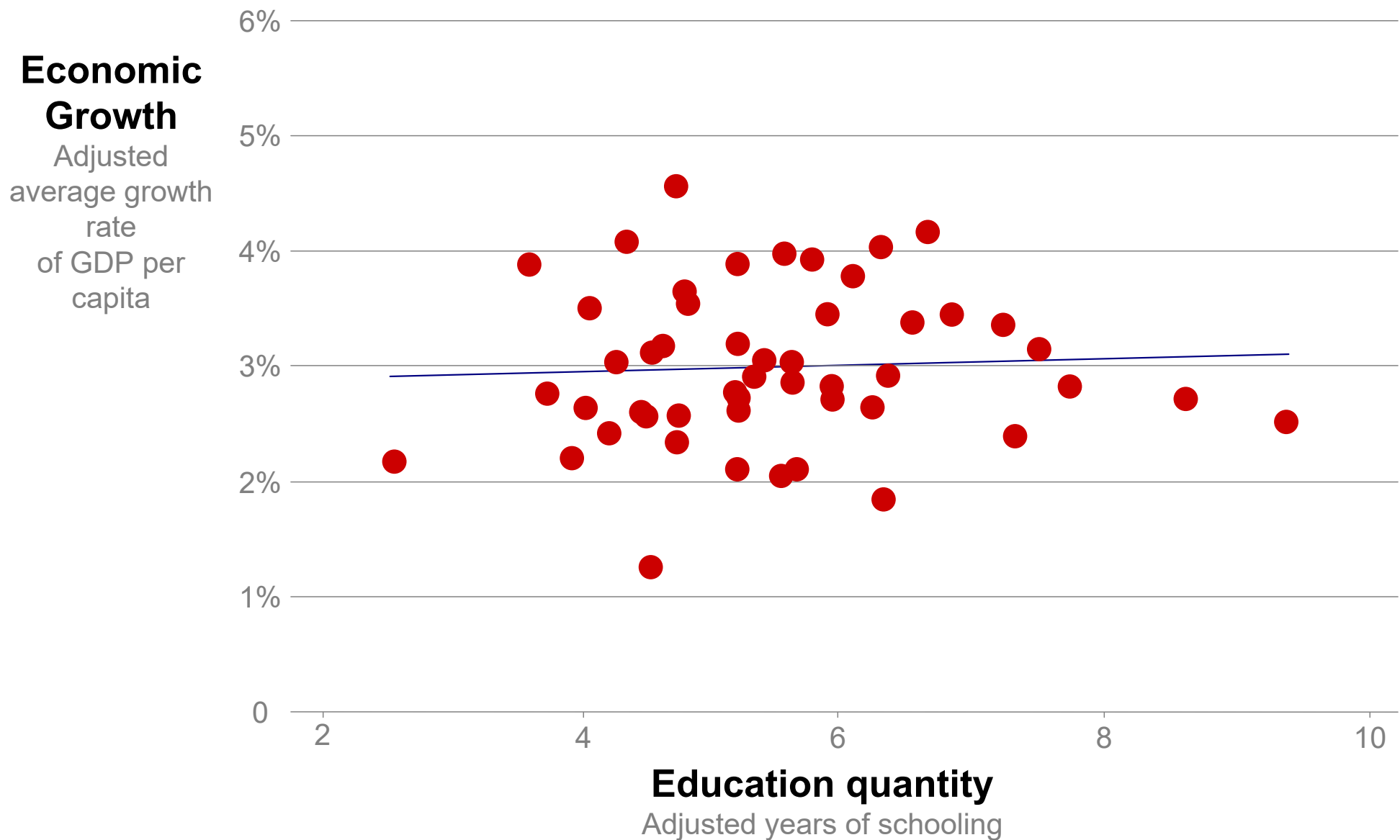
* thickness of horizontal bars
reflects the institution's relative
share of the examinees

Source: Dan Ben-David, Shoresh Institution and Tel-Aviv University

Data: Israel Bar Association

Education and economic growth*

50 countries, 1960-2000

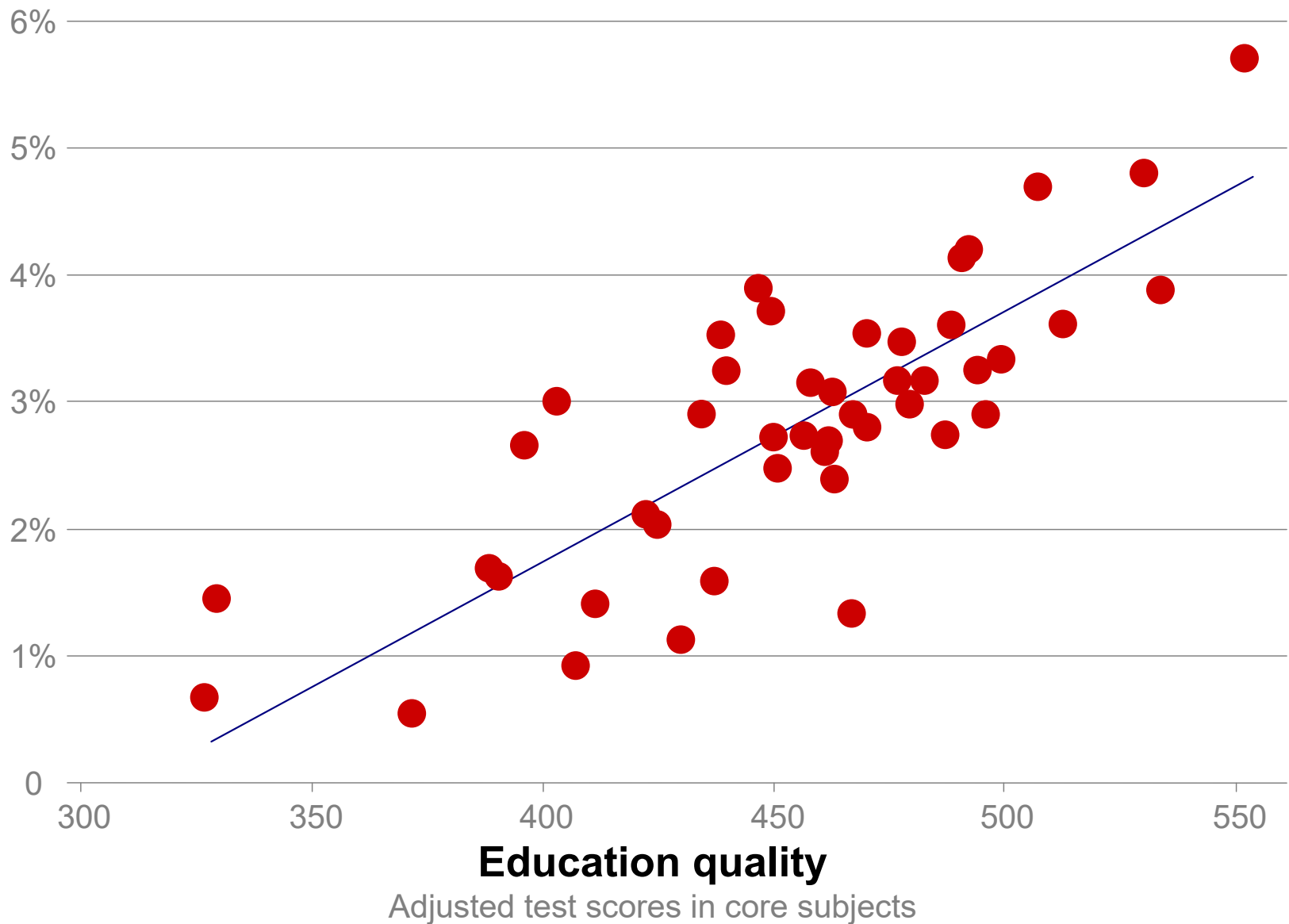


* Relationship between both variables after controlling for the impact of other influencing variables (such as average years of schooling and initial level of real per capita GDP in 1960) on each. This yields an association between the two variables that is not driven by the control variables. The regression residuals are added to the unconditional means of the variables on each axis.

Education and economic growth*

50 countries, 1960-2000

Economic Growth
Adjusted average growth rate of GDP per capita

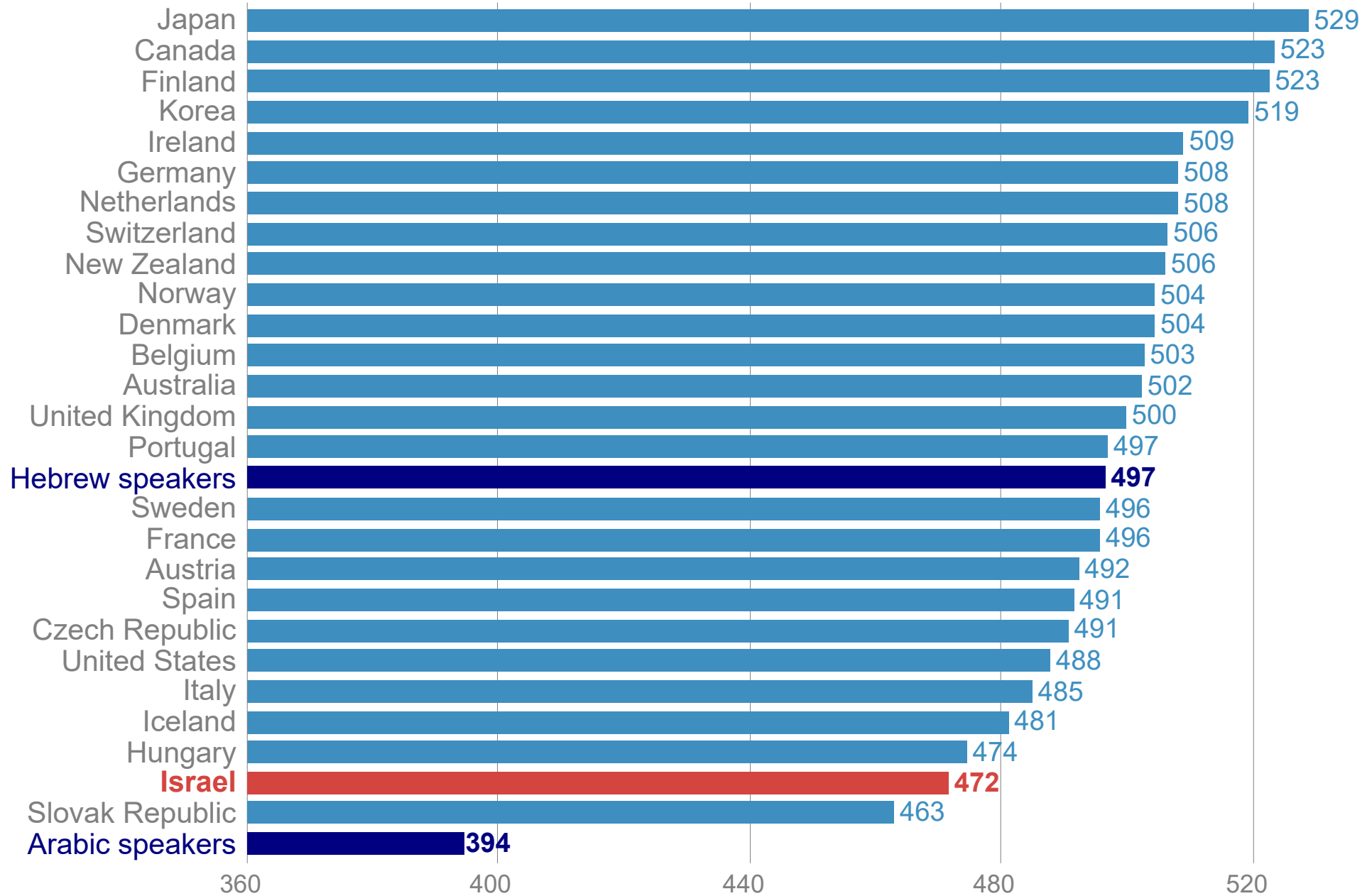


* Relationship between both variables after controlling for the impact of other influencing variables (such as average years of schooling and initial level of real per capita GDP in 1960) on each. This yields an association between the two variables that is not driven by the control variables. The regression residuals are added to the unconditional means of the variables on each axis.

Average level of education in developed world

Average achievement levels in 25 OECD countries and in Israel, PISA 2015 exams

Israel, not including ultra-orthodox Jews

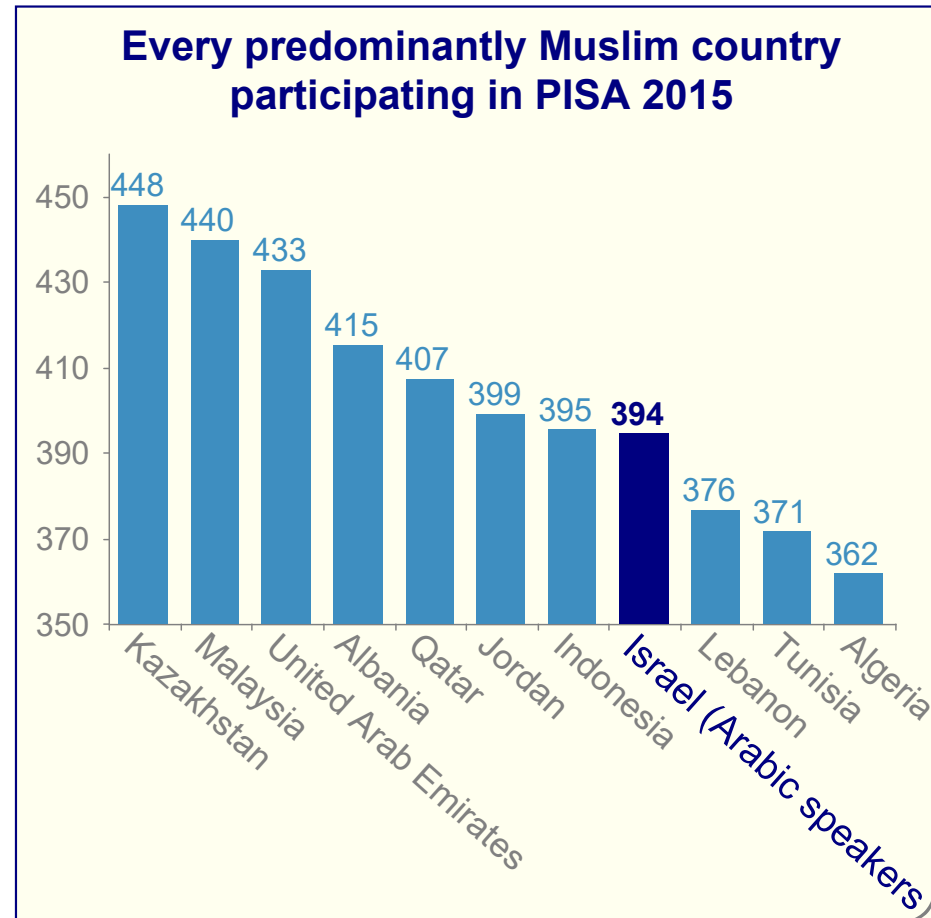


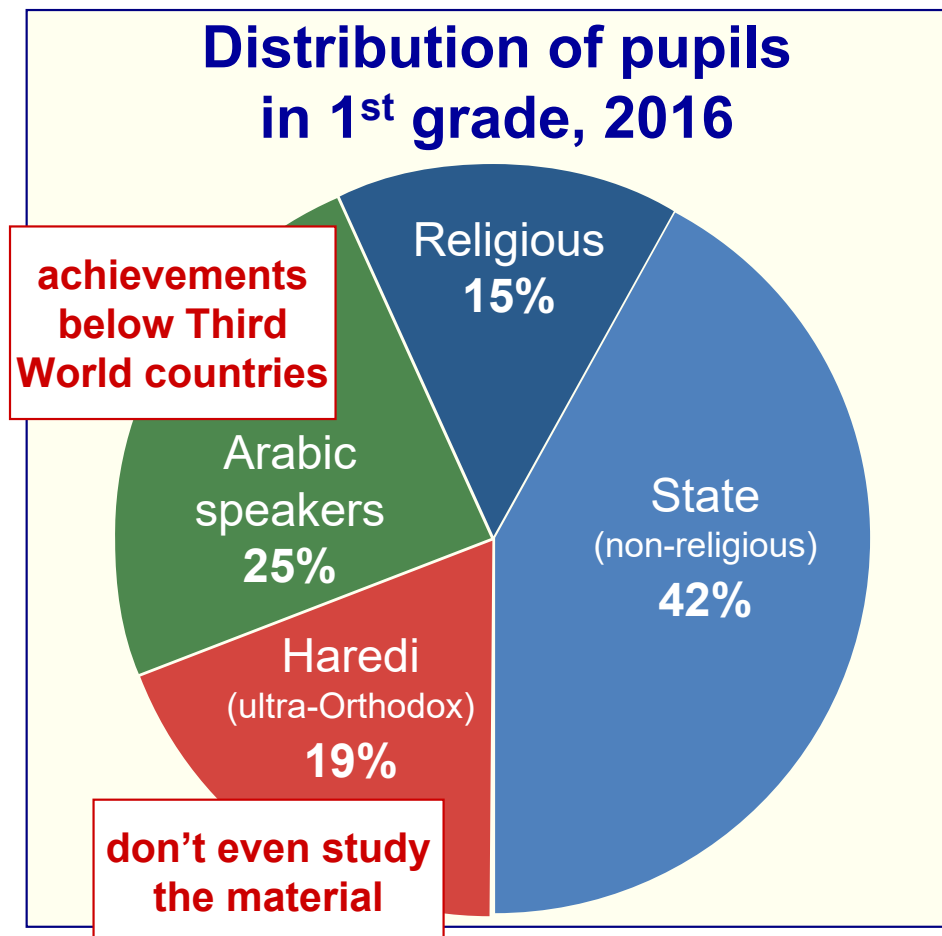
source: Dan Ben-David, Shores Institution and Tel-Aviv University
Data: PISA and Israel's National Authority for Educational Measurement and Evaluation

* national average in math, science and reading exams

Average level of education in developed world

Average achievement levels in 25 OECD countries and in Israel, PISA 2015 exams



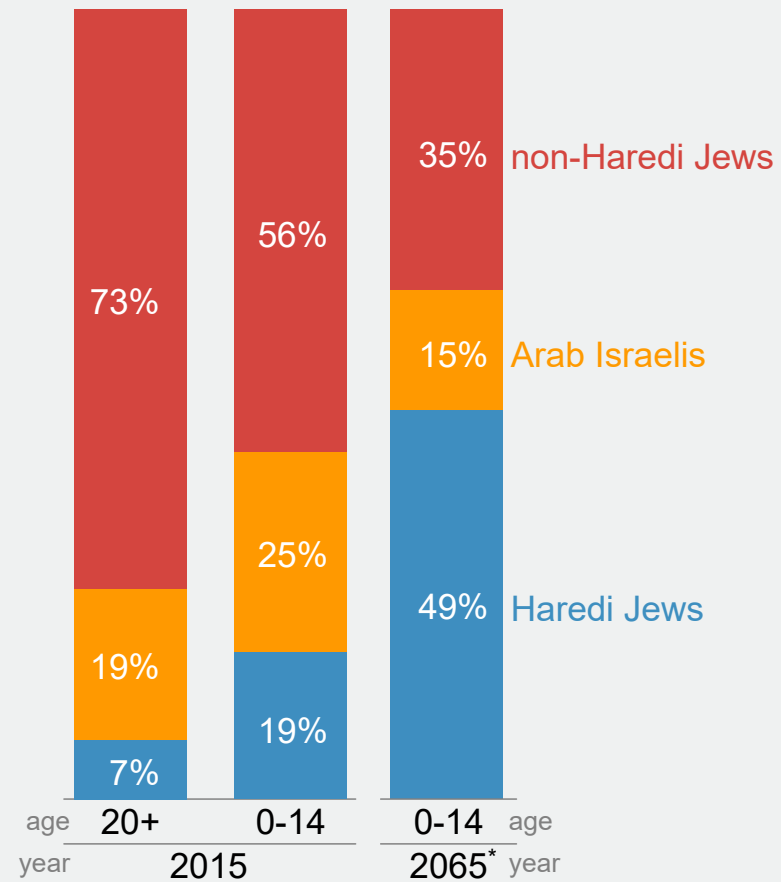


source: Dan Ben-David, Shores Institution and Tel-Aviv University

Data: Central Bureau of Statistics

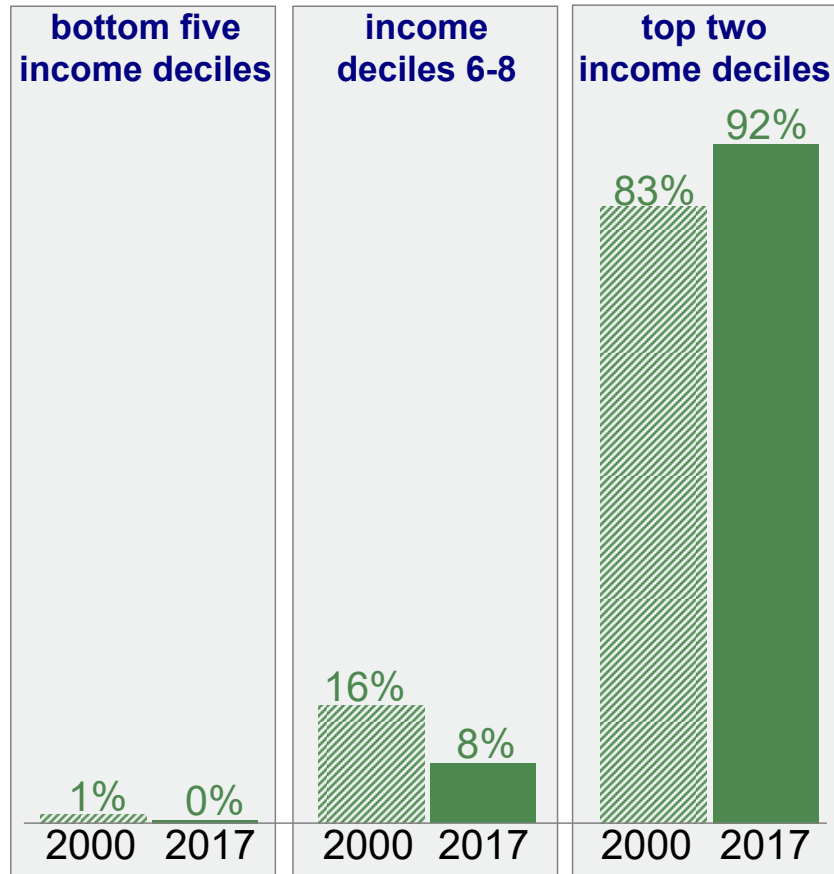
Israel's changing demographics

each religious sector as share of total



Source: Dan Ben-David, Shores Institution and Tel-Aviv University
Data: Central Bureau of Statistics

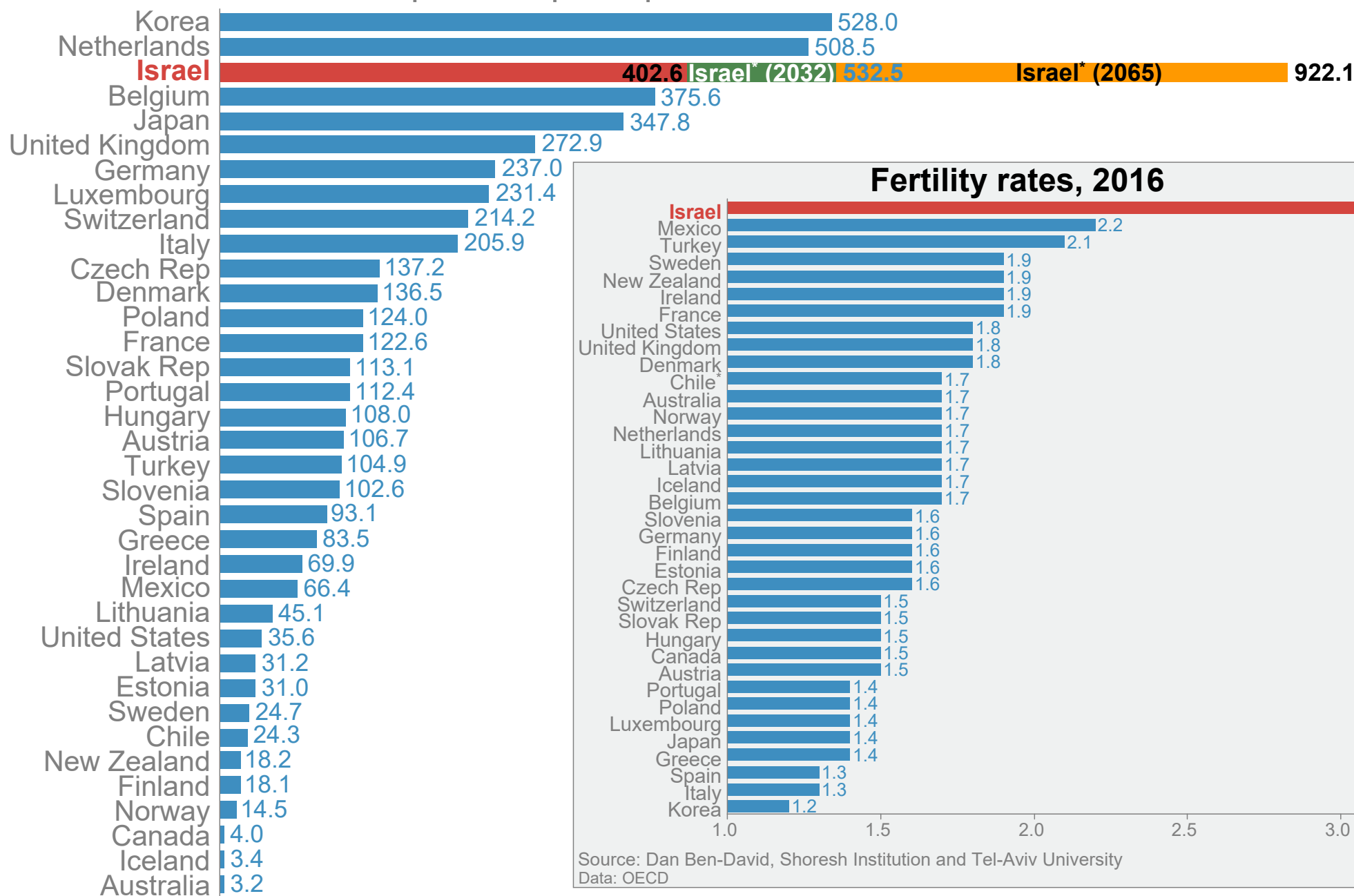
Share of total income tax revenue paid by income deciles



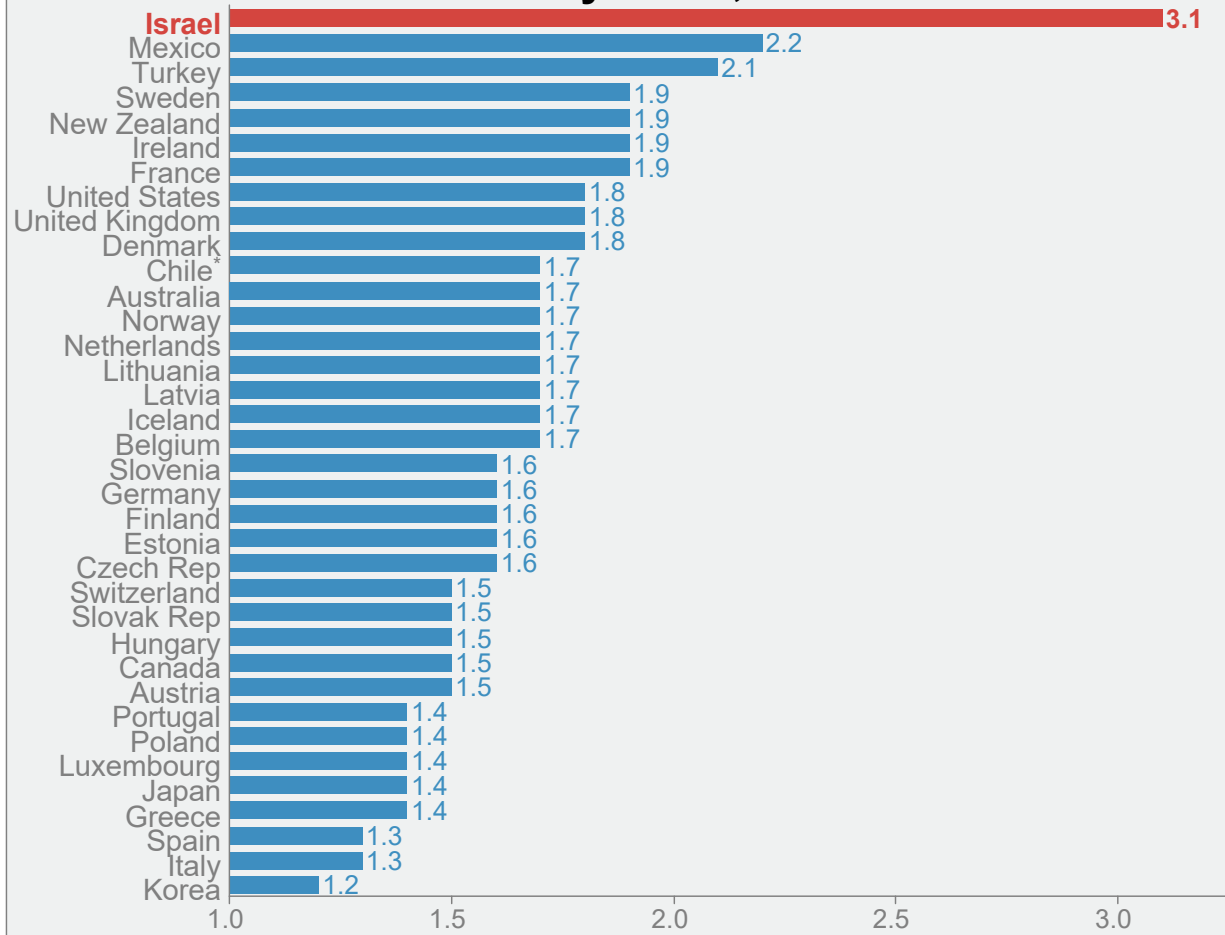
Source: Dan Ben-David, Shores Institution and Tel-Aviv University
Data: Finance Ministry

Population density

persons per square kilometer, 2017



Fertility rates, 2016



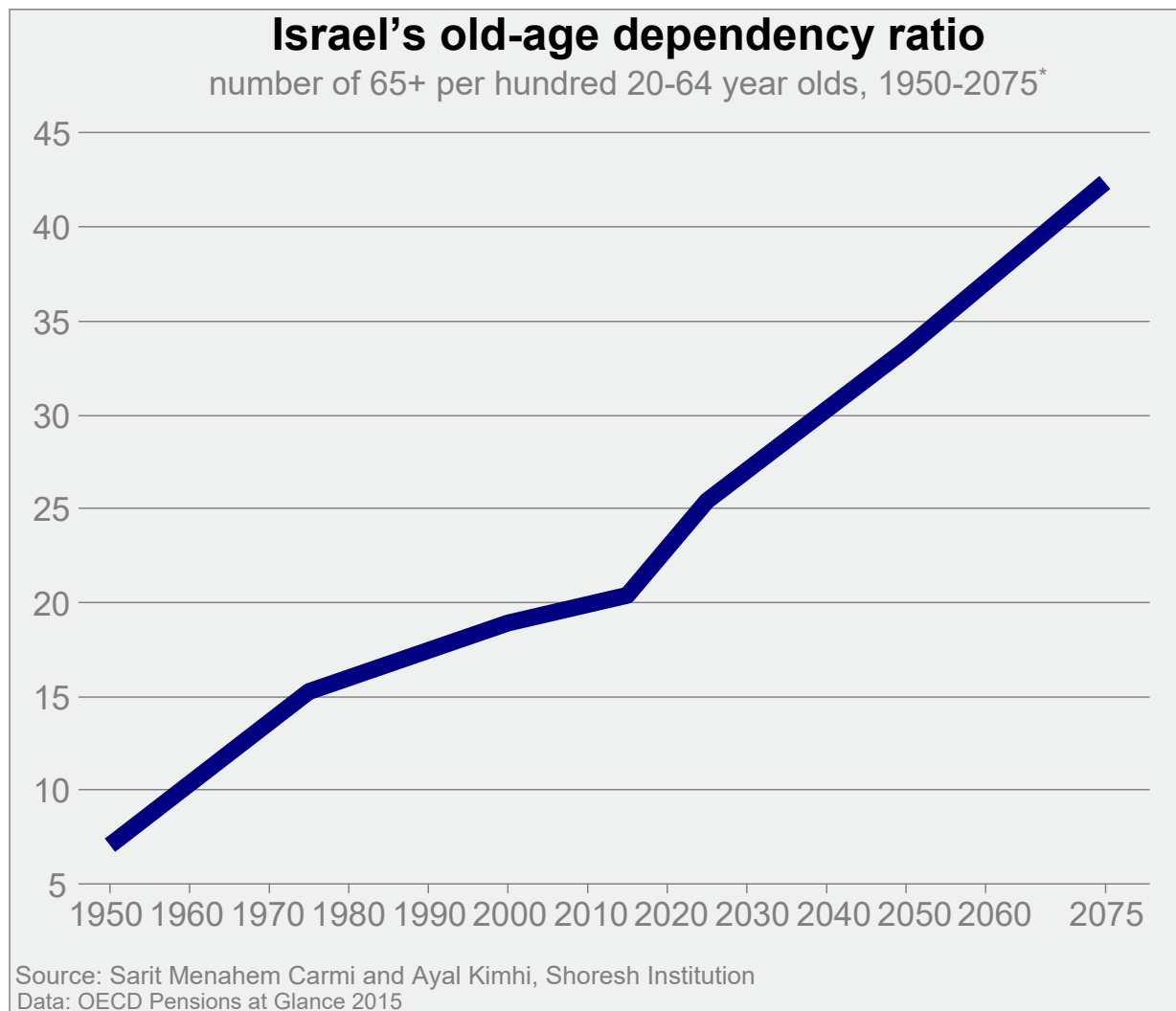
Source: Dan Ben-David, Shoreshe Institution and Tel-Aviv University
Data: OECD

* 2015

Source: Dan Ben-David, Shoreshe Institution and Tel-Aviv University

Data: World Bank and the Central Bureau of Statistics

* midpoint projection



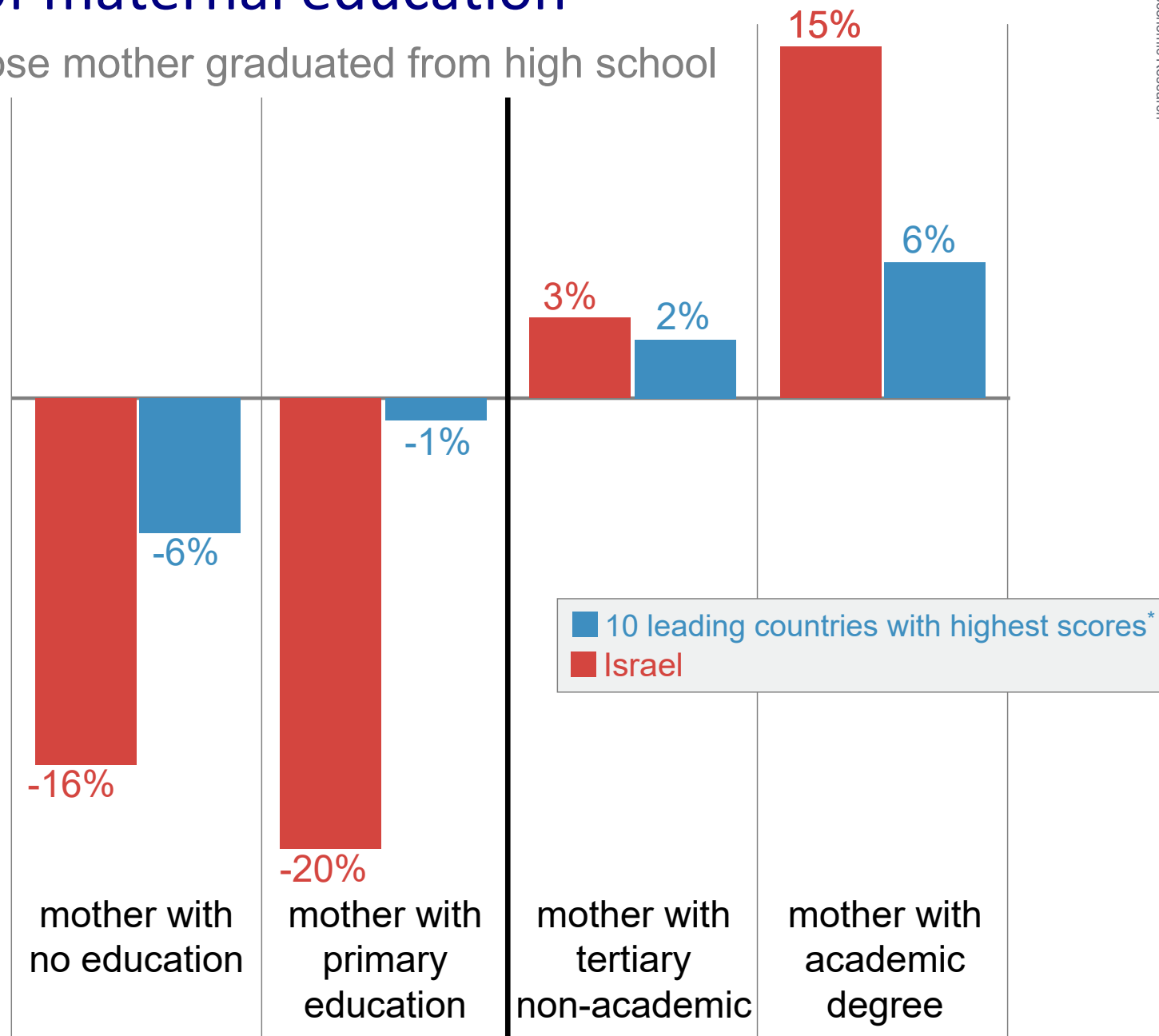
Core (*shoresh*) treatment for Israel's core socioeconomic challenges

- systemic reform of **education system**
- substantial reduction on Israel's **shadow economy** alongside significantly heightened **budget transparency**
- extensive upgrade of the **transportation infrastructure**
- comprehensive reform of **healthcare system**
- **vocational training** for adults alongside major reduction in **foreign workers**

On the mechanics of education in Israel

Achievement gaps between pupils on basis of maternal education

base group: pupils whose mother graduated from high school



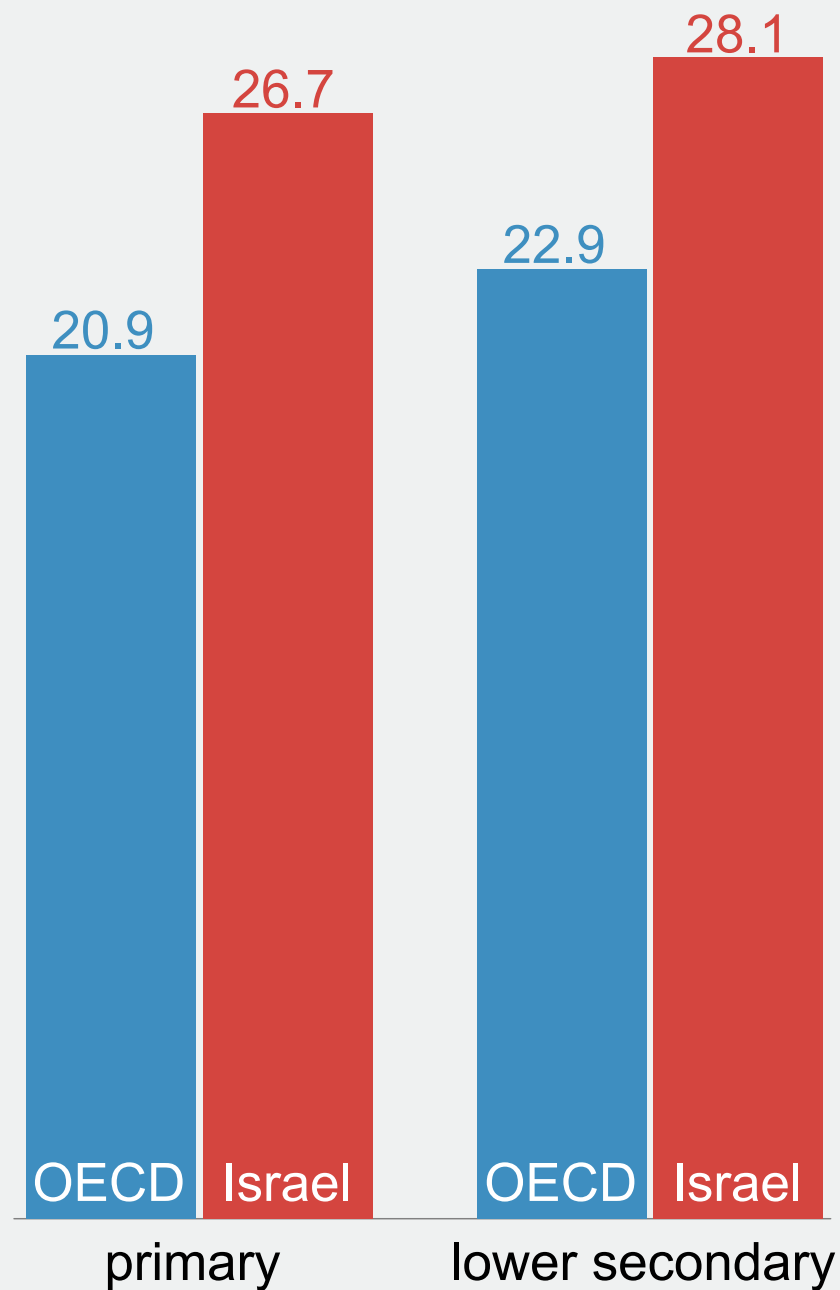
Source: Noam Gruber (Shoresh Institution research paper, 2017)

Data: PISA 2012

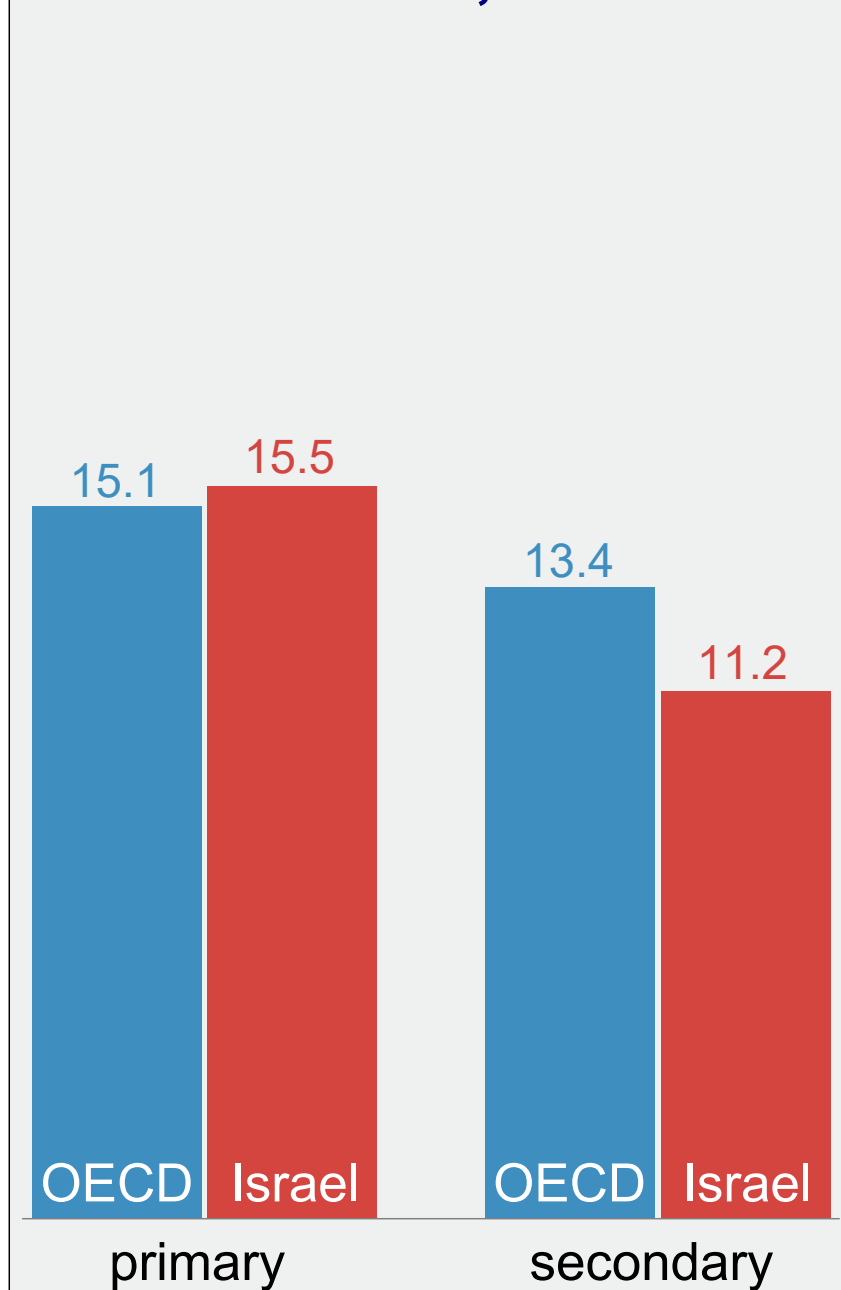
* Ten leading countries: Canada, Estonia, Finland, Hong Kong, Japan, Korea, Netherlands, Singapore, Switzerland, Taiwan

Average class size, 2014

(number of pupils per class)



Number of pupils per teacher*, 2014



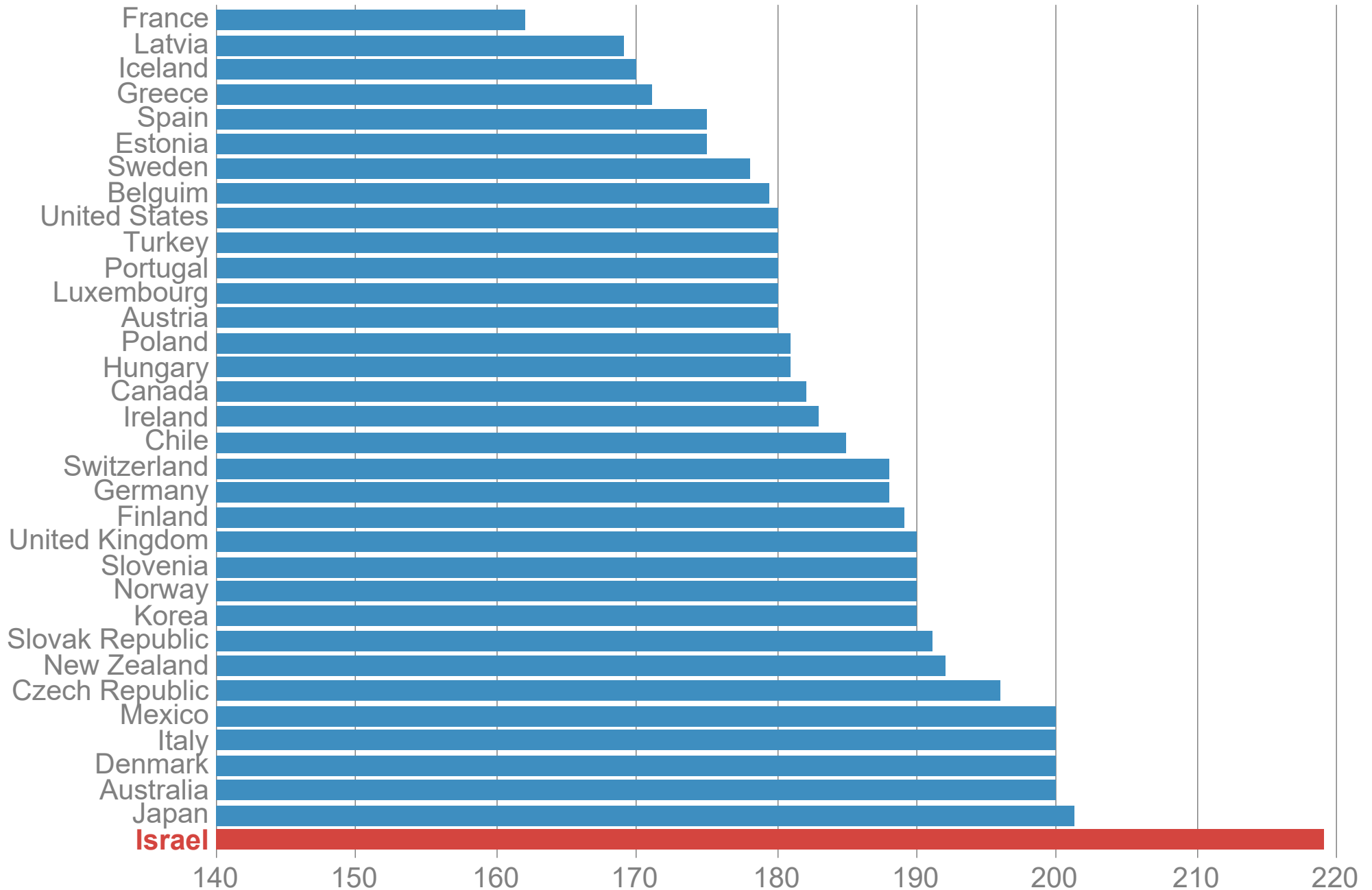
source: Dan Ben-David, *State of the Nation Report 2011-2012*, (updated)

data: OECD

* according to full-time equivalents

Average number of school days in year

Primary school, 34 OECD countries, 2016

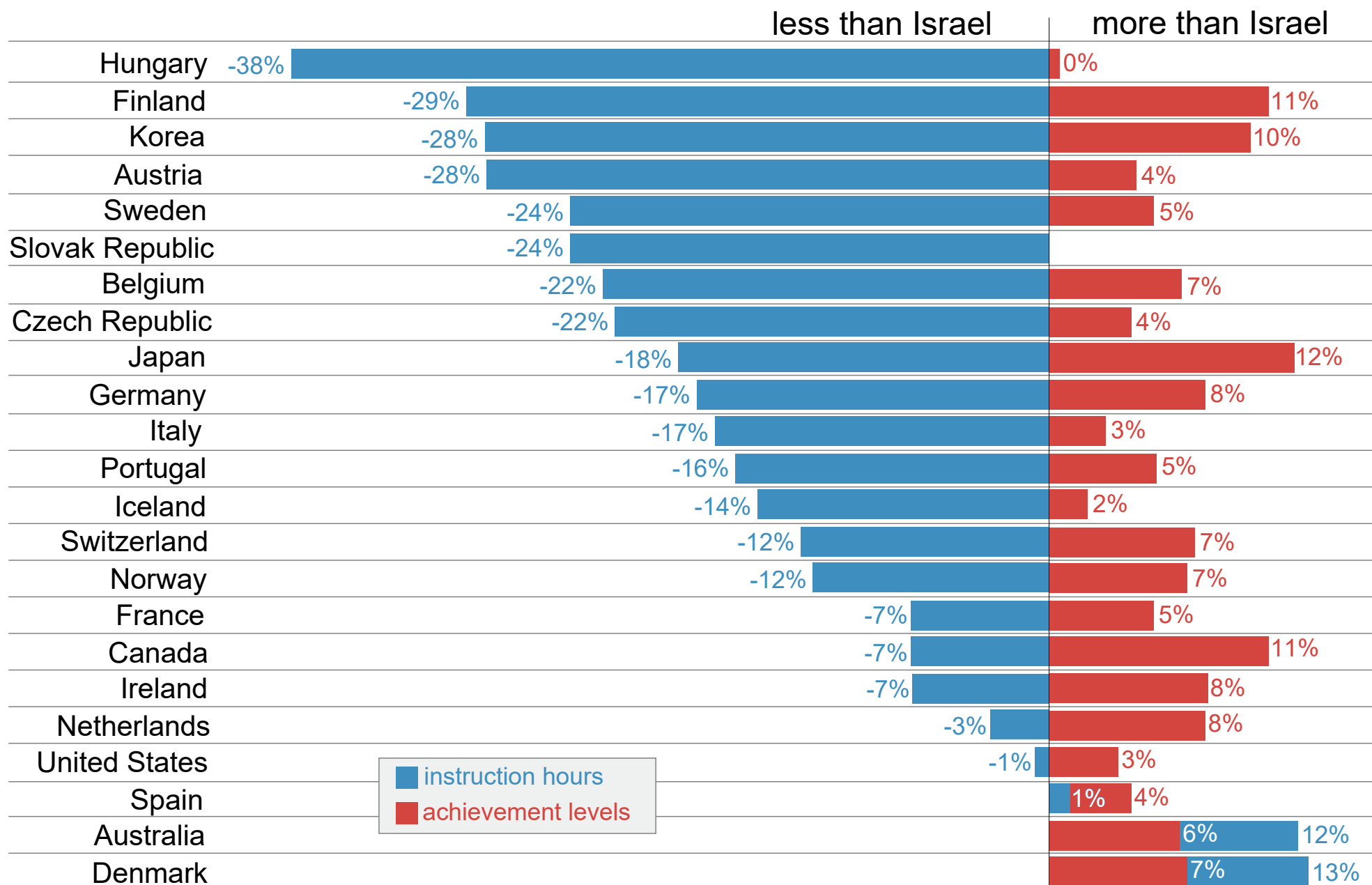


Source: Dan Ben-David, Shores Institution and Tel-Aviv University

Data: OECD

Instruction Hours and Achievement, 2015*

23 OECD countries relative to Israel

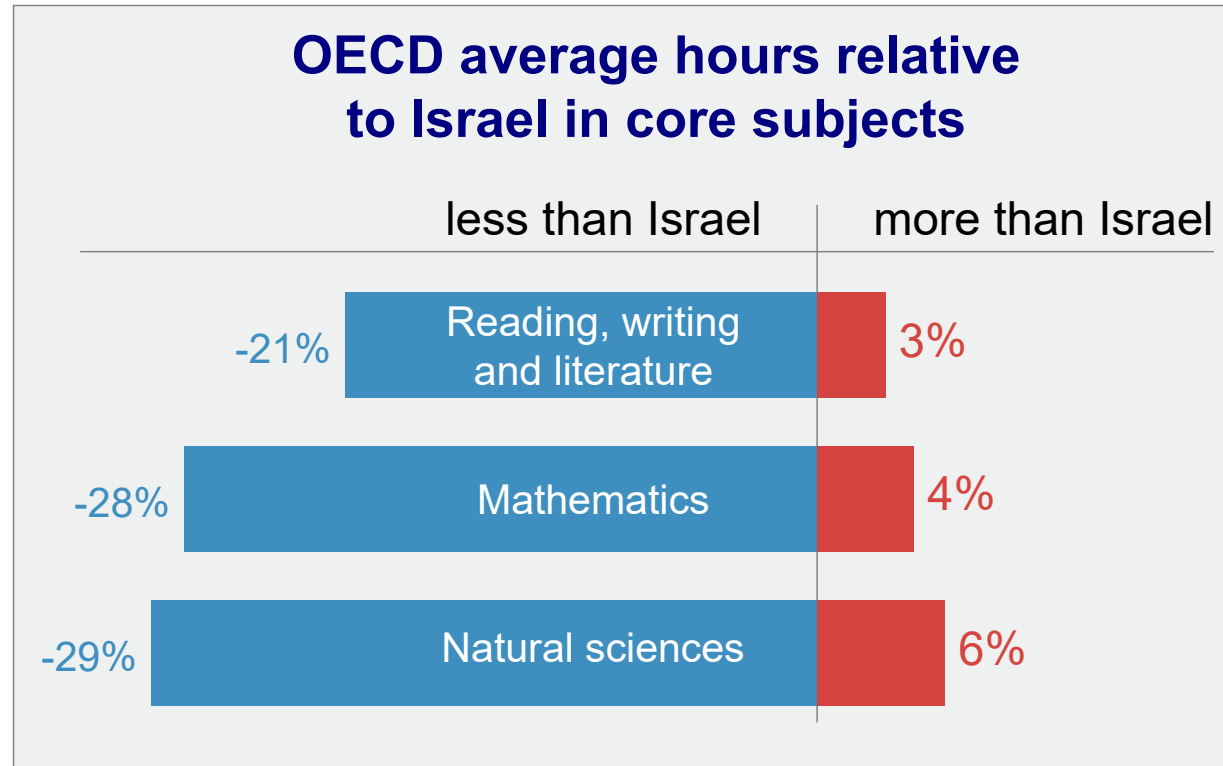


Source: Dan Ben-David, Shores Institution and Tel-Aviv University
Data: OECD

* Cumulative number of compulsory instruction hours in primary and lower secondary schools. and average achievement levels in math, science and reading in PISA 2015.

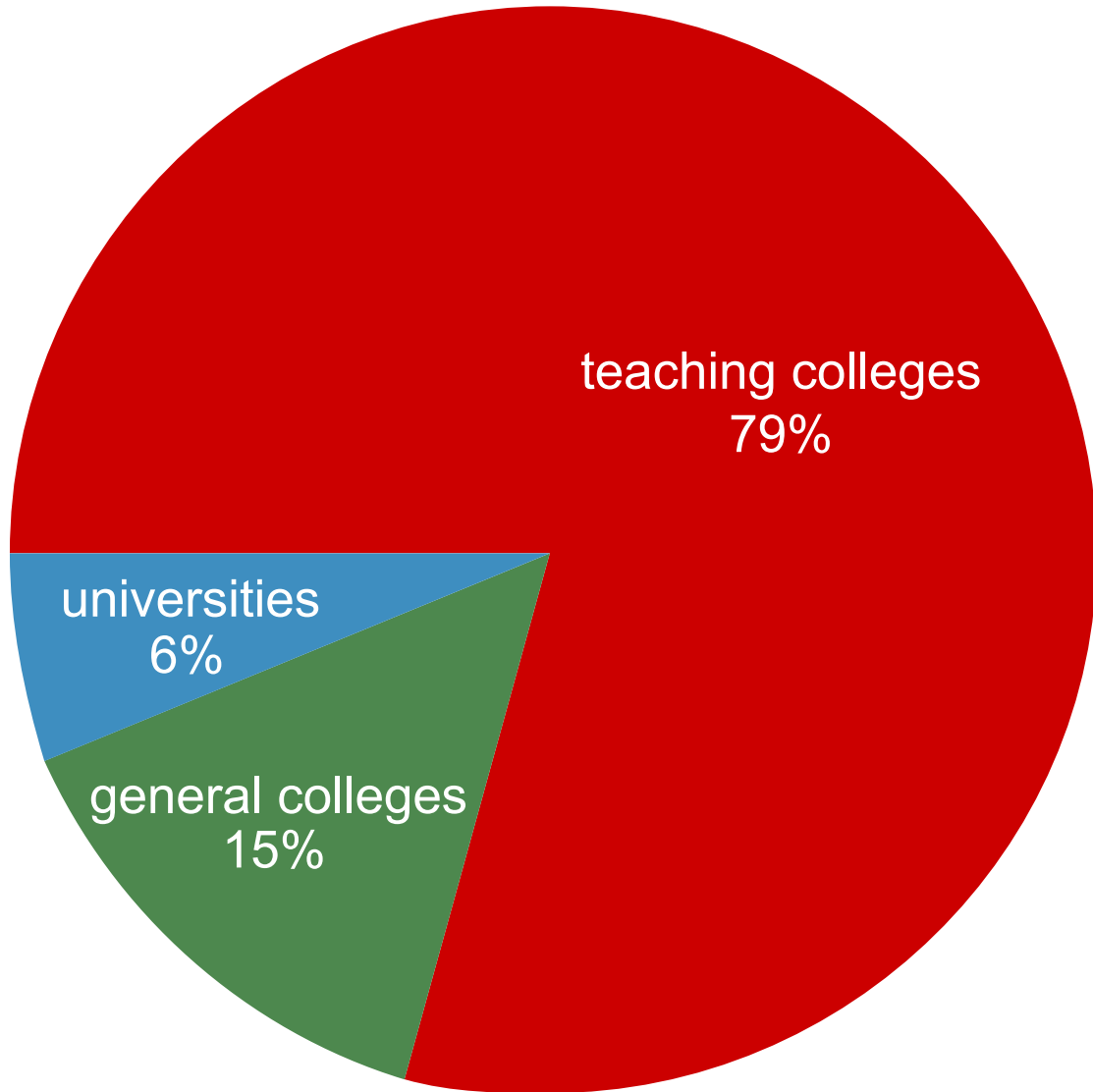
Instruction Hours and Achievement, 2015*

23 OECD countries relative to Israel



Distribution of education students

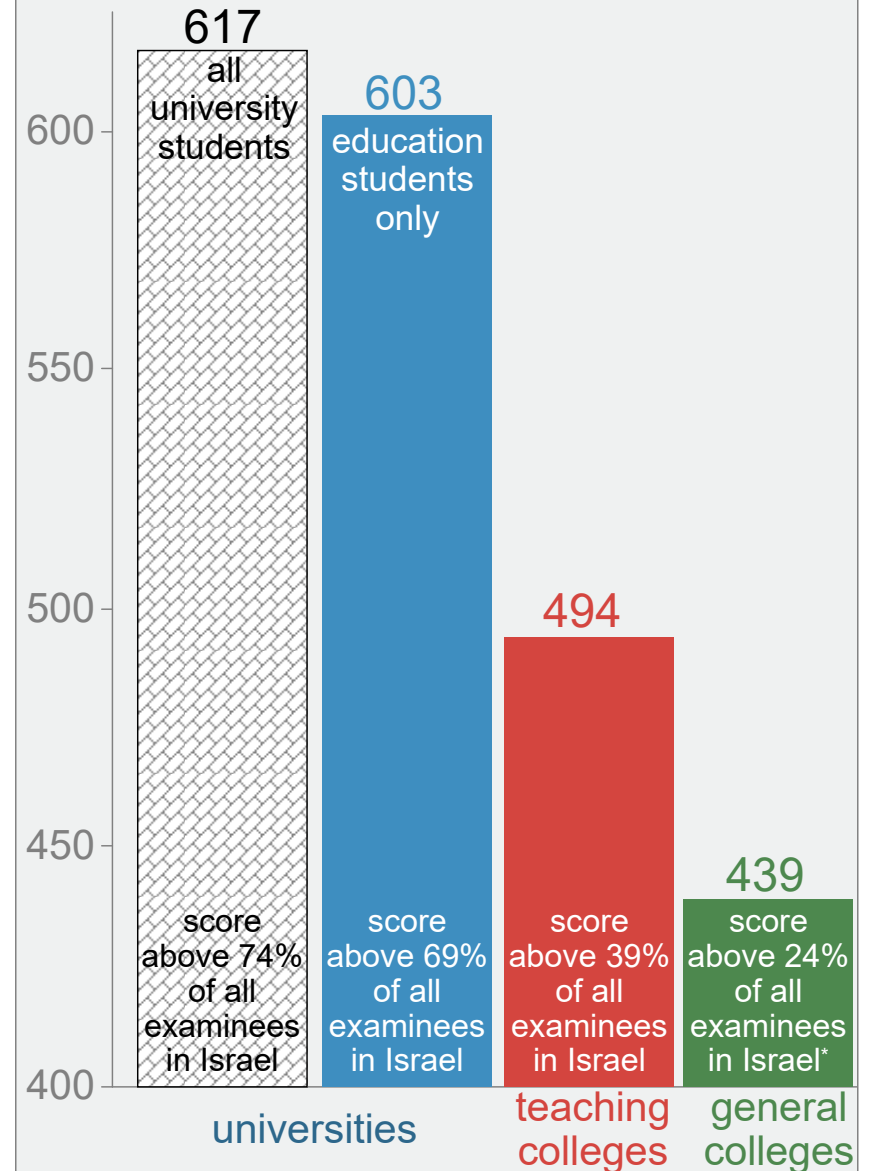
by type of institution, first year undergraduate students, 2014-2015



Source: Dan Ben-David, Shores Institute and Tel-Aviv University
 Data: Central Bureau of Statistics

Average psychometric score

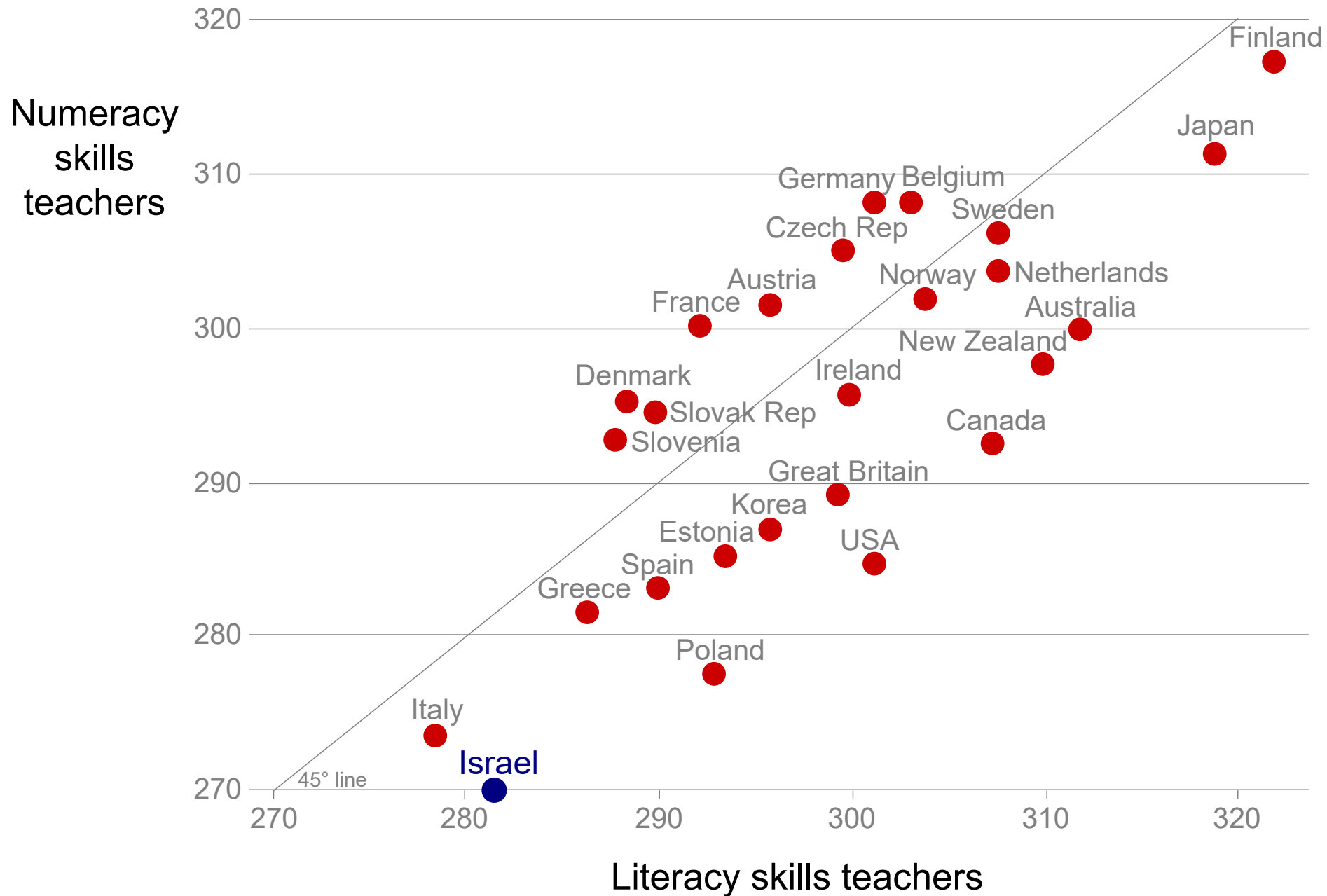
by type of institution, all first year education students, 2014-2015



* The average psychometric score of all 1st year students in the general colleges was 529 (above 48% of all examinees in Israel).

Skill levels of teachers in OECD

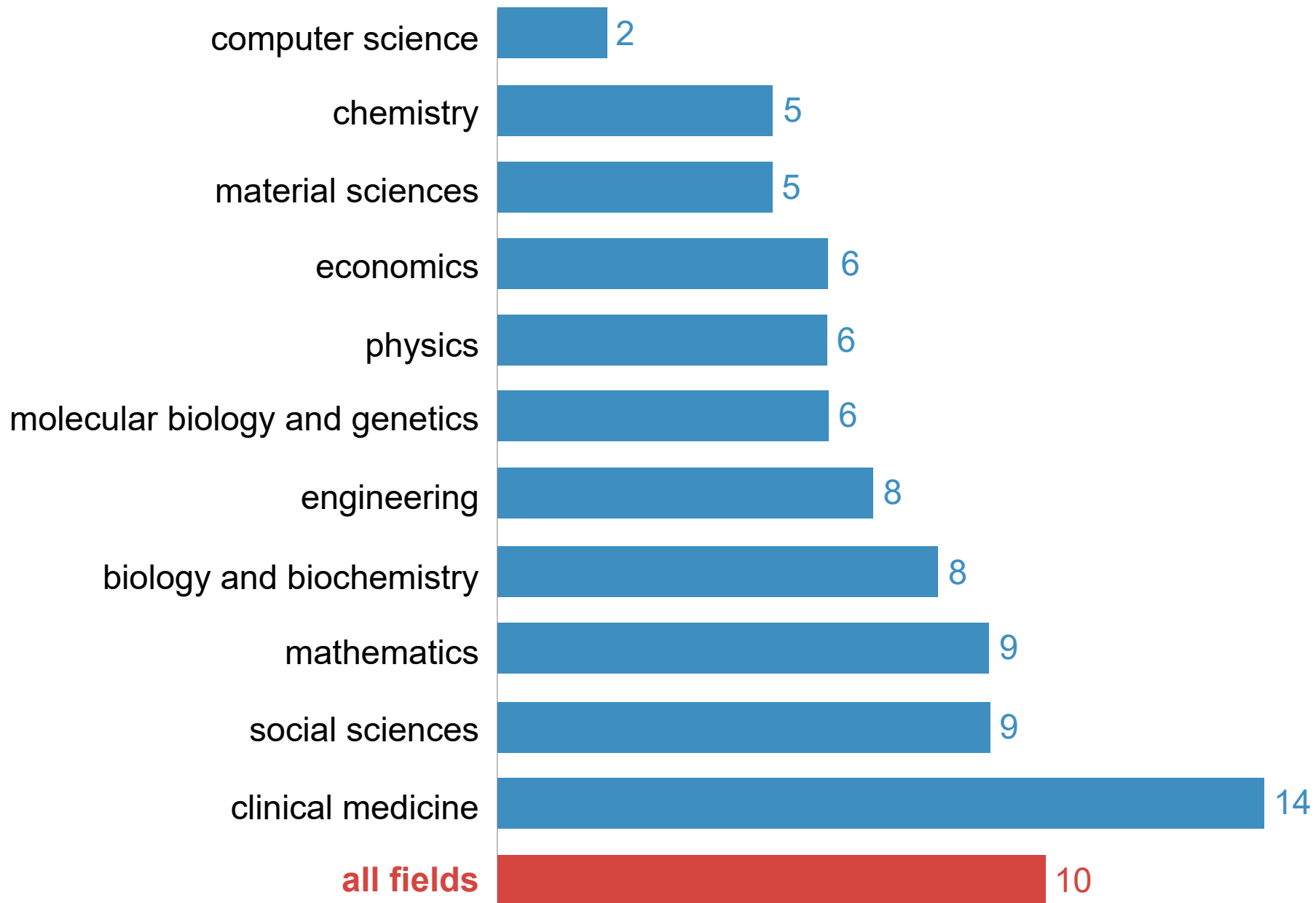
Median achievement scores of teachers in PIAAC 2011/2012 and 2014/2015*



The opportunity

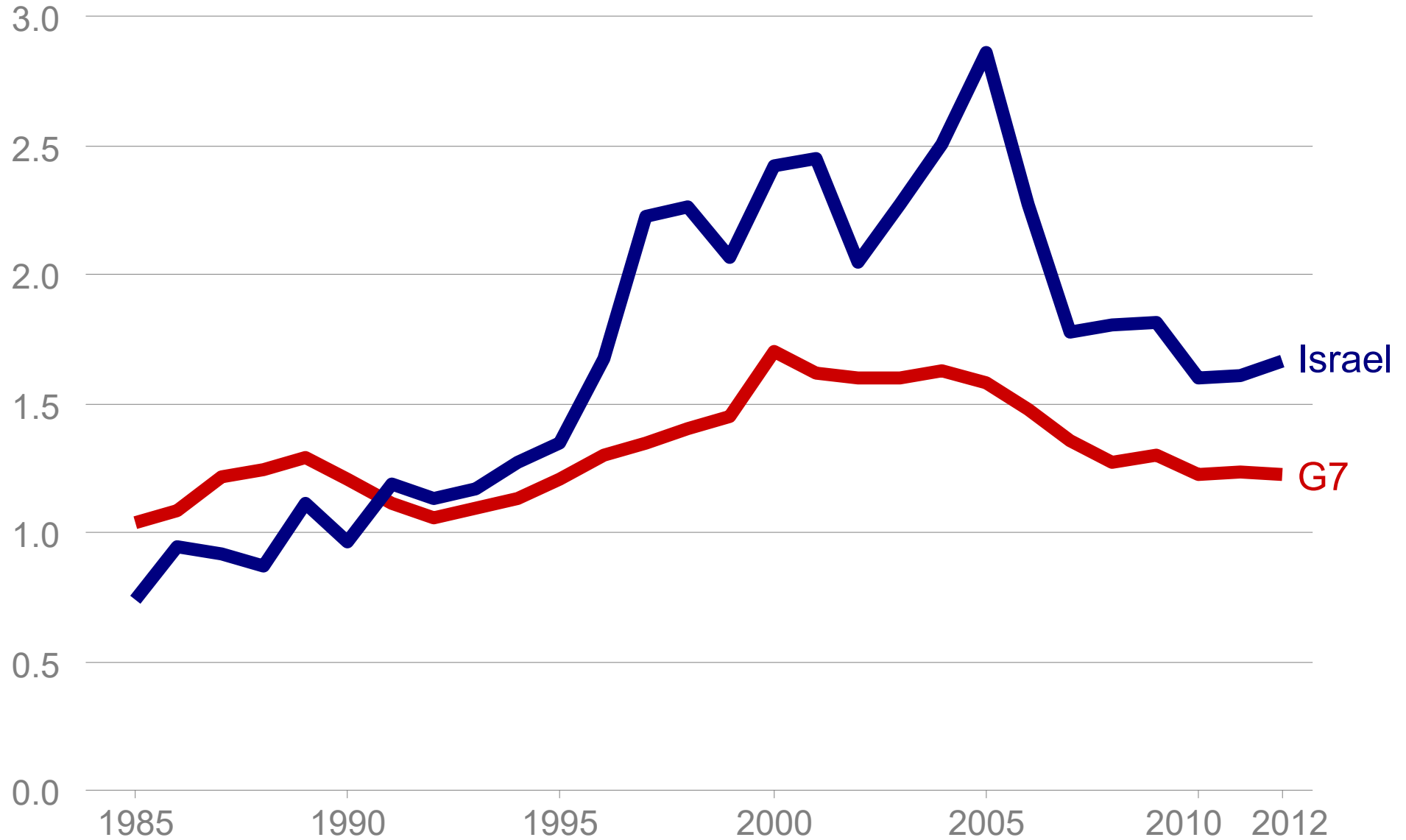
Israel's academic ranking in the world

according to academic citations by article, by selected fields, 2003-2013



Patents by Israel and G7

Patents filed in all three parts of the triad*: USA, European Union and Japan
per 1 billion dollars GDP**, 1985-2012



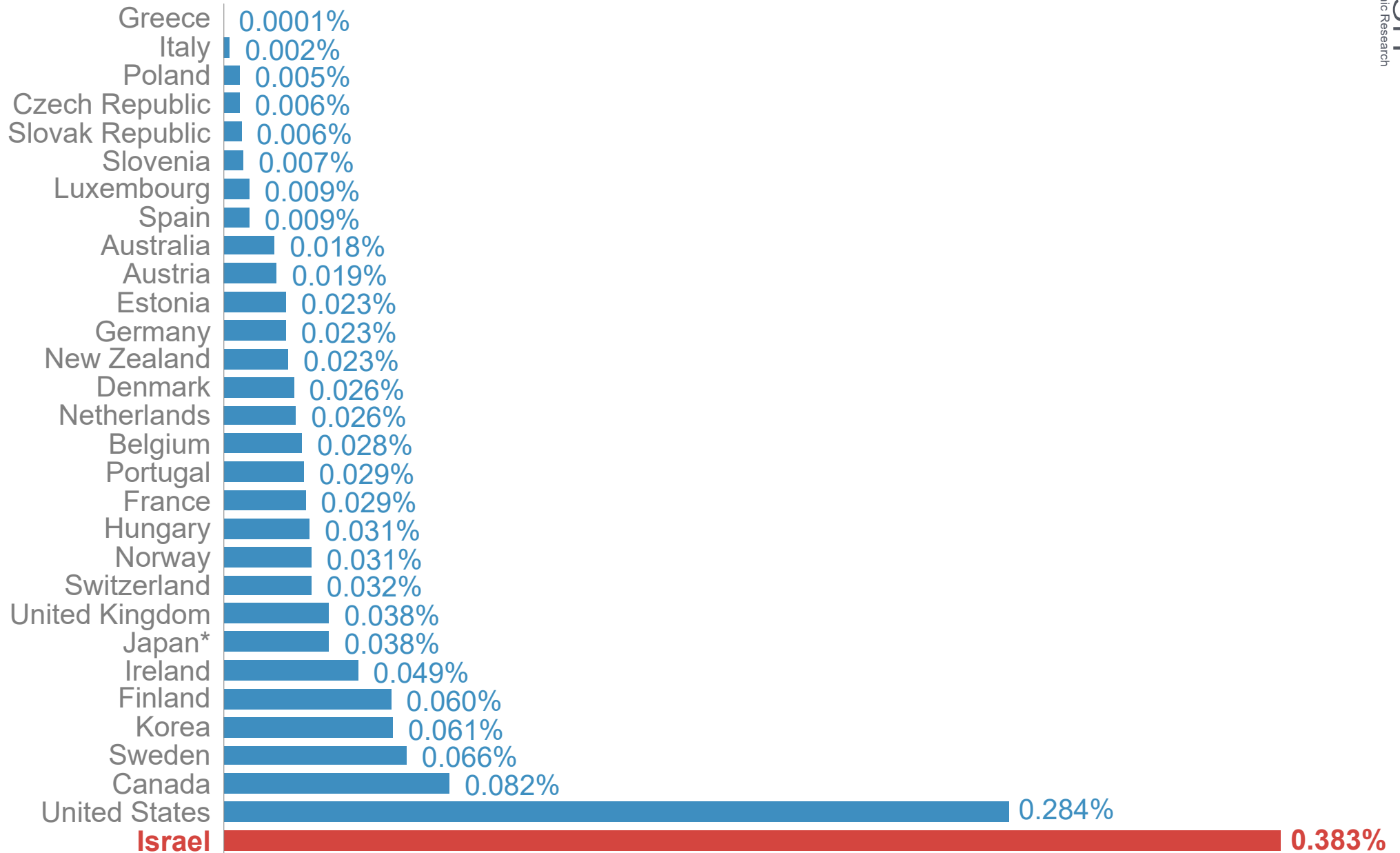
Source: Dan Ben-David and Ira Yaari, Shores Institution
Data: OECD

* patents filed in all three constitute
20%-30% of all Israeli patents

** constant 2010 international dollars

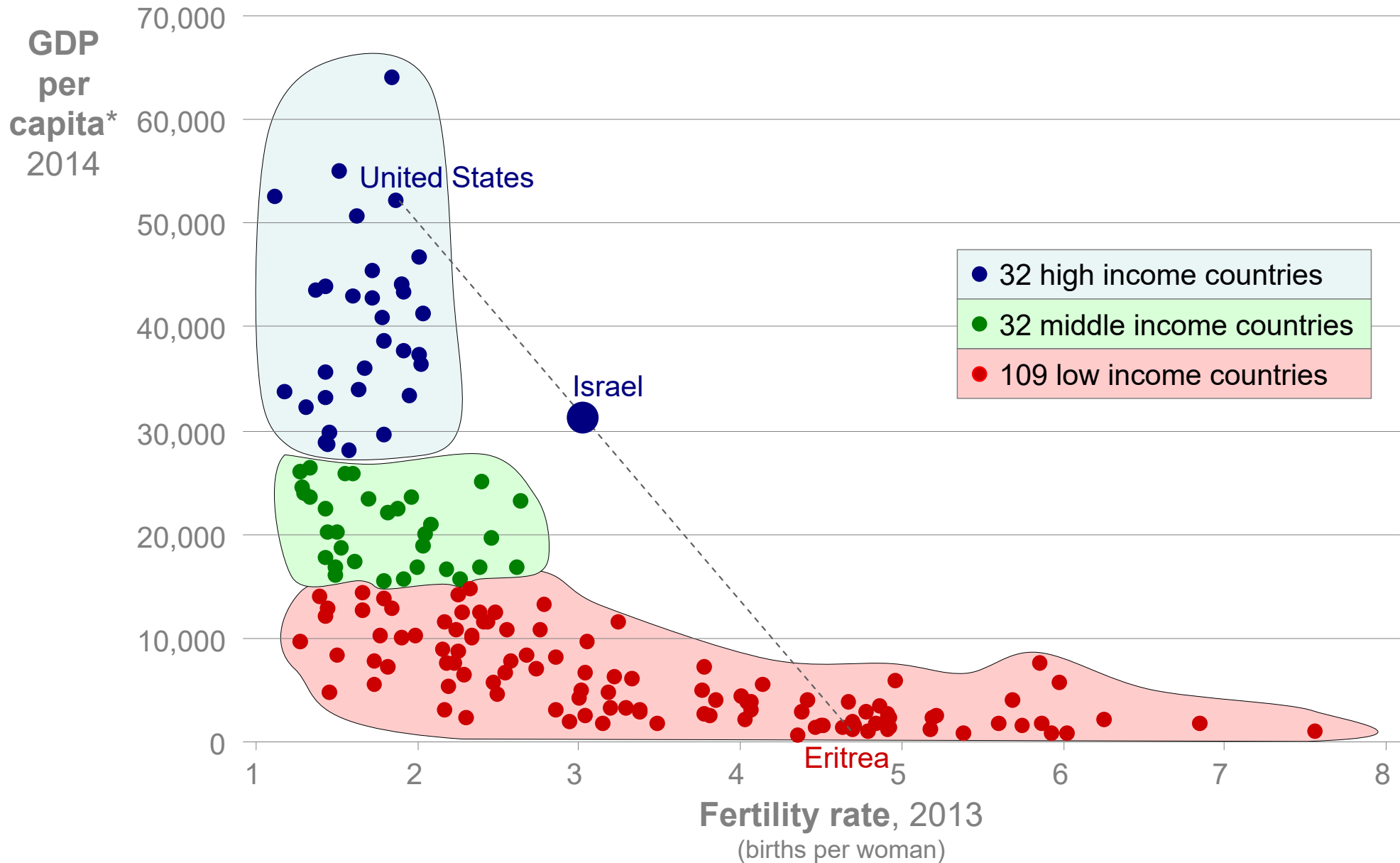
Venture Capital Investments, 2014

29 OECD countries, as percent of GDP



National living standards and family size

173 countries



Source: Dan Ben-David and Sagit Azary-Viesel, Shores Institution and Tel-Aviv University
updated graph of Benny Landa and Shmuel Even (2007)

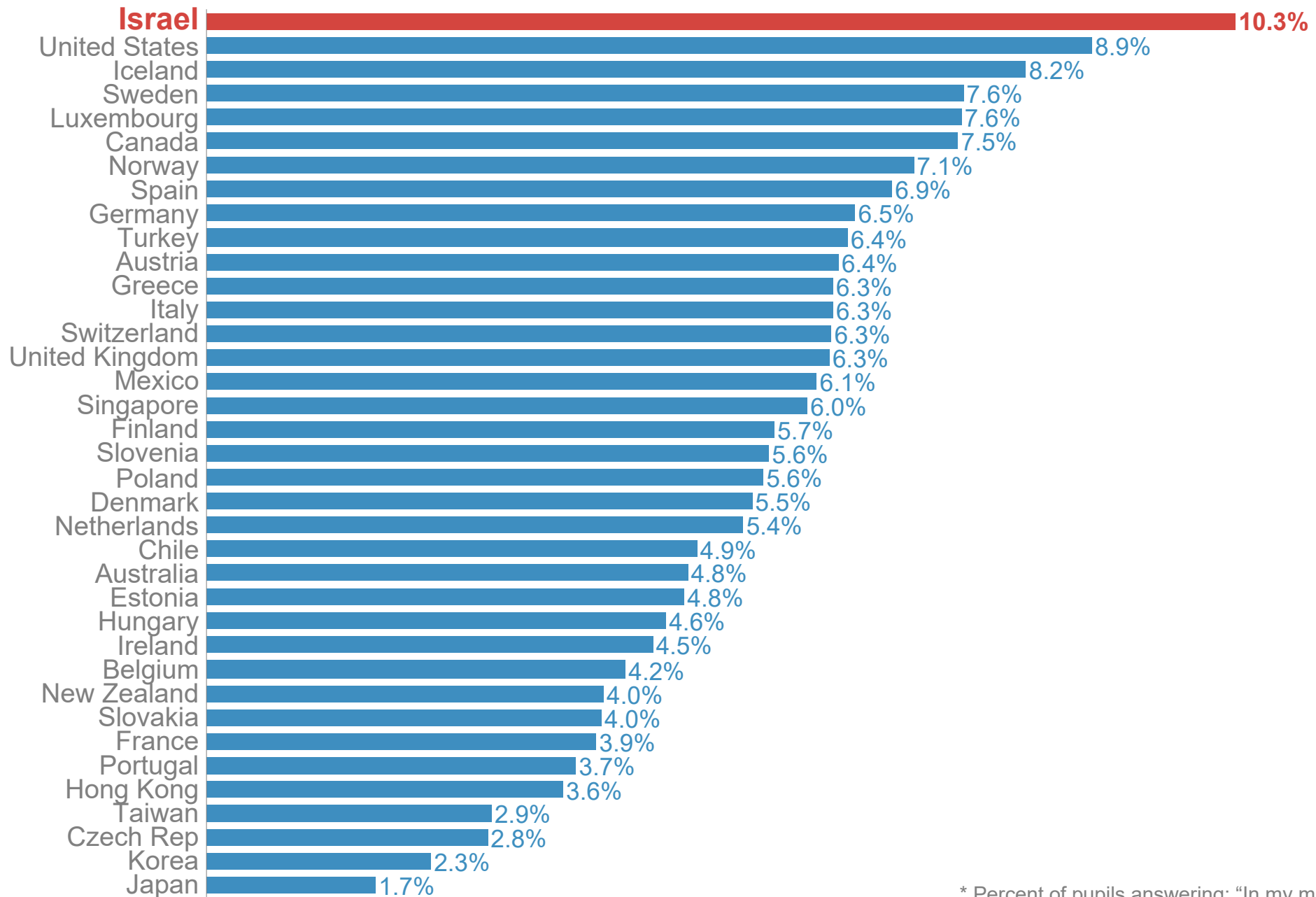
Data: World Bank

* excluding countries that are primarily oil-exporters and city-states,

** in 2011 PPP dollars.

Confidence in learning mathematics

share of pupils with high self-confidence*, 2012



Source: Dan Ben-David, Shores Institution and Tel-Aviv University
Data from OECD PISA

* Percent of pupils answering: "In my mathematics class, I understand even the most difficult work."
Comparison includes 37 countries (OECD plus Singapore, Hong Kong and Taiwan).

SHŌR'ĚSH נשורש

n. root, source, basis, primary

Dan Ben-David

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