

Surfing the Tsunami: Demography and Education in Israel

by
Dan Ben-David

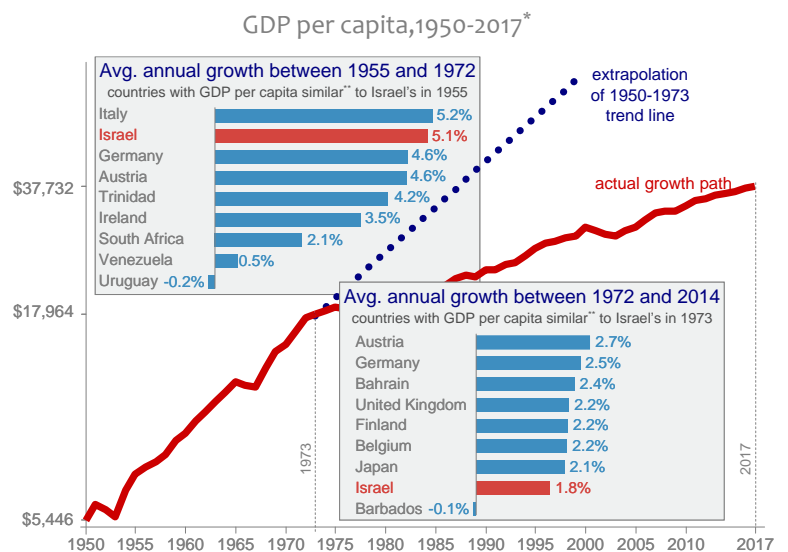
A key underlying tenet of the Jewish people's DNA can be captured in a paraphrase of James Carville's famous maxim: "It's the education, stupid."

The written word has held our people together for thousands of years. The knowledge that we accumulated and passed from generation to generation has not only kept us alive; it has also enabled us to thrive and provided a beacon for the rest of mankind.

When parts of this people came together to reestablish the Jewish home after two thousand years, their emphasis on education was vital in spurring the new country's extraordinary 25 year growth sprint. Though inundated by immigrants with only the clothes on their backs, years with food rationing, and wars of existence, Israel did not lose its focus. By the early 1970s, the country was home to seven major research universities.

And then it happened. The 1973 Yom Kippur War was followed by a subsequent national pivot, with historic consequences (Figure 1). Contrary to popular belief and political excuses, what followed had nothing to do with Israel's neighbors, and everything to do with a domestic upending of Israel's national priorities. We chose the easy populist path. Sectoral and personal interests replaced national ones, placing Israel on an unsustainable long-run

Figure 1
Israel's economic growth path



* 2015 prices, logarithmic scale.

** Four countries immediately above and four countries immediately below Israel.

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

Data: Central Bureau of Statistics and Penn World Tables

trajectory. Changing course will require a moonshot-like effort that Israel's current government may be uniquely capable of accomplishing.

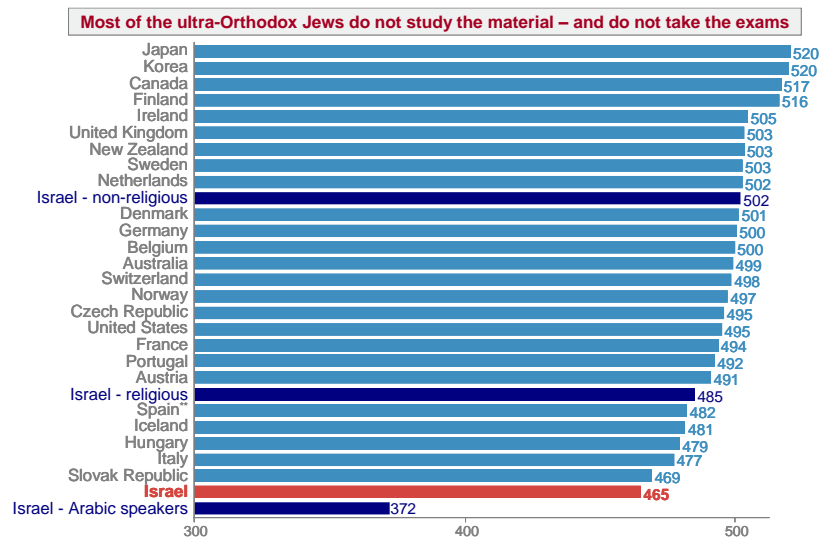
During the nearly half a century since that war, that populist veil of perception over substance has become a direct threat to Israel's future. Today, Israel is ranked third-worldwide in the average number of school years per person and fourth in the share of people with an academic education.

Sounds impressive. But the quality of Israeli education in core subjects is at the bottom of the developed world's in the most recent OECD PISA exam (Figure 2), which measures 15-year-olds' ability to "use their reading, mathematics, and science knowledge and skills to meet real-life challenges." Not coincidentally, the high-tech sector is starved for qualified personnel, even though there is an ostensibly sufficient supply of such graduates on paper.

Rampant neglect of Israel's physical and human capital infrastructures now places Israel's output per hour below that of most developed countries. The country's labor productivity (the common term for output per hour worked), which had been rapidly catching up with that of the developed world leaders until the early 1970s, then shifted to a new, much slower, long-run trajectory. Israel has been steadily falling further and further behind the leaders, with the gap between average gross domestic product per hour worked in the Group of Seven (G7) countries and in Israel rising more than threefold since the mid-seventies (Figure 3).

Figure 2
Average level of education in developed world

Average achievement levels in 25 OECD countries
and in Israel, PISA 2018 exams*



* National average in math, science and reading exams.

** Spain participated only in math and science exams.

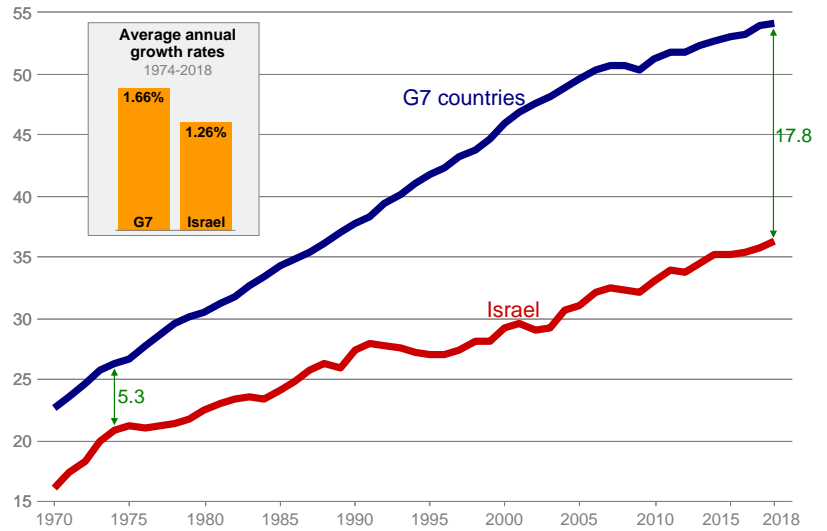
Source: Dan Ben-David, Shores Institution and Tel Aviv University

Data: PISA and Israel's National Authority for Educational Measurement and Evaluation

The country that built research universities where there were none lost its way. While the existing universities provided Israel with the ability to subsequently become the “Start-up Nation” during the high-tech boom washing over the world, the rest of Israel was left perilously behind. The number of research university faculty per capita, which had risen exponentially until 1973, has since fallen by over 50 percent (Figure 4). Roughly half the children of Israel receive what amounts to a third-world education, with the vast majority of them belonging to Israel’s fastest growing population groups – all of which underlies the unsustainable long term trajectory that Israel is now situated on.

In 2020, 22 percent of the first graders were Arab-Israelis. This group’s most recent international test scores in math, science and reading (PISA 2018) were

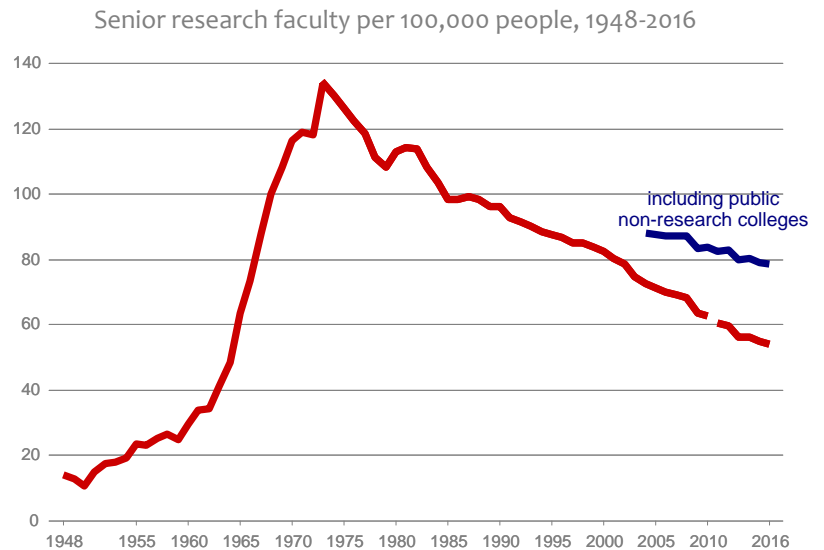
Figure 3
Labor Productivity, 1970-2018
GDP per hour worked*



* In 2010 PPP-adjusted dollars.

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

Figure 4
Senior research faculty in universities*



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

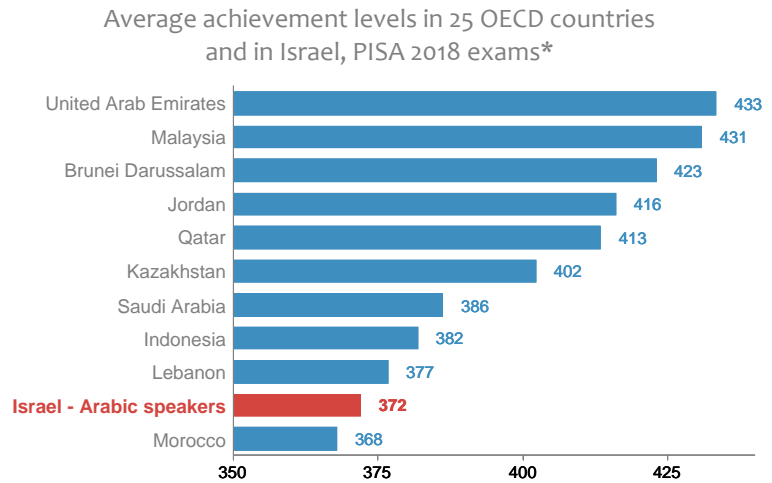
Source: Dan Ben-David, Shores Institution and Tel Aviv University
Data: Central Bureau of Statistics and the Council for Higher Education

not just low: Arab-Israelis scored below nine of the 10 predominantly Muslim countries that participated in the exam (Figure 5).

Twenty-one percent of Israel's first graders are haredim (ultra-Orthodox Jews), the vast majority of whom grow up without even studying the material and do not participate in the PISA exams. If they did, it would only exacerbate the already abysmal Israeli national outcomes. The share of Haredim in Israel's population has roughly doubled from one generation to the next (Figure 6): 1.5 percent in ages 95+, 3.3 percent in ages 75-79, 5.9 percent in ages 50-54, 13.8 percent in ages 25-29 and 23.7 percent in ages 0-4. The Central Bureau of Statistics estimates that by 2065, half of Israel's children ages 0-14 will be Haredi (Figure 7).

In addition to the Arab-Israeli and Haredi children, who alone constitute nearly half of Israel's first graders today, there are scores of additional

Figure 5
Average level of education in developed world



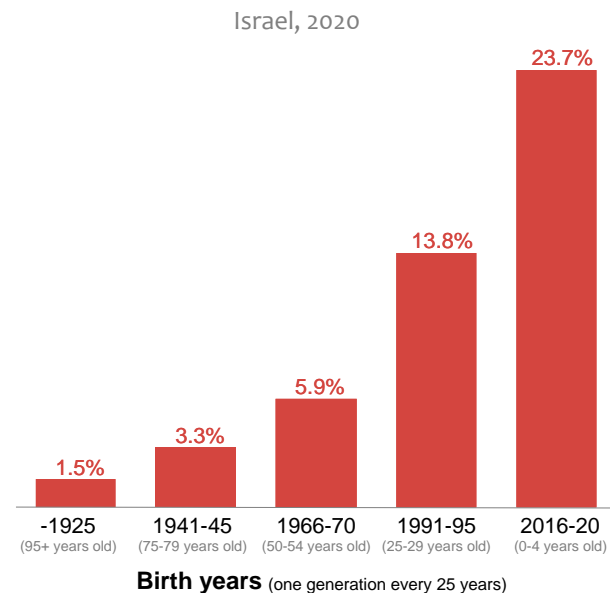
* National average in math, science and reading exams.

** Spain participated only in math and science exams.

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

Data: PISA and Israel's National Authority for Educational Measurement and Evaluation

Figure 6
Share of Haredim in each generation



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

Data: Israel Democracy Institute (2020)

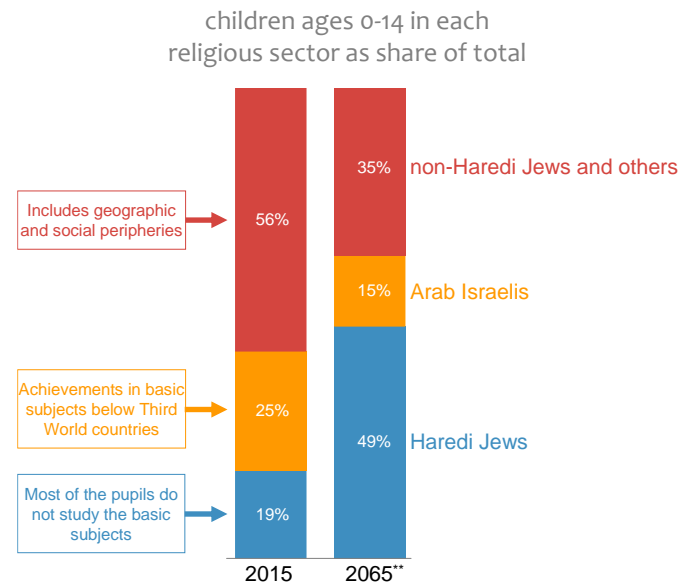
non-Haredi Jewish children receiving third-world levels of education in the country's many geographic and social peripheries.

These factors have a corrosive impact on domestic politics. They are making relations with other liberal societies increasingly dicey. They are widening the chasm between the Jewish state and much of the Jewish people abroad. And that's just the tip of the iceberg. When an increasing number of Israelis receive a third-world education as children, they will be able to maintain only a third-world economy as adults. This cannot support the first-world abilities needed to physically defend Israel in the world's most dangerous region.

Israel faces a demographic-democratic point of no-return, after which laws and systemic reforms already extremely difficult to pass and implement will cease to remain political options in future Knessets and governments. While education is not a sufficient condition for safeguarding Israel's future, it is certainly a necessary condition. If this issue is not addressed comprehensively nationwide – and very soon – then an Israel that will be unable to defend itself will not become a third-world nation. It simply will not be.

The writing is on the wall in one socioeconomic sphere after another. Already today, half of Israel's adults are so poor that they do not reach the bottom rung of Israel's income-tax ladder and pay no income tax at all (Figure 8). The burden on the top two income deciles (primarily Israel's most educated and skilled workers) is slowly rising, with 20 percent of the population accounting for 92 percent of Israel's entire income tax revenue in 2017. Young people with options abroad

Figure 7
The Children of Israel – A look at the future



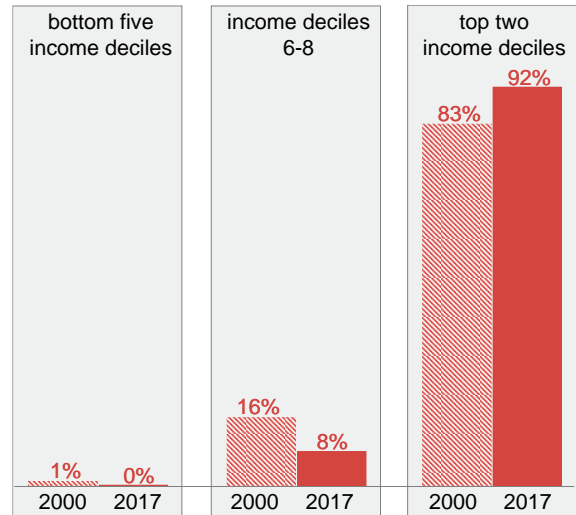
do not have to remain and shoulder an increasingly heavy burden if they do not see any hope of a light at the end of the tunnel – thus turbocharging Israel’s already rapidly changing demographics.

The merging of Israel’s extremely deficient education system with its exponentially growing population is akin to surfing on a tsunami. It cannot end well. Israel’s fertility rate (3.1 children per family) is a full child greater than that of the second-place OECD country, Mexico, with 2.1 children per family (Figure 9).

Israel’s population density in 2065 is forecast to be 922 people per square kilometer. The country is currently situated on a runaway for takeoff out of the developed nations’ club (Figure 10). Taking into account the population forecasts for all of

Figure 8

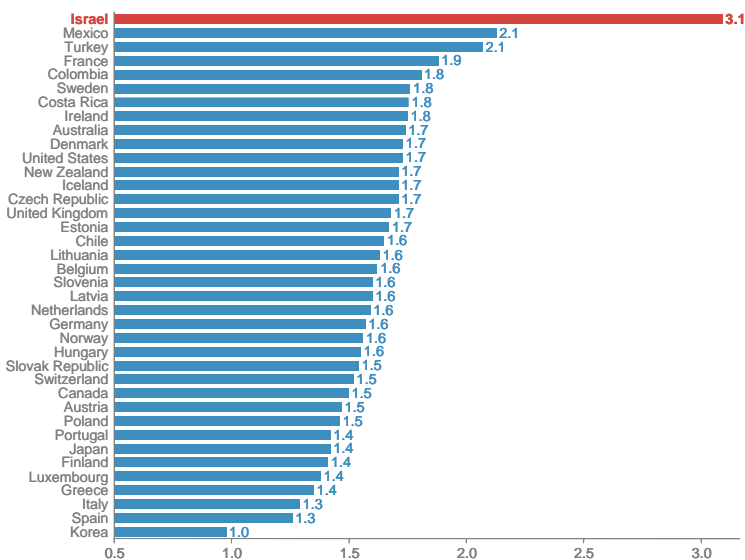
Share of total income tax revenue paid by income deciles



Source: Dan Ben-David, Shores Instit. and Tel Aviv Univ.
Data: Finance Ministry

Figure 9

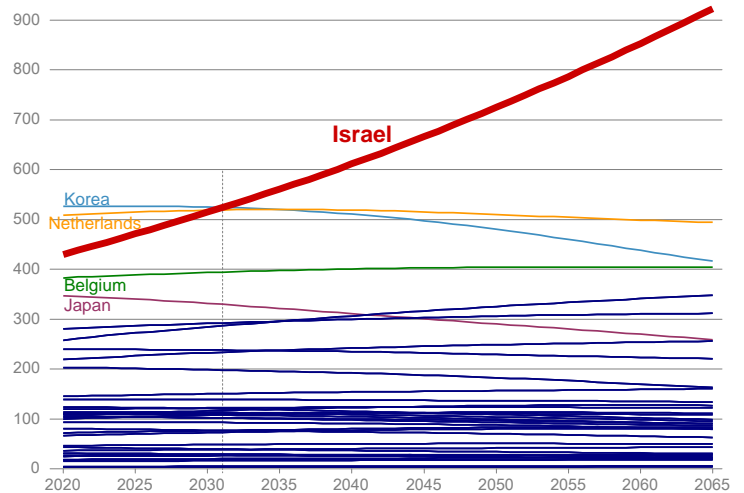
Fertility rates, 2018



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

Figure 10

Population density in OECD countries persons per square kilometer*, 2020-2065



* Midpoint projections by the UN for all countries except Israel. Central Bureau of Statistics midpoint projection for Israel.

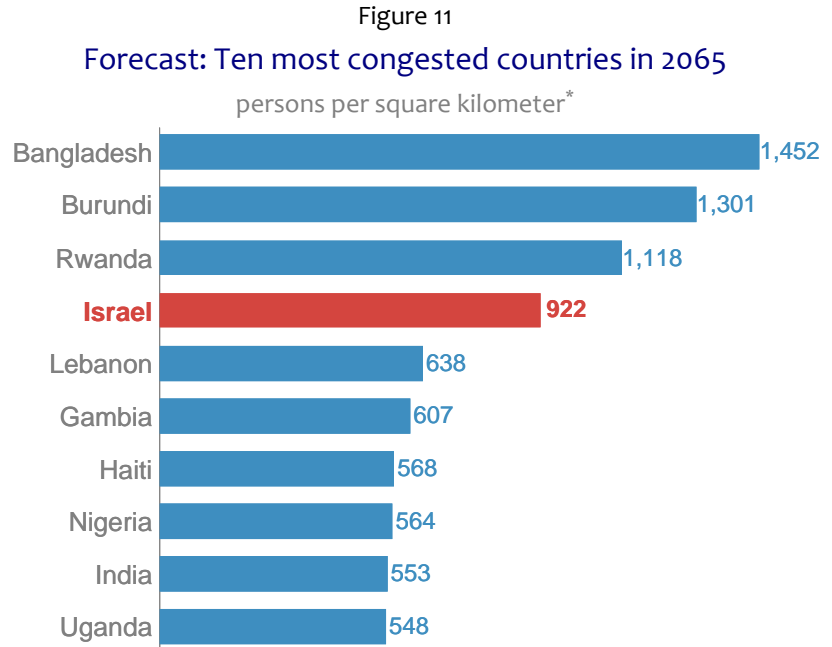
Source: Dan Ben-David, Shores Institution and Tel Aviv University
Data: World Bank and the Central Bureau of Statistics

the world's countries shows the leading candidates for membership in the club of the planet's ten most congested countries in 2065 (Figure 11). This is one club that Israel really does not want to be a member of.

The most important common denominator between low productivity growth, high poverty rates and exploding demography is the deficient quality of education provided to a large and growing share of the population. Turning this one issue on its head may not be enough to save Israel, but not doing so will most certainly bury it.

Israel's education system has been extraordinarily lacking in its ability to cope with the huge gaps that the country's pupils bring with them from home. The common political solution has been to throw ever-greater sums of money at the education system, without dealing with its fundamental underlying problems. Consequently, education expenditures have surpassed Israel's defense spending, becoming the largest item in the government budget. But the country's average score in core subjects still remains below that of every single developed country's national average. As if this were not enough, achievement gaps between Israeli children (Figure 12), as well as the percentage with failing scores (Figure 13), are by far the highest in the developed world.

A leading excuse given for the poor results is Israel's overly congested classrooms, with the number of pupils per class in Israel far above the OECD average. Yet the number of pupils per full-time equivalent teacher is nearly identical to the OECD average in primary schools and is



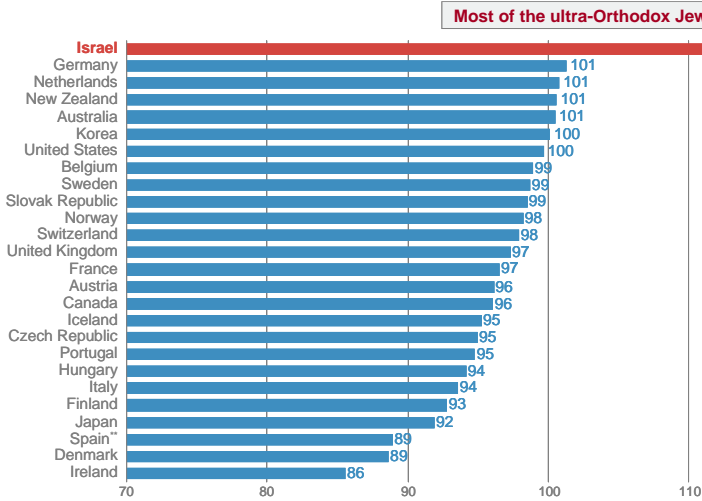
* Comparison of all countries with at least 10 square kilometers. Midpoint projections by the UN for all countries except Israel. Central Bureau of Statistics midpoint projection for Israel

Source: Dan Ben-David, Shoresh Institution and Tel Aviv University
Data: World Bank and the Central Bureau of Statistics

Figure 12

Educational inequality in developed world

Average gaps in achievement levels in 25 OECD countries and in Israel, PISA 2018 exams*



* National average standard deviation in math, science and reading exams.

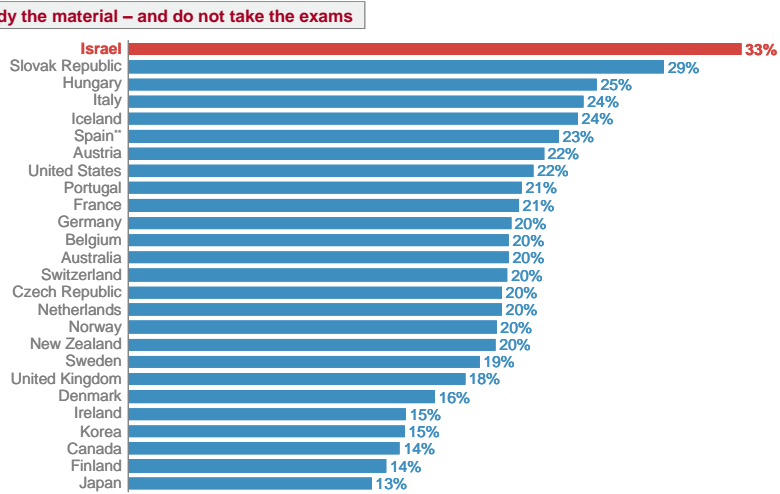
** Spain participated only in math and science exams.

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

Figure 13

Share of pupils failing in core subjects

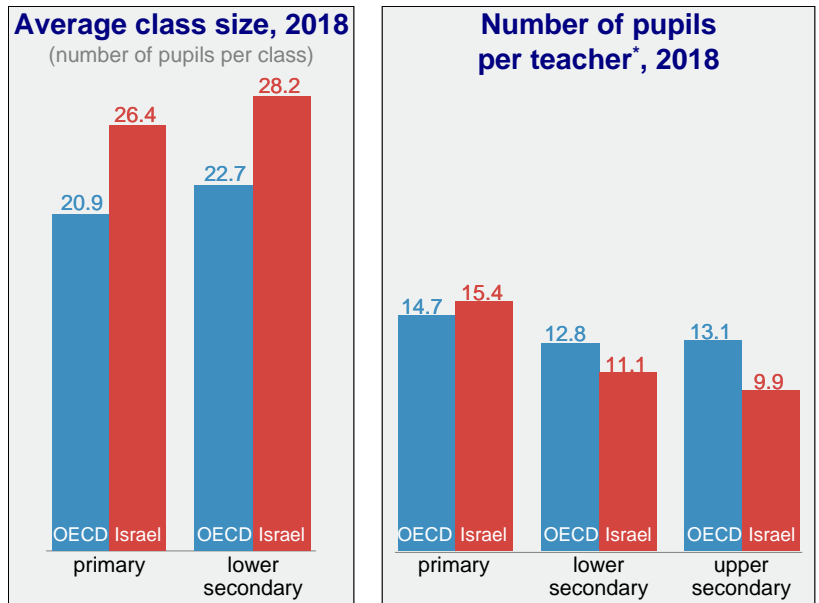
Average percent of pupils scoring at or below level 1 in mathematics, science and reading, PISA 2018



actually lower in Israeli high schools than the OECD average (Figure 14). In other words, we pay for enough teachers, so why are our children’s classrooms so crowded?

Another leading excuse is insufficient instruction time. However, the number of instruction hours in Israel is greater – often far greater – than in the large majority of developed countries (Figure 15). Yet, each of these other countries produces higher scores in the core subjects. More to the point, there is no international correlation

Figure 14



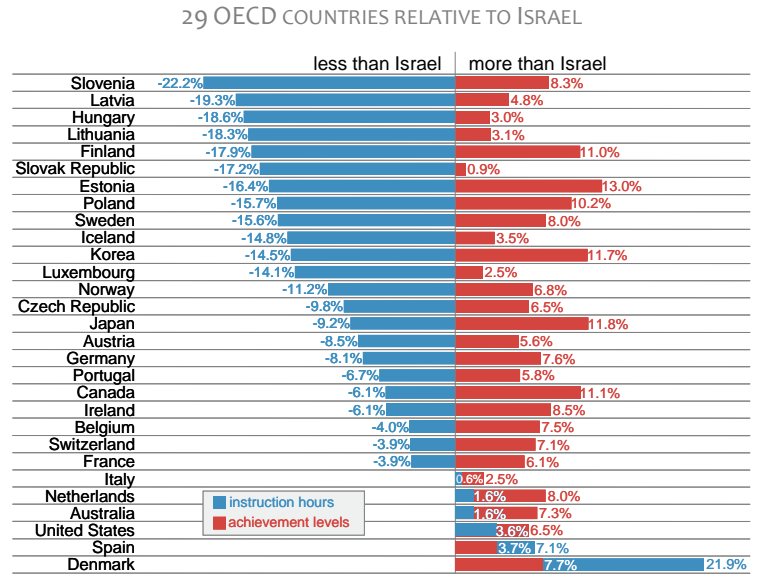
* according to full-time equivalents.

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

between the number of annual instruction hours provided in a country and the scores of its children in the basic subjects.

And then there are the teachers. 79 percent of people studying education in Israel are enrolled in some two dozen teaching colleges, another 15 percent in non-research colleges, and the remaining 6 percent study in research universities (Figure 16). The problem is one of quality. The psychometric score (serving a similar function as the American SAT) of first-year education students in the research universities is 9 percent below the average for the remaining university students. The score of those studying in teaching colleges is 23 percent below the research university average, while those studying in non-research colleges score 32 percent below the university students. How can individuals unable to get accepted to universities be expected to bring their pupils up to that level?

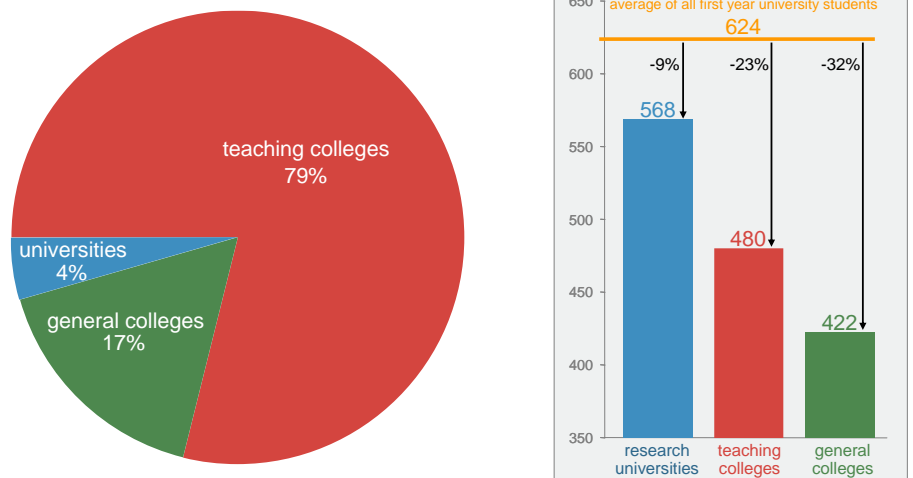
Figure 15
Instruction Hours and Achievement*



* Cumulative number of compulsory instruction hours in lower secondary schools in 2019 (US data for 2018) and average achievement levels in math, science and reading in PISA 2018..

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

Figure 16
Distribution of education students undergraduate education students* by type of institution, 2018-2019
Average psychometric score first year education students* by type of institution, 2018-2019



* Undergraduates in education and teacher training.

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

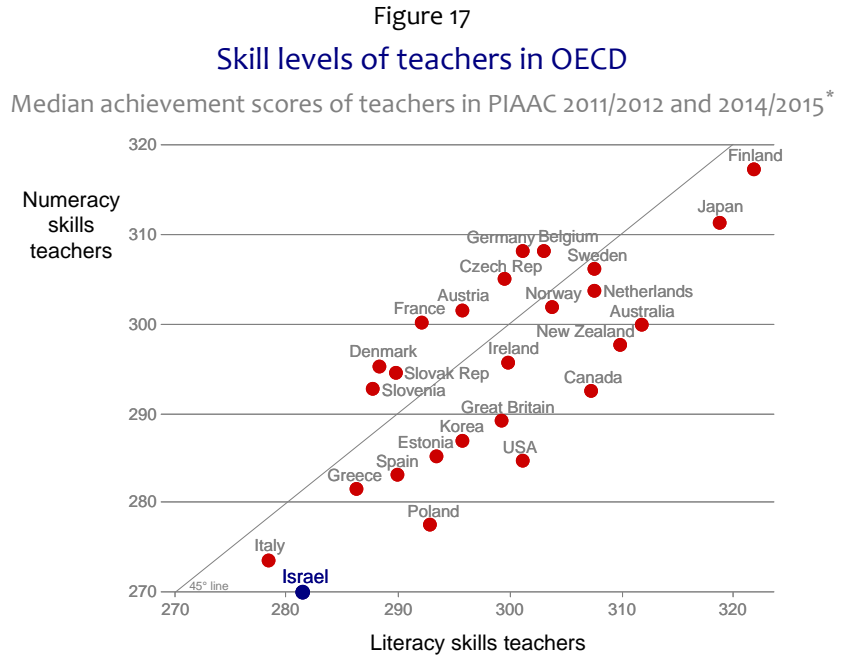
When compared with their developed-world peers, literacy-skills teachers in Israel are less knowledgeable (according to the OECD’s PIAAC tests for adults) than similar teachers in all but one country in the developed world (Figure 17). The knowledge levels of Israel math teachers place them dead last on the list.

Here too, the common refrain is to raise teachers’ salaries. Indeed, monthly salaries in Israel are lower than the

OECD average. However, when taking into account not only what is paid, but also what is received, and controlling for differences in living standards across countries, Israeli salaries per teaching hour are higher – considerably higher in high schools – than the OECD average (Figure 18).

The time has come for serious people to implement serious measures to save Israel’s future, and this begins with systemic education reform. Such a reform must be based on three primary building blocks.

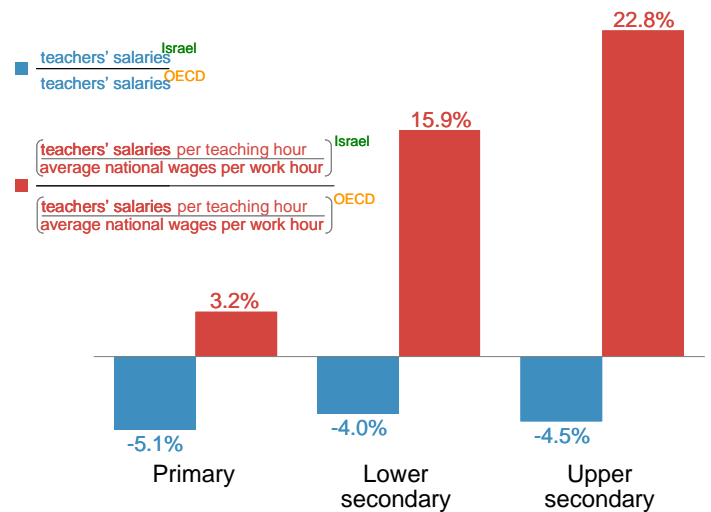
1. *Core curriculum:* The national core curriculum must not only be uniform across the country, including in all Haredi schools, it must also be significantly upgraded to provide



* Excluding Chile and Turkey.

Source: Hanushek, Piopiunik and Wiederhold, (2018)

Figure 18
Teacher’s salaries in Israel relative to OECD
Percent gap in teachers' average actual salaries, 2019



* Comparisons using purchasing power parities.

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

the knowledge, skills and abilities required in modern global economies that expect increasing worker flexibility and adaptability.

2. *Teachers*: Individuals considering teaching careers should first get accepted and complete degrees in the disciplines that they would like to specialize in, and complete their teacher training and certification process afterward.
3. *Decentralization of the public education system*: Principals should be given the authority to run their schools, subject to a body above them similar to a corporate governing board composed of people from the Education Ministry, the town or city administration, parents, and teachers. The principals should submit their strategic plans for board approval and then be given the independence to attain their goals, including the decisions regarding whom to employ and how much to pay each person.

Many of the challenges described above are not unique to Israel – nor is the issue of vested interests doing their utmost to put themselves above the greater good. What is unique is the severity of the situation in Israel, the country’s rapidly changing demography, and the existential implications of not resolving these issues while it’s still possible to do so.

The outcomes of Israel’s 2021 elections provide an extraordinary opportunity for the tectonic changes that Israel’s future depends on. The current government brings together parties from across the political spectrum – Right and Left, religious and non-religious, Arabs and Jews – to form a political coalition unlike any other in Israeli history. Since this unusual political combination precludes any possibility of a breakthrough on the Palestinian issue that has overshadowed Israeli politics for more than half a century, the only viable alternative for the current government leaders is to develop a serious domestic agenda. My colleagues and I at the [Shores Institution](#) have briefed all the key leaders of this government on our findings. One can only hope that they will be able to find the wherewithal to do what needs to be done to return Israel to a sustainable long term trajectory.

The ramifications of getting this right will not only ensure that Israel will be the country of choice for our most educated children and grandchildren. Such a country will also be one that our Jewish sisters and brothers abroad will be proud to identify with – showing them what Judaism can also symbolize outside the synagogue walls.