

The State of Israel's Education and Its Implications

A visual roadmap based on the
Taub Center's *State of the Nation Reports*

Prof. Dan Ben-David
Executive Director

Jerusalem, October 2011

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Center address:

15 Ha'ari Street, Jerusalem, Israel

Tel: 972 2 567 1818

Fax: 972 2 567 1919

Email: info@taubcenter.org.il

Website: www.taubcenter.org.il

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Abstract

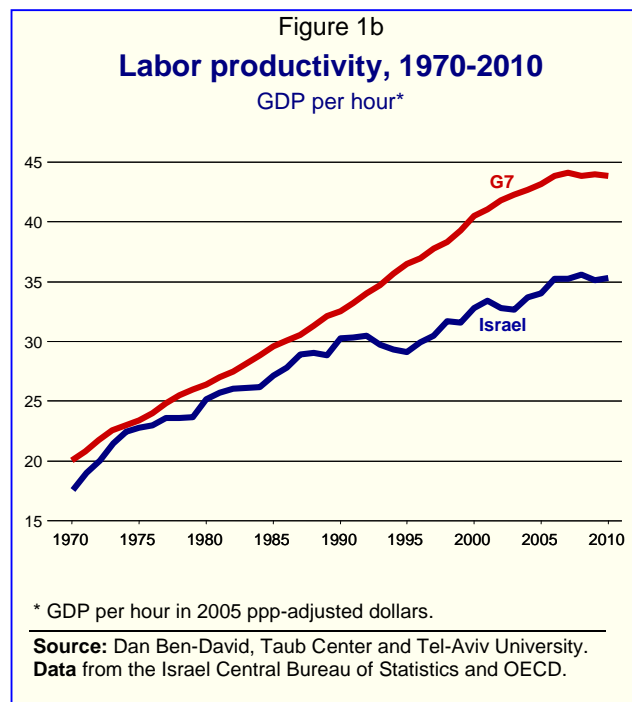
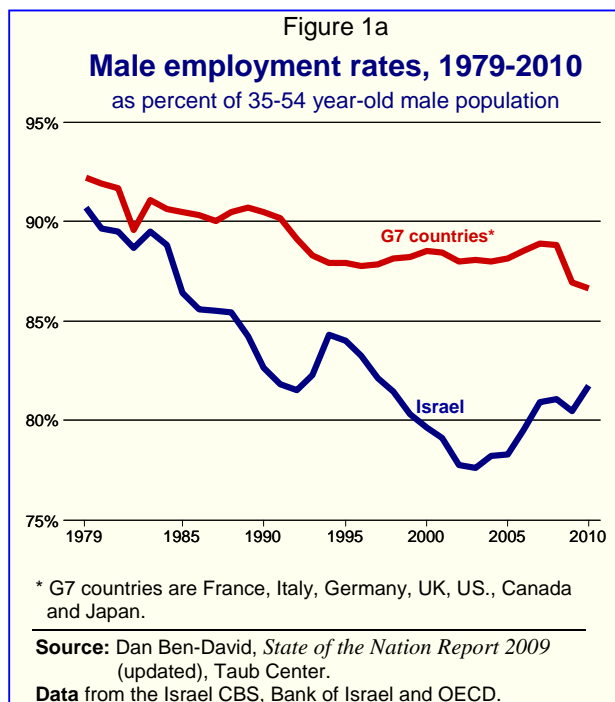
The Taub Center's annual *State of the Nation Reports* have put a bright spotlight on the impact that education has in determining living standards and income gaps. This document summarizes main points of this issue through a brief visual roadmap that underlines the importance of education for Israel's society and economy, the state of the country's education, and the implications.

Each page contains one or two graphs accompanied by a brief explanation. More complete and detailed analyses of the issues covered by each figure may be found in the *State of the Nation Reports* available on the Taub Center website.

* Prof. Dan Ben-David is the Executive Director of the Taub Center for Social Policy Studies in Israel and a senior faculty member at Tel-Aviv University.

1. Background: The twin problems

A steady deterioration in employment and productivity since the 1970s



Three decades ago, rates of employment among prime working age Israeli men were similar to the average among the West's leading economies (Figure 1a). Since then, rates of employment in Israel have fallen considerably relative to G7 employment rates. Despite large fluctuations resulting from periods of recession and expansion, a large and increasing gap in employment rates has developed over the years. When fewer people are employed, it should not be surprising that poverty in Israel is becoming increasingly widespread and problematic.

The twin problem – productivity – is related to those who are employed. Productivity is the primary key to economic growth. Until the mid-1970s, labor productivity in Israel rose and reached levels similar to those in the G7 countries. Since then, the picture is one of divergence. While there are a number of sectors in which Israel is at the cutting edge, a large and growing weight is sitting on the shoulders of the country's society and economy. A very large, and rapidly increasing, segment of Israeli society is not receiving either the tools or the conditions to successfully contend with a modern, competitive and open economy. This weight is pulling down the productivity and causing Israel to steadily fall farther and farther behind – in relative terms – the West's leading economies.

This document focuses on one of the key factors underlying the continuous decline in employment and the relative decline in productivity over three decades – education. As will be shown, education in Israel is strongly related to the country's employment rates, incomes and the increase in gaps. Education in core curriculum subjects is critical for a nation's economic growth. Despite its centrality and importance, the basic education that all Israeli children receive – *haredi* (ultra-Orthodox Jews) and Arab Israeli children, in particular – is not consistent with the needs of a First World country.

2. Education and employment

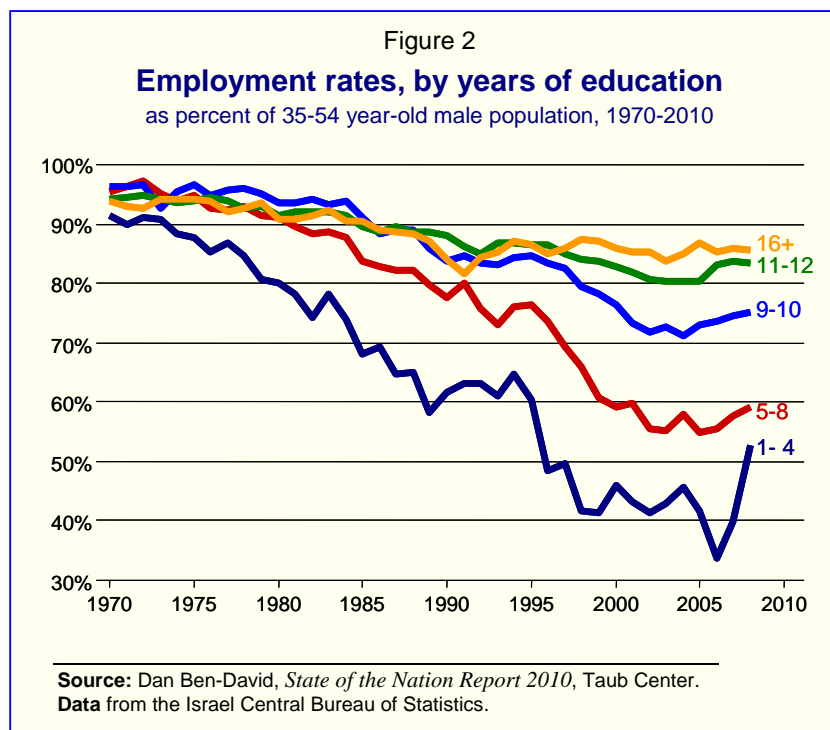
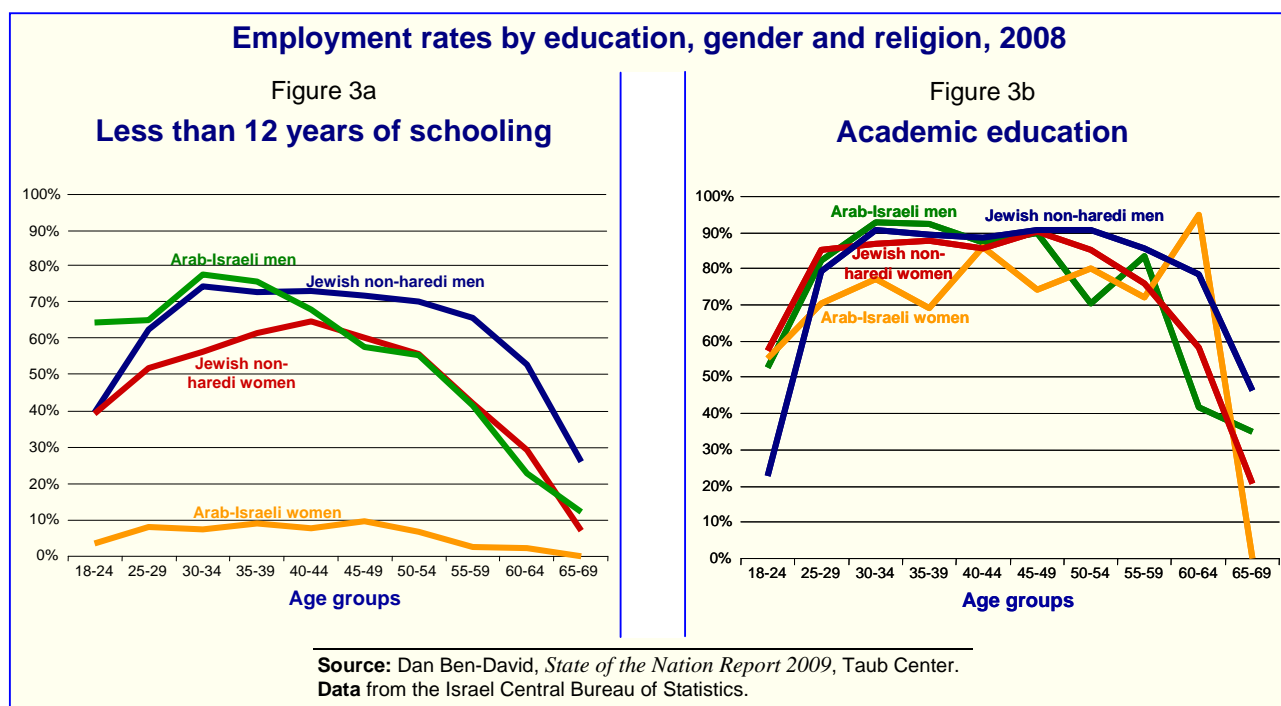


Figure 2 focuses on prime working age men (ages 35-54) and shows the dramatic changes undergone by Israel's society and economy over the past four decades. In 1970, Israel was a much poorer country and its production needs could be satisfied by a large number of workers with low levels of education. In those days, over 90 percent of Israeli men, at all education levels, were employed – from those with less than four years of schooling to those with more than 16 years of schooling. Nearly all of the prime working age men in Israel were employed.

Although the number of men with low levels of education – i.e. the supply – has declined appreciably over the years, the country's economic growth has led to an even sharper decline in the demand for them. As a result, employment levels among these men fell considerably. It has become increasingly evident that the lower the level of education of prime working age men, the faster and farther their employment rates have dropped.

Forty years ago, over 90 percent of men with 1-4 years of education were employed. Today, their rates of employment are around 50 percent. Among men with 5-8 years of schooling, employment rates have fallen below 60 percent. In fact, the only group that did not experience a decline in employment over the past 15 years is the group with 16+ years of education, which includes primarily individuals with an academic education. In 21st century Israel, the higher the level of education, the higher the employment rate.

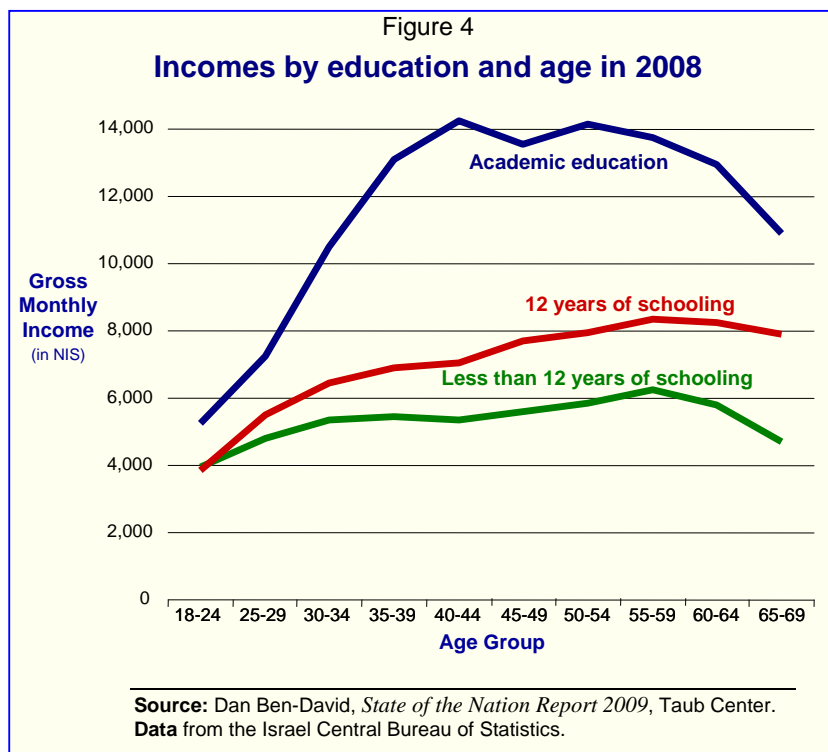


The strong relationship between education and employment extends across gender and religion. Figure 3a focuses on employment rates of Israelis with low levels of education, with no more than eleven years. It shows that among poorly educated Arab Israeli women, employment rates are particularly low and do not rise above ten percent in any of the age groups. Among non-*haredi* Jewish women with low levels of education, employment rates are much higher – but they do not exceed 60 percent. While employment rates among poorly educated Arab Israeli men are similar to those of poorly educated non-*haredi* Jewish men at the younger ages, employment among the former declines more rapidly as they grow older. As they near their sixties, employment rates among Arab Israeli men are only about half of what they are for non-*haredi* Jewish men.

A completely different picture emerges for men and women, Jews and Arab Israelis, who have academic degrees. Figure 3b highlights two important findings. First, employment rates among academics are much higher for all groups. Second, gaps in employment rates between the groups are considerably smaller. While the overall gap between the poorly educated prime working age Jewish men and Arab Israeli women exceeds 60 percentage points, among academics of the same age the gap is on average less than 15 percentage points.

It is important to point out that these figures focus only on employment rates. They do not reflect income levels or degrees of part-time or full-time employment. That said, even this simple barometer differs considerably between individuals with low and high levels of education.

3. Education and income



As indicated in Figure 4, a strong relationship exists between levels of education and incomes. In the youngest age group, 18-24 year-olds, there is no difference in the income of those who completed 12 years of school and those who did not. As age and experience rise, incomes are higher in both education groups, though income gaps develop between them in favor of those completing 12 years of school. As retirement age approaches, incomes begin to decline for all age groups.

The highest incomes shown in the figure belong to individuals with an academic education. While income gaps between them and the lower education groups are small at the younger ages, they are considerably higher among prime working age individuals. The average monthly income for 40-44 year olds with eleven years or less of schooling was 5,339 shekels, compared to an average of 7,036 shekels for those who completed 12 years, and 14,235 shekels a month for academic degree holders.

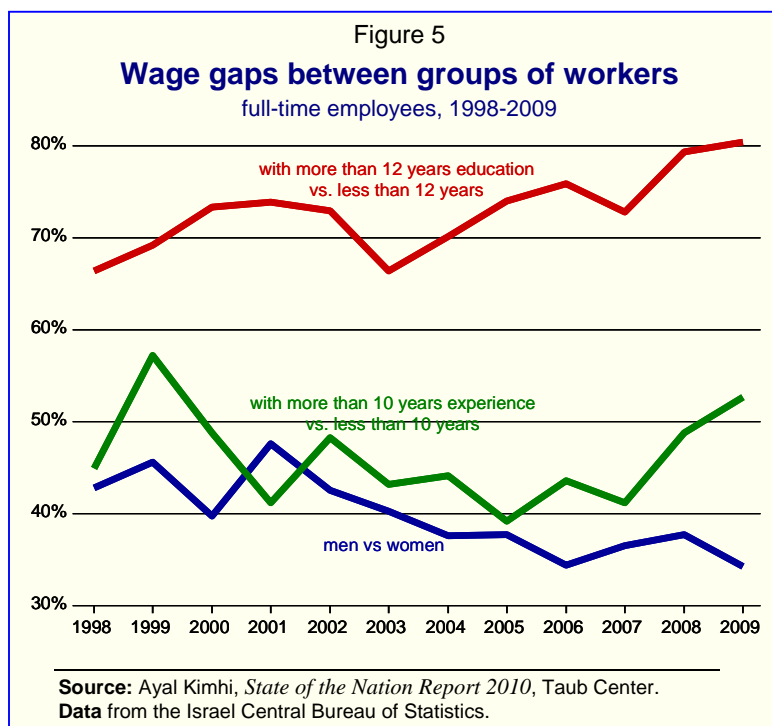


Figure 5, based on work by Ayal Kimhi*, shows wage gaps among full-time employees according to three different characteristics – education, occupational experience and gender. In the late nineties, wages received by full-time male employees were 43 percent higher than wages of full-time female employees. Over the subsequent decade, income gaps between men and women fell to 34 percent.

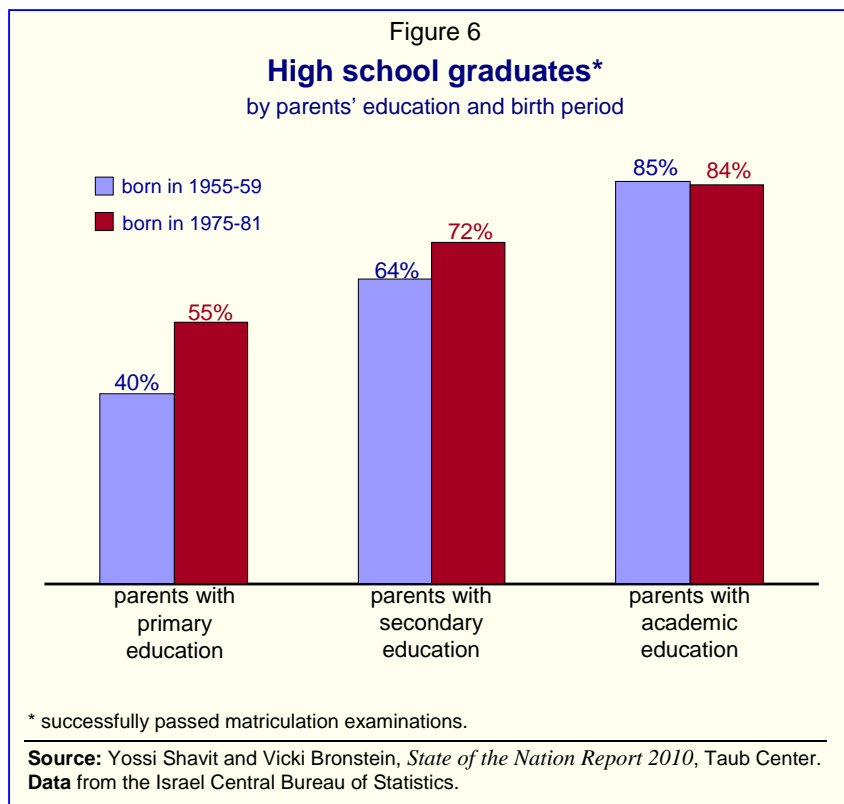
Wage gaps emanating from differences in work experience ranged between 40 and 50 percent over most of the past decade, in favor of individuals with ten or more years of experience as opposed to individuals with less than ten years experience. In 2008, the wage of a worker with 10+ years of employment was 45 percent higher than the less-experienced worker. This gap fell to 39 percent in 2005 and it has since risen to 53 percent in 2009.

In fact, the largest wage gaps are between workers with higher levels of education and workers with lower levels of education. The gap between individuals with more than 12 years of schooling and those who did not complete 12 years of school was 66 percent in 1998. Not only was this the largest gap, but it also rose substantially since then, reaching 80 percent in 2009.

The situation regarding wages is similar to that regarding employment. A growing economy needs more and more educated workers and fewer – in relative terms – uneducated workers. Rates of employment are higher and wages are higher among the more educated workers, while employment and wage gaps are high and increasing as a result of too large a supply of poorly educated workers in Israel.

* Prof. Ayal Kimhi is the Deputy Director of the Taub Center and Chair of its Labor Policy Program. He is a senior faculty member at the Hebrew University.

4. Parents' education and children's achievements



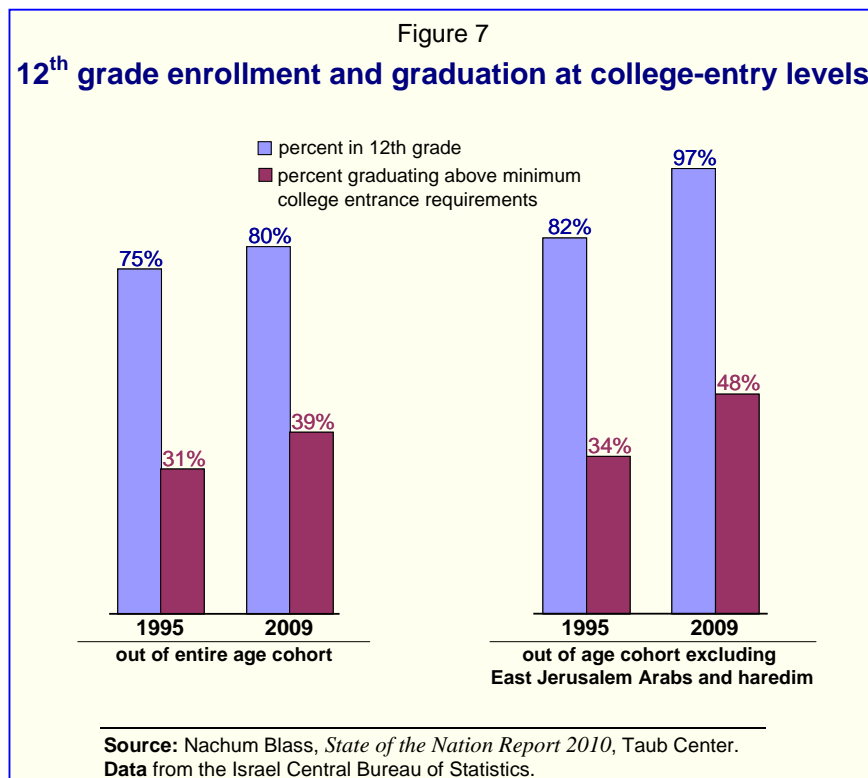
The higher the parents' level of education, the better their children's educational achievements tend to be. Yossi Shavit* and Vicki Bronstein find a strong relationship between parental education levels and the high school matriculation rates of their children over the years (Figure 6). Rates of successful matriculation among children to parents with an academic education reached 85 percent among children born in 1955-1959, an almost identical rate as that attained by children born to such parents two decades later.

However, there were changes over time at the other end of the parental education spectrum. Only 40 percent of children of parents with just a primary education, born in the latter half of the 1950s, successfully completed their matriculation exams. Two decades later, there was a substantial improvement in matriculation rates, to 55 percent, among children of parents with only a primary education.

Shavit and Bronstein also find a positive relationship between the level of parental education and the share of children attaining an academic degree, though in this case, there was no improvement over the years among children of poorly educated parents.

* Prof. Yossi Shavit is the Chair of the Taub Center's Education Policy Program. He is a senior faculty member at Tel-Aviv University.

5. High school as a conduit to college



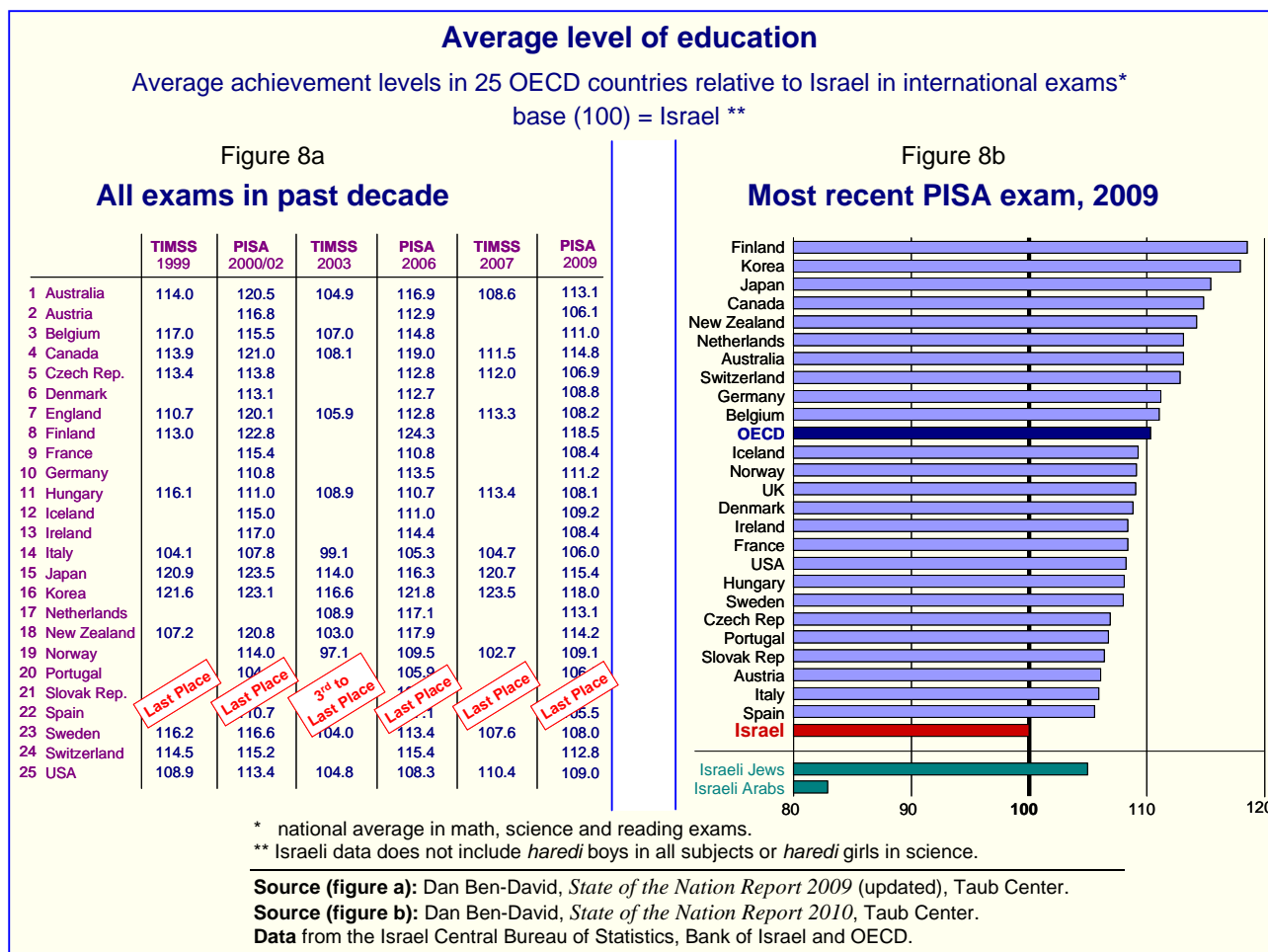
Nachum Blass* finds a certain improvement in the share of the age cohort studying in 12th grade, from 75 percent in 1995 to 80 percent in 2009 (Figure 7). When *haredi* children and Arab children from East Jerusalem are not included in the sample, the share of pupils studying in 12th grade increases to almost 100 percent of the age cohort, compared to 82 percent in 1995.

When the focus shifts from the simple share of those studying in 12th grade to not just successful matriculation, but rather to those matriculating at a level that will enable acceptance to universities, the picture that emerges is quite a bit more problematic. While there have been improvements over the past decade and a half, even in the sample excluding *haredim* and East Jerusalem Arabs, less than half of the children (48 percent) exceeded the minimum university acceptance levels. Since only 34 percent of the children passed the minimum university acceptance levels in 1995, this represents a move in the positive direction.

However, Israel's population does indeed include the *haredim* and Arabs from East Jerusalem, so the overall picture is much more problematic. Only 39 percent of the entire age cohort succeeded in passing the matriculation exams at a level that would permit acceptance to Israel's universities, and this compares to just 31 percent in 1995.

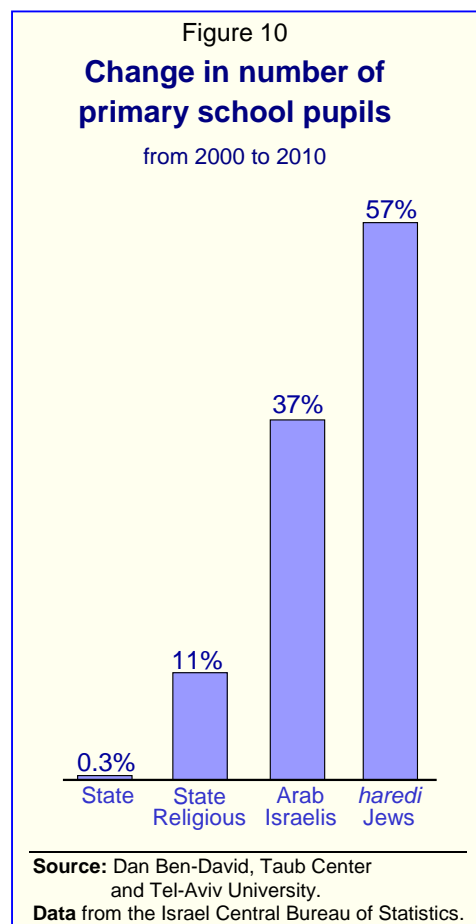
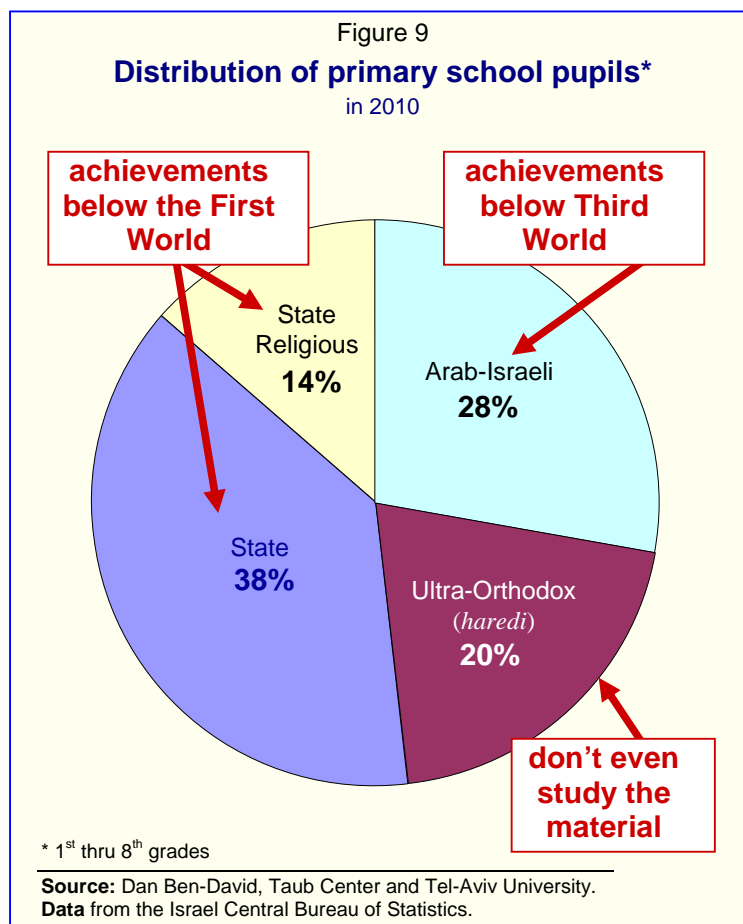
* Nachum Blass is a senior education researcher at the Taub Center.

6. Israeli educational achievements – an international perspective



Since 1999, the educational achievement level of Israeli pupils has been below those in all 25 of the relevant OECD countries in all but one of the six PISA and TIMSS exams (Figure 8a). In fact, as indicated in the most recent PISA exams (Figure 8b) made public in December 2010, even when *haredi* boys and Arab Israeli pupils are excluded from the sample (the former do not even study the material and, therefore, do not take the exams) the poor achievement levels of just the Jewish pupils placed them below all 25 OECD countries in the figure. The achievement levels of Arab Israelis were below those of Third World countries like Jordan, Tunisia, Indonesia, Kazakhstan, Brazil and Colombia.

7. Education and demography



When the achievement levels of half the children in the primary education system are below every one of the relevant First World countries for over a decade (except in 2003), and when the achievement levels of the remaining children are even lower (Figure 9), then this is essentially a socioeconomic time bomb. Children who have difficulty contending today with basic educational material will have difficulty contending economically in the future labor market.

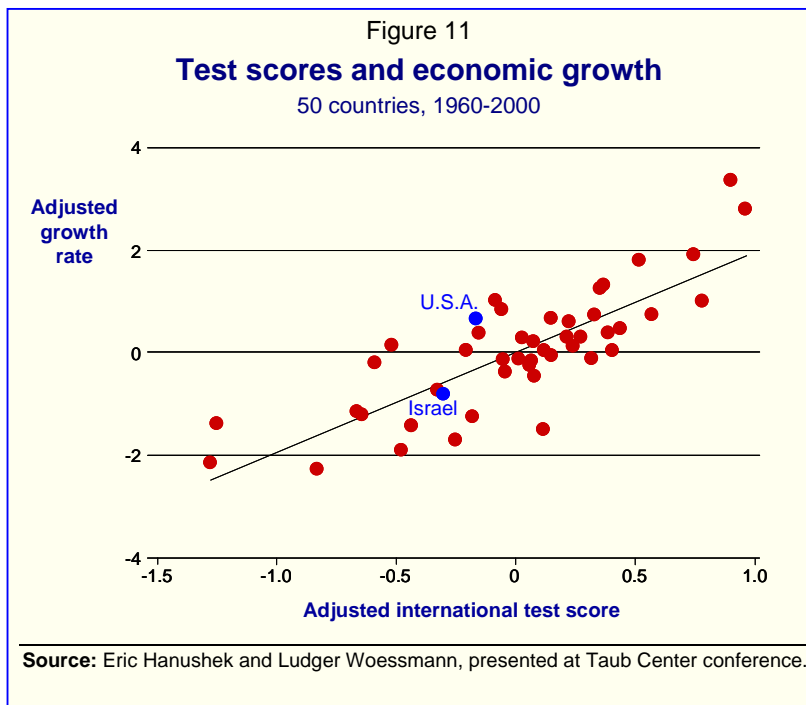
As if this were not enough, this is not a static problem but one that is growing quickly over time. Primary school enrollment since 2000 indicates that the number of pupils in the State (i.e. the non-religious) schools has been nearly constant while the number of children in the State-religious schools grew by eleven percent (Figure 10). During this same decade, the number of children in the Arab Israeli schools grew by 37 percent and the number of *haredi* children – by 57 percent.

In light of the deficient educational toolbox that the *haredi* and Arab Israeli children receive in the basic subjects – each group, for different reasons – and the fact that today they comprise almost half of all the children in Israel, and in light of the very rapid increase in the share of these two groups in the total number of pupils, a substantial improvement is required immediately in the education that is provided to these children who will become the future majority in Israel.

8. Education quality and economic growth

At the September 2011 Taub Center conference on the “Socioeconomic Impact of Education,” Eric Hanushek* presented findings from his research with Ludger Woessmann showing the strong relationship between the quality of education in core subjects – as indicated in the achievement levels on international exams – and rates of growth in living standards (Figure 11).

The difference in scores between Israel and the 25 OECD countries in Figure 8a was 47 points in 2009 and 59 points in 2006. Until this past decade, Israel's Education Ministry did not measure the level of education in the country in a way that could allow comparisons and evaluations of changes in achievement levels over time. Therefore, it is not possible to know since when Israel's achievement levels have been so low relative to the other countries.

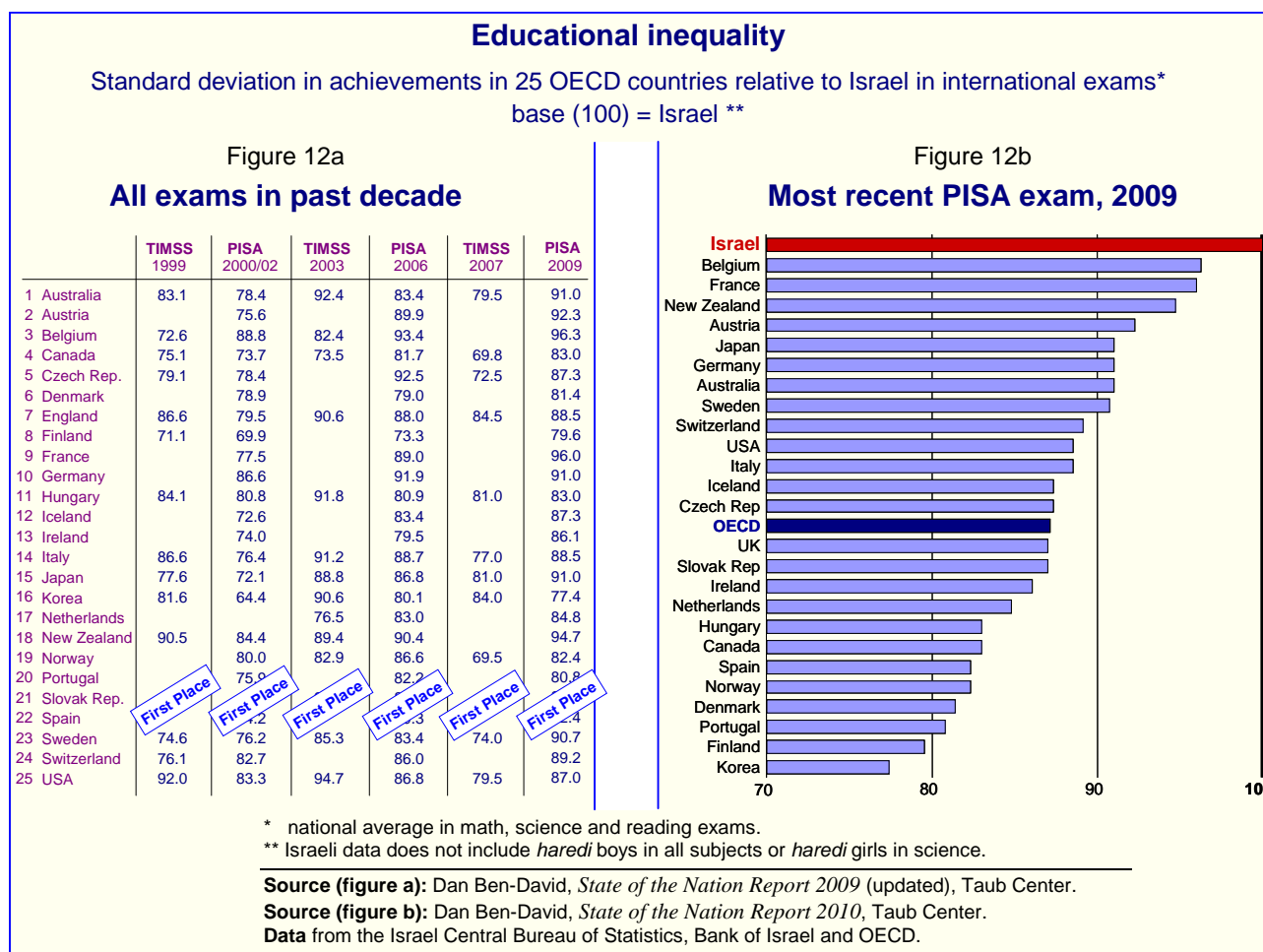


What would have transpired had Israel improved its achievement levels in the core subjects and if the national score had been 50 points higher since 1980? Since it takes many years until children become workers, the rate of economic growth would have begun to rise at a very slow pace that would have increased over the years. According to calculations based on Hanushek and Woessmann's work, Israel's rate of economic growth in per capita GDP would have been higher by 0.44 percentage points in 2010. The implication of this is that Israel could have been on a long run growth trajectory that would have closed the gaps between it and the leading Western countries rather than having continued along the current path that is leading it farther and farther behind these countries. Living standards in Israel, as reflected in GDP per capita, would have been 5.1 percent higher than the current level while the economy's total GDP would have accrued an additional 326 billion shekels over the years. In 2010 alone, Israel's GDP would have increased by another 41 billion shekels – and this is before such an education reform even yields all of its potential over the coming years.

Instead, the link between the country's internal demographics and the actual level of education provided different population groups gives an indication of the complicated future ahead for Israel's children, a future that is being determined by today's education policies.

* Prof. Eric Hanushek is a member of the Taub Center's International Advisory Council. He is a senior faculty member at Stanford University.

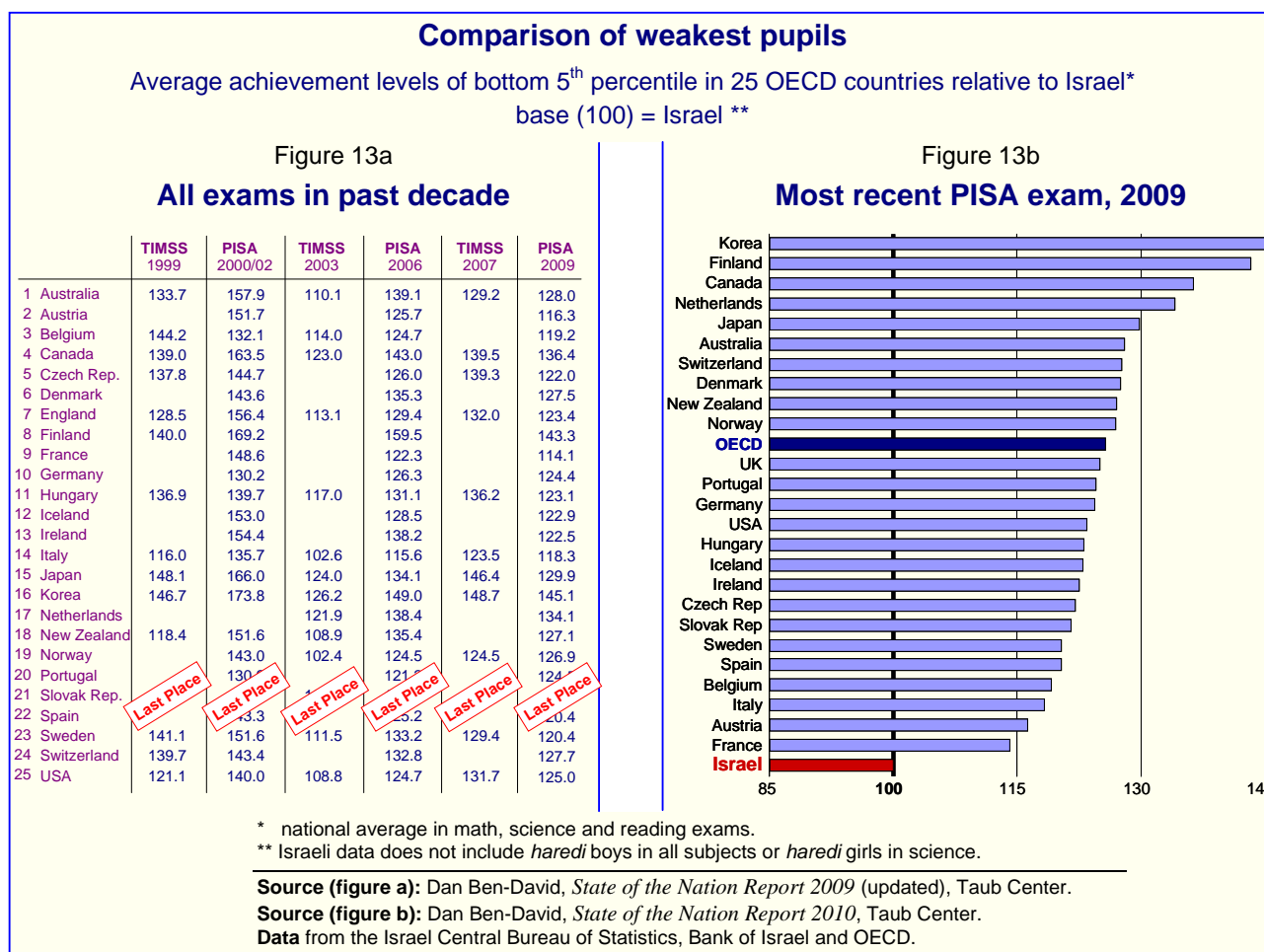
9. Gaps in Israeli education – an international perspective



Income inequality within Israel is among the highest in the Western world. The more the educational system represents a springboard into the labor market, the more today's educational disparities will be reflected in tomorrow's income disparities. Therefore, while the low Israeli average score reflects the general national level of education, the very high gaps in achievement within Israel point to severe problems in reducing income inequality in the future.

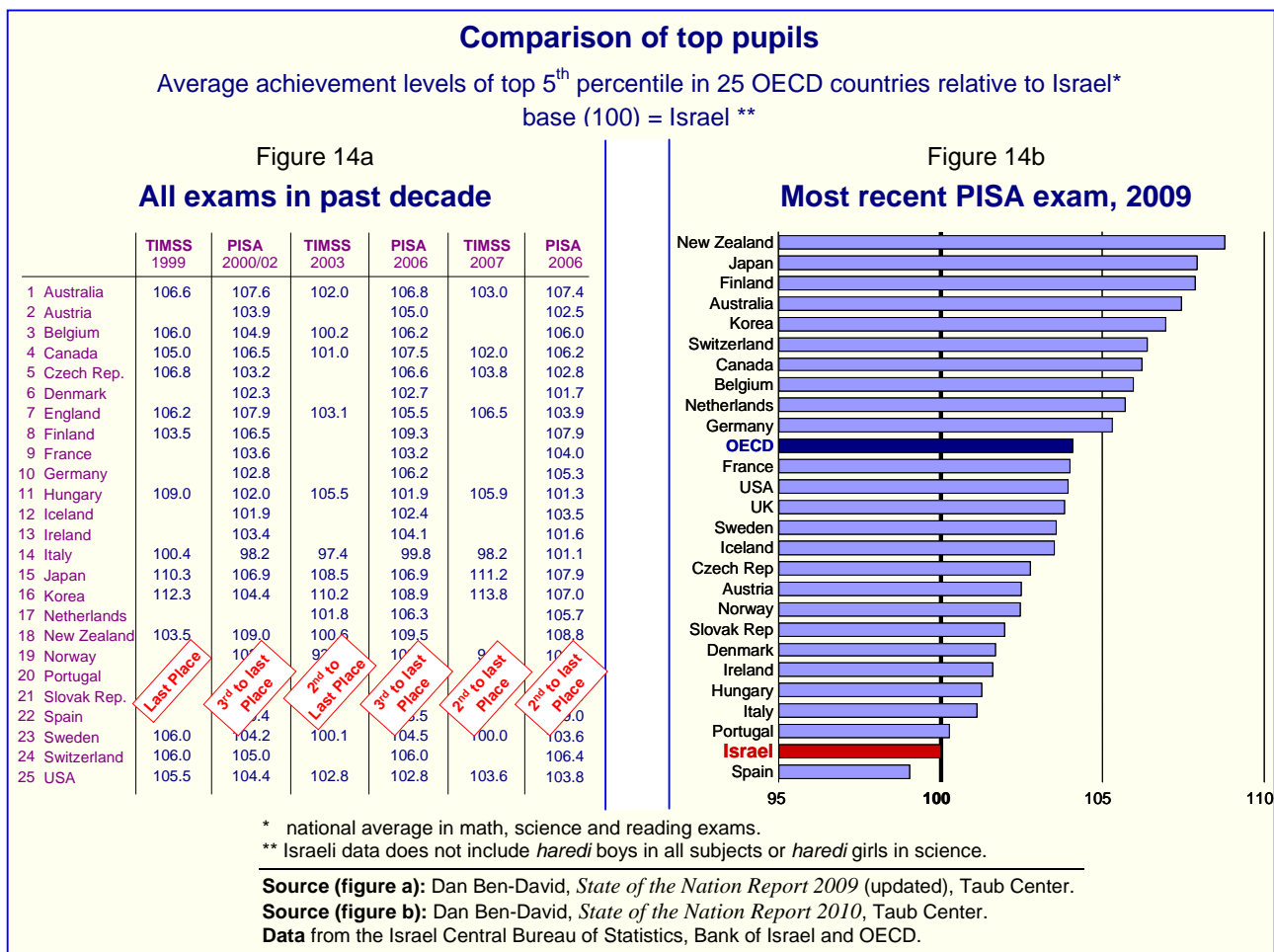
As indicated in Figures 12a and 12b, achievement gaps in core curriculum subjects within Israel are higher than within each of the 25 relevant OECD countries in every one of the exams administered since 1999.

10. Israel's weakest pupils – an international perspective



When compared to the 25 relevant OECD countries in each of the six exams since 1999, Israel's weakest students – those in the bottom five percentiles – score substantially below the weakest students in each of the 25 OECD countries (Figures 13a and 13b). When this is the level of education provided the weakest pupils in Israel, it is difficult to understand how it will be possible to reduce their future rates of poverty when they will have to compete in a modern and competitive labor market.

11. Israel's top pupils – an international perspective



A comparison of the outstanding pupils in different countries – the top five percentiles of each country – appears in Table 14a. It raises a major question about Israel's future ability to continue to succeed in academia, medicine and high tech at the frontier level. Israel's top pupils ranked below those of nearly all of the 25 relevant OECD countries in each of the years examined. In the most recent exam, administered in 2009, Israel's top pupils ranked below the top pupils of every other country except Spain (Figure 14b).

12. Implications and conclusions

The future is sitting in today's classrooms. Using an analogy from the area of water management – an area in which Israel is world renowned for its expertise – the country has long since moved below the education red line. In light of the personal aquifers that have not been filled with vital knowledge, at least since the nineties, if not earlier, today's Israel has even fallen below the forbidden black line.

It is no coincidence that employment rates among prime working age men have been steadily dropping farther and farther below employment rates in leading developed countries for over three straight decades. It is no coincidence that labor productivity is falling farther and farther, in relative terms, behind those same nations since the 1970s. These are the key parameters that determine living standards and poverty rates in Israel – and they are determined in no small part by the country's level of education.

Since the nineties, at least, about half of Israel's children receive an education that is beneath the level given in the First World. The other half receive an education that is low even by Third World standards – and this other half will become a majority in the coming years.

But there is hope. In contrast to the level of education provided to the children of Israel, the level of knowledge in the country is among the highest in the world, as evidenced by the universities, high tech and other sectors currently at the cutting edge of human knowledge and pushing the envelope forward. All that is needed to implement a sharp turnaround in education is already here. The knowledge that is within Israel's borders must be encouraged and allowed to flow to each neighborhood, town and population in Israel.

Though necessary, this process is not a simple one. It requires a substantial upgrade in the core curriculum taught to all of Israel's children and its implementation – with no exception – in all of the country's towns and neighborhoods. Just as the State of Israel requires all of its children to go to school, with the objective of increasing the personal degrees of freedom that each child will have as an adult, it is also within the country's right to determine the core curriculum that all of Israel's children must study – otherwise the system will be no more than an empty vessel that does not fulfill its purpose. In addition, the strong relationship between parents' education levels and the achievements of their children highlights the need for Israel to invest more resources in schools that serve populations with relatively low education levels among the adults.

A complete menu of recommendations for education reform appears in a comprehensive document – that includes areas other than education – prepared this summer by the heads of the Taub Center: “A New Agenda for Israel.” The document focuses not only on the importance of the core curriculum but also on the issue of teacher quality and compensation as well as on the way that the educational system is run.

In order to reach the future that is currently sitting in the classrooms, major changes need to be implemented quickly. Otherwise, it may be too late and too difficult to reach these children when they reach their 20s, 30s and beyond. Few amongst them will be able to complete an education at five levels in math, science and similar areas of study (these are the highest study levels in Israel) at a later age when they are already parents and have to provide for their families.

Though it is already difficult to implement the required educational turnaround today, it is nonetheless possible to still find a majority in the current Knesset that will enable Israel to substantially reform its educational agenda. Given the rapid demographic changes that the country is experiencing, the window of opportunity is limited – possibly very limited – before Israel crosses the demographic-democratic point of no-return and it will no longer be possible to find within it a majority to implement the reform.

This is the moment of truth.
