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**Topics in education: The development over time of expenditure per student and a teacher-quality index**

* In recent years, the expenditure per student relative to GDP per capita returned to its level of the early 2000s, after years in which it had contracted. The increase in expenditure per student primarily reflected the implementation of reforms to improve the standing of educators, reduce the number of students per class, and instituting free education from age 3.
* During the past decade, several reforms were implemented in the education system that were intended to improve the quality of education. Some of them were intended to attract better candidates to the education system by increasing the monthly wage, through increasing the number of working hours while not markedly changing the hourly wage (“Ofek Hadash” and “Oz L’tmurah). Other reforms were intended to improve instruction quality by reducing the number of students in classes.
* Adult skills surveys conducted in OECD countries in recent years indicate that the level of Israeli teachers is relatively low compared to other OECD countries (Israel is ranked in 28th [female teachers] and 29th place [male teachers] out of 34).
* An examination of the change in teacher quality, as measured by an index based on teachers’ “Bagrut” high-school matriculation exam grades indicates that after beginning the implementation of the wage reforms, the quality of teachers entering the system increased, but that a downward trend began in 2015. It is plausible that the increased demand for teachers at a higher rate than the growth in number of employed people in the economy, and the lack of a change in the ratio of hourly wage between young teachers and all young employees, led to a halt and even a decline in the quality of teachers who began teaching in recent years.
* The improvement in teacher quality in Israel is a major component in the improvement of the educational system and the improvement of Israeli students’ rankings in international tests, and it is important that it continues to guide policy makers when examining systemic reforms. Empirical findings indicate a high correlation between the level of educators, as reflected in international tests in literacy and numeracy, and students’ achievements in those areas.

The expenditure per student relative to GDP per capita declined markedly in the early 2000s, and in 2005–09 it reached a low. This decline was part of the general trend of reducing public expenditure, and the decrease in expenditure on education was seen primarily in plans to reduce gaps in primary education and in budgeting post-primary education. Beginning in 2009, the public expenditure on education increased due to reforms intended to improve the teaching and learning processes and the standing and terms for male and female teachers (“Ofek Hadash–New Horizon” and “Oz L’tmurah–Courage to Change”), to reduce classroom crowdedness, and to grant free education from age 3 to the overall population. In 2017, the expenditure per student exceeded the level of the beginning of the millennium.



The increases in the education budget and in expenditure per student are critical to improving Israeli students’ achievements. Although in the past decade Israeli students’ achievements in international tests (PISA, PIRLS, TIMSS)[[1]](#footnote-1) improved, this improvement is still not enough—Israel’s ranking in the OECD, both in terms of expenditure per student relative to per capita GDP and in terms of students’ achievements on such tests, remains low, and Israel is even included in the group of countries with the largest gaps between weak and strong students. Success in reducing achievement gaps is expected to lead to a marked increase in productivity and growth and to reduce inequality in the economy.

Improved teacher quality is a central component in improving the education system and improving Israeli students’ rankings in international tests, as empirical findings indicate that there is a high correlation between the level of educators, as reflected in international tests in literacy and numeracy, and students’ achievements in those areas. Adult skills surveys conducted in OECD countries in recent years indicate that the level of Israeli teachers is relatively low compared to other OECD countries (Israel is ranked in 28th [female teachers] and 29th [male teachers] place out of 34). Their level relative to the rest of the population in Israel is also low compared to the corresponding ratio in other OECD countries.

Using a teacher-quality index based on teachers’ “Bagrut” high-school matriculation exam grades in math and language, we examined how the quality of educators changed in recent years. In particular, we examined the period before and after the implementation of the wage agreements (“Ofek Hadash” and “Oz L’tmurah”), which led to a change in educators’ monthly wage without increasing their hourly wage. The examination indicates that beginning in 2007, and close to the beginning of the implementation of the wage reforms, there was an increase in the quality of teachers who entered the system, but that in recent years, quality declined sharply. These developments occurred among male and female teachers, in all stages of education (primary schools, junior high schools, and high schools).



The integration of the various reforms in the education system could explain the halt in the improvement of teacher quality in recent years, as measured by their “Bagrut” high school matriculation exam scores: the “Ofek Hadash” and “Oz L’tmurah” reforms changed the employment structure of teachers, but the reforms’ impact on hourly wage of male and female teachers was minimal. Alongside these reforms, the increase in the number of students in the system (relative to the population) and the reforms that led to a contraction in the number of students per class increased the demand for teachers—their overall number in the education system increased at a faster pace than the increase in young employees in the economy. The need to absorb teachers in the system at a broad scope without improving the ratio of hourly wages between them and other young employees in the economy seems to have come at the expense of quality of the teachers that entered the system.

In accordance with these findings, it is recommended to implement several specific policy steps: to attract quality teachers to weak schools via grants; to minimize the budgeting gaps between various population groups by aligning the number of hours provided to them in accordance with the various cultivation index quintiles in primary education and in junior high schools; in view of the skills gaps identified among adults between Israel and OECD countries and the low expenditure on the academic track in secondary education, it is recommended that the Ministry of Education allocate more resources to this track as most students turn to it and over time it impacts considerably more on workers’ skills.

1. Most of the change was achieved on tests conducted in 2015–16 relative to 2006–07. [↑](#footnote-ref-1)