

The Education System: An Overview

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General background

This overview surveys recent developments in Israel's education system. The analysis focuses on three areas: the demographic composition of the student population, the education budget, and teachers.¹ In each of these areas, the discussion begins with a description of the trends and then focuses on one or two specific issues. The demographic composition section looks at the difficulties of forecasting the student population and developments in the Arab education sector. In the discussion of resources available to the education system, the focus is on the increase in expenditure per student and comparisons to the OECD countries. In the discussion of teachers, the focus is on a number of comparisons to OECD averages. The issue of teacher shortages will also be considered.

Figure 1 points to several trends that have characterized the education system during the past decade. Overall, it can be said that, since 2010, the education budget has grown faster than the number of teachers, the number of teachers has grown faster than the number of classes, and the number of classes has grown faster than the number of students. These processes made it possible to increase the per class and per student allocation, to improve student achievements, and to narrow gaps in the system on the Meitzav and bagrut (matriculation) exams. In the latest PISA exam, there was a decline in the performance of Arab Israeli students, but since this trend was in the opposite direction of other, positive developments, it should be examined more closely. If there is a connection between the quantity and quality of resources and expected educational outcomes, then at least in theory (and without getting into causal aspects), they have also facilitated an

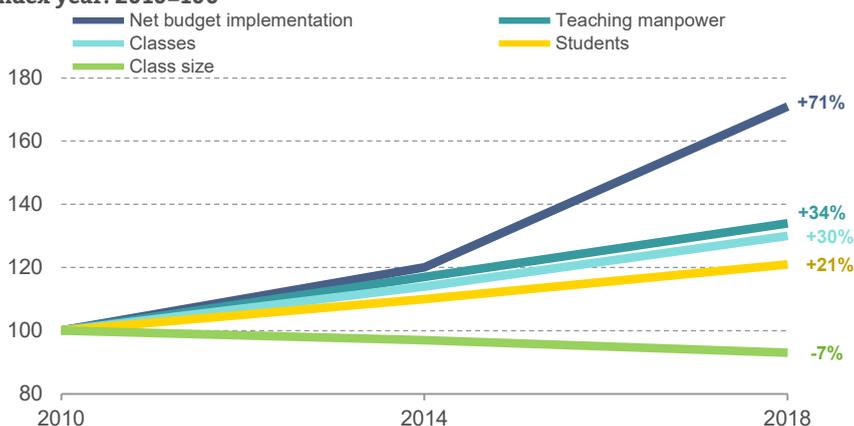
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1 This review will not include academic achievement since this topic has been discussed in the *State of the Nation Report 2018*. Since that time, no additional international test scores have become available. Furthermore, the Meitzav results for 2018 have only been published in part due to problems with the data. The results of the PISA 2018 exams were only recently released and so were not available for this survey.

improvement in academic achievement and the narrowing of educational gaps. These have always been two of the Ministry of Education's main goals and they have been examined in detail in previous papers (Blass & Shavit, 2017; Blass, 2018).

Figure 1. Budget, teachers, classes, and students

Index year: 2010=100



Note: Students are from preschool through high school.

Source: Nachum Blass, Taub Center | Data: Ministry of Education, *A Wide Perspective*

The data presented in Figure 1 aggregate all the components of the education system (preschools, primary schools, middle schools, and high schools; the Hebrew education system and the Arab education system; the State school system, the State-religious school system, and the Haredi (ultra-Orthodox Jewish) school system; the official school system and the recognized unofficial school system; and all of the various districts).² They do not necessarily describe the actual developments in each of the systems' components.³ Nonetheless, they provide the broad perspective necessary for this discussion.

2 The Hebrew and Arab education systems are based on the supervisory authority and language of instruction. The Hebrew education sector includes Hebrew State, State-religious, and Haredi schools. The Arab sector includes Arab, Druze, and Bedouin education. The majority of students in Hebrew education can be assumed to be Jewish, and the majority of students in the Arab sector can be assumed to be Arab Israelis. Nevertheless, the division by the Central Bureau of Statistics is based on the language of instruction and not the religion or sector of the students.

3 It could even be said that the trends in each of the system's components differ considerably from the overall trends.

The demographic composition

During the last two decades, the education system has undergone major demographic shifts. The first decade was characterized by massive growth in the population of Haredi and Arab students (Table 1). In contrast, during the second decade, the share of Arab-speaking students declined, as a result of the drop in the birth rate within the Arab population, and the share of Haredi student began to stabilize, apparently as a result of secularization processes (Weinreb & Blass, 2018). At the same time the system experienced a sharp drop in the share of students in Hebrew State schools during the first decade and its recovery and even growth during the second, along with stability in the share of State-religious schools throughout the period.

Table 1. The share of each education sector and grade level

	Preschool	1 st grade	Grades 1-6	Grades 7-9	Grades 10-12	Total
Hebrew State						
2000	43%	45%	48%	55%	59%	51%
2010	37%	40%	40%	45%	49%	42%
2019	40%	41%	42%	44%	45%	42%
Hebrew State-religious						
2000	17%	15%	15%	14%	14%	15%
2010	15%	14%	14%	13%	13%	14%
2019	17%	15%	15%	13%	12%	14%
Haredi						
2000	20%	14%	13%	10%	10%	13%
2010	25%	18%	18%	14%	14%	18%
2019	23%	20%	20%	17%	17%	20%
Arab						
2000	19%	26%	24%	20%	16%	21%
2010	23%	28%	28%	27%	23%	26%
2019	20%	23%	24%	25%	26%	24%

Source: Nachum Blass, Taub Center | Data: Ministry of Education, *A Wide Perspective*

A more in-depth analysis of each of these groups indicates the following trends:

The changes in the Hebrew State school system are particularly notable in the younger age groups. While the share of preschool and kindergarten students in the State education system dropped from 43 to 37 percent between 2000 and 2010, their share rose again from 37 to 40 percent between 2010 and 2019. The explanation for this involves several factors: an increase in the birth rate among secular women; the Free Compulsory Education Law for the 3 to 4-year-old age group, which apparently contributed more to the State education segment than to the others;⁴ the secularization process in the religious and Haredi populations; and some growth in the number of Arab and non-Jewish students within the Hebrew State education system. It is beyond the scope of this paper to determine the role played by each of these factors in the recovery of the Hebrew State education system; nonetheless, it can be said that these factors together led to a reversal of the first decade's trend during the second decade.

The share of students in the State-religious education system remained relatively constant, in contrast to the Jewish State education system. This is despite the higher birth rates among the National-religious population than among the predominantly secular population in the Hebrew State education system. Furthermore, the share of immigrant students in the State-religious education system is higher than in the State education system (see Table 2). One of the reasons — and perhaps the main one — that the share of the State-religious education system remained stable is apparently connected to the particularly strong secularization processes in that sector. Other possible explanations are that there are religious families who in the past sent their children to State-religious schools and are now sending them to State schools, because the State-religious system has, to their taste, become overly extreme in its religious demands. On the other hand, there are religious families that sent their children to State-religious schools in the past and who became more extreme in their religious observance and now send their children to Haredi schools. Overall this points to the fact that the outflow of students from the State-religious system has been larger than the inflow.

4 Note that the discussion relates to preschools supervised by the Ministry of Education and that some of the changes do not actually reflect demographic changes but rather the reaction to the implementation of the Trajtenberg Committee recommendations to extend the Free Compulsory Education Law to the 3–4 age group and the shift of children who previously attended private preschools, or no preschool at all, to public preschools. Nonetheless, the claim that these children are perhaps from secular families and attended Haredi preschools in the past due to their lower price and then moved to public preschools as a result of the law appears to be on weak ground. This claim has two justifications: First, studies carried out in the past showed that parents rarely send their children to educational frameworks that are opposed to their way of life and second, the rates of growth of the Haredi population in the kindergarten segment has been stable since 2006, which was well before the law's passage.

The share of the Haredi sector — which should not be viewed as a monolith — within the student population has also undergone major changes. Between 2000 and 2010, it grew at a particularly fast rate, and since then, its growth has slowed in all age groups; the share of Haredi preschools has actually seen a decline. These data are particularly interesting in view of the high birth rates of the Haredi population, which remained basically unchanged during the last decade, and is almost three times higher than that of the secular population and one and a half times higher than of the religious population.⁵

The greatest changes can be seen in the Arab education sector. With respect to first grade classes and first through sixth grade classes, the share of the Arab sector fell from 28 percent in 2010 to 23–24 percent in 2019. Its share in the older age groups (Grades 10 through 12) rose, but this is apparently the result of relatively high birth rates until 2005 combined with an increase in attendance rates. It appears that as the attendance rate of Arab students approaches 100 percent, the concomitant drop in the birth rates of Arab women will be reflected in a declining share of the Arab sector in the middle and high school systems in coming years.

Developments in the Arab education system

One of the more interesting processes occurring in the education system that has not received much attention, even though it may have important implications in the future, is the choice of Arab Israeli parents to send their children to Hebrew schools. Although at the moment this is a very limited phenomenon (see Shwed, Shavit, Dellashi, & Ofek, 2014), it is nonetheless on an upward trend. As of 2018, the share of Arab Israeli students exceeds 10 percent in 24 out of 1,664 Hebrew State schools. Furthermore, these schools are located in cities that are defined as Jewish or as mixed. Such a large share of Arab students in a Hebrew school can affect the school's activities, with respect to issues like the celebration of Jewish and Arab holidays and the accompanying ceremonies, the language of instruction, the content taught in the classroom, etc. This may also affect the school climate in various ways, as well as levels of academic achievement. Furthermore, the political, public, and social ramifications of having a student population that is more than 10 percent Arab Israeli in a school within a Jewish city — even if it is the only one in that city — may be far-reaching. The attendance of Arab students in Hebrew schools is related, among other things, to the housing difficulties faced by the younger generation in Arab Israeli towns, which results

⁵ According to one researcher (Hleihel, 2017), the birth rates have grown to over seven children per woman, while according to another (Weinreb, in preparation) the trend is in fact downward. Whatever the case, the average per woman is still more than 6.5 children.

from the lack of approved zoning plans as well as the desire of a growing percentage of the population — and in particular families that are better off and better educated — to provide their children with what they consider a higher quality education than that available in the Arab education system.⁶

Another phenomenon in the Arab sector, described in an earlier paper (Blass & Douchan, 2006), is the inflow of non-native-born Arab students into the Israeli education system. We would not have examined this issue if it had been of negligible proportions, but as we have shown, this is not the case. The rate of addition of students with at least one foreign-born parent to the population of Arab students in 2005 (the reference year in the 2006 article) **was higher than the addition of Jewish students** with at least one foreign-born parent to the increase in the population of Jewish students. In that article, we assumed that this phenomenon would diminish following the introduction of a more stringent family unification policy. However, the figures for 2010 and 2019 (see Table 2) show that despite a small decline, the share of Arab students not born in Israel is still higher than the corresponding share in the Hebrew sector.

In addition, 6 percent of the students in Arab schools are the children of fathers born in the territories and 9 percent are children of mothers born in the territories. In other words, more than 10 percent of Arab students would be classified as “children of immigrants” if the same definition that is applied to Jewish students would be applied. These rates are much higher among Arab students attending Hebrew schools. Apparently, most of these students come from the West Bank. Some of them arrived as a result of family unification approved by the Israeli authorities while others entered Israel illegally; in addition there are the children of Palestinians who assisted the Israeli security forces and were forced to leave the West Bank and were re-settled in Israel.

6 The average level of education of the parents of Arab students in Hebrew schools is much higher than that of parents of Arab students in Arab schools (Blass & Weinreb, in preparation). Another aspect of this phenomenon is the growth of the recognized unofficial school system in the Arab sector. For example, at the primary school level, it grew from 7 percent in 2000 to 17 percent in 2019.

Table 2. Share of non-native-born students by supervisory authority and sector at different education levels

	Supervisory authority	1 st grade	Grades 1-6	Grades 7-9	Grades 10-12
2001	State	1.02	1.23	1.64	3.21
	State-religious	4.84	6.54	10.13	8.03
	Haredi	0.18	0.15	0.28	0.46
	Arab		2.01		
2010	State	0.04	0.06	0.93	1.74
	State-religious	0.04	0.12	5.90	8.36
	Haredi		0.01	0.26	1.95
	Arab		0.95		
2018	State	0.61	0.63	0.9	0.06
	State-religious	0.95	0.12	5.9	8.36
	Haredi	0.17	0.19	0.08	0.01
	Arab		1.02		

Note: Nachum Blass, Taub Center | Data: Ministry of Education, Student database

The difficulty in forecasting demographic developments in the education system

The demographic composition of the education system, and, in particular, the growth in the share of Arab and Haredi students, has received a great deal of attention. According to earlier estimates, by the middle of the current decade, the share of the Jewish non-Haredi education system should have declined to less than 50 percent of all students by 2014 and this should have eventually brought about a social and economic collapse of the system (see, for example, Bystrov & Soffer, 2010; Ben-David, 2010; Arlosoroff, 2019; Detel, 2019). However, notwithstanding these forecasts, the share of first grade students in the Hebrew State education system and in the State-religious education system currently stands at 57 percent. The disparity between the forecasts and reality implies that abilities to forecast future trends is limited.

In order to illustrate the problematic nature of projections, consider the forecasted 2019 student population that was published by the Central Bureau of Statistics (CBS) in 2013. As can be seen in Figures 2a and 2b, the

CBS forecasted a continuous decline in the share of first grade students in the State education system, somewhat of an increase in the share of students in the State-religious education system and in the Haredi education system, and no change in the share of students in the Arab education system. However, in actuality, the share of students in the State education system remained stable, the share in the State-religious education system rose by 1 percent (as projected), the share in the Haredi education system also rose by 1 percent (which is less than projected), and the share in the Arab education system fell by 2 percent, although no change had been projected.

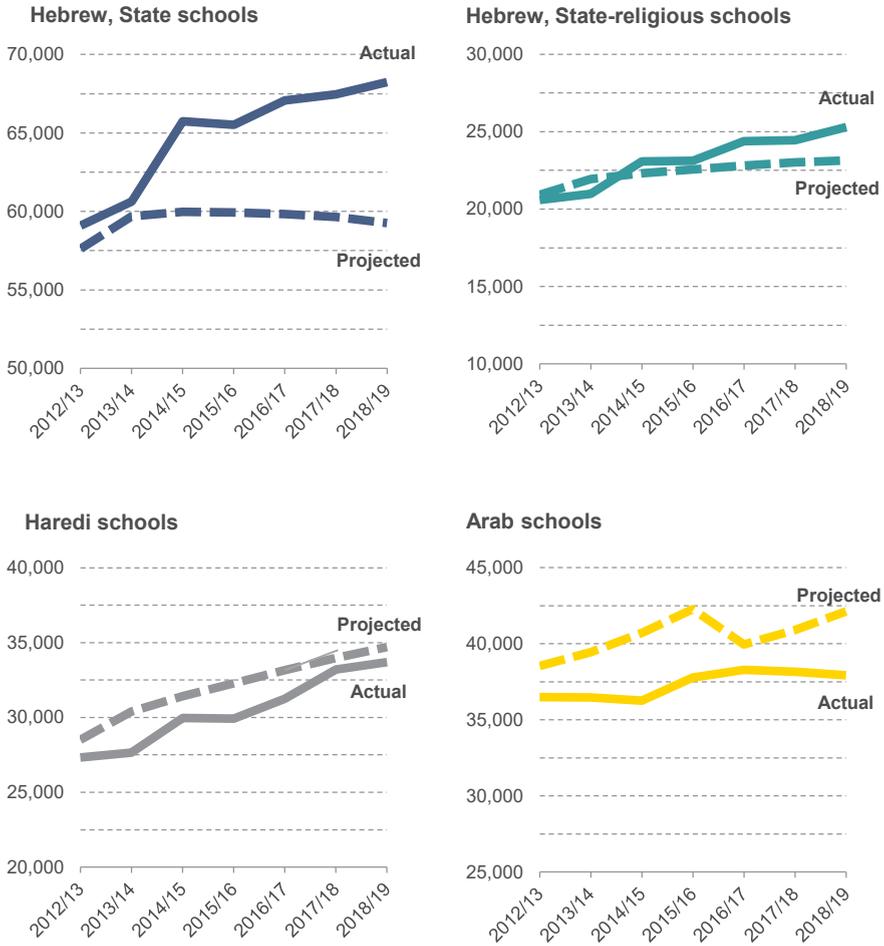
The fact that there are such large differences between the projections and reality — despite the fact that the projections were made by professional demographers and were based on a population that had already been born — is not proof of errors. Rather it illustrates the difficulty in making accurate forecasts. Every forecast, by its very nature, has components of uncertainty (“error”), particularly when it is predicting behavior (in this case, the choice of a school). The projections can do no more than provide an indication of past trends, but policy makers must always keep track of developments. Forecasts of the number of students — and also of demand and supply for teachers, as has been shown in the past (Blass, 2010) — cannot take into account all of the components that affect the great variability and complexity of the task. In this specific case, the main factor that apparently determined the gap between the projections and reality is the flow of students between the four main segments that make up the system and in particular between the more religious and less religious schools.

Another important factor that makes it difficult to forecast trends is the dynamic nature of the education system in Israel, as suggested by Blass and Bleikh (in preparation). The period between 2014 and 2018, saw a change in at least one of the main characteristics of 40 to 63 percent of primary schools.⁷ The system’s dynamic nature primarily stems from the school’s Nurture Index, although in some cases it also includes a shift from one legal status to another (primarily from recognized to unofficial due to the budgetary advantages of such a move) and less commonly from a shift from one type of supervisory authority to another (primarily in the case of schools that serve the religious populations).⁸

7 The relevant figure is 40 percent when looking at Nurture Index quintiles and 63 percent when considering Nurture Index deciles. The other variables include supervisory authority, legal status, and others.

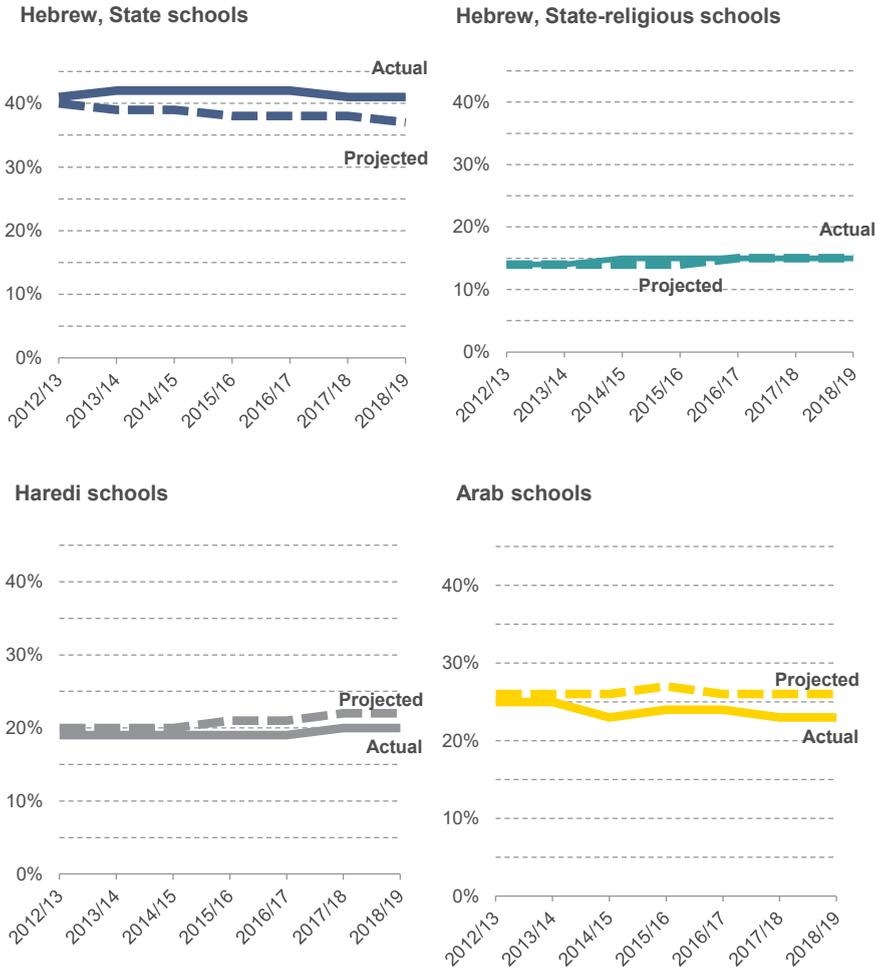
8 The Nurture Index is an index of the Ministry of Education used to classify schools by the socioeconomic composition of their student body.

Figure 2a. Number of 1st grade students by supervisory authority, actual versus projected



Source: Nachum Blass, Taub Center | Data: CBS, 2013

Figure 2b. Share of 1st grade students in the supervisory authority out of all 1st grade students



Source: Nachum Blass, Taub Center | Data: CBS, 2013

The resources available to the education system

Figure 1 shows changes during the survey period in the four main “physical” variables of the education system: the budget, teachers, classes, and students. The figures clearly show that the financial resources made available to the education system have made it possible to increase spending per student and to reduce the number of students per class.

The budgets from 2015 to 2018⁹

In a previous Taub Center study (Blass & Cogan, 2014), various issues relating to the Ministry of Education budget, namely its size, its allocation among various needs, its usage and its transparency were discussed in detail. Since that study was published, there have been changes in the budget approval process of the Knesset Finance Committee. To this end, there is a new special committee headed by MK Stav Shafir that is meant to examine budget transparency. Nonetheless, most of the problems highlighted in that study (for example, less than full utilization of the budget, the extent of transfers from one budget line to another without an in-depth discussion by the Education Committee, and a lack of clarity with respect to the goals of the budgets) still exist in the current budget and the budget remains complex and difficult to understand for the layman. In this survey, topics included in the previous study will not be reexamined; the focus is only on the main changes that have occurred in the budget from 2015 to 2018, the last year for which implementation reports from the Accountant General and reports on investment in education in Israel relative to the OECD averages (based on the EAG figures for 2019) are available.¹⁰

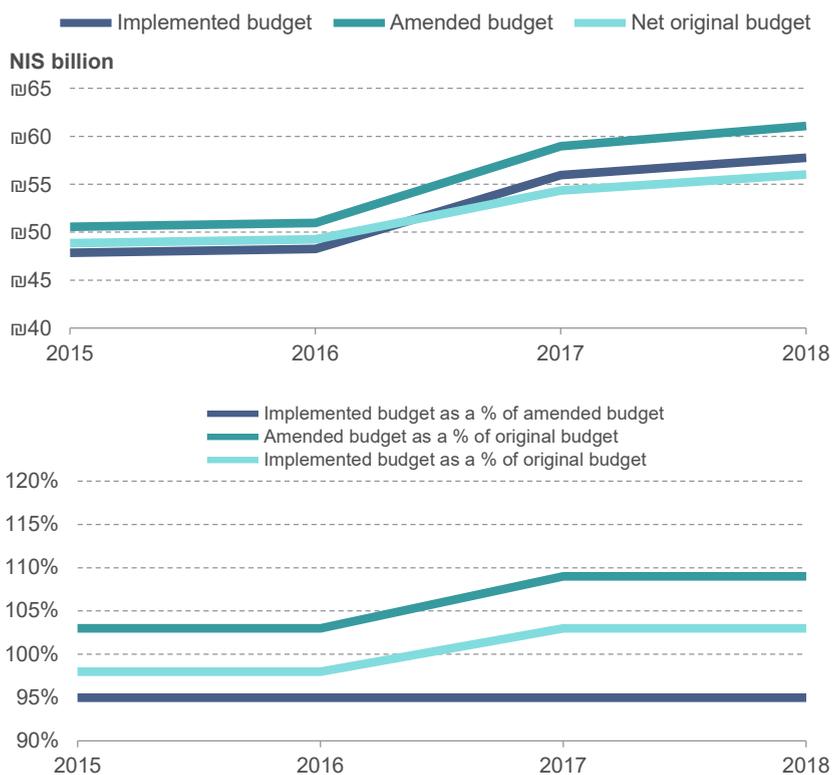
During the survey period, the approved education budget grew by 15 percent, the amended budget grew by 21 percent and the implemented budget also grew by 21 percent (see Figure 3). As in previous years, the

9 This period was chosen for two reasons. First, a previous study (Blass & Cogan, 2014) examined the period from 2000 to 2013. Second, the changes that occurred in the structure of the budget and in the definition of its budget lines make it difficult to compare budgets from 2015 onward to budgets prior to that period. In what follows, we will not relate to the budget for Educational Television, which, in our opinion, is not relevant to the discussion, nor to the various reserve budget lines that constitute a special problem that has already been discussed in detail in our previous work (ibid.).

10 *Education at a Glance (EAG)* is an annual publication of the OECD that contains a large amount of statistical data on the education systems in the OECD and other countries. The data are submitted to the editors of *EAG* by the participating countries. It is considered to be one of the most reliable sources for purposes of comparing education systems over countries.

amended budget was larger by an average of 6 percent than the original budget while the budget implementation was basically similar to the original budget (it was larger by an average of only 1 percent), which stood at 95 percent of the budget after amendments introduced during the budgetary year.¹¹ The next section examines whether the growth in the budget was divided equally among all of the Ministry's areas of activity.

Figure 3. Total budgets, June 2015 prices



Source: Nachum Blass, Taub Center | Data: Ministry of Finance (various years)

¹¹ The question that has arisen as to the Ministry of Education's ability to fully exploit the budget remains unresolved. Officials at the Ministry of Education claim that what should be looked at is the ratio of actual usage to the original budget. We believe that the relevant comparison is between the amended budget – since it is the budget that is actually available to the Ministry of Education – and actual usage. If one examines the Ministry's usage of the budget from this perspective, then in 2018 almost NIS 2.5 billion of the budget remained unused.

The Ministry of Education budget is structured around 10 areas of activity, 32 programs, and 640 program items.¹² The logic underlying this division is not always clear. In 2015, for example, the largest area of activity was primary schools and middle schools (over NIS 14 billion) and the smallest was support for the teaching of Jewish religious subjects (NIS 1.1 billion). With respect to programs, the relative gaps are even larger. Thus, over NIS 12 billion went to the official primary education system as opposed to only NIS 18 million to education for gifted students. With respect to program items, there is an item with a budget of more than NIS 8 billion (standard hours in the official primary education system) as opposed to another with a budget of only NIS 9,000 (activity in the Druze education system).

The growth in the budget was not distributed uniformly among its budget lines. There were lines that grew by hundreds of percent and others that shrunk considerably. The scope of the current discussion does not allow for a full discussion of the budget and certainly not separate consideration of the original budget, the budget after amendments and the budget implementation. Nonetheless, considering only the large budget lines (over NIS 100 million) it is possible to discern some interesting trends.

This analysis begins at the level of areas of activity, which is the most general one, and uses the Ministry of Education's most general classifications. With respect to actual implemented budget (see Appendix Table 1), which is believed to be the most accurate indicator of the Ministry's policy, one can see that the area of activity that grew the most was supplementary educational programs (62 percent). Following that is special education (30 percent), high schools (25 percent) and support for Jewish subjects (24 percent). However, if one looks at the original budget or the budget after amendments, a different picture emerges, such that the gaps between the original budget and the implemented budget are particularly large in two budget lines: supplementary programs and support for Jewish subjects.

An examination of budget implementation on the program level, which is a more detailed level, shows that the fastest growth was in the long school day program (229 percent), in spite of the fact that the original budget shrank by 44 percent. Other programs that grew rapidly were computers, technology and sciences (64 percent), informal education and Jewish culture (45 percent each,) and Ma'ayan Ha'Torah education (37 percent). In contrast, there were very few programs in the original budget that grew faster than the overall budget in 2018 (21 percent). How then was it possible for the level of implementation to grow as it did? The answer lies in the changes to the Ministry's budget during the course of the budget year.

12 Not including educational television and reserves.

The most detailed level is that of budget item lines. In 2018, the original budget included two budget item lines with large budgets that had not appeared in the 2015 budget: the addition of a second assistant in preschools, which was allocated NIS 471 million, and to which over NIS 100 million was added during the year (actual implementation was NIS 564 million), and closing gaps in the periphery, which was allocated NIS 145 but was not utilized at all (does not appear in the implementation report and apparently the money was transferred to other budget lines). Other program items whose budgets grew significantly were summer schools (67 percent), community centers (54 percent), and the longer school year in the official education system (50 percent).

Overall, it is difficult to arrive at clear conclusions with respect to the general policy adopted in the budget preparation and implementation. Although there are signs of an intention to reduce social and educational gaps and to increase budgets for the Haredi population, there are also trends in other directions, such as increases in the special education budget and the addition of a second assistant teacher in the preschools.

The increase in expenditure per student

The Economics and Budget Authority within the Ministry of Education publishes annual data on expenditure per student and per classroom according to sector, supervisory authority, and Nurture Index.¹³

Primary schools: According to the most recent data, the budget per student in the primary school system was NIS 14,530 in 2017 as compared to NIS 12,409 in 2014 (an increase of 17 percent). The size of the budget and its rate of growth varied according to supervisory authority, the school's Nurture Index, and the education sector. Both the average budget and its rate of growth were higher in the Arab sector, but the average size of the budget at any given level of the Nurture Index was still much higher in the Hebrew sector. The changes in expenditure per student are also reflected in number of hours per student. Here as well, there was a significant increase in the two sectors and in each of the Nurture Index groups, with a larger increase in the Arab sector, although in each Nurture Index group, the Hebrew sector was in a significantly better position. In the summary table that appears in the publication of the Economics and Budgeting Authority, it appears

13 Ministry of Education budget data by year can be found on the site of the Economics and Budgeting Authority of the Ministry of Education <https://edu.gov.il/sites/MinhalCalcala/budget/Pages/budget.aspx> and also at <https://meyda.education.gov.il/files/MinhalCalcala/shkifut2012--2017.pdf>

that, in 2017, students in the State-religious system benefited from the highest budgets at all levels of the Nurture Index and as a result also from an overall perspective. Students in the official Hebrew system ranked second, followed by students in the official Arab system, and trailing well behind them were students in the recognized unofficial system and exempt schools.¹⁴ Nonetheless, based on hours per student, the relative situation of the unofficial networks has improved considerably. A more detailed analysis of the factors behind the differences in allocation between the various parts of the system and disparities between them in primary education is presented in two recent Taub Center publications (Blass & Bleikh, 2018; in preparation). The conclusion of the researchers is that the extent of budget preference is dependent primarily on four main factors: the students' socioeconomic backgrounds; budgeting rules that are on the one hand universal but on the other hand give priority to schools with characteristics that are more commonly found in certain parts of the education system than others (such as school size, its inclusion in the long school day program, etc.); other operational rules in the education system, such as the maximum distance of a child's residence from the school; and the preference given to official education over recognized unofficial education and exempt schools. Nonetheless, some of the preference cannot be explained by the universal rules and is apparently the result of budget preference given to the State-religious system over other parts of the education system and to Hebrew education over Arab education.

Middle schools: The average expenditure per student in the middle schools rose from NIS 16,486 in 2012 to NIS 20,460 in 2017, an increase of 24 percent. Here again, the increase in the Arab sector was higher than in the Hebrew sector. As in the case of primary schools, the expenditure per student in the State-religious schools was significantly higher than in the Hebrew State school system and in the Arab State system and this was the case at all Nurture Index levels.

High schools: In the high school system, the average expenditure per student rose from NIS 21,165 in 2012 to NIS 27,658 in 2017, an increase of 30 percent (which primarily reflected the effect of the Oz Le'Temura wage agreement signed in 2011). The budget per student in the high school system in all the years was higher in the Hebrew system than in the Arab system

¹⁴ "Exempt schools" are, for the most part, Haredi schools that teach very few, if any, secular subjects. Parents who send their children to these schools are "exempt" from the Compulsory Education Law.

although the budget in the Druze system was close to the Hebrew average. Here again, the expenditure per student in the State-religious system was the highest at NIS 37,669 in 2017 as compared to NIS 29,048 in the Hebrew State system (a difference of 30 percent) and to NIS 22,642 in the Arab State system (a difference of 66 percent). It is worth mentioning that an Arab student (including Druze students whose budget is relatively generous) attending a school with a low Nurture Index benefits from a budget of NIS 22,575, as compared to NIS 39,573 that is allocated to a student in the Hebrew system attending a school with a similar Nurture Index (a difference of 75 percent).¹⁵ In this context, the academic achievement (in all its aspects) of Druze students, who enjoy much higher budgets than other Arab-speaking students (and also a long school day), are very similar to those of their Hebrew-speaking counterparts and sometimes even exceed them. This may not be an empirical basis for the link between investment in education and academic achievement, but it is, nonetheless, food for thought.

International comparisons of expenditure per student

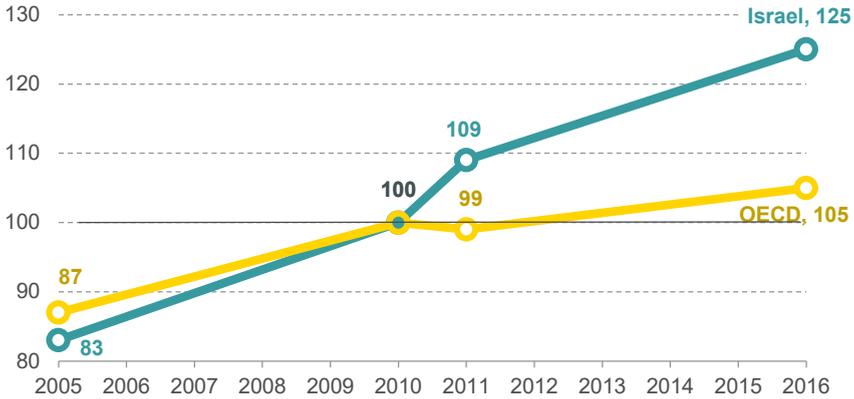
The public discourse in Israel usually focuses on comparisons to other countries, such as the US, Finland, and Japan. The reasons for this are probably the desire to be similar to the US and other countries that can show a higher level of academic achievement. However, due to the large differences between Israel and these countries in size and ability to allocate resources to education, as well as differences due to culture and values, it appears that comparisons should be made to other countries, and, in particular, European countries. In view of the difficulty in finding one or more countries with whom a meaningful comparison can be made, the current comparison is made to the OECD average. The data presented in Figure 4 clearly show that the growth in expenditure per student was slower between 2005 and 2011 than between 2011 and 2016. The reason for this is that between 2007 and 2011 only the teachers belonging to the Teachers Union (teachers in primary and middle schools) received large pay increases following the signing of the Ofek Hadash agreement and only in 2011 did the high school teachers also receive a significant pay increase following the signing of the Oz Le'Tmurah agreement. It is likely that the difference in the rate of increase in teachers' salaries between Israel and the OECD countries continued to grow until the

15 The budget transparency data are presented in quintiles on the Budget Transparency site of the Ministry of Education. However, the relative proportion of Arab students is also larger in the lower Nurture Index quintiles and vice versa, so that in the higher quintiles, they constitute a lower proportion. This fact highlights the advantage of the Jewish students even in the lower quintiles.

recent completion of the process in which all the high school teachers joined the agreement.

Figure 4. Index of per student expenditure

Index year: 2010=100



Note: The figure relates to overall student expenditure, from primary school through to non-academic post-secondary studies.

Source: Nachum Blass, Taub Center | Data: EAG 2019, Table C.1.3.

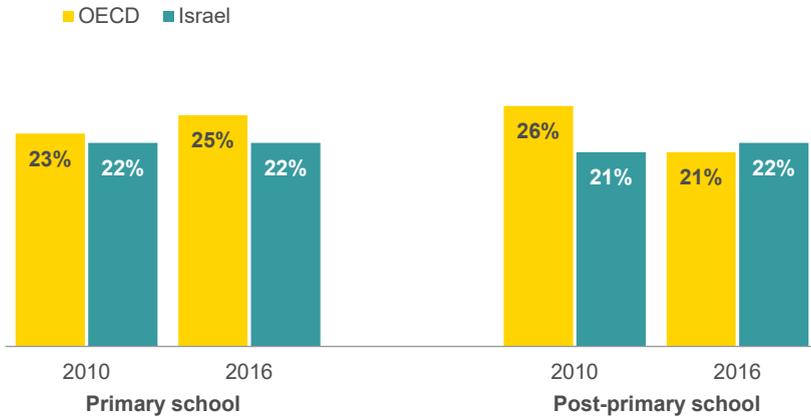
As shown in Figure 5, the Ofek Hadash and Oz Le'Temurah agreements led to a situation in which the expenditure per student in terms of purchasing power parity (PPP) in the primary schools almost reached the OECD average; however, the gap remained large in the high schools (although it is expected to narrow with the implementation of this sector's new wage agreements).

Figure 5. Per student expenditure
2016 PPP dollars



Source: Nachum Blass, Taub Center | Data: EAG 2019, Table C.1.1.

Another criterion for investment in education that is mentioned in the OECD's *Education at a Glance* is the rate of expenditure per student relative to GDP per capita. This criterion indicates the priority of education in each country, although it should be remembered that a country such as Israel, which has a larger share of school-age children, will find it difficult to make the same expenditure per student as a country with a smaller share of students in the population. Figure 6 shows that, in 2010, Israel invested a smaller share of GDP per capita in each primary school student than the OECD average and the gap has grown between 2010 and 2016. In the high school system, there was a large gap in favor of the OECD at the beginning of the period, but it had closed by the end of the period and expenditure per student in Israel even somewhat exceeded the OECD average.

Figure 6. Per student expenditure as a percent of per capita GDP

Source: Nachum Blass, Taub Center | Data: EAG 2019; 2013, Indicator B1

Teachers

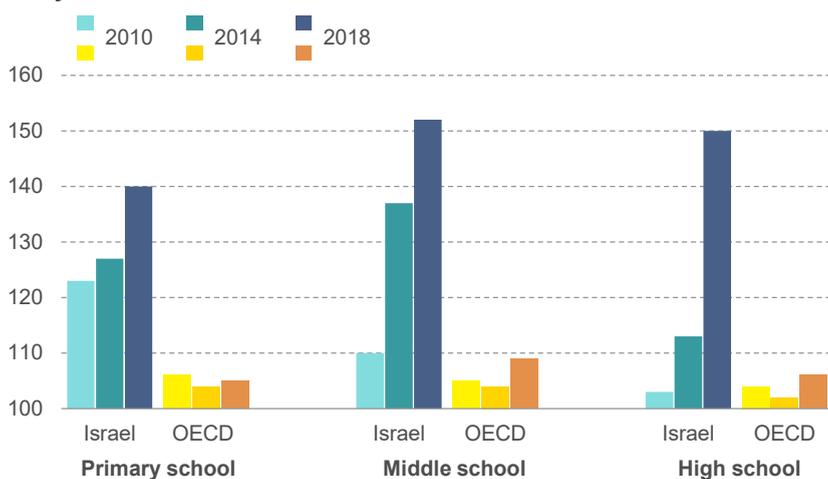
The Ofek Hadash and Oz Le’Temurah agreements brought about a major change in the structure of teacher employment (see Blass, 2016). In general, the data indicate that, on balance, the wage agreements led to positive change. The number of teachers grew twice as quickly as the number of students and 50 percent faster than the number of classes (see Figure 1). The expectation that teachers’ salaries would improve was realized and the average nominal monthly wage of a teacher rose by about 63 percent, from NIS 6,859 in 2004 to NIS 11,187 in 2015. At the same time, the CPI rose by only about 25 percent. Despite the number of additional teacher work hours required, the annual nominal wage per hour grew during this period by about 34 percent (see CBS, 2019b). Furthermore, there was a large addition of hours in the education system, which was reflected in both the number of hours per class and number of hours per student. In contrast, the fear that teachers would drop out of the system in large numbers turned out to be unfounded. Indeed the drop-out rate of teachers was 4.3 percent in 2016 and 3.8 percent in 2015 as compared to 3.8 percent in 2007, the last year prior to the start of the implementation of the Ofek Hadash agreement. The CBS even reported that “there has recently been somewhat of a downward trend in the number of teachers leaving the system — from 4.6 percent on average between 2001 and 2003 to 3.9 percent on average between 2014 and 2016” (CBS, 2019c).

An international comparison

The situation of teachers in Israel has also improved relative to the OECD averages (Figure 7).

Figure 7. Index of teacher's wages

Index year: 2005=100



Source: Nachum Blass, Taub Center | Data: EAG 2019, Table D.3.5.a

Between 2005 and 2010, the increase in primary school teacher wages was faster than that the increase in wages for middle and high school teachers. The reason for this is, of course, the wage agreement with the Teachers Union, which represents the primary school teachers, preschool teachers, and some of the middle school teachers. That agreement was signed in 2007 while the agreement with the Teachers Organization, which represents the rest of the middle school teachers and the high school teachers, was signed in 2011.¹⁶

Despite this, teachers' wages are higher in the OECD in PPP terms with a particularly large gap for beginning teachers. Thus, for example, while the annual salary of a beginning primary school teacher in Israel is \$21,276 in

¹⁶ It appears that the delay in the signing of the agreement with the teachers belonging to the Teachers Organization led to substantial accumulated losses for its members, even though the improvement in their wages that was eventually negotiated was larger.

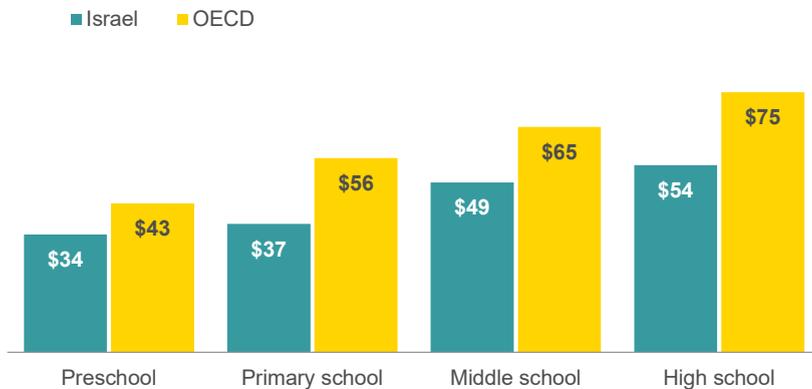
PPP dollars, the comparable wage in the OECD is \$32,058. On the other hand, the salary of a primary school teacher with maximum seniority in Israel is \$53,639 as compared to \$55,364 in the OECD. For high school teachers, the beginning salary in Israel is \$22,629 while in the OECD it is \$35,859; in contrast, the salary of a high school teacher with maximum seniority in Israel is \$54,969 as compared to \$60,677 in the OECD.¹⁷

Teachers in Israel earn less than other employees with university degrees. Thus, the salary of a preschool teacher is about 15 percent less than that of other university graduates; the salary of a primary school teacher is about 12 percent less; the salary of a middle school teacher is about 4 percent less; and the salary of a high school teacher is about 6 percent less. Nonetheless, the situation of teachers with seniority is better than that of their peers in the OECD. The reason for this is that the weight given to seniority in the calculation of teachers' salaries in Israel is greater than in the OECD. Thus, in 2018, the salary of a middle school teacher in Israel with maximum seniority (36 years) was higher than that of a beginning teacher by 116 percent while in the OECD countries, where the maximum seniority is 25 years, it was only 66 percent higher.¹⁸

The comparison of teachers' wages per hour of frontal instruction between Israel and the OECD shows that salaries are significantly lower in Israel, especially in the primary school system (Figure 8).

Figure 8. Net wage per instruction hour

Teacher with 5 years experience, PPP dollars



17 See EAG 2019, Table D.3.1.a.

18 See EAG 2019, Table D.3.2.a and D.3.3.a.

Source: Nachum Blass, Taub Center | Data: EAG 2019, Table D.3.3.a

Is there a teacher shortage?

Before discussing the question of a teacher shortage, it is important to define the term.¹⁹ To this end, there are a number of external criteria that do not rely on subjective reports that are closely tied to the specific situations of principals and/or supervisors and education department heads in the municipalities.

In general, it can be said that the existence of a teacher shortage or an expectation of one is largely dependent on the demand components for teacher work hours on the one hand and the potential supply of work hours, or in other words the hours that the teachers in the system (or outside it) are prepared to work, on the other hand.

Due to the relatively lengthy period for teacher training, and the frequent changes in both demand and supply, it is difficult to provide policy makers with an accurate forecast. Moreover, in order for the forecast to be an efficient tool, it must relate separately to supply and demand according to subject, the education segment, the supervisory authority, and the geographic region. Therefore, the complexity of projections and of policy formation based on projections should lead to more humble claims and to the recognition that these are only estimates. From a systemic perspective, it is our opinion that the potential “waste” of resources through the training of too many teachers is preferable to a teacher shortage, which can result in harm to a large population of students.²⁰

Claims are often made that there is a general shortage of teachers, of

19 In a research report ordered by the Ministry of Education, a shortage of teachers was defined as follows: “The shortage of teachers that existed in the schools at the beginning of the 5774 school year (2013/14), based on the number of new teachers joining the schools as well as the number of existing teachers whose hours were increased” (Donitsa-Schmidt & Zuzovsky, 2014, p.3). In our opinion this definition involves an internal contradiction, since if the schools have recruited teachers “without any difficulty” (according to the wording of the research questionnaire) or persuaded existing teachers to expand their hours, it makes little sense to speak of a teacher shortage. Moreover, it may be that the teachers are responding to a situation of excess demand and would have been interested in increasing their hours. Relying on the reports of the principals is problematic in our opinion. It is perhaps sufficient to point out that while Donitsa-Schmidt and Zuzovsky (2014) wrote that 74 percent of primary school principals reported a serious shortage of teachers and another 23 percent reported a moderate shortage, in the PISA 2015 study the parallel numbers for science teachers in the high schools were 32 percent and 27 percent, respectively (OECD, 2016, Table II.B.14).

20 A side benefit is enjoyed by children within the immediate and close vicinity of someone studying in a teachers’ college.

teachers in certain subjects, and of high-quality teachers. These claims are problematic for the simple reason that there is almost no situation in which a class is without a qualified teacher.²¹ School principals always find someone to put in front of the class. The challenge is to identify indicators of a shortage or a developing shortage. There are several clear signs of a teacher shortage, although they are very general and may be misleading for policy making. Therefore, they should be examined in the context of the subject being taught, the age group, the geographic location, the supervisory authority, and the sector.

It is also important to distinguish between the existing situation and a past trend or a trend that is expected to evolve in the future. The following questions are commonly presented in the professional literature when deciding whether there is a teacher shortage or an expectation of one.

1. Are the number of students and classes growing faster than the number of teachers?²²

When the number of students — and primarily the number of classes — is increasing faster than the number of teachers and there are no changes in the curricula, in the number of teaching hours required, or in the time students are in school, then, at least in theory, a teacher shortage can be expected. The severity of the shortage will depend on the size of the gap between the increase in the number of students and the increase in the number of teachers. The data presented in Figure 1 clearly show the opposite situation. In other words, the number of teachers has increased faster than the number of students and classes, a situation that should, in fact, lead to a surplus of teachers.

2. Are the number of uncertified teachers growing?

This criterion is perhaps the most indicative of a teacher shortage since it implies that the system is compromising on the teachers' level of education and training. However, the CBS data indicate that the share of teachers without a college degree — and uncertified teachers — has dropped from

21 This was recognized by Donitsa-Schmidt and Zuzovsky (2014, p. 3).

22 It is actually the number of teaching work hours that should be used but that number depends on teacher full-time equivalent (FTE). Therefore, if there are no changes in FTE, then it is the total number of teachers that is relevant.

18.4 percent in 2009 to 6.3 percent in 2018. Among teachers in the Hebrew education system, the decline was from 19.3 percent to 7.2 percent while in the Arab sector it was from 15.7 percent to 3.3 percent (CBS, 2019b).²³

3. Is there an increase in the average number of teaching hours (part-time and full-time teaching positions)?

When the demand for teachers — or for teacher hours — is static,²⁴ an increase in those teaching in full-time positions may be an indication of a teacher shortage. In other words, there is a need to encourage teachers in the system to increase their work hours in order to meet demand. However, during the past decade, the situation has not in fact been static. Since the signing of the new wage agreements, there has been a substantial increase in the demand for teachers (more students, more classes, and more hours per class); however, this demand has been met by an increase in the number of teachers but almost no change in the employment status (which is about 75 percent of a full-time position) in every segment of the education system.²⁵ Therefore, this criterion does not indicate a teacher shortage either.

4. Is the average class size increasing?

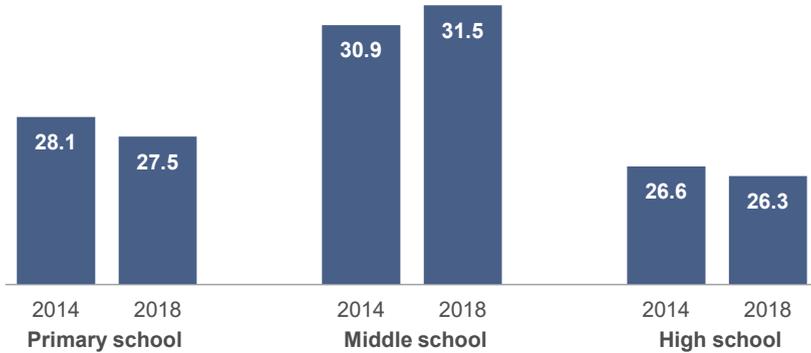
Another widely accepted indicator of a teacher shortage is an increase in class size resulting from the need to reduce the number of classes due to a teacher shortage. As can be seen from Figure 9, this is not the case. On the contrary, since 2014, class size has declined in all segments except in middle schools. Therefore, this criterion does not indicate a teacher shortage either.

23 The figures are lower for the Arab education sector because the teachers in this sector are significantly younger and the share of new teachers is higher.

24 A static situation is defined as no change in the number of students and/or classes, no parallel increase in the number of teachers, no change in the number of allocated teaching hours, and no change in the teacher FTE that is required by the wage agreements with the teacher unions.

25 The authors of the Dovrat Committee Report expected that the change in FTE at the end of a transition period would lead to a situation in which there would be a need for fewer teachers and that this would make it possible to increase teachers' wages without significantly increasing overall expenditure. However, this was not the outcome.

Figure 9. Average number of students per class
Regular education



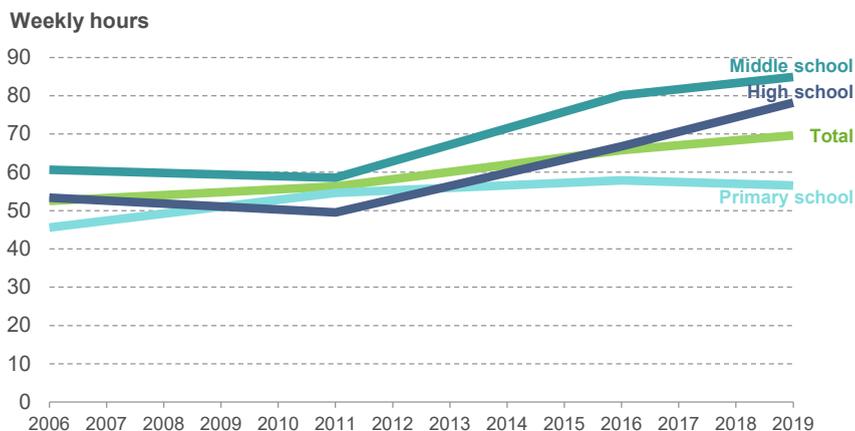
Source: Nachum Blass, Taub Center | Data: Ministry of Education, *A Wide Perspective*

5. Is there a decline in the number of teaching hours per class and per student?

A decline in the number of teaching hours per class can be the result of a number of factors:

- The Ministry of Education has decided that too many teaching hours are being provided
- Budgetary constraints
- Agreements with the teachers' unions that reduce the number of work hours they must provide
- A teacher shortage

However, as can be seen from Figure 10, not only has the number of work hours per class not declined, it has increased significantly, such that this criterion cannot serve as proof of a teacher shortage either.

Figure 10. Weekly class hours

Note: 2006 was the last year before the new wage agreement Ofek Hadash was signed; 2011 was the year that Oz Le'Tmura was signed although it was not implemented until 2012.

Source: Nachum Blass, Taub Center | Data: CBS

6. Has there been deterioration in the “quality” of teachers?²⁶

This criterion is essentially an offshoot of the second criterion, which examines the growth in the number of uncertified teachers in the system. In this context, a decline in the “quality” of teachers, which is measured according to their average level of education and/or academic qualifications, is reflected in one of the following variables: the level of the academic degree; teachers’ scores on the psychometric exam; and their average scores on the bagrut exams. These can be looked at for all teachers, for just the new teachers, or for potential teachers who are currently studying in the various teacher training institutions.

a. All teachers

An examination of the “quality” variables for all teachers shows that the share of teachers with a bachelor’s degree has risen from 55 percent to 57.8 percent since 2010 and the share with a master’s degree has risen from 23.8 percent to 35 percent (see CBS, 2019b, Table 9). The share of teachers with an academic degree and its level are considered an indicator of teacher quality.

²⁶ The term “quality” appears in quotation marks because educational research has not unambiguously shown a positive causal correlation between education and a university degree and success in teaching, another term that lacks a clear and undisputed definition.

In this case, there has been no decline in teacher quality over time. Further evidence of this is presented in a study by David Maagan (CBS, 2017) which examined the characteristics of high school teachers between 2004 and 2015. One of the variables examined was the psychometric score of teachers in various types of schools. The data show that, in almost all the school groupings, the psychometric scores of teachers have risen and especially among schools with students from a strong socioeconomic background. Similar findings appear in a press release from the CBS (2017). Nonetheless, it is important to emphasize that also in the stronger schools, in which the average education of the students' mothers is 13 years or more, the average psychometric score of the teachers is no more than 550 and in weaker schools it is less than 500.

b. New teachers

The majority of new teachers studied in one of the following four types of institutions: universities, teachers colleges, general colleges, or the Open University.²⁷ Each of them have advantages and disadvantages. The universities are apparently preferable for training in specific subjects while the teachers' colleges are preferable for pedagogic training. In recent years, the share of university graduates has declined and there has been an increase in the share of graduates from general colleges in all segments of the education system. Thus, the share of college graduates in the primary schools has risen from about 8 percent in 2010 to about 18.5 percent in 2017; in the middle schools from about 5 percent in 2008 to about 18 percent in 2017; and in the high schools from about 9 percent in 2008 to about 16 percent in 2017. To the best of our knowledge, there has not been any research to empirically determine if one type of teacher training institution

27 Tamar Ariav, President of Beit Berl College, points out that general colleges (public and private) do not have permission to train teachers. They can teach education but cannot award a teaching certificate, which is the exclusive domain of teachers colleges and universities. Furthermore, all of the institutions that have a teacher training program grant their program graduates a teaching certificate without a degree. This model is known as the "prerequisite model" (first an academic degree and then a teaching certificate). Teacher training for preschool education and primary education is also only provided by teachers colleges. Training for middle school teachers and special education is provided by all the institutions and training for high school teachers (Grades 11–12) is usually available only in universities, although there are circumstances in which colleges can also train teachers for these grades (for matriculation; information based on a personal email dated September 24, 2019).

has advantages over the others.²⁸ The opinions on this issue rely more on impressions and suppositions rather than research findings. Mahloul and Lipstat (2018) did, in fact, point to a positive connection between the type of degree and academic achievement, but after controlling for various variables this link was not statistically significant.²⁹

c. Teacher training

A study of teacher training programs (Maagan, 2015) shows that the psychometric score of first-year students in university education departments rose from 539 to 606 between 2005 and 2014 while the score of students in teachers colleges fell somewhat, from 510 to 504. A press release with more recent data (CBS, 2017b) indicates that the psychometric score in the Hebrew and Arab State education systems remains relatively unchanged while there is a slight decline in the State-religious education system. Another press release (CBS, 2019b) that reported data on students' normalized matriculation scores, showed a drastic decline in the Arab education system.

Whether the scores of all teachers, new teachers and students in teacher training have risen or declined, it is important to recall that these scores are low relative to other occupations. The only conclusion that can be made from this analysis is that the data do not indicate any significant decline in the acceptance criteria for teacher training and therefore there is no basis for concluding that the academic "quality" of teachers has declined due to a shortage of teachers.

28 Numerous studies in other countries and several in Israel have examined the link between teachers' education and its quality on the one hand and the academic achievements of their students on the other; however, the results have varied. There has also been research into the difference between longer term teacher training in an institution and shorter term teacher training programs, but that question is not related to the issue being examined here.

29 It is important to emphasize that many colleges offer teaching training, some of which are teachers colleges and others that are general colleges. There appears to be large variation in the quality of the training they provide and therefore it is impossible to generalize. In this context, we would mention the highly negative report published by the Council for Higher Education on the quality of instruction in the universities' education departments (Wineberg Committee Report, 2015). Yossi Mahloul from the National Authority for Measurement and Evaluation in Education points out that a multivariate analysis of Hebrew-speaking schools that controls for the schools' background variables, teacher profiles, the pedagogy in the classroom, the proficiency grouping and student beliefs (in the case of math teachers) produces no statistically significant connection between the type of bachelor's degree (a BEd from a college or a BA/BSc from a university) and level of formal education (bachelor's degree or master's degree, etc.) on the one hand and the academic achievement of the students on the other hand (personal email dated September 25, 2019).

7. Has there been an increase in the number of teachers hired by schools from the graduates of teacher training institutions?

Another criterion for determining whether there is a teacher shortage is the share of teachers hired by schools from graduates of teacher training institutions. In theory, an increase in this share is an indicator of a teacher shortage since it shows that the schools have become less selective in their hiring practices. However, an increase may also indicate that alternative employment possibilities for these graduates are shrinking and so they accept employment in schools, which essentially describes a teacher surplus. In other words, this is an indicator that may point in opposite directions. What then do the data show?

The data published this year by the CBS (2019d) show that the number of “graduating teachers,” the number of graduates from retraining-as-teachers programs and the number of graduates with teaching certificates from universities in the Hebrew sector grew between 2008 and 2017. The share of graduates hired by the schools on the completion of their studies fell by about 3–5 percentage points, but in the two years following the completion of their studies, the share rose by about 6–8 percentage points. In contrast, the share of graduates who found a teaching job fell drastically in the Arab sector, from 74 percent in 2008 to 53 percent in 2017, with a change in trend occurring in the years 2012 to 2013 (*ibid.*, Table 2). These data seem to indicate a surplus of teachers in the Arab sector, although the data presented in Appendix Table 2 in this survey indicate that the FTE among Arab teachers has increased more than among Hebrew teachers to some extent, which is an indication of exactly the opposite.

8. Is the share of teachers teaching subjects outside of their area of training and expertise increasing?

One of the phenomena that adversely affects the functioning of the education system in Israel — which is also common in other countries — is the large number of teachers teaching subjects that are outside their area of training and expertise. There are a variety of reasons for this, such as a limited supply of teachers in a particular subject, and the inability to allocate a full-time teaching position for a particular subject area due to a limited number of students or classes. The data on the share of teachers teaching “outside their subject” usually relate to core subjects, such as Hebrew, English (as a second language), and math. In a CBS press release (CBS 2017a), it was stated that,

for example, the share of math teachers with an appropriate educational background to teach math is higher in the Arab education system than in the Hebrew education system. The reason is apparently that teachers in the Arab system are younger due to the more recent development of the system and, therefore, they are better trained. Another reason may be the freedom of their principals to choose candidates with more appropriate training when there is a teacher surplus.

The State Comptroller dealt with this issue in his 2018 report and concluded that, on the basis of the Ministry of Education data, 64 percent of the 8,150 Hebrew teachers do not have training to teach this subject and of about 13,300 English teachers in primary schools and middle schools about 40 percent do not have the appropriate training (State Comptroller, 2019). There is no doubt that the phenomenon of teachers teaching subjects without appropriate training is undesirable. From recently published data in the CBS *Statistical Abstract* (CBS, 2019a, Table 4.49), it seems that the share of teachers teaching English and math who were not specifically trained to do so is lower in 2018 than in 2012, while the share of those teaching Hebrew without specific training rose. Does this speak to a teacher shortage or to a basic issue in teacher training, and is the current situation worse than in other countries?³⁰ We do not currently have answers to these questions, but this is certainly a subject worthy of further study.

It is, of course, possible to come up with additional criteria for determining if a teacher shortage currently exists or is expected in the future, such as changes in dropout rates, increases in the average teacher age, a decline in the share of the population that goes into teaching, a gap between the number of those entering the teaching profession and the number leaving it, a gap between projected retirement and projected demand, etc. Whatever the case, the current survey indicates that the assumption of a severe shortage of teachers is not supported by the data.

If this is the case, why is this issue still on the public agenda? The answer is that even if there is no overall shortage of teachers, there can still be localized shortages and shortages in specific subject areas, in specific geographic regions or in specific schools. These situations can vary from

30 A surprising statistic from the TIMSS 2015 research is that according to teacher reports 62 percent of 8th grade students in Israel are taught by teachers whose training includes both specialization in math and in the teaching of math, the highest rate among all the countries examined. It was also found that the achievements of students taught by teachers with appropriate training were the highest among all the countries examined (IEA, 2015h). In the previous TIMSS test, which was carried out in 2011, Israel was among the leading countries according to this criterion (eighth-ranked) (IEA, 2011).

one school to another within a particular geographic area and between geographic areas. Thus, for example, there can be a situation in which a school with a student population of low socioeconomic status will find it difficult to hire teachers and to provide its students with an education of the desired quality, breadth and variety, while a nearby school with a stronger student population will have a waiting list of teachers interested in being hired there. Another example would be a school principal who employs a large number of teachers and then finds it difficult to find an appropriate teacher to teach a certain subject. The complaint will probably be that there is a shortage of teachers even though the shortage applies to a very small portion of their teaching staff.

The picture that emerges from this is that there is a great deal of room for improvement. The Israeli education system still draws its teachers from the weaker university students; there are still many schools where the teachers that teach a particular subject do not have the specific training to do so; and the rate of drop-outs from the teaching profession is still high. Nonetheless, relative to other countries and relative to the past, there has certainly been progress during the long-term expansion of the system.

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Appendix

Appendix Table 1. Ministry of Education comparative budgets by budgetary lines, 2015-2018

NIS billion

Budget line	Original budget	Amended budget	Implementation budget
2018	56.2	61.3	57.9
002040 District office	1.7	2.1	1.7
002041 Special education	7.1	7.6	7.5
002042 Preschool	6.9	7.3	7.3
002043 Primary/Middle school	15.2	16.7	16.5
002044 High school	9.0	9.4	9.3
002045 Settlement education	3.3	3.9	3.6
002046 Complementary education	3.8	6.4	4.7
002047 Teaching staff administration	2.0	2.3	2.0
002048 Tutoring/transportation	3.3	4.0	3.9
002049 Support for religious studies	1.1	1.5	1.4
2015	48.9	50.6	47.9
002040 District office	1.6	1.8	1.5
002041 Special education	5.8	5.9	5.8
002042 Preschool	5.9	6.1	6.0
002043 Primary/Middle school	14.6	14.7	14.5
002044 High school	7.6	7.5	7.4
002045 Settlement education	3.1	3.2	3.0
002046 Complementary education	3.5	4.1	2.9
002047 Teaching staff administration	2.1	2.3	2.0
002048 Tutoring/transportation	3.3	3.5	3.4
002049 Support for religious studies	1.1	1.2	1.2

Appendix Table 1 (continued). Rate of change, Ministry of Education comparative budgets by budgetary lines, 2015-2018

Budget line	Original budget	Amended budget	Implementation budget
Rate of change 2015-2018	15%	21%	21%
002040 District office	6%	18%	10%
002041 Special education	23%	29%	30%
002042 Preschool	17%	21%	21%
002043 Primary/Middle school	4%	13%	14%
002044 High school	19%	25%	25%
002045 Settlement education	9%	19%	19%
002046 Complementary education	7%	54%	62%
002047 Teaching staff administration	-7%	-2%	-3%
002048 Tutoring/transportation	1%	13%	15%
002049 Support for religious studies	-7%	26%	24%

Source: Nachum Blass, Taub Center | Data: Ministry of Education, Accounts Reports, 2015, 2018

Appendix Table 2. Teacher characteristics

Selected variables	2009/2010			2018/2019		
	Total	Hebrew	Arab	Total	Hebrew	Arab
Gender						
Men	19.2%	15.8%	30.9%	18.6%	16.8%	24.6%
Women	80.4%	84.1%	69.0%	81.0%	83.2%	73.9%
Age						
Up to 29	12.3%	9.7%	21.0%	11.2%	10.5%	13.2%
30-39	31.5%	28.9%	40.7%	31.0%	29.7%	35.5%
40-49	27.3%	28.5%	23.3%	30.3%	29.9%	31.6%
50+	28.3%	32.3%	15.0%	27.1%	29.9%	18.2%
Recognized years of teaching seniority						
1-10	32.7%	29.0%	45.6%	39.5%	39.7%	38.8%
11-20	31.3%	31.6%	31.0%	27.6%	25.6%	34.1%
21-30	21.2%	23.7%	13.0%	21.7%	22.2%	20.2%
31+	12.7%	14.1%	7.9%	11.2%	12.5%	6.8%
Hours of weekly teaching						
1-10	7.1%	8.1%	4.0%	2.9%	3.5%	0.9%
11-20	17.2%	18.7%	12.5%	12.0%	13.0%	8.9%
21-30	41.9%	41.0%	45.8%	27.4%	28.4%	24.1%
31+	33.4%	32.2%	37.7%	57.7%	55.1%	66.2%
Salary level (1)						
Non-academic	18.4%	19.3%	15.7%	6.3%	7.2%	3.3%
BA	55.0%	51.5%	67.5%	57.8%	56.1%	63.6%
MA or higher	23.8%	26.9%	13.7%	35.0%	36.0%	31.6%

Note: The data do not always sum to 100% in the original.

Source: CBS, 2019, Table 9