

The Education System

The chapter begins with a survey of quantitative developments in several main dimensions of the education system. The first dimension is the increase in student enrollment and changes in the distribution of students among sectors of the system. The second concerns changes in the size of schools and classes. This dimension, too, is discussed on the basis of distribution among sectors of the system. The fragmentation of the education system by educational streams and communities is reflected in a proliferation of small schools; this phenomenon is discussed at length. The third dimension is the budgeting of the system and how it varies by educational level. The fourth dimension concerns main developments in education manpower.

Part B discusses two issues of major concern in Israeli society: the rising trend in private expenditure on education, using "other sources," especially parent payments, to finance the system; and the issue of inequality in achievements and educational disparities, and the relationship between them. In this context, the education system's ability to narrow disparities among students who come from different social strata is examined. A proposal is put forward for an initiative to promote compensatory educational activities, entailing extra resource allocation for those population groups who under-achieve due to certain socioeconomic characteristics. The proposed activities would raise the achievement level of the population at large and narrow inequality among its segments.

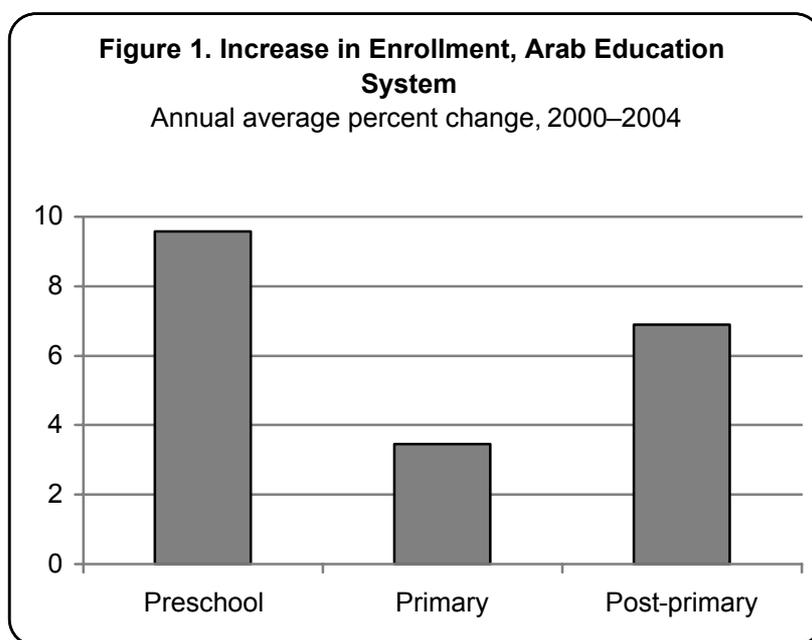
A. Development of the Education System

1. Increase in Enrollment

The relative share of the 0–17 year old age cohort in Israel's population has been declining in recent years but has not yet fallen to the level of many European countries that have witnessed a decrease even in the absolute size of their education systems. Israel's total student enrollment is still growing, although absolute enrollment is decreasing at the primary and post-primary levels of two of the Jewish education sub-systems (State and State-Religious).¹ Be this as it may, the important system level changes in the student composition are reflected in changes in ratios among the components of the system – especially, the significant increase in the share of the Arab and *haredi* (ultra-Orthodox) sectors – and not in total numbers.

The growth in the Arab education system continues and the rate of increase in number of students is significantly greater than that of the Jewish sector. In recent years, the pace of growth in the Arab sector has been accelerating at all age levels. This growth stems mainly from natural increase but rising enrollment rates also play a role at the pre-schools and post-primary levels.

¹ Recent data point to inconsistencies in the regular reporting of enrollment rates in Jewish preschools and primary schools. Apart from explanations related to the size of the pupil population, two phenomena that used to be negligible may affect the data today – a tendency among some parts of the population to opt for home schooling, and the decision of some *haredi* (ultra-Orthodox) streams remain outside of the Israeli education system altogether, including the recognized framework of “exempt” institutions.



Neither of these phenomena is new but a third and plainly new phenomenon is at work: enrollment of students in the Arab education system who were born outside Israel's territory. The numbers at issue in recent years are 500–700 pupils in the early primary grades (the average cohort in Arab primary schools is about 26,000, making the increase 2–3 percent). This figure was arrived at by comparing the number of students in a higher grade level with that in the grade below it. Incidentally, there is evidence that these students, who join the Israeli education system at the primary level, have a hard time adjusting to the system, especially since the Israeli educational establishment is unfamiliar with the problems that these children present.

The increase in *haredi* enrollment stands out conspicuously. In 2003, 24 percent of total enrollment in Jewish primary education (and about 20 percent of the total system) was *haredi*. The question is whether this increase reflects a movement of students from State to *haredi* education or natural increase only. Table 1 shows that the net loss of pupils from the State system to *Ma'ayan Ha'Torah* Education has not exceeded 100 students per year, that no more than 500 youngsters (478, to be precise) transferred to the Independent (*haredi*) system between 1999 and 2000, and that the phenomenon is waning, and between 2002 and 2003 amounted to only twenty-one students.

Movement from the State-Religious system to *haredi* education is also very small in scale. Fewer than 200 youngsters per year (net) move to *Ma'ayan Ha'Torah* Education and the net annual transition to Independent school system was no more than 400, and was under 100 in the last year examined. Thus, the growth in *haredi* enrollment is evidently due largely to natural increase. This statement must be qualified, though, by two remarks. First, the data pertain to movements at school age, but the *haredi* systems may be recruiting children for their preschools and out of the State systems. Second, the reference to net movements masks more extensive gross transitions. The smaller the sub-system, the more significant the transfer rates are for it. Since *Ma'ayan Ha'Torah* Education, for example, has 15,000 students enrolled, the extent of pupil turnover in this system is more than 10 percent of total enrollment each year.

Table 1. Transfers from State to Haredi Education and from Haredi to State, 1997–2003, Primary School Level
(excluding transfers of fewer than twenty-five pupils in all years combined)

<i>System group*</i>	1998	2000	2001	2002	2003
Total transfers	11,338	14,265	13,940	13,554	12,491
SR→S	2,033	1,703	1,500	1,665	1,387
S→SR	1,407	1,497	1,295	1,252	1,126
M→S	121	172	152	153	109
S→M	164	186	203	161	182
Ind.→S	209	386	496	489	444
S→Ind.	505	864	755	642	465
M→SR	328	540	448	346	307
SR→M	378	459	643	417	350
Ind.→SR	506	583	562	554	556
SR→Ind.	686	908	994	786	622
Ind.→M	265	325	378	355	397
M→Ind.	277	647	723	479	473

* Abbreviations: S–State; SR–State-Religious; M–Ma’ayan Ha’Torah Education; Ind.–Independent (haredi)

2. School Size and Class Size

a. School Size

Israel has about 4,000 schools and an average per-school enrollment of more than 300.² Naturally, this average masks vast differences among schools, in a range from fewer than 100 to more than 1,000. The country has a large number of small schools (i.e., schools with fewer than 250 enrolled at the primary level and fewer than 400 at the post-primary level). Although this is due partly to the demographic and geographic

² The numbers are not exact due to differences in the definition of schools.

distribution of the population, the main reason is the rising fragmentation among streams and communities within the education system. The fragmentation, reflecting citizens' choice of educational settings that correspond to their national, religious, ideological, and social outlooks, makes it very hard to run the education system efficiently. Generations of government policies that allow every citizen (theoretically) and every Jewish citizen (practically) to choose among diverse education systems that receive full or almost full state funding have produced hundreds of small schools.³

As long as primary schools were budgeted on a per-class and not a per-student basis, much waste of resources took place. Even today, however, with the system having gone over to per-pupil (not class-based) budgeting, individual schools that are unique in a given locality still receive consideration; the state gives them a budgetary safety net even when they are very small.

Table 2 gives a breakdown of education institutions that have enrollments of fewer than 250 at the primary level and 400 at the regular, official post-primary level, in recognized schools, and in "exempt" institutions, by categories and levels of education.⁴ The table shows that Israel has 763 primary schools with fewer than 250 children enrolled, forty separate lower secondary schools with fewer than 250 enrolled, 448 six-year secondary schools with fewer than 400 students, and 619 upper secondary school or four-year upper secondary schools that have fewer than 400 students.

³ An Arab citizen wishing to enroll a child in a "recognized-unofficial" school almost always loses in terms of the budget that the child will receive. This is true only partly in the Jewish sector, since the funding of *Ma'ayan Ha'Torah* and Independent schools almost matches that of schools in the State and State-Religious systems.

⁴ The table is based on data covering 4,304 institutions: all official ones, those "recognized" but unofficial, and those in the "exempt" category, both in regular and special education.

Table 2. Distribution of Small Schools, by Size,* 2003–2004

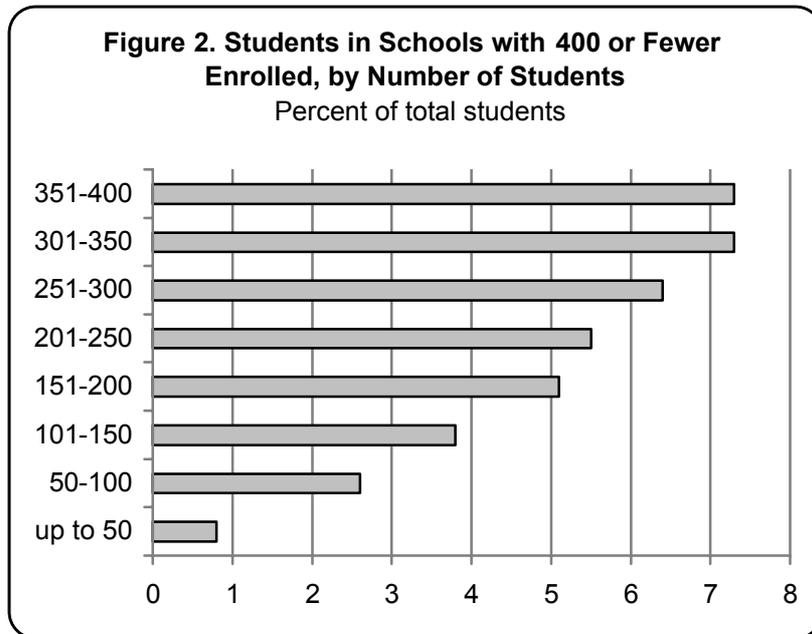
Enrollment	Primary school	Lower secondary school	Six-year school	Upper secondary school (up to 400 enrolled)
Total	763	40	448	619
Up to 50	30	1	45	72
50–100	104	9	39	211
101–150	181	10	60	138
151–200	237	7	77	79
201–250	211	13	59	50
251–300			70	23
301–350			52	31
351–400			46	15

* There is an accepted difference between primary and post-primary education in regard to categories of schools that are defined as small, very small, etc. The figures were derived from the Ministry of Education's databank of education institutions.

As for the distribution between educational sectors, even if six-year secondary schools with fewer than 400 enrolled in the official (State and State-Religious) systems are considered separately, the following picture is obtained: 236 out of 536 institutions (42 percent) in the State system (Jewish and Arab) and 265 out of 281 institutions in the State-Religious system (94 percent) – 492 of 829 (59 percent) institutions in all – are of this type. Table 3 shows the percent of students (out of total enrollment) by system and indicates that the State-Religious system surpasses all other systems, including the *haredi*, in its proportion of small schools.

Table 3. Proportion of Students in Schools with 400 or Fewer Enrolled, by School Size and System, 2003–2004 (percent of total students)

School size	Total	State	State- Religious	Other
Total	38.9	27.1	62.6	66.5
Up to 50	0.8	0.6	1.1	1.9
50–100	2.6	1.1	3.4	9.9
101–150	3.8	1.4	8.1	11.9
151–200	5.1	2.1	11.7	14.6
201–250	5.5	3.1	13.6	9.9
251–300	6.4	4.5	16.0	6.4
301–350	7.3	6.6	11.5	6.7
351–400	7.3	7.7	7.4	5.3



The issue of school size is often discussed from the perspective of efficiency, i.e., based on the assumption that excessively small schools are economically inefficient and offer fewer educational opportunities. Several studies, however, point to the educational advantages of such schools and especially the more intimate atmosphere that these schools offer. As for the economic advantages of large schools (building maintenance, selling the old building or putting it to some other essential use), here, too, there are important arguments against sweeping and comprehensive action to close small schools (even if this were socially and politically possible).

When per-pupil budgeting is applied strictly and small schools are not given a safety net, a school with an enrollment of 400 students has hardly any advantage over one with 200 in respect to a very large share of costs, such as teaching, and administration. Furthermore, the closing of schools often results in substantial costs – foremost in terms of long-term busing of students and added construction in schools that take in the former school's pupils – and the expense cannot always be offset by selling the vacated schools or putting them to alternative uses. Thus, in some cases it may be more expensive to close a school than to keep it going. In additional cases, the advantages and disadvantages cancel each other out and the public hardship related to closing schools may be greater than the economic benefit.

b. Class Size

The basic setting of regular education is the classroom. Class size at the various levels and sectors of the system is a variable of immense educational and economic importance. In the Israeli public discourse, class size is usually considered to be “too large” and this is often seen as a major obstacle to improving education countrywide.

Table 4. Enrollment, Classes, and Average Class Size, by Levels and Types of Education, 2003–2004

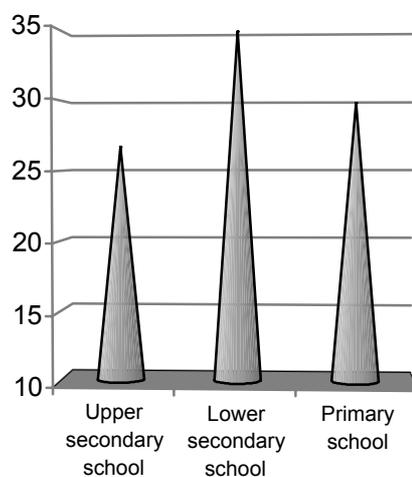
	Total	Primary school	Lower secondary school	Upper secondary school
Pupils				
Total	1,347,037	762,382	242,892	341,763
Regular ed.	1,313,258	737,416	236,726	339,116
Special ed.:				
Mainstreamed	17,466	12,298	5,168	
Separate	16,313	12,668	998	2,647
Classes				
Total	48,082	27,601	7,291	13,069
Regular ed.	44,230	24,732	6,793	12,705
Special ed.:				
Mainstreamed	1,746	1,247	499	
Separate	2,106	1,622	120	354
Avg. class size				
Total	28.0	27.6	32.8	27.6
Regular ed.	29.7	29.8	34.9	26.7
Special ed.:				
Mainstreamed	10.0	9.9	10.4	
Separate	7.8	7.8	8.3	7.3

The reports about average class size in Israel's education system mask large differences among sectors and among different types of schools. They are also faulty in that separate special-education classes at the primary and lower secondary school levels are included in the count of classes and may skew the average class size downward. For example, the overall average class size is twenty-eight when special education is mainstreamed with regular classes and almost thirty when it is separated out. The average is much higher at the lower secondary school level than at the primary level and upper secondary school levels. Thus, a national average of thirty per class conceals a great deal of variation among the components of the system.

Table 5. Classes in the Education System (including Remedial), 2003–2004

Class size	Primary school		Lower secondary school		Upper secondary school		Total	
	classes	% of total	classes	% of total	classes	% of total	classes	% of total
Total	25,888		7,110		12,629		45,627	
1–5	62	0.2			82	0.6	144	0.3
6–10	279	1.1			327	2.6	606	1.3
11–15	593	2.3			1,094	8.7	1,687	3.7
16–20	1,123	4.3	23	0.3	2,086	16.5	3,232	7.1
21–25	5,297	20.5	230	3.2	2,259	17.8	7,776	17.0
26–30	7,458	28.8	640	9.0	1,933	15.3	10,031	22.0
31–35	7,530	29.1	2,780	29.1	2,299	18.2	12,609	27.6
36–40	3,546	13.7	34,37	48.3	2,049	16.2	9,032	19.8
41+					510	4.0	510	1.1

Figure 3. Average Class Size, Regular Education, by Levels



Seventy percent of classes have more than twenty-six students, 20 percent have thirty-six students or more, and 12 percent have fewer than twenty-five. The number of students per class varies widely at different age levels. There are many reasons for this, related to different budgeting methods, mapping of students, and historical developments.

Classroom crowding at the lower secondary school level is especially striking; it is unusual and almost unknown in other developed countries. Large and overcrowded classes make educational activities particularly difficult at this age, which educators consider one of the most difficult for youngsters and teachers alike.

At the upper secondary school level, average class size has declined to twenty-seven in recent years, resembling the early 1980s' level, due to a major decrease in the Arab sector and a slight increase in the Jewish sector. One explanation for this is the trend in technological education – introduction of this curriculum in the Arab sector and a simultaneous decrease in its use in the Jewish sector. Another explanation is the rather large investment that has been made in developing post-primary education in the Arab sector.

Any discussion of class size in Israel almost always spills into the question of the desirability and the economic and educational applicability of a countrywide plan to reduce class size. Many educators believe that every effort should be made to achieve class sizes of 15–25 in preschool to second grade and 20–35 at higher grades, with thirty students as the goal. The basic assumption of those who favor smaller classes is that this would improve teaching and scholastic achievements. Various countries, foremost the U.S., have made efforts in this direction. The advocates of smaller classes recently found support for their arguments when a large-scale controlled experiment in

Tennessee proved that the intuitive beliefs about the advantages of reducing class size are have an empirical basis.⁵

In contrast to the findings of this experiment and the intuition of teachers and parents, it is important to note that hundreds of studies have looked into the effect of class size on pupil achievements and that, for the time being, education researchers have accepted the following conclusions:

1. Reducing class size elicits significant educational results only if the reduction is to fewer than twenty, and even then the improvement in achievement is not assured.⁶ Various studies showed that class size had no significant effect on achievement in classes of 25–40 students.⁷
2. Reducing class size has a stronger effect at the early primary grades.
3. Reducing class size is especially effective in schools for disadvantaged students.⁸
4. The effect of class size on scholastic achievements is dependent largely on additional factors such as teaching methods, curricula, and the quality of instruction and the teachers.⁹

Thus, in view of the knowledge that has accumulated in the field, two action guidelines in the effort to ease classroom crowding deserve emphasis: the focus should be on young age levels and classes in schools that serve weak population groups. At the same time, action should be taken to make sure that the

⁵ Importantly, the experiment included only grades 1–3, in which average class size was lowered from twenty-three to fifteen. See Fetter, 1997.

⁶ In Kansas City, Missouri, the teacher/student ratio was lowered to 1:13 and teachers' wages were raised significantly in a twelve-year experiment. Just the same, students' achievements did not improve and the experiment was shelved. See Paul Ciotti, 1998.

⁷ Ellis, Thomas, 1978.

⁸ Jeremy D. Finn, 1998.

⁹ Hanushek, Eric A., 1998.

“profit” from reducing class size should not lead to a “loss” due to lowering the quality of teachers, as happened, for example, in California.¹⁰ Furthermore, if action to reduce classroom crowding is considered, it is appropriate to explore additional alternatives for improving the system that have proven to be effective in Israel and abroad. Examples are mentoring programs, which are much less expensive, do not require the expansion of teaching faculty, and make it possible to integrate various participants (such as college students) into the education system in a positive and useful manner in the education system.

3. Budgeting of the Education System

Israel's education system employs different budgeting methods at each level of education. This is so even today, a year after the Shoshani Report was implemented. The report adopted a differential per student standard at the primary level, as recommended several times in the past by the Taub Center.¹¹

Public pre-kindergartens derive their budgets from graduated tuition fees. The Ministry of Education covers 75 percent of the difference between full tuition and the set parent co-payment; the local authority covers the rest. Budgeting of kindergartens is based on enrollment and takes account of geographic indicators but not of socioeconomic background data (except for a slight difference between budgeting of kindergartens at local authorities that receive a grant as against those that do not).

At the primary school level, budgeting is based on the principles of the Shoshani Report but some of the budget – mainly the part pertaining to operation of schools and financing of support services – is still provided under the previous rules. Budgeting at the lower secondary school level uses a combination of per-class and per-pupil methods, i.e., most

¹⁰ OECD, 1998.

¹¹ See *Resource Allocation for Social Services*, 1999.

standard hours are provided on a per-class basis and the remainder is proportional to enrollment. At the upper secondary school level, budgeting is per-pupil with criteria of grade, subject of study, profile of the seniority and educational level of the teachers, and the types of student services provided (e.g., laboratories).

Despite the difference in budgeting methods and even though much of the system is budgeted in sheqel terms, the prevailing concept, which surfaces in every discussion of the budget, remains “weekly hours”. This is actually a budget concept that reflects the cost of a weekly teaching hour of an “average” teacher at the various age levels. In estimated 2004 budget prices, a weekly hour in the education system is valued at NIS 4,240 at the primary school level, NIS 5,020 at lower secondary, and NIS 5,375 at upper secondary level. Consequently, this is a cost derived from the annual wage of an “average” teacher at each of these levels.

School costs that are budgeted on the “weekly hours” basis pertain to teaching and administrative services only,¹² including miscellaneous duties, and do not include operating and maintenance costs (busing, secretaries, janitors, heating and air conditioning, mail services, etc.), which may be considerable.

School budgeting is a complex matter that has not yet merited appropriate systematic documentation and research despite its great and diverse impact on school life. Although the Ministry

¹² Administrative costs may add up to 10 percent or more to the school payroll at small schools and will rise when budgeting goes over from per-class to per-pupil. Today, the Ministry of Education budgets a administration hours at 2.00 weekly hours per class at the primary and lower secondary school levels and 2.25 hours at the upper secondary school level. This usually comes to 4–5 percent of the school’s teaching budget. The principal’s wage, however, is usually twice that of a teacher’s and most principals hold more than a full-time post (between 1.33 and 1.67) even in small schools. This explains why the administrative costs can reach the levels cited above.

of Education has guidelines that establish budgeting criteria, the criteria rarely reflect educational or administrative calculations. Instead, they are usually the outcomes of negotiations, changes, miscellaneous increases, and frequent cutbacks due to budget constraints. Clear criteria should be set to determine a “basket” of services per-pupil, including both the level of pedagogical services at the various grades and the composition of the support, operating, and administrative services that each pupil in the country should receive. It is sometimes argued that the use of the term “weekly hours” masks vast differences in school budgeting that trace to differences in the characteristics of teachers in schools attended by students at different socioeconomic levels or schools in different geographic areas (e.g., periphery versus center).

Table 6. Average Wage Cost per Teacher, by Sector and System, 2003–2004 (NIS)

	Sector	Total	Jewish	Arab	Bedouin	Druze
State		7,935	8,273	6,998	6,608	7,501
State-Religious		8,299	8,299			

Table 6 shows that teachers' wage costs are much lower in the Arab sector than in the Jewish sector and are equal in the State-Religious system and the State (Jewish) system. Perhaps, then, the wage disparities should not be attributed to differences in students' socioeconomic level (since this indicator is lower in the State-Religious system than in the State system) or to distance from the center, since State-Religious schools are more common than State schools in peripheral areas. Apparently, too, the differences do not originate in corresponding disparities in teachers' seniority and education. The median seniority of teachers in the Arab sector is almost identical to that in the Jewish sector and the proportion of academically trained teachers in the two sectors in 2000 were 50 percent and slightly

more than 60 percent, respectively. These differences cannot explain the vast wage disparities. The differences may be traced mainly to differences between sectors in the number of in-service training activities that augment teacher's wages and a number of other wage increases, such as various position bonuses that schools pay out of their overall budget.¹³

It would seem that until the entire system adopts a standard budgeting method in sheqel terms (covering all per-pupil expenses and not just teaching expenses), it is justified to continue analyzing per-pupil and per-class allocations, i.e., in terms of "weekly hours."¹⁴

In the Jewish sector, the per-class allocation of teaching hours is quite stable and the disparities between this sector and the Arab sector have narrowed.¹⁵ Comparisons among levels of education shows that the allocation of teacher posts per class is much higher at the post-primary level than in primary education. This is for two reasons: at the post-primary level, pupils study more hours and full-time teachers work fewer hours.

¹³ The "automatic" components of scale and seniority account for about two-thirds of teachers' wages; the rest depends on position, in-service training activities, and other remuneration. For some teachers, especially veterans, these factors may account for 50 percent of gross wage.

¹⁴ The figures published by the Central Bureau of Statistics, obtained from schools, are much higher (by up to 15 percent) than the standard data of the Ministry of Education. The reason, evidently, is that reporting to the CBS takes account of all hours and all teachers at the school, including soldier-teachers, participants in the national service program, and those paid by local authorities and/or parents.

¹⁵ As stated, this is true only in regard to standard hours allocated by the Ministry of Education. Schools receive additional budgets from local authorities, parents, the use of soldier-teachers, and volunteer teachers. When these hours are added, the disparities between the sectors widen.

Table 7. Full-Time Teacher Posts per Class, 1980–2003¹⁶

	1980	1990	2000	2003
Primary				
Jewish	1.4	1.3	1.6	1.5
Arab	1.2	1.2	1.5	1.5
Lower Secondary				
Jewish	2.4	2.1	2.2	2.3
Arab	1.9	1.8	2.1	2.1
Upper Secondary				
Jewish	2.4	2.4	2.4	2.5
Arab	1.5	2.0	2.4	2.4

The share of the Arab system in education budgets has been rising perceptibly at all levels and, especially at the upper secondary school level – outpacing its proportional increase in enrollment. This is a reflection of a deliberate policy in recent years to correct the under-allocation of resources to the Arab sector. This policy gained strength after the implementation of the Shoshani Report, when even after the education system was dealt a 6 percent across-the-board cutback in 2003/2004, many schools in the Arab sector were unaffected or received considerable increases in teacher hours. Nevertheless, despite the achievements in narrowing the gaps, the share of the Arab population in the total budget still falls short of its share in enrollment. Furthermore, since Arab pupils lag behind Jewish pupils socio-economically (on average), the Arab sector should receive a disproportionately larger share in the budget in order to achieve real equity.

¹⁶ A full-time post is thirty hours at the primary level and twenty-four hours at the post-primary level. See CBS, 2003, *Statistical Abstract of Israel*, no. 54, Table 8/27.

4. Education Personnel

In the 1999/2000 school year, there were about 125,000 teachers at the primary and post-primary levels and more than 12,000 teachers in preschools. Between 1992 and 1999, the increase in the teacher population outpaced pupil enrollment significantly, but with differences among segments of the system.¹⁷ The difference between the increases in enrollment and in teacher population is especially striking in the Arab sector. Several developments in the profile of the teacher population and the effect of some of them on the education system are described below.¹⁸

¹⁷ The CBS data are based on the most recent survey, conducted in 2000; there are no more recent data.

¹⁸ Two units that collect and analyze data about the country's teacher population are the Central Bureau of Statistics (CBS) and the Information and Computer Systems Administration of the Ministry of Education. Since they collect data for different purposes and follow different definitions, their data often do not match. This discussion of the education system at large is based on CBS data published in the 1999/2000 Teaching Personnel Survey (2002); the discussion of school and preschool teachers who are employees of the state is based on data made available by the Information and Computer Systems Administration.

Table 8. Teachers and Students, 1992 and 1999, by Sector and Level of Education

	Teachers (N)		% in- crease	Students (thousand)		% in- crease
	1992	1999		1992	1999	
Education system						
total	90,874	124,133	37	1,090.5	1,295.0	19
Jewish system						
Total	78,066	104,127	33	874.8	1,010.5	16
Primary	40,375	49,650	23	511.2	563.8	10
Post-primary	37,691	54,477	45	363.5	446.7	23
Arab system						
Total	12,808	20,006	56	215.7	284.5	32
Primary	7,345	11,645	59	137.6	182.5	33
Post-primary	5,463	8,361	53	78.1	102.0	31

a. Extent of Teaching Posts

The average position held by teachers is of the highest strategic importance in planning the education system. Fluctuations in the extent of teachers' work loads affect both the supply of teachers and the ability to attract better teachers to the profession.

In discussing the average teacher's post, it is customary to use two methods of calculation each leading to different results. The first relates to teacher's wage: by this yardstick, every teacher whose wage corresponds to that of a full-time teacher on the pay and seniority scale is regarded as a full-time worker, even if the wage accords allow fewer hours of work than those defined as full-time. For example, a teacher aged fifty-four who is the mother of a child up to age fourteen may be paid full-time even if she works twenty-three hours a week at the primary level or eighteen at the post-primary level. (She receives a 10 percent wage increase for being a mother and a four-hour bonus for

age.)¹⁹ According to this method of calculation, which the Ministries of Finance and Education customarily use, the average teacher's post nationwide, for this purpose, is around 90 percent of a full-time position.

In the second method, a teaching post is determined in accordance with the number of actual working hours spent at school. Full time is considered thirty hours per week at the primary level and twenty-four at the post-primary level. Here, age and motherhood do not count; all that matters is the number of hours on duty including such activities as homeroom, matriculation exam bonus, grade coordinator, etc. According to this approach, the average post in the education system in 1999 was 71 percent of the full-time position. The rate was higher at the post-primary level than at the primary level and higher in the Arab sector than in the Jewish sector.

The large wage increases in 1994 had hardly any effect on the average teacher post. At that time and during the preceding ten years, teachers in the Jewish sector preferred to work 19–22 hours per week and those in the Arab sector, where the proportion of men is higher, worked 23–24 hours on average. The framework of a teacher's post includes many on-duty hours and professional hours such as homeroom, motherhood, age, and so on. Thus, the number of hours that an "average teacher" spent in contact with students ranged from 22.7 at the primary level to 20.1 in lower secondary school and 21.2 at the post-primary level.²⁰

Three important variables differentiate between teachers who are willing to increase their teaching posts and those who prefer

¹⁹ Importantly, too, these hours are not necessarily frontal classroom teaching hours. A homeroom teacher, for example, works three hours less, as does one who prepares students for matriculation exams (commensurate with the level of the exams). Also, various school officials may devote some of their work hours to their non-classroom duties.

²⁰ Data from a survey of 450 teachers by Smith, for the Teachers' Association.

to work part-time²¹: family situation, with a significant difference between male and female teachers; number of children up to age fourteen at home; and the teacher's role in the system. Female teachers who are mothers of young children tend to cut back on their posts but female teachers with functions – principals and assistant principals, in the main – tend to work more hours. Male teachers tend to work more hours than women.

There are additional variables that have an effect including structural system variables such as the size of the teacher population in the area and alternative employment possibilities, school related data (school size and curriculum), locality issues (number of schools and the possibility of teachers' working in more than one school), and subject taught (geography teachers taught 19.3 hours per week on average; teachers of Islamic studies taught 25.7 hours), etc.

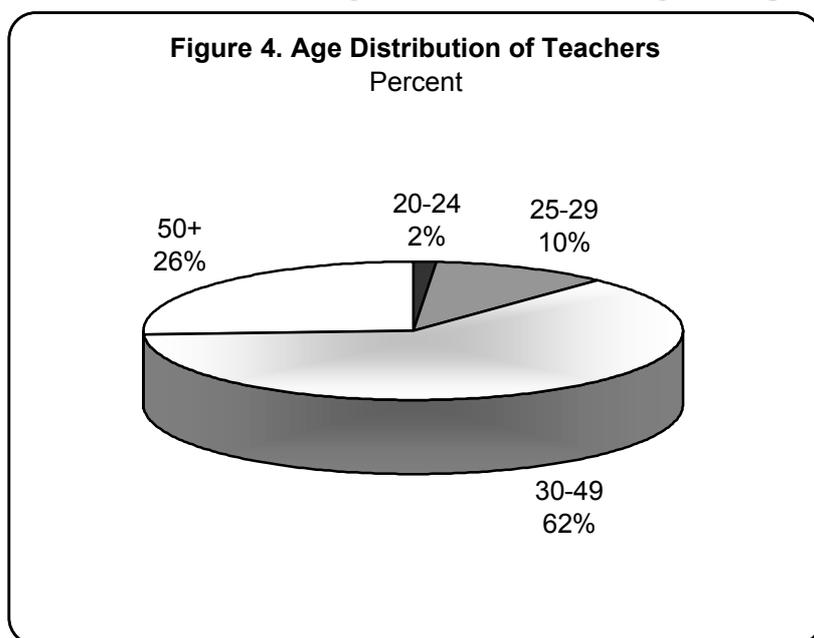
If the aim is to encourage female teachers to increase their workload (the number of teaching hours) then efforts on a number of levels should be taken, in addition to raising wages. For example, arrangements for suitable and low cost day care, enlarging schools in order to create more employment possibilities, expanding the number of official posts available (by dividing homeroom hours among more teachers), and so on. Some claim that the restructuring of teachers' work based on a changeover to a forty-hour work week as in other occupations,

²¹ This matter was discussed in the Taub Center's 2003 report on the basis of the most recent CBS survey of teachers.

coupled with a significant wage increase, will lead to better working conditions and an improvement in the quality of teachers.²²

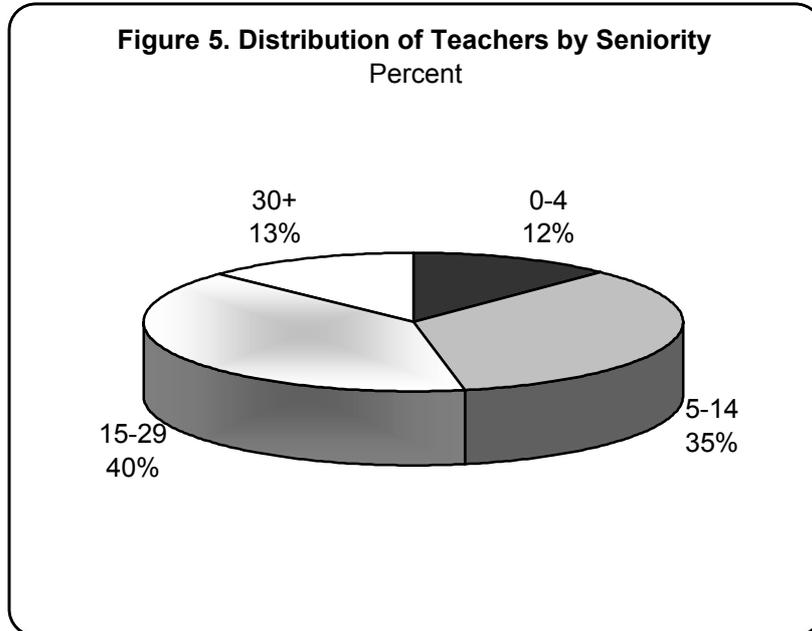
b. Increase in Age and Seniority

The median age of teachers working in the Jewish sector at the primary school level rose from 33.2 in 1980 to 40.3 in 1999. Since 1992, the increase was 1.6 years. A similar trend is evident in the Arab sector, the median rising from 29.5 in 1980 to 35.7 in 1999. The change is even more striking at the post-



²² The need for system-wide lengthening of the school day is a matter of some dispute. Instead, Taub Center experts prefer a proposal raised in the past by the Public Commission for Examination of a Long School Day, chaired by Prof. Chaim Adler, that advocated the introduction of a long school day for specific population groups in conjunction with special investment of resources in educational activities like tutoring for weak student groups.

primary school level, with median ages of 43.6 in the Jewish sector and 37.3 in the Arab sector.



The increase in teachers' age has wider implications that are also reflected in increasing teacher seniority. Figure 5 shows that 35 percent of teachers are clustered in the 5–14 year seniority groups, 55 percent are more or less evenly distributed between the 0–4 and 15–29 year seniority groups, and the remaining 12 percent have been teaching for more than thirty years. In 2003, more than one-fourth of teachers were aged 50+. It is worth bearing in mind that the average retirement age of teachers is around 54.²³

²³ Paradoxically, this may help in the implementation of the policy of cutting back on the number of teachers, on the one hand, and raising the wages of those who remain, on the other.

This phenomenon is not unique to Israel; it is typical of most developed countries and was featured prominently in a recent report of the OECD,²⁴ which expressed concern about a growing teacher shortage.

c. Teachers' Education Levels

The tremendous increase in the percent of teachers who have an academic education is one of the most significant developments in the teacher population over the past decade. In 2003, the proportion of academically trained female teachers was nearly 65 percent at the primary school level, almost 84 percent at junior high, and 78 percent at upper secondary level. Since in Israel, as in other countries, education is one of the main factors determining teachers' wage conditions, any increase in teachers' average level of education leads to a rise in wage expenditures.

The rise in teachers' level of education is fueled by two factors: deliberate action by the Ministry of Education to accredit teachers' colleges, and the tendency of many teachers in the past decade to broaden their academic education through the many opportunities that the expansion of Israel's higher education system created. Notably, the increase in opportunities for teachers included extensions of foreign universities that offered fast tracks to academic degrees. Since quite a few irregularities have come to light in the requirements for these degrees, the Ministries of Education and Finance are making a concerted effort to limit recognition of the degrees that these institutions confer.²⁵

²⁴ OECD, 2003.

²⁵ Data collected as part of the Meitzav Project (school standards testing) indicate that most primary school teachers who hold master's and doctoral degrees received them from extensions of foreign universities or from various universities in Eastern Europe.

B. Issues in Education Funding

1. Private Education Expenditure – Parent Payments

The share of private (household) expenditure on education in total national education expenditure has been rising in recent years and amounted to 22 percent in 1999. It is generally accepted that this change has caused social gaps to widen since schools that serve pupils from weak social groups cannot marshal the same resources as schools that serve affluent populations. On the other hand, the rise in household financing of national education expenditure may actually indicate an increase in the overall equality of the education system. This happens when the rise in household outlays occurs at levels of education that are not covered by the Compulsory Education Law and that were formerly less accessible to weak population groups than to affluent groups.

Indeed, it turns out that the household share in funding pre-primary education rose from 25 percent in 1996 to 27 percent in 1999; in funding university education – from 27 percent to 29 percent; and in financing other higher education institutions – from 48 percent to 53 percent. In contrast, the household share in paying for primary schools was unchanged (at 7 percent) and actually declined at the post-primary level, from 21 percent to 20 percent.²⁶ Thus, the proportional increase in private expenditure for education does not *necessarily* reflect a widening of education gaps and may be evidence of increased access of members of weaker social groups to higher education. Nevertheless, the larger the share of members of weak social groups among students in higher education, the greater the need

²⁶ This figure may be considerably skewed upward because the CBS includes components that have nothing to do with the funding of post-primary education (such as courses for adults).

will be to find new and creative ways of funding their academic education.

The phenomenon is also reflected in the significant differences among income quintiles in educational outlays. Again, the gaps are wider in non-compulsory forms of education (early-childhood, academic, and supplemental). The disparities in higher education have narrowed slightly because the lower quintiles have increased their spending considerably. Nevertheless, when state funding is equal in the formal education system, parents from affluent groups invest additional resources in settings and areas that the state does not invest in or invests less in. In this manner, affluent parents “circumvent” the relatively equal starting line that compulsory education provides by making an extra investment in their children’s education in early childhood, supplemental curricula, and higher studies.²⁷ The practical conclusion is that public resources should be invested differentially in order to compensate weak groups for their inability to provide the resources they need to educate their children at the level and the quality available to children of affluent groups.

Although education is ostensibly free for the 5–16 year olds, parents cover a considerable share of school and preschool expenses. While most of this funding goes for non-teaching purposes, it also covers important parts of the school program. Parents always pay for field trips, parties, the standard cultural package, and other social and cultural activities. They also often co-fund the acquisition of permanent and disposable equipment such as computers and audio-visual aids. These payments often

²⁷ An interesting finding emerges from the Ministry of Education’s standard control reports about parent co-payments for primary school education. It turns out that parent co-payments are only slightly higher in affluent schools than in non-affluent schools. Parents apparently prefer to give their children an advantage by direct means and not by increasing resources available to the schools.

give schools a few extras and a little breathing room that the budgets of the Ministry of Education and the local authorities do not provide. Hence the vast importance of parent funding.

Parent co-payments are supposedly regulated and capped by directive from the director-general of the Ministry of Education. These directives list the kinds of payments permitted: compulsory, special, elective, for supplemental curricula, and for voluntary acquisition of services (the level of payment in the last category is not capped). Many schools charge parents under this item for centralized purchase of books and assistance for the school (in teaching hours and in purchase and upkeep of equipment). The compulsory and elective payments (including special ones) are limited. In addition to these payments, the directives establish obligatory procedures in regard to supplemental curricula, limiting activity to three hours per week and capping the annual payment.

Estimates of the level of parent payments range from NIS 1.8 billion to NIS 2.7 billion (depending on definitions). Despite the Compulsory Education Law, parent co-payments play an important role in the funding of educational institutions and are used mostly for activities and purchases that fall outside the formal school day. Notably, the payments are higher in the State-Religious and *haredi* systems than in the Jewish State sector and are hardly charged in the Arab sector.

2. Educational Achievements and Disparities – The Relationship between Them

Educational disparities among population sectors persist and remain quite large but have been narrowing slowly over time. The process of rising enrollment rates and narrowing of enrollment gaps between the Jewish sector and the Arab sector is especially striking.²⁸ The budgeting gaps between the Jewish sector and the Arab sector are also contracting. Comparison of 2002 data with those of 1996 points to great progress in narrowing gaps between these population groups in matriculation certificate eligibility. Absolute matriculation rates have risen and the difference between the eligibility rates of pupils in affluent and other localities has narrowed. However, educational gaps among socio-economic groups continue to exist and have actually widened in some subject areas. The results of the national standards exams, which test educational achievements and other school variables, also point to disparities among schools commensurate with their students' socioeconomic level.

Some believe that the scholastic achievements of school children at large cannot be improved without increasing educational disparities among groups. Taub Center experts reject this approach categorically. International studies have shown no correlation between average student test scores from different countries and the level of educational gaps within them.²⁹ A recent study by researchers at UNESCO found the following:

²⁸ The question of inequity in the education system was discussed at length in the Taub Center's 2003 report. See: Adler and Blass, 2003.

²⁹ In this regard, a far-reaching study was performed under UNESCO auspices: "Innocenti Report Card."

- * There is no contradiction between high standards in educational achievements and low levels of inequality.
- * There is no simple correlation between the level of educational inequality in a given country and per-pupil expenditure, class size, or income inequality.
- * In all countries, there is a strong correlation between educational achievements and the vocation, level of education, and economic status of the pupil's parents, although the strength of the correlation varies from country to country. It would be erroneous to infer that inequality in education provides a simple reflection of inequity in society and that schools and governments can do little to influence it. Some education systems have done more to reduce inequality and others have done less.

Generally speaking, the UNESCO data show that some countries have done a better job than others in coping with educational inequality. The countries that have the highest educational achievements limit inequality by not allowing weak students to fall far behind the average; those at the bottom of the list allow wide disparities to develop. Unfortunately, there is no focused explanation about the differences among countries in their success in narrowing the gaps.

One common explanation that is relevant to the Israeli reality is the extent of the heterogeneity of the population, especially with reference to countries of immigration. The success of other immigration countries indicates the importance of education policy. A great deal also depends on the immigration policy (who is allowed to immigrate), the immigrants' socio-economic and education levels, and the education policy taken toward them (the extent of assistance given to immigrant students, especially in language acquisition).

In sum, Israel is not among the leading countries in tackling the issue of educational disparities among pupils at different socioeconomic levels. A schoolchild in Canada, Finland, or

South Korea, for example, has a stronger likelihood of attaining a reasonable level of educational achievement and a smaller probability of falling far behind the average than one in Israel, Denmark, Germany, Greece, Hungary, or the United States.

3. Means of Raising the Overall Achievement Level while Narrowing Inequality

For many years, the Taub Center has been promoting a proposal to establish a national system of individualized assistance for students who encounter difficulty in their studies.³⁰ There is a broad consensus among educators about the substantial differences that exist between pupils. Educators also agree that each pupil has a unique learning style and needs a different amount of time to master a given body of educational material. Nevertheless, in education as conventionally practiced, all students in a class are expected to absorb all the material within the same period of time. The reasons vary – organizational, administrative, and budgetary – but the result is inevitable: widening gaps among students in educational achievements. These gaps accumulate from lesson to lesson, day to day, week to week, month to month, and year to year, creating deep frustration among many students. The frustration is especially great among students whose chances of coping successfully with educational tasks were lower than their peers to begin with, due to a variety of factors. One manifestation of Israel's cumulative educational failure in this regard is its low ranking among countries that take part in international achievement tests and its high ranking on the scale of educational disparities among students.

³⁰ The Taub Center also engaged in developing an educational program that would enhance the component of individualized attention. The Center has published an article by Dr. Dan Sharon on this issue.

One way to tackle this phenomenon is by a massive investment in weak student groups. To illustrate this, a simulation of Israel's results on an international comparative achievement test (TIMSS) was performed. It transpires that raising the achievements of weak students alone causes Israel's standing on international tests to improve considerably (Table 9):

Table 9. Change in Israel's Position, Based on an Action Plan

Pupil quintile, by scores	Base score	Plan A		Plan B	
		Improvement rate	Score	Improvement rate	Score
Lowest quintile	52	1.22	64	1.25	65
2 nd quintile	63	1.15	73	1.20	76
3 rd quintile	71	1.10	78	1.13	80
4 th quintile	80	1.00	80	1.05	84
Highest quintile	92	1.00	92	1.03	95
International rank			27		14

For example, an improvement of only 20 percent in the lowest quintile, 15 percent in the second quintile, 10 percent in the third quintile, and no improvement in the two highest quintiles (Plan A) would elevate Israel to twentieth place. A more significant improvement of 40 percent in the lowest quintile would raise Israel to seventh place. An even more intensive plan, such as Plan B, would advance all quintiles and improve their combined achievements so as to raise Israel's total pupil population to fourteenth place in the international ranking.

Just as there is a consensus about the need for individualized adjustment of study time and teaching methods, there is consensus about the effectiveness of individualized assistance (or, at the very least, teaching in small groups of up to

five), as a powerful tool for the advancement of educational achievements and the narrowing of gaps.³¹ Individualized assistance may be given by special teams including fellow students, older students, and tutors, depending on circumstances and needs, with guidance from rank-and-file teachers in the relevant subject. By helping to overcome cumulative gaps, complete homework assignments, and cope with regular and random assignments in the course of studies, students in need will be able to make up the material that they did not absorb in the regular classroom framework. In this way there would be an effective narrowing of educational gaps among pupils from different population groups at a reasonable financial cost.

Under the proposed plan, every poorly achieving pupil will be given enough time, either in the regular class setting or in a supplemental one, to gain proficiency in the taught classroom material. Teaching in supplemental settings will take the form of assistance with homework and other educational tasks (e.g., making up cumulative deficiencies in skills in reading comprehension, quantitative thinking, and computers) by a team that would be guided and facilitated by subject teachers. This activity would be closely coordinated with the individual student's homework and subject teachers who teach him during the regular school day.

Main Points of the Proposal

1. A national remedial instruction system will be established, on the basis of cooperation among several national entities that specialize in running educational and social projects.
2. The system will be based on a combination of various kinds of instruction (by fellow students, paraprofessional teachers, and subject teachers).

³¹ Levin, H. M., 1988; Cohen, P. A., Kulik, J. A., and Kulik, C. L., 1982; Fitz-Gibbon, C. T., 2000.

3. Teaching will be individualized or conducted in study groups no larger than five.
4. Assistance will focus on homework, preparing for regular and random examinations, and making up for cumulative deficiencies.
5. There will be close cooperation with the teachers, with emphasis on a regular flow of information about curricula, on the one hand, and the pupil's situation on the other. The cooperation shall also include facilitation and assistance by teachers in regard to the nature, quantity, and quality of homework.
6. Teachers who give remedial lessons will be advised by veteran, experienced teachers who specialize in the material.
7. Routine implementation of the plan will be entrusted to a wide variety of subagents – local authorities, community centers, other public agencies, and private entities.
8. Referral, control, follow-up, and evaluation will be performed by a central national agency.

Israel's educational achievements are a result of a situation in which a high proportion of students come from weak and peripheral social strata that underachieve on both international and national exams. Thus, anyone who wishes to raise Israel to a higher standing in international comparisons of educational achievement must invest effort and resources in the educational advancement of this population.

Sources

Hebrew Sources

- Adler, C., and Blass, N. (2003), "Inequality in Education in Israel," in Kop, Y. (ed.), *Resource Allocation for Social Services 2003*, Jerusalem: Center for Social Policy Studies in Israel, pp. 289–315.
- Center for Social Policy Studies in Israel, Kop, Y. (ed.) (various years), *Israel's Social Services 2003*, Jerusalem.
- Center for Social Policy Studies in Israel, "Socioeconomic Growth Plan" (1999), in Kop, Y. (ed.), *Israel's Social Services 1999*, Jerusalem.
- Central Bureau of Statistics (various years), *Statistical Abstract of Israel*.
- Central Bureau of Statistics and Ministry of Education (2002), *Teaching Personnel Survey 2000*, Special Publication 1193, November, Jerusalem.
- Central Bureau of Statistics and Ministry of Education (2001), *Teaching Personnel Survey in Primary and Post-Primary Education 1998*, Special Publication 1143.
- Ministry of Finance (various years), *State Budget: Proposal for Fiscal Year and Accompanying Remarks*.
- Ministry of Education and Culture, Economics and Budget Administration, Economics and Statistics Division (various years), *The Education System in Figures*, Jerusalem.
- Ministry of Education and Culture, Pedagogical Administration, Senior Division for Organization of Studies, Testing Division, Office of the Chief Scientist and On-Line Communication and Information Systems Administration (2001 and various years), *Matriculation Exam Data*.

English Sources

- Ciotti, P. (1998), "Money and School Performance: Lessons from the Kansas City Desegregation Experiment," *Policy Analysis*, No. 298, Washington, DC.
- Cohen, P. A., Kulik, J. A., and Kulik, C. L. (1982), "Educational Outcomes of Tutoring: a Meta-Analysis of Findings," *American Educational Research Journal*, 19(2): 237–248.
- Ellis, T. I. (1984), "Class Size," ERIC Clearinghouse on Educational Management: *ERIC Digest*, No 11.
- Fettler, M. (1997), *Education Policy Analysis Archives*, Vol. 5, No. 2 (January), California Commission on Teacher Credentialing.
- Finn, J. D. (1998), "Class Size and Students at Risk. What Is Known? What Is Next?" National Institute on the Education of At-Risk Students, Office of Educational Research and Improvement, U.S. Department of Education.
- Fitz-Gibbon, C. T. (2000), "Cross-Age Tutoring: Should It Be Required in Order to Reduce Social Exclusion?" in G. Walraven, Parsons, D. van Veen, and C. Day (eds.), *Combating Social Exclusion through Education: Laissez-faire, Authoritarianism or Third Way?* Leuven: Garant, pp. 307–315.
- Glass, G. V., and Smith, M. L. (1978), *Meta-Analysis of Research on the Relationship of Class Size and Achievement*, San Francisco: Far West Laboratory for Educational Research and Development.
- Hanushek, Eric A. (1998), "The Evidence on Class Size," Occasional Paper No. 98-1, W. Allen Wallis Institute of Political Economy (February), New York.
- Hanushek, Eric A., Kain, John F., and Rivkin, Steven G. (1999), "Do Higher Salaries Buy Better Teachers?" NBER Working Paper No. W7082 (April).
- Hanushek, E. A., Kain, J. F., and Rivkin, S. G. (2004), "The Revolving Door," *Education Next*, Winter 2004.

- IEA (2003), TIMSS–Third International Mathematics and Science Studies.
- Izumi, L. (1998), “Does Reducing Class Size Help?” *Investor’s Business Daily* (July 8).
- Levin, H.M. (1988), “Cost-Effectiveness and Educational Policy,” *Educational Evaluation and Policy Analysis*, Vol 10, No 1, pp. 51–69.
- OECD, *Education at a Glance 2003*.
- OECD (1988), *Class Size Reduction, Questions and Answers*, Department of Education.
- UNESCO, “Innocenti Report Card.”