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Israeli Education Policy: How to Move Ahead in Reform

Philip Hemmings

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ISRAELI EDUCATION POLICY: HOW TO MOVE AHEAD IN REFORM

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By Philip Hemmings

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ABSTRACT/RÉSUMÉ

Israeli education policy: how to move ahead in reform

Israel's education system is complicated by multiple streams at the primary and secondary levels and by military conscription. Population growth and economic expansion have brought a massive increase in demand for all levels of education. Educational attainment statistics are impressive, but results show high-school students have poor basic skills. Reform efforts to tackle this are underway, including increased teachers' pay in combination with more contact hours and increasing the length of compulsory education. As in other socio-economic spheres, there are significant gaps between Arab-Israelis and the rest of the population. Also, the Ultra-orthodox community's independent education system presents specific concerns and challenges. In tertiary education, progress has been hindered by the collapse of a reform package that envisaged increased state funding combined with increased student tuition fees, expansion of government-backed student loans and a range of other structural reforms. This Working Paper relates to the 2010 *OECD Economic Survey of Israel* (www.oecd.org/eco/surveys/israel)

JEL classification: H52, I20, I21, I22, I23, I28.
Keywords: Israel; education; policy; reform; primary schools; secondary schools; tertiary education; universities; colleges; Arab; Haredi; Ultra-orthodox; PISA.

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La politique d'éducation Israélienne : comment progresser dans la réforme

Le système éducatif israélien est très complexe en raison des multiples filières d'enseignement primaire et secondaire et du service militaire. La croissance démographique et l'expansion économique ont entraîné une augmentation massive de la demande d'éducation à tous les niveaux. Les statistiques relatives au niveau d'études sont impressionnantes, toutefois les résultats montrent que les compétences de base des étudiants du secondaire sont d'un niveau médiocre. Des réformes ont été engagées pour y remédier, il s'agit notamment d'améliorer la rémunération des enseignants tout en ajoutant des heures supplémentaires d'enseignement direct et en allongeant la durée de la scolarité obligatoire. Comme dans d'autres domaines socio-économiques, on constate de fortes disparités entre les Arabes israéliens et le reste de la population. D'autre part, le système éducatif indépendant de la communauté ultra-orthodoxe se caractérise par des difficultés et des défis spécifiques. Dans l'enseignement supérieur, les progrès ont été freinés par l'échec d'un ensemble de réformes qui prévoyaient d'augmenter les financements publics tout en relevant les frais de scolarité et en lançant une série de changements structurels. Ce document de travail se rapporte à l'Étude économique de l'OCDE de l'Israel (www.oecd.org/eco/surveys/israel).

Classification JEL: H52, I20, I21, I22, I23, I28
Mots-clés: Israël; l'éducation; la politique; la réforme; enseignement primaire; enseignement secondaire; enseignement tertiaire; les universités; les collèges; les Arabes; haredi; ultra-orthodoxes; PISA.

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Israeli education policy: how to move ahead in reform[1]

By Philip Hemmings[2]

Israel's education system has undergone massive expansion due to population growth, lengthening compulsory education and increasing demand for tertiary education. In some ways it has coped well. Already high average levels of educational attainment have been increased further and remain comparable with the best-performing OECD countries. However, participation and attainment in education among Arab-Israelis is low, and Ultra-orthodox education is unconventional, which is contributing to high levels of relative poverty. Furthermore, international surveys reveal a general problem of weak core skills among secondary-school students, with negative implications for employers and tertiary institutions. This paper investigates these problems and the policy response to them. Recommendations are summarised in a concluding box (Box 4).

A complex education system

The routes from the crèche to the workplace are complicated, echoing Israel's short but complex history and the diverse backgrounds of its population (see OECD, 2009):

- Primary and secondary education comprises four main streams: three for the Hebrew-speaking community and one for the vast majority of Arabic speakers (there is a relatively minor fifth stream for the small Druze minority). The Hebrew-speaking streams comprise State, State-religious and Ultra-orthodox schools. All streams are supervised and fully funded by the state, except the Ultra-orthodox stream, which is independent and receives partial state funding. Private mainstream schooling occupies a relatively small share of the market.

- Military conscription (typically three years for men and two for women) intervenes in the transition from school to work or to tertiary education. It is not universal: Arab-Israelis are exempt, and the Ultra-orthodox stream is effectively exempt. One consequence of conscription is that a market for post-conscription education has developed in which individuals re-take secondary-school courses and prepare for tertiary entrance exams. The impact of conscription on

1. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

2. Head of the OECD Economics Department's Israel Desk. This paper was originally produced for the OECD Economic Survey of Israel (http://www.oecd.org/eco/surveys/israel) published in January 2010 under the authority of the Economic and Development Review Committee. The author is indebted to OECD staff members Andrew Dean, Bob Ford, Peter Jarrett and Charlotte Moeser for their valuable comments and to Françoise Correia for research assistance and to Mee-Lan Frank and Maartje Michelson for editorial support. The paper has also benefitted enormously from discussions with experts at the Ministry of Education, and with the Governor of the Bank of Israel, Stanley Fischer, and his team, in particular Karnit Flug, Michel Strawczynski and Noam Zussman.

individuals' education and careers, and on the human capital of the economy as a whole, is clearly complex. Conscription delays entry into higher education and the labour market, shortening active contribution to the civilian economy. However, some skills acquired during military service do have market value for civilian life. For example, it is often argued that many high-tech start-up companies are based on know-how acquired during military service.

- Tertiary education comprises several universities and numerous colleges. Policy purposefully maintains a distinction between the university and college sectors; for instance, the state funding formulae differ. For both sectors, tuition fees for state-funded courses are regulated, uniform and fairly modest. Non-funded courses with unregulated (and much higher) fees have grown in number, although they still account for only a relatively small share of tertiary education.

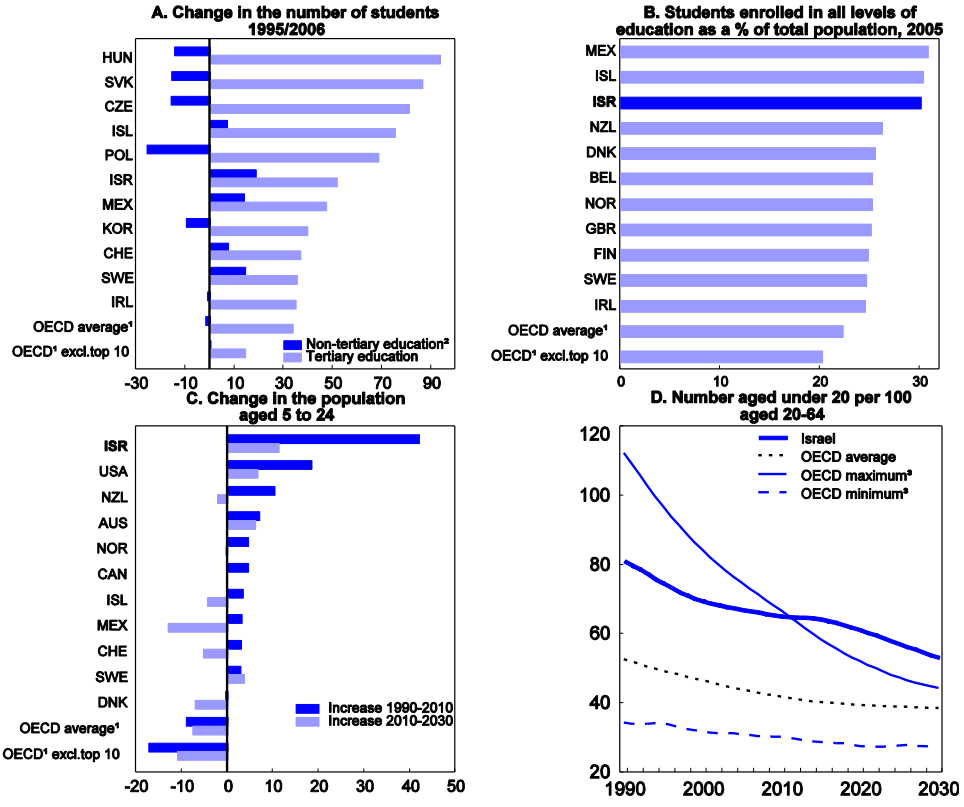
Strong demand and continuing expansion

There has been rapid expansion in the number of students at all levels of education and a high level of overall "demand" for education compared with OECD countries. Between 1995 and 2006, the percentage increase in student numbers at all levels was well above the OECD average (Figure 1, Panel A). And, the share of students enrolled in all levels of education in relation to the total population is very high compared with most OECD countries (Figure 1, Panel B).

Figure 1. **International comparison of student numbers and youth demographics**

Comparison of Israel with top ten OECD countries[1] (except Panel D)

Per cent



1. Unweighted average, excluding Luxembourg and Turkey. For Panel A, data available for only 23 OECD countries.
2. Primary, secondary and post-secondary education.
3. Maximum and minimum for each year, irrespective of country.

Source: United Nations, *World Population Prospects: The 2008 revision*, medium-variant population projections and OECD (2009), *Education at a Glance*.

Demographics are playing a significant role in pushing up the demand for education. For example, in the past 20 years the population of those aged 5 to 24 years has increased by about 40%, which is substantially more than in any OECD country, where, typically, youth populations have been shrinking (Figure 1, Panel C). However, the demographic pressures on the education system are set to ease. According to United Nations projections the population aged under 20 will rise by a little over 10% in the coming 20 years. Also, viewed in the context of the youth dependency ratio, the demographic burden has been declining for some time, although it is set to remain well above the OECD average for the foreseeable future (Figure 1, Panel D).

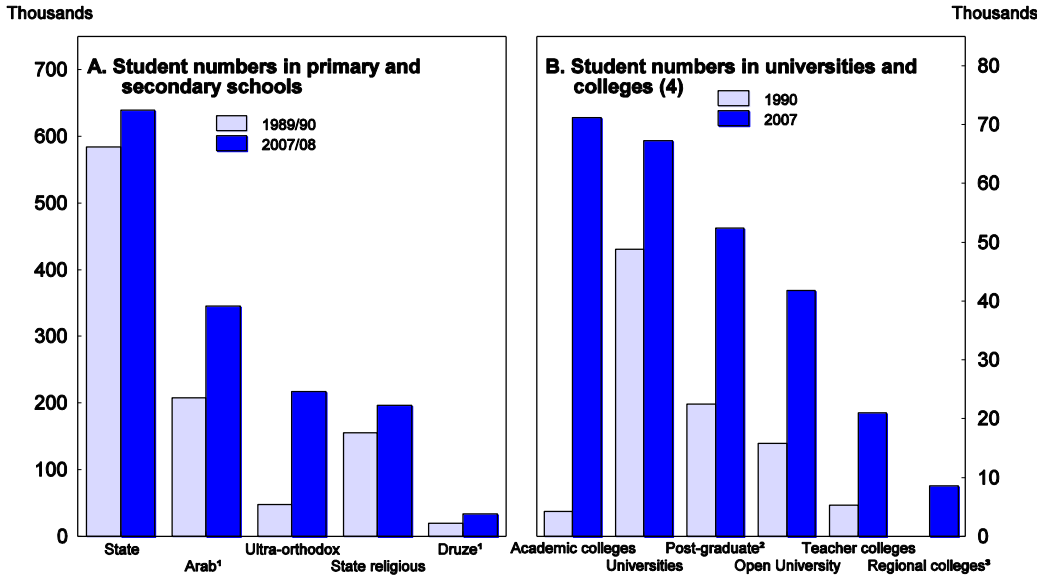
In addition, the education system has long since been coping with significant compositional change. Much of the increase in the number of primary and secondary students has been in the Arab and Ultra-orthodox streams (Figure 2). Most remarkable is the rise in Ultra-orthodox education; roughly one quarter of Hebrew-speaking children (or a little under one-fifth of the total population) now start primary school in this stream. In tertiary education, much of the response to the increasing demand for first-degree courses has been through increasing undergraduate numbers in the Open University and in academic colleges (see later sections for further explanation). Student numbers in post-graduate education have also increased substantially (Figure 2).

In international comparison, Israel devotes a relatively high share of GDP to education, which is sometimes lauded but is deceptive because of student numbers. Public and private expenditure on educational institutions is around 8% of GDP, compared with an OECD average of about 6% (Figure 3). However, if this measure is divided by the share of the students in the total population to give expenditure per student relative to GDP per capita, then Israel is slightly below the OECD average of around 25%.[3] This clearly needs to be taken into account in assessing the depth of human capital investment and in debates about funding education.

Furthermore, increases in education spending have been relatively modest compared with OECD countries. Over time, annual increases have often reflected increases in GDP (Figure 4). Thus, spending as a share of GDP has remained relatively stable, fluctuating between 8 and 9%. This said, in the early 2000s real growth in spending on education was muted as part of wider efforts to limit public spending (see OECD, 2010). This contributed to Israel having a relatively low spending increase compared with OECD countries, and especially a low increase in expenditures per student. Indeed, real spending per student in tertiary education fell by close to 15% between 1995 and 2006 (Figure 5). Recent educational reforms have sought to reverse this trend (see subsequent sections).

3. Disaggregating this result by sector reveals that spending per student relative to GDP per capita in primary education is also close to the OECD average, but it is below the average for secondary education and above average in tertiary education. See OECD (2009), Table B1.4.

Figure 2. **Compositional change in compulsory and tertiary education**

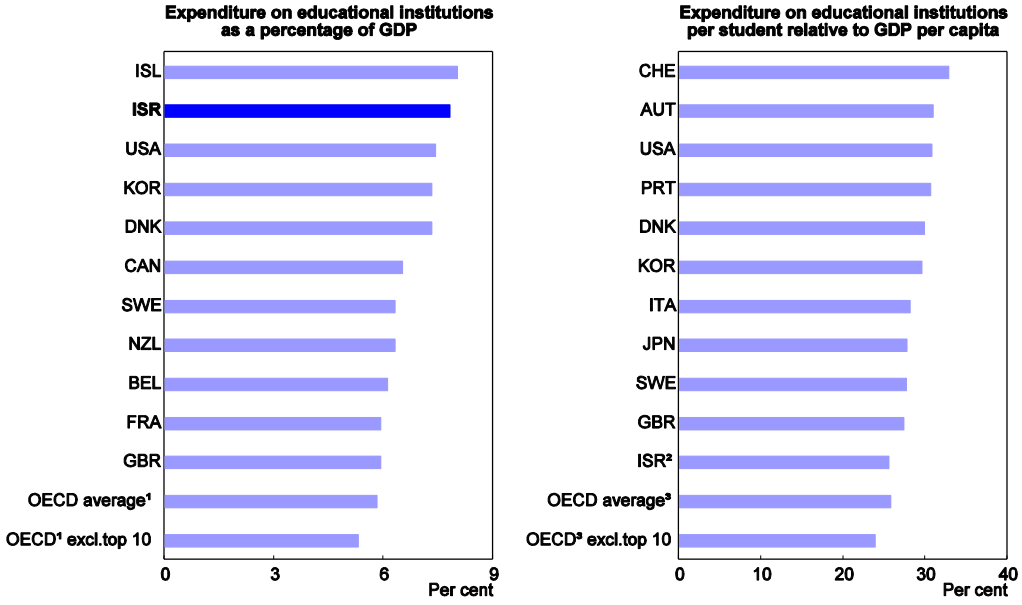


1. Data for 1989-90 approximated by OECD using 2007-08 figure and total growth in Arab/Druze population 1990 to 2007.
2. All institutions.
3. Most are affiliated to universities.
4. The figures for each type of institution comprise undergraduate student numbers. A large majority of post-graduates are in the university sector. The year indicates the calendar year in which the academic year began.

Source: Central Bureau of Statistics and the Council for Higher Education.

Figure 3 **International comparison of spending on education**

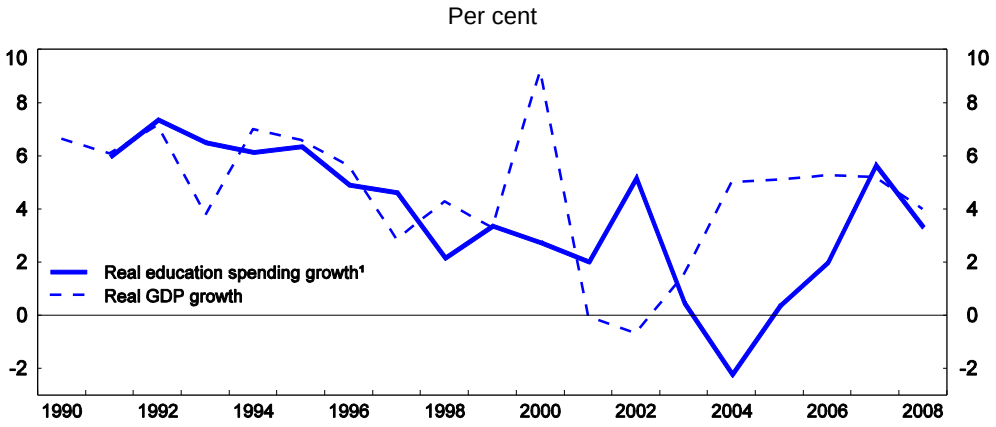
Comparison of Israel with top ten OECD countries, 2006



1. Excluding Luxembourg. Greece and Turkey.
2. Israel has the 15th rank.
3. Excluding Canada, Luxembourg, Greece and Turkey.

Source: OECD (2009), *Education at a Glance*.

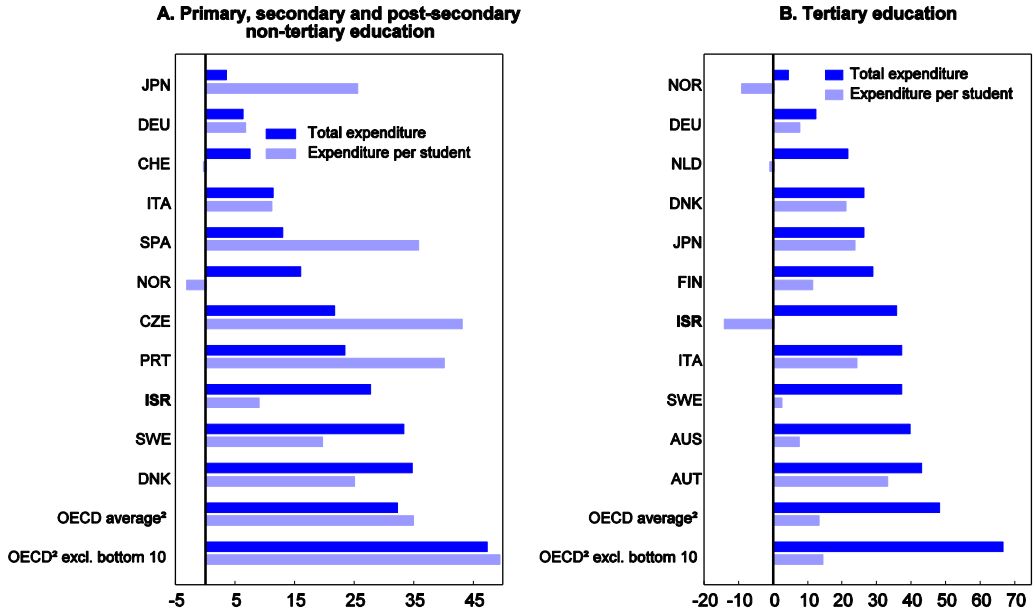
Figure 4. **Trend in spending on education**



1. To calculate real spending growth in education, the Central Bureau of Statistics uses a combination of deflators for each level of education.

Source: Central Bureau of Statistics, *Statistical Abstract of Israel 2009* and OECD, *OECD Economic Outlook 86 Database*.

Figure 5. **International comparison of changes in spending on education**



1. GDP deflator, 2000 = 100.
2. Data available for only 21 OECD countries.

Source: OECD (2009), *Education at a Glance.*

High average educational attainment but large differences within society

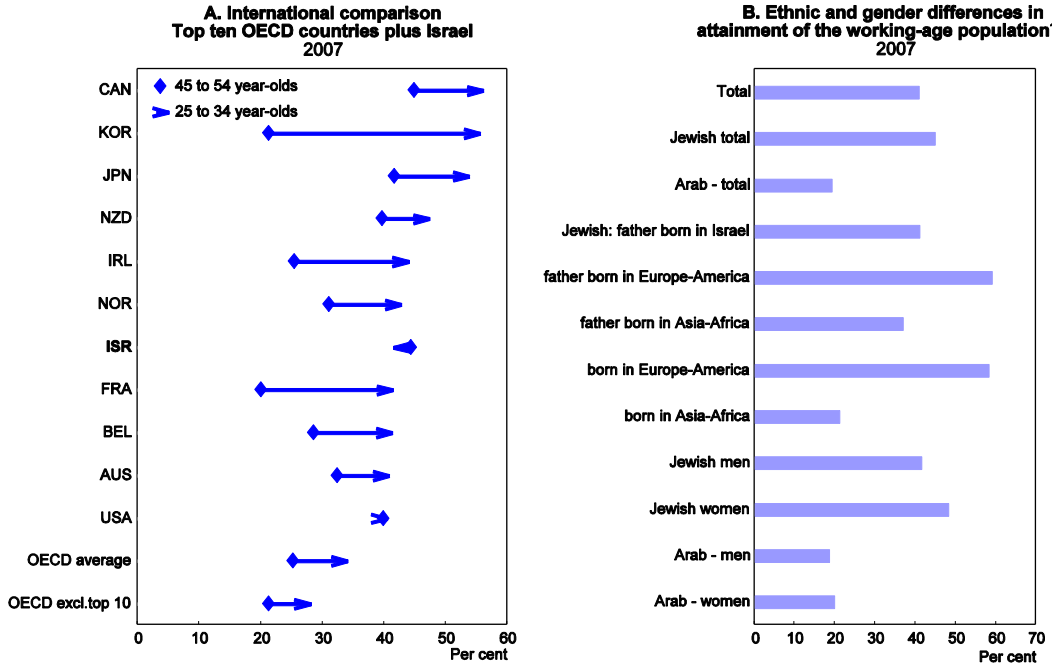
Educational attainment of the working-age population is impressive. According to the latest available comparisons, 42% of 25-34 year-olds have either tertiary type A or B qualifications compared with an

OECD average of 34% (Figure 6, Panel A).[4] Furthermore, high attainment is firmly established in the population as a whole. In many OECD countries attainment is lower in older cohorts, reflecting low secondary-school graduation rates and small tertiary sectors in the past. In contrast, attainment among older cohorts in Israel is relatively high. For example, over 40% of 45 to 54 year-olds have attained a tertiary-level qualification.

However, differences in educational attainment across different segments of society are large. Only about 20% of the Arab population aged 15 and over has attained tertiary education, compared with 45% in the Jewish population (Figure 6, Panel B). Within the Jewish population, those of African-Asian origin have much lower attainment than those of American-European origin. Despite the diversity of Israel's waves of immigration, this does not appear to be a large influence on the overall attainment figures. Tertiary attainment in the Jewish population as a whole and in the subset of those born in Israel is roughly the same (Figure 6, Panel B). Similar to many OECD countries, tertiary educational attainment is now more prevalent among women.

Figure 6. **Tertiary education attainment**

Percentage of the population that has attained tertiary education



1. Population aged 15 and over.

Source: OECD (2009), *Education at a Glance* and Central Bureau of Statistics, *Statistical Abstract of Israel 2008*.

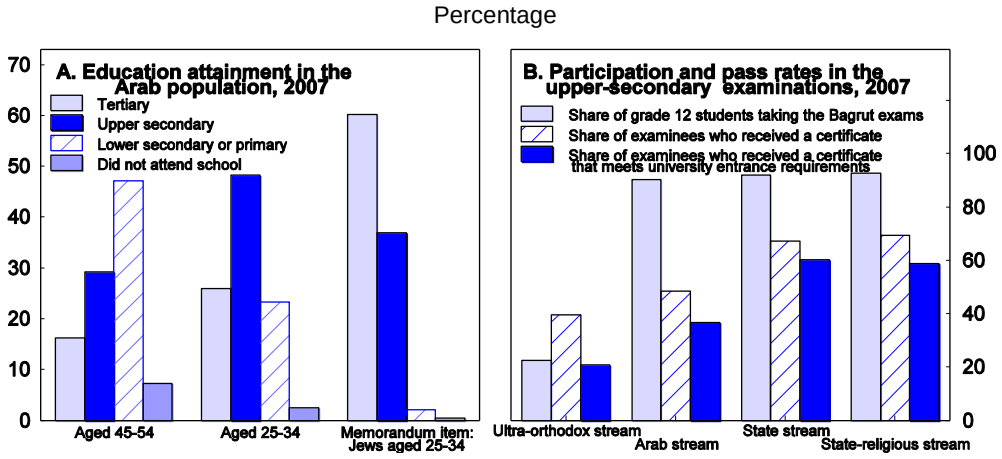
Educational attainment among the Arab-Israeli population is rising, but even among young cohorts the gap with the Jewish population remains substantial. Older cohorts of Arab-Israelis typically left the education system relatively early. For instance, nearly half of those currently aged 45-54 finished

4. Tertiary type A and B programmes are defined under the International Classification of Education. Type A programmes are those with a minimum cumulative duration of three years' full-time equivalent and that are largely theory-based and designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements. Tertiary type B programmes are those with a minimum duration of two years full-time equivalent and a focus on practical, technical or occupational skills for direct entry into the labour market.

education at the end of lower-secondary school (Figure 7, Panel A). Among younger cohorts, there has been significant improvement with a large majority continuing beyond compulsory education. Nevertheless, pass rates among those who take the end-of-school exam (Bagrut) remain comparatively low. In 2007 the pass rates was 48% in the Arab stream, compared to 67% in the State stream (Figure 7, Panel B).[5] Consequently, far fewer young people attend tertiary education compared with the Jewish population; tertiary attainment among 25-34 year-old Arabs is only 26%, less than half the rate of the corresponding Jewish population.

That said, there are important distinctions in participation and attainment within the Arab-Israeli community, reflecting wider socio-economic differences (see OECD, 2010). Analysis of student performance in upper-secondary education by Zussman and Tsur (2008) underscores the fact that students from a Bedouin background have particularly weak outcomes. Those for the Druze and Christian communities are stronger than the Muslim majority, having pass rates comparable to those in mainstream Jewish education.

Figure 7. **Attainment indicators for the Arab and ultra-orthodox education streams**



Source: Central Bureau of Statistics, *Statistical Abstract of Israel 2009.*

Persistently poor educational outcomes among Arab-Israelis are being driven in particular by the following:

- The low socio-economic status of many families and communities is feeding through to student performance by several channels. Low parental achievement can reduce the educational aspirations of children, and limited labour-market prospects probably dissuade students from significant effort at school. Also, local authorities in Arab-Israeli communities often have weak finances (see OECD, 2010) and cannot afford additional investments in educational infrastructure, which are quite common in more affluent jurisdictions.

- The remote location of some communities (particularly the Bedouin) means students can be put off attending because they live a substantial distance from their school. Also, the distance of the schools themselves from the main urban centres amplifies problems in attracting and retaining staff.

5. There are of course exceptions to the low pass rates in the Arab-Israeli stream. Press reports in August 2009 highlighted the case of the Arab-Israeli town of Fureidis, which had the third highest matriculation rate for the Bagrut exam across the country as a whole.

- Arab-speaking students face a heavy workload in language skills. Spoken and written Arabic differ markedly, making it tough to acquire reading and writing skills. Also, a significant amount of time is absorbed learning Hebrew, a high level of proficiency in which is essential for those aspiring to tertiary education in Israel. All tertiary institutions except some teacher-training colleges teach in Hebrew.

As regards the Ultra-orthodox community, the primary concern is not one of participation in education, *per se*, but rather the focus of learning. Only about 20% of the Grade 12 students sit the final-year Bagrut examinations, compared with over 90% in mainstream Jewish education (Figure 7, Panel B). Furthermore, pass rates are mediocre: overall, only a very small share of Grade 12 students in this stream become eligible to apply to university. However, for girls these statistics do not tell the full story. Although each year only about 2 400 Ultra-orthodox girls take the Bagrut exams, a further 4 500 participate in an alternate system of secular-type exams administered by the Henrietta Szold Institute. As a result, in total, over 95% of girls take some form of final examination. But this is not the case for boys for whom low participation in Bagrut indeed reflects a very limited focus on mainstream education.

Relatively weak core skills

Israeli secondary-school students as a whole have performed poorly in all international tests of core skills in recent decades. In the 2006 Programme for International Student Assessment (PISA) exercise, Israel's score across the maths, reading and science tests was lower than all OECD countries except Mexico and Turkey, and substantially below the OECD average (Figure 8). Similar results have emerged from most other international tests. Scores in PISA and in Trends in International Mathematics and Science (TIMSS) have consistently ranged between 85 and 90% of the OECD average in recent years.[6] Some hold that schooling has deteriorated significantly compared with previous decades. However there is no concrete evidence of this. In tests conducted in the early 1960s, test scores were some way above the OECD average, but participation in these tests was concentrated among students with strong family backgrounds, and for this reason the results are not considered internationally comparable.

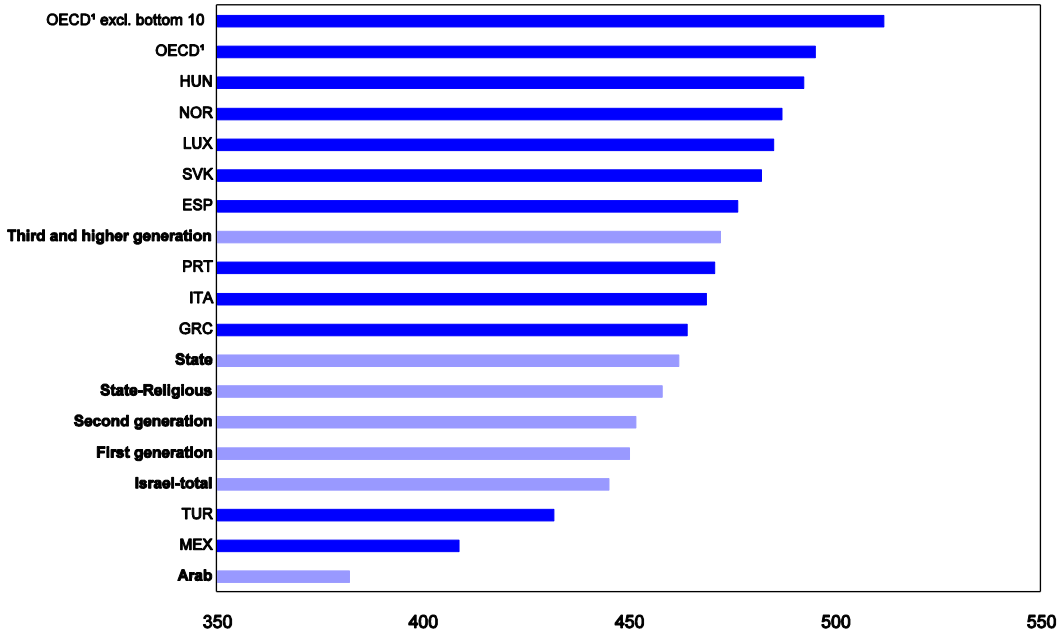
Crucially, this is a generalised problem; the poor international ranking in PISA holds across all streams of supervised education. To be sure, students in the State and State-religious streams perform substantially better than their Arab-Israeli counterparts, but even their scores are well below the OECD average (Figure 8). Note that due to only partial participation in PISA by the Ultra-orthodox schools, there is no comparable figure for this stream (see below). The significance of immigration in Israel's Jewish population has some bearing on the PISA results. For example, the average score for third- and higher-generation students in the State and State-religious streams is somewhat higher than the nationwide average, but is nevertheless the sixth lowest score in comparison with OECD countries (Figure 8). The equivalent scores for first- and second-generation students are close to the nationwide average.[7]

6. Israel has participated in PISA (2000 and 2006), TIMSS (1994, 1999 and 2003) and Progress in International Reading Literacy Study (PIRLS).

7. The similarity of the first- and second-generation students' PISA scores is thought to reflect particular characteristics of past waves of immigration and is being investigated by the Ministry of Education. Overall, the gap in PISA scores between immigrant students and "natives" is much smaller than in many other countries (OECD, 2007a).

Figure 8. **Average of PISA scores across mathematics, reading and science**

Comparison of Israel with bottom ten OECD countries, 2006



1. Unweighted average.

Source: OECD, *PISA 2006 Database*.

The PISA results illustrate a number of other points. *First*, the weak performance is not confined to a specific aspect of core learning; average scores in all three areas tested in PISA (reading, mathematics and science) rank roughly the same. *Second*, as might be expected given the country's socio-economic diversity, the dispersion of scores is wider than in many OECD countries. The variance in student scores in science is some 40% greater than the average OECD-country variance. About one-third of the total variation is attributable to between-school differences in performance, the remainder to within-school variation. *Finally*, controlling for socio-economic status across countries worsens Israel's relative position – primarily because the scores for Turkey and Mexico are pulled up while Israel's falls slightly. This broadly suggests that Israel's poor overall performance in PISA is largely linked to issues in the education system itself and not due to other drivers of educational attainment.

The weak international test scores are worrying. Such concerns could be allayed if students' core skills were deepening relatively quickly, compared with other countries in the final years of secondary schooling or during military conscription. But this seems unlikely. Hence, on average, Israeli school leavers are almost certainly entering the labour market or tertiary education with weaker basic skills compared to their contemporaries in nearly all OECD countries.

Developments in primary and secondary education policy

Policymaking in primary and secondary education is fundamentally split between the supervised and unsupervised sectors. In the supervised sector (*i.e.* covering the State, State-religious, Arab and the relatively small Druze streams), the Ministry of Education and other arms of government have considerable powers to influence and monitor the type and quality of learning through resource allocation,

regulations and guidelines. For the Ultra-orthodox stream government policymakers are not without influence but, by definition, do not have the conventional means of implementing reform.

Key features of mainstream education

Primary and lower-secondary schooling is directly administered by central government, while, with the exception of a relatively small sector for vocational training (see below), most upper-secondary schooling is under the authority of local government. This is opposite to arrangements in many OECD countries, and its roots probably lie in a desire to weld national cohesion and ensure compulsory schooling in primary and lower-secondary schools during the early days of statehood. Aside from the strong segmentation, schooling in other respects is similar to many systems elsewhere (Table 1). Allocation to schools is primarily based on catchment areas at lower levels and then parental choice in upper-secondary education, and there are mandatory core curricula and national testing at various ages (Box 1). Teachers are required to have degree-level teaching degrees and are strongly unionised, and school principals have sole responsibility in pedagogic matters but limited powers in hiring and firing staff.

These supervised, fully state-funded schools provide the vast majority of mainstream education. Independent private mainstream schooling is limited; there are only an estimated 30 000 students compared with a total of about 1.1 million students in the supervised streams in primary and secondary education.[8] Nevertheless, officials in the Ministry of Education are concerned about the degree of state support for this sector (the schools receive partial state funding along similar lines to the Ultra-orthodox schools, see below) as this is helping private schools draw the best teachers and students away from state schools in some areas of the country.

Box 1. **The Meitzav and Bagrut examination systems**

Meitzav exams are conducted in the second year of primary school (Grade 2, *i.e.* typically age 7/8), the final year of primary school (Grade 5, *i.e.* around age 10/11) and the second year of lower-secondary school (Grade 8, *i.e.* typically age 13/14). The exam at Grade 2 tests only Hebrew or Arabic skills (as appropriate), while the subsequent tests also cover mathematics, English, and science and technology. Since 2007 the frequency of external examination has been reduced in light of concerns about undesirable behavioural reactions, such as excessive teaching to the test itself. Participation is now on a rotating basis; schools run common external tests for two of the subjects every two years and use internal tests in the interim.

The Bagrut applies to upper-secondary students (*i.e.* Grades 10 to 12) and comprises unit-based courses that culminate in final examinations in Grade 12. Matriculation for a certificate requires passing exams in several core subjects (including maths, native language skills and English) plus two elective subjects. The courses are ascribed a unit value, which reflects class time spent and the level of difficulty, and a minimum number of units is required for a Bagrut certificate. Students follow either "general", "vocational" or "agricultural" tracks; the latter two include more practical course options but nevertheless can fulfil university or college entrance requirements.

Universities and colleges typically make additional requirements on the content of the Bagrut certificate. For example, the universities require the Bagrut certificate to include passes at a minimum level in maths, English and in one of the elective subjects. Both universities and colleges calculate a single score from the student's exam results, which are one of the factors used to allocate places to applying students. Tertiary institutions also require applicants to take general tests (the Psychometric Test), which are akin to the "GMAT" examination in the United States. There are two test systems, one run by the universities and another by the colleges.

Those that do not pass the Bagrut receive a certificate for having reached Grade 12, which is itself a recognised qualification for some parts of the labour market.

8. The estimate for the number in private mainstream education was provided by the Ministry of Education. The estimate of the total number of students in the supervised streams is that projected for 2010 in the *Statistical Abstract of Israel* of the Central Bureau of Statistics, Tables 8.11 and 8.21.

Table 1. **Key features of the supervised education streams**

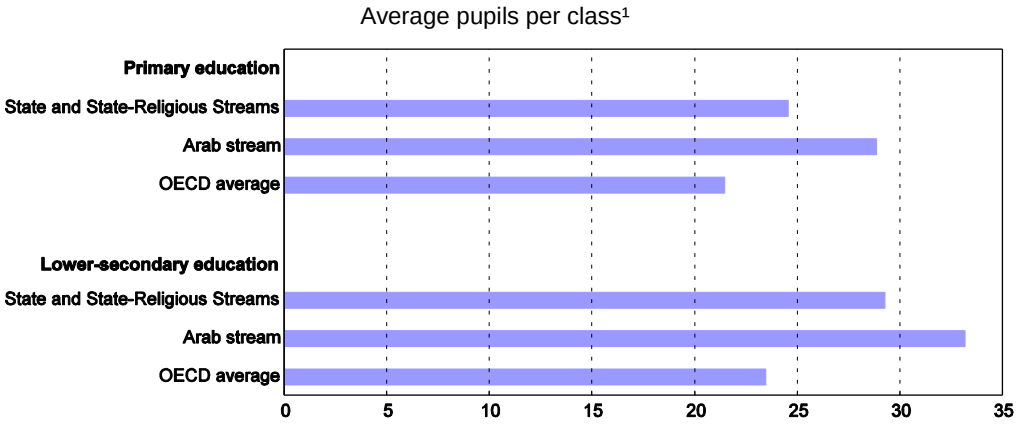
Basic structure	Compulsory kindergarten education is provided free for one year prior to entering Grade 1. Prior to this, pre-primary education is optional. In total children usually attend for two years. Free pre-primary education is being extended beyond one year on a gradual basis, with priority given to disadvantaged socio-economic groups. Education is in three principal phases: primary (Grades 1-6), lower secondary (Grades 7-9) and upper secondary (Grades 10-12). Some lower-secondary and upper- secondary schools are combined. An increase from 10 to 12 years of compulsory education is being phased in. There are relatively few private schools in the supervised sector. Vocational training schools (administered by the Ministry of Industry, Trade and Labor) provide an alternative track to mainstream upper-secondary education.
School allocation	Catchment-area allocation is used for primary and lower-secondary schools. Allocation for upper-secondary schools is based purely on parental choice.
Curricula	There are mandatory core curricula for each stream with common elements. All streams include mathematics, reading/literature and English language. Arab schooling includes compulsory Hebrew-language classes. The State-religious schools typically devote about half the school day to religious study.
Examination system	National testing at Grades 2, 5 and 8 (the Meitzav exams) and a matriculation process (Bagrut) during Grades 10 to 12.
School administration and funding	Legally, primary and lower-secondary education is run directly by central government. Secondary education is the responsibility of local authorities, but central government has effective control, through funding, regulation and guidelines. School principals have sole responsibility and authority regarding pedagogical issues and limited powers in hiring and firing staff. In general, there are no school boards. State-budget transfers are supposed to cover all costs, *i.e.* there are no mandatory local-government contributions. However, local authorities can, and often do, top up school funding (particularly for infrastructure, such as sports facilities).
Fees	Schools can, and typically do, charge fees for certain extra-curricular activities.
Teachers	All teachers are required to have a teaching degree from one of the approved teaching colleges. There are two main teaching unions, the High School Teachers' Organisation and the Israeli Teachers Union.

Vocational training is partly catered for through separate tracks in regular upper-secondary education (see Box 1). Indeed, about one third of students are in schools that run vocational variants of the Bagrut examination. These schools are often run by non-profit organisations but nevertheless fall under State supervision and are under the immediate responsibility of local authorities. In addition, there are vocational schools under the authority of the Ministry of Industry, Trade and Labor that teach "traditional" trades, such as vehicle maintenance and construction, for the equivalent of Grades 9 to 12. The sector is relatively small, with approximately 13 500 students (in around 70 institutions). This is equivalent to only 3% of the total number of Grade 9 to 12 students.[9] However, military service is playing a role in developing vocational skills, as for many conscripts it includes learning general skills in engineering and trades.

Classes are, on average, relatively large compared with OECD countries, especially in the Arab stream. Primary-school classes average 25 students in the Hebrew streams and 29 students in the Arab stream, compared with an average of 21 students among OECD countries (Figure 9). With averages at these levels there is probably a good proportion of classes with well above 30 students per class in the Jewish streams and more than 35 students in the Arab stream.

9. Data on the vocational training schools can be found in the Central Bureau of Statistics, Statistical Abstract of Israel, 2009, Tables 8.33 and 8.34.

Figure 9. **Average class size in primary and lower-secondary education**



1. OECD average is for public education in 2007, the Israeli figures are for the 2008-09 school year.

Source: OECD (2009), *Education at a Glance* and Central Bureau of Statistics, *Statistical Abstract of Israel 2009*.

The New Horizon programme and other reforms

Policymakers have for some years recognised that core skills are a problem in primary and secondary education. In the early 2000s there were some bold policy experiments, and a national task force on education (the Dovrat Committee) proposed various reforms, and current policies echo a number of its recommendations.[10] The most prominent focus of current policy is "New Horizon", a programme endeavouring to advance reform on several fronts. This is discussed in more detail below. However, other important programmes are underway, notably:

- Increase in compulsory education by two years to Grade 12 (*i.e.* typically age 17 or 18). This has considerable budgetary implications, as the increases in student numbers trigger additional state transfers to schools. For this reason it is being applied progressively over a five-year period with earlier implementation in deprived areas. In the first year the increase in compulsory education became operational in 30 municipalities, and countrywide implementation is scheduled for the 2012-13 school year.

- Reduction in the maximum class size to 32 students at all levels of compulsory education and to 20 in the first two primary-school grades. Full implementation is aimed for in the 2010-11 school year and will imply that at least for the first two grades the average class size will be at or below the norm in OECD countries.

- Introduction of socio-economic weighting in the budgeting allocation for primary education. Since the 2007-08 school year a socio-economic index has been used to determine some of the budget allocation for primary schools. The index (called the Strauss Index) factors in students' family income, parental education, immigrant status and a measure of distance from the main

10. The Dovrat Committee delivered its final report in 2004. Its main recommendations included: universal pre-school education from age three and organisation of pre-schools into clusters with links to primary schools; lengthening of the school day for all students; and increased responsibilities combined with increased pay and qualification requirements for school principals.

urban areas to set the funding for each school.[11] But universal minimum budgeting requirements are limiting application of the index such that it currently allocates only 5% of the primary-school budget (Bank of Israel, 2009).

- Reform of the Bagrut away from rote learning. In examinations, the proportion of straightforward factual regurgitation is being reduced, and, in continuous assessment, more weight is being given to projects requiring independent inquiry.

The new government is endeavouring to clarify objectives for state primary and secondary education. A position document by the Ministry of Education outlines a 15-point strategy that includes some admirably specific targets. These notably include goals on performance in international tests for coming years. For example, one goal is for Israel to rank 35th in mathematics and science, and 34th in languages in the 2012 PISA scores (current rankings are 40th and 39th respectively in a comparison including non-OECD participants in PISA).

Key elements of the New Horizon programme

In 2007 New Horizon was launched in primary and lower-secondary schools following an agreement struck between the education authorities and the Israeli Teachers Union. The core of the programme lengthens teachers' workweek to accommodate small-group teaching in exchange for more generous compensation.

- *Classes and teaching hours*. Teachers' working time is being increased from 30 to 36 hours per week. This includes five hours of small-group teaching in primary schools and four hours in lower-secondary schools. Guidelines on the small-group teaching suggest schools allocate 60% of time to improving general achievement levels and 10% to gifted students – the remaining 30% to be allocated as the schools see fit.

- *Teachers' pay*. The pay scales are being raised substantially but also flattened (*i.e.* automatic seniority increments are smaller), and some supplements to basic pay have been removed. The increases in teachers' pay are, *prima facie*, substantial, particularly for junior staff. For example, the starting salary for new teachers nearly doubles, while for veteran teachers pay increases by about one quarter. The process of promotion up the pay-scale ladder is also being altered. Evaluation will generally take place every three years and will depend on successful completion of 60 hours compulsory training per year and, at senior levels, on additional assessment processes. The reform agreement explicitly excluded any formal grading of teachers performance in the training sessions, except in mathematics.

- *Principals' pay and responsibilities*. A separate, and substantially more generous, pay scale is being introduced. Principals have been given greater powers over which teachers are hired, the granting of tenure and promotion. They can now also initiate procedures for firing teachers. A special training college for principals has also been established.

The small-group teaching approach of New Horizon is one of several reform models to have been tried (see Table 2). Notably, in the early 2000s three pilot schemes aimed at boosting the performance of weaker students from Grade 10 to 12 (*i.e.* typically age 16 to 18). One programme gave cash awards to

11. Allocation based on socio-economic criteria was first introduced in 2003-04 (the Nurture Index). However, the Supreme Court ruled against it in 2006, because the formula gave more resources to Regions of National Priority, which the court judged as illegal, because their boundaries implied discrimination against the Arab-Israeli sector. See Bank of Israel (2009) for further details.

students, another provided cash incentives to teachers, and a third provided targeted instruction in small study groups. The first two programmes were terminated; the latter survived and currently operates in around 300 schools. Follow-up research has found, in broad terms, positive effects on student performance, particularly from the two programmes using individualised rewards.[12]

Table 2. **Past pilot programmes to boost student and schools' performance**

Programme	Detail
Salary hikes for teachers and principals in deprived areas (Individual Compensation Contracts Programme)	Staff in schools selected from "national priority areas" were given 50% pay increases for up to two years, the main goal being to attract better-quality teachers and managers to schools in peripheral areas.
Teacher incentives based on overall school performance ("Teacher Incentive Intervention"), 1995-99	Financial rewards to teachers based on the average performance of the school in matriculation exams. The rewards were distributed equally to teachers within each school.
School incentives programme (The "School Resources" programme), 1994-97	Additional resources to schools (additional teaching time and resources for teacher training) on the basis of applications judged by a ministerial steering committee.
Student incentives ("Achievement Awards" programme), 2001	Grade 10 to 12 students in a sample of poorly performing schools were given cash rewards for taking and passing exams. The programme was supposed to last three years but was suspended after one year due to adverse publicity.
Teacher incentives based on individual performance, 2001	Individual cash awards to teachers based on students' actual performance compared to that predicted by regression analysis that controlled for socio-economic background, an indicator of proficiency and a fixed school-level effect.
Small-group teaching ("Bagrut 2001" programme)	Under-performing students were given individualised instruction in small study groups.

Source: Ministry of Education.

New Horizon's pay reforms are intended to tackle what many see as a crisis in morale among teachers and problems in attracting quality entrants to the profession. Teachers' pay has indeed been relatively low in international comparison. For instance, according to the OECD's *Education at a Glance*, the pay of teachers with 15 years experience in Israel was equivalent to 62% of GDP per capita in 2007, while for most OECD countries the equivalent figure lay between 100 and 150% of GDP per capita (OECD, 2009). However, as elsewhere in the public sector, there are a number of supplements to basic pay. For teachers these are worth around 15-25% of the gross wage and imply that Israeli wages are in fact closer to the norm.[13] International comparison based on New Horizon's pay scales would probably bring wages to the bottom end of the typical range of most OECD countries.

12. Detailed analysis of the trial reforms has been led by Victor Lavy (Hebrew University and University of London) typically using econometric analysis to assess their impact on student matriculation. The programmes rewarding teachers or students financially were found to be particularly effective (Lavy, 2002; Angrist and Lavy, 2004; Lavy, 2004), had a bigger impact than the small group teaching trial (Lavy and Schlosser, 2005) and were more cost effective than increasing resources to schools (Lavy, 2002). The latest research Lavy (2008) examines the impact of increasing principals' pay in the Individual Compensation Contracts programme. Although individualised incentives appeared to work well, the trials also demonstrated that some find individual incentive programmes unpalatable. Notably, the programme giving cash rewards to students was terminated early due to adverse publicity.

13. The main allowances are for "teacher coordination" (10% of gross wage), "level coordination" (5 to 7%) and a "mother's bonus" (10%).

Remuneration is only part of the morale and recruitment problem. Volansky (2010) cites several additional factors, including harsh criticism of teachers in the press and increased questioning of teachers' authority by parents and pupils. While New Horizon will not immediately lessen such problems, it most likely will do in the long run by improving the performance of current teachers and raising the quality of new entrants. Morale, recruitment and retention are also problematic in quite a number of OECD countries. A review of the teaching profession in 25 countries conducted in the early 2000s recorded widespread concerns about maintaining an adequate supply of teachers and the image and status of teaching (OECD, 2005). The review underscores that the causes are complex and that effective solutions often require pay increases but also that these need to be part of a wider package of reform. A deal struck in Scotland between the authorities and the teaching unions (the 2001 Teaching Agreement) has some similarity with New Horizon. It also combined substantial pay increases with other reforms, including increased training commitments, and these are thought to have played a key role in a subsequent increase in teacher-training enrolment (OECD, 2007b).

The New Horizon programme was made compulsory for all primary and lower secondary schools for the first time in the 2009-10 school year; for the previous two years participation was based on a majority decision by teachers within each school. Official assessment of New Horizon is being conducted by the National Authority for Measurement and Evaluation in Education (RAMA) using performance data, questionnaires and in-school observers.

The authorities are looking to achieve similar reform in upper-secondary education and as of late 2009 had recommenced negotiations with the relevant teaching union (the High School Teachers' Organisation). Previous talks did not get far; the union claimed that the New Horizon deal was not attractive to its members because of the increased hours and loss of some pay supplements. As a result, small-group teaching programmes in upper-secondary schools have to date been limited to those schools where the initiatives of the early 2000s have survived and to a system of five-week summer semester classes held at dedicated study centres.

Targeted programmes focus on Arab-Israeli education

As in education systems elsewhere, a range of targeted programmes are in place to address various concerns. A substantial share of the resources targets the Arab, Druze and Bedouin populations. The latest in a series of five-year programmes targeting these groups began in 2008 (Table 3). In broad terms, it supports extra hours of study, rent assistance for teachers and resources for teaching equipment, such as computer labs. Investment in building new classrooms is a particular focus of current policy, as this is commonly a constraint in efforts to reduce class sizes in Arab-Israeli education. In a five-year programme running from 2007 to 2011 to build 8 000 new classrooms, 3 120 (*i.e* 39%) are designated for the Arab sector. In addition, various specific initiatives are underway to strengthen Arabic language skills, and a system of support teams for schools in need of special attention is being continued.[14] There is also a range of programmes in addition to those targeting the Arab sector. Some tackle issues that are common to education systems in many countries, such as the education of physically and mentally challenged students. Israel's menu of programmes, in addition, has a focus on gifted students.

14. Initiatives to improve native language skills among Arab students comprise new syllabuses in kindergarten and primary school, a new assessment tool for Grade 1 students and additional teaching hours in Arabic language in Grades 3 and 7.

Table 3. **Selected targeted programmes in compulsory education**

Programme	Detail
Five-year Plan for the Arab, Druze and Bedouin schools	Starting in 2008 this is the latest in a series of five-year programmes of support for Arab and other minorities. The programme provides additional resources for teaching and infrastructure as well as for reform to curricula and instruction. The budget is around NIS 20 million per year.
Programmes for talented students	There are several programmes for "gifted" and "high-achieving" students that provide various forms of special tuition. Figures for the 2007-08 school year indicate that around 2.5% of students (*i.e.* about 25 000) participate in the programmes. The budget is roughly NIS 8.25 million per year.
Integration programme	Support for the education of pupils with special needs in regular schools using specialised staff and equipment. The programme is funded by a 5.4% contribution from each school's state-budget transfer.
Educational and Therapeutic Intervention for Pupils with Learning Difficulties and Disabilities	Development of early identification mechanisms and operation of special programmes for pupils with learning difficulties and disabilities.
Life Skills	Promotion of emotional, social and moral development. The programme is running in about 800 schools and is initially scheduled to run until 2011.

Assessment of recent policies on mainstream education

New Horizon is a step in the right direction and should be fully implemented. Indeed, the upper-secondary education union should be encouraged to strike a similar deal. The resumption of talks with the union in late 2009 indicates positive developments on this front. Nevertheless, realising the full potential of the New Horizon and any similar reform for the upper-secondary sector will almost certainly require some fine-tuning. One risk from New Horizon is that the mechanism to enhance teacher skills through increasing training and linking it to promotion may fail. Principals may universally approve promotion because of concerns of discord with, and among, staff. Teachers' motivation for learning and applying new skills might then be weakened. In this regard, New Horizon's exclusion of tests for teachers (except in mathematics) in the new training system may prove to be a serious weakness, because these would provide concrete input to help principals make and justify promotion decisions.

As regards other recent reforms: extension of compulsory education and the caps on class size should be implemented as planned. Efforts to shift away from rote learning are welcome, though continued pressure for change will probably be needed for a substantial shift in learning. But the limited application of the Strauss index means that there is little account taken of socio-economic issues in resourcing, and this needs to be rectified.

Other general reforms should be considered. In particular:

- *Further measures to reduce dominance of teaching as a lifetime career.* A small-scale programme to bring professionals from other sectors into teaching has been underway since 2008, and there are other programmes to attract young teachers to the profession (see Box 2). These promising approaches should be exploited further as a means of widening the pool of potential teachers and increasing flexibility for adjustments in the size and specialisations of the teaching profession.

- *An individual bonus for teachers linked to student performance.* The trials conducted in the early 2000s found this an effective way of raising student matriculation pass rates. Introduction of such a scheme on a permanent basis, possibly focussed on schools in deprived areas, could usefully compliment other reforms.

- *Further reform of the Bagrut system.* In light of the large share of students aiming to go on to tertiary education, the Bagrut curricula and examination results ought to do most of the work in providing information to colleges and universities for student selection. Yet the importance attached to further testing by tertiary providers implies there is room for improvement on this front. At the same time, the extension of compulsory education means Bagrut also needs to provide relevant curricula and meaningful certification to those students who do not have the capacity or inclination for tertiary study. Fulfilling such wide-ranging goals is tough, but it is likely that the existing system can be improved.

Box 2. **The "Academics for Teaching" initiative**

The Academics for Teaching programme began in the 2008-09 school year bringing graduate employees without teaching degrees into the teaching profession. Applicants teach in their subject area and are required to have a minimum five years' work experience. The participants undergo an intensive teacher-training programme over two semesters (with no tuition fees and a monthly allowance of NIS 2 000 per month). They then teach on a full-time basis. Participants are committed to teach for three years and, in addition to a regular teacher's salary, are paid NIS 6 000 each quarter for elementary and middle school teaching and NIS 9 000 for high school teaching. Following the three-year term, they can enrol in a master's degree course (in any subject, with fees paid by the Ministry of Education), in return for a subsequent two-year commitment. Those who leave the programme before completing either the three- or two-year teaching commitments must pay back the fees covered by the Ministry. In 2008-09, 100 graduates in English started the programme. For the 2009-10 school year, 500 graduates in mathematics and sciences were slated to enter the programme.

The Academics for Teaching programme is one of several measures aimed at attracting individuals to the teaching profession. These include efforts to: attract students with good grades into teaching (the Outstanding Achievers for Education programme); promote teaching as an interim career move following graduation (the Teach First programme); encourage those already working with youth in other contexts to become teachers (the Educational Pioneer programme); and, encourage English and science teachers to work in the periphery (the Atidim programme).

Decentralisation of the responsibility for primary and lower-secondary schooling to local government was raised by the Dovrat Committee's report and deserves further debate. In principle, legal devolution of responsibility for education, as long as it is accompanied by a meaningful devolution of policy powers, would help education reflect local preferences in education. But, given the socio-economic variation across municipalities, there would have to be significant checks against undesirable forms of diversity, such as widening gaps in school resources between Jewish and Arab streams. In any case, decentralisation of government responsibility might not be the appropriate tool. If the goal of devolution is confined to intensifying oversight of schools (rather than transferring substantial powers to determine curricula and examinations), then this could be achieved by other means; for example, with the introduction of school boards with parental participation, which at present do not feature in state supervised schools.

As regards targeted programmes, good evaluation mechanisms and policy commitment to react to both positive and negative outcomes are key. By design, the five-year plans for Arab, Druze and Bedouin undergo a degree of review upon renewal. However, other targeted programmes are typically not being subject to systematic appraisal. For instance, the programmes for gifted students have no evaluation schedules attached to them. This should be rectified with formal and independent assessment of programmes to provide guidance on how to proceed with further reform. In a welcome development, the

Ministry of Education intends all new programmes to be appraised by the National Authority for Measurement and Evaluation in Education (RAMA).

And more strenuous affirmative action, in particular with regard to Arab students is needed. Targeted programmes are typically, at best, only part of the solution to problems. In particular, the wide gap in average class size between the Arab and Hebrew streams has persisted, despite programmes having been operational for some time. The system-wide reforms to education are intended to help raise participation and attainment in the Arabic-speaking communities too. In particular, the wider adoption of the Strauss Index in school funding should help considerably. Yet gaps in class size and other key dimensions of education are likely to remain and require further attention. Gauged against broad recommendations on equity in education made by OECD education experts (Field *et al.*, 2007), Israeli policy is generally "ticking the right boxes" but needs to upgrade its efforts in some areas. One recommendation in particular, the adoption of equity targets, would be one relatively simple way of helping to motivate and focus policy reform.

Difficult issues in Ultra-orthodox education

In the early 1950s, legislation was introduced that permitted the creation of "unsupervised" schools to accommodate the then small Ultra-orthodox Jewish community.[15] Haredi education certainly differs markedly from that in mainstream schools. For boys, religious study is paramount, and "secular" subjects (such as science, mathematics, English language) are covered lightly or not at all. Boys are often educated in boarding schools, and the majority continue full-time religious study as adults in *kolel* (Table 4). Girls' schools typically devote more time to secular subjects, tying in with a common arrangement among Ultra-orthodox families of women being the sole breadwinners (see OECD, 2010). There are two main networks of schools, the Ma'ayan Torah Education System (founded by the political party Shas) and the Independent Education System (founded by the political party Agudat Yisrael). Schools are often partially funded by private contributions and typically receive at least one channel of central- or local-government funding.

Table 4. **The structure of Ultra-orthodox education**

Education for boys (and men)	Education for girls
Kindergarten up to age 5 Primary education, age 6-12 "Little *yeshiva*", age 13-16 (often in boarding schools) "Higher *yeshiva*", age 17 until marriage (usually in boarding school) *Kolel* for married men	Kindergarten up to age 5 Primary education, age 6-12 Secondary school (*beit yaakovs*), age 13-17

Few ultra-orthodox boys go into "secular" tertiary education, and tertiary participation among girls is well below that of the mainstream population, though it is increasing. Although a large share of girls take some form of final exam, relatively few enter tertiary education, and those that do typically attend teacher-training colleges.[16] However, over recent years special tracks for vocational training and special tertiary education institutions have been established for the Ultra-orthodox sector. The number of students

15 The 1953 Education Law defines two types of unsupervised schools, so called "recognised" schools, over which the Ministry of Education theoretically retains some authority, and "exempt" schools, which are not subject to the legislation.

16. According to the Ministry of Education, the market for Ultra-orthodox teacher training is saturated, and the prospects of graduates getting teaching positions are often low. Thus, in many cases the individual and societal returns from this additional education are probably not high.

attending the tertiary education institutions, public and private, has risen from 500 initially to 2 000 in the last few years (Mivhar and Hamichlala Leyerushala'im), with a further 1 300 students at the private Ultra-orthodox campuses (Ono and Lev).

Participation in the testing of student abilities and other information-gathering on inputs and outputs in education should be more strongly encouraged. At present, policymakers lack key statistical information on Ultra-orthodox education. Reflecting a wider reluctance among the community to participate in socio-economic surveys (see OECD, 2010), details on curricula and comparable data on student performance are scant. Some of the schools participate in the Meitzav tests as part of conditions for the receipt of state funding (see below), but for unknown reasons only the results of tests conducted in the 2003-04 school year have been published. Also, the boys' schools sampled for PISA testing have so far refused to participate. Interestingly, the available evidence, albeit partial, suggests at least some schools are providing core skills. The average scores for the Grade 5 students in the 2003-04 Meitzav tests were higher than those for both the State and State-religious streams (though students were tested at the end of the school year, while mainstream others were tested at the beginning). Similarly, the PISA results for Haredi girls are reasonable. In the 2006 study, nine out of the eleven girls' schools sampled took part, producing 245 test results. The average scores were in line with those in the State and State-religious sectors.[17] Some claim that the intensive study of religious texts trains mental capacities that compensate for the absence or only light coverage of secular subjects. While this may well be true to a degree, how Haredi students truly compare with those in the supervised streams is essentially a mystery that can be reliably resolved only by comparable test results that properly represent the sector as a whole.

Public funding of Ultra-orthodox schools is complex. Similar to mainstream schools, the Ministry of Education provides grants for teaching services and infrastructure, as well as support for transport services for school children. Also, as in other streams of education, municipalities often provide additional funding. However, the Ultra-orthodox schools also receive funds from the Ministry of Religious Affairs, which in addition provides modest stipends for adult students. In the case of boarding schools, the Ministry of Social Affairs also provides some resources to schools (Shiffer, 1999).

Linkage between the provision of funds and curriculum coverage or other pedagogic criteria is weak, even in the case of grants for teaching services. In primary schools, a welcome reform (the "core curriculum scheme") saw the introduction of curricular obligations and requirements to participate in national testing (see Table 5).[18] However, the Ministry of Education employs only 13 inspectors for overseeing whether these conditions are met in the 600 or so Ultra-orthodox primary schools and relies heavily on self-reporting. In secondary schools, similar strengthening of official obligations was due to come into effect but was effectively cancelled in 2008 by legislation that exempted the Ultra-orthodox institutions (a special category of "culturally unique" schools has been created). As a result, secondary schools continue to receive 60% of the funds for recurrent spending that would be received by an equivalent mainstream school and are now officially absolved of any curricular or related requirements for

17. In the 2006 PISA results, the average scores for the Ultra-orthodox girls were 481 points in the reading test (1.9% higher than the average for girls in State schools), 448 points in the science test (96% of the State stream score) and 457 points in the maths test (1.3% higher than the State stream score). According to the statisticians running the Israeli PISA tests, the results for the Ultra-orthodox girls are probably representative but should be treated with some caution, because the standard error is larger than for the much bigger samples of other streams.

18. The core curriculum scheme was developed in the early 2000s following the report of a commission on school budgeting (Maoz, 2007). It developed a universal core curriculum as a basic requirement for school funding and led to the funding structure shown in Table 3.5. The core curriculum comprises four compulsory and two recommended clusters of subjects. The compulsory clusters are: heritage and social studies; language and literature (including English); mathematics and science; and physical education. The recommended clusters include fine arts and "school culture".

their receipt. Pressures pushing for further support of Ultra-orthodox education continue. For instance in 2009 there was a failed attempt to pass legislation that would further bolster public funding by adding a requirement that local authorities top up the state funds provided to Ultra-orthodox schools.

Government funding for Ultra-orthodox education should be made far more conditional on schools teaching core skills. Granted, cultural objectives appear to motivate some of the public funding for this sector (presumably reflecting societal preferences), but these should not displace the goal of ensuring school children learn core skills. As regards grants for teaching services, the enforcement of existing core-curricula conditions is seemingly the key problem in primary education, while legislation has gone in the wrong direction in secondary education. At both levels of education, the additional funds from the Ministry of Education and other bodies should also be infused with more conditionality on commitments to teaching core skills. Indeed, the authorities should consider going beyond the enforcement and strengthening of funding criteria and specify truly universal curricula requirements, *i.e.* basic minimum pedagogic standards on all schools whether in receipt of state funding or not.

Table 5. **State funding criteria for teaching grants to unsupervised primary schools**

Type of school	Key aspects of the legal obligations for the receipt of state funding	Per pupil funding as a share of equivalent state-school funding if the school does not have pre-selection	… if the school has pre-selection
Schools in the Ma'ayan Torah and Independent systems	Participation in the state's student registration system. Teaching of the full core curriculum of state education and participation in the Meitzav exams at the equivalent of Grades 5 and 8.	100	90
Other "recognised" schools	As above, except schools are bound to teach only 75% of the core curriculum.	75	65
"Exempt" schools	Schools are bound to teach 55% of the core curriculum.	55	55

Note: "Recognised" schools are under the authority of the Department for Non-Official Recognized Education; "Exempt" schools are not.

In areas where schools prefer to remain fully independent (and unfunded), government support for out-of-school private-sector education and training could be considered. Reportedly, some Haredi children already attend afternoon or evening classes, for example to learn English or mathematics. State-support, for example, could be used to subsidise providers or to give vouchers to parents to help cover costs in various approved institutions.

Strengthening conditionality in funding is important, not only as a means of encouraging more attention to core skills in Ultra-orthodox education but also because current arrangements and practices set an undesirable precedent for independent education as a whole. Furthermore, ideally the conditions for state funding ought to be linked to a more comprehensive system of monitoring that considers educational outcomes as well as inputs.

Such measures need to be combined with welfare-to-work policies to adjust attitudes to employment and learning. For instance, the Light for Employment programme and the earned-income tax credit will probably have some impact on Haredi labour force participation and interest in secular learning when rolled out on a nationwide basis. Ultra-orthodox communities outside Israel, such as those in Canada, the United Kingdom and the United States have comparable rates of labour force participation to the

mainstream population, suggesting that a different balance between worship and work is possible for the Israeli community too. The present government is endeavouring to encourage this with a variety of initiatives, principally aimed at improving girls' employment prospects. A committee has been formed to assess the avenues for increasing the share of Ultra-orthodox girls completing Bagrut matriculation, for example some of the Szold Institute's exams may be recognised as equivalent to Bagrut. In addition, there are plans to expand the small sector of vocational and academic institutions (outside of teacher training) that largely cater for Haredi girls.

Slow progress in tertiary education reform

A dual system of universities and colleges

Higher education comprises seven relatively large "traditional" campus-based universities, one distance-learning university (which has a fairly high enrolment) and around 50 relatively small colleges, about half of which are teacher-training institutes (Table 6). Universities were first established in the 1920s, and the last was set up in the mid-1970s (Table 7). Then, a second phase of expansion began with legislation permitting teacher-training colleges to offer degrees. This was followed by a similar move for other colleges, which was accompanied by provisions allowing the establishment of fully private degree-level colleges (ten of these have so far been established). In addition, a number of foreign universities established campuses during the 1990s. As Figure 2 (above) shows, the colleges have absorbed the bulk of the increase in students doing degree-level courses.

Table 6. **Key features of tertiary education provision**

Feature	Detail
Type of providers	Seven campus universities, one distance-learning university, around 50 colleges providing degree-level courses. Around half the colleges are teacher-training institutes.
Length and type of courses	Undergraduate degree courses are typically three years in duration, with courses in some disciplines up to five years. Master's degrees are usually two years, and doctoral degrees are nominally three years but often take longer. Entry to doctoral-degree programmes usually requires a master's degree.
Quality control	All degree courses must be accredited by the Council for Higher Education (CHE). A quality control system has been running since 2003.
Central-government funding	Budget allocations for teaching are based on student numbers combined with caps on the number of students per institution and differential rates across subject fields. The formula for colleges differs from that applied to the universities. There are also allocations for research, based on a funding model that utilises performance indicators.
Student fees and other sources of revenue	Fixed and uniform fees for first-degree courses and similar for post-graduate studies.
Academic pay and conditions	Regulated universal basic pay scales and a rule-based system of additional benefits.
Government support for students	Implicit support *via* regulated tuition fees (fees in the open market, *i.e.* non-budgeted courses, are typically much higher). Two scholarship systems operate, one of which is targeted towards students from lower socio-economic backgrounds.

Regulation of the tertiary sector is carried out by the Council for Higher Education (CHE). It is responsible for licensing institutions, accrediting courses and administering the state funding of providers, as well as long-term academic planning. The latter two functions are carried out by a subsidiary body, the Planning and Budget Committee (PBC). Providers cannot teach degree-level courses without the approval of the CHE, even if fully privately funded. The Minister of Education chairs the CHE and authorises its membership, a majority of whom are representatives of tertiary providers. In overall terms, however, the Ministry of Education does not have significant expertise or influence in tertiary education policy. External

quality assessment has been introduced only in recent years. In 2003 the CHE set up a system in which institutions provide self-evaluations that are cross-checked by an independent committee.

Entrance to higher education is complex, depending not only on a score calculated from the Bagrut certificate but also on a separate aptitude test (the Psychometric Test) (see Box 1 above). A significant minority of students attend "pre-university" colleges to improve high-school grades and train for the Test. In 2006 around 11 000 individuals were enrolled in such courses; the vast majority were aged under 25. This is equivalent to around 10% of the population of Grade 12 students.[19]

Table 7. **Key developments in tertiary education**

Period	Development
1920s-1960s	Foundation of the seven campus universities. The Technion and the Hebrew University of Jerusalem were founded in the 1920s. The remaining five institutions were established from the late 1940s to the 1960s (Bar-Ilan University, Tel-Aviv University, University of Haifa, Ben-Gurion University and the Weizmann Institute of Science). Establishment of the Council for Higher Education (1958).
1970 and 1980s	Establishment of the Open University (1974), and its accreditation (1980) as the eighth university and the first distance-learning institution. Teacher-training colleges permitted to award Bachelor of Education degrees, which raised the depth, length and formalisation of teacher training.
1990s	Legislation passed allowing degree-level courses in pre-existing state-supported colleges of higher education and allowing the establishment of fully private degree-level colleges. Extensions of foreign universities were established. Since 1998 these have been required to operate under the authority of the Council for Higher Education.
2000s	Substantial reduction in students' tuition fees (following recommendations of the Winograd Committee) and economies in central-government transfers to tertiary institutions (as part of widespread cutbacks in public spending) in early 2000s. In 2007 the Shochat Committee Report (Shochat, 2007) made recommendations for reform that would increase resources for teaching and research, partly through increased state-budget transfers but also through increasing own-revenues, notably by a hike in tuition fees. The report also recommended a range of other structural reforms.

The failed 2008 reform programme (Shochat reform)

A substantive reform programme started in 2008 but ground to a halt before the end of that year. It involved a substantial hike in state-budget transfers to universities and colleges accompanied by structural reforms and measures to raise non-state revenues by the providers. The reform was based on recommendations by a special committee (the Shochat Committee) in 2007. The six-year resourcing plan outlined by the Committee included permanent increases in recurrent spending on teaching and research as well as a period of increased spending on infrastructure. According to the plan, around 60% of additional resource requirements would be funded by higher state-budget transfers and the remainder by increases in other revenues, most notably greater income from tuition fees.

The tuition-fee proposals suggested combining fee increases with new mechanisms to help defer payment until students join the workforce. The annual fee for first-year degree courses for 2009-10 is NIS 9 646 (equivalent to about USD 2 500, assuming an exchange rate of 8). Under the reform this would have increased by more than 50% to NIS 14 800 (*i.e.* about USD 3 900). The fee increases would be combined with a system of state-backed loans, in which students would have to pay only NIS 5 800 up

19. Central Bureau of Statistics, *Statistical Abstract of Israel*, 2009, Tables 8.40 and 8.23.

front, the remainder being paid over a ten-year period after graduation. The proposal also included additional subsidised loans to help with living expenses, with repayments conditional on certain minimum income levels. Whether students saw these changes as an improvement on existing arrangements clearly depends on them valuing the new access to subsidised loans more than the increase in fees. The fact that many students are eligible for army discharge grants counts against this being the case (Box 3). The grants are sufficient to cover existing fee levels but probably not enough (in most cases) to cover those proposed.

Box 3. **Army discharge grants and student financing**

Discharge grants from military conscription complicate assessment of student financing and tuition fees. There are three types of grant:

- A conditional grant which can initially be used only to fund certain expenses, notably tuition fees, deposits on house purchase and wedding expenses. Any remaining balance of the grant is paid out in cash after five years. As of 2009, the maximum value of this grant is NIS 24 000.
- An unconditional grant based on the length of service. As of 2009 "combatants" receive NIS 235 for each month of service (up to a maximum of 32 months), "semi-combatants" receive NIS 196 and others receive NIS 157. Therefore, individuals with three years' service would receive between about NIS 5 000 and NIS 7 000 from this grant.
- A special grant for working for a minimum of six months in certain sectors of the economy (*e.g.* tourism, construction) following discharge from the army. As of 2009 this grant is NIS 8 114.

Typically, the first two grants are sufficient to cover all tuition fees for a first degree, but this would not be the case had the Shochat Committee's proposals for fee increases been implemented.

The Committee made many recommendations on how the additional resources available to tertiary providers should be spent and on other issues. The main themes relevant to the education, as opposed to research, dimension of the tertiary sector are as follows:

- *Increasing distinction between universities and colleges.* For example, the report recommended limiting the number of new students going into the university sector and allowing the surplus to be absorbed by the colleges. It also underscored that colleges should focus on undergraduate teaching, with only limited capacities for research and high-level teaching. And, it recommended that there should be some mergers among colleges and that some resources should go into making those colleges located in remote areas more attractive.
- *Raising staff-student ratios but also cutting back some types of courses.* The report recommended hiring several hundred new staff to raise staff-student ratios. It also recommended shortening post-graduate studies by, for example, removing requirements for a research-based second degree as an entry to doctoral programmes. Also, the report recommended limiting the number of additional courses offered by state-funded providers in which student fees are unregulated (and relatively high) on the grounds that these are diverting resources excessively from academic teaching and research.
- *Enhancing performance-related pay and benefits for staff.* The report recommended various incentives for excellence in research and teaching in universities, a separate staff bonus system for other institutions and a special budget for encouraging poorly performing staff to take early retirement.

The recommendations were initially endorsed by the government, the CHE and providers. Accordingly, the Ministry of Finance began increasing state-budget transfers. However, the providers later backed down on their commitments, largely due to student and staff opposition to the fees and performance-related pay. Hence, the tuition-fee reform was not introduced at the beginning of the 2008-09 academic year, as envisaged and, no progress has been made in implementing any of the other reforms. This impasse also prompted a dispute between the Ministry of Finance and the tertiary institutions over the additional funds already provided.

Recommendations on reviving reform

The Shochat proposals headed in some good directions on tertiary-sector reform; hence, despite the setback, the authorities should endeavour to make progress on their implementation. Ideally, the reforms to fees and staff pay should be deeper than those in the original proposals, although the resistance to them suggests this might be difficult.

As regards tuition fees:

- Providers should be allowed greater leeway in setting fees so as to introduce variation across courses and institutions. Under the Shochat recommendations, tuition fees would remain uniform, despite the fact that the costs of providing courses and the long-run financial returns to students vary across subject areas and institutions. Other countries have successfully introduced loan-backed fee systems that give providers a degree of discretion in fixing fees. For example, in Australia institutions are free to set fees within bands set by the government that vary according to subject area.
- Under any system it is important to monitor access to tertiary education by disadvantaged groups and adjust targeted measures as appropriate. The low tertiary attainment among Arab-Israelis is all too apparent. More specific evidence shows that the share of first-degree graduates from low-income households is disproportionately small, even accounting for differences in high-school exam grades.[20] Policy needs to counter this; financial constraints should not act as a barrier to higher education. Therefore, increases in tuition fees should be accompanied by the expansion of government support for student loans, as recommended by the Shochat Committee. Also, the authorities should reflect on the impact army discharge grants have on student financing, including whether there are appropriate parallel mechanisms for Arab-Israelis.

Similarly, staff pay and progression ought to be more transparent and flexible. The Shochat recommendations suggest some new financial rewards but do not call for altering the core of the salary system. In the current set-up, academic salaries are simultaneously rigid and complex. There are no differences in salary structures between disciplines, and increments are based on seniority. Pay supplements form an important part of total compensation but are complex and make the full value of compensation hard to compute (Table 8). The promotion system is also blamed by some as weakening the attractiveness of tertiary teaching and research and contributing to a "brain drain" to foreign universities. Ben-David (2007), for example, specifically criticises regulations that specify minimum periods between promotions for stifling progress through the ranks.

20. Frish and Friedman (2008) find evidence that economic considerations have a substantial effect on the decision to enter tertiary education. Their study finds that among households with less than median income, just over 40% of high-school graduates complete first degrees. Making adjustments based on the graduation data of students from higher-earning families, the study estimates that in the absence of liquidity constraints this share would be close to 50%.

Table 8. **Supplements to basic pay for tertiary-level staff**

Supplement	Detail
A "mobility, clothing and telephones" allowance	Varies according to Grade (but not seniority). This allowance is equivalent to about 60% of the base salary of a full professor with 10 years' experience, for example.
"Criteria" and "devotion to full-time" supplements	These can each add roughly 13% to the base salary. The former is based on quantitative indicators of research output. The latter is received on condition of not receiving significant income from other sources (thus implying a 100% tax at the margin on alternative earnings for many).
"Convalescence payment"	A fixed amount with two levels, one for those with nine or more years' service and one for those with eight or less years' experience. The payment is equivalent to between 3 and 4% of base salary.
Research grant supplements	These are paid as a fixed percentage of the individual's basic pay, with the percentage linked to the size of the research grant.

Source: Ben-David (2007).

At the same time Shochat's theme of increasing the divide between universities and colleges contains some downside risks. A degree of specialisation between academic/research and more vocational roles in tertiary education is clearly desirable, and it makes sense to exploit existing distinctions to encourage this further. But sharpening the divide between universities and colleges could effectively protect poor-quality teaching and research in universities and failure to realise staff and student potential in colleges. The Shochat reforms did envisage some safeguards against this, including channels for students and staff to switch between colleges and universities; but these may have proved inadequate.

Finally, the framework for tertiary education policy should be reformed to give government greater steerage on reform. Line ministries, such as the Ministry of Education, play little role in developing policy for the tertiary sector either in terms of teaching or research, which is somewhat unusual compared with most OECD countries. In fact, any reform agenda the government may have on tertiary education appears to be pushed *via* the Ministry of Finance at present. Furthermore, according to some observers, the CHE is too closely aligned to the interests of the providers to guarantee a balanced perspective in policymaking.

Unusual components in lifelong learning

There is fairly substantial support for adult education – although much of it is somewhat atypical of "lifelong learning" elsewhere. A fairly large market of post-conscription education has developed in which individuals who have just completed military service re-take courses or complete new ones in academic or technical subjects.[21] Private fee-paying institutions cater partly for this market, but the state also provides support. Indeed, this features prominently in a list of "lifelong learning" frameworks provided by the Ministry of Education. Notably, the state funds schools (Mechinot), which help in completing or improving Bagrut certificates and provide coaching for the psychometric entrance exam. There are also programmes that cater for those still in military service. While understandable in some respects, there are downsides to this support. Opportunities for a "second bite at the cherry" are probably weakening the intensity of learning during compulsory education and serve to further widen the educational gap between Hebrew and Arab-Israeli education. The authorities need to ensure that equivalent post-school support is available for Arab students.

21. In addition, considerable resources per student are put into integration courses for new migrants (*ulpanim*), particularly comprising compulsory courses in Hebrew.

More conventional lifelong learning appears to be reasonably well provided for. There are state-sponsored centres for adults who wish to complete elementary or secondary education. As regards tertiary education, the distance-learning opportunity provided by the large Open University clearly lends itself to adult learning. And, according to information provided by the Ministry of Education, older adults are typically subject to lighter Bagrut and psychometric-exam requirements than regular school-leavers. Furthermore, all employees have rights to study leave, and in the public-sector the pay system rewards those completing academic degrees or courses.

Box 4. **Summary of recommendations on education policy**

Regular primary and secondary education (*i.e.* the supervised sector)

- Fully implement New Horizon; it is a step in the right direction. The stakeholders in upper-secondary education should be encouraged to strike a similar deal.
- As regards the other general reforms:
  - Continue implementing the extension of compulsory education and the caps on class size as planned.
  - Continue with efforts to shift away from rote learning.
  - Alter budgeting so that the Strauss index (or something similar) allocates most, or all, of education budgets.
- Consider the following additional general reforms:
  - Take further measures to reduce the dominance of teachers who teach as a lifetime career, along the lines of the recent "Academics for Teaching" programme and similar initiatives.
  - Introduce an individual a bonus for teachers linked to student performance, similar to that used in the one of the pilot projects in the early 2000s.
  - Pursue further reform of the Bagrut system, in particular so that it provides better information on student capabilities for entrance to tertiary education.
- Make more strenuous efforts in affirmative action, particularly as regards Arab-Israeli students:
  - Evaluate and, if necessary, reform the relevant targeted programmes.
  - Ensure general reforms also work towards reducing inequalities in education.
  - Adopt equity targets in key dimensions of inputs and outcomes in education.

Ultra-orthodox education

- Encourage the community to strengthen vocational skills as part of wider efforts to increase employment rates, particularly among men:
  - Existing curriculum requirements on grants for teaching services in primary education need to be more stringently enforced. Similar conditions should be applied to secondary schools and other sources of state funding, such as infrastructure grants. Consider introducing core curricula for all schools, *i.e*. universal curricula requirements.
  - In areas where schools choose not to accept the conditions for state funding consider subsidising optional out-of-school private-sector education and training.

Tertiary education

- Pursue the Shochat reforms. Indeed, go further on some fronts: give providers greater leeway in setting fees while ensuring access through student loans and grants. Make staff pay and progression more transparent and flexible.

Lifelong learning

- As regards special education support for conscripts, ensure that either the equivalent post-school support is also available for Arab-Israeli students.

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