Chapter 1. Assessment and recommendations

This chapter describes the main characteristics of Israeli apprenticeship and vocational education and training (VET), and recent policy developments in Israel. It assesses the strengths of the system, the challenges that remain, and summarises suggestions for policy advanced in depth in later chapters of the report. Subsequent chapters examine different topics by introducing a challenge experienced by VET in Israel, advancing policy suggestions, providing arguments for the proposed policy solutions and discussing how these policy solutions could be implemented in the Israeli context.

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.
**Introduction**

*Multiple factors are focusing attention on the development of vocational education and training (VET)*

In Israel, several issues are intensifying attention on the provision of vocational training. Despite the global economic crisis, Israel has experienced strong economic growth over the last decade, and unemployment is now below 5%. Skills shortages are emerging in several technical areas, exacerbated by a wave of retirements by many of the technically trained personnel who migrated to Israel from the former Soviet Union 20 years ago. In response, employers are pressing for an expansion of skills training and work-based learning, and the government has launched a number of initiatives to this end. At the same time, inequity and disadvantage in some population groups are raising the profile of other demands for vocational training as a vehicle for social inclusion. Collectively, these factors are driving policy interest in developing a VET system which is currently both fragmented and of modest scale when compared with the VET systems of other OECD countries.

*Inequality remains a major challenge*

Both the Haredi and Arab populations have high poverty rates, with at least half of the Arab population and 60% of the Haredi population below the poverty line (OECD, 2010a). Both groups have had high birth rates. A long-standing anxiety about low rates of economic activity among Haredi men and Arab women has eased slightly in the last few years, but the challenge of targeting vocational training on these two groups in a way that will transition them into work remains significant. While there are special issues in encouraging employment among these different groups, VET is a key means to this end, with the aim not just of realising insertion into the labour market, but also of launching rewarding careers that will help to improve social cohesion.

*The point of departure for this review was a previous OECD study*

The 2014 OECD review of VET in Israel (the conclusions are reported in Box 1.1), looked primarily at post-secondary VET. More recent developments include new initiatives on apprenticeship and work-based learning, further studies by international bodies (OECD, 2018a), and a significant new report by the Israeli National Economic Council encouraging a more co-ordinated VET system. This OECD review builds on this sequence of work. It is one of a series of OECD studies of VET and apprenticeship systems in more than 40 countries, and draws on the extensive experience of the OECD in these areas, as well as The Survey of Adult Skills, a product of the Programme for the International Assessment of Adult Competencies (PIAAC), in which Israel participated, and which examined the numeracy, literacy and digital skills of adults (16-65 year-olds). As a contribution to this work, a background report was prepared on behalf of the Israeli authorities (Ben Rabi et al., forthcoming). The OECD team undertook two missions to Israel in December 2016 and in May 2017, and met and held discussions with a wide range of stakeholders, including the Ministry of Education (MoE) as well as the Ministry of Labour, Welfare and Social Services (MLWSS) which sponsored this exercise, other interested ministries, employers and trade union groups, and made visits to several vocational training institutions. This review draws extensively on these discussions.
Box 1.1. The main conclusions from Skills beyond School, the OECD’s review of post-secondary vocational education and training in Israel, published 2014

Strengths

- The post-secondary system is diverse, including not only practical engineering and technician training and vocational courses, but also professional certifications, private courses, and targeted programmes directed at disadvantaged groups.
- There is an active framework of government-led reform. The social partners – both employers and unions – are well organised and are keen to engage.
- The certification system provides an effective means of upskilling.
- Although data remain a challenge, research and analysis are well developed by international standards.

Challenges and recommendations

- Growing skills challenges threaten the Israeli economy: Launch a strategic expansion of high-quality vocational education and training programmes, guided by partnership with industry, and underpinned by legislation. Make the vocational skills learnt during the military service more transparent and transferable.
- Uncoordinated governance systems make the system difficult to navigate for students. Establish a national body involving all the key stakeholders to provide strategic guidance on the development of the VET system.
- Work-based learning is little used. Integrate work-based learning systematically into post-secondary vocational programmes.
- Graduates of vocational tracks often face obstacles to further learning. Improve the access of upper-secondary VET graduates to further learning opportunities, including post-secondary VET; and enhance access to universities and credit recognition for graduates of practical engineering programmes.
- Effective vocational teachers need to have pedagogical skills, and professional expertise. Pursue reforms in the practical engineering and technician programmes to allow people with work experience to enter teaching. Design initial teacher education programmes so as to ensure a good mix of pedagogical skills, vocational competence and industry knowledge. Converge the entry requirements and training programmes for all teachers of practical engineering programmes to a common standard.

Some of the recommendations of the OECD’s 2014 review have now been implemented

The skills learnt by young people during their military service are now being certified, supporting their future training and return to civilian life. The proposal to establish a national qualifications framework has been taken up in the report of the National Economic Council, which is also exploring the pathways for practical engineering graduates to pursue engineering and other degree level qualifications in universities. OECD recommendations on the development of work-based learning have been implemented in the shape of a new work placement initiative in school-level programmes under the Ministry of Education, and a new adult apprenticeship initiative (Starter) under the MLWSS. There is, as yet, no co-ordinated governance system for vocational education and training, but the National Economic Council has taken steps to improve co-ordination within government (National Economic Council, 2016).

The education system of Israel

The basic education system is divided along ethnic and religious groups

One compulsory year of kindergarten is state-funded, and two further optional years of pre-schooling are for the most part state-funded. Compulsory schooling begins at grade 1 at age 6, with primary school from grades 1 to 6, intermediate school from grades 7-9 and secondary school in grades 10-12. Primary and secondary schools are divided into four systems, secular Jewish, religious Jewish, “ultra-orthodox” (Haredi), and Arab (Arabic speaking) (Wolff, 2017).

Attainment of basic skills is weak on average

The Programme for International Student Assessment (PISA) 2015 results for 15-year-olds show Israeli 15-year-olds scoring 15-20 points below the OECD average in the three domains of reading, maths and science. But beneath these average performances lie some of the largest variations in performance observed in any OECD country. For example, in mathematics, while performance at the level of the top decile is very similar to the OECD average (601 points compared with the OECD average of 605), Israeli performance at the lowest decile is 40 points weaker than the OECD average performance at the lowest decile (332 points compared with the OECD average of 373) (OECD, 2016a). This large spread in performance is primarily related to the different performance observed in the different educational sectors, with differences of the order of 100 points, in the domains of science, reading and mathematics, between the Hebrew-speaking and Arabic sectors (Jerusalem Post, 2016). The measurement of performance in the Haredi sector remains problematic, as most Haredi institutions for boys apparently do not take part in the PISA test (Gruber, 2017).

The majority of upper-secondary students enter the general academic track

Around 60% of upper-secondary students enrol in general academic upper-secondary education, one-third choose one of three ‘technological’ tracks at this level under the Ministry of Education, while only 3% enrol in MLWSS industrial schools or apprenticeship pathways (ETF, 2014). While 90% of 18-year-olds complete upper-secondary education, around half obtain the Bagrut matriculation qualification that provides access to higher education (66% if retakers up to the age of 18 are included) (Handjipanayiotou, 2015). Among those with a Bagrut examination, 56% obtain 4-5 points in English and 20% obtain 4-5 points in mathematics, the level required in many university programmes (Ministry of Education, 2017a). As with the PISA results,
these averages mask very large differences between social groups: only one in ten Haredi 18-year-olds obtain the Bagrut, just under half of their Arab-speaking counterparts, but nearly three-quarters of Hebrew-speaking (other than Haredi) 18-year-olds (OECD, 2016b).

*Tertiary graduation rates have increased sharply and this increase has been driven by growth in non-university higher education institutions*

Almost half (49%) of Israel’s adult population aged 25-64 have tertiary qualifications, well above the OECD average of 35%, and the third highest rate of all OECD countries. Most have a bachelor’s degree (OECD, 2017). Among those aged 31-34 (when most students have completed their studies) the proportion of first and higher degree holders has almost doubled, going from 22% to 40% between 1995 and 2011. While the number of students in universities has barely increased, academic colleges have grown from almost nowhere in the early 1990s to become the largest component of the higher education system, with around 100,000 students enrolled. Academic colleges provide undergraduate degrees more focused on professional training, they do not have Ph.D. programmes and are spread widely throughout the country, allowing more students to live at home while studying (Fuchs, 2015; Wolff, 2017). In 2013/14 there were 37 academic colleges (of which 16 non-publicly funded), and 21 academic colleges of education (teacher-training colleges). Within the college sector the non-publicly funded colleges have grown particularly fast, so that this sector alone accounted for around 20% of all students by 2012/13 (Council for Higher Education, 2014).

*In other countries enrolment in non-university higher education programmes has also been growing*

The academic colleges may be compared with the Fachhochschulen in German-speaking countries, Junior colleges in Korea, university colleges in the Nordic countries, and the HBO institutions in the Netherlands, all higher education institutions separated from universities, and with more emphasis on professional education and training than research. Often, as in Israel, recent increase in tertiary participation has been driven by growth in this sector. In Austria for example, graduation rates in tertiary-type A (corresponding to bachelor qualifications and above) have nearly trebled, rising from 10% to 29% between 1995 and 2009, with much of the growth attributable to the rapid development of Fachhochschulen, which provide bachelors and masters-level qualifications. Just over 40% of the 350 programmes were in technology and engineering in 2010/11; one-third in economic sciences; 14% in health sciences (Musset et al., 2013). Compared to the large tertiary system including both universities and academic colleges, Israel maintains a relatively small sector of short post-secondary vocational programmes.

*Compulsory military service is an important feature of the school-to-work transition*

Men serve in the Israeli Defence Force for just under three years from the age of 18, and women for two years, with exemptions for Arabs and ultra-orthodox Jews. In the Israeli Defence Force, many people learn skills applicable in civilian life, and through a new initiative, these skills are now being certified and recognised (National Economic Council, 2016). On exiting the military, young adults receive career guidance and a financial contribution that may be used for subsequent training and education. One effect of military service is that many Jewish Israelis enter university or other training in their mid-twenties, and are relatively late in entering the labour market. The average age of Jewish students in their first year of tertiary academic study was 24.5 in 2011 (Fuchs, 2015).
Israel’s vocational education and training system

At upper-secondary level VET has declined over the last half century

In the 1960s and 70s around 60% of the cohort pursued vocational programmes at upper-secondary level, leaving upper-secondary academic studies in gymnasias to a small elite. During this period VET was expanded to cater to students who were considered not suitable for academic studies. Many students channelled into VET programmes come from the Sephardim communities from North Africa and the Middle East who migrated to Israel in the 1950s and 60s (Taub Center, 2015). In response to the criticism that the system perpetuated socio-economic inequality across ethnic groups and did not match the rising skills demands, the occupation-specific content was reduced in most VET programmes and the name changed into ‘technological education’. Over the last half century the proportion of students in VET has fallen dramatically.

One-third of upper-secondary students study in technological tracks

Currently, just over one-third of students in upper-secondary education, under the Ministry of Education, study in ‘technological’ tracks. Hereafter, these students will be called ‘technological students’ and programmes they are in ‘technological programmes’. Out of these students, around 37% study in higher status fields related to engineering (e.g. in electronics, computer, software engineering or bio-tech) designed for students who excel academically. Another 37% follow ‘middle level programmes’ related to computers, ICT, media and advertising catering to students with an average academic achievement and preparing for technician and practical engineering programmes. And finally ‘lower level’ programmes preparing for professions such as health, hospitality, business administration and pedagogy enrol 25% of technological students, mainly those from the bottom fifth of the distribution of academic achievement (Shavit, 2013). These three tracks all prepare pupils for the Bagrut exams, though with different success rates (Blank, Shavit, Yaish, 2015). In an attempt to reduce difference between the three tracks (engineering, technical and professional) the Ministry of Education has been reforming technological education and does not distinguish between the three groups any more (Ministry of Education, 2017b).

In addition, a small proportion of upper-secondary students pursue apprenticeships

A small proportion of upper-secondary students (about 3% or 11 600 students) undertake youth apprenticeship under the auspices of the MLWSS. Many are drop-outs from mainstream education, and on that basis, they are permitted to enter apprenticeships (given a general legal requirement for classroom education). These are provided on a dual model with the schools seeking out work placements in industry. Around 25% of the schools which offer apprenticeships are linked to a company or a military base. Students pursue just 14 credits of the Bagrut, of which half are in technical subjects; the remaining 7 general subjects will include Hebrew, Maths and English. These 14 units are sufficient to enter a short-cycle post-secondary practical engineering programme, but not university. In the 9th and 10th grades there is more academic study, and students start their work placement in 11th grade. In school, they split between academic studies and workshop time 50/50. Their vocational certification at the end of the programme is, for example, in a subject like mechanics, with a sub-specialism in earthmoving.

Independent networks of schools play a large role

Most vocational training for young people is delivered through not-for-profit school networks, of which Общество Ремесленного Труда or “Association for Vocational
Crafts” (ORT) is the largest – often they run both academic and vocational schools. Networks providing training to adults are typically for-profit (see Box 1.2).

Box 1.2. The school networks in Israel

Networks of VET providers, independent from government, manage many of the schools. 40% of vocational students are enrolled in schools managed by the two largest networks - ORT and Amal (the Hebrew word for labour). Both these networks are prominently engaged with the ministries in discussions about arrangements for the governance, management and reform of VET. The network of schools managed by ORT includes 100 000 students and 7 500 staff in 200 upper-secondary schools, industrial schools, educational centres, and technical, engineering and academic colleges in 55 municipalities across Israel. The AMAL educational network manages 128 educational institutions including high schools, junior high schools and colleges and with a total enrolment of over 40 000 students. AMAL emphasises technology, the sciences and the arts for all strata of the population from high-achieving young people of Israel’s elite to young people who are at risk. Both networks place emphasis on innovation in developing new approaches to teaching and learning in the schools that they manage.


Practical engineering and technician programmes are offered at post-secondary level

Most students in these programmes are under the auspices of the MLWSS (for those undertaking the programmes as adults) with a small minority under the Ministry of Education (for those pursuing the programmes immediately following school) (MOITAL, 2012). Practical engineering is a post-secondary short-cycle programme of 2 years full-time and 3 years part-time. The programme includes a variety of technical subjects, including mechanics, civil engineering, etc. Technician programmes last one year. Most MLWSS students are in their twenties, having completed military service. 47% of them are working (and therefore study part-time in the evening). They normally require a partial Bagrut to enter the programme; alternatively, they may pursue a preparatory programme to bring them up to the right level of skills in maths, English and Hebrew. Practical engineering and technician programmes, provided in 60 technical colleges across the country, lead to national exams and a national qualification. 28 out of the 60 colleges cater to ultra-orthodox men and women. In 2016 there were 23 318 students in practical engineering and 1 748 in technician programmes. The unit price of teaching a practical engineering programme per full-time student year is around one-third of the cost of university programmes, a point addressed in Chapter 3. A potential weak point of practical engineering is the limited engagement of employers – although they are to some extent involved in the final project required to graduate. This is a challenge for those studying full-time, who are not already working in a related field.
Occupational certification is managed by MLWSS

Occupational certifications are administered by MLWSS in more than 100 different professions on the basis of examinations. There are 211 basic certifications, and 76 upgraded ones. Some 70 000 people each year take these examinations, sometimes at the end of an educational programme, and sometimes as a stand-alone examination. The main limitation of this system is that employer engagement is weak (OECD, 2014).

The Ministry of Education runs a separate system of professional certifications

The Ministry of Education runs a separate system of certifications that are delivered to students in technological programmes. It includes nine levels of performance and certifies occupational skills and academic performance. This certification has been introduced recently and replaced the previous one that had a low value on the labour market and in the society (Ministry of Education, 2017b). The majority of certifications delivered so far were in the field of administration.

Programmes for adults

Israel has programmes specifically designed for adults that lead to professional certifications awarded by the MLWSS. These include courses organised and funded by the Ministry and private courses funded by individuals but preparing for a formal qualification. Training to adults can also be provided by other ministries (see Table 1.1).

Main programmes for adults include: On-the-job training (OJT), Class in the Workplace and the New Starter programme. OJT affords employers the opportunity to hire new workers as regular employees and train them in the workplace through a designated mentor, according to the demands of their job. Employers are eligible to receive two types of assistance from the MLWSS: partial funding of the employee’s pay during the training period and partial funding of the mentor’s pay. The training is for up to 3 months (with some extensions possible). There is no final examination. In 2015 just over 1 700 workers received OJT (Ben Rabi et al., forthcoming). A Class in the Workplace allows employers to offer specialised courses for groups of job seekers in professions in high demand. The practical segment of the training takes place at the workplace, while the theoretical studies are held by the employer or at an accredited VET institution. The employers receive funding for the course and a grant for placing workers with special incentives from priority population groups. Courses last 650 hours on average. Quite small numbers are involved — there were only 132 trainees in 2016. The Starter programme has been recently launched as a pilot. (Ben Rabi et al., forthcoming).

Table 1.1. Participation of different ministries in training

<table>
<thead>
<tr>
<th>Ministry</th>
<th>Duration</th>
<th>Number of programmes</th>
<th>Number of students (2015 or latest available)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>7.5 months to 2.5 years</td>
<td>6</td>
<td>233</td>
</tr>
<tr>
<td>Aliyah and Integration</td>
<td>3 to 10 months</td>
<td>4+</td>
<td>100</td>
</tr>
<tr>
<td>Defence</td>
<td>6 to 10 months</td>
<td>3</td>
<td>85</td>
</tr>
<tr>
<td>National Infrastructures, Energy and Water Resources</td>
<td>18 to 2 700 hours</td>
<td>8</td>
<td>602</td>
</tr>
<tr>
<td>Tourism</td>
<td>450 to 600 hours</td>
<td>3</td>
<td>558</td>
</tr>
</tbody>
</table>

Source: Adapted from King, J. (2017), The Involvement of Five Ministries in Training for the Labour Market, prepared by Myers-IDC-Brookdale Institute at the request of the Ministry of Labour, Social Affairs and Social Services (unpublished).
Curricula, inspection and quality assurance are handled by the two main ministries

International examinations and assessments, the curriculum and textbooks, and the school inspection system are organised in parallel by the Ministry of Education and the MLWSS. The school networks and local authorities also play a significant role at the practical level of quality assurance. The Ministry of Education maintains sectoral committees, including the social partners, academic representatives, and other relevant ministries and representatives of teachers from the field. Each committee has a responsibility for quality assurance and the curriculum in their respective field. Two inspectorates, one for the Ministry of Education and one for MLWSS, ensure that standards are set and adhered to in the schools (ETF, 2014).

Policy development

New initiatives aim to develop work-based learning

Two new initiatives seek to extend the use of work-based learning in the vocational system (Ben Rabi et al., forthcoming). The first programme is for adults and the second for youth. They are examined in more depth in Chapter 2.

- Under the MLWSS, a new initiative is seeking to develop adult apprenticeships through the ‘Starter’ programme. This programme is still in a pilot phase, with only a few hundred students, and evaluation is under way. The programme offers courses of 6-9 months with apprentice time divided about equally between the workplace and the classroom. While the period of study is much shorter, in principle the qualifications obtained are the same as could be obtained in youth apprenticeship. Employers are enthusiastic about this programme and the Ministry aims to expand it.

- Under the Ministry of Education, technological students will have an opportunity to carry out short work placement with employers. In 2017 8 892 technological track students in 173 schools participated in this programme (Ministry of Education, 2017b). The students are unpaid, but the participating employers can receive incentive payments from the Ministry of Education.

A new government-backed report by an inter-ministerial group is likely to have a significant impact

As a means of encouraging more co-ordination in the system, the government established an inter-ministerial group to look at VET and agree on ways of improving co-ordination. Their report (National Economic Council, 2016) notes the inefficiency of currently fragmented arrangements, and recommends:

- The creation of a national qualifications framework to cover all aspects of education and training.
- Enhanced pathways for mobility within and between the different education tracks in Israel.
- New ways of recognising professional experience in adults so that they can obtain a high school completion certificate.
- An increased proportion of ultra-Orthodox and Arab students enrolled in advanced technological and vocational studies.
• Better integration and recognition of training in the Israeli Defence Force with academic, professional and vocational qualifications.
• More integration of practical engineering and technician programmes within a system of lifelong learning, to include strengthened links with the technological tracks in schools and on into higher education.

Implementing the recommendations of the National Economic Council will require continuing efforts

These commendable recommendations are a significant step forward, and implementation would be very helpful. They do leave a challenge since their implementation would require involvement of different parts of government. Recommendations of this nature, which cut across the responsibilities of different ministries, can easily lose momentum in the absence of a single focal point with appropriate powers and clear responsibility. The report of the National Economic Council will therefore need to be actively followed up to ensure that implementation takes place. This OECD review will therefore make proposals for a body to take forward the implementation of these recommendations (see Chapter 4).

Assessment: Strengths and challenges

The importance of VET is now widely recognised

Israel’s key strength includes measures taken in response to the pressing demands on its skills system. There is now a wide recognition of the importance of vocational education and training in Israel, with new initiatives by the MLWSS, the Ministry of Education and across government through the report of the National Economic Council.

A sequence of initiatives address many of the key challenges

The importance of work-based learning has been well recognised in the commitment of the two main ministries to develop apprenticeship and work-based learning both at upper-secondary level and among adults. A strong economy and consequent skills shortages create the opportunity to pilot innovative new approaches, such as the ‘Starter’ programme, and obtain employer support, as employers are under pressure to explore new approaches to skills development. While numbers are small, some of the piloted models, and individual employer-level initiatives, appear to be of good quality. Professional evaluations are in place for these pilots, and the results of the evaluations should help to guide policy development. Data protection arrangements allow student data to be linked to administrative data, so the potential to drive policy with solid outcome evidence is there. The issue of how to integrate the skills learnt in military service with civilian life is also being addressed in a new scheme.

Building on these initiatives a step change is needed to develop VET

While all of these developments are steps in the right direction, they do not go far enough. It is not clear that they have gained sufficient momentum to ensure that they are self-sustaining. Building on these initiatives, now is the time to make a step change in the Israeli vocational education and training system, so that it can gain the prominence it deserves in the face of skills bottlenecks in the economy, and the economic marginalisation of some social groups.
Relative to other OECD countries few students in Israel pursue VET paths

Upper-secondary education in Israel does not, for the most part, seek to prepare young people for particular jobs or careers. A very small minority pursue apprenticeship-type upper-secondary education. At post-secondary level, again, practical engineering and technician programmes serve only a small proportion of the cohort with short-cycle post-secondary vocational qualifications. This contrasts with other OECD countries, where 20-30% of young people sometimes have short post-secondary qualifications (OECD, 2014). If alternative pathways prepare well for the entry to labour market and successful careers the size of the VET system is not a concern. However if these pathways prepare poorly for the labour market, an expansion of good quality VET could be envisaged.

Initial VET serves two connected objectives

If Israel provides less vocational education and training (at upper-secondary and post-secondary level) to young people than other countries, one question is whether this is because of less need for these types of vocational skills. Very broadly, initial vocational education and training in OECD countries serves two connected purposes. The first is to meet the labour market need for a wide range of technical, trade, craft and professional skills, particularly in areas where a university education is not a necessity. The second is to help those who do not pursue, for one reason or another, the classical route from general academic education to university, to succeed in the world of work. This function is profoundly important, and some countries with strong vocational education and training systems, especially apprenticeship, have been particularly effective in securing smooth transitions from school to work for the vast majority of young people (OECD, 2010b).

VET is a tool to increase productivity in some sectors

In Israel, productivity is low in manufacturing industries that sell to the domestic market and in non-tradable industries. (Bank of Israel, 2016) notes that sectors with low productivity rely on non-complex and low technology work methods. This is consistent with findings from the Survey for Adult Skills showing that Israelis employed in semi-skilled sectors (e.g. clerks, service and shop workers, craft and related trade workers, plant and machine operators) are less likely to solve problems, use computers and other technologies than their counterparts in many other countries (see Figure 1.1). By contrast, labour productivity in the electronics industry in Israel is higher than the OECD average. (Bank of Israel, 2016) concludes that productivity improvements in underperforming sectors depend on improvements in worker’s proficiency and the quality of education in Israel. A more effective VET system, targets on areas of skills deficiency, might help to meet this challenge.

There are skills shortages in many sectors

By international standards Israel has relatively many jobs requiring high- level skills and relatively few elementary low- skilled occupations, as classified by ISCO. While this shows that the Israeli economy is particularly dependent on the supply of highly skilled labour, labour shortages are observed in many sectors and occupations. (Central Bureau Statistics, 2017) shows that in 2016, labour shortages were most acute in professional jobs (including the sector of science and engineering professionals, health professionals, and IT technology professionals), and in jobs of skilled workers such as in manufacturing and construction. While professional jobs typically require some type of post-secondary education, in many countries education and training for skilled worker occupations is provided at secondary level.
A key challenge for Israel is to meet the needs of those with few skills and qualifications

In terms of social cohesion, there are relatively few options for those who do not obtain the Bagrut examination. There are also more specific concerns: a long-standing anxiety about low rates of economic activity among ultra-orthodox (Haredi) men and Arab women has eased slightly in the last few years, but the challenge of targeting vocational training on these two groups in a way that will transition them into work remains significant.

Policy options

Weak supply and strong demand for vocational skills implies the need for a co-ordinated strategic reform of vocational education and training in Israel. This major challenge underpins the more specific proposals advanced in the chapters which follow.

Chapter 2: Developing work-based learning

Chapter 2 argues that the development of VET in Israel could be significantly aided through attention to work-based learning, building on a range of current initiatives to develop apprenticeship and work-based learning both for young people and adults. International evidence shows that work-based learning has multiple benefits, but in Israel technological education, enrolling the majority of upper-secondary VET students, has few tangible labour market returns. Reforms are needed to integrate apprenticeship and work-based learning as a routine part of upper-secondary vocational education and training rather than an option for potential drop-outs. For adults, diverse work-based learning measures, including apprenticeship may help to alleviate skills shortages and help to integrate disadvantaged social groups into the labour market.
Policy options include:

- To improve outcomes from initial VET, Israel should expand and develop the work-based learning component of VET programmes. This would involve an expansion of apprenticeship programmes, and development of systematic work-based learning placements in selected technological programmes.

- Currently apprenticeship is designed as a path for drop-outs and is seen as a low status option. To become an attractive option both to young people and employer it should be fully integrated into the mainstream upper-secondary system. This means that the requirement of a special exemption to enter an apprenticeship should be dropped.

- To expand apprenticeship programmes for adults Israel should devise incentive and support measures based on analysis of relevant costs and benefits for different target groups (e.g. by gender, ethnic and religious minorities, age) as the individual costs and benefits can vary.

Chapter 3: Involving employers through youth apprenticeship and sectoral training levies

Chapter 3 argues that an active engagement of employers is a critical precondition for the development and expansion of vocational programmes, including programmes with work-based learning, in Israel. While the involvement of all the stakeholders – public authorities, participants and employers – in the design and provision of work-based learning programmes is a key strength of these programmes, realising this strength is very demanding. Successful involvement of the different stakeholders requires the reconciliation of different interests. Adjustment in the design of apprenticeships in Israel can create stronger incentives for employers to offer apprenticeship training. Sectoral training levies may help to increase an overall amount of training and address skills shortages in some sectors.

Three policy options are:

- Expand youth apprenticeships on prestigious occupations, including in public administration, to attract able students to the programme, as discussed in Chapter 2. Support employers in the provision of high-quality apprenticeships by providing services such as mentoring, training for apprentice instructors, help with administrative tasks, and support to employers working with disadvantaged youth.

- Israel may review its wage setting in line with arrangements encountered in other countries to ensure apprenticeship is beneficial to employers. If this is implemented Israel may analyse the impact of lower wages on individual participation and if necessary, provide additional financial support to apprentices.

- Low productivity and skills shortages in several economic sectors are holding back Israel’s economic growth. While employers would collectively benefit from more workforce training, it is not always in the individual interest of an employer to offer training. To overcome this barrier, and create the step change necessary to improve the supply of skills, Israel may wish to support the establishment of sectoral training levies initiated by social partners (employers and trade unions), which have been used successfully in some European countries.
Chapter 4: Creating a coherent and transparent vocational education and training system

Chapter 4 argues that the Israeli vocational system is relatively fragmented. To drive reform, improve coherence and transparency, and meet Israel’s need for vocational technical skills, Israel should establish an overarching steering body for Israel’s vocational education and training system. This body might be called the National Council for Vocational Education and Training. The National Council should be established on a statutory basis, with its composition and responsibilities set out in law, so as to ensure its authority. It should have its own budget and secretariat. The Council should include representatives of employers, trade unions, government (including from the Ministry of Education and the MLWSS), vocational training institutions, minority groups and wider society. The main responsibility of the National Council would be to guide the development of the vocational education and training system.

To this end the National Council should:

- Publish a strategic (5-10 year) plan for the development and expansion of vocational education and training in Israel. This plan would be based on an assessment of emerging skills demands, and analysis of how those skills needs are to be met, and the steps which need to be taken by different ministries to meet those demands.

- Ensure that the different programmes and initiatives within the VET sector are evaluated, and publish an annual report, reporting on the contribution of the different elements of the VET system to the longer-term objectives, and making policy recommendations.

- Take direct charge of quality assurance and inspection of vocational provision, replacing the (duplicated and uncoordinated) separate arrangements currently in place. The National Council should also take responsibility for evaluating the quality of the system, and undertake research to this end, reporting this in its annual report.

- Take forward the recommendations of the report of the National Economic Council, guiding the development of a set of information tools to make the vocational system transparent to its users. Such tools would include relevant aspects of a national qualifications framework and strengthened outcome data.

In Israel many young people fail to obtain the Bagrut and many do not enter higher education. The offer for these young people is currently weak and inequality is higher. Israel’s economic performance, and social cohesion depends on giving these young people relevant working skills and integrating them into the labour market. Israel may consider expanding and diversifying provision at post-secondary level, and promote pathways so that vocational choices are not dead ends.

This implies action at three levels:

- The offer of short post-secondary vocational programmes needs to be diversified and expanded, and funded on the same basis as higher education in the interests of both efficiency and fairness.

- A strengthened institutional foundation should be established by promoting much fuller co-operation between the technical and academic colleges, and in some cases mergers. This co-operation should be used to diversify the offer of one and
two-year post-secondary vocational programmes beyond the current technical areas.

- To secure the status of post-secondary vocational programmes, and to meet skill needs, these programmes need to sustain the option of subsequent progression to higher education.

Chapter 5: Improving literacy and numeracy in VET programmes

Chapter 5 shows that weak literacy and numeracy – poor basic skills - are more common among Israeli adults than in most other OECD countries. Graduates of initial VET (as their highest qualification) often have weak basic skills. These skills gaps significantly weaken workforce skills, and are a barrier to labour market integration for disadvantaged groups. While effective education provided early on is the best long-term response, strengthened attention to literacy and numeracy development is required in vocational programmes, including apprenticeships, technological education and programmes for adults.

Policy options include:

- In Israel a large share of young people leave initial VET with poor basic skills. Often, the low basic skills of VET graduates will reflect weaknesses in the entrant population to these programmes. But there is also some evidence pointing to low quality teaching leading to modest skills acquisition in some programmes. Israel should therefore invest in initial VET to ensure adequate levels of literacy and numeracy in all students, identifying the weakest performers and targeting teaching resources on them to improve performance. This means exploring different teaching approaches, including teaching literacy and numeracy in the context of apprenticeship and technological education.

- There are multiple skills shortages in the adult workforce in Israel, and the basic skills of the adult population are relatively weak, particularly for some social groups. To tackle this challenge, Israel should build basic skills education systematically into adult programmes and military service, while also ensuring that effective programmes are in place for those groups that are exempt from military service.

- Basic skills are particularly low among Arab Israelis and Haredi Jews. These populations are also less likely to participate in the labour market and are more at risk of living in poverty. Since basic skills are closely related to the labour market outcomes and life chances addressing basis skills weaknesses in these populations should be a priority.
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