Bank of Israel

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Four recommended pillars of strategic government action to accelerate economic growth and a fiscal framework for financing them

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Summary

The economic program in this document is being presented more than three years after the approval of the last budget and about two years after the Bank of Israel submitted a special report to the government on the level of labor productivity in Israel as a primary cause of the gap in the standard of living between Israel and other developed countries, which included recommendations to improve the situation.

During the COVID-19 crisis, public attention and economic policy were primarily focused on responding to the pandemic and its effects. The recovery of the economy now calls for the government to focus on achieving rapid growth and preventing any long-lasting damage from the crisis. However, at the same time, it is important to deal with the challenges to the economy that extend beyond the COVID-19 horizon. The crisis did not change the strategic issues that the Israeli economy must deal with, but it did highlight aspects of their importance and urgency. The formulation of a plan to deal with these fundamental problems, as presented in this document, is crucial in view of the time that will pass between initiating the processes and their coming to fruition, and because setting out a well-reasoned plan for the long term may help the economy exit the current crisis.

In this document, we highlight four policy pillars that correspond to the core strategic issues. These policies will contribute to long-term growth by creating conditions for increased productivity in the real economy, to the development of financial markets, and to the narrowing of gaps in economic earnings and worker skills. The pillars presented in the document set out the optimal directions for policy in the short and long terms and describe the changes that have occurred in the various domains during the past two years and in particular during the COVID-19 crisis. The fruits of some of the proposed policies, such as regarding issues related to transportation and the development of human capital, will be seen only in the medium and long terms. However, unless these processes are initiated immediately the problems will be exacerbated and will remain unresolved even in the long term.

Some of the issues described in this document have already been dealt with to some extent by the relevant government bodies, and in a few cases considerable public effort has already been invested. In these cases, the document highlights the importance of the directions for action, since experience shows that the distance between deciding on the policy directions and measures and their full implementation can be significant. Following the description of the policy pillars, a long-term fiscal framework is presented, which will be necessary to achieve economic stability and the success of the economic program.

The four pillars upon which this document is based focus on the following areas:

1. **Development of human capital:** Human capital constitutes a critical component in the growth of modern economies. It is accumulated primarily in the education system, and the quality of education is therefore of major strategic importance. This document presents a series of recommendations for improving the quality of the education system's output at all levels: from improving the educational component in early childhood daycare frameworks and particularly among weak populations, to the quality of the general education system and its teachers, with particular focus on increasing the extent to which this will help narrow gaps resulting from a pupil's socioeconomic background,

and finally, to occupational education and vocational training for the adult population. The recommendations stress the need for additional resources to be invested in children from a weak socioeconomic background, in view of the prime importance of the education system in this case and due to Israel's particularly large lag in achievement among children from a weak socioeconomic background relative to other developed countries. The effect of this lag on macroeconomic performance is already significant, and is expected to grow in the coming decades.

2. **Investment in physical and technological capital and infrastructure:** The physical and technological capital used by businesses, and the quality of the transportation, housing, communication, and energy infrastructures, have a direct effect on labor productivity and GDP growth, and therefore also on quality of life. The recommendations in this document relate to how to encourage investment in capital and the adoption of technologies that can boost productivity in the entire business sector. These include increasing the investment in public transit, communication, and energy infrastructures; improving the business environment; and developing human capital, as mentioned above. The document suggests ways to advance in all of these channels while taking into consideration the modifications that need to be made, such as the regulation of demand for energy in view of the international targets for maintaining environmental quality, shortening the time needed to complete public transit projects in the large cities and the removal of barriers to expansion of some of the communication infrastructures. The recommendations also call for increasing the supply of housing in the high-demand areas by facilitating urban renewal and improving the incentives for local authorities to absorb new residents.
3. **Development of the financial system:** The removal of barriers to the development of the financial system and introduction of various credit products will increase the efficiency of the credit market and the public's access to sources of credit. This analysis emphasizes the gap between Israel and the other developed countries in the quantity of credit provided to the business sector from nonbank sources. The recommendations relate to the development of new markets and the elimination of barriers and distortions in order to develop the financial system. This will in turn increase the variety of financing possibilities available to savers and investors, increase the efficiency of the allocation and pricing of credit, and facilitate a more efficient allocation of risk among the financial institutions.
4. **Improving the regulation and use of technology to streamline government activity:** Efficient, precise, and transparent regulation is beneficial for business activity. It reduces the direct costs of complying with excess requirements and the cost of bureaucracy (in time and money) both for businesses and for the government itself. This kind of regulation also reduces the uncertainty and risk in business activity. The integration of technology, such as advanced data systems, within government activity improves the execution of processes within the government and its interface with individuals and firms; improves service to the public; and enables the efficient management of the data possessed by the government in support of decision-making and innovation. Moreover, the use of technology in managing the government's information and data and its interface with the public supports the government's ability to manage regulation more efficiently. The recommendations appearing in this document highlight the necessary policy directions

and emphasize the need to accelerate and broaden processes that have already begun in the public sector to improve existing regulation and to wisely implement new regulation, while taking into account its economic consequences and its benefit in reducing risk. This report recommends a switch from "regulation at the gate"—i.e. obtaining permits prior to the entry of goods or the initiation of a new business activity—to a model that relies on declaring compliance with regulations and greater supervision in the markets. The recommendations in the report also relate to the need to encourage and integrate advanced digitization in the management of data and information and in government services.

The main benefit of the recommendations in this document will be achieved in the long term. However, their implementation involves significant fiscal cost in the medium term. In order to implement the recommendations, an institutional-economic framework is needed that can exist outside of short-term constraints, and that supports the government's long-term targets, such as those being proposed in this economic program. This framework must include effective fiscal rules that take into account the volatility of the macroeconomic environment and of tax revenues; a rational work process for the State budget; and the reactivation of the Numerator rules.

As a first step in adopting this economic program, and in view of the growth in public debt during the COVID-19 crisis, the government must set a long-term target for the debt-to-GDP ratio. The target should take into account both the importance of the markets' confidence in the government's fiscal responsibility and the need to carry out large-scale investments. The major increase in the debt-to-GDP ratio during the crisis again underlined the importance of dealing with the large structural budget deficit that existed prior to the crisis. Even before the necessary investments, the stabilization of the debt-to-GDP ratio will require a permanent reduction of about 1.2 percent of GDP in the primary structural deficit, and a reduction in the debt-to-GDP ratio to the precrisis level will require even greater fiscal effort. The economy-wide return from the proposed programs is higher than the budget cost. Nonetheless, financing them by debt alone will bring about a continual and divergent rise in the debt-to-GDP ratio and of the interest payment burden, since a significant part of the benefits to the public will not be manifested in an automatic rise in tax revenues. Therefore, the cost of the program must be financed by a mix of debt, taxes, and a reallocation, or a more moderate rate of increase, in some types of public expenditure, which will bring about a convergence of the debt-to-GDP ratio to the target to be set by the government while not endangering the stability of the economy.

Introduction

The economic program described in this document is being presented three years after the last approved budget and about two years after the Bank of Israel submitted a special report on Israel's low labor productivity as a primary cause of the gap in the standard of living between Israel and other developed countries, which recommended ways to tackle the problem (Bank of Israel, 2019a; hereafter, the Productivity Report). The onset of the COVID-19 crisis about 18 months ago shifted public attention to health, economic, and social challenges and how to deal with them.[1] However, the economy is currently in a recovery period and economic activity is accelerating. Against this background, in the near future the government will be called on to facilitate a rapid return to full economic activity and to mitigate any long-term effects of the crisis. At the same time, it is important to deal with the economic challenges beyond those of the COVID-19 pandemic. From a long-term perspective, the crisis did not change the strategic issues that the Israeli economy has to confront, although it did highlight elements relating to the importance and urgency of dealing with them. The formulation of a plan to deal with these fundamental problems, as presented in this document, is necessary both because of the time that will be needed to initiate and accelerate the processes and because the formulation of a consistent long-term plan will support the economy's recovery from the crisis.

A number of characteristics of the precrisis economy contributed to the fact that the aggregate damage to the Israeli economy was only moderate relative to the intensity of the shock (Figure 1). These include a persistent surplus in the current account, a high level of foreign currency reserves, a stable banking system, and a low public-debt-to-GDP ratio. During the crisis, the current account surplus grew, as did the foreign exchange reserves. However, the public-debt-to-GDP ratio rose from 60 to 72 percent (and is expected to continue rising to 76–77 percent of GDP during the next two years). Another factor benefiting the Israeli economy during the crisis was the low weight of the tourism industry, which was severely affected worldwide, and the large share of advanced services, particularly those provided by the high-tech industry, the demand for which increased due to the crisis. The increased adoption of technological tools that facilitate work from home on a large scale, and their use in the consumption of many social, public, and personal services, boosted the consumption of goods and services in which the Israeli economy specializes. These processes also demonstrated the potential for raising productivity, the quality of public services, and the standard of living by means of advanced technologies and digitization.

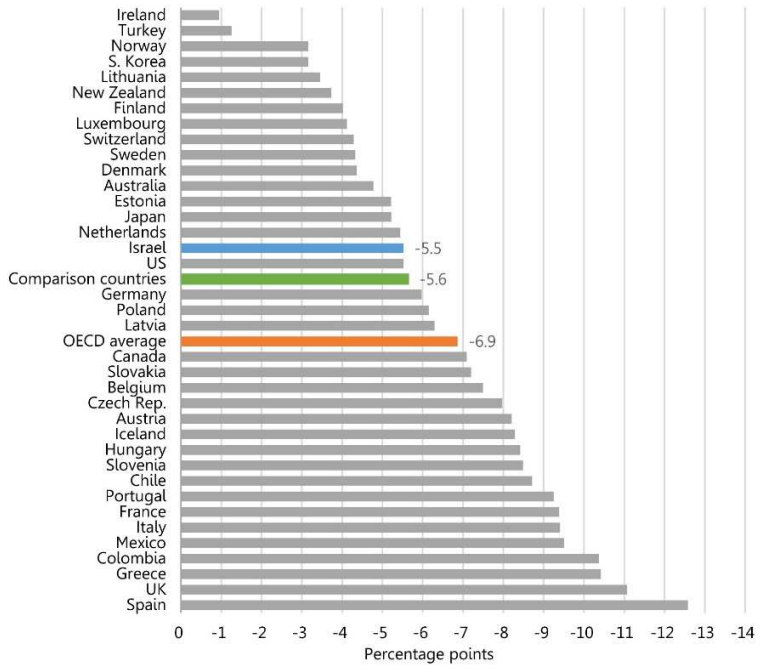
In contrast to the positive economic conditions prior to the crisis, such as full employment, low inflation, and a current account surplus, there were fundamental economic problems constraining the standard of living in Israel and the exploitation of the economy's long-term growth potential. Per capita GDP in Israel was about $42,000 in terms of purchasing power parity (PPP) in 2019—prior to the crisis—which is about 90 percent of the average for the OECD countries (Figure 2). The gap in per capita GDP between Israel and the OECD was determined to a large extent by the fact that labor productivity (GDP per worker) in Israel in that year was only 87 percent of the OECD average and only 78 percent of the average for the small and advanced reference countries[2], a gap that is similar to its level of 20 years ago (Figure 3). This is partly due to the low level of

[1] A detailed characterization of the effects of the crisis and the policies adopted appears in Bank of Israel (2021).

[2] Austria, Belgium, Denmark, Finland, Netherlands, and Sweden.

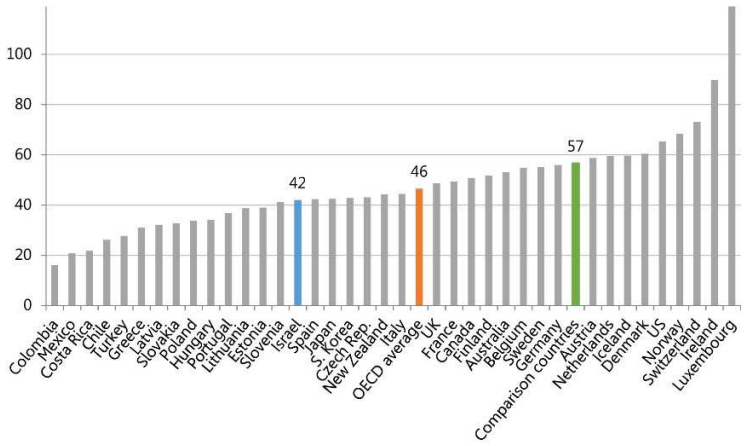
investment in physical, human, and technological capital. An examination of labor productivity defined as output per hour of work also points to a large gap between Israel and other countries (Figure 4).

Figure 1: Impact to Growth in 2020 in the OECD Countries
Difference between actual growth in 2020 and the precrisis growth forecast[a]



The comparison countries are small and advanced economies: Austria, Belgium, Denmark, Finland, Netherlands, and Sweden.
[a] The precrisis forecasts are the average of the OECD Economic Outlook published in November 2019 and the IMF World Economic Outlook published in October 2019. 2020 growth is according to data from the OECD Economic Outlook published in May 2021.
SOURCE: Based on OECD.

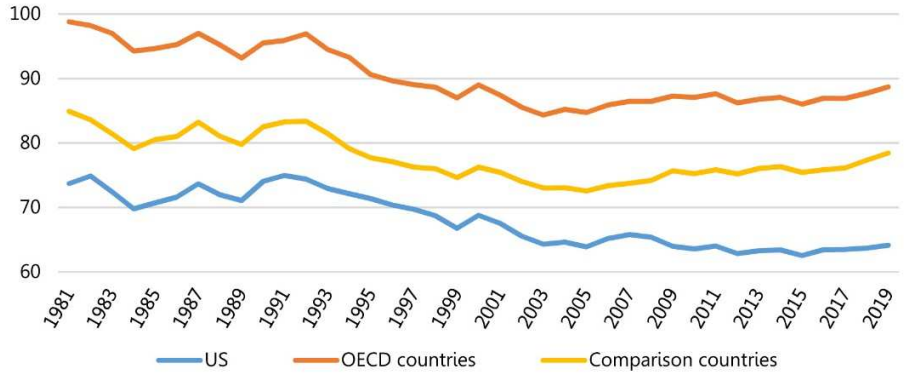
Figure 2: Per Capita GDP, Israel and OECD Countries, 2019
$ thousand, current prices, in PPP terms



The comparison countries are small and advanced economies: Austria, Belgium, Denmark, Finland, Netherlands, and Sweden.
SOURCE: Based on OECD.

Figure 3: Labor Productivity, Israel and the OECD Countries

Development of the gap in per capita GDP between israel and selected countries, 1981-2019 (per capita GDP in Israel as a percentage of per capita GDP in compared countries)

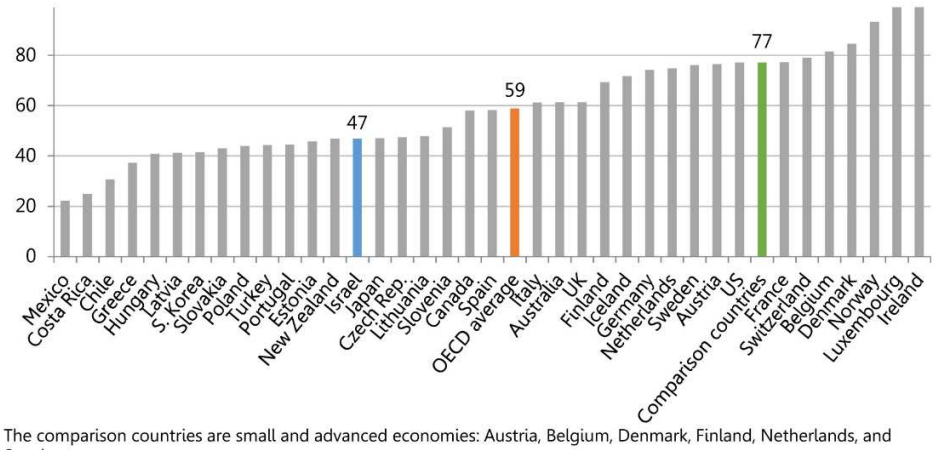


The line for OECD countries contains countries that have avalable data from 1981. This excludes eastern Europe, Mexico, Chile, and Turkey. The comparison countries are small and advanced economies: Austria, Belgium, Denmark, Finland, Netherlands, and Sweden.

SOURCE: Based on OECD.

Figure 4: GDP per Work Hour, Israel and OECD Countries, 2019

US dollars, current prices, in PPP terms

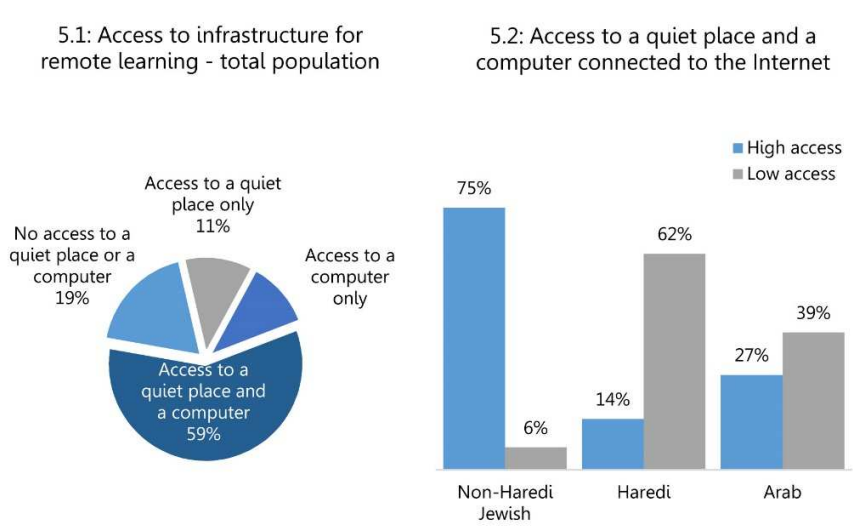


The comparison countries are small and advanced economies: Austria, Belgium, Denmark, Finland, Netherlands, and Sweden.

SOURCE: Based on OECD.

The expansion of online activity during the crisis highlighted the large disparities by income, education, industry, profession, age, and sector in the ability to be part of the digital revolution and to enjoy its benefits, which has implications for the necessary policy. For example, the hardest-hit industries during the crisis were those that require physical presence and personal interaction, i.e. industries that are characterized by low wages and productivity and a limited ability to work from home. Therefore, the damage in terms of employment was greater among low-productivity workers, and some of them may have problems returning to employment (Bank of Israel, 2021 – Chapter 5). Children from a weak socioeconomic background had a harder time maintaining a continuity of learning during the crisis (Becher, 2020b), and are expected to suffer greater long-term consequences from a long period of remote learning, which will likely lower their educational achievements and reduce their earnings in adulthood. This long-term effect is partly the result of disparities in the availability of computer equipment and communication infrastructure in their homes (Figure 5) and other conditions that facilitate learning, such as parental assistance in their studies (Bank of Israel, 2021 – Chapter 7).

Figure 5: Access to Conditions that Enable Optimal Remote Learning



The calculation includes only families with school-aged children (5–17).
SOURCE: Based on Central Bureau of Statistics Household Expenditure Survey (2018).

The skill levels of the adult population in Israel are lower than in other OECD countries, and the disparities in the lowest skill deciles are particularly noticeable. In other words, low-skilled individuals in Israel are in an inferior position relative to their counterparts in other developed countries, in contrast to highly skilled individuals who are similar to their counterparts in other countries (Figure 6). The scale of the skill disparities in the lower deciles significantly reduces total productivity. Differences in skill levels, which are reflected in productivity in the labor market and in gaps in earning capacity, are largely the result of the characteristics of the education system in each sector[3], as well as the difficulty encountered by the education system as a whole in bridging

[3] The Productivity Report (2019) – Appendices A1 and A2 show that the hourly wage gap (which is used as an estimator for the productivity gap) between *Haredi* (ultra-Orthodox) men and non-*Haredi* Jewish men is primarily the result of a lack of education suited to the labor market, while a small proportion is the result

the gaps in achievement between children from strong and weak socioeconomic backgrounds—a situation that also affects the attainment of a higher education.

Employment rates and labor productivity among *Haredi* (ultra-Orthodox) men are lower than among non-*Haredi* men. Since the total fertility of *Haredi* women (6.56 children per woman) is much higher than among non-*Haredi* Jewish women (2.65 children per woman)[4], as well as Muslim women (3.21 children per woman) and Christian women (1.95 children per woman)[5], raising the rate of employment and labor productivity in the *Haredi* population, particularly among men, is an issue with strategic importance for per capita GDP, labor productivity, and reducing income disparities between the *Haredim* and the rest of Israeli society (Table 1). This is due to the fact that the *Haredi* sector's share of the working-age population is expected to grow substantially in the future (Figure 7).

Currently, only about half of *Haredi* men aged 25–64 are employed, compared to about 86 percent of non-*Haredi* Jewish men in that age range (Figure 8). Moreover, boys in the *Haredi* education system acquire very little of the knowledge and skills required for optimal integration into the labor market, and this shortcoming relative to non-*Haredi* Jewish men explains a significant portion of the gap in productivity between them. A simulation carried out using a long-term growth model developed by the Bank of Israel indicates that given the current trends in *Haredi* employment, if the quality of education received by *Haredi* men was equivalent to 12 years of schooling rather than 10 (which it is today), the average labor productivity in the economy would be 2.5 percent higher (Productivity Report, 2019; Appendix A1).

With regard to the Arab population, the participation rate among women of prime working age is about 36 percent, which is particularly low relative to those of non-*Haredi* Jewish women (about 82 percent) and *Haredi* women (about 79 percent) (Figure 8). In contrast, the gap in labor productivity between them and non-*Haredi* Jewish women is primarily determined by differences in the level of formal education and basic skills (Productivity Report, 2019, Appendix A2). Here too, an improvement in the quality of education is a key factor in narrowing the gap.

Hazan and Tsur (2019), using "development accounting", found that most of the gap in productivity between Israel and other developed countries is determined by the relatively low level of physical capital per worker in Israel, while the rest reflects inferiority in the quality of human capital, even though Israeli workers have more years of schooling. However, it should be noted that the various components that determine productivity are interdependent. Thus, for example, improvements in regulatory processes and in interactions with the government affect productivity both directly, by making the factors of production (human and physical capital) more efficient, and indirectly since they increase individuals' incentive to invest in the improvement of their human capital and the willingness of companies to invest in physical capital. Investment in

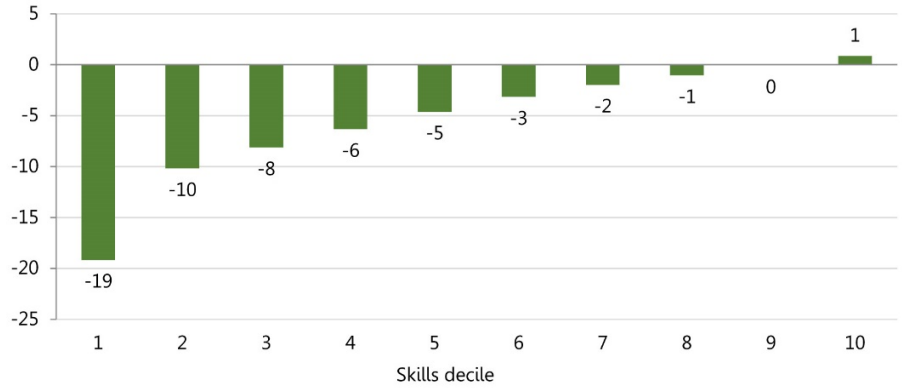
of differences in basic skills. The gap among women is due to differences in number of workhours. Half of the gap between Jewish and Arab men is due to differences in education and skill levels, while among women it is due to differences in education, basic skills, and workhours.

[4] The data relate to the average for 2017–19 and are based on Central Bureau of Statistics data.

[5] The data on the non-*Haredi* population are based on the average for the years 2017–19, which was calculated using CBS (2021).

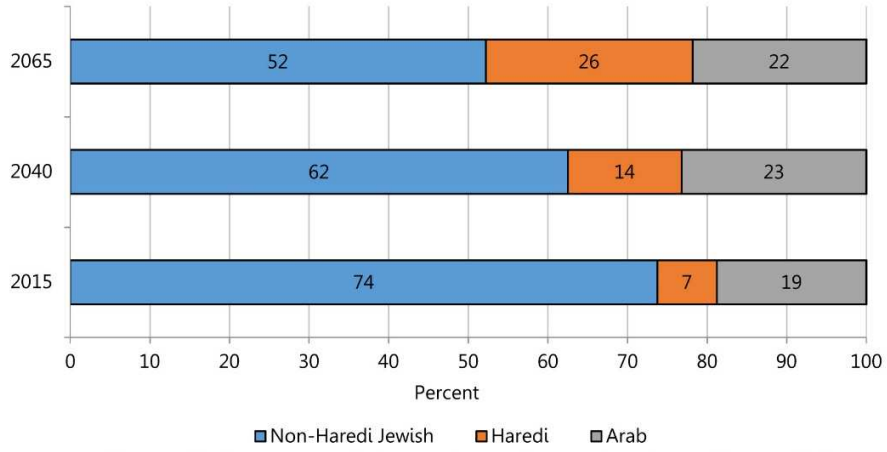
human capital was found to be an important determinant of investment in physical capital in the business sector, due to its contribution to capital productivity.

Figure 6: Skills Gap Between Israel and the OECD
By skills decile, 2015, percent



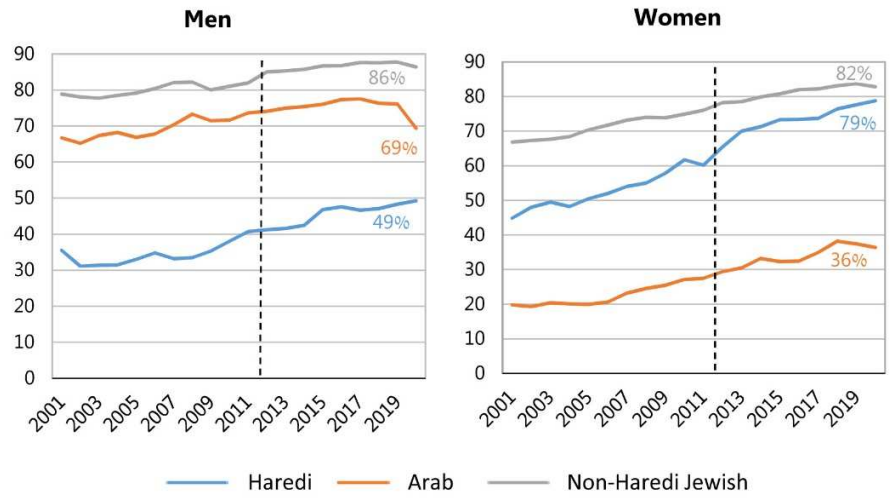
For each skills decile, the gap (percent) in PIAAC test scores between Israel and the OECD average in that decile is shown.
SOURCE: Based on PIAAC survey (OECD).

Figure 7: Each Sector's Share of the Prime Working Ages
2015 data, and 2040 and 2065 forecasts



Based on Central Bureau of Statistics demographic forecasts, intermediate scenario. Prime working ages: 25–64.
SOURCE: Based on Central Bureau of Statistics (2017).

Figure 8: Employment Rate by Population Group[a]
Aged 25–64, percent, 2001–2020



[a] In 2012, changes were made to the survey, which created breaks in the series. The broken line indicates this break.
SOURCE: Central Bureau of Statistics, file of employment rates by decision items for the first quarter of 2021.

Table 1: Indicators of income distribution, 2018

	General population	Non-*Haredi* Jews[1]	Arabs[2]	*Haredim*	No wage earner	Sole wage earner	Two or more wage earners
Median household monthly income (NIS)	14,609	15,758	10,084	11,730	5,932	10,106	20,925
Median equivalized monthly income (NIS)	5,750	6,448	3,094	3,132	3,386	5,019	6,816
Average equivalized monthly income (NIS)	6,733	7,449	3,711	3,952	4,889	6,172	7,798
Relative poverty line (50% of median equivalized monthly income, NIS)	2,875						
Number of households (thousand)	2,609	2,100	379	129	517	784	1,308
Children's incidence of poverty (percent)	30	12	58	63	93	61	11

[1] Including "Other".

[2] Including Arabs from Jerusalem.

SOURCE: Based on Central Bureau of Statistics Household Expenditure Surveys (based on the table that appeared in the Bank of Israel Annual Report for 2019, Chapter 7).

The financial system in Israel has made significant progress in recent years, including the separation of institutional investors from the banks, the development of a corporate bond market, the reduction in concentration in the economy, and the development of a nonbank credit market. Nevertheless, there is still a gap relative to the developed capital markets in other countries. The elimination of barriers in the financial system and the development of various credit products will increase the efficiency of the credit market and the public's access to sources of credit. Furthermore, the creation of markets that support the flow of credit in the economy and the pricing of credit risk will facilitate a more efficient allocation of risk among the financial institutions. The lack of basic instruments, such as securitization and reliable benchmark interest rates, together with the barriers in the banking system, create undesirable distortions in the economy, constrain the dispersal of risk in the credit markets and the entry of foreign investors, and reduce access to capital for businesses and households. The Financial Development Index in Israel is low relative to other countries, and particularly with respect to credit and interest rate derivatives.

In this document, we present four pillars for policy making in order to tackle the core strategic issues with respect to long-term growth by means of developing the real economy and the financial markets and reducing disparities in earning capacity and worker skills. The pillars presented in the document provide the desirable directions for economic policy in the short and long terms and relate to changes that occurred in various domains during the COVID-19 crisis. Some of the proposed policy measures will bear fruit only in the intermediate and long terms, such as those in the area of transportation, but if work in these areas is not initiated immediately, the problems will only worsen and will not be solved even in the long term. Some of the issues presented have already been dealt with to some extent by the relevant government authorities, and considerable effort has already been invested in a few of them. In these instances, this document highlights the importance of the policy directions, since experience indicates that there is in many cases a long distance between deciding on a policy measure and its full implementation. Following the description of the policy directions, a fiscal framework will be presented that is necessary in order to ensure the stability of the economy and the successful implementation of the economic program.

The policy directions presented in this document can be grouped into four categories:

1. **Development of human capital:** Investment in education infrastructure, narrowing of gaps in education, and improvement in the scholastic achievement of pupils and the skills of adults, by means of raising the quality of the education system at all levels—from preschool up to vocational training.
2. **Investment in physical and technological capital and infrastructure:** Encouragement to adopt productivity-enhancing technologies in the business sector; increasing the supply of housing in high-demand areas by facilitating urban renewal and improving the incentives of local authorities to absorb new residents; encouragement of investment in transportation infrastructure, primarily public transit; and removal of barriers to investment in communication and energy infrastructure, while taking environmental quality targets into consideration.
3. **Development of the financial system:** Development of new markets and the removal of barriers and distortions in the financial system, in order to increase the variety of

financing options offered to savers and investors, increase the efficiency of credit allocation and pricing, and facilitate a more efficient allocation of risk among the financial institutions.

4. **Improving regulation and the use of technology in order to achieve greater efficiency in the government:** Improving government regulation, easing regulation in order to facilitate doing business, and the adoption of technology by the government will work to raise labor productivity in the economy by reducing costs, accelerating work processes, increasing transparency, and reducing uncertainty in the government's interface with the business sector and the public. In addition, the institution of technologically delivered services in government activity, which will encourage the adoption of such processes in the economy as a whole and improve government service for both citizens and businesses.

First Pillar: Development of Human Capital

Human capital is a critical component of modern economic growth. It is created, to a large extent, in the education system. An effective education system has the capability of providing the knowledge and skills necessary for the success of individuals and the exploitation of their human capital potential over the course of their lives, and in this way to support broad economic growth that will trickle down to all layers of society and will reduce socioeconomic disparities. Human capital is the driver of processes to achieve economic efficiency and the absorption of technological innovation, which have a major impact on economic growth.[6] The education system can also instill values of solidarity, morality and partnership, which are critical in creating trust between the various segments of society and in turn stimulating long-term growth.[7] Therefore, the efficient functioning of the education system is a primary economic-strategic issue. A policy to encourage the creation of human capital requires long-term planning along with sufficient flexibility to deal with a complex day-to-day reality.

The encounter between the characteristics of the Israeli education system and the need to cope with a reality that has been forced on teachers, pupils, and parents as a result of the COVID-19 pandemic revealed weak points in Israel's preparedness (and that of other countries) for the possibility of an extended period of remote learning and the need for additional modifications to teaching methods. These were the result of limitations of infrastructure, the teaching staff, and the management structure, which were not sufficiently flexible. At the same time, the importance of a highly skilled teaching staff during a period of adoption of advanced learning technologies and the development of independent learning capabilities was demonstrated. The importance of schools in meeting the social and emotional needs of pupils and the development of their communication skills was also particularly evident. Israel's pupils and teachers, and the education system as a whole, were not able to optimally cope with remote learning. The gaps in pupils' achievements and skills became a constraint, in view of the major loss in school days, which is liable to have long-term consequences, particularly among children from weak socioeconomic backgrounds (Bank of Israel, 2021 – Chapter 7). In a similar manner, the low level of preparedness with respect to physical infrastructure and lesson plans that can facilitate remote learning had a greater impact among these children (Bank of Israel, 2020).

The Israeli education system is characterized by large disparities between the sectoral systems: the State system and the State Religious system, the Arab State system, and the *Haredi* (ultra-Orthodox) frameworks. These differences are reflected in learning material, educational inputs (budget and others), and even in the grade structure, in addition to differences in the characteristics of the pupils. As a result, Israel has some of the largest disparities among the developed countries in educational outcomes between pupils from strong and weak socioeconomic backgrounds (see below).[8] Many of the pupils from weak socioeconomic backgrounds belong to the Arab or *Haredi* sectors, such that these gaps in achievement in the end result in significant differences between population groups in basic skills, in the acquisition of

[6] The scope of human capital's effect on economic growth and the connection between education, human capital, and innovation are clearly explained in Biasi et al. (2021).

[7] On the contribution of trust and solidarity between various groups in a society to economic growth, see Arrow (1972) and Putnam (1993).

[8] In reading tests, the rates stood at 69 percent and 77 percent, respectively.

higher education that is suited to the labor market, and in productivity. According to Bank of Israel estimates (Productivity Report, 2019, Appendix A1 and A2), about two-thirds of the hourly wage gap (an estimator of labor productivity) between non-*Haredi* Jewish men and *Haredi* men is explained by differences in the attainment of higher education and its suitability to the needs of the labor market, while about half of what remains is explained by differences in basic skills (when comparing non-*Haredi* Jews to *Haredi* Jews with the same education). The main explanation for the hourly wage gap between women in these groups is the difference in level of education (which is measured by the last certificate/degree earned). The hourly wage gap between Arab men and non-*Haredi* Jewish men on the one hand and between Arab women and non-*Haredi* Jewish women on the other are also largely the result of differences in the attainment of education, skill levels, and other (unobservable) factors that lead to gaps beyond those due to education, skill level, and industry.

The Ministry of Education is the main public body that provides budgetary resources to the official education system. The formulas that are used to budget the various components of the system (preschool, elementary education, middle schools, and high schools) are a tool that allows the government to implement affirmative action in the allocation of resources. The affirmative action components in the budgeting formulas are meant to reflect the gaps in the characteristics of pupils and their families (which constitute their initial conditions in education), the potential of additional resources available to the education system (such as the income of parents and of local residents), and the ability to use budgets effectively.

Becher (2020b) found that pupils in the Arab school system who belong to the highest Nurture Index deciles (in other words, those who have the greatest need for assistance) benefit from a much smaller allocation of resources than their counterparts in the Jewish school system, and this gap is observed at all stages of education. A comprehensive analysis of the affirmative action policy used in the allocation of resources by the Ministry of Education, which is described in Ayalon et al. (2019), also showed the wide gaps in the budgeting of the various education sectors in Israel: between the Jewish and Arab systems and between the various components of the Jewish system. The affirmative action policy eliminates part of the gap between the Jewish and Arab systems but the gap nevertheless remains large due to the fact that many pupils in the Arab sector come from weak socioeconomic backgrounds relative to pupils in the Jewish sector, and to the fact that they live in less well-off localities.

Children of school age (6–18) in the *Haredi* sector constitute almost one-quarter of the Jewish children in this age group, and due to the high level of fertility in the *Haredi* population that proportion is expected to rise in the future (CBS, 2017). The differences between the State education system and the schools in the *Haredi* system involve several factors, at the heard of which is the curriculum. Most of the *Haredi* schools do not teach according to the Ministry of Education's compulsory curriculum (the core subjects). The teaching of those subjects falls short primarily in the schools for *Haredi* boys, and many of them do not study the core subjects at all in high school. (As a result those high schools only receive partial budgeting from the Ministry of Education.) In contrast, *Haredi* girls study the core subjects according to the compulsory curriculum. Furthermore, the *Haredi* education system often suffers from low quality of teaching aids and of teaching methods (many of which are outdated), and a low level of adoption of

advanced curricula. Training for teachers is often at a relatively low level, and in many cases is not suited to the field they are to teach (Bart, Spiegel and Malach, 2020).

In an effort to raise labor productivity in this sector, the government invests large budgets and other resources in order to increase the proportion of *Haredi* men and women who attain an academic education. However, these efforts have not been particularly successful. The shortfall in knowledge, primarily among *Haredi* boys, the fact that they start families at a young age, and other factors described below, constitute a barrier to closing the gap in their adult years so that their success in completing academic studies is low.

The technical education and vocational post-secondary training systems are taking on an increasingly important role in modern and dynamic economies. Workers need a high level of skills, and need to adjust and update those skills over an increasingly long working life. The COVID-19 pandemic and the shocks it caused to employment levels and employment frameworks (such as the adoption of remote employment) emphasize the importance of these systems, since they allow for mobility and adaptation in the labor market.

In this section, we focus on recommendations related to strategic components of the education system and the development of human capital at all levels, from preschool to vocational training.

Improving the Quality of Early Childhood Education (aged 0–3)[9]

Background to the recommendations

The home and school environments in which infants develop influence their acquisition of cognitive and social abilities, and these in turn affect their knowledge acquisition and skills level and through them their achievements and opportunities later on in life. Children who grow up in an environment of economic distress are liable to suffer from material and other scarcities that may cause developmental, emotional, and cognitive shortfalls relative to children who grow up in a more flourishing environment. Gaps in skills according to socioeconomic background are already evident in infancy, and these may lead to long-term disparities in development and cognitive ability and in educational attainment.[10] This is a particularly important issue in a country such as Israel, which is characterized by a high proportion of children living in poor families (see Table 1).

The lack of high-quality educational/childcare frameworks for infants is liable to create long-term developmental gaps between those who have access to such frameworks and those who do not. A series of studies that looked at programs in the US and other countries found that subsidized early childhood education programs are particularly important for children from a weak socioeconomic background. It was found that in the long term, exposure to such frameworks improves the education, employment, and health of children from poor families, among other things. It also reduces the chances of being involved in criminal activity and of being dependent on welfare services. In contrast, the justification for subsidizing such frameworks for children from better-off families is rather weak, particularly when the quality of the education being offered in the subsidized frameworks is no better than what is available to them in unsubsidized frameworks—whether at home or in a formal environment.[11]

The main challenge in improving the quality of early childhood education frameworks lies in improving the pedagogical material in the areas of language, cognition, motor skills, and social skills, alongside a high level of childcare. A cost-benefit analysis shows that the cost of allocating high-quality manpower to this task and the subsidization of programs for children from weak socioeconomic backgrounds is much lower than the long-term benefit from these measures.[12]

A survey carried out by the Bank of Israel among non-*Haredi* Jewish mothers of children up to the age of 3 found that parents attribute great importance to the quality of education at this age (Shahar and Rashti, 2021). According to the survey, educational characteristics and physical conditions are the main considerations in choosing a framework, even more so than its price or proximity to the parent's residence and/or place of work. Thus, only about 30 percent of the parents that are eligible to register for a public framework chose to do so, and about 40 percent

[9] The recommendations in this section are based on the analyses and arguments (with modifications) appearing in the Productivity Report (2019).

[10] The connection between material scarcity in infancy and cognitive shortfalls, and the literature on that subject, are surveyed in Ayalon et al. (2019), Chapter 10 – Poverty in Infancy and Inequality in Education.

[11] The theory and a comprehensive survey of the findings on the benefit of high-quality early childhood educational frameworks, and particularly their subsidization for children from weak socioeconomic backgrounds, can be found in Elango et al. (2016). Ayalon et al. (2019), Chapter 10 contains references and empirical evidence.

[12] Garcia et al. (2017) analyze this subject in detail and suggest a long-term cost-benefit test used for a key program in North Carolina. It has served as a model for similar programs in the US and elsewhere.

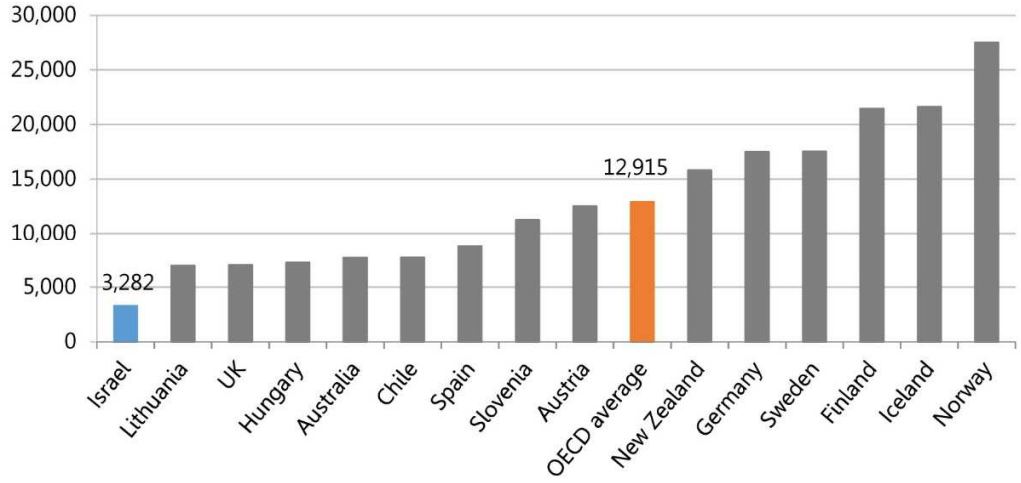
of those who did not do so registered their children for a private framework—which they perceived as being of higher quality—despite the difference in price. Therefore, it is not necessary to provide universal public funding to daycare frameworks. Rather, there should be focus on increasing the accessibility of high-quality frameworks for populations that do not have the means to pay for them. At the same time, it should be recognized that the called-for improvement in the quality of daycare is liable to increase the cost of this service to parents in the rest of the population, subject to the subsidization they are eligible for, if any.

Slightly less than one-quarter of toddlers aged 0–3 were in daycare centers under the supervision of the Ministry of Labor and Welfare (Council for the Welfare of the Child, 2018) during the period 2017–18. The rest were in private daycare frameworks with varying levels of quality, or were at home and cared for by members of the family without payment. Daycare centers under the supervision of the Ministry of Labor and Welfare are focused on the need for childcare during the operating hours of the daycare center, which is meant to allow parents to work on a regular basis, even if they also aspire to provide an educational-cognitive solution. Since the recommendations of the Trajtenberg Committee to switch from a childcare model to a combined childcare and educational model (Trajtenberg et al., 2011), efforts have been invested in improving the quality of education/childcare in supervised daycare centers by means of adopting supervision and professional training routines in partnership with Joint-Ashalim and academia. In November 2018, the Council for Infancy was established which is responsible for the medical, childcare, and social aspects of childhood from birth up to Grade 1. Furthermore, at the beginning of 2019, a government committee was established (according to Government Decision 4496), which is responsible for improving the daycare centers and raising their level of efficiency. The Supervision of Daycare Centers for Toddlers Law, 5779–2018, and the regulations for supervision of daycare centers for toddlers, which were passed in January 2021 and the implementation of which is supposed to begin in September 2021, are meant to advance some of the issues related to childcare, the conditions in daycare centers, and the training of educators and childcare staff, in both the pedagogic and other domains such as first aid, in frameworks with seven or more children.

Although there is obligatory pedagogic supervision in public daycare frameworks and those supervised by the State as part of the relationship between the operator and the Ministry of Labor and Welfare, this is not the natural framework for a system that aspires to provide educational content that will constitute the initial stage of preparation for entering the education system. Comparative data on the public expenditure per child (aged 0–2) in the daycare system show a low level of expenditure in Israel (Figure 9). It is likely that this makes it impossible to provide educational service of sufficient quality, and it will therefore be important to ensure that the budgeting per child is also sufficient in daycare centers that serve children from weak socioeconomic backgrounds, where the vast majority of financing will be public. Moreover, it appears that even though many daycare centers have recently been built in various parts of Israel, there is still a major shortage.

Figure 9: Public Expenditure per Child for Early Childhood Education (age 0–2), 2017

PPP dollars, 2017



The data relate to public expenditure divided by the number of children in the age group, in dollars, in purchasing power parity (PPP) terms. The data are shown only for countries for which there are data in the databases.

SOURCE: Based on OECD.

Recommendations for the improvement in the quality of early childhood education (ages 0–3)

1. To focus government activity on the lower socioeconomic strata, by improving the quality of daycare centers and increasing their physical and economic accessibility for this group.
2. To transfer responsibility for supervised daycare to the Ministry of Education in order to focus and improve the government's professional involvement in the area of educational content. This is in addition to the preparation of a detailed and focused curriculum for daycare frameworks.
3. To improve the quality of the staff that are hired for daycare centers in the publicly supervised system by raising the threshold requirements, introducing early training and adapting the work conditions and funding sources to these requirements. Since the skills of the staff, and particularly their education and training and the guidance they receive on the job, determine the quality of the educational framework, work conditions that reflect an understanding of the complexity of the daycare worker's job will help to attract a higher level of manpower to this occupation, and will preserve daycare workers with appropriate education and training.
4. To construct curricula that emphasize the acquisition of abilities and life skills and a successful start on the pedagogical path. Lesson plans and the training of daycare staff should be based on these curricula.
5. To guarantee that the ratio of staff to children is defined according to accepted standards in high-quality daycare systems.
6. To increase the accessibility of daycare centers for children from weak socioeconomic backgrounds by allocating the lion's share of the construction budget to the establishment of daycare centers in areas that have large populations of such children

and through government assistance to local authorities that find it difficult to finance the 2010 government decision to create additional daycare centers.

7. A model of support for early childhood education should take into consideration the effect of employment incentives on parents.

Improving Achievement in the Education System as a Whole[13]

Background to the recommendations

Teacher quality forms the foundation of the education system. Many studies have found that the effect of teacher quality on pupils' achievements is positive and statistically significant, that it is stable over time, and that it is greater in elementary schools. Therefore, a high-quality education system needs, first and foremost, to include high-quality teachers.[14] However, alongside the low achievements of pupils in Israel relative to other countries, there are also low skill levels (in math and reading comprehension) among teachers (Bank of Israel, 2019a). Although the hourly wage of teachers in Israel, equivalized to bachelor's degree holders in Israel, is 6 percent lower than the OECD average (OECD, 2018), the gap in teacher skills is wider than can be explained solely by the relative wages of teachers (Productivity Report, 2019).

The autonomy granted to school principals and teachers in making decisions that affect their pupils is one of the factors that contributes to pupils' achievements, particularly in the sciences. Nonetheless, principals in Israel enjoy a limited degree of freedom and the Israeli education system is one of the most concentrated among the developed countries (OECD, 2018).

During the past decade, several reforms have been carried out in education.[15] They have improved the employment conditions of teachers by raising wages overall, although the number of workhours was also increased, such that the hourly wage remained almost unchanged. At first, the reforms led to some increase in teacher quality, although at a later stage—when class size was reduced—the demand for teachers rose and no further improvement in the quality of teachers was observed (Bank of Israel, 2019a).[16] Furthermore, there is only partial compatibility between a teacher's training and the subjects they teach (State Comptroller, 2019) and its level has even fallen in recent years in some subjects, such as high school English instruction in the State Religious and State Jewish school systems, and in middle and high school Hebrew instruction throughout the State education system (CBS, 2021).[17] Furthermore, the reforms only dealt partially with the structure of the education system, and in particular they did not expand the degree of autonomy for principals or local authorities.

Israel is an outlier relative to other countries with respect to the wage gap between young and veteran teachers (Figure 10). A comprehensive international comparison of the characteristics and quality of education systems (McKinsey, 2007) found that in order to attract and retain high-

[13] The recommendations in this section are based on analyses and arguments appearing in the Productivity Report (2019) and also in Bahar (2020b) and Bank of Israel (2020).

[14] Investment in teacher quality is also mentioned in the IMF report as one of the tools that can reduce inequality in education according to socioeconomic background, which worsened during the COVID-19 crisis (IMF, 2021).

[15] The Dovrat Committee, some of whose recommendations have been implemented at one stage or another; the Ofek Hadash reform in the elementary and middle schools, which increased workhours and the average wage of teachers and also added tutoring hours; and the Oz Le'Tmura reform which also raised the average wage of teachers, including additional monetary compensation for teachers in schools that can show value-oriented and educational achievements.

[16] According to their matriculation scores when they themselves were pupils (Bank of Israel, 2019b).

[17] The plan recently published by the Council for Higher Education on the basis of the recommendations of the committee headed by Dr. Rivka Demani-Shauman and Professor Ofra Inbar is a step toward eliminating this compatibility gap.

quality teachers in the education system, the starting wage is more important than the trajectory of the wage over time according to seniority. Indeed, the wage agreement signed with the high school teachers in 2018 was also meant to reduce the wage gap between younger and older teachers. Another factor in attracting and preserving teachers is the physical work conditions. The TALIS survey (RAMA, 2019) revealed that the physical work environment of teachers in Israel needs to be improved. Fifty percent of principals reported a lack of teaching space and 39 percent reported a general lack of infrastructure and the unsuitability of existing infrastructure to the school's needs (as opposed to 25 percent and 26 percent respectively in the OECD). The lack of infrastructure is reflected, for example, in the lack of individual working space for teachers (during the hours they are not involved in frontal teaching), a shortage of space for individual tutoring, and a lack of other basic facilities.

In addition to pupils' relatively low overall achievements, such as on the PISA exam[18], the Israeli education system is characterized by significant gaps in educational achievement according to socioeconomic background. For example, only 66 percent of pupils in Israel who participated in the 2018 PISA exam achieved a passing score in math (level 2 and above, which represents a threshold score of 420), as opposed to 76 percent in other OECD countries and 83 percent in the reference countries. The ratio between the number of pupils in the lowest quartile of the social-economic-cultural distribution[19] who exceed the threshold score and the number of those who exceed the threshold score in the highest quartile was 53 percent as opposed to 68 percent on average in the OECD and 75 percent in the reference countries (Figure 11). Surveys of adult skills (PIAAC) have found a particularly high variance in basic skills in Israel. A policy that can improve the human capital of individuals from weak socioeconomic backgrounds is likely to raise the average skill level in the economy by a considerable amount, and will contribute to output per worker in the long term (Bank of Israel, 2019b).

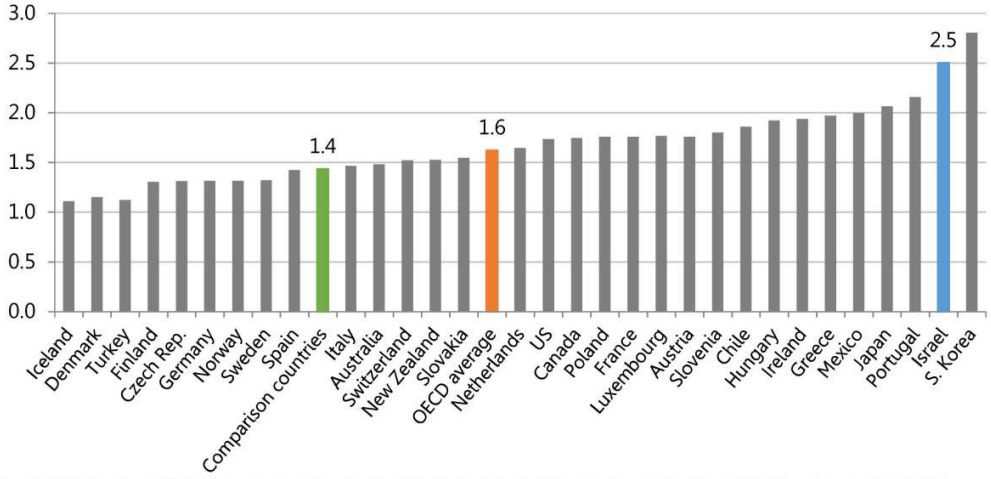
The differential allocation of educational inputs is likely to help reduce gaps in achievement between pupils. Studies have found that shifting resources in order to increase teaching hours is an efficient way to improve achievement in math and verbal literacy. This is particularly the case when the additional hours are primarily directed toward pupils from weak socioeconomic backgrounds and poorly performing pupils (Kidroon and Lindsay, 2014), and is even more efficient in schools where there is some degree of managerial independence (Lavy, 2012). Bahar (2020a) found that increasing the amount of resources allocated to low-achievement youth in high school managed to significantly reduce their drop-out rate and raise their matriculation scores, and that the economic benefit from their success is greater than the cost. There is indeed a degree of affirmative action in the education system, but it is not sufficient in order to narrow the input gaps. Another factor that affects gaps in achievement according to socioeconomic background is the variation in teacher quality across schools. The work of teachers in schools with pupils from weak socioeconomic backgrounds is apparently more demanding, a fact that on its own is likely to reduce the supply of teachers to these schools. On the other hand, the motivation of teachers in Israel to make a contribution to society, particularly to improving the socioeconomic status of

[18] Of the 37 current OECD countries (not including Costa Rica) that participated in the 2018 test in math, Israel was ranked 32nd (p. 98), and of the 36 current OECD countries (not including Spain and Costa Rica) that participated in the reading comprehension exam Israel was ranked 29th (p. 66) (RAMA, 2019).
[19] Economic, Social and Cultural Status (ESCS) which is calculated for the PISA exam.

pupils from weak socioeconomic backgrounds, is high relative to teachers in other OECD countries.[20] This motivation can be harnessed in order to narrow existing gaps in teacher quality between schools with different socioeconomic backgrounds.

The importance of integrating technology in teaching, and the influence of technological progress on potential and desirable teaching methods and on the roles of the education system, were recognized long before the outbreak of the COVID-19 crisis. Following the onset of the pandemic, this process was accelerated. Prior to the crisis, 40 percent of school principals in Israel reported a serious lack of digital technology in teaching, as opposed to an average of 25 percent in the OECD (according to data from the TALIS survey (RAMA, 2019)). During the past year, there has been progress in Israel (and worldwide) in this area, and additional abilities and skills have been developed among teaching staffs and apparently also among pupils. The lessons learned during the past year indicate that technological progress does not eliminate the need for high-quality teaching capabilities—and on the contrary reinforces it—and the role of schools in the acquisition of social and emotional skills has become even more evident. These skills will optimally be taught by teachers who already possess them themselves, and who will make proper use of technology. This will not only improve teaching methods but will also result in an improved allocation of teaching resources. For example, this can be accomplished by assimilating remote learning technologies in order to fill the gap created by the shortage of highly skilled teachers in certain regions, among other things. The labor market already includes elements of AI and labor-replacing automation, and against this background there is a clear need among pupils and adults to maintain independent learning skills, critical thinking abilities, and creativity over the course of their lives. These need to be nurtured from the earliest stages of life, in an environment of effective teaching that combines traditional and advanced methods.

Figure 10: Ratio of Teachers' Wages at the Top of the Scale and Beginner Teachers in Primary Schools, 2019



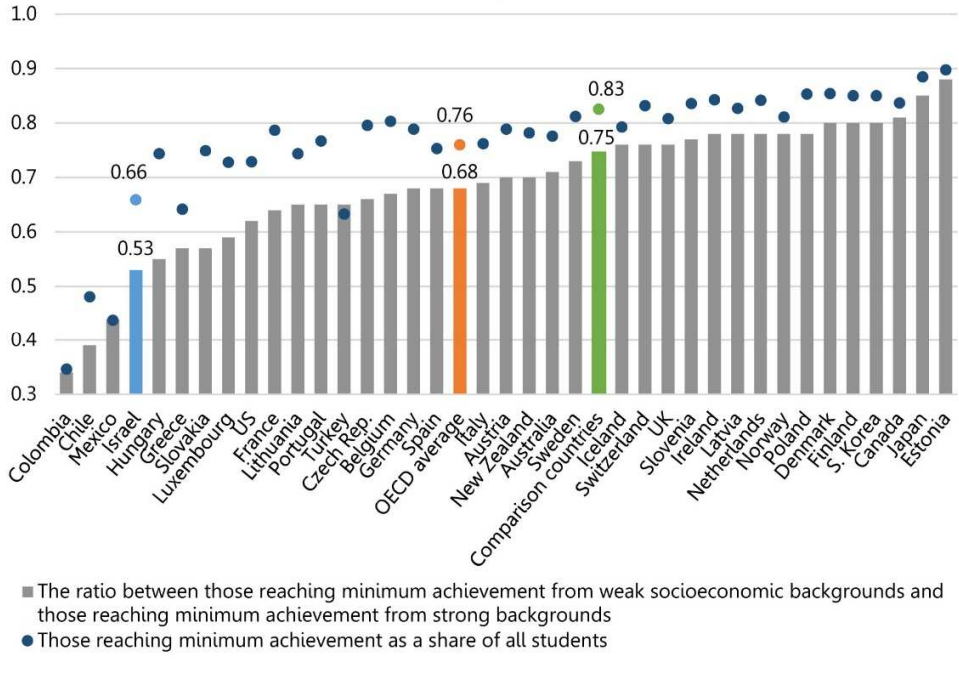
The comparison countries are small and advanced economies: Austria, Denmark, Netherlands, Sweden, and Finland (excluding Belgium).

SOURCE: Based on OECD.

[20] About 91 percent of teachers in Israel reported in the TALIS survey that the possibility of "advancing pupils from weak social strata" constituted an important factor in their choice of profession, in contrast to an average of 75 percent in the OECD.

Figure 11: Rate of Those Reaching Minimum Achievement[a] in the PISA Test in Mathematics, 2018

As a share of all students, and the ratio of those from weak socioeconomic backgrounds to those from strong backgrounds (parity index)[b]



[a] Level 2 or higher (PISA score above 420).
[b] A Parity index value lower than 1 indicates a gap in favor of students from a strong socioeconomic background. Such students belong to the upper quartile of the distribution of PISA rankings of economic, social, and cultural status in the country (ESCS), while those from a weak background belong to the lower quartile.

SOURCE: Based on OECD.

Another characteristic of the education system in Israel that can be targeted in order to bring about an increase in labor productivity is the gap in vacation days between pupils and their parents. The schools in Israel have a six-day week, as opposed to a five-day workweek in most workplaces in the economy and in education systems abroad. This is in addition to numerous vacation days scattered throughout the year. This means that pupils enjoy a large number of vacation days than other countries, and that many of these days overlap with their parents' workdays. The lack of synchronization in vacation days disrupts the work routine of working parents, which has a negative effect on labor productivity in the economy (Margoninski and Segal, 2019). Some parents have no choice but to stay at home with their children on those days rather than going to work, or are forced to take their children to work with them. This occurs when other babysitting arrangements are unavailable or overly expensive (Braude and Margoninski, 2021). This is particularly the case in Israel where parents' employment rates are relatively high, as are fertility rates relative to other countries. In short, vacations days in the education system constitute a burden on parents in Israel over a period of many years, particularly in the non-*Haredi* Jewish sector.

Beginning in 2014, the government has operated the "Summer Vacation Schools" program, and since 2018 it has also operated the "Jewish Holiday Schools" program. Together these have reduced the gap in vacation days among children aged 3–12 by about one-sixth. However, the

remaining lack of synchronization is still significant relative to other countries. It is possible to further reduce the gap in vacation days in Israel by about 60 percent by synchronizing between the workweek and the school week, which will include cancelation of studies on Fridays and a shift to a five-day school week in the education system, and the transfer of the cancelled Friday teaching hours to some of the vacation days, without any harm to the teachers' working conditions (Margoninski and Segal, 2019).

The recommendations presented below relate to the administrative and organizational side of the education system. At the same time, it is important to advance a process that will adapt educational content to a changing environment and particularly the development of skills rather than learning by rote, as recommended in the OECD surveys of Israel. Since this issue is not within our scope, specific recommendations of this type are not presented.

Recommendations regarding teacher quality, teachers' working conditions, and instruction and management in the overall education system

1. To complete the process of transferring the budgeting for teacher colleges to the Planning and Budgeting Committee, in accordance with the plan agreed upon between the Ministry of Education and the Council for Higher Education / Planning and Budgeting Committee in 2015. The process is expected to reduce the number of teacher training colleges and to create economies of scale, since it includes the merger of teacher training colleges with other academic institutions and will give the teacher training colleges equal status with other academic institutions while also increasing their academic and administrative freedom. The process is also expected to support the broad and uniform planning of higher education by the Planning and Budgeting Committee.
2. To improve the compensation of teachers who are just starting out in future wage agreements, which will be financed by reducing the compensation according to seniority that is not performance-based.
3. To construct a system of teacher evaluation based on both a teacher's success in improving the grades of his pupils and achieving other pedagogical targets, with the goal of enabling the principals of schools with a weak socioeconomic status to evaluate the teachers who are candidates to be hired in their school.
4. To improve the compensation of teachers with appropriate training in subjects where there is a shortage of teachers (such as Math, English, and Science).
5. To create incentives to increase the quality of teaching in weak schools by, among other things, attracting highly skilled teachers and principals to them and through investment that is focused on their training, while conducting an evaluation of the program:
    a. Granting greater managerial autonomy to school principals in the adoption of unique pedagogical tools.
    b. To provide those same teachers and principals with a continuing hiring and compensation grant[21], with the goal of keeping them in the school, subject to an evaluation of this tool's effectiveness.

[21] Such a grant for new teachers constitutes an increase in starting salary, which was found by the McKinsey Report (2007) and in research by the US Department of Education to be important in attracting highly skilled teachers. The Ministry of Education's "Educational Pioneer" program, which is operated jointly with the

c. To consider the expanded use of personal contracts to achieve this goal.[22]

6. To improve the physical conditions of the teaching environment.
7. To leverage inherent abilities by technological means in order to improve the quality of teaching: to upgrade the digital technology available for teaching and to increase the use of these means for more effective learning. This will also include the development of appropriate curricula that will support the development of independent learning, creativity, and problem solving abilities.
8. The use of technological means in teaching in order to narrow existing gaps in teaching resources and in their availability across population groups and regions. For example, teachers who make use of digital technology to teach in remote areas as a complement to the efforts of a teacher who is frontally teaching the pupils there.
9. To define tools for evaluating management and performance, which will be based on the success of management in the schools according to the trend in pupil achievement in each school over time (with less emphasis on the absolute level of achievement). This should take into account the mix of pupils from various socioeconomic backgrounds, pupils with special needs, immigrants, and minorities, with the goal of preventing biased results. Such a system can also serve as a basis for compensating teachers according to their school's success.
10. To increase the importance of affirmative action in the budgeting of schools, according to the socioeconomic background of their pupils (adoption of a differential basket of services).
11. To formulate a plan for structural change in the education system in order to achieve expanded managerial flexibility and independence, with the goal of allowing principals to make budget decisions and to decide on the school's learning style. Greater managerial independence should be granted to schools with greater than expected achievements based on the pupils' socioeconomic background. In contrast, a managerial change should be made in schools whose achievements are lower than expected. The implementation of this recommendation requires a genuine change in work methods and supervision by the Ministry of Education's departments and districts.
12. To increase managerial flexibility in order to enable principals to make budget decisions and to decide on teaching methods that will better meet the various needs of their pupils.

Institute for Democratic Education and other foundations, is an example of an existing program that operates along these lines.

[22] The research that is most relevant to this proposal was carried out in the US (USDoE, 2013). It examined a policy in which highly skilled teachers in seven American states were given incentives to teach in schools populated by pupils from a weak socioeconomic background. This involved a grant equal to about 20 percent of the annual salary of teachers who were identified according to an "added value" criterion as highly skilled, i.e. those that had made a major contribution to raising their pupils' grades. About 22 percent of the teachers who were identified agreed in principle to the proposal and from that group teachers were chosen who would work for a period of two years in schools with a weak socioeconomic status. In each of the years, the program contributed 4–10 points on a scale of 0–100 among participating pupils. The effect was greatest in the elementary schools while the effect in middle schools was not statistically significant. The researchers' calculations showed that in order to arrive at similar achievements by reducing class size, it would be necessary to spend an additional $13,000 more than the cost of the teacher transfer program, or in other words about NIS 30,000 in terms of teaching expenditure in Israel.

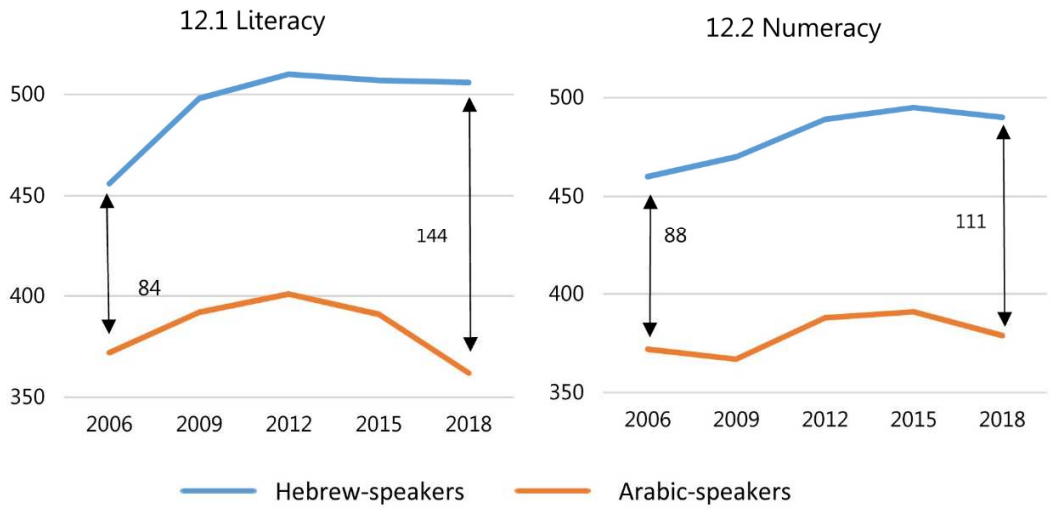
13. To synchronize the vacations days of parents and pupils in Israel as follows: 1) cancelation of studies on Fridays and a shift to a five-day school week; and 2) compensating for the cancelled Friday teaching hours by adding school days on Sundays through Thursdays, in place of vacation days currently in place.

Advancement of Education in Arab Society

Background to the recommendations

The achievements of pupils in the Arab sector are low relative to the Jewish sector. This is the case at all educational levels, with gaps already appearing in elementary school and widening from one level to the next.

Figure 12: PISA Achievements by 15-Year-Old Students at Hebrew- and Arab-Speaking Schools in Israel (and the difference between them)



SOURCE: RAMA (National Authority for Measurement and Evaluation in Education) (2019), "PISA 2018: Literacy Among 15-Year-Old Students in Reading, Mathematics, and Sciences", data that appear in Tables 9 and 14.

Figure 12 presents the large achievement gaps in literacy and math according to the PISA exam scores among 15-year-old pupils in the official Hebrew-speaking and Arab-speaking school systems, gaps that widen over time.[23] The achievement gaps between pupils during the childhood years are also reflected in measurable skills gaps during adulthood, as can be seen in international surveys and in the attainment of higher education. Thus, the proportion of Arab students among Bachelor's degree students was about 18 percent in the 2018–19 academic year, which is similar to their proportion in the population. (Their proportion among students graduating with a Bachelor's degree was lower—13.5 percent.) However, their proportion of Master's and PhD students (15 percent and 7 percent, respectively) was lower than their proportion of the population.[24] Differences in hourly wages between the non-*Haredi* Jewish population and the Arab population are largely explained by the differences in the quality of skills and in the

[23] Achievement disparities between Jewish and Arab pupils can be seen in the international test scores (PISA, PIRLS and TIMSS), as well as in the Meitzav and matriculation exams. Nonetheless, the local exams show a trend of improvement and some narrowing in the gap (Blass, 2020c).

[24] Higher Education in Israel, Selected Data for the 2018–19 School Year on the occasion of the Opening of the Academic Year.

attainment of higher education between these population groups (Productivity Report, Appendix A2), such that the quality of education makes a decisive contribution to labor productivity.

The proportion of pupils in Arab society who live in cities and towns with a low socioeconomic ranking is much higher than in Hebrew education. These cities and towns suffer from a lack of resources, and many of the pupils in Arab education attend schools with a high Nurture Index (a high proportion of their pupils are from weak socioeconomic backgrounds).[25] In order to compensate for gaps in the pupils' background conditions, a large investment of high-quality inputs is necessary. There is also the question of whether there is a benefit in transferring resources before improvements are made in the school systems in Arab cities and town. Nonetheless, it has been found that achievement gaps are smaller when comparing pupils with the same socioeconomic background (RAMA, 2019), and when controlling for the school's Nurture Index decile there is even an advantage in favor of Arab pupils in the elementary school system (Bank of Israel, 2020a). This is an indication that the difference in socioeconomic status is the main reason for the achievement gap between pupils in the Hebrew-speaking system and those in the Arab-speaking system, rather than differences in efficiency between the two school systems.

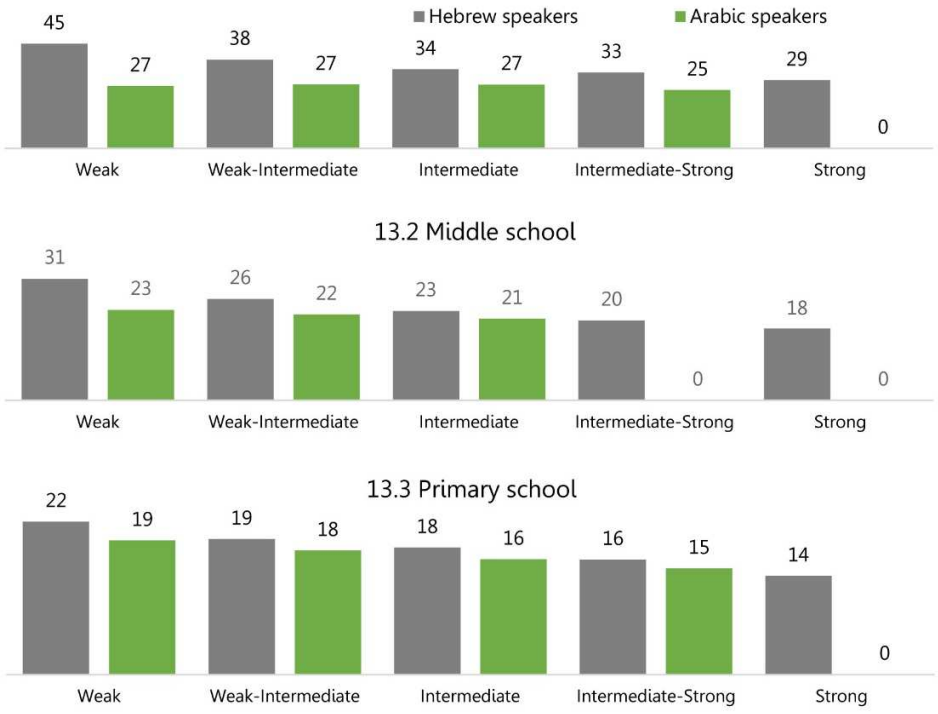
Affirmative action in the Ministry of Education's allocation of inputs to schools in the Arab sector eliminates some of the gap. Nonetheless, the average expenditure per pupil in the Hebrew-speaking sector is much higher than in the Arab-speaking sector, and this is the case at every level of the Nurture Index (Ayalon et al., 2019; Figure 13). Additional gaps in inputs between the Jewish and Arab school systems are apparently due to a lack of independent sources of revenue, such as the inputs by municipalities, fees charged to parents, and the activity of nonprofit organizations. In all of these cases, there is evidence of an advantage in Hebrew education, including the fact that Jewish municipalities have instituted major affirmative action policies in favor of schools whose pupils are from weak socioeconomic backgrounds (Blass et al., 2019).

Pupils in Arab society need extra teaching hours in order to learn Hebrew, an essential skill in order to properly integrate into Israeli society and into the labor market, in view of its high contribution to labor productivity (Lifschitz and Tehawkho 2018). Tehawkho et al. (2020) found that barriers to learning Hebrew in the Arab school system are the result of, among other things, the low level of instruction, outdated teaching methods, inefficient programs for strengthening the teaching of Hebrew, and a low level of motivation among pupils to learn the language, which is partly due to the separation between Jewish and Arab society. Given the limited resources of the system and the need to strengthen the teaching of Hebrew in parallel to other subjects, it is important to devote sufficient resources to the Arab school system for this purpose.

[25] In 2018–19, 16 percent of the pupils in the Jewish sector attended elementary schools that belong to a weak or weak-to-intermediate Nurture Index quintile, while 87 percent of pupils in Arab education attended elementary schools belonging to those quintiles (Ministry of Education, Economics and Budget Authority, 2020, Main Findings of the System for Education Budget Transparency—2018–19).

Figure 13: Average Expenditure per Student, by Schooling Level, Sector, and Cultivation Index Quintile, 2018–19

NIS thousand



SOURCE: Ministry of Education, Economy and Budget Administration, "Main Findings of the System to Reflect Education Budgets", 2018-19. The data are available through the "Transparency in Education System" at https://edu.gov.il/sites/MinhalCalcala/Transparency%20in%20education/Pages/Transparency-system.aspx

The Arab school system operates in a society that is remote—both culturally and geographically—from the Hebrew school system, and the division is not just physical. It is also reflected in the pedagogical program and teaching methods (Tehawkho et al., 2020). The hybrid system of learning adopted during the COVID-19 pandemic is expected to widen the achievement gaps between Hebrew speakers and Arabic speakers due to the disparity in access to the infrastructure needed for remote learning (Bahar, 2020b). Therefore, efforts in the immediate term to reduce gaps—both in knowledge and skills and in infrastructure—are highly important. In the next stage, the widespread adoption of remote learning technologies during and following the COVID-19 pandemic can provide an opportunity to blend the relative advantages of the school systems. For example, it is possible to use teachers from the Hebrew school system to teach Hebrew in Arab schools, if that is found to be feasible, or they can even be used to raise the quality of teaching in that system.

Recommendations for education in Arab society

1. In view of the low average government expenditure per pupil in the Arab-speaking sector, at all Nurture Index levels, and the educational outcomes described above, affirmative action with respect to teaching hours should be expanded, in accordance with the

principle of differential budgeting at all levels of the education system on the basis of pupils' socioeconomic background, with the goal of reducing budgeting disparities.

2. To advance a program to improve the education departments in the Arab municipalities, including the integration of budgeting processes that are based on improvements in the results of the local school system.
3. To devote a significant portion of the additional hours in the Arab sector to improving and advancing the teaching of Hebrew, which is a tool for future integration in society and in the labor market.
4. To formulate tools to attract high-quality teachers and principals to Arab schools, particularly in order to improve the use of allocated resources in the core subjects (math, reading comprehension, and English) and in order to support the integration of Arab pupils in the computer specializations, in which there is significant underrepresentation.
5. To remove barriers to building new schools in Arab cities and towns.

Advancement of Education in the *Haredi* Sector as a Way of Increasing Earning Capacity

Background to the recommendations[26]

According to the demographic forecasts by the Central Bureau of Statistics, the *Haredi* proportion of the prime working-age population (aged 25–64) will increase from 7 to 14 percent in 2040 and to 26 percent in 2065 (see Figure 6 in this document).[27] The Labor Force Survey carried out by the CBS indicates that at the end of 2019, only 52 percent of *Haredi* working–age men were employed, as opposed to about 88 percent of non-*Haredi* Jewish men (the employment rates of *Haredi* women in this age group were slightly less than among non-*Haredi* Jewish women). Moreover, the labor productivity of both *Haredi* men and *Haredi* women, as reflected in their earnings, is much lower than that of non-*Haredi* Jews (see the Introduction to this document and Appendix A1 of the Productivity Report, 2019). Relevant education is a fundamental factor in improving human capital and labor productivity. Since pupils in the education system today are the workers of the future—to which the demographic forecasts relate[28]—this section of the document will present selected characteristics of the *Haredi* school system and their influence on the labor productivity of its graduates.

The *Haredi* school system operates separately from the general State education system, and is largely characterized by gender separation and a unique division according to age (Bart, Spiegel and Malakh, 2020). Therefore, the discussion below will first relate to men and then to women, and if a section applies to both genders, that will be explicitly stated. In 2020, about 19 percent of pupils in Israel—both girls and boys—attended schools within the *Haredi* system, totaling slightly more than 340 thousand pupils.[29] The budget per pupil in *Haredi* education ranges from 55 to 100 percent of the budget per pupil in State education (Blass et al., 2010; Bart et al., 2020). *Haredi* schools receive partial budgeting if their curriculum only partially complies with the core curriculum[30] that is dictated by the Ministry of Education.[31]

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[26] There is a separation between men and women in the *Haredi* system and the analysis will therefore differentiate between them.

[27] The proportion of the Arab population is expected to increase somewhat.

[28] The demographic forecasts predict that by 2040, one-third of the children in Israel (aged 0–18) will belong to the *Haredi* population (as opposed to one-fifth today) and in 2065 the proportion will be one-half. However, the fertility trends are influenced by the acquisition of human capital and the employment of women, as well as that of men. Therefore, the relevant demographic forecast for purposes of the current discussion is that which relates to members of the prime working age group, many of whom have already been born.

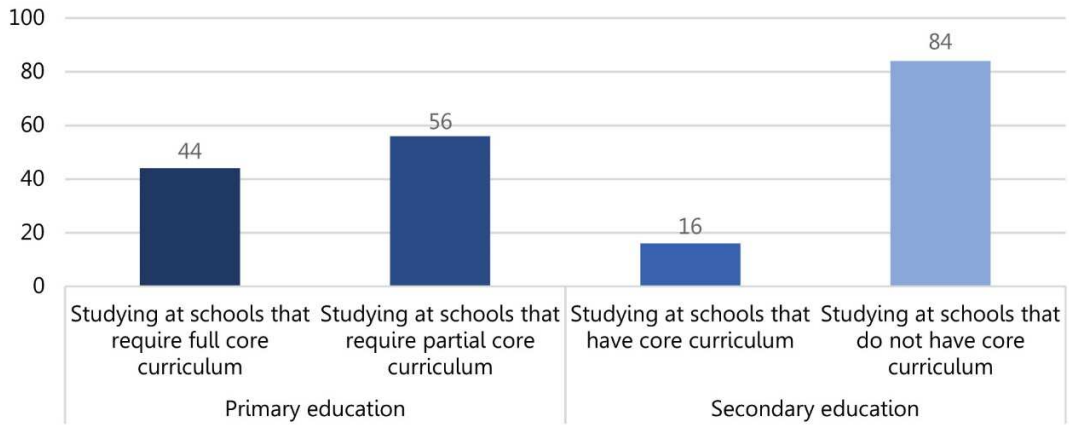
[29] CBS (2020), "Forecast of pupils in the education system for the period 2021–2030", Figure 8.

[30] The subjects taught in the core curriculum and their scope are compulsory for the entire education system (Ministry of Education and Culture, 2005). The curriculum includes 4 clusters: heritage, liberal arts and society; languages (Hebrew in Hebrew education and English); math and science; and physical education. There is a separate curriculum for *Haredi* education (Ministry of Education, 2011).

[31] Some of the recognized unofficial schools, such as those in the Independent system and the *Ma'ayan HaChinuch HaTorani* system, are committed to a full core curriculum and are therefore fully budgeted. Other recognized unofficial schools, which are supervised by the Ministry of Education, are financed at a level of 75 percent, enjoy partial autonomy in choosing their curriculum, and are obligated to teach 75 percent of the curriculum. Exempt *Haredi* schools that are financed at a rate of 55 percent are obligated to teach 55 percent of the core curriculum.

With respect to *Haredi* men, the core subjects are taught only partially in elementary schools, and many of them do not learn core subjects at all in post-elementary schools (State Comptroller, 2020). Thus, in the 2018–19 school year, only about 44 percent of boys in *Haredi* elementary schools attended schools in which there was a full commitment to the core subjects, and that figure was only about 16 percent in post-elementary schools (Figure 14). A number of other phenomena, such as the widespread use of outdated textbooks that were not approved by the Ministry of Education (State Comptroller, 2020)[32]; the undertraining of many of the teachers, particularly in schools for *Haredi* boys (Bart, 2020); teaching methods that are sometimes outdated[33]; and the highly limited adoption of advanced programs, such as the encouragement of excellence (Cohen and Bart, 2018), limit the system's ability to provide knowledge and skills that are comparable to those provided in the State education system. This reduces the chances of graduates obtaining nonreligious post-secondary education and/or successfully integrating within the labor market, particularly in industries with high labor productivity.

Figure 14: Rate of Boys in Haredi Primary and Secondary Education, 2018–19
By volume of core curriculum, percent



SOURCE: Based on the data appearing in State Comptroller (2020), "Ministry of Education, Haredi Education, and Supervision of It", Annual Report 70b, Figure 5.

[32] Bart et al. (2020) report some positive development in the level of textbooks in *Haredi* education for boys in recent years. This is the result of the "Salsala" program for borrowing textbooks, which conditions participation on approval of the textbooks by the Ministry of Education.

[33] Ezra (1995) found that teaching in the *Haredi* boys schools is based on rote and memorization, and that there is almost no attention paid to the material taught. Cohen (2005) points out that many of the graduates of the *Haredi* system lack fundamental skills in writing, speaking, submitting assignments, and writing exams.

Research carried out by the Bank of Israel and based on data for pupils in the *Ma'ayan HaChinuch HaTorani* network in cities in the periphery during the 1990s found that attending a school in this network constituted a disadvantage for boys, as measured by attainment of higher education, employment and earnings, relative to boys with similar observable characteristics who graduated from other streams in the Hebrew education system. Women graduates from the network in fact have a relative advantage in terms of their educational achievements and hourly wage (Zussman and Lipiner, 2021).

During the 2013–14 school year, a reform was initiated that was meant to transfer the *Haredi* schools into a new education stream called the State *Haredi* system, which would bring them closer to the pedagogical targets used in the education system as a whole.[34] The schools belonging to this stream receive a full budget, like schools belonging to the official system, and they are under the full supervision of the *Haredi* districts created within the Ministry of Education. The teachers in the State *Haredi* system are employed by the Ministry of Education, and the schools teach a full core curriculum. However, schools have been joining this new stream at only a slow pace, partly due to barriers to the expansion of the reform's scope (Weisblai, 2020).[35] In the 2020-21 school year, there were only 60 schools with about 8,600 pupils[36] in the system, accounting for a little more than 3 percent of total *Haredi* pupils in elementary education.

The limited teaching of the core subjects in *Haredi* education and the low level of skills acquired there in the early stages of education are also manifested later in life. Thus, a negligible proportion of *Haredi* pupils write the matriculation exams or seek higher education. Many study in a *Yeshiva/Kollel* but this contributes little to the skills that are required in the labor market. Thus, despite the many years that young *Haredi* men spend learning, their earnings are equivalent, on average, to those of a non-*Haredi* Jewish man with only 10 years of schooling (Productivity Report, Appendix A1). At least half of this gap is due to their lower skill levels, as measured on international exams such as PIAAC. The differences in skill levels between the *Haredi* and non-*Haredi* Jews is even greater among the younger ages (Figure 15), a finding that is consistent with the decline in core studies among *Haredi* pupils that has apparently taken place over time. Thus, among men under 40 there is a statistically significant gap in math skills, as measured on the PIAAC test, in favor of non-*Haredi* Jewish men. The gap is more than two standard deviations, while research in the field generally considers each standard deviation to be equivalent to about 3 years of schooling (Bank of Israel, 2019b). Among men over 40, the gap in skills is not statistically significant.

The State allocates significant resources specifically to increasing the proportion of graduates from *Haredi* schools that enter higher education and assisting them in acquiring the knowledge

[34] This new education stream was based on Government Decision 151 in 2013 concerning the strengthening of basic education and the official State education system. At the same time, a *Haredi* district was created in the Ministry of Education in order to restructure *Haredi* education, increase the number of inspectors relative to the situation when the sector was supervised by the recognized unofficial system, and adopt work methods that are suited to the *Haredi* sector (State Comptroller, 2020).

[35] These are due to opposition to this stream among elements in the *Haredi* community and from the municipalities (because State *Haredi* schools are meant to receive support from them, like other State schools), as well as the difficulty encountered by the schools in meeting the criteria that were established by the Ministry of Education for joining the stream (Weisblai, 2020).

[36] Ministry of Education figures are published in the *Mabat Rachav* system.

they need to do so. As part of the agreements signed between the Planning and Budgeting Committee of the Council for Higher Education and the Ministry of Finance, about NIS 1.2 billion was allocated for the 2017–2022 period (cumulative) to encourage the entry of *Haredi* men and women into higher education, and a target of 19,000 students was set for 2022. The program finances separate *Haredi* institutions (which are under the responsibility of the university or college, as well as *Haredi* programs in non-*Haredi* institutions of higher education), designated pre-academic *Mechinot*, and scholarships.

Nonetheless, the upward trend in the proportion of *Haredi* men in academic institutions is slow. There is a high drop-out rate, and as a result few succeed in completing an academic degree (Regev, 2016; State Comptroller, 2019b). There are many reasons for the difficulty in completing an academic degree program: they do not study the core subjects when young; *Haredi* men are characterized by low skill levels in Hebrew, Math, and primarily English; the financing of tuition is difficult for *Haredi* students who usually have many siblings; and the need to earn a living does not allow them to devote sufficient time to acquiring an academic education, since they must quickly integrate into the labor market. Furthermore, they have to deal with social stigmatization due to their loss of status in the community as a *Kollel* student and their attainment of a secular education (Horowitz, 2018).

Moreover, many *Haredi* men study fields that have an excess supply of graduates in the labor market (such as business administration, law, and teaching) and few enter fields that are in high demand, such as high-tech. As a result, many of them are not employed in the fields they studied in university or college. Thus, despite the large investment of public resources to raise the proportion of *Haredim* with an academic degree, it remains negligible relative to the proportion among the non-*Haredi* Jewish population, and their chances of acquiring a job with high productivity and a high salary are therefore low.[37]

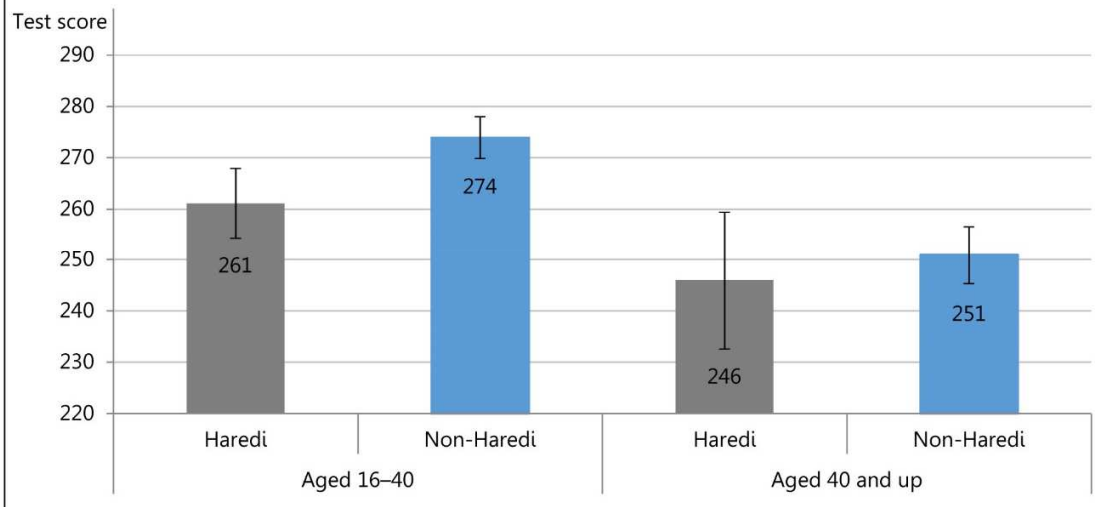
In the case of *Haredi* women, the vast majority study in schools that teach the core subjects, including English and Math, as well as other secular subjects such as science and art, which are modified to suit the *Haredi* community (Bart et al., 2020). However, there are apparently differences in the level of teaching and the quality of services provided to pupils in these schools relative to State schools, such as programs for gifted pupils (ibid.). A pilot program to encourage excellence in *Haredi* schools (the *Amirim* program) was successful in contributing to pupils' scholastic and emotional excellence. It even improved the quality of teaching in those schools as a result of the seminars and training provided to the teachers (Cohen and Bart, 2018), an apparent indication of the potential of this kind of program.

After completing elementary school (which goes up to Grade 8), most of the girls continue on to a six-year framework referred to as a "seminar", which includes four years of high school and two additional years of study (Grade 13 and 14). The number of seminars that enable writing the matriculation exams has grown but many of the girls write the exams given by the Szold Institute, the results of which are only partially recognized by the Ministry of Education (Bart et al., 2020), and in many cases they study Math and English at a relatively low level.

[37] In 2019, 8 percent of *Haredi* men and 28 percent of *Haredi* women aged 25–34 had a bachelor's degree or higher, in contrast to 34 percent and 53 percent respectively among non-*Haredi* Jews.

The post-secondary component of the seminars for *Haredi* girls plays an important role in vocational training. While for many years these schools offered only teacher training, over the years other tracks have been added, such as graphic design, secretarial training, and accounting. In the past, the teaching of these additional subjects was part of the teacher training, and only in recent years have the seminars opened technological tracks that are separate from teacher training. Although we are unaware of any in-depth research of this phenomenon, experience so far indicates that this is a trend worth encouraging, and it would be worthwhile to determine its effectiveness in achieving desirable outcomes. The number of *Haredi* women trained to become teachers is much higher than the quotas determined by the Ministry of Education as needed in the schools, particularly the *Haredi* schools. Many of them have been trained as teachers in Jewish subjects and general education, in which the quotas are particularly low (State Comptroller, 2019b). Moreover, the rate of return in terms of salary for *Haredi* women in alternative settings for teaching training, such as the Institute for Technological Education, and certainly in higher education, is likely to be higher.

Figure 15: Average Numeracy Test Scores, Haredi vs Non-Haredi Men
By age group, 2015



The horizontal lines show the upper and lower bounds of the confidence interval at a significance level of 5 percent.
SOURCE: Based on PIAAC survey

With respect to basic skills among *Haredi* women, the international survey indicates a relative weakness only in problem solving in a computerized environment, which is apparently due to their low day-to-day exposure to technology, including during their studies (Productivity Report, 2019).

Recommendations regarding the advancement of education in the *Haredi* sector as a tool for increasing earning capacity

The main barriers to expanding the teaching of subjects that are relevant in the labor market in the *Haredi* community are not technical or budgetary, but rather are the result of a worldview that opposes the teaching of these subjects. Therefore, the way to deal with the problem starts with an understanding of the adverse consequences of the problem, particularly in the long term, among those who have influence on what is taught in the *Haredi* education system. It appears that agreement that there is a need for change is an important starting condition for the adoption of solutions that will allow the young *Haredim* to integrate more optimally in the labor market.

1. To expand teaching in *Haredi* schools of core subjects and skills that are relevant in the labor market, including reading comprehension, math, problem solving in a computerized environment, computers, and English. This is based on the understanding that frameworks for filling in missing knowledge and skills in adulthood, such as the pre-academic *Mechinot*, are expensive and only partly successful, and limit the choices of *Haredi* young adults.
2. To modify the teaching methods and tasks in the schools in order to develop skills that are relevant in the working world, such as writing and taking exams.
3. In view of the significant barriers to obtaining a higher education as an adult without a proper background of studies in school, training frameworks should be developed that will provide solutions for *Haredi* men and women who are already at the relevant age and are interested in training provided by the government.

Teaching of Basic Skills in High School Vocational Training

Background to the recommendations

In many countries, vocational training in high schools and the accompanying work experience optimally prepare the participants for entering the labor market. The main argument in favor of vocational training and work experience in high school is that they serve as a gateway into the working world, particularly for pupils who are not performing well in more academic subjects and are on the verge of dropping out. However, the situation is different in Israel, where the period of army service delays entry into the labor market for many high school graduates.

The vast majority of vocational training frameworks in Israel are under the responsibility of the Ministry of Education, and only a minority are under the Ministry of Labor and Welfare. As a result of changes made over the years in the structure of studies in the Ministry of Education frameworks, it appears that those studies are directed more toward developing basic academic skills among the pupils, since the teaching takes place primarily in the classroom, and the matriculation certificate is perceived as an important goal. In contrast, vocational training frameworks under the responsibility of the Ministry of Labor feature learning in relatively small classes and the use of equipment and materials, all of which is very costly and tends to tip the scales against the adoption of these frameworks based on a cost-benefit analysis. Since their inception, the Ministry of Labor frameworks have focused on the occupational element, and the training they provide includes actual work experience in factories, with the goal being a vocational certificate that is equal in value to that received by adult graduates of vocational training. However, there are no indications that these frameworks contribute to the labor productivity or earning capability of their graduates.

De Malach and Zussman (2017) looked at the effect of vocational education in high schools (under the responsibility of the Ministry of Education) on outcome variables in the short and long terms among pupils from the Arab sector in Israel during the 1990s. Their research found a causal relationship between vocational studies and a reduction in the high school drop-out rate among boys, which was even greater than among girls. However, according to some of the results, vocational studies impaired boys' eligibility for matriculation relative to similar pupils in academic schools (after controlling for the pupils' basic characteristics). They did not find that vocational training had any effect on employment, wages, or the prospects of attaining a higher education.

The findings that a vocational education has no effect on earnings indicate that studying in this kind of framework (as opposed to a technological-academic education) does not contribute to labor productivity, certainly under its current structure. A major reason for reducing its scope in its current format is its high cost relative to its doubtful benefits. Another problem is the extent of the education system's ability to predict economic trends and to adopt the most appropriate training programs in the technological school system, in addition to keeping up with changes in those trends over time. This is particularly true in view of the delay between studying in high school and entering the working world for individuals who serve in the army.

It appears that the Ministry of Education's vocational training system has the potential to offer high-quality and up-to-date education that will provide basic skills, such as theoretical skills and "soft" abilities (such as teamwork, communication skills, discipline, work ethic, problem solving, initiative, dealing with information sources, etc.). These facilitate flexibility in employment,

learning, and occupational changes over the course of an individual's working life (Hanushek et al., 2017). Vocational training for individuals of high school age should be concentrated in vocational schools as an alternative for individuals who have dropped out of other frameworks, while at the same time ensuring that general skills are also taught in those frameworks.

Recommendations for nurturing basic skills in high school vocational training

1. To strengthen vocational training, while at the same time concentrating it in post-secondary frameworks.
2. To preserve the possibility of studying in vocational-technological specializations as a gateway to the working world and in order to benefit individuals with a tendency in that direction. This should be accomplished by means of a system under the responsibility of the Ministry of Education, which will provide its pupils with basic academic skills as well. The Ministry of Education system should avoid investing in specific training and certification examinations whose future benefit to the pupil is uncertain at this early stage in his life, apart from extreme cases of pupils with a low ability to integrate within the academic school system.
3. To nurture highly skilled teachers who will be absorbed into alternative vocational education study tracks that consist of pupils from weak backgrounds, and who will cultivate the acquisition of basic skills in these frameworks as well. There are a number of programs in the high school system that operate in this manner, some of which are financed and led by nongovernment entities. However, these schools serve a negligible number of pupils.
4. To implement an accreditation mechanism between vocational studies and regular studies. This will involve, among other things, the recognition of technological courses towards acceptance into the Institute of Technological Training programs, subject to certain conditions. This will lower the barriers to transferring between the different types of education.
5. To provide vocational guidance in high school, which will help pupils understand the connection between their professional goals for the future and the achievements required of them in high school. This is particularly important for pupils from weak socioeconomic backgrounds or those who are first generation students in formal education.

Improving the Training Programs in Post-Secondary Programs[38]

Background to the recommendations

Vocational training may be able to bridge over the lack of compatibility between the skills of individuals and the demands of the labor market, and thus contribute to productivity in the economy (OECD, 2015). This is particularly true in an era in which the labor market is in constant flux, and in which a longer working life requires retraining and updating of a worker's skills and knowledge in order to hold on to a high-quality job with high labor productivity. Government intervention is called for in this domain due to market failures that are similar to those in the attainment of higher education. Research shows that the return on a year of high-quality post-secondary vocational (nonacademic) training is similar to that on a year of academic education (see, for example, CEDEFOP, 2011). In Israel specifically it has been found that graduates of the technological colleges attain a salary similar to some graduates with academic degrees (even after controlling for the characteristics of graduates prior to their studies; Ministry of Finance, 2018). However, as a result of liquidity constraints, some individuals will find it difficult to finance this training, despite its advantages, while at the same time employers are unlikely to be willing to finance training on their own, since the worker's employment horizon in the firm may not be guaranteed. An effective vocational training apparatus will help raise the level of human capital and labor productivity. It can assist a wide variety of population groups in their integration within the labor market and, at a later stage, in holding on to their jobs. Examples would be younger individuals who are just starting out in their careers, particularly those without an academic education, the unemployed in various age groups, and older workers who need to update their skills in response to changes in the labor market, including technological and structural changes.

Despite the apparent advantage of a formalized framework for vocational training, there is no clear methodology for opening budgeted courses in Israel. On the other hand, there is a large variety of courses and institutions whose necessity is unclear that are indeed supervised by the government, and it is unclear how relevant these training courses (outside the technological colleges) are to the labor market or what their benefit is for graduates. The need for individuals to continually update their skills in order to stay relevant grew more acute during the COVID-19 crisis, in view of the fact that as part of the exit from the pandemic there is a need to provide vocational training to workers who will be forced to change jobs as a result of the structural changes in the economy and in business activity, as a way of avoiding chronic unemployment.

Even before the COVID-19 crisis, there was a need to upgrade the vocational training network in Israel in order to raise labor productivity and increase the rate of employment among target populations. This was partly due to the slow-moving and fragmented nature of the system; an insufficient budget; the lack of an accreditation mechanism and the limited possibility of transferring between courses; and the low level of involvement by employers and other social partners in the training process relative to other countries. The COVID-19 crisis highlighted the need—in both Israel and other countries—to expand the vocational training options for adults, with the goal that they will be able to return to employment that is characterized by high demand and high productivity. Two surveys that were carried out during the crisis period by the Directors

[38] This document does not relate to academic higher education or its contribution to the skills of its graduates and to economic growth.

General Team to Encourage Employment (State of Israel, 2020; and Israel Democracy Institute, 2020)[39] found that there was a willingness to undergo vocational training in order to integrate within high-quality jobs, particularly among individuals without any formal education. It was also found that government support, such as the funding of the training course and subsistence payments during it, were important factors in encouraging participation in vocational training. Vocational training is particularly important among the 50+ age group, a population with a low tendency to switch jobs in any case, which experienced a large rise in unemployment during the crisis. This is in addition to the need to advance vocational training among this population that existed even before the crisis, due to the lengthening—both currently and in future—of an individual's working life (Friedman and Ramot, 2016).

The management of vocational training requires expertise and a high level of familiarity with the tools developed in other countries and the situation of the labor market in Israel. Therefore, there is an advantage in concentrating the authority in this area within one specialized body, which will include within it a number of frameworks to deal with the variety of training programs. Due to the government's current lack of knowledge with regard to the vocational training programs' graduates and effectiveness, it is important that the body's scope include the creation of a comprehensive database and that accompanying research be conducted to evaluate the outcomes of training courses that are funded by the government.

Based on Government Decision 3419 of 2018, a reform is being carried out that will give priority to the larger technological training institutions, which is expected to gradually raise the level of the colleges due to their economies of scale. The Committee for Advancing Employment by 2030 has also recommended a number of directions for raising the level and effectiveness of vocational training. Its recommendations relate, first and foremost, to establishing a measure of the quality of a training course based on its effect on the wages of its graduates and the need for the skills it teaches, and budgeting the courses accordingly. Furthermore, the Committee recommended an expansion of general studies in order to facilitate occupational change during an individual's working life, that employers be involved in order to keep the programs up to date, and that vocational training be viewed as a springboard to more advanced studies in the future. It is essential that efforts be invested in these directions.

Recommendations to increase the efficiency of vocational training in post-secondary frameworks

1. To significantly expand the vocational training and occupational guidance array in order to support the reintegration of those who became unemployed due to COVID-19 in the labor market. There is a need to develop training programs based on partnerships with employers to whatever extent possible. Based on the needs of the business sector, focus should be placed on programs specially designed for the unemployed, including: a) designated training courses for young adults and for those fit to integrate into high-productivity occupations; b) programs for older workers who are liable to experience

[39] The findings of the survey were published in July 2020: https://www.idi.org.il/blogs/special-economic-survey/july-2020/32317.

greater difficulty in reentering the labor market; and c) acquisition of basic skills for individuals who lack them.

2. To accelerate the reform that was started in the institutions for technological training, which is strengthening the larger and higher-quality institutions. The goal should be to also apply the reform in the Grade 13 and 14 training framework, which is under the supervision of the Ministry of Education, and to consolidate these frameworks with those under the supervision of the Ministry of Labor and Welfare in order to avoid duplication.

3. To merge the Vocational Training Division in the Ministry of Labor into the system of technological colleges in order to encourage and streamline the transition from basic training courses to more advanced studies in the technological colleges. This will reinforce the status of the vocational training system as the starting point for a career path without any glass ceiling related to training.

4. To implement the recommendations of the Employment 2030 Committee with respect to the vocational training systems, including the channeling of budgets and government resources to high-return training, the inclusion of general studies to increase human capital and soft skills within the training, as well as the updating of curricula according to the needs of the market and in consultation with employers.

The Second Pillar: Investment in Physical Capital, Technology, and Infrastructure

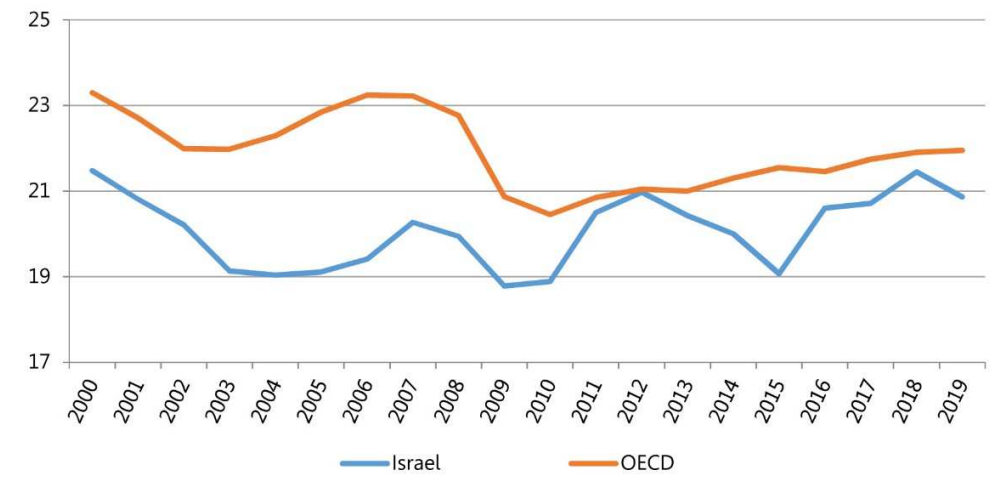
Capital is an important factor in the economy's production function, and as such it has a direct effect on labor productivity and GDP growth. Physical capital, which includes housing, transportation, and communications infrastructure, also has a direct effect on the day-to-day welfare of individuals. This infrastructure is the setting for social and economic activity, and it therefore contributes not only directly to GDP, but also indirectly by way of the opportunities available to the various populations in different regions to consume a variety of goods and services and by way of increasing potential interactions between employers and workers. In this section, we relate to recommendations in six dimensions that relate to the long-term development of physical capital in the economy, including the framework in which the government encourages investment in business capital; in the housing, transportation, and communications infrastructure that constitute the physical environment; and finally in the energy infrastructure and regulatory environment of a sustainable economy that operates according to the principles of environmental protection and energy security. The recommendations include a number of measures to accelerate investment that can quickly be implemented and can support a rapid recovery of the economy from the COVID-19 crisis, while at the same time producing long-term benefit.

Encouraging Investment and the Adoption of Technology in the Business Sector

Background to the recommendations

The stock of capital in the business sector includes machinery and equipment, vehicles, buildings, and intangibles. It was accumulated through the acquisition or construction of physical assets and by the acquisition or development of software and the creation of intellectual property, such as the registration of patents—in other words, through investment. During the 2000s, the rate of investment in Israel (as a percentage of GDP) was low relative to the OECD average (Figure 16). The gap has narrowed to a great extent since the onset of the Global Financial Crisis, but the primary cause is that the crisis was accompanied by a large drop in investment in the developed countries, rather than an increase in the rate of investment in Israel.

Figure 16: Gross Investment Relative to GDP, Israel and OECD
Percent



SOURCE: Based on OECD.

The Productivity Report (2019) found that the rate of investment in manufacturing in Israel is similar to, and sometimes even higher than, in other developed countries, while it is significantly lower in the nontradable industries (construction, trade and hospitality, business services, and personal and social services). At the same time, the report states that labor productivity and labor skills in Israel in the nontradable industries and in the manufacturing industries, which are characterized by low technological intensity, are lower than in other countries. The interim report of the Committee for the Economic Advancement of the Trade and Services Industries, which was submitted to the government in December 2020 (Ministry of Economy and Industry and the Aaron Institute, 2020), found that the gap in productivity between the trade and service industries relative to a group of reference countries is partly explained by the quality of human capital (about 29 percent of the productivity gap) and a low level of investment in the business sector (about 30 percent of the productivity gap). The latter is consistent with the low rates of investment relative to other developed countries in the trade and service industries, as well as in other nontradable industries such as construction, while in manufacturing, electricity and water, and transportation and storage, the rate of investment is relatively high (Table 2).

Table 2: Investment in physical capital as a share of industry value added, 2010–2018

	Industry symbol	Industry's weight in Israel's GDP (2018)	Israel	OECD average[1]	Reference countries[2]
Total		**100**	**22.6**	**23.8**	**24.4**
Agriculture	A	1.3	19.7	34.6	42
Manufacturing, mining and quarrying	B-C	13.2	29.1	24.4	22.9
Electricity and water	D-E	1.8	62.5	49.9	49
Construction	F	6.5	6.8	9.6	9.9
Trade, hospitality and food	G,I	11.5	9.3	10.7	10.9
of which: Trade and vehicle repairs	G	9.1	7.7	10.5	11.1
Hospitality and food services	I	2.4	16.2	11.7	10
Transportation and storage	H	3.5	53.8	32.9	29.9
Information and communications	J	9.2	17.6	26.5	25.7
Financial services	K	4.8	7.8	10.5	13.7
Business services	M-N	11.1	13.4	16.3	17.7
Personal and social services	O-U	21.8	13.3	19.6	17.4

[1] Member countries for which data are unavailable are not included, for the following reasons: Costa Rica, Colombia, Ireland, and Sweden are not included in the database, and there are no industry investment data for Canada, Spain, Switzerland, Turkey, and the US.

[2] Reference countries: Austria, Belgium, Denmark, Finland, and the Netherlands. The data for Sweden are not available, as noted above.

SOURCE: Based on OECD.

As the result of various market failures, firms are liable to invest too little in physical capital, technology, and innovation. These market failures may be related primarily to constraints on access to sources of financing, but also to limited knowledge of existing technologies. Governments can mitigate the effects of these market failures and can support the creation of an investment-friendly environment partly by improving government services to the business sector and eliminating excess regulation that hinders "doing business", as well as supporting the integration of technology and new working methods. In the longer term, the government also has a critical role to play in the nurturing of relevant human capital, particularly for purposes of development, adoption, and integration of productivity-improving innovation in all industries of the economy. There is a positive and statistically significant connection between physical and human capital at the industry level. To the extent that this connection is causal, increasing human capital is expected to contribute to an increase in physical capital, and therefore also in output per worker (Hazan and Tsur, 2019).

One of the ways in which the government of Israel is trying to support investment in the economy is through the Encouragement of Capital Investment Law, 5719–1959 (by means of the grants track, which is the responsibility of the Ministry of Economy, and the tax exemption track, which is the responsibility of the Tax Authority). This is one of the government's principal policy tools, which focuses primarily on the encouragement of innovation in the manufacturing and software service industries, particularly on companies and industries that export part of their output. Another important component of government assistance is the grants provided by the Innovation Authority (formerly the Chief Scientist), which are based on the Encouragement of Research, Development, and Technological Innovation in Industry Law, 5744—1984, and which are intended to assist entrepreneurs and firms by financing R&D projects and the development of innovative technologies.[40] The total value of grants awarded in 2019 was about NIS 2.7 billion, compared to

[40] The data were obtained from the Innovation Authority—Research and Economics Branch. Part of this amount is the payment of membership fees to the EU's research program from the Innovation Authority budget or the participation of other government ministries. This allows researchers from Israel to submit proposals for funding to the programs that are operated by the EU, and to obtain funding according to competitive criteria (the Horizon Europe program).

about NIS 1.9 billion in 2010. In addition, the Encouragement of Capital Investment Law is particularly beneficial to companies whose activity is located in development areas in the geographic periphery, as part of an effort to support economic activity there. This reflects a social preference that is outside the scope of the economic plan proposed here.

Various studies carried out by the Bank of Israel during the past decade, which were presented in detail in the Productivity Report (2019), indicate that because the law supports manufacturing industries, and particularly those that export, it is liable to result in a distorted allocation of factors of production within manufacturing itself (between exporting and nonexporting firms) and between manufacturing and other industries that are not eligible for benefits under the law. This may be the reason that the rate of investment in the latter is low relative to those same industries in other countries. Moreover, Navon and Frisch (2009) found that the law does not make a genuine contribution to increasing investment, and that it primarily subsidizes investment that would have been made in any case. In a more recent study, Tsur (2021) found that most of the existing correlation between being an exporting company and the salaries it pays does not represent a causal relationship (in other words, exporting per se does not lead to the payment of higher salaries).

An international comparison of the fiscal incentives provided by governments to encourage investment indicates that the most common incentives are intended to encourage investment in capital or R&D and are in part channeled to multinationals—usually those that make a unique contribution to investment in R&D—or are based on revenues from intellectual property created in the country. In the final reckoning, an analysis of the Encouragement of Capital Investment Law from the perspective of economic theory, empirical observation, and experience in other countries indicates that providing a fixed benefit to an exporting company, even one with high productivity, is not justified per se. The correct way to encourage innovative activity is to support companies that bring unique knowledge with them or have other positive characteristics that spill over to other companies, regardless of the industries in which they operate. To this end, it is important to develop evaluation tools that make it possible to identify such a contribution, such as the initiation of structural and technological change in specific industries or the creation of access to new markets. Such tools will select a smaller number of companies but from a wider variety of industries.

The need to tailor the structure of incentives to the business sector in Israel, and particularly to the multinational companies operating in Israel, is consistent with the global process of change in the structure and level of taxation of multinational companies. The design of a reform is currently being discussed, and according to what is emerging there will be changes made that in any case support a reduction in tax exemptions for foreign multinationals. Since Israel is not at the heart of the discussions, the modifications that are specific to Israel will become clear only when the details of the internal agreements and specific regulations in the leading countries are announced. Nonetheless, it is important that the government already prepare policy alternatives for the changes on the horizon in order to allow the Israeli economy to respond in a timely manner and to exploit opportunities that may develop. Among other things, there is a need to determine when it is desirable/necessary to replace the existing arrangements in Israel with other benefits or alternatives in order to improve the business environment in general.

The slow process to increase the efficiency of industries that sell to the domestic market is liable to have consequences for economic welfare, as well as the competitiveness of the exporting industries that use inputs from the domestic industries. Therefore, it is important that government policy also focus on bridging over the market failures and the unique characteristics of the local trade and service industries in order to encourage investment and the integration of productivity-boosting technologies in those industries.[41] For example, the COVID-19 crisis led to a significant increase in the public's willingness to engage in online commerce as a substitute for physical shopping, and there was a similar trend in the financial services. The ability of domestic businesses to compete with those abroad, and the maintenance of activity in Israel, call for adjustments through the adoption of technology.

Recommendations for the encouragement of investment and the adoption of technology in the business sector

1. To advance a program for immediate investment to support the recovery of growth following the COVID-19 crisis, based on the list of measures prepared by the National Economic Council, the Bank of Israel, and the Ministry of Finance. These measures will include, for example, investment in infrastructure and digitization of the healthcare system; the removal of barriers to development and investment in advanced communications infrastructure; and support for the development of digitization infrastructure in the public sector.

2. To develop an alternative and objective method for identifying areas of activity that generate positive economic externalities and to design effective assistance programs in those areas. Alternatively, it is possible to reduce corporate taxes on the basis of sources that will be freed up. Whatever the case, no measures should be adopted that increase total tax exemptions.

3. To prepare for the changes in the global taxation of multinational companies, and in particular, to modify programs in order to encourage investment in Israel according to the reforms being discussed.

4. To maintain the system of benefits for large high-tech companies, including benefits provided as part of the strategic track, which is already based on individual examinations of each company rather than across-the-board criteria. This is part of the adjustment to changes in the global tax system. At the same time, the economy should be made more attractive to these companies, based on the removal of bureaucratic barriers and investment in both physical infrastructure and human capital.

5. To gradually cancel the across-the-board preference in taxation and grants given to exporting companies and specific industries, while taking into account the government's existing commitments, with the goal of avoiding frequent shocks to the structure of incentives.

[41] See the Productivity Report (2019) and the report of the Committee for the Economic Advancement of the Trade and Service Industries (Ministry of Economy and Industry and the Aaron Institute, 2020).

6. To modify existing programs for the encouragement of innovation in the trade and service industries, and to modify their method of financing according to the constraints on the industry. The emphasis does not need to be on the development of innovative technologies, since some of the trade and service industries are far from the global technological frontier, but rather on the adoption of already existing technological processes.

7. To encourage public investment in national technological R&D infrastructure that is aimed at maintaining a high level of innovation.

8. To remove specific barriers to the integration of technology in the trade and service industries. This includes, for example, specific regulations that prevent the introduction of new technologies in businesses because they violate various regulations. In addition, knowledge relating to solutions and processes that can raise productivity should be made more accessible, and information on innovation in business firms should be made available. These recommendations are described in Ministry of Economy and Industry and the Aaron Institute (2020).

9. To modify the organizational structure of the Ministry of Economy and industry to fit that of the business sector, a significant part of which consists of service industries. This is in line with the recommendation made by the Committee for the Economic Advancement of the Trade and Service Industries (Ministry of Economy and Industry and the Aaron Institute, 2020).

Expanding the Supply of Housing

Background to the recommendations

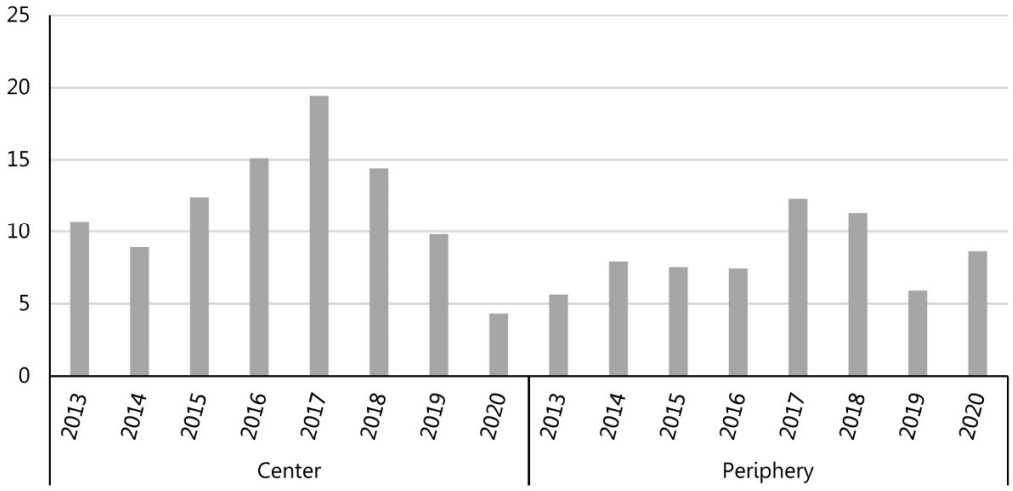
The need to expand the supply of housing in Israel is much more acute than in other developed countries due to Israel's rapid population growth. According to the strategic forecast prepared by the National Economic Council in 2017 and adopted in Government Decision 2457 (Raz-Dror and Koste, 2017), Israel will need an average of about 60,000 new apartments each year between 2020 and 2040 in order to keep up with the expected growth in the population. In recent years, the need for housing in the periphery has been met to a large extent (Bank of Israel, 2019b, Chapter 9), but the population density in the metropolitan areas, the lack of transportation infrastructure, and the complicated planning and building processes (some of which are due to these constraints) make it difficult to provide a broader response to residential demand in the Center. This is in spite of the fact that the Tel Aviv metropolitan area is much less crowded than similar cities abroad. Berlin, Madrid, Rome, St. Petersburg, and Barcelona are similar in size to Tel Aviv, but have population densities (residents per square kilometer) that are 1.5 to 2 times higher. An analysis carried out by the Bank of Israel for the period up to 2019 found that starting in 2012 the shortage in housing, alongside the increase in household income, were the main factors behind the rise in housing prices and rents, and that the accelerated rate of construction since the middle of the previous decade contributed to mitigating the shortage (Yakhin and Gamrasani, 2021).

The growth in housing demand and in prices since 2008 led to an acceleration in the marketing of land by the Israel Land Authority during the past decade and to exemptions in the planning processes, which were intended to increase the supply of available land for construction. At first, there was accelerated marketing of land for construction that was already in an advanced stage of planning. This was followed by the accelerated advancement of large-scale projects, by means of the National Planning and Building Committee for Priority Housing Areas (VATMAL). These processes primarily facilitated a rapid pace of construction in the periphery, where there are fewer crowding constraints and the development of accompanying infrastructure is less complex (although the demand for housing there is also lower). However, a significant proportion of the planning inventory approved by the National Committee included conditions for the establishment of infrastructure and changes on the ground (transportation, sewers, cleanup of polluted land, etc.), which in normal processes constitute a barrier to approval in the first place. In other words, in these instances the acceleration of approval was based on "passing on" the constraints to the next stage of planning and the land did not in effect become available for building.[42] The combined result of these processes is that following the increased marketing of land by the Israel Land Authority up until 2017 (actual winning of tenders), the numbers dropped off significantly between 2018 and 2020 (Figure 17). Nonetheless, it is worth mentioning that

[42] Thus, for example, according to the Israel Land Authority's marketing plans for the Center district in 2021, of 21,867 housing units that are designated for marketing, it is possible to build only 5831 of them (about 27 percent) without any barriers that need to be overcome. For 13,345 of them, there are significant barriers, such as the need to change municipal boundaries, the signing of umbrella agreements, the expropriation of land, evacuation, sewage solutions, changes in roads, etc., all of which require years to resolve. This accounts for 61 percent of the housing units designated for marketing this year in the Center. Furthermore, there are plans that still require approval or have been appealed. These calculations are based on Israel Land Authority (2021), *Residential Marketing Plan 2021.*

there are workgroups in the National Committee that are working on plans that require the removal of barriers after being approved with conditions However, the fact that there have only been transitional governments in recent years has made it more difficult to remove these barriers.

Figure 17: Land Marketing in the Center and the Periphery: Units Successfully Marketed in High-Density Construction, 2013–2020
Thousands of units



Center = Central, Tel Aviv, and Jerusalem districts; Periphery = Southern, Northern, and Haifa districts.
SOURCE: Based on Israel Land Authority.

The advancement and acceleration of planning and building processes require that progress be made on a number of fronts. The next two sections of the document discuss the expansion of urban renewal processes in the Tel Aviv metropolitan area and advancing investment in transportation infrastructure, elements that are critical in expanding the supply of housing in Israel, particularly in areas of high demand. The synchronization of these elements is important and the planning of transportation infrastructure must be aligned with housing and urban renewal plans. The presence of transportation infrastructure, particularly high-quality public transit, allows for greater urban density and makes it possible to increase the supply of housing along its route, while maintaining a reasonable quality of life. Later in the document, we present recommendations with regard to regulation and digitization of government services, steps that will support the acceleration of planning and building approval processes.[43]

Alongside planning and infrastructure, it is also important to deal with the structure of local authority budgeting, which creates disincentives for the construction of residential housing, primarily in the Center. A detailed examination of the local authority budgets shows that the absorption of a new resident within a municipality that is not eligible for an equalization grant and/or enjoys high revenues from municipal taxes on businesses leads to a much greater deficit than in the case of local authorities that are eligible for an equalization grant and that receive only a low level of income from municipal taxation (which is the case primarily in the periphery). This

[43] For further details on the increasing use of digital methods in the work of the planning committees during the past year, see Bank of Israel (2021), Box 2.3, "Developments in the Construction Industry".

means that the absorption of new residents is likely to lower the level of public services in stronger cities (which are primarily located in the Center). Those municipalities therefore oppose new residential construction within their boundaries, and allocate any surplus land to commercial uses. To this is added the increased burden of additional residents on their existing infrastructure.

Recommendations to increase the housing supply

1. To change the structure of municipal tax rates and the government budgets provided to the local authorities, in order to increase their income from each resident. In parallel, the **local** taxation of businesses should be reduced.
2. To increase the **government** taxation of businesses in order to partially fund the increased transfers to the local authorities due to the increase in their populations.
3. To enable the rezoning of commercial land for residential use in a way that will allow local authorities that identify a surplus supply of commercial land within their boundaries to encourage residential construction in view of the modified incentives.
4. To accelerate the streamlining of work processes in the local and regional committees by means of a fully digital interface and sufficient manpower.
5. To encourage the adoption of innovative technologies and the automation of construction techniques.

Advancement of Urban Renewal in the Metropolitan Centers

Background to the recommendations

There are significant economic, urban, and social benefits derived from urban renewal projects. Urban renewal facilitates the addition of housing units in already built-up areas of city centers, including leveraging and diversification of uses and the improvement of infrastructure in the existing urban landscape. Urban renewal in the city center makes it possible to increase the supply of housing units, as part of the response to the high rate of natural population growth in Israel. It also supports accessibility to high-quality and high-productivity employment and a reduction in commuting. Furthermore, urban renewal reduces the need to build in open spaces and therefore contributes to their preservation.

A cost-benefit analysis carried out by the Research Department showed that the net benefit (i.e. benefit less cost) of urban renewal in the center of metropolitan Tel Aviv is higher than that of building on the edge of the metropolitan area (in the middle ring) by about NIS 160,000 per apartment.[44] As part of the analysis, a large variety of benefits were looked at, such as agglomeration; the reduction in commuting; the economic value of the expansion and renovation of existing apartments; preventing the damage of suburbanization, such as the elimination of open spaces, as well as the costs related to new infrastructure; versus the costs, such as the public nuisance of an extended period of construction in the metropolitan center, the temporary reduction in the inventory of apartments due to demolition and the cost of rebuilding the apartments that were demolished. Quantifying the effects was based on a large number of relevant studies and the empirical data that is available for Israel. The largest benefit of urban

[44] The results that follow are proxies for the expected effects, which will be important to examine on the basis of more detailed and precise data, according to the specific policy alternatives that are finally considered.

renewal in the metropolitan center (relative to the alternative) is due to the effect of agglomeration, namely the positive effect of greater population density on wages and productivity, which remains large even if there is a partial transition to working from home following the COVID-19 crisis. However, it should be remembered that the benefits, such as those from agglomeration, will be reflected in a future increase in salaries and the firms' profits, on which taxes will be paid only once the project is completed, while the cost of an urban renewal project (such as the incentivization of the municipalities) is incurred prior to its completion.

Despite the economic benefits of urban renewal, these projects are being implemented at a slow pace, due to both bureaucratic barriers and feasibility barriers to urban renewal. The main physical barrier is the lack of transportation infrastructure, which does not make it possible to significantly increase density. The main bureaucratic barriers are the lack of planning certainty and barriers having to do with betterment tax policy. In order to accelerate urban renewal processes, the government needs to encourage investment in the mass transit system (the Metro)[45] in metropolitan Tel Aviv and take steps to reduce uncertainty for developers and residents, which will include: 1) clarification of the betterment tax policy: at the start of a project, there is uncertainty as to the amount of the betterment tax that will finally be paid, even though its effect on the expected profit from the project is decisive in determining its feasibility; and 2) limiting the ability of residents who oppose the project to halt its progress by, for example, reducing the majority required to bypass their opposition. A massive push for urban renewal in the built-up areas requires that the municipalities deal with complex plans that come with a considerable cost. In addition to the overall problem in the current structure of local taxation and government participation in the cost of local services, the addition of residents represents a budget deficit for the municipality.

Recommendations to encourage urban renewal in metropolitan centers[46]

1. To advance urban renewal projects in the center of metropolitan Tel Aviv on a large scale partly by lowering barriers, including the amendment of the Planning and Building Law in order to modify the planning process for urban renewal projects; the formulation of a uniform betterment tax policy; simplification of the consolidation and division of lots; and the cancelation of declarations of sites.
2. To create a financial incentive for local authorities to commit to targets for issuing permits as part of the urban renewal framework agreements, partly by means of assistance in the financing of infrastructure.[47]

[45] The next section relates to the acceleration of investment in transportation infrastructure.

[46] Some of these recommendations were included in a draft of the Arrangements Law for the 2020 Budget (which was published for public comments in July 2020), as part of the section on the encouragement of urban renewal (planning and construction). Link to the file (in Hebrew): https://www.gov.il/he/Departments/Guides/economic-plan.

[47] For example, in the draft 2020 Arrangements Law that was prepared by the Ministry of Finance, it was proposed to incentivize the municipalities in the amount of between 20,000 and 30,000 shekels per apartment toward the funding of infrastructure in support of urban renewal projects.

Acceleration of Investment in Transportation Infrastructure and its More Efficient Usage

Background to the recommendations

Investment in physical infrastructure has a strong marginal effect on productivity (Tsur and Argov 2019; Sharabany, 2008). Among the various types of physical infrastructure, investment in transportation infrastructure is particularly worthwhile. A study by the IMF (2014) found that a one percent of GDP increase in public investment in transportation infrastructure leads to a 1.5 percent increase in GDP after four years. Accessible, high-quality, and efficient transportation infrastructure is primarily meant to provide the public with mobility and access in an efficient, clean, and egalitarian manner. As such, this infrastructure contributes to the public's quality of life and supports economic growth, which is particularly important in a country like Israel that has a small area and high population density.

The congestion on Israel's roads is rapidly worsening[48] and is already high relative to other countries.[49] A major change is necessary in the deployment and usage of means of transportation so that the situation does not worsen, and all the more so to improve it. There has been rapid growth in private vehicle mileage during the past two decades (about 4 percent per year), and during the last decade the rate has been even higher (about 4.6 percent per year). This rapid rate of increase, which is accompanied by a significant increase in per capita mileage, reflects rapid population growth and the fact that relative to other countries, and taking into account per capita income, the number of private vehicles per thousand adults is still relatively low in Israel. Moreover, private vehicle mileage per capita in Israel during the past two decades has grown much faster than paved road area per capita. This has significantly increased congestion on the roads. Looking to the future, the transportation problem and the congestion on the roads, which characterizes all of the developed countries, is particularly acute in Israel's metropolitan areas (Bank of Israel, 2020a).

Relative to the rest of the world, transportation usage patterns in Israel are biased toward the use of private vehicles. This can clearly be seen in the low usage of public transit in the metropolitan areas, which is only one-fifth to one-third of that in similar-sized metropolitan areas in Europe.[50] The reasons for this include the slow service provided by public transit relative to other countries, and only to a lesser extent the condition of the roads (Figure 18), and the low accessibility of workplaces by means of public transit relative to private vehicles (Suhoy and Soffer, 2019). In recent years, the pace of investment in transportation infrastructure in Israel, expressed as a percentage of GDP, has been similar to the average for the OECD countries. However, it should be higher than that for a number of reasons: 1) Israel has a high rate of population growth and therefore the investment needed to maintain a constant level of capital per capita needs to be

[48] For further details on the increasing level of motorization and the reasons for growing congestion on Israel's roads, see Bank of Israel (2019b).

[49] For example, according to the TomTom Index, which measures road congestion across countries, Tel Aviv was ranked 21st in congestion among 416 cities worldwide in 2019. In that year, the average traveling time in Tel Aviv during peak hours—in the morning and in the afternoon—was almost double that outside of peak hours (in 2020, with the reduction in congestion as a result of the COVID-19 pandemic, the ratio fell to 160 percent). https://www.tomtom.com/en_gb/traffic-index/ranking

[50] Figure 3.6 in the Productivity Report (2019).

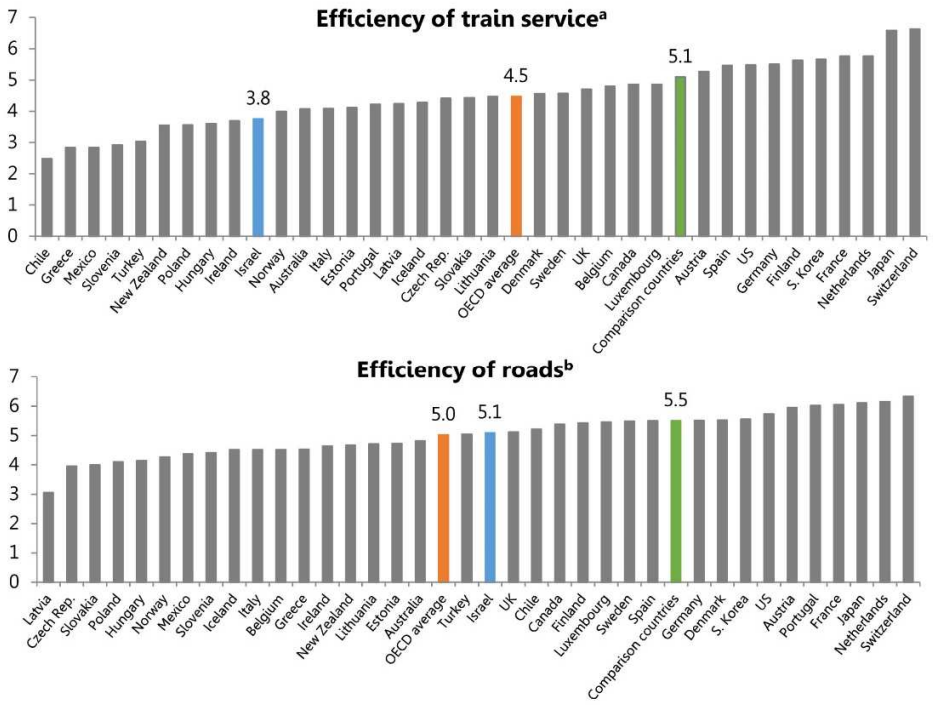
relatively high.[51] Moreover, even if as a result of the COVID-19 pandemic some people are continuing to work from home—which will significantly reduce congestion—it already appears that this effect will be temporary and will only apply to some parts of the economy. Since investment in an efficient public transit system today will only bear fruit in a number of years, the current need—and even more so in the future—is to expand the mass transit infrastructure. 2) Since the stock of transportation infrastructure in Israel is low relative to the OECD, a higher level of investment is required in order close the gap. The shortfall is primarily the result of the public transit situation, particularly the railway system (McKinsey, 2018). In recent years, the share of the investment budget (in percent of GDP) allocated to the development of public transit (as opposed to roads) has grown. This is a positive development, and it is important that the trend be maintained (Figure 19). 3) The difficultly in planning an upgrade of infrastructure in the metropolitan landscape, where most of the investment is needed, involves a large investment in infrastructure in a built-up and congested space. This problem is particularly acute in advancing the Metro project in Gush Dan. 4) The level of motorization in Israel (ratio of vehicles to number of drivers) is still relatively low and is expected to grow rapidly relative to other developed countries, which will increase mileage and therefore the burden on existing infrastructure. 5) Autonomous vehicles are expected to increase the demand for mileage. In contrast, autonomous vehicles can assist in the creation of a flexible and comprehensive transportation network when combined with an efficient public transit system and the taxation of mileage.

Investment in the creation of a metro-based mass transit system in metropolitan areas, and primarily in the crowded Tel Aviv metropolitan area, is of crucial importance. First, it will improve transit access to and within the metropolitan area for a variety of population groups for employment and other purposes, and will increase the density of businesses and workers in the metropolitan area, which will in turn increase labor productivity (Ziv and Shafir, 2020). In other words, the Metro will facilitate the entry of more workers into central Tel Aviv at any given time. Lowering the dependency on private vehicles will encourage the development of the crowded city as a more accessible place, in an urban landscape that facilitates an optimal mix of uses, such as expanding street commerce and greater use of public areas for the benefit of residents and visitors alike. In addition, since the system will be an alternative to traveling in a private vehicle, it will reduce air pollution and noise in the urban setting.

[51] Over time, population growth erodes the size of the per capita stock of infrastructure capital, since investment in infrastructure carried out today must serve a larger population in the future. The higher the rate of population growth is, the higher the rate of erosion will be. Therefore, in order to maintain a given level of infrastructure capital per capita (or ratio of infrastructure capital stock to GDP), the rate of investment must keep pace with the rate of population growth.

Figure 18: Managers' Subjective Assessment of the Quality of Transport Infrastructure

Scale of 1–7, international comparison, 2017



The comparison countries are small and advanced economies: Austria, Belgium, Denmark, Finland, Netherlands, and Sweden.

[a] The ranking is determined on the basis of responses to the question: How efficient are tran services, in terms of frequency, precision, speed, and price, in your country (relative to the world)?

[b] The ranking is determined on the basis of responses received regarding the perception of road quality, in terms of area and condition, in the country (relative to the world).

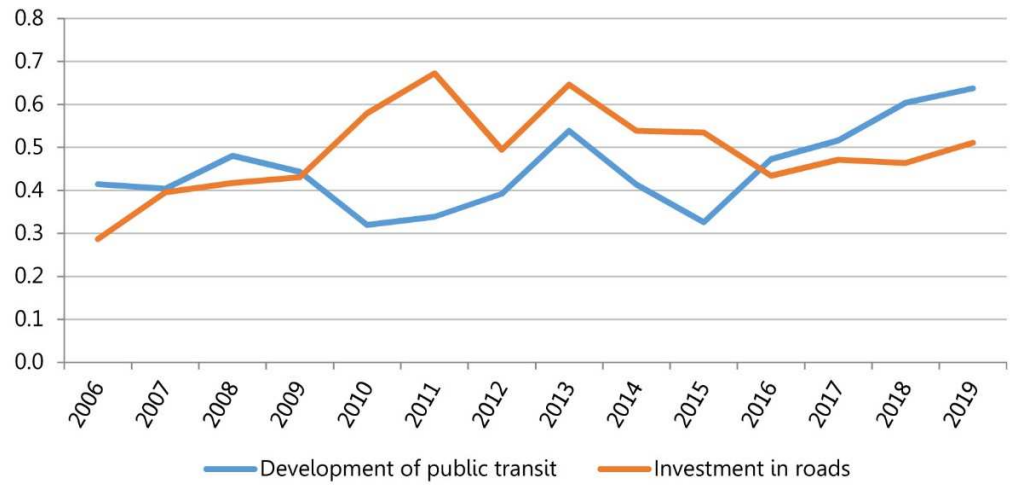
SOURCE: Based on World Economic Forum survey of managers.

The investment in underground mass transit infrastructure will only bear fruit many years in the future. Meanwhile, the severe congestion on the roads calls for a variety of additional steps in order to regulate the use of private vehicles well before that: increasing the availability of public transit based on buses and light rail, alongside organized transportation to places of work and infrastructure for bicycles and electric scooters. These will diversify the transportation options within the cities and between residential areas and workplaces, and will provide a solution already in the short term that will increase the accessibility of the metropolitan areas during peak hours. Upgrading to efficient transportation infrastructure as an alternative to private vehicles will gradually make it possible to encourage the shift from private vehicles to alternative transportation. This can be accomplished, for instance, by negative incentives, such as a mileage tax[52], the cancelation of benefits for the use of a private vehicle, and higher prices for parking.

[52] Economically, a tax such as a "mileage tax" is the correct tool to use in response to the negative externalities that are implicit in road congestion, since the individual who creates the congestion will then be paying the real social cost he is imposing by choosing to travel in his private vehicle during peak hours. In the absence of taxation, individuals will only take into consideration the cost of their own time and fuel but not the fact that they are creating congestion for those behind them. However, like any tax, it is socially

In addition to investment in public transit infrastructure in the metropolitan areas, it is important to improve the connection between them and the periphery by means of a rail system that provides high-quality service alongside convenient connections to complementary means of transportation at both ends of the line—from the starting point to the train station and from the destination train station to the passenger's final destination. Such a system will strengthen the role of the metropolitan areas as centers serving broader geographical areas, and will also expand the supply of housing to those employed in the large cities.

Figure 19: Transportation Budget—Performance
Percent of GDP, 2006–19



SOURCE: Based on Ministry of Finance fiscal-digital system.

Recommendations to accelerate investment in transportation infrastructure and its more efficient usage

1. To increase the level of investment in public transit infrastructure with the goal of closing the gap in quantity and quality relative to other developed countries and to keep pace with the expected increase in population. The investment should prioritize the use of underground public transit in metropolitan Tel Aviv and the use of dedicated transit lanes, including railways, in less crowded areas.
2. To establish metropolitan authorities, or some other regulatory system, that will synchronize the transportation needs of the various cities in a given region, and that will have powers to create infrastructure and make decisions in this and other domains. The division of the municipalities into metropolitan transportation authorities will be designed first and foremost in order to meet this need.
3. In order to advance the Metro project, a specific mechanism should be created to overcome synchronization and approval problems, such as a designated "Metro Law". In

difficult to impose and generates public opposition. Therefore, it is easier to gain public support when there are available transportation alternatives for someone who is willing to reduce his use of a private vehicle.

addition, a multi-year budgeting and funding plan should be formulated, partly based on dividing the financing burden according to the benefits it will provide.

4. To improve public transit service (including shortening of travel times, increasing reliability of service, and improving information and comfort for passengers) by increasing supply, converting existing traffic lanes into dedicated public transit lanes and increasing the efficiency of rail service and its coordination with connecting means of transportation.
5. Additional parking facilities and shuttles on the edges of the metropolitan areas, according to and in addition to existing plans, and the expansion of infrastructure for bicycles and motorized scooters in the cities, which will increase connectedness between the public transit stations and the passenger's final destination.
6. Once the infrastructure for providing reasonable service is available, the demand for private vehicle mileage should be regulated by increasing its relative price: applying a mileage tax, particularly during peak hours and in congested areas, and combining that with a precise pricing policy for parking, which is a technologically feasible measure.
7. To reduce the salary-related incentives for private vehicle use, including a reduction in the salary and tax benefits that incentivize the use of private vehicles.[53]
8. To adopt **performance and quality of service targets** in the public transit system on the basis of reliable quantitative indices, and to publicize the progress towards meeting them, with the goal of encouraging the use of public transit and providing reliable information to those managing the system.
9. To expand the payment possibilities for using public transit through the adoption of the new means of payment in the economy.

[53] For example, imposing a tax on employers for the total fuel consumption by their workers who have been given a leased company car, so that the vehicle's user will take into account the full marginal price of his mileage.

Encouraging the Shift to Fast Communication Infrastructure

Background to the recommendations

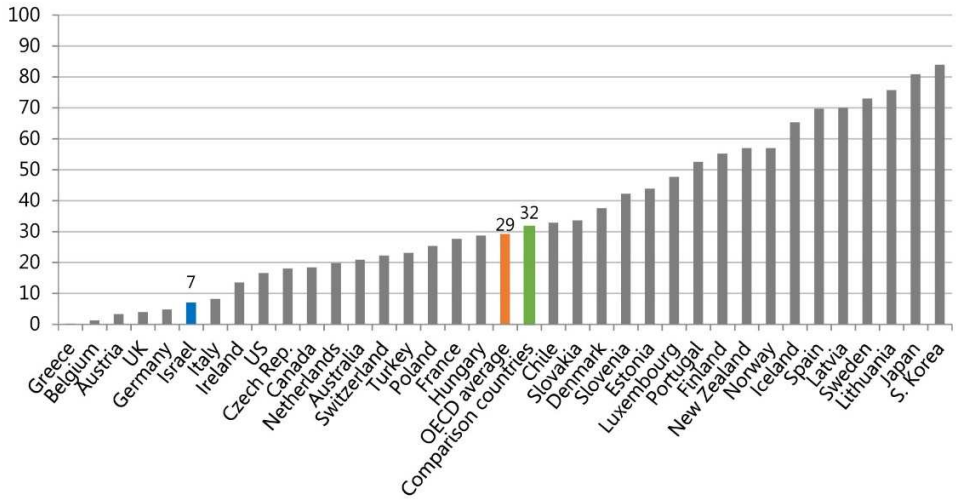
The COVID-19 crisis highlighted the fact that quality of life and labor productivity are becoming increasingly dependent on advanced and widely deployed communication infrastructure. The uses of communication infrastructure in the workplace and in day-to-day life are constantly expanding: communication with other businesses and with customers, remote working, the consumption of services, and the operation of other technology-dependent types of infrastructure. Communication infrastructure is also essential for the integration of new technologies that will contribute—directly or indirectly—to labor productivity. This includes smart cities, autonomous vehicles, digital innovation, remote working, cloud computing, bringing the periphery closer, digitization of public services, etc. Thus, investment in high-quality and widely accessible communication infrastructure is one of the challenges for improving productivity and quality of life in Israel. This section relates to recommendations for the deployment of fiber optic communication infrastructure, which represents a technological step up for landline networks. The recommendations also relate to support for the deployment of 5G cellular network infrastructure.

As in the case of the deployment of other types of infrastructure, the regulator plays an important role in the integration of communication technologies at a sufficient pace and on a scale that will reach the entire population, since the size of the user network has positive externalities that affect all users of the communication infrastructure (the "network effect"). This is particularly the case in an industry in which all of the service providers are business entities. An example of the network effect is that a widely deployed communication infrastructure makes it possible to sell services and to improve economic cooperation over a broad geographic area. In this context, it is also important that the regulator avoid over-involvement that will make various activities unprofitable and thus create barriers to expansion and investment.

The current physical infrastructure in Israel makes it possible to keep abreast of technological progress in the global market. Thus, there is national coverage by underground piping owned by Bezeq, which reaches the vast majority of households and businesses, an impressive achievement relative to many countries. It is in that piping where the infrastructure for fiber optic communication will be deployed. The deployment in Israel began at a slower pace than in countries, due to regulation that reduced the economic profitability of laying fiber optic lines for the main infrastructure owners (Bezeq and Hot). Figure 20 presents the level of usage of fiber optics by households in Israel, and shows that end users in Israel are far less connected to fiber optic services than in most developed countries. Furthermore, as of mid-2020, fiber optic infrastructure had reached only about one-quarter of households in Israel (State of Israel, 2020). Nonetheless, following the approval of the fiber optic plan that is described below, the pace of fiber optic installation was accelerated in 2021 and there is now a greater chance that the number of connected customers will also grow and the gap between Israel and other developed countries will narrow.

Figure 20: Rate of Internet Subscribers Connected by Fiber Optics, Israel and OECD, June 2020

Percent



The comparison countries are small and advanced economies: Austria, Belgium, Denmark, Finland, Netherlands, and Sweden.

SOURCE: Based on OECD.

The fiber optic plan was approved by an interministerial team of experts under the auspices of the Ministry of Communications. In 2019–20, the team examined the existing barriers to the nationwide deployment of ultra-bandwidth landline infrastructure in Israel and laid the foundations for the policy to deploy this infrastructure (State of Israel, 2020). The team's recommendations, which were anchored in legislation in late 2020, deal with the problem of economic feasibility in some areas and the commitment of companies to deploy the infrastructure in all areas of the country. They do so by creating a designated fund managed by the Ministry of Communications that will be used to finance tenders for the deployment of fiber optic infrastructure in areas where it is not economically feasible. In the team's opinion, a nationwide deployment that will reach the vast majority of households can be achieved within about a decade, and a relatively broad deployment can be accomplished within about five years. The rapid progress in deploying the network during the past year increased access to the network, such that by the end of the year about half of all households will have access to the fiber optic network. At the same time, the proportion of households actually connected to the fiber optic network has also grown. The rapid progress in deployment is likely to continue in the coming years, although it is expected to encounter problems, particularly in Arab cities and towns due to the need to deal with legal difficulties resulting from illegal building and with the presence of private operators who will try to prevent deployment. It is important to remove these barriers as quickly as possible in order to prevent the widening of the digital gap between Arab society and the rest of the country, as the supply of broadband services that are available only by means of the fiber optic network expands.

The cellular market in Israel has in recent years been characterized by vigorous competition, as reflected in low consumer prices, since not all of the service providers internalize the cost of infrastructure to the same extent. This structure, and the changes occurring in it, have also affected the economic feasibility calculations of the large communication companies. Recently, the Ministry of Communications allocated frequencies for the 5G network, which were won—

separately—by each of the large communication companies. The advent of 5G, which is essential to the introduction of more innovative, reliable, accessible, and continuous technologies, primarily reflects a potential for commercial and entertainment applications. The commercial uses of 5G are in their early stages, even in other countries. They will influence demand for the network in Israel and therefore the investment incentives of the communication companies. Nonetheless, preparing for competition over the provision of these services is driving investment in technology among these companies. At the same time, there are major regulatory barriers in the planning and building process of cellular infrastructure. Another obstacle is the opposition of some of the municipalities to expanding the installation of antennas within their boundaries, out of concern for the health effects of non-ionizing radiation. However, according to most opinions, this concern is not based on research findings, and studies have shown that the antennas do not affect real estate prices in areas where they have been erected (Genesove et al., 2016). At the beginning of 2021, an interministerial team was established by the Ministry of Communications (together with the Planning Authority, the Ministry of Finance, the Ministry of the Environment, and the Ministry of Justice) with the goal of mapping the challenges in deploying the cellular sites and suggesting solutions accordingly. The group's goal is to shorten the average time required to erect a cellular antenna to three months (from the current 20 months).

Recommendations to promote the shift to fast communication infrastructure

1. To establish long-term targets for the deployment of advanced communications infrastructure and the elimination of barriers to achieving them.
2. To implement the agreed-upon plan and the legislation pertaining to the deployment of fiber optic infrastructure nationwide. In this context, efforts should be made to ensure the economic and technical feasibility of deploying fiber optic lines in areas where the profitability for investors is low, and to ensure a similar pace of deployment across regions. Where necessary, the local authorities should be encouraged to lower local barriers to the deployment of the infrastructure, in order to ensure that a large variety of population groups will be served.
3. To internalize the importance of communications infrastructure in the urban planning and zoning processes by directing builders to lay down advanced communications infrastructure during construction. To this end, it should be verified that the directive signed by the Minister of the Interior—which requires that every new apartment be connected to a fiber optic line—is being enforced.
4. To remove planning and construction barriers to the deployment of the 5G network, to reduce public opposition to the placement of cellular antennas, and to encourage the use of roofs of public buildings as preferred sites for antennas.

Development of Energy Infrastructure in View of Environmental Protection Targets

Background to the recommendations

A reliable supply of energy makes it possible for businesses and households to efficiently plan their investments and their energy consumption. It thus avoids the cost of adjusting the stock of capital and equipment and of disruptions in production, and therefore increases economic welfare. However, there is an inbuilt tension between the necessity to provide available and cheap energy and the need to reduce the Israeli economy's impact on the environment and to meet international pollution reduction standards. This tension may be solved through transition to clean energy production. Although the solar energy alternative is attractive in a country like Israel, global experience in recent years shows that beyond a certain point, reliance on weather-dependent energy involves risks to energy reliability even when there is a significant storage infrastructure, at least with existing technologies.

In recent years, the international community has initiated efforts to reduce greenhouse gas emissions. In 2015, a majority of countries signed the Paris Agreement in which they committed to lowering those emissions. In that agreement, Israel committed to reducing its emissions from 10.1 tons per capita in 2015 to 8.8 tons in 2025 and 7.5 tons in 2030. It is worth mentioning in this context that greenhouse gas emissions per capita in Israel are low relative to other countries. In our estimation, Israel can meet the targets of the Paris Agreement if it implements the plans for converting coal-burning power plants to natural gas by 2026 and if the government achieves its target of raising the proportion of electricity production from renewable energy sources to 30 percent by 2030.[54]

Nonetheless, the more stringent greenhouse gas emission targets that are expected in the coming years in the EU and in other countries may impose additional reductions on the Israeli economy as well. This trend is being led by the EU as part of the Green Deal program it is promoting, the goal of which is carbon neutrality. The trend is being strongly supported by international economic organizations, and recently the US also resumed its support of the process.[55,56] Achieving carbon neutrality means reducing global greenhouse gas emissions by at least 80 percent by 2050, which goes far beyond the quantitative targets set in the Paris Agreement. These targets are an even greater challenge for Israel in view of its rate of population increase, as a result of which demand is growing faster than in other developed countries. Since the energy sector is responsible for 80 percent of these emissions in Israel (which is similar to the average for other developed countries), the solution to the problem has to focus on this sector.[57] Apart from producing electricity from nuclear energy, there is no existing technology that can supply reliable and cheap energy without greenhouse gas emissions. The goal of carbon neutrality in Israel

[54] See Bank of Israel (2019b), Selected Issues, "The Global Effort Against Global Warming and its Implications for Israel".

[55] See Bank of Israel (2021), Box 6.2, "'Green Recovery' as a Response to the Economic Implications of the COVID-19 Pandemic in Developed Countries and Israel".

[56] The term carbon neutrality refers to a situation in which greenhouse gas emissions are equal to the greenhouse gas absorption, primarily through the planting of trees. In order to achieve this goal, it will be necessary to reduce global emissions by about 80 percent.

[57] See Bank of Israel (2020a,b), Selected Issues, "The Global Effort Against Global Warming and its Implications for Israel".

therefore involves a commitment that is conditional on future technological innovation. An alternative to "clean" energy is to reduce the demand for energy. The main tool that the government should consider in the coming years in this context is a tax on emissions from all sources, a measure that is recommended by international economic institutions. Such a tax can serve to internalize the external costs of emissions within the price of the good, and in that way it will support the reduction in pollution while leading to minimal distortion of resource allocation in the economy. It will also help to focus technological developments on reducing emissions.[58] In addition, it is important to accelerate the replacement of the current electricity meters in Israel with those that facilitate flexible pricing. This will contribute to the reduction in emissions while maintaining the stability of the electricity network. Research in other countries has found that the elasticity of demand among households increased three-fold when they were informed ahead of time about price changes (Jessoe and Rapson, 2014). The ability to manage demand and reduce consumption ahead of time can contribute to flattening demand peaks, particularly during hours when electricity is produced using technologies that produce greater emissions. This effort will become even more important as the use of electric cars becomes more widespread.

Although the energy sector is an essential infrastructure for the economy, it still lacks a master plan. The State Comptroller has mentioned on a number of occasions that the Ministry of Energy needs to develop such a plan (see, for example, State Comptroller, 2012). The energy sector targets for 2030 that were published by the Ministry of Energy (Ministry of Energy (2018a), together with National Outline Plan 41, which has been advanced by the Ministry of Energy and the Planning Authority, were initial steps toward formulating such a master plan. The Outline Plan was recently given final approval, and for the first time since the establishment of the State there is a national outline plan for the energy sector. This achievement will have long-term implications for the Israeli economy, and it complements the progress made in renewable energy regulation, the regulation of the natural gas sector, and the implementation of the reform in the Israel Electric Corporation.

Thanks to early planning, the outline plan will provide greater certainty for entrepreneurs operating in this sector and for potential consumers. Nonetheless, in view of the uncertainty as to future technological developments, it is important that the plan be based on a detailed economic examination of its components, which leaves sufficient room for flexibility and adjustments according to technologies yet to be developed.[59] It is worth mentioning in this context that in the past it was in fact a delay in the adoption of new technologies that led to a saving of billions of shekels for the Israeli economy (Gallo and Porat, 2017).

[58] Since fuels that emit a similar amount of carbon per unit of energy may emit different levels of other pollutants, it is important to ensure that the carbon tax does not marginalize the need to take into account the reduction of these other pollutants.

[59] The targets published by the Electricity Authority (Ministry of Energy, 2018b) included an analysis of the masterplan for the production segment of the electricity sector, which constitutes the first layer of the masterplan for the energy sector as a whole. A development plan for the transmission system was also presented. It is important to produce parallel plans for other segments in the electricity market and for the natural gas, gasoline, and renewable energy markets as well. These plans, together with the statutory base provided by National Outline Plan 41, will constitute a strategic framework that can be developed over the years and can serve as a guide for developing and advancing the energy sector.

The Ministry of Energy recently published a roadmap for a low-carbon energy sector by 2050 for comments by the public. This is an important step toward the achievement of a master plan.[60] The document includes targets for 2050, particularly an 80 percent reduction of emissions, the cessation of electricity production based on coal, and the reduction of electricity intensity (i.e. the amount of electricity consumed relative to GDP) by 1.3 percent per year. The target to reduce emissions by 80 percent ("carbon neutrality") is dependent on technology that does not yet exist, although the target to close coal-burning power plants, which is an important component in the emission reduction plan, is indeed feasible.

The roadmap indicates that the transmission, distribution, and supply infrastructures are not currently ready for a large-scale switch to renewable energy (see also Bank of Israel, 2015).[61] This is because a significant proportion of the potential production of renewable energy in Israel is possible in the South of the country (photovoltaic), and possibly in the North (wind), such that the electricity will have to be conveyed to the areas of high demand.[62] Additionally, the shift to producing photovoltaic electricity on roofs—which has the potential to produce up to about 30 percent of electricity consumption (during the hours in which this energy is available)—will also be accompanied by a significant increase in electricity transmission. In order to exploit this method of electricity production, it will be necessary to modify the supply, transmission, and distribution networks accordingly and to take into account that these modifications will be carried out under conditions of uncertainty with regard to technological progress. The authors of the plan believe that in order to meet a target of 30 percent of electricity production by means of renewable energy, there is a need to double the energy transmission capacity, and more ambitious targets in the future will apparently require even more investment. One of the ways that is worth considering in order to make it easier to deal with the limitations of the transmission system is pricing that will reflect the cost of transmission, which will incentivize the building of solar energy facilities in close proximity to or even within areas of high demand. Another element of complexity in the process is that a large amount of resources has been invested in recent years in the development of a natural-gas-based energy sector in Israel, which replaced the more polluting coal and diesel. It should be taken into account that another change in direction will involve capital costs beyond what has already been invested.[63]

Recommendations for the development of energy infrastructure in light of environmental quality targets

1. To move forward with an energy sector master plan for Israel in the spirit of the Ministry of Energy roadmap for 2050. As part of the master plan, consideration should be given to the optimal mix of energy production in order to ensure both energy security and a reduction in air pollution.

[60] https://www.gov.il/he/departments/publications/reports/energy_180421

[61] The policy in other countries is to develop a smart grid that provides information on consumption and production in real time and in great detail at the consumer, geographic region, and time of day levels.

[62] Land constitutes another challenge to the development of renewable energy production. Therefore, it is important to advance the approval of National Outline Plan 41, which offers solutions to this issue.

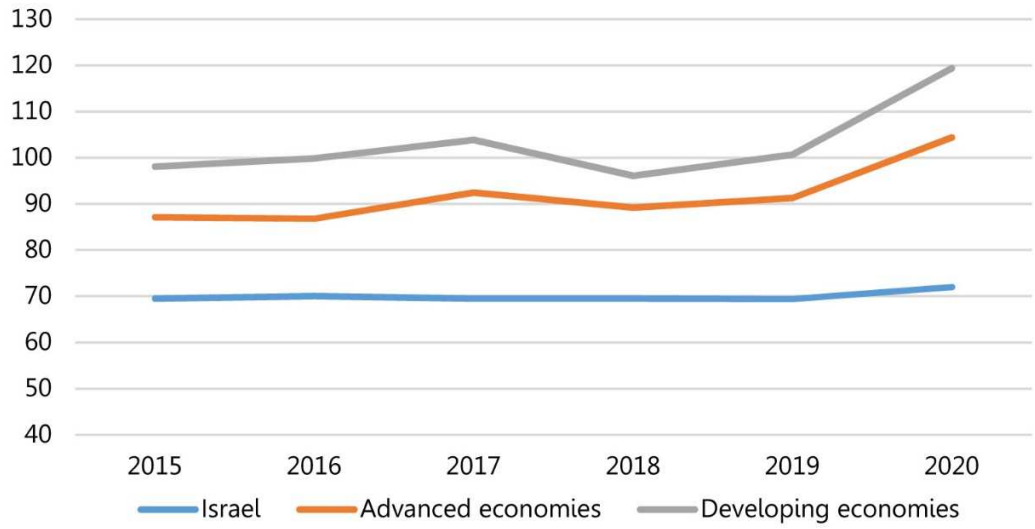
[63] One of the technologies that may be used in the future to enable the use of natural gas without any greenhouse emissions is Carbon Capture Storage (CCS). However, its use requires identifying appropriate underground or offshore sites.

2. To adapt the energy sector's infrastructure to an accelerating transition to renewable energy, as planned for by 2030, and to produce electricity in a distributed manner, both through investment in physical infrastructure and through modification of the pricing system, which will encourage efficient use of the existing infrastructure and shift production to areas of high consumption.
3. To consider the gradual implementation of a tax on carbon dioxide emissions, with the goal of internalizing the external cost of emission-creating production and preparing for change in the international landscape. This tax is not a substitute for the taxation of other pollutants.
4. To encourage investment in digital electricity meters as a tool for increasing the efficiency of pricing, regulation of demand, and reduction in emissions, which will expose a large proportion of consumers to differential pricing that takes into account the load on the network and on the means of production.
5. To prepare a long-term development plan for the natural gas sector while taking into account the possibility that a shift to clean energy might reduce demand for this source of energy.
6. To encourage the inclusion of electricity transmission infrastructure within the transportation infrastructure planned for the high-demand areas.
7. To advance regulation for energy storage in order to facilitate progress in the integration of technologies that will be developed in the future.

Third Pillar: Development of the Financial System

The relationship between the level of financial development (the credit and capital markets) and growth and investment has been studied extensively in the literature and was found to be strong and positive.[64] In recent years, the literature has developed and has shown that the main positive effect on growth is due to business debt[65] and only in cases where there is a major increase in the levels and characteristics of the debt's risk is there a negative impact on growth in the long term.[66]

Figure 21: Business Debt to GDP Ratio, International Comparison
Percent, 2015–20



SOURCE: BIS data.

In an economy with a sufficiently developed capital market, the flow of credit to finance real activity and the companies operating in the economy is more efficient and less exposed to volatility in asset prices. Levine (2005) extensively reviewed the tight connection between growth, monetary policy, and the capital market, and presented the main characteristics of a developed capital market, all of which increase the efficiency of saving and investment in the economy and therefore raise long-term growth rates. Studies that have looked at the mix of financing of businesses emphasize the importance of opening up the nonbank market to the business sector. These studies found a positive connection between nonbank financing and economic growth. The explanation of this positive connection is the high level of access enjoyed by businesses to bank

[64] Rajan and Zingales (1998), Levine (2005), Chakraborty and Ray (2006).
[65] Mian et al. (2013), Cecchetti and Kharroubi (2015), Borio et al. (2016), Lombardi et al. (2017).
[66] Kirti (2018) found that only in cases where the additional business debt was risky and of low-quality did a crisis ensue. Other studies that looked at the connection between companies' levels of leverage and economic growth found that high leverage and a sharp increase in the level of debt undermine financial stability and hinder growth (Reinhart et al., 2012; Kalemli-Ozcan, 2015; World Bank, 2017).

credit substitutes.[67] As a result, the companies' level of risk—which is priced according to the cost of financing of current operations and investments—is lower, and the rate of investment will therefore be higher in the long term.[68]

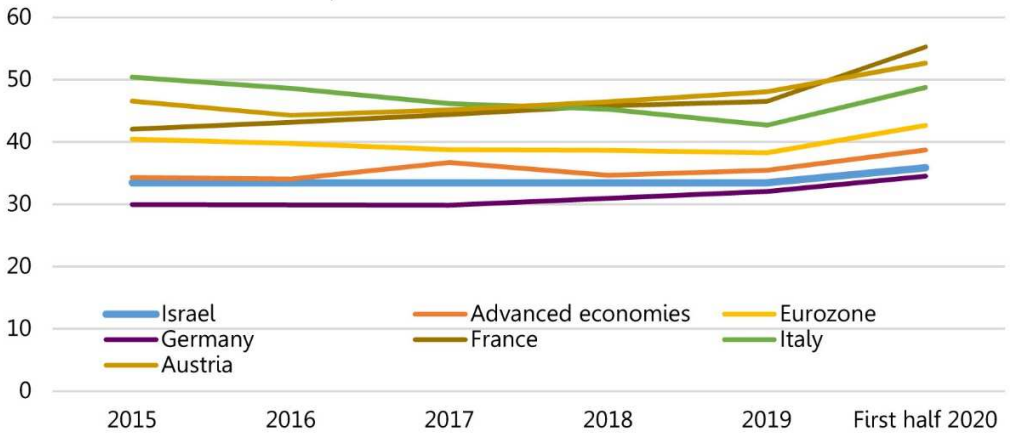
The business-debt-to-GDP ratio in Israel is low relative to other countries, and this gap widened significantly (to 32 percentage points) during the COVID-19 period (Figure 21). The business-debt-to-GDP ratio was 72 percent as of the end of 2020.

Chapter 4 of the Bank of Israel *Annual Report* for 2019 shows that part of the gap between Israel and other countries is explained by the structure of the Israeli economy and the size of the high-tech sector, although part of the explanation apparently has to do with the low access to credit for small and medium-sized businesses.

In a breakdown of debt into bank and nonbank debt, Figure 22 shows that, relative to other countries, business debt to the banks in Israel is only somewhat lower than the average for the developed countries and for the eurozone, and does not explain the majority of the gap. In view of the drop in total business debt as a percentage of GDP at the beginning of the COVID-19 period, it is interesting that business debt to the banks in fact increased.

Figure 22: Business Debt to the Banks as a Share of GDP, International Comparison

Percent, 2015 until the second half of 2020



SOURCE: Data on Israel from the banks' reports to the Banking Supervision Department. Data on European countries from the Europa website and based on country reports to the ECB. The average for advanced economies is taken from BIS data, and calculated as 60% of the total nonfinancial business sector debt to the banks, in accordance with the rate reported in the literature in recent years (Jorda et al. 2016).

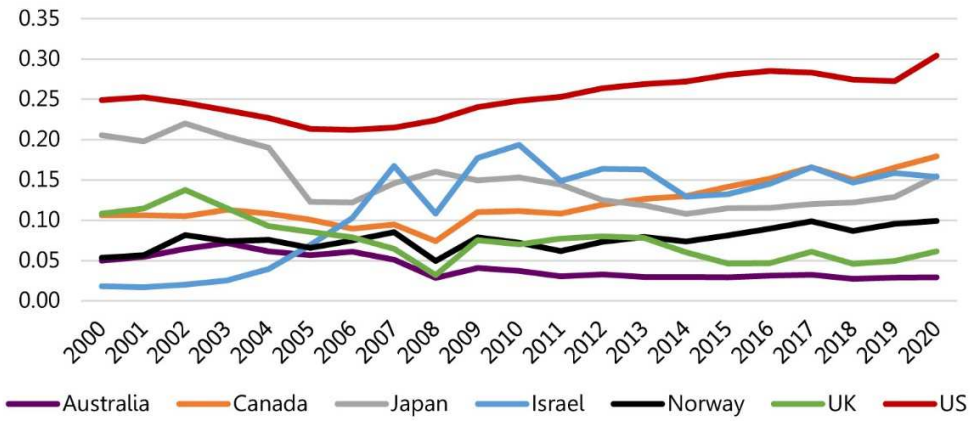
[67] Allen et al. (2012) and Langfield and Pagano (2016). Although these studies relate to financing in the broad sense (and place emphasis on financing by equity rather than just by debt), they emphasize the importance of developing the nonbank credit market.

[68] Bartram, Brown and Fehle (2003) claim that the use of derivatives by nonfinancial companies raises their value and increases their stability, which is in line with the conclusions of Graham and Rogers (2002) and Allayannis and Weston (2001).

This implies that most of the gap between Israel and the other developed countries is the result of a low level of nonbank debt. It is important to emphasize that nonbank debt is based on two main channels: corporate bonds and credit from nonbank institutions. In an international comparison of domestic business debt securities, Israel is not an outlier, and is even higher than some other countries (Figure 23).[69] Additionally, partial international data[70] show that direct credit provided by financial institutions in Israel is not lower than in other countries. Thus, it can be said that the main difference between Israel and other developed countries is a result of the particularly low level of nonbank and noninstitutional credit to the business sector in Israel.

Figure 23: Securitized Domestic Business Debt to GDP Ratio, Israel and Comparison Countries

Percent, 2000–20



SOURCE: BIS data, reports to the Bank of Israel, and Bank of Israel processing including an estimation of the comparison countries' 2020 GDP.

Nonbank and noninstitutional credit is primarily relevant for small and medium-sized businesses, which have less access to credit from the large financial bodies in the economy. This fact is related to a finding in the Second Pillar, where Table 2 shows that the level of investment in the trade and vehicle repair industry and the business services industry, in which there is a high proportion of small businesses[71], is low relative to other countries.[72] Thus, the Central Bureau of Statistics

[69] It may be that there is a difference in how the debt of holding companies is defined in Israel relative to other countries. In other countries, the debt of these companies is reported as debt of financial companies. This difference is primarily relevant in the case of securitized debt. The debt of holding companies in Israel accounted for between 20 and 30 percent of total securitized debt between 2015 and 2020. In contrast, the proportion of the debt of holding companies in the form of bank loans was negligible during this period. In other words, it may be that in practice the level of securitized debt in Israel is also somewhat lower than in other countries.

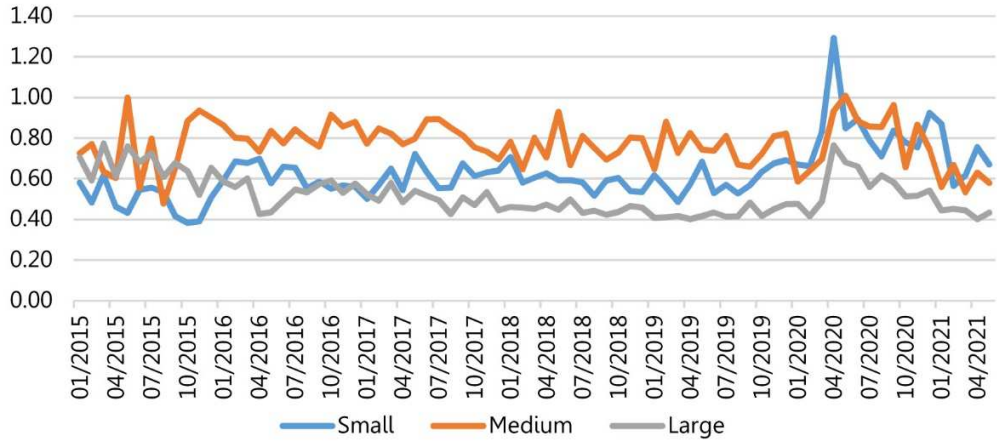
[70] OECD data.

[71] Businesses with up to 10 employees are responsible for 30 percent of the output in the trade industry and 43 percent in the business services industry (Industry Survey, 2015). For purposes of comparison, small businesses are responsible for 15 percent of the output of the hospitality and food industry.

[72] The level of investment is also low in the personal and social services industry, in which there are many small businesses. However, this industry also includes education and healthcare activity and is therefore less relevant to the comparison.

Business Tendency Survey, which examines the state of businesses in Israel, also shows that small businesses have a harder time obtaining financing than large ones (Figure 24 and 25).

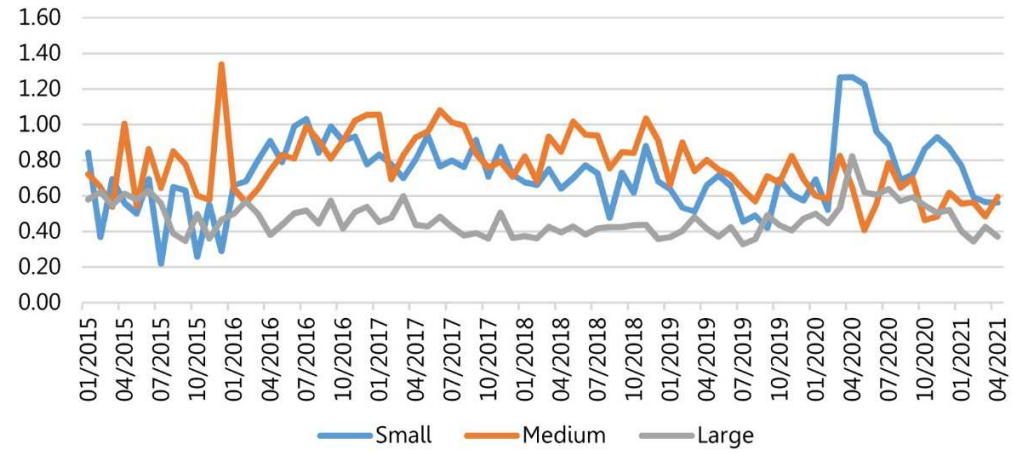
Figure 24: Average Difficulty in Raising Bank Credit, by Business Size, 2015 to May 2021



Small businesses - up to 49 employees; Medium businesses - up to 249 employees; Large businesses, above 250 employees.

SOURCE: Central Bureau of Statistics data for the Bank of Israel.

Figure 25: Average Difficulty in Raising Nonbank Credit, by Business Size, 2015 to May 2021

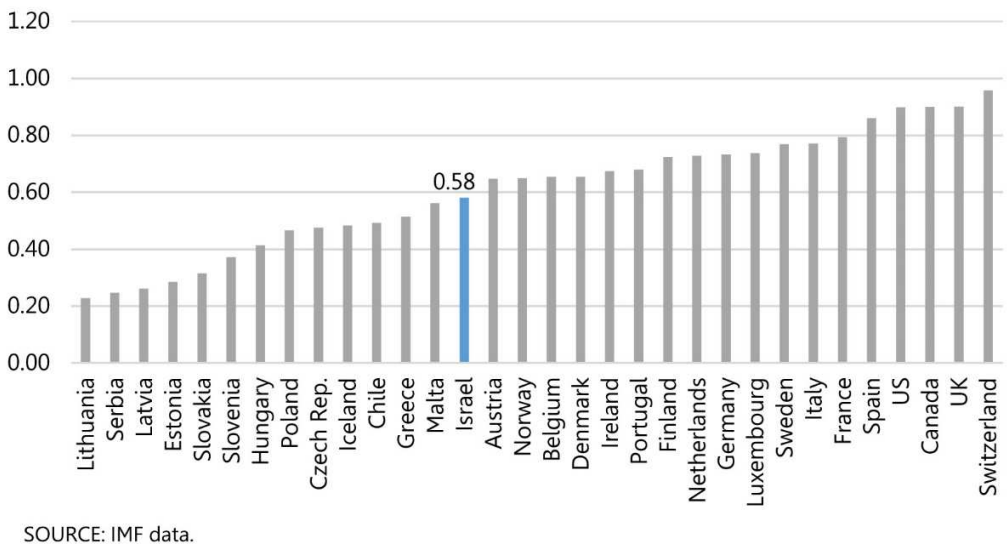


Small businesses - up to 49 employees; Medium businesses - up to 249 employees; Large businesses, above 250 employees.

SOURCE: Central Bureau of Statistics data for the Bank of Israel.

A comparison of the level of financial development can be made with other countries using indices published by the IMF, which measure the depth, efficiency, and accessibility of the credit and capital markets.[73] Israel's financial development index is low relative to other countries (Figure 26), due both to the small number of financial instruments available and the low indices of depth for the financial markets. Therefore, continuing to develop the financial system and the capital market in Israel will contribute to economic activity in the long term based on both greater diversification of credit sources and reduced interest rate risk.

Figure 26: Financial Development Index, Israel and Other Countries, 2018



SOURCE: IMF data.

The aforementioned low level of financial development is primarily a manifestation of the lack of financial instruments in the Israeli capital market, such as securitization, benchmark interest rates, a business credit database, an efficient and competitive lending pool, and a developed factoring market. There are also a small number of participants in the Israeli capital market, which is partly the result of barriers and distortions that prevent the development of financial bodies. Nonetheless, it is important to mention that regulated credit entities, which provide credit not by means of deposits from the public (and which are not institutional bodies), have been developing in Israel in recent years. This development is thanks to numerous structural reforms, particularly the regulating of supervised nonbank credit entities that are permitted to issue bonds to the public. As a result of these changes, there has been an expansion of credit sources for small and medium-sized businesses, which was manifested in an overall downward trend in the financing constraints reported by companies up to 2018. Despite the numerous efforts in recent years to expand and regulate the activity of these entities, the magnitude of credit they provide is still

[73] There are a large variety of indices to measure the level of development of the capital market, which can be divided according to four categories: 1) depth – the size of the financial institutions and the volume of the capital and money markets; 2) access to the market – the level of access for individuals (households and companies) to financial services; 3) the efficiency of the financial intermediaries and the capital market – the ease of access to sources of financing and the allocation of sources; and 4) stability – the stability of financial institutions and the capital market. (See Čihák and Demirgüç-Kunt, 2012.)

negligible in Israel, which is partly due to the barriers in the market that do not fully facilitate their activity on a large scale.

The recommendations below relate to both the development of new markets and the elimination of obstacles and distortions in the financial system. The recommended measures involve both legislation in the Knesset and collaboration among the financial supervisors (the Banking Supervision Department, the Capital Market, Insurance, and Savings Authority, and the Israel Securities Authority).[74] Furthermore, the document suggests a number of measures relating to the payments system and advanced means of payment, which can improve consumer well-being and reduce the cost of transactions.

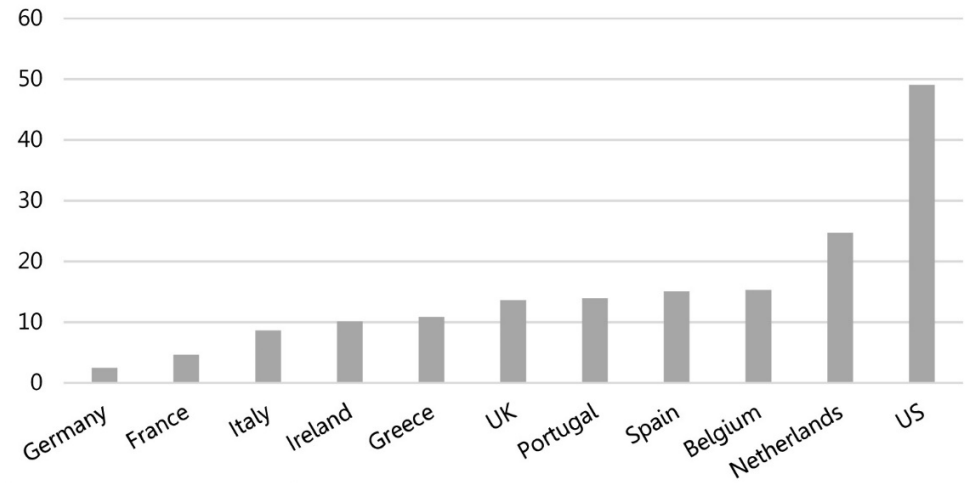
[74] There is also a recommendation that includes steps to be taken by the Stock Exchange, among other things.

Adoption of the Securitization Law

Background to the recommendations

Securitization facilitates the efficient flow of credit in the economy by shortening the process of financial intermediation and lowering its cost. Thus, the banks and other credit providers, such as the credit card companies, nonbank credit providers and leasing companies, will be able to securitize their credit (i.e. sell their credit portfolios) or its stream of income and channel the proceeds to providing new credit. The expansion of the credit supply by credit providers will increase competition and reduce the price of credit. In particular, this instrument will make it possible to lower the cost of financing for sectors that currently have access to credit only from the banking system. Furthermore, the securitization instrument is also likely to be useful for nonfinancial companies who are not "classic" suppliers of credit, in order to create additional sources for the financing of their activity, such as by means of securitizing their customer portfolios. From the perspective of institutional investors and investment funds, the securitization market opens up additional investment possibilities with various levels of exposure, duration, and yield. Securitization will make it possible to combine the expertise of the banks in monitoring credit, as well as their underwriting and operational advantages on the one hand, and the availability of the institutional investors' sources of financing and their need to diversify their investments and the exposure in their investment portfolios on the other hand. Figure 27 shows that in a number of selected countries, the level of securitization (in terms of stock) is more than 10 percent of GDP and in the US it is about 50 percent.

Figure 27: Securitization in Inventory Terms as a Share of GDP, 2017
Percent



SOURCE: Based on Association for Financial Markets in Europe.

In a securitization transaction, a designated corporation issues bonds and uses the proceeds to purchase a credit portfolio from a different corporation. The repayment of the bonds is guaranteed by the cash flow from the purchased credit portfolio.[75] A securitization sale has major advantages, including diversification of the sources of financing for credit providers and the creation of additional investment channels. The securitization instrument may be even more important during periods of crisis such as the COVID-19 pandemic, during which the regulator is interested in incentivizing the banks to provide credit to small and medium-sized businesses, with emphasis on the riskier ones. If securitization is a possibility, then the banks and nonbank institutions will be less reluctant to provide credit to riskier businesses since they will be able to securitize it, remove it from their balance sheets and use the proceeds from the sale in order to provide new credit. The securitization instrument can similarly support nonbank credit providers' ability to obtain financing for the provision of new credit. Additionally, securitization can create an additional source of financing for nonfinancial companies.

From a regulatory perspective, a major challenge in adopting securitization is to reduce moral hazard, in which corporations exploit the extra information they possess by selling low-quality credit portfolios. This leads to the public investing in bonds that are backed by low-quality assets. The main way of allaying this fear is for the law to require the corporation selling the credit portfolio to retain part of the risk of the sold portfolio.

The current volume of securitization transactions is particularly low in Israel relative to other countries. This is partly due to the lack of an appropriate regulatory infrastructure. Various committees in Israel have worked to advance the regulation of securitization.

Recommendations with regard to the passing of the Securitization Law

Advancing the legislative process to adopt the Securitization Law – The law is intended to regulate issues relating to taxation[76], the extent of disclosure to investors, and the definition of a "true sale", thereby reducing the risk that the creditors of the securitizing corporation will not be able to collect from the asset portfolio that was sold. This is in addition to adopting regulations that will reduce the moral hazard of the securitizing corporation (by establishing a mechanism of self-participation in the risk, whereby the securitizing corporation is obligated to hold a minimal percentage of the portfolio).

[75] In a securitization transaction, various groupings of bonds (tranches) are usually issued and are differentiated by their repayment priority from the cash flow of the backing asset. The bondholders with the highest seniority have the right to be repaid first. These bondholders face the lowest credit risk since they receive full or partial proceeds from the redemption even if some of the original borrowers are unable to pay off their debt. After them, the bondholders with intermediate priority collect. As long as the cash from the backing assets does not run out, the bond holders with the lowest priority will also be able to collect from it.

[76] The law is meant to regulate the taxation issues in order to ensure that such securitization transactions do not create an excess tax burden on the initiator or on the investors, and does not provide them with a tax exemption or tax incentive.

Improved Credit Access for Small and Medium-Sized Enterprises (SMEs) in Israel

Background to the recommendations

Small and medium-sized enterprises (SMEs) account for a significant proportion of economic activity in Israel, as is the case in many developed countries. The contribution of SMEs (the self-employed and employers of up to 99 employees)[77] is reflected in employment (they account for about 60 percent of the workforce in Israel) and in the fact that they are responsible for about 54 percent of business sector output and participate in about 75 percent of sales turnover (Figure 28). Even though SMEs are a major growth engine, in Israel they face major obstacles in obtaining financing, particularly in comparison to larger companies, a situation that became particularly evident during the COVID-19 crisis (Figure 24 and 25).

The phenomenon of limited access to credit for SMEs is not unique to Israel and is recognized as a global phenomenon, particularly in the developing countries. A document published by the G20 (a forum of the 20 largest economies in the world)[78] on SME financing reported that access to financing constitutes a critical barrier for these companies in maintaining and growing their businesses. One of the reasons for the limited access to credit among SMEs, according to a survey carried out in 135 countries (Ayyagari et al., 2017), is the lack of complete and reliable information.

There are two main areas of research in the academic literature that are relevant to the question of whether an improvement in the financial information available on SMEs increases their access to credit. The first is related to the effect of information sharing, while the second is related to the effect of businesses' credit ratings.

The theoretical models of Pagano and Jappelli (1993) and Bennardo et al. (2014) show that sharing of financial information can help lenders and borrowers overcome problems of information asymmetry, with the result being a larger volume of loans[79], improved access to credit, and lower rates of interest and default. The insights from the theoretical models are supported by empirical evidence. Jappelli and Pagano (2002) used a multi-country survey to show that the volume of bank loans is higher and credit risk is lower in countries where lenders share information, regardless of the nature of the information sharing (i.e. private or public). Djankov et al. (2007) looked at creditors' rights and the public and private databases in 129 countries and found that investor protection and information-sharing institutions are associated with a higher private-debt-to-GDP ratio. It was also found that following legal reforms that improved these two areas, there was an increase in the volume of credit.

The empirical research on credit bureaus has found that they make a positive contribution, beyond that of information sharing. Peria and Singh (2014) analyzed the effect of reforms in information sharing on company financing by means of a survey carried out in 63 countries. They found that credit bureaus make a positive contribution to businesses, and particularly that they lead to greater access to credit, a drop in the cost of financing, longer terms-to-maturity, and an

[77] According to the definition of the Agency for Small and Medium Businesses, which is based on number of employees.

[78] A joint publication of the World Bank, the IFC and the SME Finance Forum. For further details, see https://www.gpfi.org/sites/gpfi/files/saudi_digitalSME.pdf

[79] When adverse selection is so severe that safe borrowers drop out of the market.

increase in the proportion of working capital financed by banks. They found evidence that credit bureaus have a more pronounced effect for smaller and younger companies.

Models of financial information sharing

International experience indicates that many developed countries[80] have a designated platform for the sharing of credit data (including business and household credit). A number of countries have a central credit database, which is usually managed by the central banks. The sharing and gathering of data is carried out by a Central Credit Register (CCR) which is responsible for the operation of the database.[81]

There are countries in which the information sharing model is not by means of a CCR and not operated by the central bank, subject to the privacy protection laws in each country. In these countries, the credit bureaus are interfaced with information on a different platform, and share information and ratings with bank and nonbank credit providers. Examples can be found in the US, Canada, Australia, and the UK. In the UK, for example, there are special arrangements that include the mandatory reporting of credit data on SMEs to the credit bureaus. In this way, designated banks report information—with the consent of the customer (namely, the SME)—to designated credit bureaus that have been approved by Her Majesty's Treasury.

A different model of information sharing—not by means of credit bureaus—is in its startup phase and is based on an open data platform for SMEs. The model, which is based on the recommendation of the Bank of England and is under its auspices, brings together multiple sources of information (beyond just financial information) on small businesses. Similar digital information-sharing platforms exist in Australia and China (using different architectures).

Business databases in Israel

There is currently no designated information sharing platform in Israel for SMEs. There are two private credit bureaus (BDI and D&B)[82], which are also recognized as providers of business intelligence, and which gather information on tens of thousands of businesses, including SMEs. The two companies provide business ratings based on internal methodologies and statistical models, although they are subject to numerous limitations. The main information that is used to determine ratings is provided by the rated companies themselves, without any access to centralized bank information. Therefore, the use of their databases is primarily for business purposes and not necessarily for the provision of credit, as is the case in many developed countries.

[80] These countries, including the Czech Republic, Spain, Germany, Portugal, Ireland, and others maintain a CCR–type credit database. The model and its implementation differ somewhat from country to country due to differences in the legal situation or the regulatory structure.

[81] Apart from a central credit database, which is common in the European countries, the EU has initiated the creation of a new type of database called AnaCredit (Analytical Credit Dataset). The novelty of this database, in contrast to the currently existing CCR-based credit databases, is the gathering and centralization of data according to a uniform standard throughout the EU countries. The database is meant to meet the needs of the ECB. Since the database provides information on the loan-by-loan level, it provides plentiful information on businesses, particularly SMEs.

[82] Kav Mankheh launched a third credit bureau about a year ago.

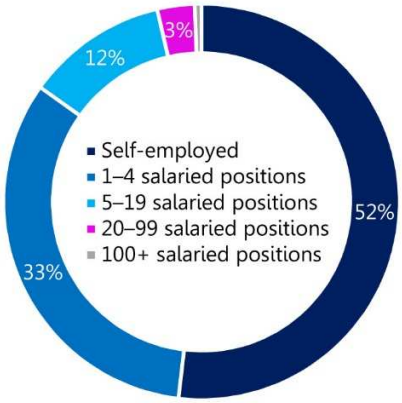
Furthermore, the Credit Data Law, 5776–2016 created a format for the sharing of credit information in Israel. Based on this law, the Bank of Israel set up a credit information system, which it has operated about two years. The system includes a centralized database which is regularly fed information on private customers (mainly households). The information is then provided to various users by way of the credit bureaus, which are supervised by the Director of Credit Information Sharing. The database also includes data on businesses, but in general these are micro businesses, which certainly do not represent all SMEs.

Recommendation to improve access to credit for small and medium-sized enterprises (SMEs) in Israel

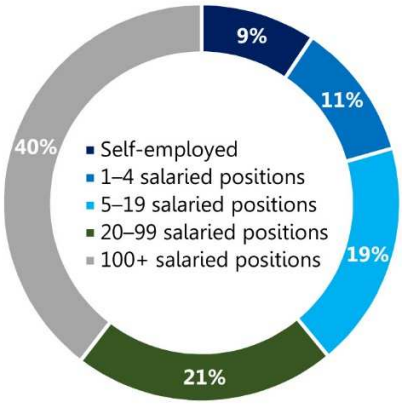
Based on theoretical models and empirical evidence, the literature shows that information sharing makes a positive contribution to credit accessibility and competition, including for SMEs. The improved sharing of financial information on SMEs among a large number of information consumers may provide a solution to increasing credit accessibility for these businesses. However, as a complementary measure in view of both the concentration of credit to SMEs within the banking system and the numerous limitations of existing business information providers, we recommend considering the development of a mechanism for the sharing of financial information by means of a credit database designated only for SMEs.

Figure 28: Small and Medium Businesses' Contribution to Economic Activity

28.1: Distribution of the number of businesses in the business sector by size group, 2018



28.2: Distribution of the number of positions in the business sector by size group, 2018



28.3: Distribution of business sector output by size group, 2018

28.4: Distribution of sales turnover in the business sector by size group, 2018

SOURCE: Periodic report on the state of small and medium businesses in Israel (2020), Agency for Small and Medium Businesses.

Removal of Barriers in the Factoring Market

Background to the recommendations

Factoring is a financing channel for the business sector, in which a business that provides a good or service receives financing against a commercial debt owed to it by its customers (also known as invoice discounting). As part of a factoring transaction, the supplier receives payment from a third party (a credit provider, whether it be a bank or nonbank entity) at the time of the delivery of the good or service. When the customer pays, the money is transferred to the financing body, which has been assigned the rights to this receivable, by way of the supplier's bank account. From a number of perspectives[83], it is important to determine whether this is a "true sale" or whether it simply involves providing collateral (a loan backed by the invoice).

Factoring can improve the variety of financing possibilities available to businesses, and can benefit small and medium-sized enterprises (SMEs) in particular. The main characteristic of factoring, relative to other types of financing, is the transfer of the customer's credit risk from the supplier to the credit provider, such that if the transaction is with a large customer, the supplier will "enjoy" a lower cost of financing relative to a regular loan. As such, this type of activity can be particularly beneficial for SMEs.

There are numerous legal difficulties in operating such a market in Israel, which are related to the protection provided by the law to the financing providers in such transactions. (These difficulties have become even more problematic as the result of an important legal ruling on this issue.) From the point of view of collection it appears that the judicial system incentivizes businesses to prefer payment by way of check. The reason for this is that if the check is not honored, substantial sanctions can be imposed on the customer, based on the Checks Without Cover Law. Moreover, the law in Israel makes it possible to limit the supplier's rights to assign (sell) the debt to a third party, a situation that does not exist in many other countries.

In addition to the legal obstacles, there may also be regulatory barriers that are relevant, primarily in the case of nonbank entities. This is due to the restrictions placed on their access to the supplier's bank account, based on the stipulations of the Money Laundering Prohibition Order. As a result of regulations adopted in recent years with respect to nonbank credit providers under the supervision of the Capital Market Authority, it is important to enable these entities to operate in the factoring market in order to realize their potential to compete with the banking system. We emphasize that once nonbank entities have been given the option of issuing bonds on the stock exchange (another source of financing in addition to bank financing) it is important to allow them to continue to diversify the types of credit they can provide to the business sector, particularly types of credit that are beneficial to SMEs in the economy.

A international comparison of the volume of factoring shows that there are structural and legal factors that are unique to each country, and particularly between groups of countries: the US and Canada; France, Italy, and Britain; and Sweden and Germany. In most of the European countries (including Germany), factoring transactions reach 8 to 15 percent of GDP, and they are defined as

[83] From a legal viewpoint, a differentiation should be made between a transaction in which an invoice is sold to a financing entity (a "true sale") and a credit transaction in which the collateral is the customer's invoice. From a financing point of view, the transactions are similar, given that the financing entity's legal rights remain identical in the case of a bankruptcy of either side, i.e. the customer or the supplier.

true sales. In the US, the law provides broad protection of guaranteed lenders, which does not exist in the European countries. Factoring transactions in the US are therefore carried out by way of loans backed by an invoice, which is a substitute for a sales transaction. In contrast, in Israel there appears to be a low level of factoring transactions (less than one percent of GDP) and as mentioned, there are legal obstacles in Israeli law to carrying them out by means other than the Sales Law or as an invoice-backed loan. Therefore, an amendment of the Sales Law in order to facilitate factoring transactions can expand the efficient use of credit to the business sector, particularly for relatively small companies.

Recommendation for removing barriers in the factoring market in Israel

Creation of a legal infrastructure that is appropriate for factoring transactions (sales or invoice-backed loans).

Creating a Mechanism for a Benchmark Interest Rate Market and the Development of the Repo Market in Israel

Benchmark interest rates serve a number of functions in other countries in a variety of financial activities in the capital, money, and credit markets.[84] They make it possible to diversify financing options, reduce the risk from sharp changes in the interest rate and lower the cost of early repayment of credit. In contrast, most financial activity in Israel relies on a fixed nominal interest rate or a variable daily rate (the prime rate).

Furthermore, benchmark interest rates constitute an infrastructure for the interest rate futures market. Should such contracts, which are dependent on a benchmark interest rate, be developed, they would make it possible to increase the liquidity for hedging risk by both businesses and households, based on the use of derivative financial assets. An international comparison of the level of activity in derivative financial assets indicates that while in Israel the level of activity in foreign currency derivatives relative to GDP is similar to levels in other developed countries, the use of interest rate derivatives is at a very low level. Moreover, benchmark interest rates are used for banking products (such as mortgages) in other countries, while in Israel there are no banking products that are dependent on benchmark interest rates. (Rather there are only products with a fixed interest rate or a variable daily interest rate, i.e. the prime.)

In order to respond to the crisis that occurred in 2012 in the global benchmark interest rate market, which is based on the LIBOR market, many countries decided to find an alternative by means of creating new risk-free interest rates based on actual transactions rather than quotes. The central banks of the world are very active in this process of changing the benchmark interest rates and transitioning to risk-free benchmark rates. A significant proportion of the central banks in the developed markets already publish risk-free alternative interest rates. The Bank of Israel established a voluntary committee that has been working to create this market since 2006, but the Bank is interested in setting up this market according to the new structure that is recommended among the developed countries and according to the characteristics of the financial system in Israel.

The creation of this market will make it possible to develop financial products, such as banking products—loans, deposits, and structured products—that are priced according to these interest rates. These include credit lines and deposits indexed to the benchmark interest rate with the addition of a customer credit risk premium. This will enable the development of trade in interest rate contracts on the basis of the benchmark interest rate, and the future issue of government bonds with a variable interest rate according to the benchmark.

The **repo market** is the most developed market for managing the cash flow of financial entities and large corporations worldwide. In a repo transaction, an entity that owns a tradable security (entity A) sells it to a different entity (entity B) and at the same time commits to repurchase it in the future. In this way, entity A is borrowing money and entity B is lending money, with the security serving as collateral for the transaction. In the event of a default, the collateral becomes the property of entity B immediately, giving the loan a low level of risk. One of the advantages of the transaction is the possibility for an entity that owns a bond to obtain immediate liquidity

[84] Including many financial products, such as loans and deposits, bonds, and structured financial products.

without selling any assets. In addition, companies can manage their cash flow in the repo market with a low level of credit risk. Finally, financial bodies that own bonds that are in demand by other participants can add yield by means of a repo transaction.

The legal infrastructure for executing repo transactions and expanding the market has been in place since 2006 (Contracts in Financial Assets Law – 2006).[85] In 2007, the Ministry of Finance, the Bank of Israel, and the Tel Aviv Stock Exchange began a joint effort to promote this market, where the Bank of Israel issued repo tenders to the banks. Institutional investors and the Bank of Israel Legal Division formulated a bilateral GMRA agreement based on the local legal infrastructure, with the goal of assisting the institutional investors to negotiate transactions among themselves. However, the market has not developed since then, primarily due to the liquidity situation in the financial system.

It seems that the conditions may now be more conducive for the development of the repo market. Although the liquidity situation has not changed, the Bank of Israel carried out repo transactions with all of the major domestic institutional investors during the COVID-19 crisis, and this activity contributed to the market's understanding that there is a need for this kind of instrument. Recently, some of the domestic participants have also carried out transactions with foreign entities. Furthermore, and as a result of the program implemented during the crisis, the Bank of Israel now holds a relatively large portfolio of government bonds and can be actively involved in the market if necessary. The development of the repo market can also support the development of benchmark interest rates.

[85] It is worth mentioning that a minor amendment of the law is needed and is being dealt with by the Legal Division in conjunction with the Ministry of Justice.

The Advancement of Legislation for Open Finance in Israel According to its Broad Definition

Background to the recommendations

A workgroup that includes representatives of the Ministry of Finance, the Israel Securities Authority, the Capital Market, Insurance and Saving Authority, the Ministry of Justice, the Bank of Israel, the Protection of Privacy Authority, and the Competition Authority has formulated a legislative memorandum, according to which the banks and the financial institutions will be required to provide supervised third parties with access to a customer's financial information, conditional on his consent (through API – application programming interfaces). The API legislation will make it possible for financial institutions to receive or provide information in the name of a customer and with his consent in order to provide the following services: cost comparisons, information gathering from a number of financial institutions, obtaining value propositions from financial services that compete with those offered by the banks, and obtaining financial advice for the customer. The open finance reform also advances the issue of payment initiation.

Regulation will make it possible for the public to use information possessed by the banks and thereby to benefit from services provided by high-tech companies. An example would be services that support greater competition in financial services. The information can be used to compare prices based on the customer's needs, thus making it easier to understand how much he is actually paying for the services he consumes and how much he would pay for those services if he switches to a different supplier. If the customer decides to consume the services of a number of financial bodies, the transparency of the information will enable him to gather together all of his financial information and to view it at a glance.

The Provision of Financial Information Services Legislative Memorandum, 5780–2020 was distributed for public comments in June 2020 and a hearing was held for the presentation of comments on the memorandum in September 2020. The law was also included in the government's draft Economic Plan for 2020, which was published in July 2020, and is expected to be implemented as part of the Economic Program Law after a government is formed. This amendment will position Israel among the leading countries with respect to access to financial information.

Given the developments and innovations in this area among fintech companies, it is important that legislation in this area encourage future development and provide access to open data, including information possessed not just by the banks and the credit card companies but also by other financial companies and service providers, such as the Israel Electric Company and the communication companies.

Recommendation for open finance

As part of the advancement of legislation to adopt open finance according to its broad definition, it must be ascertained that the financial information to which it applies—both for households and corporations—will include information from all of the financial bodies and not just the banks. Furthermore, it should be verified that the potential for innovation and cooperation between existing financial bodies and the fintech companies, as well as the value added for customers, will

not be harmed as a result of setting boundaries on the uses that information producers and providers are likely to make of the information.

Shifting to Uniform Nominal Taxation of Capital Gains and Interest from Financial Assets

Background to the recommendations

In 2003, following the publication of the Rabinovich Committee's report, the government began taxing individuals for capital gains, while differentiating between two tax categories: nominal assets and real assets. At that time, real investments were taxed at a rate of 15 percent and nominal investments at a rate of 10 percent. After first raising the tax in both cases by 5 percentage points in 2006, the tax on real assets was raised again in January 2012, such that the tax rate on real investments is currently 25 percent and that on nominal investments is 15 percent. The distinction between taxing nominal investments and real (CPI-indexed) investments is unique to Israel and is meant to adjust taxation to inflation. On the other hand, this system can lead to distortions in investment due to tax considerations, such as when forecast inflation is not expected to lead to the same effective tax rate on nominal and real investments, given the expected rate of return.

The method of two capital gains taxations tracks (nominal and real) that are substitutes has implications for the profitability of investment in those assets, and as a result will affect their prices. This method, which is unique to Israel, therefore constrains investors' ability to diversify their investments in a way that is efficient for the economy.[86] For example, the profitability of investing in indexed and unindexed assets is partly dependent on the inflation trend, since tax considerations will have a significant weight in the investment decision. In this context, it is important to emphasize that some of the distortions that this method of taxation creates also generate undesirable incentives in terms of changes in the exchange rate. In particular, the different indexation bases between investment in shekel-denominated financial assets and investment in assets denominated in foreign exchange creates excess volatility since the payment of tax on profits from foreign assets is not dependent on changes in the exchange rate. Thus, when a depreciation (appreciation) is expected in the shekel, this increases (decreases) the incentive to invest in foreign assets and contributes to accelerating the depreciation (appreciation). It is therefore important to apply uniform nominal taxation on holdings of financial assets denominated in foreign exchange. The problem is amplified when the shekel depreciates or appreciates as part of a long-term trend. In such a situation, the current method of taxation creates undesirable incentives in terms of volatility in the exchange rate and limits investors' ability to diversify their investments in a way that is efficient for the economy.

The calculation of the capital gains tax and the tax rates themselves vary across countries, but it is important to note that they all define a uniform nominal tax category for all types of assets.[87]

[86] See the article by Roy Stein, "The Effects of Taxation of Capital Gains on the Pricing of Financial Assets", Discussion Paper, Bank of Israel Research Department, August 2015.

[87] Some countries have defined an exemption from taxation on profits below a fixed level, and there are many countries that have defined the tax rate on capital gains as a function of the tax rate on the individual's total income. The following are the tax regimes for capital gains in four selected countries: The US has set out three levels of tax rates as a function of the individual's annual income – 0 percent, 15 percent, and 20 percent. Canada has set the tax rate on capital gains at 50 percent of the individual's personal tax rate, where the top tax rate is about 53 percent, making the capital gains tax rate for the highest income earners

Under certain conditions, some countries allow for a lower tax rate on long-term holdings, in order to overcome the main shortcoming of the nominal taxation method, which has to do with the inflation rate. When inflation is relatively high, capital gains grow in nominal terms and the tax collected increases accordingly. Thus, there can be a situation in which capital gains in real terms will be low and even negative and tax will still be paid (on the nominal capital gains).

Recommendations for a shift to uniform nominal taxation of capital gains and interest from financial assets

Creation of a workgroup that will initiate the shift to a uniform nominal tax calculation for **capital gains and interest from financial assets**, as is the practice in other countries, with the necessary modifications.[88]

26.5 percent. The UK has set two tax rates on capital gains—10 percent and 20 percent—while Japan has set a tax rate of 20 percent, although it allows a tax offset against the financing of credit.

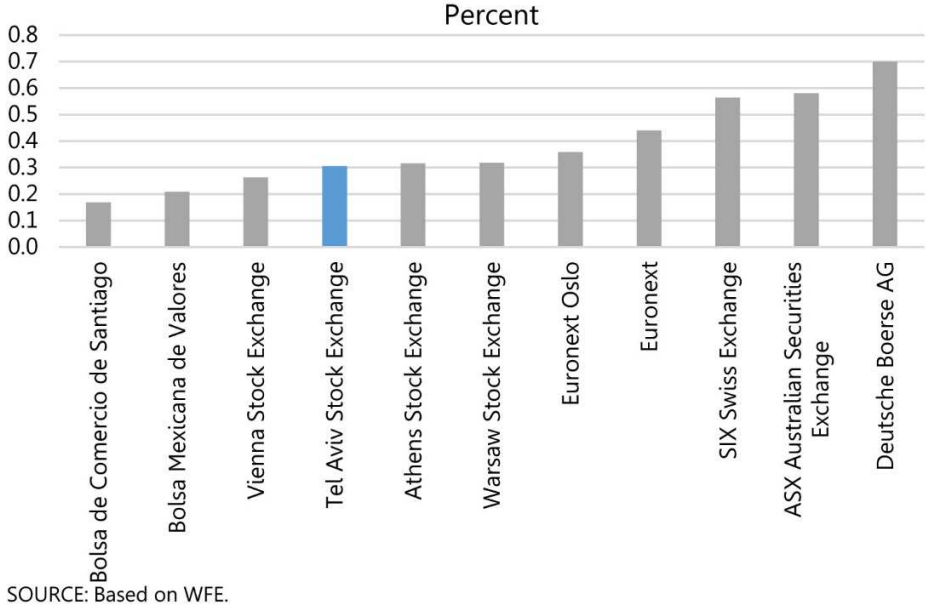
[88] For example, investment for a period of two years or more and an annual average rate of inflation of over two percent, which is higher than the midpoint of the target inflation rate. The reduction in the tax rate will be a function of the rate of inflation beyond the midpoint of the inflation target range.

Increasing Liquidity in the Stock Exchange – Market Making Alongside an Efficient and Competitive Lending Pool

Background to the recommendations

There is a significant gap between the potential and actual levels of liquidity on the Tel Aviv Stock Exchange. The TASE's level of liquidity is low relative to stock exchanges in other countries (Figure 29). The volume of trading relative to issued capital (turnover rate) in Israel is estimated to be about half of that in other countries. Figure 30 shows that the turnover rate on the TASE declined somewhat during the years prior to 2016 and has recovered to some extent in recent years, although these levels are still considered to be low relative to other countries.

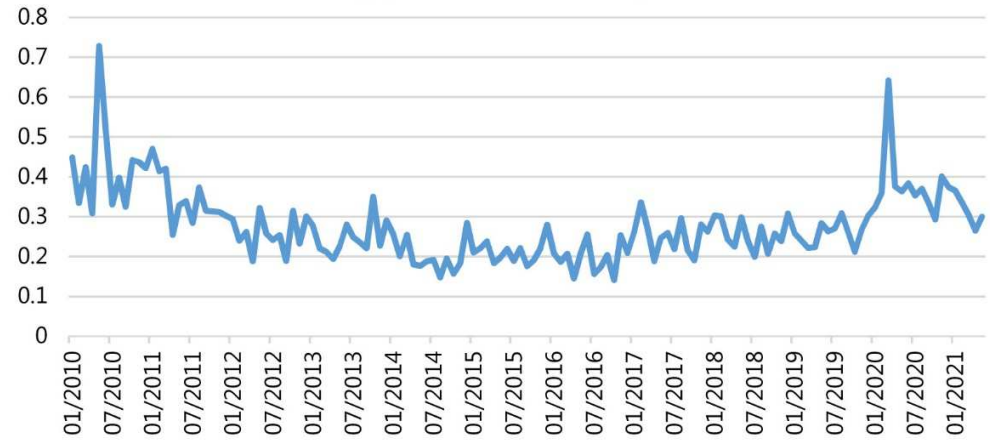
Figure 29: Average Monthly Turnover Rate in Equities, Selected Countries, 2019



SOURCE: Based on WFE.

Figure 30: Monthly Turnover Rate in Equities, Tel Aviv, 2010 to May 2021

Excluding government bonds, percent



SOURCE: Based on Tel Aviv Stock Exchange.

Many stock exchanges worldwide invest significant effort in increasing the liquidity of trading in the shares of large companies, using various market making models. This liquidity provides investors that manage large investment portfolios with the ability to invest in securities while buying and selling them as necessary without any significant loss of liquidity. Strengthening liquidity increases the feasibility of investing in securities, which can in turn increase the attractiveness for companies to list for trading.[89] It is important to emphasize that it is customary for many stock exchanges to differentiate between market making that is paid for by the traded companies themselves and market making that is paid for by the stock exchange through the reduction in fees for trading and settlement (and in some cases other benefits, such as exclusivity in additional information). The former is mainly aimed at small companies that are interested in being sufficiently liquid in order to remain listed, while the latter is aimed at larger companies whose shares the stock exchange would like to be more liquid in order to attract large investors. Market-making in the latter framework is generally carried out by large financial bodies.

It is important to mention that the TASE has a framework for market making but only for small companies, and in that framework a fixed monthly fee is paid by the companies themselves. The goal of this framework is to keep small companies above the threshold for trading. This framework has barely been expanded, and remains controlled by only three TASE members.[90]

[89] Indeed, relative to other countries, we found that Israel has a low ratio of average market value of public companies to GDP. This finding is in line with the fact that some of the large companies in Israel have delisted from the TASE (Mellanox, SodaStream, Mazor Robotics, Frutarom, Ituran, and others), some have preferred from the outset to remain private, and some have preferred to list directly on foreign stock exchanges. We believe that this situation reduces the possibilities for large investors (including institutional investors) to invest in shares listed on the TASE.

[90] The market-making framework is undersized in Israel due to the lack of a lending pool that is accessible to market makers. They are therefore often forced to carry out back-to-back trades, which are not a characteristic element of market making. Orry Kaz and Roy Stein (2018), "The Strategies Employed by

Recommendations for increasing liquidity in the TASE

To create appropriate incentives that will attract larger-cap market makers who will be able to provide liquidity in large quantities in order to compensate for their inherent disadvantages relative to regular dealers. Among other things, it is recommended that trading fees for market makers be reduced. In addition, an efficient and competitive lending pool should be established.[91] Finally, the barriers facing Israeli banks in this activity should be reconsidered.

Algorithmic Traders on the Tel Aviv Stock Exchange and the Connection Between Them and Indicators of Trading Quality," Bank of Israel, Discussion Paper 2018.6, July 2018.

[91] The TASE began operating a new lending pool this year, but it has not yet released information on its activity or its liquidity. We emphasize that the lending pool's activity will expand along with the scope of market-making activity.

The Payments System and Advanced Means of Payment

Faster Payments

The financial market overall and the payments market in particular have undergone a process of development in recent years, due to both the introduction of new technological products and services and measures taken by the Bank of Israel and the government, which have supported the entry of nonbank participants into this market. Retail payment solutions that are currently in use in Israel are based on payment cards or deferred payments.

Fast payments make it possible to transfer money from the various banks 24/7, quickly and conveniently, to the beneficiary. In addition to the possibility of fast payment, this service constitutes the basis for a variety of payment solutions, including: payment at the point of sale terminal by means of immediate transfer from the account; payments on a business's website (e-commerce); transfers to contacts using digital wallets by means of account debiting; providing fast credit to a customer; financial intermediaries such as platforms for credit intermediation between individuals; and other financial solutions that businesses can integrate within the services they offer to customers.

These services are expected to improve consumer welfare and to create a better user experience; to assist businesses in collecting their revenues earlier and lowering the cost of acquiring; and to advance competition between payment systems and means of payment. Some of the savings in transaction costs will be used to create better conditions for the customer, in the form of benefits and loyalty discounts.

In a number of advanced economies, the adoption of fast payments, in which regulators have taken a leading role, has constituted an important milestone in the development of the payments field. It has led to competition and value propositions—in the area of credit and in finance in general—that are offered by nonbank companies.[92]

Furthermore, it is expected that fast payment systems in specific countries will be connected to one another in the future, thus allowing for cross-border payments that are cheaper and faster than currently existing solutions. The Bank of International Settlements, which brings together 63 central banks including the Bank of Israel, is planning the Nexus platform, which will enable cross-border payments at a speed of 60 seconds or less, by connecting between fast debit systems.[93] Making cross-border payments more efficient and cheaper will move the Israeli economy forward in many respects, including the import and export of goods and services, the activity of the high-tech sector, and more.

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[92] At the launch of the Bank of England's Innovation Hub in conjunction with the Bank of International Settlements (BIS) on June 11, 2021, participants active in the advanced payments market in Britain, particularly Sujata Bhatia, the COO of the Monzo advanced digital bank, and Katharine Braddick, Director for Financial Services in the British Treasury, noted that the assimilation of fast payments, a process led by the regulator in Britain, together with direct access granted to nonbank entities, has in recent years facilitated significant progress in the UK fintech sector. Press release on the event: https://www.bis.org/press/p210611.htm, and a recording and transcript will be uploaded to the site ww.bis.org.

[93] Nexus Cross-Border Payment Bridge https://www.bis.org/about/bisih/topics/fmis/nexus.htm

Currently the *Masav* company operates a fast payment system that enables the transfer of credits in Israel. However, most of the banks have not fully joined the system. An immediate debit service that allows beneficiaries to carry out fast debits of customers and a service for requesting payment in which the beneficiary sends a payment request to the customer have not yet been developed, since preparations for adopting these services have not yet been made by the banks participating in *Masav*.

In order to integrate a new product or service, an issuer of a means of payment is dependent on the deployment of the infrastructure among businesses, and the acquirers are dependent on the assimilation of the means of payment among customers. Another challenge resulting from the mutual dependence in the payments market is the participants' need to simplify the method of identifying the customer (see the recommendation for a national identities database).

In order to encourage development of the market and the integration of fast payment services, several regulatory steps are needed. For example, Europe made it obligatory to credit the customer more quickly, which encouraged the participants to shift to fast payment. The Bank of Israel is promoting the adoption of these measures. Nonetheless, it is recommended that the relevant regulatory bodies prioritize the supporting measures to whatever extent possible.

The government as a catalyst in the adoption of digital means of payment

The government—as the largest service provider in the economy—can serve as a catalyst to increase the use of digital means of payment, which will deliver a variety of benefits to the consumer, businesses, and the economy as a whole. The government's leading role in this effort could be manifested in its activity as the receiver and executor of payments. To the extent that these activities replace payment by check and cash—which still account for the lion's share of payments to the government—with digitally based transactions, it will encourage the adoption of advanced payment methods in both the government and the private sector. Similarly, greater adoption of digital payments by the government is in line with the development of the digitization of government activity and services (see the chapter on this topic below).

Licensing the provision of payment services

There are two sides to a payment transaction: the payer and the beneficiary. Therefore, an entity that is interested in providing payment services in this field is usually required to connect to other participants in the market in order to enable his customers to make payments to the customers of those other participants or to receive payments from them. To this end, the participants must connect to the payments systems that are carrying out the switching and settlement between participants. In order to ensure that the entity that is connecting to the payment system meets its commitments and does not endanger the system or the other participants in it, participation in the system requires a license that includes criteria relevant to the management of risk in the payments system.

Currently, the relevant licenses in Israel are those for a bank, for an acquirer (which today is granted to credit card companies), and for credit and deposit unions. However, new participants that are interested in providing only payment services according to a less risky model will be unable to meet the criteria to receive the current type of license. Therefore, the Bank of Israel, together with a number of government ministries, is promoting draft legislation that will regulate

the granting of a license for the provision of payment services based on European Directive PSD2, with modifications for the domestic market. The license is risk-based, on the one hand, since the license holder needs to hold customers' funds in trust, which almost eliminates the risk to those funds. On the other hand, the criteria for granting the license need to be less stringent than those for other existing licenses and to focus on the demands that are necessary and relevant to payments activity, such as requirements for data security, business continuity, etc.

The advancement of supervision and licensing in this field is expected to increase competition in the payments market and thus support greater innovation and a reduction in cost for consumers and businesses. Already now, participants in the market are making preparations for this possibility and many entities, such as the supermarket chains, the communication networks, companies in the gas station business, and fintech companies, are starting to provide payment services and creating collaborations in this field.

Supervision of this sector will have a major impact on the pace of licensing, on the synergy with other financial services, and on coordinating the connection of these entities to the payment systems.

Following an assessment by the Bank of Israel, a number of important guidelines were set out for deciding on the identity of the regulator:

The regulator should possess familiarity, experience, tools, and appropriate goals for maintaining the stability of the payment system. Since according to the license a license holder holds the customers' money in trust, as mentioned above, it appears that the risk of a license holder failing to provide payment services is not a risk to the customers' funds but rather to the stability of the payment system. In other words, the risk is that for a certain period, consumers and businesses will not have the ability to make payment transactions.

Supervision of payment service providers that generate systemic risk will be carried out by the Bank of Israel, which is responsible for the systemic stability of the economy.

Promoting connection to the payment systems – The license conditions are primarily meant to ensure that payment service providers can connect to the payment systems without endangering the operators of the systems or the other participants. Therefore, it is important that a regulator be familiar with the requirements for connection and with the relevant risk to the payment systems.

The pace of granting licenses and time-to-market – Unlike the supervision of entities that have an impact on financial and monetary stability, which involves a small number of large organizations and requires in-depth understanding of each of them, supervision of the granting of licenses for the provision of payment services involves a large number of small organizations. This fact requires that the regulator be able to supervise a large number of entities and create structured processes and automated systems. In addition, from the perspective of time-to-market, the time the regulator needs to understand the legislation in this field and to do the preparatory work for building a regulatory infrastructure for the granting of licenses must be taken into account.

A National Identities Database for use by the Payments System

Technological advances in recent years have increased the variety of possibilities for digitally providing full payment services, without the need to be physically present. Among other things, there are technological tools that make it possible to digitally carry out full remote identification and verification processes, without any human intervention. These changes go hand-in-hand with the changes in ways of using means of payments, which can now be done remotely. The connection of these two fields will accelerate the transformation to completely digital financial services.

The government identification system, which has been available to the various ministries in recent years, enables a secure remote identification of the citizen. As in the case of similar databases in other countries and the case of the recent EU announcement of a plan to issue a uniform digital means of identification to every EU citizen, including bank account details[94], it is recommended that the government identification system be expanded and made accessible to financial bodies, so that a citizen's payment account can also be identified. A national identities database, including payment accounts, will facilitate the fast and efficient execution of payments between the various entities in the payments system, such as payments between apps and digital wallets, including new payment service providers. Additionally, the integration of a national identities database, including payment accounts, is in line with the digitization of government activity and services (see the chapter on this topic below).

Recommendations regarding the payments system and advanced means of payment

1. Creation of a workgroup led by the Bank of Israel, with the participation of the Accountant General, the Israel Tax Authority, the Ministry of Transportation, Digital Israel, and other government ministries, with the goal of broader adoption of digital means of payment by the government.
2. Passing of a PSD law, including determining the supervisor of payment service providers, while taking into account the abovementioned guidelines.
3. Creation of a team that will include the Bank of Israel, the various financial regulators, the Computerization Authority, and Digital Israel, which will decide on the modifications needed to allow financial bodies to use the government information server and the national identification system.

[94] "Commission Proposes a Trusted and Secure Digital Identity for all Europeans", European Commission press release dated 3 June, 2021, https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2663

The Fourth Pillar: Improvement of Regulation and the Use of Technology to Increase the Efficiency of the Government

The increasing use of regulation to protect the public interest based on supervision and oversight of the private market has been characteristic of many countries since the 1980s. The process reflects a change in the state's method of intervention—from direct intervention by the government in the supply of goods and services to supervision and oversight of the private market in situations where there are liable to be market failures or when the market mechanisms harm an individual or the public interest.[95] In many countries, including Israel, there are regulatory authorities operating in various fields in which the government oversees the markets. However, when regulation becomes dominant, there is increased awareness of the disadvantages of poorly designed regulation.[96] This is liable to result in a situation where constraints on private and social activity that are based on a desire to protect the public interest actually harm public welfare and productivity of the economy. The regulatory reform adopted in Israel in 2014[97] (which was later than in other OECD countries) was intended to create infrastructural and across-the-board mechanisms that relate to all regulatory processes in Israel and that are meant to improve existing regulation by reducing its excess burden and increasing its efficacy, its precision, and the degree of public responsibility that it reflects. Additionally, the reform states that all new regulation will contain a process of ex-ante evaluation of its implications, and the evaluation's conclusions are to be made public before the regulation is legislated. At the end of 2018, an additional government decision was made[98] that more precisely defines the governmental and ministerial processes for the implementation and oversight of "smart regulation", namely regulation that is efficient, precise, and transparent to the public.

The integration of technology in government activity, such as advanced information systems and digital platforms, improves the implementation of processes within the government and its interaction with individuals and firms; improves service to the public; and makes it possible to manage the information possessed by the government and use it to support decision making and innovation. These advanced tools also contribute to reducing bureaucracy and removing barriers facing certain population groups or businesses. As a result of the increasing use of technology, public sector activity becomes more efficient, as does the interaction between it and the business sector. These measures also contribute to increased efficiency in the business sector itself, whose activity adjusts to match the improvement of its interfaces with the public sector.

Technological innovation is related to regulation in two ways. First, technological innovations, primarily those that create markets and change the way in which markets function, require

[95] Kariv et al., 2021.

[96] Such as a lack of balance and oversight in decision-making processes; a problematic legal basis for decision making—for instance the increasing use of procedures and license conditions; clumsy behavior in the supervision of a business in the field; a low level of service; and more. Other issues related to the implementation of a smart regulatory policy in Israel are surveyed in detail in Mor (2021).

[97] Government Decision 2118 in October 2014 required that the existing regulatory burden be reduced and that a process be established to evaluate the impact of new regulations (RIA – Regulatory Impact Analysis).

[98] Government Decision 4398 in December 2018.

regulatory changes.[99] To the extent that regulation is delayed, the assimilation of the change and the realization of its potential will also be delayed. To the extent that the regulation is more specific and relates to processes rather than outcomes, the motivation and potential to technologically innovate is more limited. However, technological means are also available to the regulator in order to make government regulation of the markets more precise, and they also frequently enable the streamlining of regulatory processes in a way that removes barriers to market entry (such as improvement in the technology for collecting tolls on toll roads).

Efficient, precise, and transparent regulation removes barriers to business activity. It reduces uncertainty and the risks to firms operating in the markets, and reduces the cost of bureaucracy (in terms of time and money) for businesses and for the government itself. The process of opening a business, which involves multiple stages and interaction with a number of government bodies depending on the nature of its activity, is a prime example. Managing it as a technological process will streamline it and will remove a major entry barrier faced by small firms. The entry of additional participants into the markets increases competition, raises productivity, and is likely to reduce costs to the consumer and improve the quality and variety of goods. Moreover, making a process technological is an opportunity to deal with the deep-rooted problems of regulation itself, for example by means of creating a platform for dialogue between the regulators, along with the requirement to adopt specific formats, limiting the types of conditions that can be input, etc. Although the shift to digital risk management will involve a major expense in the short term, in the longer term it will streamline processes and the regulators' performance. Another example is efficient regulation of the import of goods, which is expected to increase the variety of goods imported into Israel and reduce their prices. Alongside the lowering of regulatory barriers, it is important to also adopt facilitating regulation, which will encourage technological innovation and entrepreneurship. Examples exist in medical technology, transportation, and the financial industry.

In Israel, there are digitization processes taking place that are intended to improve data management and upgrade government services to the citizen, based on the guiding principle of adopting digital solutions according to the mapping of needs in the life situations of the citizen (the customer), in which he interacts with the government. This approach is reflected in Government Decision 260 of July 2020.[100] The improvement of the government's ability to use the data it possesses in order to efficiently manage and analyze policy will be achieved by way of the "Data Pond", which will create the infrastructure to connect between databases. It is important to continue the processes that have been initiated and to focus on the removal of barriers that delay their implementation at the desired pace. As in the case of investment in physical infrastructure, digitization and management of databases involve long-term large-scale projects, where some of the fruits will be enjoyed only in the relatively distant future. Therefore, perseverance is needed in planning and execution, although flexibility must be maintained in view of the changing reality, particularly technological changes.

[99] An example is the need for new regulation in the field of transportation, as a result of the entry of technology-based transportation services such as autonomous vehicles, drones, and renewable energy.

[100] Government Decision 260 of July 26th, 2020, "Plan to Accelerate Digital Services to the Public and to Promote Digital Learning, and Amendment of a Government Decision" https://www.gov.il/he/departments/policies/dec260_2020.

The COVID-19 crisis highlighted the widespread need for the use of technology in government activity and in providing services to the public, as well as demonstrating the benefits of its use. The pandemic accelerated the growth in demand for these services and expanded the number and variety of their users. The changes during this period demonstrated the ability to initiate digital processes that in the past were perceived as difficult to implement in the public sector. Data management and sharing between entities became even more important due to their contribution to reducing the information gaps from various content areas and the possibility of operating smart models for the management of the economy during the pandemic.[101] The transition of the education system to remote teaching raised numerous issues regarding the benefits and costs of this type of instruction, although it appears that in this case as well, the changes that were made in teaching methods will remain with us.[102]

Many other government units increased their use of digital tools during the crisis, in the context of interfaces with the public and between the units. For example, in order to avoid physically having to appear in the offices of the Tax Authority and the Employment Services, the option was introduced to carry out processes online. This required rapid regulatory and technological modifications while the demand for services of this type was growing. The adoption of the new working methods was carried out in multiple contexts and involved a significant effort by the workers in these units and the removal of organizational barriers, which facilitated change in such areas as worker mobility, shifting workers between functions and tasks, and the integration of alternative work formats and new technologies. This led to greater efficiency and an improvement of service provided by the public sector systems, and constituted an opportunity to change work norms in the public sector and to raise its labor productivity (Ministry of Finance, 2021). The expected progress toward the launch of the government cloud (Nimbus) is a significant jump in terms of the government's ability to improve its technological capabilities, expand its digital services, and include additional bodies within their scope, such as the local authorities, which constitute the main interface between the public sector and the population.

Two coordinating bodies are responsible for the advancement of digital services in the various government ministries and the promotion of across-the-board processes for their integration in the link between the government ministries and the government on the one hand and citizens and businesses on the other: the Digital Israel Initiative[103] (a body that formulates national digital policy governing the use of information technology and communication and assists government ministries and public sector organizations in implementing this policy) and the Government ICT Authority[104] (the coordinating body that connects between the government's digital technology

[101] For example, the traffic light model that uses information on the spread of the pandemic at the local authority level in order to direct the actions of the government and the public during the pandemic.
[102] Blass (2020a).
[103] For further details on the role of the organization: Ministry for Social Equality – the Digital Israel National Project (2016), "The National Digital Plan of the Government of Israel". Available (in Hebrew) at: https://www.gov.il/BlobFolder/news/digital_israel_national_plan/he/Digital_Israel.pdf
[104] For further details, see the National Digital Office – Government ICT Authority (2020), "Government Computerization – An Overview of Activity in 2020", available at :
https://www.gov.il/BlobFolder/news/2020overview/he/%D7%9E%D7%A1%D7%9E%D7%9A%20%D7%9E%D7%91%D7%98%20%D7%A2%D7%9C%20%D7%A4%D7%A2%D7%99%D7%9C%D7%95%D7%AA%20%D7%AA%D7%A7%D7%A9%D7%95%D7%91%202020%20-.%20%D7%A1%D7%95%D7%A4%D7%99%20(2).pdf

and information units operating in the various ministries, which are responsible for the necessary technological infrastructures). These bodies were created according to the Strategic Plan for the Israeli Economy that was presented by the National Economic Council in 2013 and was approved by the government. One of its six core tasks was the formation of a digital strategy for Israel.[105] In addition, the Central Bureau of Statistics (CBS) is responsible for advancing the process to create the "Data Pond" for Israel, and it is also working to integrate advanced technology into the process of gathering and publishing Israel's official statistics.

Advancing digitization in the local authorities is a major challenge. They constitute an important link between the government and the public, thanks to the many services they provide on the local level and due to their familiarity with residents' needs and their ability to provide a focused response. However, many local authorities—particularly the smaller ones—lack the technological and organizational infrastructure to carry out the transition to digital, and many of them are in need of assistance in order to move in this direction, an effort in which there are clear economies of scale.

It therefore appears that there is an organizational infrastructure for the advancement of digital processes in Israel, and it is important to reinforce it as its tasks and targets expand and to budget it accordingly. Digitizing government services and the management of the government's data are long-term and all-encompassing processes, and in many cases they require organizational modifications to the State's institutions during the adoption stage, the recruiting of the necessary manpower, and even modifying the contracts of core workers. The organizational and budgetary environment needs to support these processes. From the organizational perspective, it is also important to coordinate activity between the Digital Israel Initiative and the Government ICT Authority. As such, there would be major benefit in having them both under one manager—rather than splitting them between two different ministries as they have been in the past—and even including in this framework a coordinator of digitization in the local authorities, which will expand the activity of the existing unit within Digital Israel, and a body that will coordinated the expansion of the use of artificial intelligence. The creation of an independent government authority for digital and computer technology, to which all of these units will report and which will be headed by a senior professional in the Prime Minister's Office, may be an effective way to move the process forward.[106]

The following discusses a number of important issues related to streamlining government operations by means of changes in economic regulation and greater use of data and digitization in the government. We will present the health and education services as examples of areas in which expanding the integration of technological systems will produce major benefit. In healthcare, the COVID-19 crisis demonstrated the benefit of exploiting the economies of scale in the use of data in the public system. This information can also assist in the development of advanced models for the improvement and streamlining of public healthcare. In education, the integration of advanced technologies will, for example, help manage relative advantages in teaching and in the allocation of scarce resources. The role of the government here is two-fold.

[105] See https://economy.pmo.gov.il/CouncilActivity/Strategy/Pages/Socio-EcoAssessment2013.aspx

[106] Government Decision 3398 of January 2018 for the establishment of the National Digital Network may be an effective tool for advancing the process.

First, it should lower barriers to the development and integration of technology, and second, it should protect the interests of the individual, which is reflected in the protection of privacy and the confidentiality of information[107] and in ensuring access to high-quality public services for all groups in the population.

[107] For further details on ethical and other issues in the management of health databases, see The Israel National Institute for Health Policy Research (2016).

Easing the Regulation of Doing Business and Standards for Products

Background to the recommendations

The regulatory processes in Israel are in need of improvement. The OECD's PMR index, which measures the degree of excess regulation in the goods markets, shows that the regulatory burden in Israel is somewhat higher than the average for the OECD countries and that the regulatory processes that are particularly problematic relative to other countries are in the areas of government purchasing, electricity provision, airlines, and external suppliers (experts or foreign firms that are interested in taking part in local tenders).[108] Despite the efforts invested in recent years, the existing regulations carry excessive demands that weigh on business activity without having sufficient economic justification.

Regulation in the best-performing countries uses professional data infrastructure, risk management, and international standards (while adapting them to unique local characteristics) in order to achieve an optimal balance between regulatory benefit and the economic cost imposed on businesses. In contrast, regulation in Israel is often excessive because it does not relate to the reference countries and is motivated by a high level of risk aversion among regulators. This is reflected, for example, in the adoption of stricter standards than in other advanced economies. Thus, regulation in many fields in Israel (such as environmental quality, healthcare, etc.) is far more stringent than in other countries, thus harming the competitive ability of businesses in Israel. Furthermore, there are areas in which the regulations in Israel are unique, differing from parallel regulations in other advanced countries, such as the US and the EU.[109]

Another difference between Israel and other countries is in the balance between the business sector's need for regulatory certainty (particularly in areas that require long-term investment) and the regulator's need for flexibility in order to adapt regulation to change and new developments. Thus, frequent changes in requirements and a lack of stability are widespread in Israel at all levels of regulation, from legislation and standards down to the granting of individual business licenses. The changes are often made without any prior warning that would allow businesses to prepare themselves accordingly. As a result, businesses find it difficult to plan for the long term and make investments, and are forced to bear the high costs of adjusting to new regulations.

This imbalance in Israel also creates a high level of ambiguity for the business sector, such that the multiplicity of "gray areas" and the lack of clarity in the wording of requirements make it difficult for businesses to make decisions correctly and expose them to arbitrary regulatory decisions made by the officials that apply them. This situation is the result of laws, regulations, and procedures that are insufficiently clear and uniform as a basis for the instructions to a specific business (standards, specifications, etc.). Furthermore, there is a gap in the synchronization between the various offices and ministries when they share responsibility for a particular area. Thus, for example, the regulation of the food industry is shared by the Ministry of Health, the

[108] OECD Product Market Regulation (PMR) Indicators: How does Israel Compare? /https://www.oecd.org/economy/reform/indicators-of-product-market-regulation

[109] The Standards Law was changed in 2000 such that the default used by the Standards Committee of the Israel Standards Institute is to adopt the relevant international standards (if there are any), with modifications according to Israeli law. Currently, about 15–20 percent of the official standards are original.

Ministry of Agriculture, the Ministry of Environmental Protection, and others. The multiplicity of regulators also reduces the efficacy of the effort to protect the public interest. In addition to all of the aforementioned, Israel suffers from underutilization of digital systems. Although there has been an improvement in the introduction of digital processes in the interface between the citizen and the government, this process has been almost entirely absent in the interface between business and the government.

Recommendations with respect to the easing of regulation of doing business and standards for goods

1. To adopt the standards in place in other advanced economies, particularly the EU and the US, unless there is a specific reason that justifies changing them in the Israeli context. It is recommended that a mechanism of declarations be adopted that will replace inspections and pre-approvals. This will include the integration of complementary mechanisms that are in place in the EU, increased enforcement in the markets and the allocation of sufficient budget and manpower to efficiently carry out that enforcement.
2. To mandate by law that regulators take into account competition, the cost of living, the impact on small businesses, and other considerations related to the effect of their decisions on economic activity, in addition to the interests they are already meant to take into account.
3. To continue advancing "smart regulation" processes, according to Government Decision 4398 approved in December 2018 and Decision 2118 approved in October 2014. These include:
    a. Systematically examining how to reduce existing regulation and ensuring that new directives are put in place only after an RIA process, in which all new regulation requires an in-depth evaluation of its impact and the publication of that evaluation for comments by the public before the regulation is instituted.
    b. Adopting an overarching perspective with respect to the demands of government bodies on the business sector, in order to achieve greater synchronization and the elimination of duplication.
    c. Requiring the publication of all directives decided on by every regulator, and imposing sanctions or canceling the directive if it is not published as required.
    d. Amending the legislation and regulations that apply to businesses so as to cancel or shorten pre-processes and replace them with declarations, and then supervising compliance subject to conditions. This should include guaranteeing that the mechanism responsible for supervisory processes has sufficient budget and manpower to enable effective enforcement and a reasonable level of service.
    e. In this context, public sector employees should not have any personal responsibility for the realization of risk in the area that they regulate, except of course in the case of extreme negligence.

Efficient Regulation of the Import of Goods

Background to the recommendations

Israel's low labor productivity relative to other countries is particularly evident in nontradable industries and in tradable industries with limited exposure to imports (Bank of Israel, 2019). Regev and Brande (2015) examined the relationship between the increase in productivity (since 1995 and relative to the OECD average) and the level of exposure to competing imports and showed that in industries with a low weight of imports the rate of increase in productivity per worker was lower than the OECD average for those industries.

An examination of the prices of tradable goods relative to other countries shows that they are higher in Israel in most categories (Bank of Israel, 2011). There are a number of reasons for the disparity in prices relative to other countries, one of them being the low level of competition from imports or the existence of exclusive importers who do not face strong competition in the domestic market. Greater openness to competition, achieved through the removal of import barriers, is therefore expected to put downward pressure on prices in Israel and to result in greater efficiency among domestic producers.

Import barriers apply to a wide variety of goods and can be divided into two types: tariff barriers and nontariff barriers.

Tariff barriers

Tariffs are not particularly high in Israel. A total of less than NIS 3 billion (0.2 percent of GDP) is collected from tariffs each year, and they apply to a limited number of product categories and countries of origin. Furthermore, the tariff rates are gradually being reduced over time. Nonetheless, the remaining tariffs may be limiting the import of certain goods to a major extent, and perhaps even completely preventing their import. This is the case for a number of agricultural products on which there is a particularly high tariff. One of the claims to justify the remaining tariffs is that the tariffs imposed by Israel's trading partners on Israeli goods harm Israeli exporters, and the Israeli tariffs are intended to encourage countries to sign free trade agreements, which will improve the situation of exporters and importers on both sides. This argument was examined by the Trajtenberg Committee, which concluded that a cost-benefit analysis from the perspective of the economy as a whole does not justify high tariffs intended only to encourage trading partners to sign free trade agreements with Israel (Trajtenberg et al., 2011).

It is important to remember that in some cases tariffs (and quotas) are intended to achieve economic, social, and other national objectives. If there are such objectives, then removing import tariffs must be accompanied by direct support of the objective which the tariff was meant to achieve in the first place. Examples include subsidization of domestic production or support for residents of certain geographic areas.

Nontariff barriers

Nontariff barriers primarily include the regulation of imports, which creates a bureaucratic burden that constrains small and medium-sized importers. In some cases, the regulations even prevent

imports. As a result, the quantity and variety of imported goods are diminished and competition is reduced, as is the incentive to increase productivity.

Regulation in Israel is applied prior to a good entering the market (premarket). An importer that wishes to market a good in Israel is often required to go through the following processes prior to importing: importer registration/licensing; pre-approval for importing the specific good; and examination of a sample and its approval.[110] On the product's arrival at the port, a lab analysis and approval of release into the market are necessary, although in certain cases the submission of a declaration is sufficient. Under this method, the regulator is perceived as responsible for the safety and integrity of the goods, and the result is a long and expensive approval process, the costs of which are not borne by the regulator.

In contrast to the system used in Israel, enforcement of regulation in the EU takes place primarily in the markets. The producer must declare that he is in compliance with the regulations, and either he or the importer is responsible for meeting the conditions for importing the goods and for their quality. Enforcement is carried out by sampling in the markets, according to a plan that also takes risk into account. This system is applied to all goods, with the exception of sensitive food (which is defined more narrowly than in Israel) for which there is enforcement even prior to entering the market. In this system, the time to market is much shorter than is generally the case in Israel.

In March 2021, as a result of an interministerial work process that began in July 2019, an Import Groups Directive was signed, transferring more than 100 official import standards (which apply to thousands of goods) from the category subject to the most stringent inspection and bureaucratic regime to categories in which compliance with official standards is based on the importer's declaration. In some cases, this follows the examination of a sample from the shipment and in other cases not. The reform will be carried out in stages over the next two years, and for many of the goods the new regulations will go into effect only near the end of the period. This reform is an extension of the one that went into effect in 2018, which limited the Israel Standards Institute's monopoly in determining compliance with an official standard. Currently the testing market includes a number of other laboratories, although at this stage they carry out only a small percentage of the examinations.

Another way of encouraging competition is by means of parallel importing, which encourages competition with exclusive importers. Since Israel is an island economy, parallel competition takes on greater importance.

Recommendations to streamline goods import regulations

1. To modify the standards that apply to imported goods in order to align with those in the leading advanced economies, particularly the EU, apart from justified exceptions.
2. To accelerate the adoption of "enforcement in the markets", which will reduce the need for pre-import approvals and will expand importers' responsibility for the integrity of the imported goods.

[110] Standardization has improved in recent years, such that most of the Israeli standards are adoptions of the international standard. Nonetheless, there remain standards that are unique to Israel.

3. To modify the supervision of imports to accommodate the shift to “enforcement in the markets”, including the allocation of sufficient budget and manpower, and to adjust the severity of punishments and the capacity of the judicial system accordingly.
4. To adopt more flexible conditions for importing certain goods, based on a declaration by the importer that the product is identical to the one approved in other countries, without obligating the importer, including parallel importers to present documents from the producer.

Digitization of Government Services and Activity

Background to the recommendations

The integration of digital technologies in government services provided to businesses and individuals will streamline processes, which can shorten the time needed to deal with enquires from firms, reduce the number of bureaucratic stages, and even lower their cost. In 2020, Israel was ranked 22nd out of 38 OECD countries on the World Bank's Doing Business index. Israel's ranking according to this index has improved over the years, thanks to various bureaucratic reforms. For example, the last World Bank report stated that Israel had carried out major reforms in the digitization of tax payments and had streamlined the process of opening a business, and that this had improved its ranking in the index. Continuing to shorten and streamline bureaucratic processes is necessary in order to continue improving the business environment in Israel and to transform Israel into a destination that is even more attractive to investors and multinationals.

To illustrate, Israel has a low ranking on the index for registering property, and index that includes the cost of registration, the length of the process, the number of bureaucratic steps required, and the quality of the government authority responsible for the process. Israel's ranking is low in all four of the index's components. The analysis found that relative to other countries, the long time needed to register a property in Israel is the result of the large number of steps needed for registration and the low level of digitization in the process. The example of property registration apparently exemplifies a variety of services and bureaucratic processes carried out by the government, in which greater digitization would lead to shorter, cheaper, and more efficient processes.

Another area in which the index illustrates the need for improvement in Israel is the enforcement of contracts, in which Israel received the worst score. This index reflects the time and money needed to enforce a contract in Israel, for example by means of a civil suit. Currently, the average civil proceeding takes about three years and involves considerable cost relative to other countries. In order to improve the situation according to this index, it is essential to integrate technologies that will shorten civil proceedings, channel marginal proceedings to alternative mechanisms (such as administrative courts), and increase the cost of filing spurious suits.

The efficient execution of administrative processes and the integration of advanced technologies in order to simplify proceedings require appropriate manpower, in terms of both quantity and quality. An analysis carried out by the Bank of Israel (Productivity Report, 2019) indicates that the skill levels of public sector employees are no lower than those of their counterparts in other countries and therefore do not constitute a constraint on the adoption of advanced technologies in bureaucratic processes. In contrast, employment contracts based on compensation for formal education and less for ability and performance, as is standard in the public sector, occasionally pose a barrier to technological streamlining. Apart from reforms that deal directly with the adoption of advanced technological platforms in government activity, an appropriate level of flexibility is also necessary in employment contracts so that the efficiency resulting from the adoption of technology will also be manifested in the compensation of workers. This kind of flexibility has been adopted in a number of instances, such as the salary model adopted by the Israel Land Authority in 2011, which made it possible to hire workers according to their occupation and to compensate them according to their achievements during the previous year. Another

example is the Purple Label agreement that was adopted during the COVID-19 pandemic, which increased public sector managers' administrative flexibility, and made it possible to integrate technological tools and to change the job definitions and tasks of government workers among other things (Ministry of Finance, 2021). Thus, for example, the continuity of service to the public was maintained during the crisis by expanding the variety of services provided online by public authorities, such as the National Insurance Institute, the courts, and the healthcare system.

Although government decisions in recent years have initiated important processes to digitize government interaction with the public, the COVID-19 crisis underlined the importance of digitization and the ability to promote its integration. It is therefore important to accelerate the process through parallel efforts in a wider range of government activities. This will make it possible to more quickly converge to the vision of a digital and efficient government. It appears that in some cases, there is a need for greater commitment than what is expressed in government decisions, for instance through appropriate legislation that will set out the government's obligations to make digital services more accessible within a defined period of time and to make the necessary modifications in the areas of information confidentiality and the sharing of information among public bodies. In this context, it is important to advance the principle according to which citizens will have a single point of access to all information, transactions, and services provided by all of the government ministries and eventually the entire public sector. To this end, the National Digital system should continue to advance the government's "personal area" and business area.

Recommendations for the digitization of government activity and services

1. Expanding digitization in government services to the business sector, and particularly the shortening and computerization of property registration and its streamlining through the cancellation of excess regulation where it exists and the unification of bureaucratic procedures and their simplification as much as possible. Other examples include licensing and business closing processes, export processes, and the opening of a company/business.
2. Adopting a digital signature process that will avoid the need to be physically present as part of various government processes, based partly on the mechanism mentioned in Government Decision 260.
3. Emphasis in public sector wage agreements, including in local governments, on measures to improve and streamline service to the public, and particularly to adopt targets for integration of digital processes in interactions with business owners, subject to the adoption of obligatory service standards, and to offer ministerial salary incentives to meet those standards.
4. Establishing an obligation to provide digital services at a reasonable standard in a wider range of public bodies, particularly local governments, on the basis of existing infrastructure in the government cloud.
5. Allocating the resources needed to recruit the relevant manpower, both in the relevant government ministries and from outsourcing, in order to expand the digital transformation processes to additional domains that are not part of the government's current work plan.

6. Making the necessary legislative adjustments to meet the long-term digitization and data management targets, whether by updating existing laws such as the Protection of Privacy Law, or through new legislation.
7. Creating an independent government authority for digital and computer affairs, headed by a senior professional in the Prime Minister's Office.

Advancing the Integration of Technology in Government Services: Spotlight on Healthcare and Education[111]

Background to the recommendations

The public healthcare and education services are the backbone of the public service sector. All of Israel's citizens benefit from them, even if they do not consume them directly, and public expenditure on these services is the highest. These services were at the forefront of the response to the COVID-19 pandemic and its ramifications. The constraints imposed by social distancing emphasized the advantages—as well as the challenges—in providing these services consistently during the crisis, which was made possible largely through the integration of advanced technologies either in the past or in real time during the crisis.[112]

The Israeli healthcare system is all-encompassing and concentrated. Due to the size of the entities in the system and the fact that they serve a variety of age groups and populations without being able to choose their members[113], the potential economic benefit from greater integration of digitization in public healthcare services is evident throughout the management and service provision chain. In view of the many benefits from increased digitization in managing and operating the Israeli healthcare system, healthcare data should be treated as a national resource, and there is an obligation, as well as a public, economic, legal, and ethical responsibility, to exploit that resource for the benefit of the public and its various communities.[114]

There are a number of important economic benefits in implementing the Ministry of Health's vision to increase digitization in the system. Managing advanced information systems in healthcare reduces the information gaps between the various service providers and between them and their subscribers, and makes it possible to expand and develop advanced models for predicting illness, early diagnosis, and preventative medicine. Some of the health funds are already using databases and accumulated data to this end.[115] Accordingly, regulating the use of medical data is important in order to protect healthcare service consumers, including for example protection of their privacy and protection against discrimination, and in order to facilitate progress and greater efficiency in the research and development of drugs and advanced medical technologies. Advanced databases can reduce the bureaucratic burden and improve service to the public, such as when public treatment is divided between a number of providers. Finally, technological improvement in communication and AI are likely to help make the healthcare services more accessible and more efficient, in view of the scarcity of healthcare resources. For example, the integration of advanced models for disease prediction, home hospitalization, and remote medicine can support efforts to deal with demographic processes, such as the aging of

[111] Based on the Bank of Israel's function as economic advisor to the government, the emphasis in these recommendations is of an economic rather than pedagogic or health-related nature.

[112] For example, the sharing of information between the various healthcare organizations was responsible for the efficiency of COVID-19 testing.

[113] Combining the possibility of rejecting member candidates with the use of advanced digital capabilities would increase the risk that some citizens—those in high-risk groups—would not be accepted to the health funds.

[114] This discussion is based on the Ministry of Health Strategic Plan for Digital Healthcare: https://www.health.gov.il/PublicationsFiles/DigitalHealthStrategyApril2017.pdf .

[115] This advantage of medical big data in Israel illustrates the country's ability to take a leading global role in the development of preventative medicine models. See the discussion in Innovation Authority (2019).

the population. Moreover, the integration of technologies will improve the information interfaces and the service provided to customers, and will increase transparency. This is already happening in the form of the various apps that make it possible to consume information and services in the healthcare system.

During the COVID-19 crisis, the education system experienced an extreme case of prolonged remote learning.[116] Remote learning disrupted the routine in the schools and was not able to offer a reasonable alternative with respect to quality or quantity of learning, or with respect to the social experience and emotional envelope that is an integral part of attending school. The Bank of Israel (2021) raised the concern that the periods of remote learning will be manifested in a long-term reduction in the acquisition of education and in adult earning ability for some of the current pupils. This episode has highlighted the weak spots in the system, which require making preparations for future emergences that may also involve remote learning. It also provides an opportunity to understand how technology can be integrated into learning during normal periods and how that can improve the performance of the schools and the teaching staffs, in view of the relative advantages of the various teaching methods. Thus, for example, Blass (2020b) emphasizes the school's importance as a setting for social encounters that facilitates personal interaction and community building. This is particularly the case in an era of learning that is more individually oriented, thanks to the use—even if it is only partial—of technology. He also claims that the optimal integration of technology in remote teaching can help the education system exploit the advantages of those tools—at least in the case of some groups of pupils—with the goal of, for example, strengthening self-learning and a pupil's individual responsibility. It also represents an opportunity to empower teachers and enhance the independence of the school.

Recommendations for the integration of technologies in the healthcare and education systems

1. **Digitization in medicine:** To advance the use of technology in the healthcare system and in the management of medical data, as advocated in the Ministry of Health's Strategic Plan for Digital Healthcare. In this context, the healthcare services should be encouraged to integrate remote medical technologies in order to narrow gaps in the level of healthcare between regions and between population groups, alongside research that will verify the efficacy of the process. Technology should be used to improve the home hospitalization framework and care in the community, and digitization should be encouraged in the management of medical information and data.
2. **Digitization in education:** To exploit the expansion of remote learning possibilities in order to improve access to some educational content during routine periods; narrow gaps in education; and diversify teaching methods. An effort should also be made to integrate digital teaching platforms in situations where they can help narrow gaps in teaching inputs, including the development of lesson plans that are suited to digital platforms. In this context, there is an increasing need to allocate public resources to the acquisition of equipment for pupils who have limited ability to do so themselves.

[116] The discussion here relates to pupils in the schools rather than to the higher education system, which also underwent transformation as a result of the necessity to switch to online learning.

Harmonization and Upgrading of Databases for Policy Management and Evaluation

Background to the recommendations

High-quality and reliable data that are available in a timely manner and in a form that is clear to decision makers constitutes the basis for assessing economic activity and analyzing the financial state of the private sector, particularly the business sector, with the goal of facilitating informed decision making and designing policy that is oriented toward optimally achieving its goals. To the extent that it is based on a more detailed analysis and up-to-date data, policy recommendations will be more precise and more effective. During the government response to the COVID-19 pandemic, the importance of high-quality databases was amply demonstrated. The government had to estimate the degree of harm to economic activity, employment, and household income as a result of the health restrictions. Furthermore, it had to assess the effect on the financial system, particularly the limitations on the supply of credit, businesses' access to capital, the resilience of businesses, and the risk to the financial system from business defaults. Accordingly, high-quality databases are necessary in order to quickly implement policy that mitigates this type of harm, based on social considerations and in order to prevent a longer and more prolonged crisis. As described by the Directors General Team to Encourage Employment (State of Israel, 2020), the lack of a reliable and consolidated database for the labor market based on all available sources of information in Israel has sometimes led to uncertainty regarding the state of the labor market, and has limited the spectrum of possibilities when designing policy. The data on businesses have also been limited and have constrained the implementation of programs that are focused on businesses most affected by the crisis.

The importance of a high-quality database for employment, income, and the financial situation for the purpose of efficiently implementing economic policy was clear even before the COVID-19 crisis. The recommendations for the development of advanced data interfaces that support the management of economic policy appear among various lists of recommendations submitted to the government, including Bank of Israel (2014), which mentions the potential contribution of creating a uniform income database for purposes of planning and managing tax policy and reducing the size of the unreported economy, and the final report of the Committee for the Advancement of Employment by 2030.[117] Alongside the creation of databases, the increasing use of technology for automated analysis, such as AI, will facilitate the optimal exploitation of the data in those databases.

In addition, there is a shortfall in the quality and availability of a number of important data sources for national statistics. For example, input/output tables, which describe the industrial structure of the Israeli economy and the connections between the economy's various industries and between them and final uses, are available for only two points in time – 1995 and 2006. Moreover, there is a lag of about 6 years between the period examined and the publishing of the data. This is in contrast to leading economies abroad in which the table is published once every five years and with a much shorter lag. These tables are important for analyzing the economy since there is a close relationship between the structure of the economic system, as reflected in the

[117] The report (in Hebrew) can be found at: https://www.gov.il/BlobFolder/reports/employment_report_2030/he/2030-report_report-2030.pdf .

interindustry connections presented in the input-output tables, and the intensity and duration of shocks to the economy and how they are likely to influence the stability of the financial system. Another important database for the formulation and evaluation of policy measures is the Survey of Economic and Manufacturing Industries. This includes a sample of businesses from which activity (output), jobs, salaries, and more are calculated at the individual industry level. This survey is published annually, but with a lag of 4 years (the last available survey is for 2017). Finally, there appears to be a wealth of relatively accessible data for the manufacturing industry, while most of the economic development in recent years has occurred in services.

In this context, it is important to mention that there are currently no official statistics for commercial real estate prices, including offices, stores, manufacturing, and hotels, in contrast to many other advanced economies, such as the US, Hong Kong, Japan, and a number of countries in Europe. The main risk factors to the resilience of the financial system lie in the combination of highly leveraged ownership of commercial real estate and high volatility in its prices. This combination has a direct impact on economic activity and therefore also on the risks to the financial system. The "Kamenitz" Committee[118], which formed as a result of the COVID-19 crisis, dealt partly with the issue of estimating the cost of commercial rent for businesses, with the goal of determining whether government COVID-19 grants to businesses covered this cost. One of the main challenges in doing so was the lack of available data on commercial rentals, which highlighted the fact that there is no proper monitoring of prices and rent in the commercial real estate industry (in contrast to the residential real estate segment).

Finally, it is worth noting the importance of also upgrading the VAT reporting and eliminating the possibility of consolidating businesses in order to allow a number of separate businesses to register and report to the VAT authorities as if they were a single business, even though they have different types of activities and belong to different industries. This consolidated reporting is liable to distort the conclusions reached in an analysis of economic activity, particularly one that is carried out on the industry level. The Tax Authority receives VAT reports from the majority of businesses[119], where companies and partnerships with a turnover of above NIS 1.5 million report monthly (in the middle of the subsequent month) while below that level the reports are bimonthly. Thus, VAT reporting provides up-to-date data that include a variety of necessary information.[120] In view of this, canceling the possibility of reporting as a consolidation of businesses is expected to make a significant contribution to improving the VAT data and the quality of data on all companies in the economy, according to breakdowns by industry, type of activity, and company size, for use in policy recommendations and stability analyses.

[118] The Interministerial Team to Examine the Effects of COVID-19 on Contracts. The team was coordinated by Deputy Attorney General Erez Kamenitz, and examined aspects of contract enforcement in view of the COVID-19 crisis. Such issues included businesses and stores that were closed during the lockdowns and whether they had to pay rent for their premises.

[119] This includes companies, partnerships, and the self-employed. Financial institutions whose turnover exceeds NIS 4 million and nonprofit organizations whose turnover exceeds NIS 20 million also report.

[120] The data in the VAT report include business turnover (revenue) on a cash basis (not according to some accounting standard), total transactions, inputs (which can be divided into equipment and current expenses) and value added, which provides the basis on which VAT is calculated. In addition, the reporting of at source deductions provides data on salary deductions and deductions between businesses. The reporting of salary deductions can be used to arrive at salary costs and an estimate of operating profit.

Recommendations for harmonization and upgrading of databases for policy management and evaluation

1. To fully implement the recommendations of the Directors General Team to Encourage Employment, which was created during the COVID-19 crisis to examine the gathering, consolidation, and upgrading of labor market data from the various sources in Israel, the outputs of the data systems and access to it (State of Israel, 2020). In this context, a consolidated database should be created that provides a picture of employment in the economy and the reflection of that picture in the situations of employers. The database should be subject to conditions of data security and privacy protection and should be based on administrative databases and the data from surveys carried out by the Central Bureau of Statistics. The database should include the characteristics of workers and employers from a variety of sources, including the Israel Tax Authority, the National Insurance Institute, the Employment Services, and the Central Bureau of Statistics. Moreover, the example of creating a database for the labor market can serve as a basis for similar processes in other areas in which a large amount of government information is managed, such as health, education, and justice.

2. To establish a consolidated administrative database of household and individual income from wages, interest, dividends, transfer payments, etc. while maintaining conditions of data security and privacy protection. This database will include data from the Israel Tax Authority, the National Insurance Institute, the Employment Services, the Israel Securities Authority, the pension clearinghouses and the Tel Aviv Stock Exchange. The database will be used for policy evaluation and planning, and research and analysis of the distribution of individual income from various sources. The database can also be used to upgrade the tax collection model in Israel and increase its precision, while at the same reducing the size of the unreported economy. With the appropriate legislation, it will also be possible to add "declarative" reporting by individuals, which will confirm the data gathered on their income (Bank of Israel, 2014).

3. To allow access to these databases for the purpose of policy analysis and research, subject to conditions of data security and privacy protection, as described in the final report of the Directors General Team to Encourage Employment (State of Israel, 2020).

4. To cancel the possibility of consolidating businesses in VAT reporting.[121]

5. To allocate resources to the Central Bureau of Statistics for calculating a commercial real estate price index, which will be consistent with the international standards adopted by the OECD countries.

6. To modify the national statistics on economic activity based on the structure of a modern and changing economy. In this context, it is important that the Central Bureau of Statistics

[121] It should be mentioned that canceling the possibility of reporting on a consolidated basis is liable to shift administrative costs onto business owners. However, since every company reports separately for purposes of income tax, and since bookkeeping software supports VAT reporting, the Tax Authority believes that the shift can be made without significant cost to business owners.

produce input-output tables once every five years, that it shorten the lag in the publication of the Survey of Economic and Manufacturing Industries, and that it expand the database on services in the economy, particularly services exports. To this end, it is important to encourage digitization in the input and processing of data by the Central Bureau of Statistics, including the allocation of resources, some of which will become available through the greater efficiency achieved by this policy.

Guidelines for a Fiscal Framework to Finance the Program

The economic program presented here will require a significant budget over a long period of time. The lack of political stability that has characterized the last two years has highlighted the need for an institutional-economic framework to finance long-term projects that will not be subject to short-term constraints. This framework must include effective fiscal rules that will take into account the volatility in the macroeconomic environment and in tax revenues, a structured work process for the State budget and the reactivation of the Numerator rules, while avoiding any deviations that would reduce their efficacy (Bank of Israel, 2018). Such a framework will support the achievement of the government's long-term targets, such as those that this economic plan seeks to achieve. This section discusses aspects of long-term fiscal policy, including the need to reduce the high structural deficit with which Israel entered the most recent crisis, and against that background the optimal financing of the policy recommendations presented in this document.

Reducing the structural deficit

Dealing with the large structural deficit that prevailed in the economy prior to the crisis has become all the more important following the increase in the debt-to-GDP ratio during the crisis. The markets' recognition of the importance of fiscal expansion during the crisis made it possible for the developed economies, including Israel, to raise the debt-to-GDP ratio beyond what was acceptable prior to the crisis. With the recovery of the developed economies, the markets and the rating companies will likely expect to see a long-term fiscal plan with the goal of, at the very least, stabilizing the debt ratio, a plan that is not compatible with the current structural deficit. The stabilization of the debt-to-GDP ratio in the long term will require a permanent reduction of about 1.2 percent of GDP in the primary structural deficit, and its reduction to the level prevailing prior to the crisis will require an even greater fiscal effort, even if the reduction is gradual.[122]

The large structural deficit in Israel relative to other countries primarily reflects a low tax burden by international comparison rather than a particularly high level of public expenditure. Moreover, and in view of the fact that Israel's expenditure on defense and interest is high relative to other developed economies, primary civilian expenditure is very low, a fact that limits the ability to reduce the structural deficit through cost cutting. Therefore, it will be difficult to reduce the structural deficit without increasing tax rates, although that does not eliminate the need to reduce certain types of expenditure in favor of more productive ones that will contribute to economic growth in the long term and will improve the level of government services. Determining the order of priority is particularly challenging because in parallel to budget cuts there are areas in which it will be necessary to allocate additional budget resources, including current expenditure. One of those areas is healthcare, which suffered from a shortage of resources even prior to the COVID-19 crisis (Bank of Israel, 2021), a problem that became more acute during the crisis. One of the most important decisions to be made in this context is the level of defense expenditure, which will preferably be determined according to a long-term plan to be approved by the government. The higher the level of defense expenditure, the less fiscal maneuvering room there will be in other areas.

The correct timing in initiating the consolidation is dependent to a large extent on the pace of recovery from the crisis and the depth of the economic scars that will remain. Measures to

[122] See the simulation in Bank of Israel (2021).

accelerate the economic recovery may still be necessary in 2021-22. If that is indeed the case, it is important that they focus on processes that support the achievement of the long-term economic targets, including sustainable growth based on increasing productivity, narrowing of social gaps, and a reduction in greenhouse gas emissions, a strategy currently being followed by many developed countries. The start and pace of the consolidation can be conditioned on macroeconomic indices, such that the process will intensify as the economy approaches full employment, and will be put on hold if economic activity slows.

Financing the reforms and investment to raise productivity in Israel

The main benefit from the recommendations appearing in this document will emerge in the long term. However, they involve significant fiscal expenditure prior to that, although it is also expected that the cost will rise only gradually since the implementation of infrastructure projects and major reforms requires planning and implementation in stages that depend on one another. Even though the return on these programs to the economy will be greater than their budgetary cost, their financing through debt will lead to a prolonged and divergent increase in the debt-to-GDP ratio and in the budget for interest payments.[123] Since the proposed program requires a permanent increase in expenditure, it will require the government to increase the tax burden and/or reduce other expenditures at some stage in order to finance at least part of the budgetary cost needed for its implementation.

As an example of the effect of the program on fiscal aggregates, we present a simulation in which the government invests 3.3 percent of GDP in programs to improve the education system, incentivize investment in physical capital, upgrade the transportation and communication infrastructures, and improve the business environment, in parallel to reducing the structural deficit starting from 2023 to a level consistent with the stabilization of the debt-to-GDP ratio. As mentioned, increasing this expenditure is a gradual process that will take about 8 years, starting in 2023 (see Figure 31f. This is a working assumption based on the structure of proposed programs in the Productivity Report). The investment accelerates growth by an average of 0.5 percentage points per year through two channels: In the short term, it increases the government's direct demand, primarily through massive investment in infrastructure, and in the longer term it raises labor productivity, which also encourages capital investment in the private sector (Hazan and Tsur, 2021), and increases potential output. Assuming that, for example, the policy scenario without the program is such that the government decides to converge to a structural deficit that stabilizes the debt-to-GDP ratio, i.e. a reduction in the primary structural deficit by about 1.2 percent of GDP relative to its current level, Figure 31 shows the impact of that method of financing on fiscal aggregates and on potential output.[124] Figure 32 presents the same alternatives where the basic scenario is the maintenance of the existing deficit. In all three of them the debt ratio increases in a continuous manner.

The first scenario is full financing of the program by raising tax rates and reducing other expenditures (in gray). This scenario leaves the structural deficit at its level in the scenario without

[123] This is in contrast to a one-off investment that increases the debt level in the short term, but whose contribution to the growth in GDP erodes the debt-to-GDP ratio over time.

[124] In the alternative basic scenario, in which the government acts to reduce the debt-to-GDP ratio to 60 percent in 2040, the main difference in the fiscal trajectory reflects the initial fiscal effort, rather than the effects of the program to increase productivity.

the program. However, the additional consolidation offsets the growth in direct government demand resulting from the investment, and thus temporarily reduces the contribution of the growth program. In contrast to the consensus in the economic literature that raising tax rates slows growth in the short term and that this effect diminishes after a number of years, there is no consensus regarding the effect of (the level of) the tax burden on growth in the long term. Research surveyed in the Productivity Report (2019) did not find any empirical connection between the tax burden and economic growth, while others have concluded that an increase of one percent of GDP in the tax burden is correlated with a drop of 0.1–0.5 percentage points in the growth rate of developed economies, although this involves only correlation and does not necessarily imply causation.[125] The use of this correlation[126] indicates that financing half of the program by increasing the long-term tax burden by about 1.6 percent of GDP (from a level of 30.9 percent of GDP to a level of 32.5 percent of GDP)[127] is liable to reduce the annual growth rate by 0.08–0.16 percentage points. In other words, even if the effect exists it will offset only part of the acceleration in the growth rate, which is estimated at about 0.5 percentage points per year (Productivity Report, 2019, p. 10). The gray lines in Figure 31 illustrate that maintaining a low structural deficit, together with a rapid increase in GDP as the result of raising productivity in some industries already in the first decade of the program's implementation, continuously reduces the debt-to-GDP ratio, while the long-term investment raises the standard of living. In 2040, GDP is expected to be about 15 percent higher than in the scenario without the program (Figure 31a) and the debt-to-GDP ratio is expected to be about 68 percent in this scenario, compared to 77 percent in the scenario without the program (Figure 31b).

The scenario represented by the red line in Figure 31 (financing the entire program by raising debt) shows that despite the rapid growth in GDP, a permanent increase in public expenditure of about 3 percent of GDP, without raising taxes, will impose a growing fiscal burden on the economy for an extended period of time. The reason for this is that the increase in the structural deficit is of a permanent nature. Although the return on the public investments is significantly higher than the rate of interest on the government's debt, the tax revenues that it collects on that same increase in GDP do not fully cover the additional expenditure, since they constitute only one-third of the increase. In other words, the government collects only about an additional NIS 0.3 billion for a permanent increase of NIS 1 billion. The additional increase in the level of GDP by about 17 percent during the period of the simulations is not sufficient to offset the increase in the structural deficit needed to finance the investments.[128] In addition, the interest payment burden is liable to increase even more, due to the increase in the interest rate in response to growth in the public

[125] Gunter et al. (2021) found that the lower tax rates are (particularly in the case of indirect taxes), the lower the marginal damage to GDP will be from raising them in the short term, and for intermediate to low tax rates it is not even statistically significant.

[126] We assume in the simulation that increasing the tax burden by one percentage point relative to its 2019 level permanently slows growth by 0.075 percentage points per year.

[127] The average tax burden in the aforementioned reference countries is about 42–43 percent of GDP, alongside a surplus of about half a percent of GDP in the expanded government budget. For further details on the tax burden, see OECD (2021), *Revenue Statistics 1995-2019*, Table 1.1.

[128] To illustrate: When the debt-to-GDP ratio is 75 percent, an increase of half a percent in the growth rate contributes to a drop of 0.3–0.4 percent of GDP in the ratio (the effect on the denominator). In contrast, the additional deficit is 2.7 percent of GDP on average, such that the debt grows by about 2.3 percent of GDP per year, and this is before taking into account the increase in interest payments on the entire debt.

debt[129], and this growth will increase the government's need for financing to even beyond what is needed to finance the program (Figure 31d). The large structural deficit together with the growing interest rate payments in this scenario lead to a debt-to-GDP ratio trajectory that reaches about 117 percent in 2040 (Figure 31b).

In preparation for the adoption of this economic program, a long-term government target for the debt-to-GDP ratio needs to be decided on. The target should take into account both the importance of the market's confidence in the government's fiscal responsibility and the need to implement large-scale investments. The cost of the program needs to be financed by a mix of debt, taxes, and a change in the composition of public expenditure in order to achieve a convergence of the debt-to-GDP ratio to the target decided on by the government. For example, financing one-third of the cost of the proposed program by means of raising debt, one-third by raising tax rates and one-third by cutting other types of expenditure (the yellow line in Figure 31) moderately increases the debt-to-GDP ratio until the period in which the return on the investment in education starts to bear fruit and faster growth helps to stabilize the debt-to-GDP ratio at a level of about 84 percent in the long term.[130]

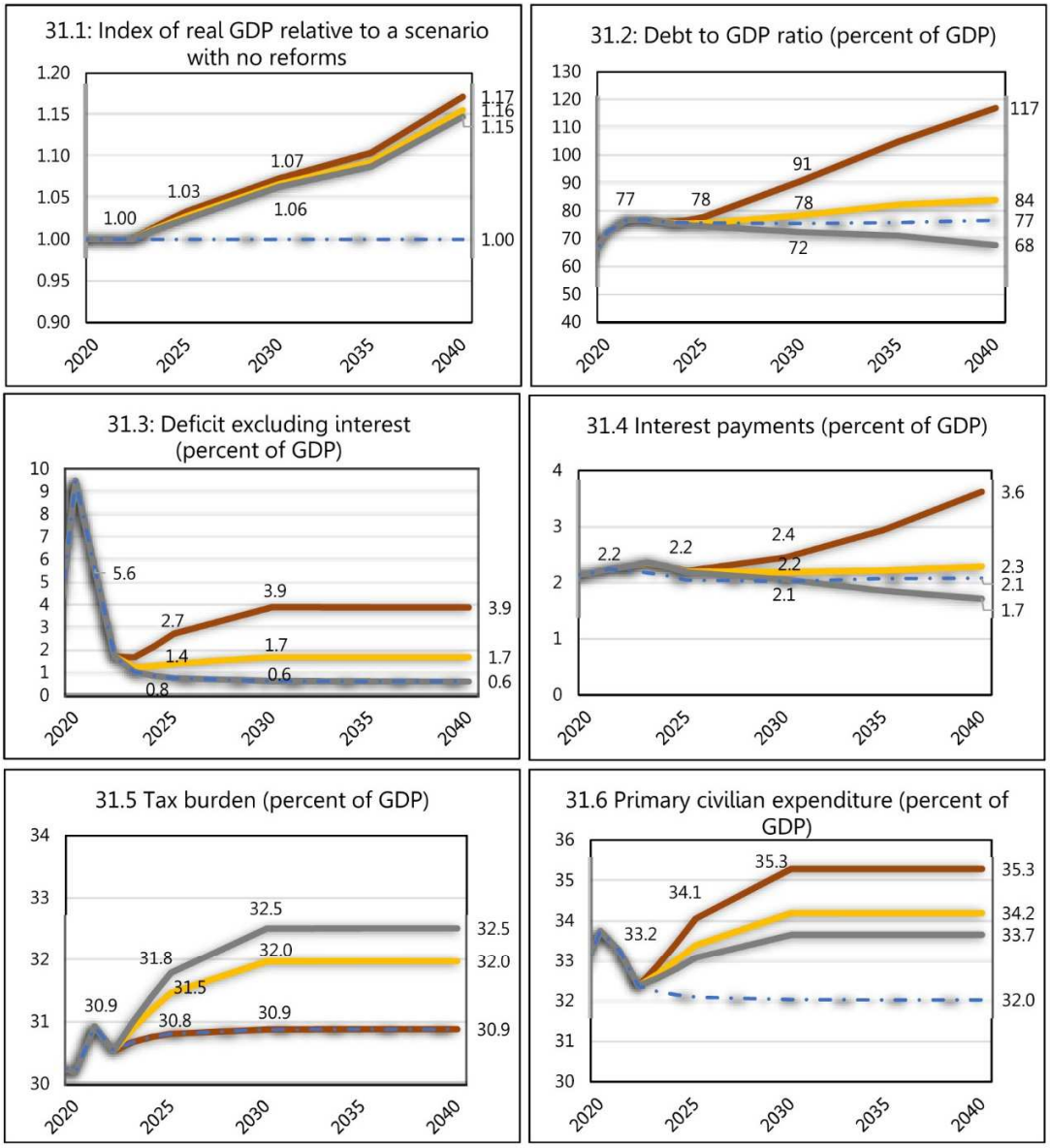
Figure 32 illustrates the trend in the debt-to-GDP ratio according to those same financing alternatives if the government does not take any steps to reduce the structural deficit. Maintaining the current primary deficit (about 1.8 percent of GDP), increases the debt ratio for a prolonged period up to almost 100 percent of GDP in 2040 even without the implementation of the program (see the orange dashed line in Figure 32). In this scenario, even full financing of the investment program by means of raising tax rates and cutting other expenditure is not sufficient to stabilize the debt-to-GDP ratio despite the more rapid growth. The financing of the investment program by means of debt increases the rate of public debt accumulation in this case in a way that is unsustainable – up to 140 percent of GDP in 2040.[131]

[129] Brender and Ribon (2015) found that the effect of the public-debt-to-potential-GDP ratio on the real yields of government debt has increased during the past two decades. While in 2001–8, a 1 percent increase in the debt-to-potential-GDP ratio led to an increase of 0.05 percentage points in the real yield on 10-year government bonds, after 2009 the effect was about 0.1 percentage points. See also Shalom (2019) for a more recent analysis. In the simulation, we assume that when the debt-to-GDP ratio is above 77 percent, a one percentage point increase in the debt ratio raises the real yield by 0.07 percentage points and a similar increase in the debt that is the result of the investment program raises the yield by 0.035 percentage points. This is because the investment increases GDP over time, together with the economy's debt servicing ability.

[130] It is also possible to propose a different mix of fiscal restraint that offsets the increase in expenditure on investment. For example, consider the scenario in which the government finances one-third of the program by means of debt and two-thirds by raising tax rates, i.e. without cutting other civilian expenditure. The results are qualitatively similar to those in Figure 31. Various assumptions regarding the long-term impact on growth of increasing the tax burden as opposed to reducing public expenditure, assuming that the cuts will apply to expenditure that does not contribute to growth, have only a marginal effect on the long-term level of GDP.

[131] When it is assumed that the rate of economic growth without the proposed program is faster than was assumed in the basic scenario—reaching 3.25 percent per year—the debt-to-GDP ratio in 2040 without the program reaches 88 percent and when the program is fully financed by debt it reaches 128 percent.

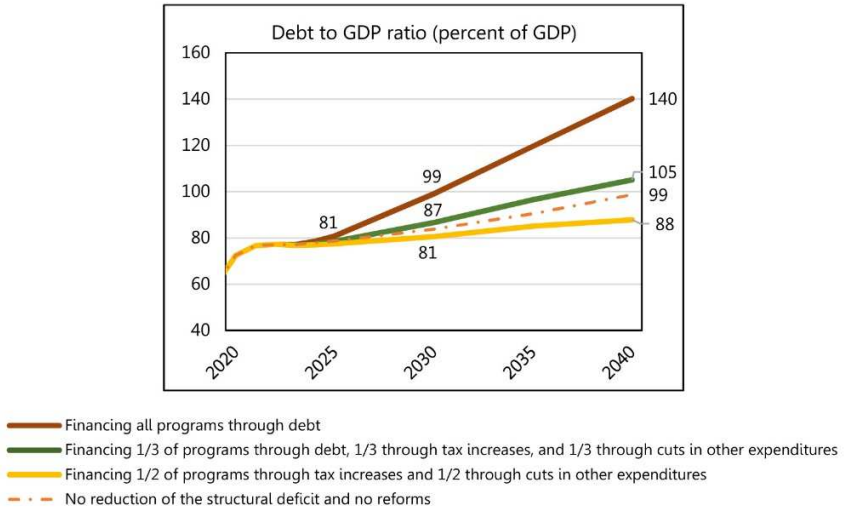
Figure 31: Policy Alternatives - Financing of Public Investment in Human Capital and Infrastructure[a]



[a] The scenarios illustrate the fiscal aggregates and real GDP as a result of various financing alternatives for long-term government programs to increase labor productivity. The working assumptions include convergence to the long-term growth rate (2.8 percent) by 2024, a real interest rate identical to what it was in 2019 (0%) and increasing it in accordance with changes in the risk premium (see footnote 130) and 10-year inflation expectations, with inflation converging to 2 percent. The structural deficit excluding interest and without the reforms is what puts the debt to GDP ratio at 77 percent in the long term, and the full cost of the programs is 3.3 percent of GDP per year.

SOURCE: Bank of Israel.

Figure 32: Policy Alternatives - Financing of Public Investment in Human Capital and Infrastructure with the Existing Structural Deficit[a]



[a] The scenarios illustrate the fiscal aggregates and real GDP as a result of various financing alternatives for long-term government programs to increase labor productivity. The working assumptions include convergence to the long-term growth rate (2.8 percent) by 2024, a real interest rate identical to what it was in 2019 (0%), and increasing it in accordance with changes in the risk premium (see footnote 130) and 10-year inflation expectations, with inflation converging to 2 percent. The structural deficit excluding interest and without the reforms is identical to the structural deficit excluding interest from 2019 (1.8 percent of GDP), and the full cost of the programs is 3.3 percent of GDP per year.

SOURCE: Bank of Israel.

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